Center for
Technology in Government

Assessing Mobile Technologies in Child Protective Services (2008-2009):
A Demonstration Project in 26 New York State Local Departments of Social Services

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Acknowledgments

Over the last four years the Center for Technology in Government (CTG) has worked with the NYS Office of Children and Family Services and NYS local social service districts to assess the use of mobile technology in child protective services (CPS). Through this effort we learned a tremendous amount about the implications of introducing mobile technology into the CPS profession and also gained a greater appreciation for successful collaborations.

We would like to recognize the numerous CPS professionals we have worked with over the past several years. Their willingness to share their experiences and partner with us is the foundation of this project's success.

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Executive Summary

The New York State (NYS) *Mobile Technology Demonstration Project* is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work in New York State. Starting in 2006, this collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS or local district), and the Center for Technology in Government (CTG) at the University at Albany has conducted three successive assessments on mobile technology deployments and one in depth business analysis. This assessment focuses on the most recent effort in 2008-2009 where twenty-six districts received over 500 laptops and tablets for caseworkers, supervisors, and managers.

In this effort, districts were asked to submit proposals to OCFS for mobile technology funding. OCFS then selected districts and centrally procured the devices (laptops and tablets). OCFS led the statewide deployment with some assistance from OFT and the districts. Local connectivity contracts were under the purview of the districts to select and procure. In addition, local districts were responsible for selecting CPS staff to participate and training the staff on the technology. CTG conducted an independent assessment of the use of the technology within and across the districts. The results of the impact of the technology on the work are presented in findings about caseworker productivity.

In terms of assessment and statewide deployment of any technology, it is important to understand the variability in the CPS environment across the state. In a county administered, state supervised program such as CPS, many policies and practices are developed and implemented by the district. This, coupled with naturally embedded differences in a county's demographics, makes the statewide picture even more complex. Thus, confidently stating that any changes are taking place and attributing them to the implementation of technology, means normalizing these inconsistencies so that patterns can be detected. More importantly, recognizing the divergent and complex environments can help in larger deployment planning efforts. Although pilot and district conditions did vary throughout the state, the results show a largely positive picture and suggest that mobile technology is a useful tool for CPS work.

Overall, the results for timely case closings and number of case closings[1] seem to be somewhat inconsistent, the data show an increase in the total number of cases closed (both within 60 days and over 60 days), and an increase in the number of case closings over 60 days. An attempt to make a determination on older cases could account for this increase. It should be noted, however, that there was an improvement in timeliness for cases closed in under 60 days during the pilot period compared with the pre-pilot period. These results can be interpreted to indicate overall improvements in both volume and timeliness of work during the pilot period.

We are unable to determine if an attempt to close older cases is the reason for the lack of timeliness described above. We were not able to ask each of the districts at the beginning of the project to describe changes in policy or practices that accompanied the deployment of the laptops. Therefore, it is not clear if these results are a consequence of administrative direction to caseworkers to "clean up" older cases or a caseworker response to the availability of the laptop.

The results for productivity in terms of progress note entry are much clearer cut than for case closings. There was a substantial increase in the overall number of progress notes entered per day for all

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[1] In this assessment, case closing refers to the point in time, as documented in the CONNECTIONS system, when a determination was made during a child protective investigation on a specified case.

participants during the pilot period. The increase went from an average during the pre-pilot period of approximately 44 progress notes per day, to over 57 per day during the pilot. This increase in volume of progress note entry indicates some efficiency gains during the test period. The increase may be accounted for by the number of cases available to be worked on, which increased by 15 percent between the pre-pilot and pilot periods. The phrase "cases available for work" means any case that is open at any time during the specified data collection period. The gain in volume may also be related to increased work done at home, but we have no data to test that possibility. The progress note increase is similar in direction to the overall increase in case closings. The increase in the number of progress notes is likely linked to the increase in the total number of cases closed during the pilot period and both represent increases in productivity. However, this increase in volume of progress notes was accompanied by what initially appeared to be lower performance in the timeliness of progress note entry.

These results show no meaningful improvement in the timeliness of safety assessments between the pre-pilot and pilot periods. This result should be considered in light of the finding that an overall higher volume of work (e.g., overall increases in case closings, changes in the volume of progress note entry, and overall number of safety assessments relative to the increase in cases available to be worked on) was completed without a drop in the timeliness of safety assessments is in itself a positive finding.

In closing, all the assessments completed through the *Mobile Technology Demonstration Project* have shown that technology is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when assessing mobile technology and this deployment is no different. This assessment confirms past results of positive impact in CPS work but it also confirms that in order to gain a more comprehensive understanding of impact, added contextual information is needed. Talking with caseworkers about how and when they use the devices can add contextual information to the productivity results, giving a more comprehensive understanding of impact. As such, even without the added contextual and qualitative information, the results are sufficient to support two recommendations: 1) continue to seek data from a range of sources in order to gain a holistic view of impact; and 2) require all districts to procure wireless connectivity to enhance opportunities for worker mobility.

Introduction

The New York State (NYS) *Mobile Technology Demonstration Project* is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work in New York State. Starting in 2006, this collaborative effort among the NYS Office of Children and Family Services (OCFS), county Departments of Social Services (DSS or local district), and the Center for Technology in Government (CTG) at the University at Albany has had four distinct evaluation studies. This assessment focuses on the most recent effort in 2008-2009.

Starting in January 2009, twenty-six NYS local social service districts received mobile technologies for CPS. OCFS selected and procured the technologies and then jointly deployed them with the local district and the NYS Office for Technology. The local district also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training.

There were 505 mobile devices deployed, including 433 Dell Latitude D620 laptops, 50 HP Compaq tc4400 Tablets, and 22 Motion Computing F5 Tablets. Of those 505 deployed devices, 459 went to CPS caseworkers and 46 went to supervisors and managers. It is important to note that the evaluation only assesses technology deployed to CPS caseworkers (see Appendix A for district technology and participation and Appendix B for device specifications).

This assessment solely addresses measures of productivity and efficiency (Unlike previous assessments that looked at additional aspects of technology impacts, such as caseworker satisfaction, this assessment solely addresses measures of productivity and efficiency. Each district's mobile technology use was assessed by factors such as changes in amount and timeliness of documentation (i.e., progress notes, safety assessments) and changes in the number of cases closed. Data for this assessment came from two data sources: 1) data analysis from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System) and 2) district questionnaires about environment and deployment (see Appendix C for the methodology and pilot periods). Official data collection time lines for each district started from their individual date of deployment and ended on June 1, 2009.

This report looks at the overall productivity trends and patterns across all twenty-six districts. In addition, individual district profiles were prepared describing specific productivity impacts within each district.

District Environment and Conditions

Child protective services in New York State are county administered programs within the local Department of Social Services (DSS), or in New York City, part of the Administration for Children's Services (ACS). The Office of Children and Family Services (OCFS) proves overall supervision of the CPS work performed by DSS and ACS. In this report, "OCFS" refers to the state agency and "district" or "DSS" refers to the Local Social Services District or the County Department of Social Services organizations participating in the Demonstration Project. This structure, of county administered, state supervised programs such as CPS, is common in intergovernmental programs and typically creates a diverse administrative environment across the state. This condition, coupled with naturally embedded differences in county geography, community make up, population, and location, makes the statewide picture even more complex.

Understanding the CPS variability across NYS is important for two reasons. In terms of assessment, any statewide change in productivity, mobility, and satisfaction must take into consideration all district variability. One set of conditions may exist in one district, but not within another. Thus, confidently stating that any changes are taking place and attributing them to the implementation of technology, means normalizing these inconsistencies so that patterns can be detected.

In terms of deployment, recognizing the divergent and complex environments can help in larger planning efforts. Knowing that districts operate differently can help set expectations in how technology will or can be integrated. Further, sharing best practices among the districts can maximize the statewide return on investment. Below are three topic areas that show the range of variability in the district's policies, deployment strategies, and environmental conditions.

Connectivity

Responsibility for identifying and procuring connectivity contracts was under the purview of the districts. One third of the districts procured external broadband cards in hopes of having ubiquitous connectivity in the field. Another third procured a limited number of broadband cards and shared them among staff; the last third did not procure any wireless connectivity at all (see Appendix D for notes on wireless connectivity). In addition, regardless of the network connection, all access to the state network was through a virtual private network (VPN) that secures transmissions to and from the portable device and the network.

Deployment

Although each district participated in the deployment of the mobile technologies, some districts took a more active role, while others provided less in terms of training. In the area of security, guidelines were mentioned within every district, but some districts spent extra time going over preferred practices, while others discussed it informally.

Pilot Conditions

Pilot Period: Deploying devices to twenty-six districts across NYS is a large undertaking requiring considerable time to accomplish. Delivering devices to the districts is just one stage of deployment along with training and distribution to caseworkers. The NYS Office for Technology assisted OCFS in deployment across the state, but even in a team approach, deployment across the state can take several months. Therefore, deployment was phased over a three month period (January – March 2009), making each district's pilot period length different. Subsequently, the length of the pilot periods ranged from 79 days to 111 days. One district, Westchester, had a pilot period of 222 days because they were assessed from the start date of a previous deployment.[2]

Available Cases to be Worked On (Pre-Pilot vs. Pilot Period). When looking at potential changes in productivity during the pilot period, it is important to assess the amount of work available in the pre-pilot period as compared to the pilot period. The number of open cases available for CPS staff to work on during the pre-pilot period compared to the pilot period increased in 22 of the 26 districts. Changes in cases available to be worked on can have some effect on the evaluation results because the volume of cases can affect work pace. (See Appendix C for a definition of "cases available to be worked on" and changes in cases available by district.)

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[2] Westchester was not assessed during a previous year's demonstration project due to their late deployment of laptops. Westchester has since successfully deployed the laptops and were included in this assessment.

Findings

Productivity

This assessment focused on productivity improvements in two main areas: timeliness of documentation and related work products, and overall volume of documentation.

For timeliness, we used three measures derived from data extracted from CONNECTIONS:

1. *Timeliness of progress notes*: Timeliness is measured in the number of days between the event and the progress note entry. We examined the proportion of progress notes entered each day following the related event. Increased productivity, by this measure, would be a higher proportion of progress notes entered closer to the event date.[3]

2. *Timeliness of safety assessments*: Social Services Law states that caseworkers must complete a safety assessment within seven days. Our assessment examined the elapsed time from the start of the investigation to the date at which a supervisor approved the safety assessment within the CONNECTIONS system. Our measure of improvement in timeliness of safety assessments was, therefore, the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. *Timeliness of case closing*: Social Services Law states that caseworkers must determine, within sixty days, whether a report is indicated or unfounded. Our assessment examined the elapsed time from the start of the investigation to the date at which a supervisor approved the determination within the CONNECTIONS system. Our measure of improvement in timeliness of case closing was the number of cases closed (i.e., determined) within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts.
2. The number of cases closed (i.e., determined), both within 60 days and those determined in greater than 60 days.

In designing the assessment, we attempted to match the pre-pilot period as closely as possible to the pilot period. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover among the

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[3] For this assessment, we examined the elapsed time between event date and entry date as recorded in CONNECTIONS. Our assessment examines the pattern of progress note entry in elapsed time, specifically focusing on the first five days after an event occurred. State Regulation 18 NYCRR 428.5 Standards for Uniform Case Records and Family and Child Assessments and Service Plans states that progress notes should be recorded contemporaneously with the event, interview, observation or activity to preserve the integrity of the information being recorded. Contemporaneous is interpreted by districts differently, but the range of responses, based on interviews in CTG's previous evaluation studies, is between 24 hours and one week.

pilot participants in some districts, there is some variation in workers between the pre-pilot and pilot periods, but that variation is small relative to the volume of data in the overall results.

Productivity could be affected by possible variation in the volume of open cases between the two data collection periods. There was a moderate increase in CPS reports overall (i.e., case volume) from the pre-pilot to the pilot period, so the cases available to be worked on across all 26 districts increased by about 15 percent. (See Appendix C for changes in cases available to be worked on from the pre-pilot as compared to the pilot period.) At the individual district level, however, there were some substantial changes from the pre-pilot to the pilot period. In 12 districts, there was an increase of more than 20 percent in cases available to be worked on from the pre-pilot to the pilot period. In two other districts (Nassau and Yates) there was a greater than 45 percent increase in open cases during the pilot period.

The results for timely case closings and number of case closings[4] seem to be somewhat inconsistent, the data show an increase in the total number of cases closed (both within 60 days and over 60 days), and an increase in the number of case closings over 60 days. An attempt to make a determination on older cases could account for this increase. It should be noted, however, that there was an improvement in timeliness for cases closed in under 60 days during the pilot period compared with the pre-pilot period. These results can be interpreted to indicate overall improvements in both volume and timeliness of work during the pilot period. These comparisons are shown together in Figure 1 below.

Figure 1 - Number of Cases Closed - All Districts, Pre-Pilot and During Pilot Period
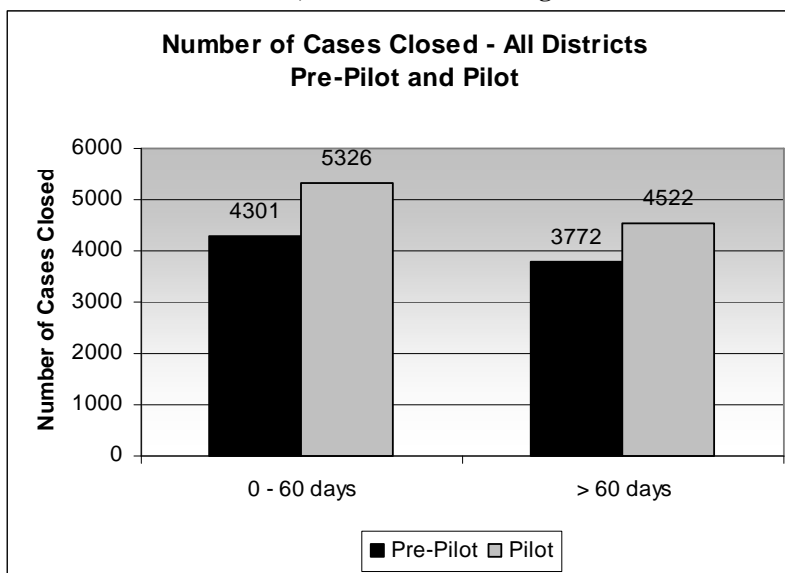
The number of cases closed within the 60-day period increased from 4,301 in the pre-pilot period to 5,326 in the pilot period: a substantial improvement in timeliness. However the number of cases closed in longer than 60 days increased as well, suggesting decreased timeliness. This apparent contradiction can be accounted for by the increase in the overall number of cases closed in the pre-pilot period as compared to the pilot period, from 8073 to 9848 – a 22% increase. There were somewhat more open cases overall in the pilot period, but apparently not enough to account for the increase in case closings older than 60 days. An attempt to make a determination on older cases could account for this increase. There was an improvement in timeliness for cases closed in under 60 days during the pilot period compared with the pre-pilot period. These results can be interpreted to indicate overall improvements

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[4] In this assessment, case closing refers to the point in time, as documented in the CONNECTIONS system, when a determination was made during a child protective investigation on a specified case.

in both volume and timeliness of work during the pilot period. We are unable to determine if attempts to close older cases caused the drop in timeliness described above.

We were not able to ask each of the districts at the beginning of the project to describe changes in policy or practices that accompanied the deployment of the laptops. Therefore, it is not clear if these results are a consequence of administrative direction to caseworkers to "clean up" older cases or a caseworker response to the availability of the laptop. This question deserves further attention.

The results for productivity in terms of contemporaneous progress note entry are much more clear cut. There was a substantial increase in the overall number of progress notes entered per day for participants during the pilot period. The increase, shown in Figure 2 below, is from an average during the pre-pilot period of approximately 44 progress notes per day, up to over 57 per day during the pilot.

Figure 2 - Average Progress Notes/Day Pre-Pilot and During Pilot Period - All Districts
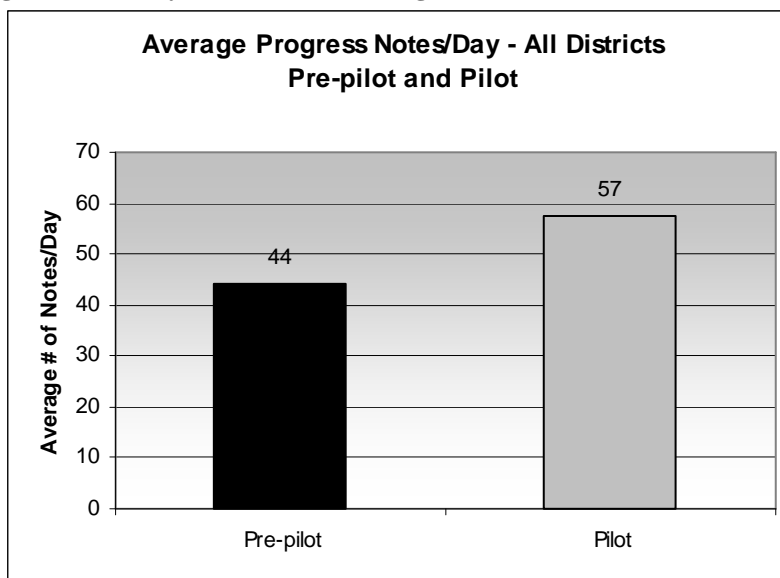
This increase in rate of progress note entry indicates some efficiency gains during the test period. The increase may be accounted for by the number of cases available for work, which increased by 15 percent between the pre-pilot and pilot periods. The gain may be related to increased work done at home, but we have no data to test that possibility. The progress note increase is similar in direction to the overall increase in case closings. It seems likely, therefore, that the progress note increase is linked to the increase in case closings, and that both represent increases in productivity.

This increase in productivity was accompanied by what initially appeared to be lower performance in the timeliness of progress note entry. One picture of the timeliness results is shown below in Figure 3. Examining all districts, the average percent of progress notes entered by the 5th day decreased during the pilot period (74.2 percent during the pre-pilot period compared to 70.1 percent during the pilot period). Approximately 58 percent of districts had an elapsed time pattern where the proportion of progress note entry per elapsed day was below the pre-pilot period (for the 1st through 5th days after the event).

Figure 3 - Average Percent of Progress Notes/Day Pre-Pilot and During Pilot Period - All Districts
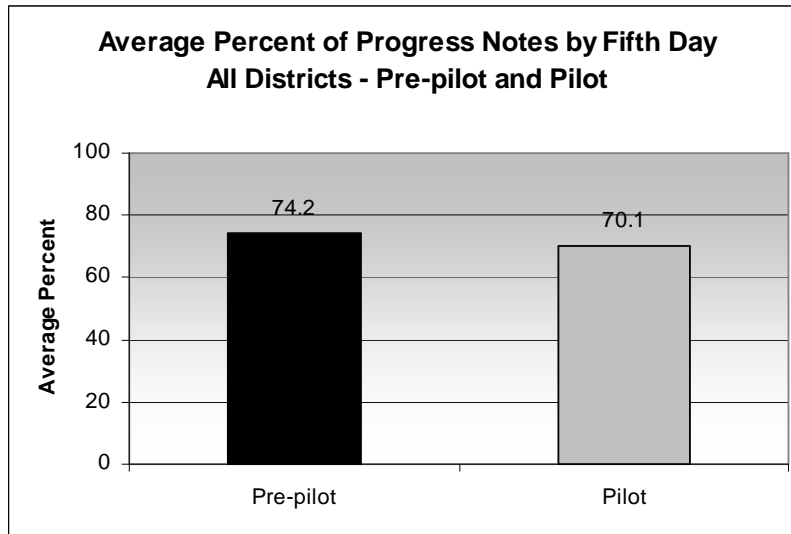
Rather than a simple decrease in overall performance, however, this finding is presumed to be a direct result of the time spent closing older cases (i.e., making a determination) discussed in relation to Figure 2 above. If there are cases which are not "determined," it seems likely that there will be additional progress note entries until the case is closed. If the workers are attempting to reduce the number of cases not determined, it is quite possible caseworkers are entering progress notes for events farther in the past, therefore, the average delay for progress note entry would increase as the "catching-up process" proceeds.

Improving the timeliness of safety assessments is another instance where examined the impact of mobile technology on performance. The assessment includes an examination of the timeliness of safety assessments during the pre-pilot period compared to the pilot period. A safety assessment is considered timely if completed (i.e., submitted and approved by a supervisor) within seven days of the receipt of the report. The analysis, shown in Figure 4 below, compares the percentage of safety assessment approvals within and beyond seven days for the pre-pilot and pilot periods.

Figure 4 – Percent of Safety Assessment Approvals Pre-Pilot and During Pilot Period - All Districts
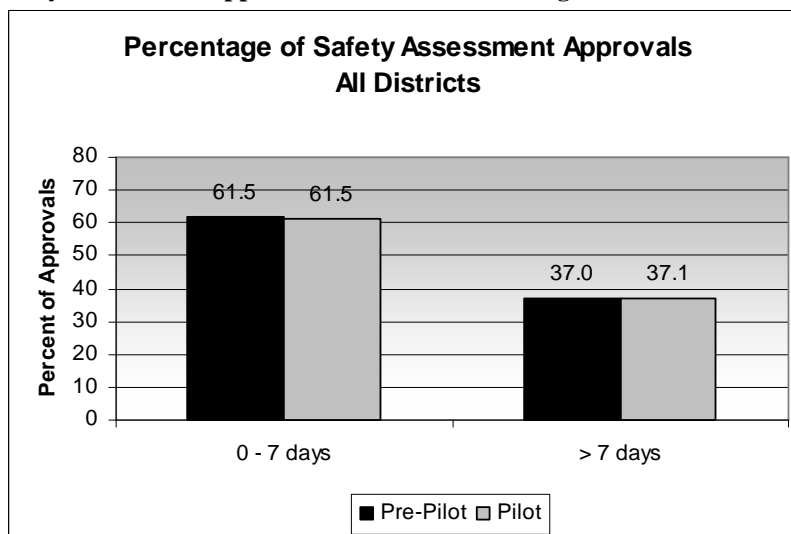
These results show no meaningful improvement in the timeliness of safety assessments between the pre-pilot and pilot periods. This result should be considered in light of the finding that an overall higher volume of work (e.g., overall increases in case closings, changes in the volume of progress note entry, and overall number of safety assessments relative to the increase in cases available to be worked on) was completed without a drop in the timeliness of safety assessments is in itself a positive finding.

Conclusion and Recommendations

The multi-year NYS *Mobile Technology Demonstration Project* has shown that technology is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS, and this deployment is no different. This report is limited to the analysis CONNECTIONS data. Thus, the results represent "what" we see from that data, but it is limited in what we can explain (i.e., the "why" or the "how").

In spite of these limits on our ability to present a full explanation of the results, we do have several years of data and analysis that show that mobile technology does, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. A fuller explanation of the details of these results would require spending time with caseworkers in order to document how and when they use the mobile technology and how they feel it has impacted their work. This added contextual information would provide the basis for interpreting the quantitative results and offer a more comprehensive understanding of the impact.

The results are sufficient, even without the additional contextual information, to support the following recommendations:

Continue to Seek a Holistic Picture of Change
Assessing the use of mobile technology in CPS requires a broad look at many diverse factors. For instance, continuing to elicit caseworker input on where and when they use the laptops is critical to making sense of productivity results. In addition, asking about satisfaction and problems in use offers more contextual information about impact. By combining these separate pieces of information it is likely we can better understand how mobile technologies affect CPS.

Require Wireless Connectivity to Increase Opportunities for Mobility
While more and more districts are replacing desktops with laptops and tablets, it is also important to procure wireless connectivity. If there is no wireless connectivity, then it's just a laptop that serves as a desktop, when the intention was to give caseworkers tools to be able to perform their work from locations other than their desk.

APPENDIX A: District technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of Participating Caseworkers
	Laptops	Tablets			
Broome	16	0	16	0	15
Cattaraugus	13	0	13	6	13
Cayuga	12	0	12	6	11
Chemung	14	0	14	14	14
Chenango	14	0	14	6	13
Delaware	15	0	15	0	14
Dutchess	17	0	17	0	17
Erie	0	50	0	0	40
Essex	9	0	9	1	9
Genesee	8	0	8	4	8
Lewis	6	0	6	6	5
Madison	19	0	19	19	16
Nassau	22	0	22	0	22
Oneida	54	0	54	54	50
Ontario	20	0	20	10	20
Orange	50	0	50	41	48
Oswego	32	0	32	27	26
Rensselaer	25	0	25	0	20
Schenectady	18	0	18	0	16
Schuyler	7	0	7	2	6
Sullivan	18	0	18	11	17
Tioga	11	0	11	4	10
Tompkins	18	0	18	0	21
Westchester	0	22	0	22	16
Wyoming	6	0	6	1	4
Yates	9	0	9	0	8
N = 26	N = 433	N = 72	N = 433	N = 234	N = 459

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Tablets

HP

HP Compaq 2710p Notebook PC/ Intel Core 2 Duo Processor U7600, Windows Vista Business, 12.1 inch diagonal lllumi-Lite WXGA Display with anti-glare (1280 x 800), Mobile Intel Graphics Media Accelerator X3100up to 384MB of shared memory, 1024MB 667MHz DDR2 SDRAM (2DIMM), 80GB 4200 RPM PATA Hard Drive, Full-sized keyboard with Pointstick and Digital eraser pen, 4311BG 802.11 b/g Wi-Fi Adapter, 56k v.92 modem, 6-Cell/44Whr Lithium-Ion Battery, HP UltraSlim Expansion Base including DVD +/- R, 65W Smart AC/Auto/Air Adapter US, HP Basic Carrying Case, HP Kensington security lock, Targus USB 5-Button Ergo Optical Mouse.

Motion

Motion F5, Intel Core 2 Solo Processor U2200, 2MB L2 Cache1.06GHz 533MHz FSB, Intel 945GME Express, 10.4 inch XGA TFT ADDS+ LED Backlight (1024 x 768), Intel Graphics Media Accelerator 950, Maximum 256MB total with Intel Dynamic Video Memory Technology (DVMT), Intel High Definition Audio, 2GB DDR2 1.20GHz SDRAM, 80GB 1.8 inch Hard Disk Drive, Wi-Fi 802.11 a/b/g, Integrated Bluetooth, 2.0 Megapixel Camera, Integrated Fingerprint Reader with OmniPass Software, Lithium-ion 40Whr Battery, Docking Station and External Keyboard.

Encryption

PointSec encryption software was installed on each device before deployment.

APPENDIX C: Methodology

The two data collection methods were: 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. The information contained within each of these records included the following: Stage ID, Person ID, and time-related information about the investigation stage (Intake Start Date, Investigation Stage Start Date, Investigation Stage End Date), progress notes information (Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, Progress Notes Purposes), and safety assessments (Safety Submit Date, Safety Approval Date) logged by caseworkers in each County DSS.

The CONNECTIONS data were pulled on the entry dates of progress notes during two timeframes—the pre-pilot and pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the dataset from 459 CPS caseworkers. The table below shows the start and end times for both timeframes, the duration of each timeframe, the total number of progress notes entries, and the total number of unique cases per participating district.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period*		Pilot Period*	
		Start	End	Start (Deployment Date)	End
Broome	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009
Cattaraugus	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009
Cayuga	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009
Chemung	103	11/6/2008	2/17/2009	2/18/2009	6/1/2009
Chenango	101	11/10/2008	2/19/2009	2/20/2009	6/1/2009
Delaware	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009
Dutchess	73	1/5/2009	3/19/2009	3/20/2009	6/1/2009
Erie	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009
Essex	103	11/6/2008	2/17/2009	2/18/2009	6/1/2009
Genesee	104	11/4/2008	2/16/2009	2/17/2009	6/1/2009
Lewis	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009
Madison	82	12/18/2008	3/10/2009	3/11/2009	6/1/2009
Nassau	79	12/24/2008	3/13/2009	3/14/2009	6/1/2009
Oneida	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009
Ontario	97	11/18/2008	2/23/2009	2/24/2009	6/1/2009
Orange	95	11/22/2008	2/25/2009	2/26/2009	6/1/2009
Oswego	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009
Rensselaer	101	11/10/2008	2/19/2009	2/20/2009	6/1/2009
Schenectady	94	11/24/2008	2/26/2009	2/27/2009	6/1/2009
Schuyler	111	10/21/2008	2/9/2009	2/10/2009	6/1/2009
Sullivan	110	10/23/2008	2/10/2009	2/11/2009	6/1/2009

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period*		Pilot Period*	
		Start	End	Start (Deployment Date)	End
Tioga	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009
Tompkins	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009
Westchester	222	3/13/2008	10/21/2008	10/22/2008	6/1/2009
Wyoming	92	11/28/2008	2/28/2009	3/1/2009	6/1/2009
Yates	90	12/2/2008	3/2/2009	3/3/2009	6/1/2009

* Please note that deployment in each of the districts took place over the course of a couple of days. Therefore we chose the last day of the district's deployment or in some cases chose the beginning of the following week if the real date fell too close to the start of a weekend.

Agencies have no control over the number of CPS reports for which they are responsible during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period as compared to the pilot period, and the total number of progress notes entries for both periods. Cases available to be worked on in each period were determined using the following criteria:

Pre-Pilot Cases Only. Cases actually worked on by CPS staff during the pre-pilot period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The case is counted as available during the pre-pilot period only if the case had an intake date prior to or during and investigation end date during the pre-pilot period.

Pilot Cases Only. Cases actually worked on by CPS staff during the pilot period are the number of cases in the investigation stage that have had at least one progress note entry during the pilot period. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods. Since the pilot period begins immediately after the pre-pilot period, some cases are started and counted as worked on in the pre-pilot period and extended into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Broome	187	465	628	815	1093	34.1%	9939
Cattaraugus	309	450	279	588	729	24.0%	8912
Cayuga	219	338	173	392	511	30.4%	8436
Chemung	206	388	336	542	724	33.6%	11529
Chenango	129	210	266	395	476	20.5%	6875
Delaware	118	145	82	200	227	13.5%	6291
Cayuga	219	338	173	392	511	30.4%	8436
Chemung	206	388	336	542	724	33.6%	11529
Chenango	129	210	266	395	476	20.5%	6875
Delaware	118	145	82	200	227	13.5%	6291

	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
			Case Availability Status				
Dutchess	294	369	380	674	749	11.1%	9525
Erie	1530	1632	706	2236	2338	4.6%	79400
Essex	129	172	126	255	298	16.9%	4941
Genesee	178	241	103	281	344	22.4%	6494
Lewis	106	107	49	155	156	0.6%	5054
Madison	141	200	156	297	356	19.9%	3312
Nassau	37	73	30	67	103	53.7%	1699
Oneida	862	1005	854	1716	1859	8.3%	34748
Ontario	403	392	305	708	697	(-1.6%)	10792
Orange	670	861	720	1390	1581	13.7%	23718
Oswego	330	565	533	863	1098	27.2%	19676
Rensselaer	595	570	375	970	945	(-2.6%)	18126
Schenectady	191	319	320	511	639	25.0%	5085
Schuyler	75	100	55	130	155	19.2%	3749
Sullivan	250	396	423	673	819	21.7%	10899
Tioga	129	158	73	202	231	14.4%	5014
Tompkins	236	299	145	381	444	16.5%	12183
Westchester	627	759	129	756	888	17.5%	16847
Wyoming	61	69	60	121	129	6.6%	3073
Yates	61	137	107	168	244	45.2%	3417
Subtotal	**8073**	**10420**	**7413**	**15486**	**17833**	**15.1%**	**329734**

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. Time stamps as well as manual entry of "event date" are used. The number of cases per participant and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open (i.e., no determination) for long periods prior to the pilot period; some opened and closed (i.e., a determination was made) during the pilot period, and others remaining open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We analyzed only those cases that had an actual investigation close date. Approximately 26 % of all cases (6,249 cases) did not have an investigation close date and were not included in the analysis. Moreover, the analysis does not include any data on the ultimate disposition (e.g., closing of all services) of the case or any rating of the quality of outcomes obtained.

In addition, laws specify timeframes that must be followed. For example, the "clock starts" when a call is made to the State Central Registry (SCR). The date the call is made is recorded in CONNECTIONS; the investigation must be commenced within 24 hours of receipt of that call. A caseworker has seven days from the date of the call to complete a safety assessment and 60 days to complete a full investigation and make a determination. Progress notes are required to be entered contemporaneously.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot; what do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What are the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX D: Notes on Wireless Connectivity

Districts were expected to procure their own wireless connectivity for the devices. The table below outlines the status of the district's efforts at the time our report was published.

District	Connectivity Device	Notes on Wireless Access Provision
Broome	No external broadband wireless cards	
Cattaraugus	External broadband wireless cards	• Six broadband wireless cards were shared • Four were available for eight daytime CPS caseworkers • One was available for three evening CPS caseworkers • One was dedicated to on-call CPS caseworkers
Cayuga	External broadband wireless cards	• Six broadband wireless cards were shared between users
Chemung	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Chenango	External broadband wireless cards	• To date six broadband wireless cards were purchased and are being evaluated
Delaware	No external broadband wireless cards	• No wireless cards were purchased due to budget constraints • Areas of the county have free Wi-Fi, but coverage it is spotty
Dutchess	No external broadband wireless cards	
Erie	No external broadband wireless cards	• Areas of the county have free Wi-Fi
Essex	External broadband wireless cards	• One broadband wireless card was shared between the laptop users
Genesee	External broadband wireless cards	• Four broadband wireless cards were shared between the laptop users
Lewis	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Madison	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Nassau	No external broadband wireless cards	• No wireless cards were purchased due to budget constraints • Plans for future procurement are in place for when funds become available
Oneida	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Ontario	External broadband wireless cards	• Ten broadband wireless cards were shared between users
Orange	External broadband wireless cards	• 41 broadband wireless cards were shared between users
Oswego	External broadband wireless cards	• Twenty-seven of the caseworkers' and supervisors' laptops were equipped with broadband wireless cards

District	Connectivity Device	Notes on Wireless Access Provision
Rensselaer	No external broadband wireless cards	• Due to budget constraints
Schenectady	No external broadband wireless cards	
Schuyler	External broadband wireless cards	• Two broadband wireless cards were shared between users on a first-come first-served basis with priority given to on-call CPS caseworkers
Sullivan	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Tioga	External broadband wireless cards	• Four broadband wireless cards were shared between users and are being evaluated
Tompkins	No external broadband wireless cards	• A proposal has been submitted to the County Legislature and is awaiting a decision
Westchester	External broadband wireless cards	• Each user received a dedicated external broadband wireless card
Wyoming	External broadband wireless cards	• One broadband wireless card was shared between users
Yates	No external broadband wireless cards	• The LAN administrator is working with the wireless carrier to identify the appropriate plan for deploying one or two broadband wireless cards to be shared among the laptop users

APPENDIX E: The Center for Technology in Government (CTG)

The Center for Technology in Government (CTG) is an applied research center committed to improving government and public services through policy, management, and technology innovation. Through its program of partnership, research, and innovation, the Center provides government organizations and individuals with an array of tools and resources designed to support the development of a digital government. The goal of every CTG partnership project is to build knowledge that improves the way government works. CTG projects have helped state, local, and federal agencies increase productivity and coordination, reduce costs, enhance quality, and deliver better services to citizens and businesses. The results generated by each project add to a growing knowledge base designed to support the work of both government professionals and academic researchers. CTG receives funding through the University at Albany's state allocation, as well through grants and awards from foundations and federal agencies such as the National Science Foundation.

Since its creation in 1993, the Center has:

- conducted almost 50 partnership projects, which produced outcomes that have helped state, local, and federal government agencies improve services and operations;
- collaborated with nearly 100 government agencies, 42 private companies, and 14 academic institutions and research organizations;
- issued over 100 guides, reports, and online resources designed to support the work of government professionals, and over 300 scholarly articles that have contributed to the field of research on IT innovation in government organizations;
- developed and evaluated 12 prototype systems that answered critical policy, management, organizational, and technology questions;
- obtained 37 research grants and fee-for-service contracts for over $10 million;
- been honored with 16 state and national awards such as the Ford Foundation's Innovations in American Government award;
- given over 250 trainings, workshops, and conference presentations provided data; and
- support to more than 20 doctoral dissertations and masters projects.

For more information about CTG or this report please contact:

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Phone 518-442-3892

DISTRICT PROFILES

- Broome County Department of Social Services
- Cattaraugus County Department of Social Services
- Cayuga County Health & Human Services
- Chemung County Department of Social Services
- Chenango County Department of Social Services
- Delaware County Department of Social Services
- Dutchess County Department of Social Services
- Erie County Department of Social Services
- Essex County Department of Social Services
- Genesee County Department of Social Services
- Lewis County Department of Social Services
- Madison County Department of Social Services
- Nassau County Department of Social Services
- Oneida County Department of Social Services
- Ontario County Department of Social Services
- Orange County Department of Social Services
- Oswego County Department of Social Services
- Rensselaer County Department of Social Services
- Schenectady County Department of Social Services
- Schuyler County Department of Social Services
- Sullivan County Health and Family Services
- Tioga County Department of Social Services
- Tompkins County Department of Social Services
- Westchester County Department of Social Services
- Wyoming County Department of Social Services
- Yates County Department of Social Services

Assessing Mobile Technologies in Child Protective Services

Broome County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

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Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Broome County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 109 days from 02/12/2009 - 06/01/2009.

District Deployment

Broome County is a mostly rural area with one metropolitan center located in the Southern Tier of New York State on the border of Pennsylvania. It has a population of over 200,000 residents. Broome County DSS has 34 CPS staff (including five senior caseworkers, 22 caseworkers, five supervisors, one director, and one deputy commissioner) who are responsible for child protective services. The Broome County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies increase CPS caseworker flexibility and convenience by enabling work outside of the office, reducing caseworker stress, and increasing job satisfaction.

The Broome County DSS deployed 16 Dell Latitude D630 laptops to 15 caseworkers on 02/12/2009. (See Appendix B for device specifications). Caseworkers were selected based on their interest and commitment to use the laptops. Each received their own laptop. In addition, the Broome County DSS purchased five Global Positioning System (GPS) devices and assigned each CPS unit a device that is signed-out as needed by caseworkers. Past experiences using broadband wireless cards demonstrated limited coverage throughout the county and therefore the Broome County DSS did not purchase additional wireless accounts. However, if a wireless connection was established, access to the state network and CONNECTIONS was through a virtual private network (VPN), which secures the transmission to and from the portable device and the network.

Caseworkers were provided with written instructions regarding laptop usage. As for security procedures, the county requires all CPS staff to sign a countywide IT user policy at the time of employment. Additionally, caseworkers were offered user manuals and individual training based on individual needs.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 187 in the pre-pilot period to 459 during the pilot period, a 145% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 171, up from 70 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 117 in the pre-pilot period to 288 during the pilot period. It is important to note that in Broome County the total number of cases available to be worked on increased moderately from 815 in the pre-pilot period to 1093 during the pilot period, a 34% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
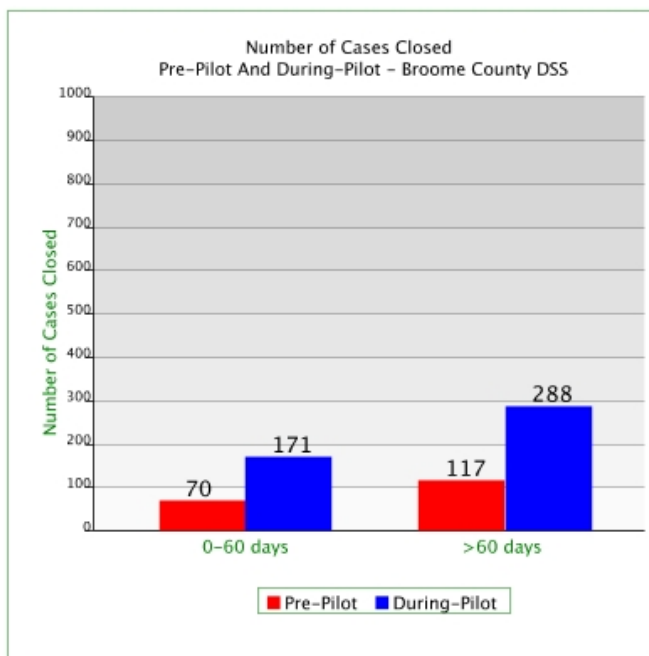

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
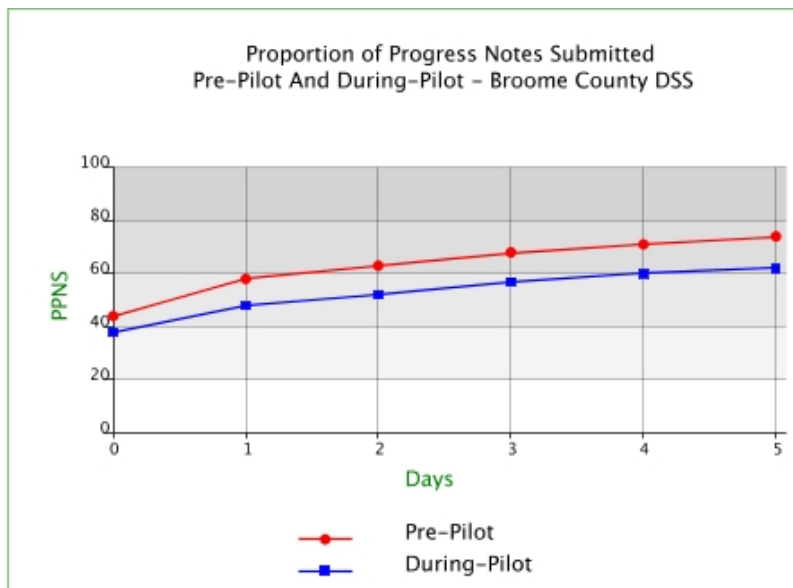

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 43 in the pre-pilot period to 122 during the pilot period. The number of safety assessments submitted after seven days increased from 144 to 336 during the test period.
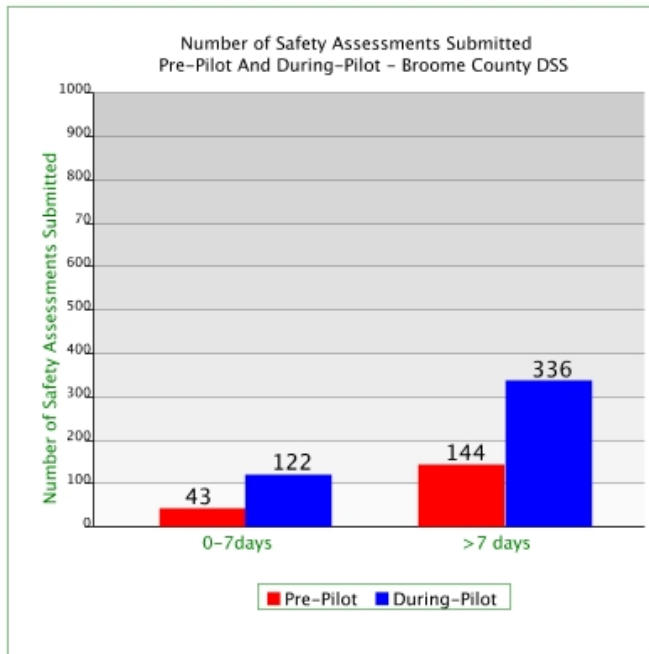

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Broome	16	0	16	0	15

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Broome	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Broome	187	465	628	815	1093	34.1%	9939

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Cattaraugus County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

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Introduction

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The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Cattaraugus County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 109 days from 02/12/2009 - 06/01/2009.

District Deployment

Cattaraugus County is a mostly rural area located in Western New York on the border of Pennsylvania. It has a population of approximately 84,000 residents. The Cattaraugus County DSS has 14 CPS staff (including 11 CPS caseworkers and three supervisors) who are responsible for child protective services. The Cattaraugus County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the timeliness of 60-day deadlines, reduce backlog and overdue cases, enhance the accuracy and detail of progress notes, and increase CPS caseworker flexibility and convenience by enabling work outside of the office.

The Cattaraugus County DSS deployed 13 Dell D630 laptops on 02/12/2009. (See Appendix B for device specifications). Ten caseworkers and two supervisors received a dedicated device. One device will be shared by two part-time employees. The Cattaraugus County DSS issued laptops to CPS caseworkers and supervisors who perform field visits. Those receiving a laptop had their desktop computers removed so that CPS caseworkers and supervisors had to rely entirely on the use of the new laptops. Those receiving laptops also received a docking station for use while in the office. In addition to the laptops, the Cattaraugus County DSS purchased GPS devices that were shared amongst the caseworkers and signed out by supervisors as needed. Six district-provided external broadband wireless cards were also shared among the laptop users. Four of the broadband wireless cards were shared amongst the eight daytime CPS caseworkers, one amongst three evening CPS caseworkers, and one was dedicated for the on call CPS caseworker. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN), which secures the transmission to and from the portable device and the network.

A brief memo was issued to laptop users describing how to log in and out of the VPN and how to use the wireless connection while in the field. Individual training was also available. CPS caseworkers and supervisors who received a laptop were verbally instructed that the laptops were state-issued, not for personal use, and that staff are individually responsible for the laptops.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 309 in the pre-pilot period to 442 during the pilot period, a 43% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 245, up from 169 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 140 in the pre-pilot period to 197 during the pilot period. It is important to note that in Cattaraugus County the total number of cases available to be worked on increased moderately from 588 in the pre-pilot period to 729 during the pilot period, a 24% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
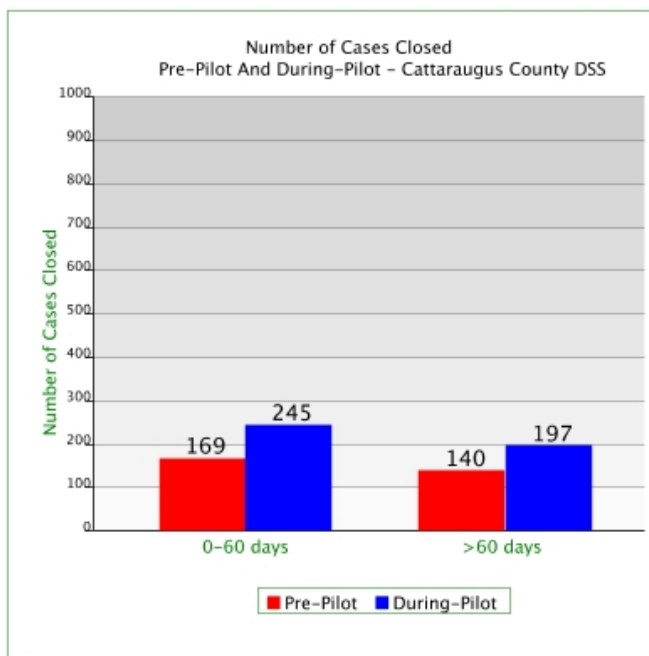

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is almost same as that of the pre-pilot period.

Overall, there is very little difference between the timeliness of note entry across the two periods. The overall increase in case closings during the pilot period demonstrates an increase in the volume of work. By this measure, caseworkers were able to maintain an already high level of timeliness despite an increase in cases available to be worked on.
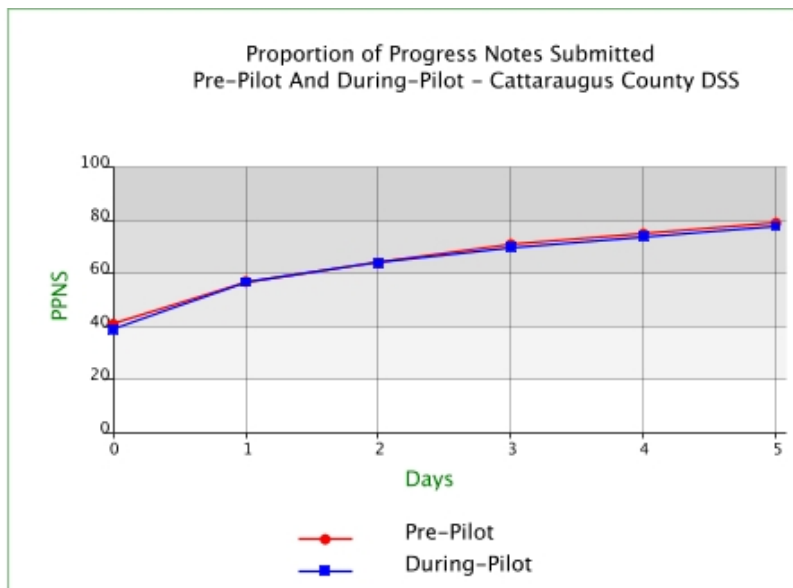

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 182 in the pre-pilot period to 270 during the pilot period. The number of safety assessments submitted after seven days increased from 121 to 168 during the pilot period.
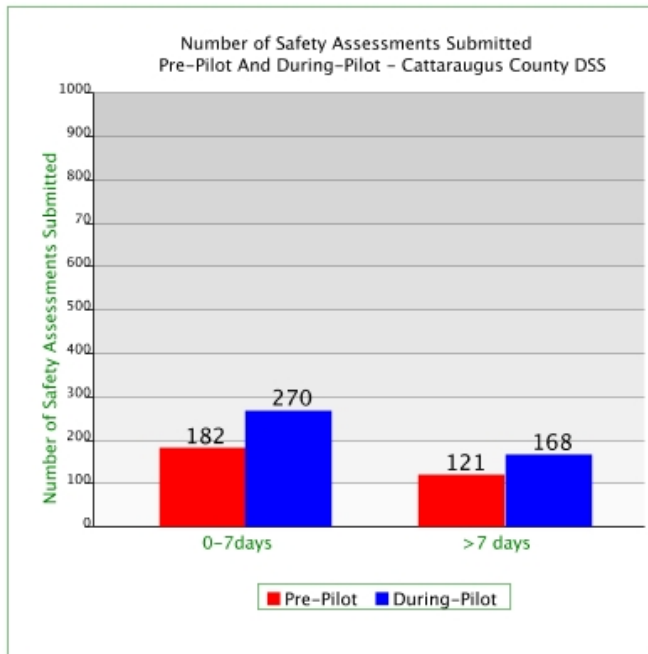

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Cattaraugus	13	0	13	6	13

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Cattaraugus	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot test period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Cattaraugus	309	450	279	588	729	24.0%	8912

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Cayuga County
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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Cayuga County Health and Human Services. Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 109 days from 02/12/2009 - 06/01/2009.

District Deployment

Cayuga County is a mostly rural area with only one metropolitan center located in Central New York and has a population of approximately 81,000 residents. Cayuga County Health and Human Services has approximately ten CPS staff (including one supervisor, one senior caseworker, and eight caseworkers) who are responsible for child protective services. The Cayuga County Health and Human Services participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker performance and enhance the timeliness of entering progress notes.

The Cayuga County Health and Human Services deployed 12 Dell D630 laptops to CPS caseworkers and staff on 02/12/2009. (See Appendix B for device specifications). Eleven caseworkers in Cayuga County Health and Human Services received their own dedicated device. In addition to the laptops, Cayuga County Health and Human Services received two GPS devices that were shared amongst the staff. The GPS devices could be signed out at anytime by individual CPS staff. Six district-provided external broadband wireless cards were shared among the laptop users. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers received individual training at the time of initial installations as well as when the broadband wireless cards were made available. Additionally, step-by-step guides were provided to users on how to log in using the VPN. During the deployment of the laptops, the County verbally discussed security procedures with CPS staff and are in the final stages of preparing a County-wide policy and procedure manual,which will require users' signatures.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 219 in the pre-pilot period to 328 during the pilot period, a 50% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 161, up from 117 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 102 in the pre-pilot period to 167 during the pilot period. It is important to note that in Cayuga County the total number of cases available to be worked on increased moderately from 392 in the pre-pilot period to 511 during the pilot period, a 30% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
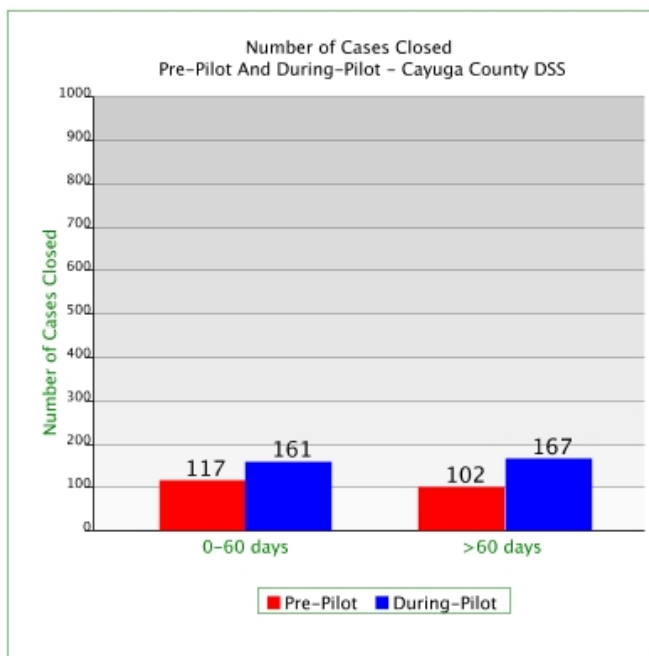

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
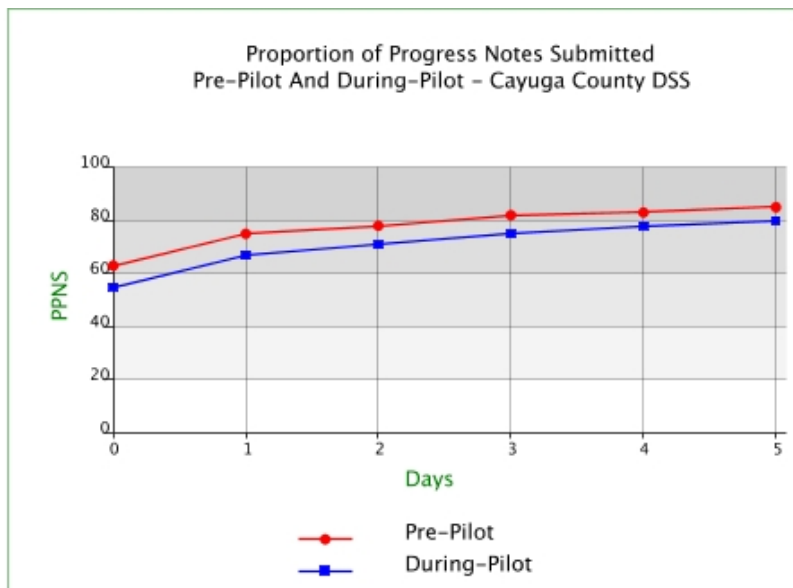

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 114 in the pre-pilot period to 158 during the pilot period. The number of safety assessments submitted after seven days increased from 100 to 160 during the pilot period.
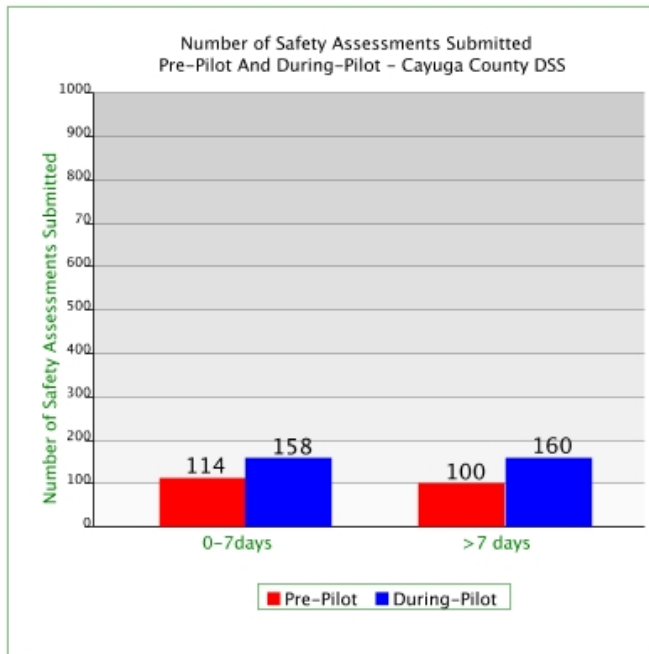

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the techologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Cayuga	12	0	12	6	11

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Cayuga	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Cayuga	219	338	173	392	511	30.4%	8436

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Chemung County
Department for Children, Youth, and Families
District Profile

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Chemung County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 103 days from 02/18/2009 - 06/01/2009.

District Deployment

Chemung County is a mid-sized rural county located in the Southern Tier of New York State on the border of Pennsylvania. It has a population of approximately 90,000 residents. The Chemung County DSS has approximately 27 CPS staff (including the director, a Grade A supervisor, three CPS supervisors, child advocacy center coordinator, 18 CPS caseworkers, and three senior caseworkers) who are responsible for child protective services. The Chemung County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility and convenience by enabling work outside of the office; enhance efficiency; increase the timeliness of progress notes, safety assessments, and investigation conclusions; and lead to more time spent in the field with families.

The Chemung County DSS deployed 14 Dell D630 laptops on 02/18/2009 to 14 caseworkers. (See Appendix B for device specifications). Caseworkers that did not receive a laptop during the previous demonstration were provided a laptop and all CPS caseworkers now have a dedicated laptop. In addition, the Chemung County DSS purchased six GPS devices that were shared amongst CPS staff as needed when traveling to remote areas and for out-of-county travel. Each laptop was equipped with a district-provided broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

As part of the previous deployment of the laptops, caseworkers had already familiarized themselves with the use of laptops in CPS work. Additionally, upon receipt of the laptops caseworkers received individual training, including a user manual and instructions on how to access CONNECTIONS via the VPN connection. Finally, a new laptop security and confidentiality procedure and policy document was created. Details regarding the new policies and procedures were discussed with the laptop users at a CPS staff meeting, where they were required to sign upon receipt of the laptop.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 206 in the pre-pilot period to 341 during the pilot period, a 66% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 78, up from 53 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 153 in the pre-pilot period to 263 during the pilot period. It is important to note that in Chemung County the total number of cases available to be worked on increased moderately from 542 in the pre-pilot period to 724 during the pilot period, a 34% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
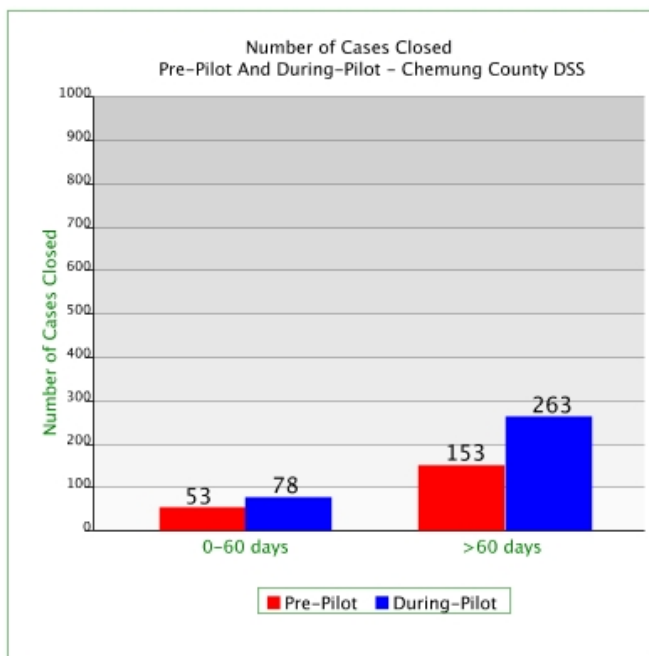

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
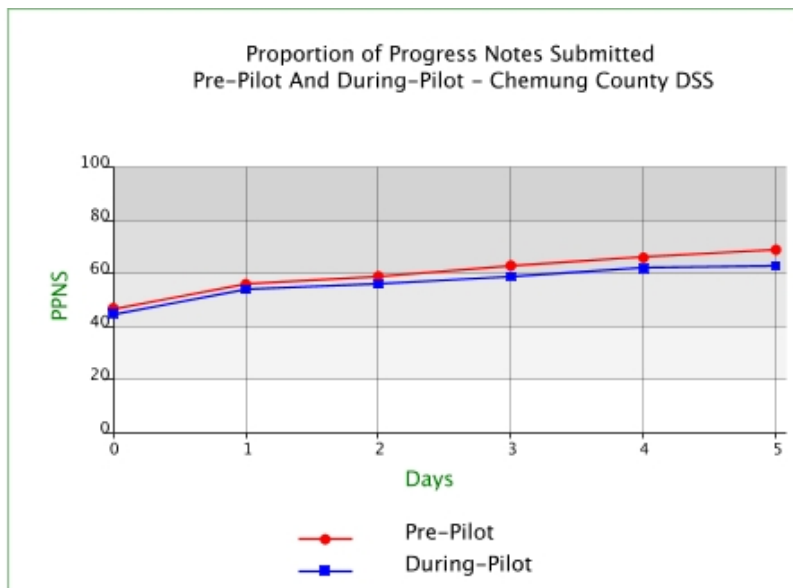

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 49 in the pre-pilot period to 90 during the pilot period. The number of safety assessments submitted after seven days increased from 150 to 244 during the pilot period.
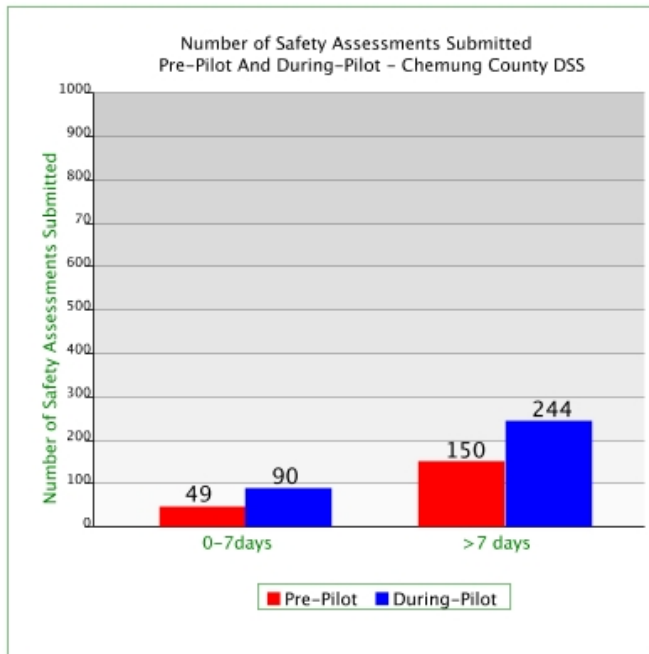

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Chemung	14	0	14	14	14

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS :

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS (i.e., the statewide child welfare information system) and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Chemung	103	11/6/2008	2/17/2009	2/18/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Chemung	206	388	336	542	724	33.6%	11529

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Chenango County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Chenango County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 101 days from 02/20/2009 - 06/01/2009.

District Deployment

Chenango County is a mostly rural area with one metropolitan center located in Central New York State and has a population of over 51,800 residents. The Chenango County DSS has 14 CPS staff (including ten caseworkers, two senior caseworkers, and two supervisors) who are responsible for child protective services. The Chenango county DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the timeliness of progress notes, reduce overdue reports, enhance efficiency, and reduce the response time to the State Central Registry (SCR) calls.

The Chenango County DSS deployed 14 Dell D630 laptops on 02/20/2009 to all 10 CPS caseworkers and supervisors. (See Appendix B for device specifications). All staff received their own dedicated device. In addition to the laptops, the Chenango County DSS received GPS devices that were shared amongst the staff as needed when traveling to remote locations. Other devices such as Quickpads, Dictaphones, and notepads were provided upon request. To date, six district-provided external broadband wireless cards have been purchased. The Chenango County DSS is evaluating to what extent the wireless broadband cards can be utilized due to spotty coverage throughout the county. The majority of laptop users also rely on personal Internet service from their homes. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers received both group and individual training upon the receipt of the laptops. While no formal user manual was provided to laptop users, a supervisor developed a tip sheet and distributed it to the caseworkers. Caseworkers and supervisors receiving a laptop also discussed and signed the County internet policy. Additionally, laptop users received a copy of the Remote Access Acceptable Use MOU.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 129 in the pre-pilot period to 250 during the pilot period, a 94% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 63, up from 30 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 99 in the pre-pilot period to 187 during the pilot period. It is important to note that in Chenango County the total number of cases available to be worked on increased moderately from 395 in the pre-pilot period to 476 during the pilot period, a 21% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
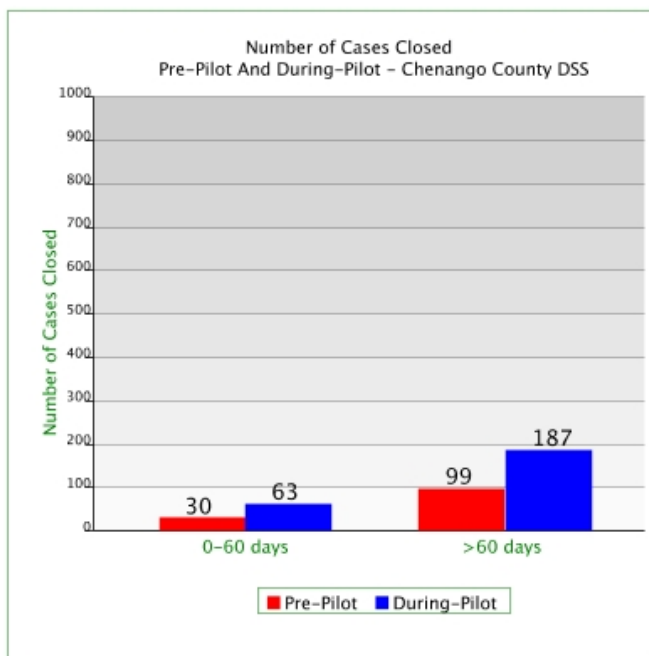

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, 60 percent of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry. With less than 60 percent of notes entered by the fifth day, opportunities for technology impacts still exist.
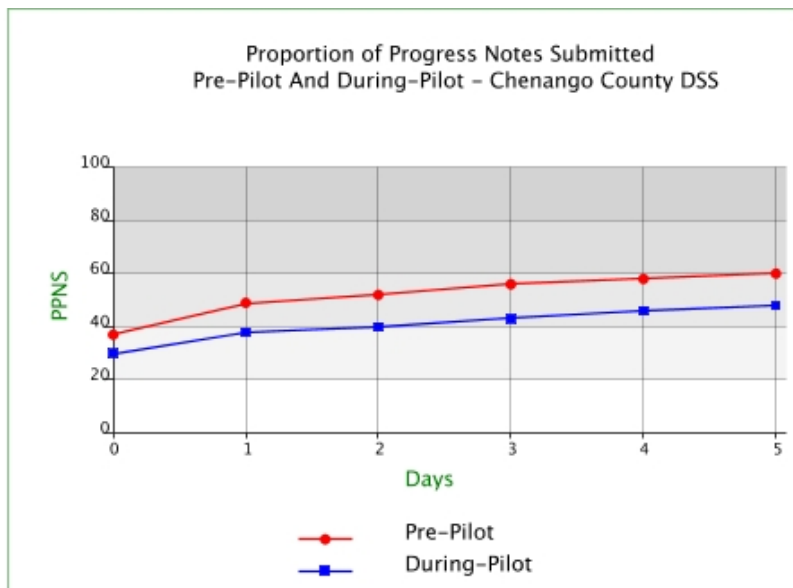

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 109 in the pre-pilot period to 204 during the pilot period. The number of safety assessments submitted after seven days increased from 19 to 43 during the pilot period.
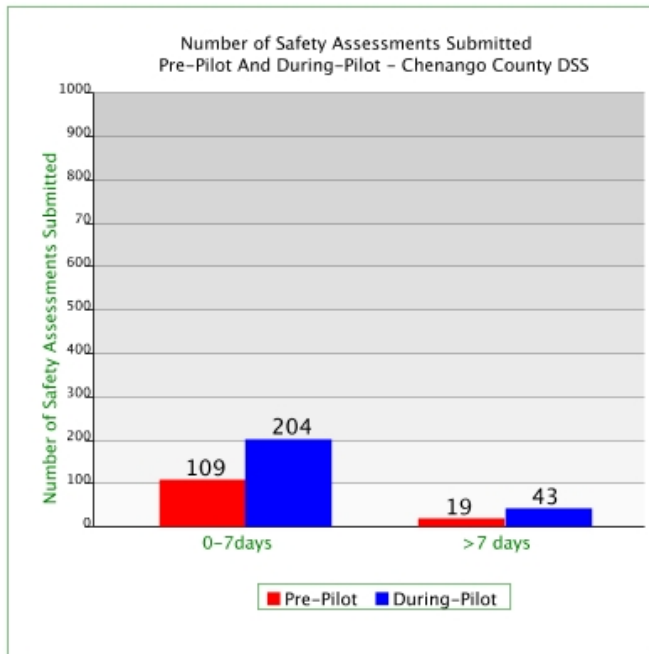

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Chenango	14	0	14	6	13

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Chenango	101	11/10/2008	2/19/2009	2/20/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Chenango	129	210	266	395	476	20.5%	6875

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Center for Technology in Government

Assessing Mobile Technologies in
Child Protective Services

Delaware County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Delaware County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 109 days from 02/12/2009 - 06/01/2009.

District Deployment

Delaware County is largely a rural area located in the Southern Tier of New York State on the border of Pennsylvania. It has a population of over 46,000 residents. The Delaware County DSS has approximately 15 CPS staff (including ten caseworkers and five supervisors) who are responsible for child protective services. The Delaware County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the timeliness of documentation and provide greater access to CONNECTIONS and other State systems.

The Delaware County DSS deployed 15 Dell D630 laptops on 02/12/2009 to all caseworkers and supervisors. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device, which replaced desktop systems. Those receiving laptops were given a docking station and an external monitor for use while in the office. In addition to the laptops, the Delaware County DSS received three GPS devices, which have been assigned to three units for further evaluation. The GPS devices were shared amongst CPS staff and signed out as needed. The Delaware County DSS was unable to provide broadband wireless cards due to budget constraints. Wireless coverage throughout the county is spotty with a few locations offering Wi-Fi. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Upon delivery of the laptops, CPS staff were given formal instruction by the CONNECTIONS coordinator on the use of the laptops. Additionally, users were provided with individual training and assistance upon installation of the laptops on their desks. Security procedures and policies were reviewed with the individual users and they were advised to exercise caution when using the laptops in public.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 118 in the pre-pilot period to 169 during the pilot period, a 43% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 83, up from 81 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 37 in the pre-pilot period to 86 during the pilot period. It is important to note that in Delaware County the total number of cases available to be worked on increased slightly from 200 in the pre-pilot period to 227 during the pilot period, a 14% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened while maintaining the number of cases closed in less than 60 days, these results can be interpreted to indicate steady timeliness of case closings and improvements in volume of work during the pilot period.
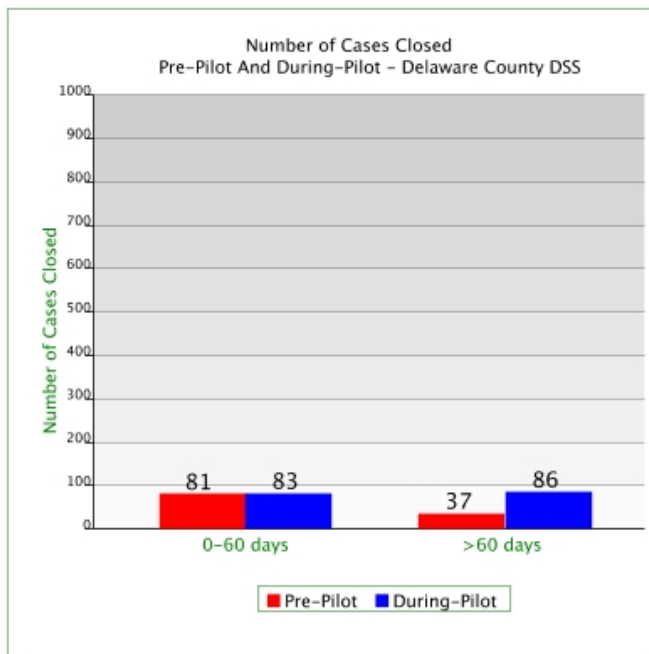

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, about 30 percent of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry. With less than 30 percent of notes entered by the fifth day, opportunities for technology impacts still exist.
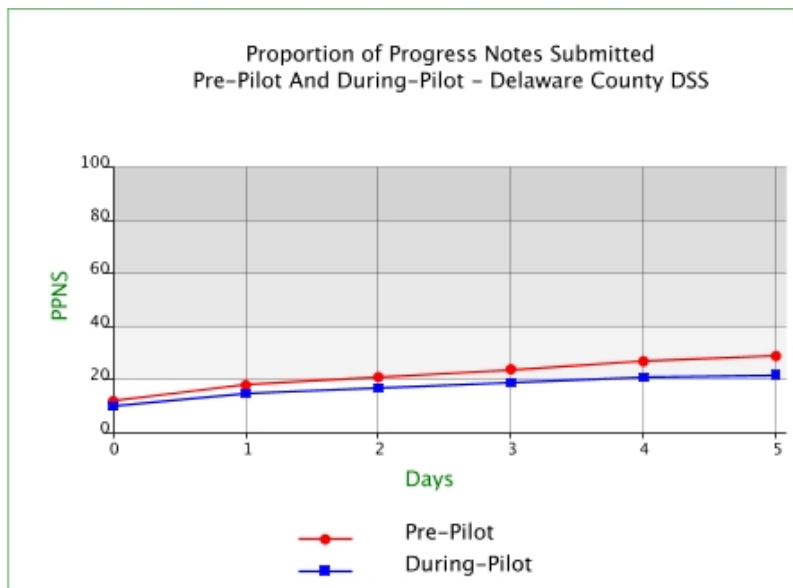

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 98 in the pre-pilot period to 130 during the pilot period. The number of safety assessments submitted after seven days increased from 20 to 39 during the pilot period.
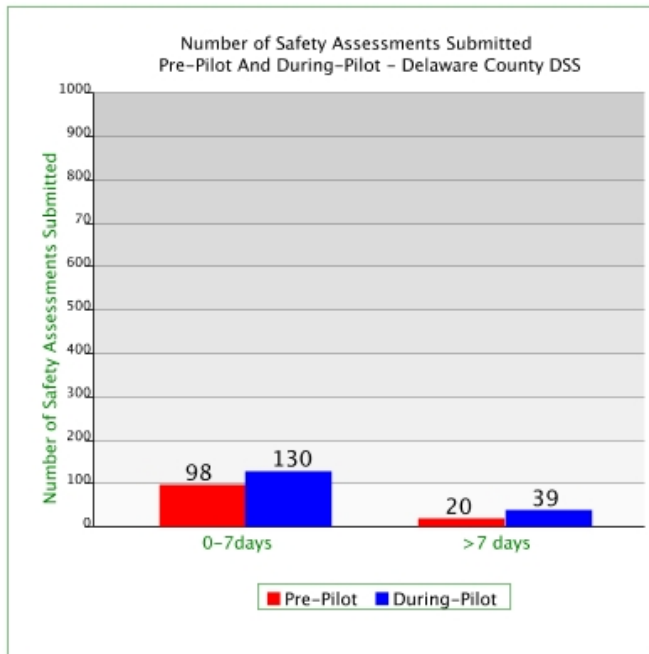

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Delaware	15	0	15	0	14

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Delaware	109	10/25/2008	2/11/2009	2/12/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

  Pre-Pilot Cases Only
  • Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Delaware	118	145	82	200	227	13.5%	6291

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

Dutchess County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook
Anthony M. Cresswell
Natalie Helbig
Bahadir K. Akcam
Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Dutchess County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 73 days from 03/20/2009 - 06/01/2009.

District Deployment

Dutchess County is split between rural and urban settings located in Southern New York State with a population of about 290,000 residents. The Dutchess County DSS has approximately 44 CPS staff (including six supervisors and 38 caseworkers) who are responsible for child protective services. The Dutchess County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility and convenience by giving access to case histories while working outside of the office.

The Dutchess County DSS deployed 17 Dell D630 laptops on 02/26/2009. (See Appendix B for device specifications). CPS caseworkers received their own dedicated device. The Dutchess County DSS did not purchase broadband wireless cards. However, regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network. Those receiving a laptop were provided with individual training on how to use the laptop.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased from 294 in the pre-pilot period to 362 during the pilot period, a 23% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 179, up from 133 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 161 in the pre-pilot period to 183 during the pilot period. It is important to note that in Dutchess County the total number of cases available to be worked on increased slightly from 674 in the pre-pilot period to 749 during the pilot period, a 11% increase.

Since the total number of cases available to be worked on increased only moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
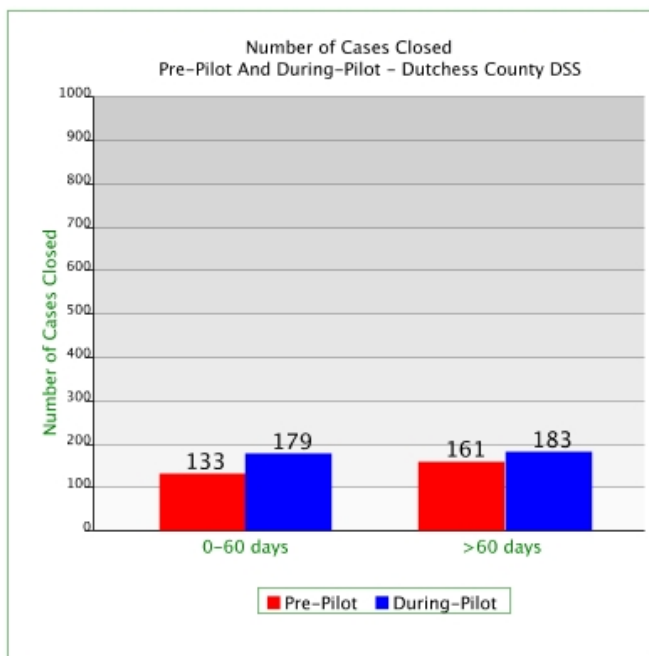

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
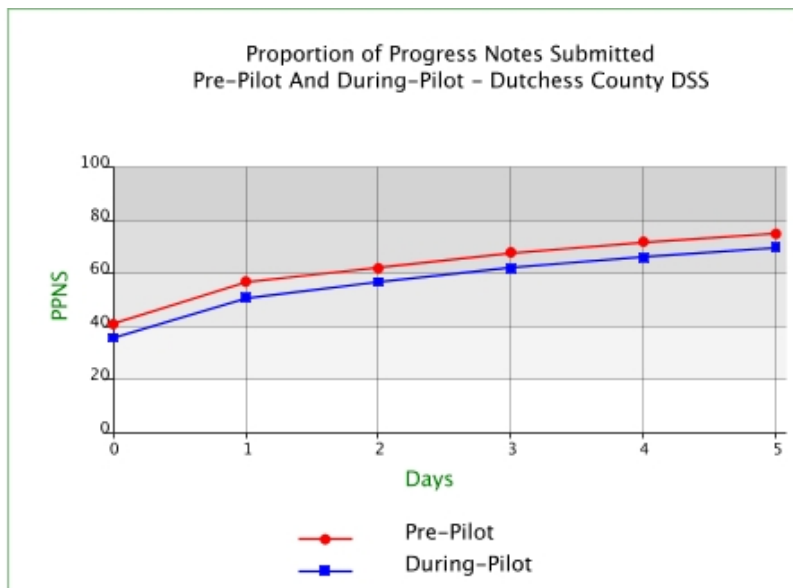

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 214 in the pre-pilot period to 263 during the pilot period. The number of safety assessments submitted after seven days increased from 80 to 99 during the pilot period.
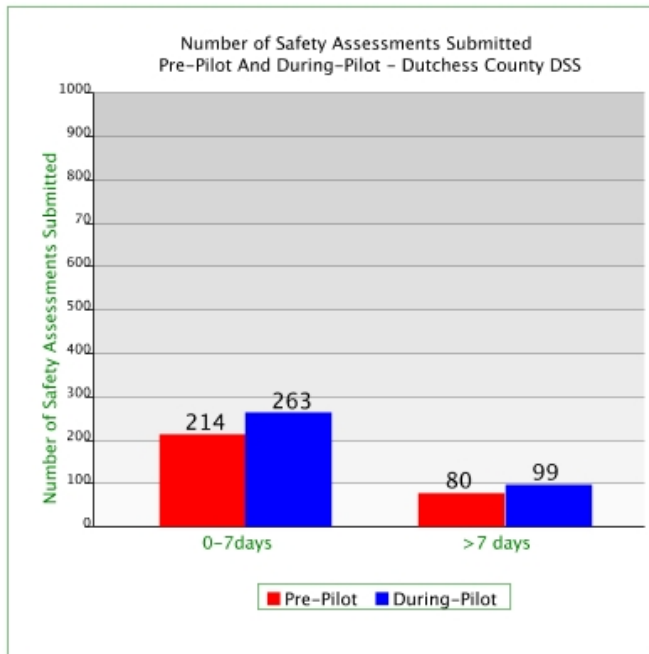

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Dutchess	17	0	17	0	17

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1.   **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2.   **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3.   **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1.   The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2.   The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Dutchess	73	1/5/2009	3/19/2009	3/20/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Dutchess	294	369	380	674	749	11.1%	9525

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Erie County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

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Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Erie County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 102 days from 02/19/2009 - 06/01/2009.

District Deployment

Erie County is split between rural and urban/suburban settings located in Western New York State on the border of Lake Erie. It has a population of over 950,000 residents. The Erie County DSS has approximately 118 CPS staff (including one administrative director, three CPS coordinators, 15 team leaders, 15 clerical staff, and 84 caseworkers) who are responsible for child protective services. The Erie County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase accessibility to CONNECTIONS from the field, improve the timeliness of progress notes, and increase CPS caseworker flexibility and convenience by enabling work outside of the office and reducing required travel.

The Erie County DSS deployed laptops in both 2007 and 2009. This report focuses on the 50 Dell D630 laptops deployed on 02/19/2009. (See Appendix B for device specifications). Forty CPS caseworkers received their own dedicated device. In addition to the laptops, the Erie County DSS received GPS devices that were assigned to each of the CPS units and were signed out as needed. Additionally, several locations in Erie County have Wi-Fi access that caseworkers can utilize. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Laptop users were required to attend a three-hour group training session. The training session included instructions on how to use the laptops as well as training on security. Additionally, the training session was divided into two groups, one for beginners and another for experts. As part of the security training, users were required to sign acknowledgment forms for receiving security training.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased slightly from 1530 in the pre-pilot period to 1648 during the pilot period, an 8% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 1248, up from 1089 in the pre-pilot period. The number of cases closed in over 60 days decreased from 441 in the pre-pilot period to 400 during the pilot period. It is important to note that in Erie County the total number of cases available to be worked on increased slightly from 2236 in the pre-pilot period to 2338 during the pilot period, a 5% increase.

Since the total number of cases available to be worked on increased only slightly during the pilot period, the decrease in case closings that are more than 60 days old coupled with an increase in the number of cases closed within 60 days indicates improvements in timeliness and volume of work during the pilot period.
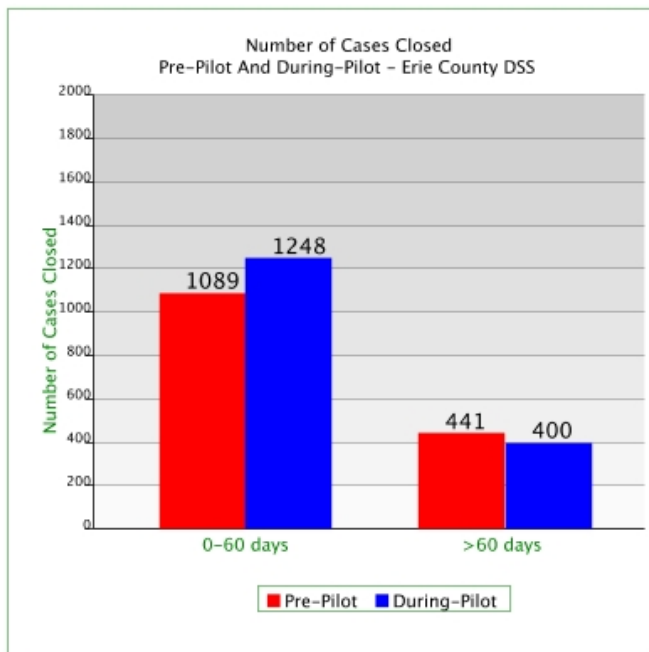

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and the increase in case closings during the pilot period demonstrates an increase in the overall volume of work. By this measure, caseworkers were able to improve the timeliness of their progress notes during the pilot period.
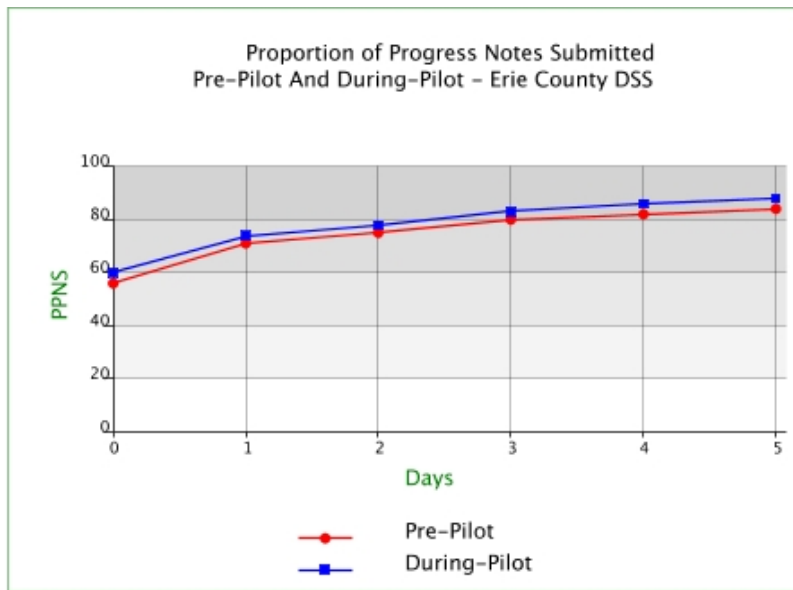

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 997 in the pre-pilot period to 1236 during the pilot period. The number of safety assessments submitted after seven days decreased from 519 to 398 during the pilot period.
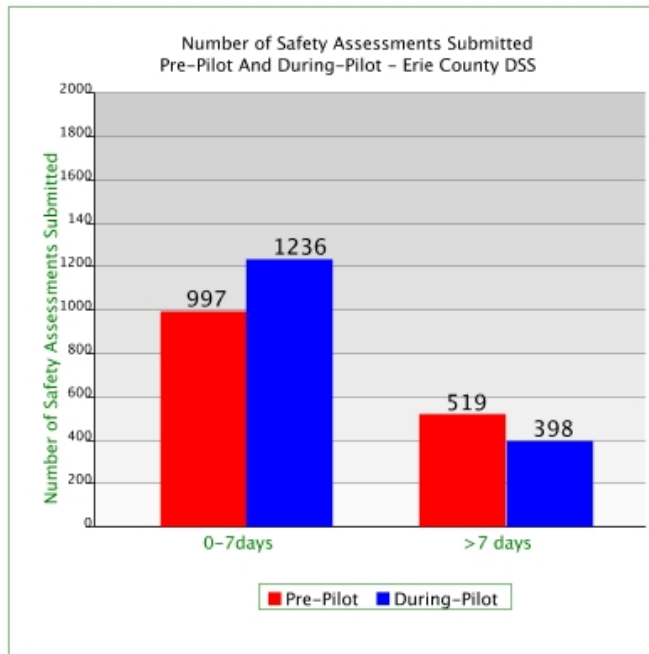

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Erie	0	50	0	0	40

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1.   **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2.   **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3.   **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1.   The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2.   The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Erie	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Erie	1530	1632	706	2236	2338	4.6%	79400

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training?
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

HP

HP Compaq 2710p Notebook PC/ Intel Core 2 Duo Processor U7600, Windows Vista Business, 12.1 inch diagonal lllumi-Lite WXGA Display with anti-glare (1280 x 800), Mobile Intel Graphics Media Accelerator X3100up to 384MB of shared memory, 1024MB 667MHz DDR2 SDRAM (2DIMM), 80GB 4200 RPM PATA Hard Drive, Full-sized keyboard with Pointstick and Digital eraser pen, 4311BG 802.11 b/g Wi-Fi Adapter, 56k v.92 modem, 6-Cell/44Whr Lithium-Ion Battery, HP UltraSlim Expansion Base including DVD +/- R, 65W Smart AC/Auto/Air Adapter US, HP Basic Carrying Case, HP Kensington security lock, Targus USB 5-Button Ergo Optical Mouse.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Essex County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Essex County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 103 days from 02/18/2009 - 06/01/2009.

District Deployment

Essex County is a predominantly a rural area with only one major village, Lake Placid, located in Upstate New York and has a population of over 38,000 residents. The Essex County DSS has approximately nine CPS staff (including one supervisor, two senior caseworkers, and six caseworkers) who are responsible for child protective services. The Essex County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve communications with the office while caseworkers are in the field, increase caseworkers' time with families, allow for caseworkers to better manage their time and increase caseworker performance, and reduce travel times.

The Essex County DSS deployed nine Dell D630 laptops to all nine CPS caseworkers and supervisors on 02/18/2009. (See Appendix B for device specifications). All CPS staff received their own dedicated device. In addition to the laptops, the Essex County DSS purchased Dragon Naturally Speaking and two GPS devices that were signed out by individual caseworkers as needed. One district-provided external broadband wireless card was purchased and shared among the laptop users. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers received group-training, user manuals, and one-on-one assistance based on individual needs. Caseworkers were also provided with a policy document describing the security procedures that they must abide by.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 129 in the pre-pilot period to 183 during the pilot period, a 42% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 60, up from 30 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 99 in the pre-pilot period to 123 during the pilot period. It is important to note that in Essex County the total number of cases available to be worked on increased slightly from 255 in the pre-pilot period to 298 during the pilot period, a 17% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
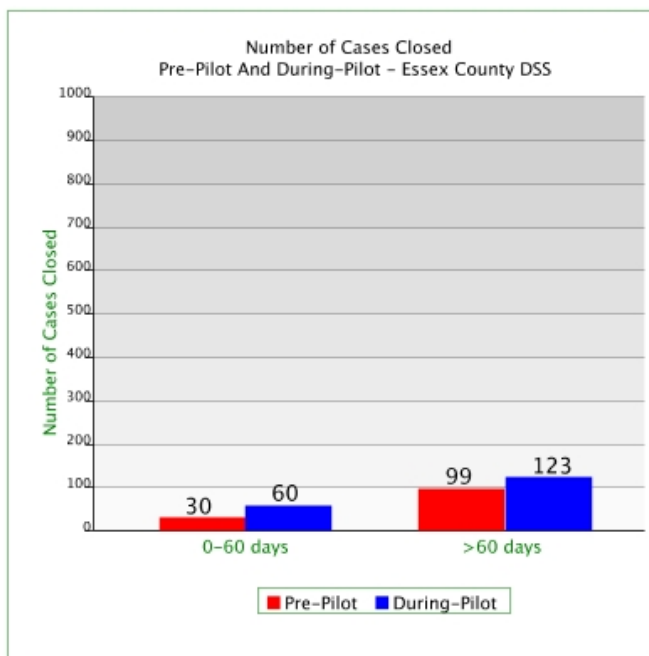

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is almost same as that of the pre-pilot period.

Overall, there is very little difference between the timeliness of note entry across the two periods. The overall increase in case closings during the pilot period demonstrates an increase in the volume of work. By this measure, caseworkers were able to maintain an already high level of timeliness despite an increase in cases available to be worked on.
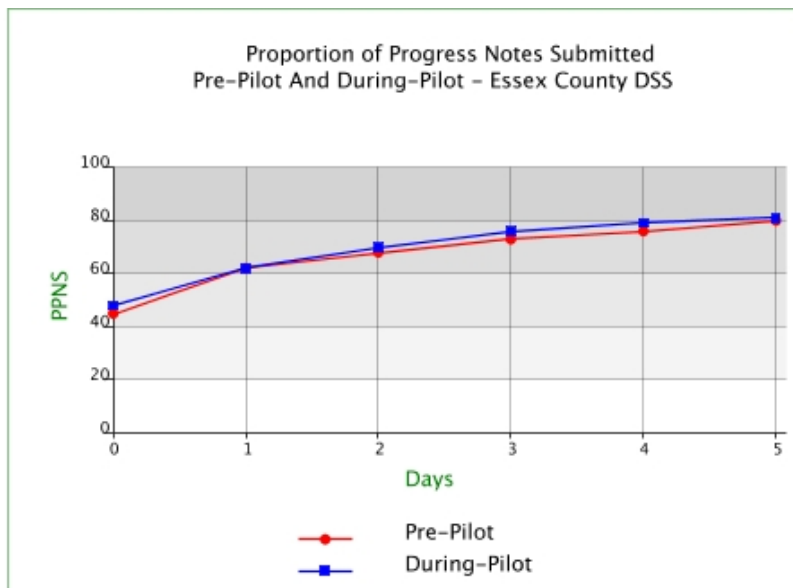

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 59 in the pre-pilot period to 75 during the pilot period. The number of safety assessments submitted after seven days increased from 68 to 101 during the pilot period.
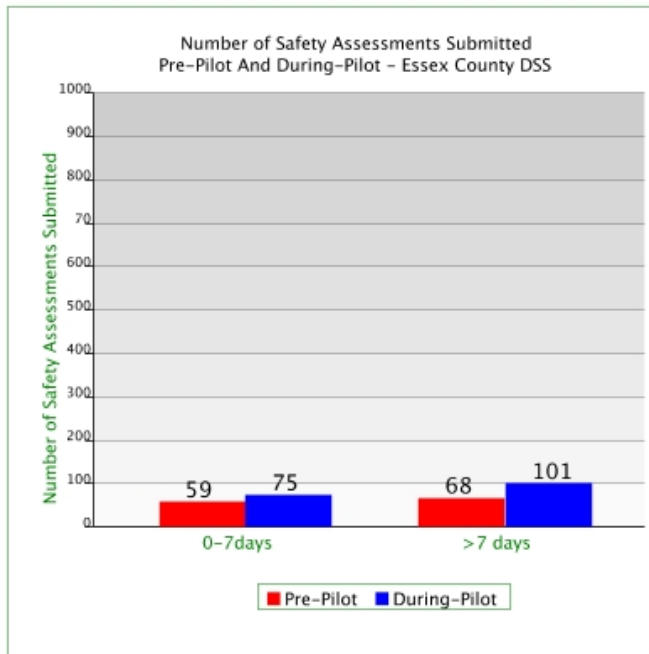

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
Districts	**Laptops**	**Tablets**			
Essex	9	0	9	1	9

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Essex	103	11/6/2008	2/17/2009	2/18/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Essex	129	172	126	255	298	16.9%	4941

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in Child Protective Services

Genesee County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Genesee County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 104 days from 02/17/2009 - 06/01/2009.

District Deployment

Genesee County is a mostly rural area with only one metropolitan center located in Western New York and has a population of over 60,00 residents. The Genesee County DSS has approximately eight CPS staff (including one supervisor and seven CPS investigators) who are responsible for child protective services. The Genesee County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve caseworkers' efficiency and productivity, and increase the timeliness of reports and determinations.

The Genesee County DSS deployed eight Dell D630 laptops to all eight CPS staff between 02/13/2009 and 02/17/2009. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device. In addition to the laptops, the Genesee County DSS purchased Dragon Naturally Speaking and one GPS device that was shared amongst the caseworkers and signed out as needed. Four district-provided external broadband wireless cards were purchased and shared among the laptop users. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

IT specialists provided technical assistance and a demonstration of how to use the laptops at a CPS staff meeting. User manuals were also provided to laptop users and individual assistance was offered on a need basis. The Genesee County DSS also discussed security procedures that laptop users must abide by.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased moderately from 178 in the pre-pilot period to 236 during the pilot period, a 33% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 163, up from 119 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 59 in the pre-pilot period to 73 during the pilot period. It is important to note that in Genesee County the total number of cases available to be worked on increased moderately from 281 in the pre-pilot period to 344 during the pilot period, a 22% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
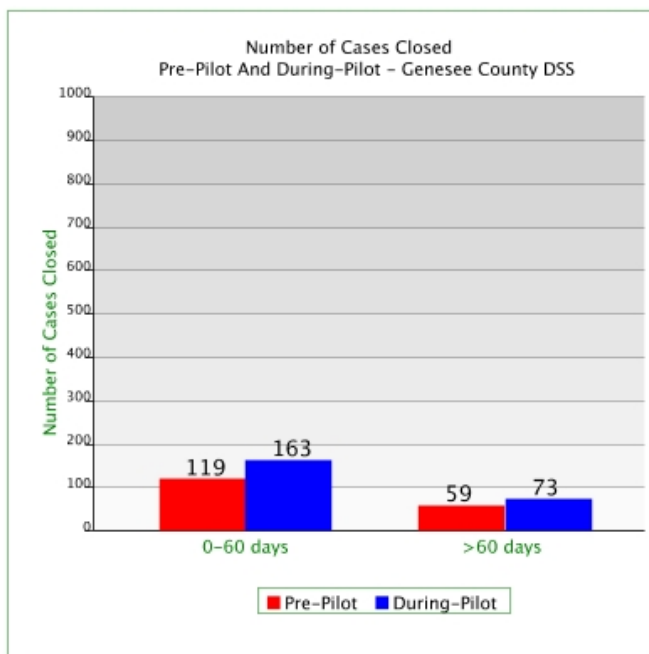

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
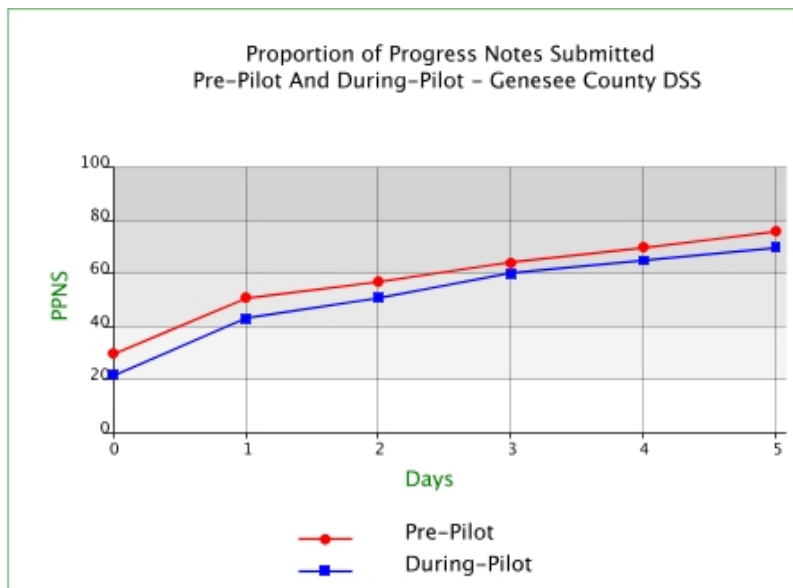

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 156 in the pre-pilot period to 188 during the pilot period. The number of safety assessments submitted after seven days increased from 20 to 40 during the pilot period.
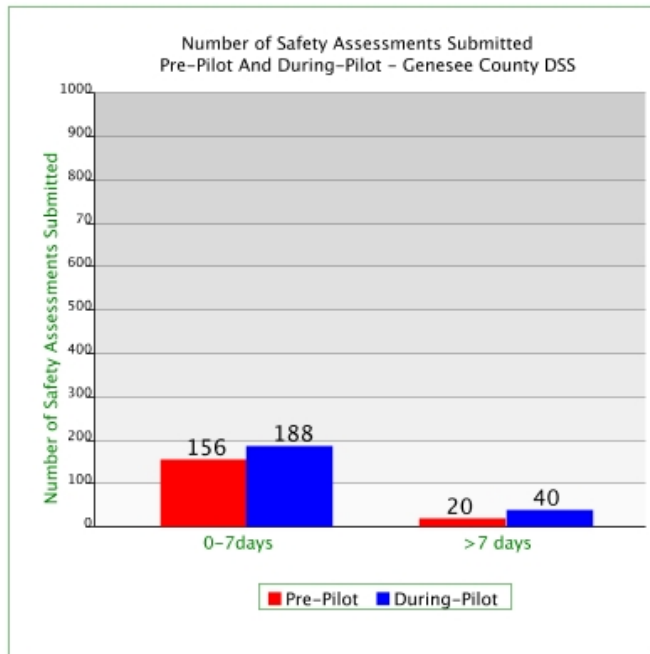

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Genesee	8	0	8	4	8

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Genesee	104	11/4/2008	2/16/2009	2/17/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Genesee	178	241	103	281	344	22.4%	6494

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Lewis County
Department for Children, Youth, and Families
District Profile

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Lewis County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 108 days from 02/13/2009-06/01/2009.

District Deployment

Lewis County is predominantly a rural county of towns and villages located in northwest New York State and has a population of over 26,000 residents. The Lewis County DSS has approximately five CPS staff (including one supervisor and four caseworkers) who are responsible for child protective services. The Lewis County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase caseworkers' efficiency and productivity by working from the field, their homes, and court.

The Lewis County DSS deployed six Dell D630 laptops on 02/13/2009 to all CPS caseworkers, with an additional laptop designated for on-call staff. (See Appendix B for device specifications). Each received their own dedicated device. In addition to the laptops, the Lewis County DSS purchased a GPS device that was shared amongst the staff on a first-come, first-served basis. All laptops were equipped with a district-provided external broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network. No formal training was provided to caseworkers.

Caseworkers shared experiences amongst themselves and relied on the assistance of their local LAN administrator in the office. Additionally, no formal security policies and procedures were provided to the caseworkers; however, a brief verbal discussion on security was held in a CPS staff meeting.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. The total number of cases closed decreased substantially from 106 in the pre-pilot period to 86 during the pilot period, a 19% decrease. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) decreased during the pilot period, down from 104 in the pre-pilot period to 76 during the pilot period. The number of cases closed in over 60 days increased from 2 in the pre-pilot period to 10 during the pilot period. It is important to note that in Lewis County the total number of cases available to be worked on slightly increased from 155 in the pre-pilot period to 156 during the pilot period, a 1% increase.

Since the number of cases available to be worked on remained the steady during the pilot period, the slight decrease in timely case closings may be simply a consequence of limited room for improvement, since overall timeliness of case closings was already high (as indicated by the small number of cases closed over 60 days during the pre-pilot period).
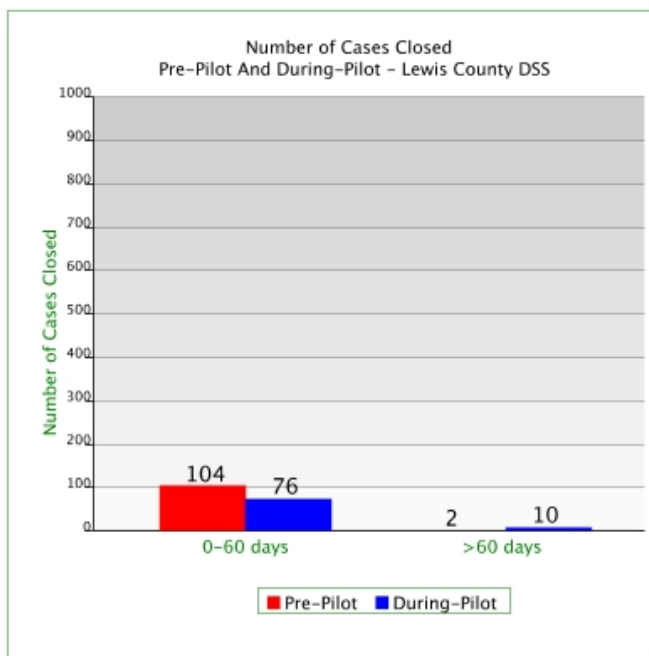

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly above that of the pre-pilot period.

This increase in progress note productivity is meaningful and does not appear to be the result of a large increase in the number of cases available to be worked on. The result may be a shift in priority from case closing to increased effort in progress note documentation, since the rate of case closing was somewhat lower in the pilot period.
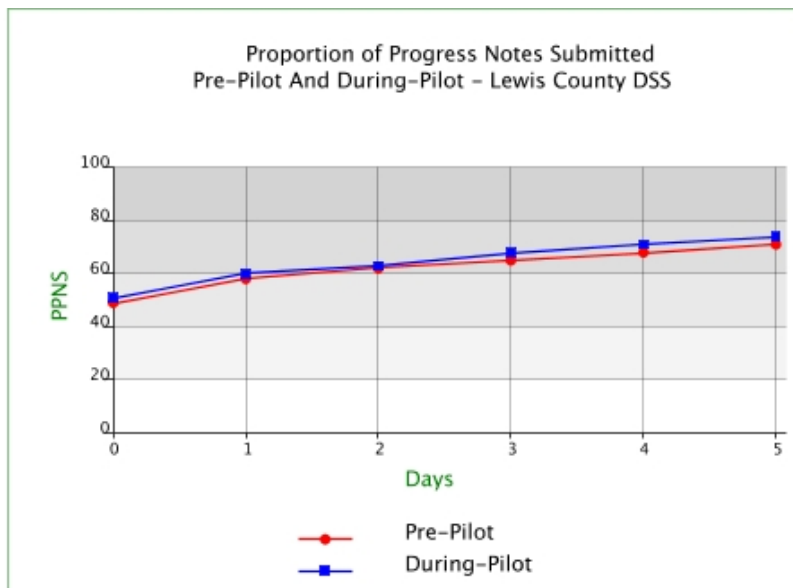

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) decreased during the pilot period, down from 99 in the pre-pilot period to 75 during the pilot period. The number of safety assessments submitted after seven days increased from 7 to 11 during the pilot period.
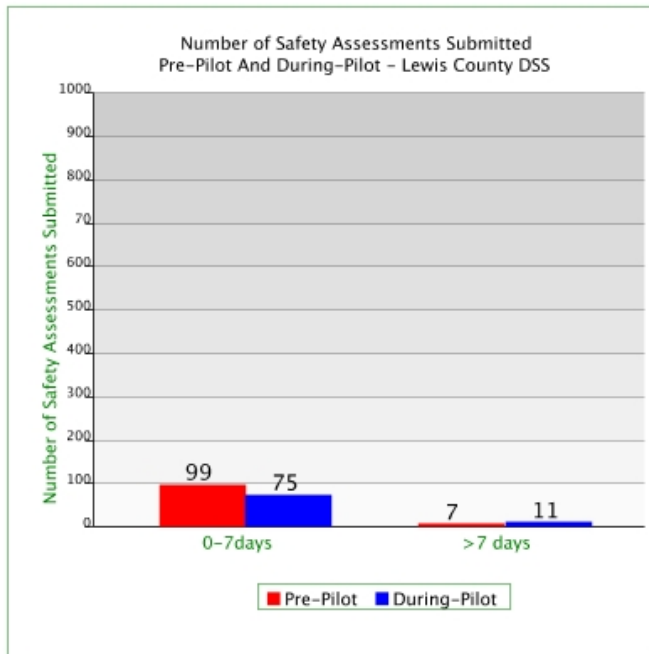

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Lewis	6	0	6	6	5

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1.   **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2.   **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3.   **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1.   The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2.   The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Lewis	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Lewis	106	107	49	155	156	0.6%	5054

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Madison County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Madison County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 82 days from 03/11/2009 - 06/01/2009.

District Deployment

Madison County is a mostly rural area with one small metropolitan center located in Central New York State and has a population of over 70,000 residents. The Madison County DSS has approximately 16 CPS staff (including 12 caseworkers, one senior caseworker, two supervisors, and one manager) who are responsible for child protective services. The Madison County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase caseworkers' efficiency and productivity by enabling work from the field.

The Madison County DSS deployed 19 Dell D630 laptops on 03/11/2009 to all CPS caseworkers and staff. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device. All the laptops were equipped with a district-provided external broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

The Madison County DSS IT department provided each user with a one-on-one tutorial on how to use the laptops. Caseworkers were not provided with security procedures associated with the use of the laptops.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased moderately from 141 in the pre-pilot period to 179 during the pilot period, a 27% increase. Figure 1 below shows that the rate of timely closing of cases (in 60 days or less) during the pilot period increased to 95, up from 79 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 62 in the pre-pilot period to 84 during the pilot period. It is important to note that in Madison County the total number of cases available to be worked on increased moderately from 297 in the pre-pilot period to 356 during the pilot period, a 20% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
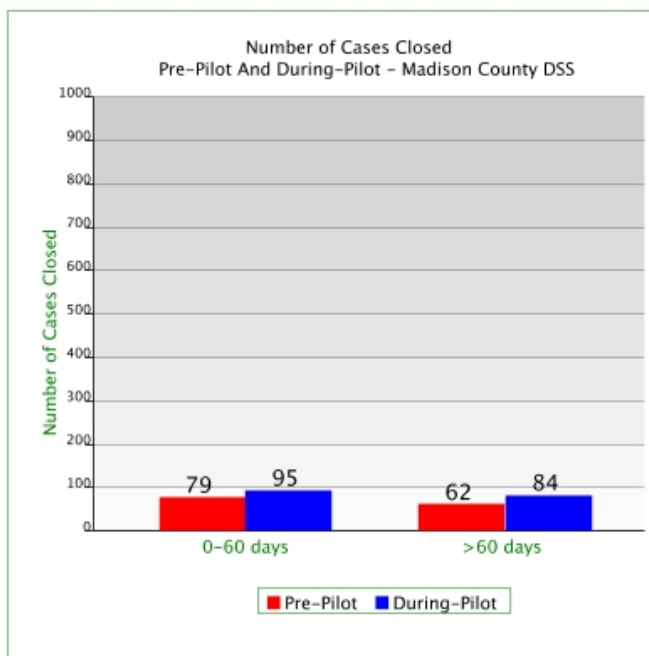

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
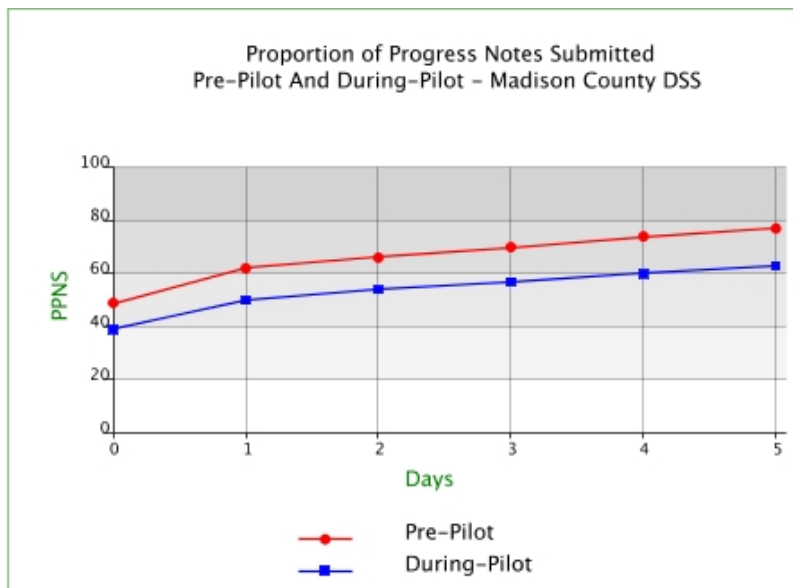
Proportion of Progress Notes Submitted
Pre-Pilot And During-Pilot – Madison County DSS

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 54 in the pre-pilot period to 62 during the pilot period. The number of safety assessments submitted after seven days increased from 84 to 115 during the pilot period.
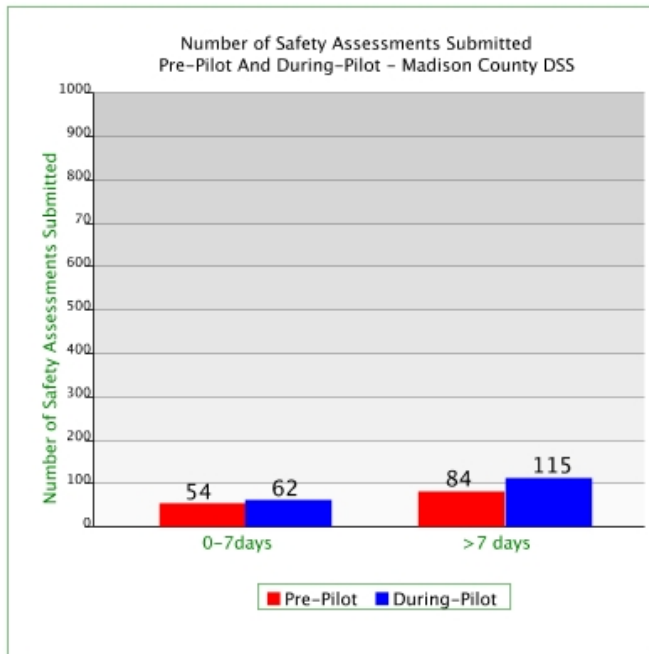

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Madison	19	0	19	19	16

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Madison	82	12/18/2008	3/10/2009	3/11/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Madison	141	200	156	297	356	19.9%	3312

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in Child Protective Services

Nassau County Department for Children, Youth, and Families District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Nassau County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 79 days from 03/14/2009 - 06/01/2009.

District Deployment

Nassau County is an urban/suburban county located in the New York Metropolitan Area with a population of over 1.3 million residents. Nassau County DSS has approximately 79 full-time CPS staff (including 76 caseworkers workers, three support staff, and 39 part-time staff for emergency situations and evenings) who are responsible for child protective services. The Nassau County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase caseworkers' efficiency and productivity, as well as increase the timeliness of entering progress notes.

The Nassau County DSS deployed 22 Dell D630 Laptops on 03/16/2009 to CPS caseworkers. (See Appendix B for device specifications). The laptops were given to caseworkers who did not receive laptops during the last round of deployment. Due to budget constraints, district-provided broadband wireless cards were not purchased, but the Nassau County DSS plans on purchasing them in the future when funds become available. The Nassau County DSS also issued docking stations and an external monitor, keyboard, and mouse for use while in the office. The laptops replaced caseworkers' desktops. Regardless of the network connections used, access to the State network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

All participants attended a one-hour group training session where users were instructed on the use of the laptops. Laptop users were also advised to contact HHS Help Desk with any questions or concerns they may encounter. No formal security policies and procedures were provided to the users; however, a brief verbal discussion on security was held upon the receipt of the laptops.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 37 in the pre-pilot period to 50 during the pilot period, a 35% increase. Figure 1 below shows that the rate of timely closing of cases (in 60 days or less) during the pilot period increased to 36, up from 17 in the pre-pilot period. The number of cases closed in over 60 days decreased, down from 20 in the pre-pilot period to 14 during the pilot period. It is important to note that in Nassau County the total number of cases available to be worked on increased substantially from 67 in the pre-pilot period to 103 during the pilot period, a 54% increase.

Since the total number of cases available to be worked on increased substantially during the pilot period, the decrease in case closings that are more than 60 days old coupled with an increase in the number of cases closed within 60 days indicates improvements in timeliness and volume of work during the pilot period.
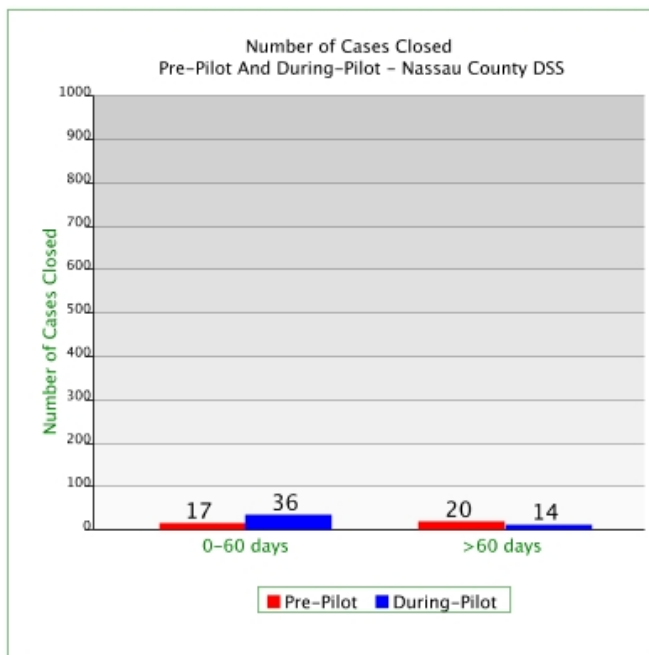

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and and increase in case closings during the pilot period demonstrate an increase in the overall volume of work. By this measure, caseworkers were able to improve the timeliness of their progress notes during the pilot period.
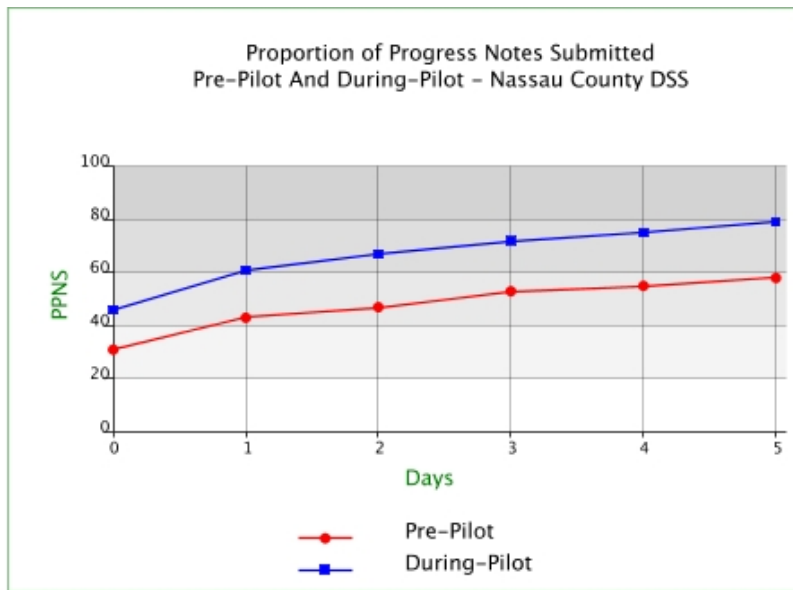

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to assess any changes in efficiency and productivity. Figure 3 below shows that the rate of timely submission of safety assessments (in 7 days or less) increased during the test period, up from 19 in the pre-test period to 28 during the test period. Thus, the number of safety assessments submitted after seven days increased from 18 to 19 during the test period.
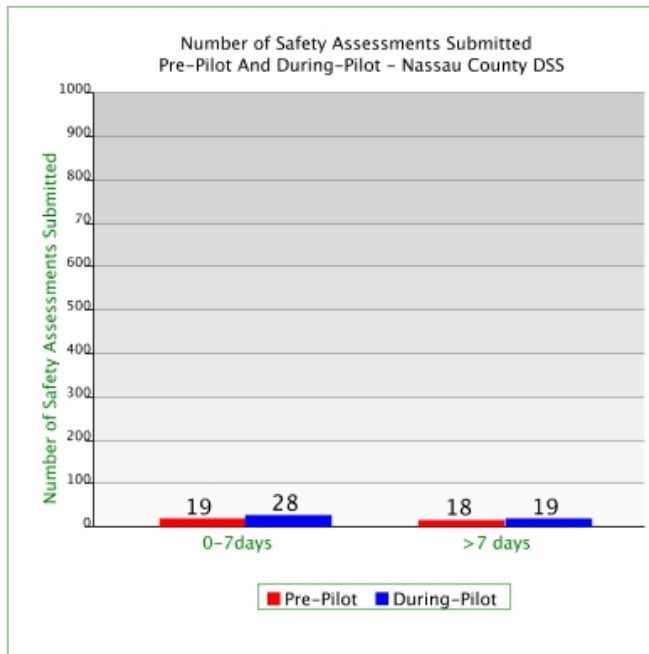

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	Laptops	Tablets	Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
Nassau	22	0	22	0	22

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Nassau	79	12/24/2008	3/13/2009	3/14/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Nassau	37	73	30	67	103	53.7%	1699

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in Child Protective Services

Oneida County Department for Children, Youth, and Families District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Oneida County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 108 days from 02/13/2009 - 06/01/2009.

District Deployment

Oneida County is split between rural and urban/suburban settings located in Central New York State and has a population of over 235,000 residents. The Oneida County DSS has 54 CPS staff (including 12 supervisors and 42 caseworkers) who are responsible for child protective services. The Oneida County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility and convenience by enabling work outside of the office, reduce backlog, and improve the timeliness of entering progress notes.

The Oneida County DSS deployed 54 Dell D630 laptops on 02/12/2009 to all caseworkers and supervisors. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device. In addition to the laptops, GPS devices were deployed and were assigned to county car use. All laptops were equipped with a district-provided external broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Numerous group training sessions were held after users received their laptops. Each of the training sessions was limited to ten users at a time. Handouts were prepared and offered to CPS caseworkers and supervisors. The prepared handouts included a link for instructions on how to log on using the VPN and information regarding acceptable use and security policies and procedures.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. The total number of cases closed slightly decreased from 862 in the pre-pilot period to 823 during the pilot period, a 5% decrease. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) increased during the pilot period, up from 323 in the pre-pilot period to 335 during the pilot period. The number of cases closed in over 60 days decreased from 539 in the pre-pilot period to 488 during the pilot period. It is important to note that in Oneida County the total number of cases available to be worked on slightly increased from 1716 in the pre-pilot period to 1859 during the pilot period, an 8% increase.

Since the number of cases available to be worked on increased during the pilot period, the simultaneous decrease in case closings which are more than 60 days old and the improvement in timeliness of cases closed within 60 days, these results can be interpreted to indicate improvements in timeliness of work for the pilot period.
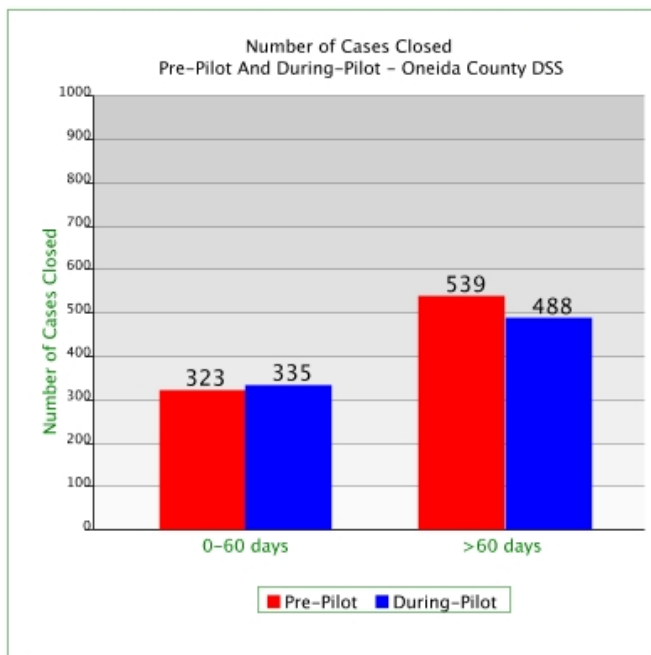

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly below that of the pre-pilot period.

There may be multiple reasons for this slight decrease in the timeliness of note entry. The overall increase in cases available to be worked on may have changed the usual pattern of progress note entry. There may also have been a disruption of normal work procedures associated with using a new technology. The timeliness of progress note entry was already high in the pre-pilot period and continued to be high, albeit slightly lower, during the pilot period. This indicates less room for technology impacts on timeliness.
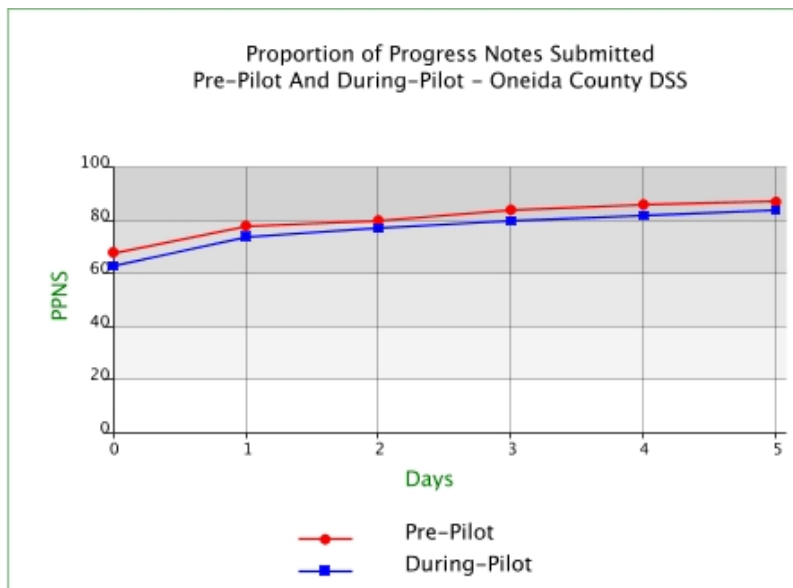

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 518 in the pre-pilot period to 552 during the pilot period. The number of safety assessments submitted after seven days decreased from 328 to 253 during the pilot period.
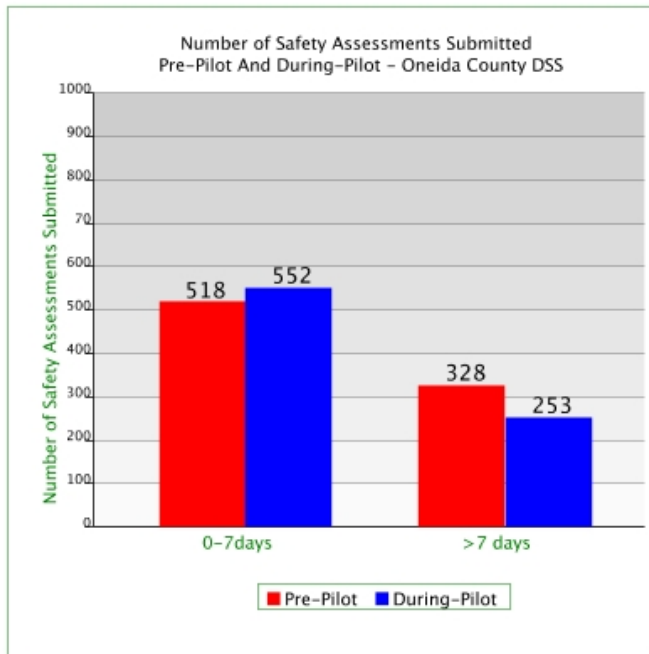

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Oneida	54	0	54	54	50

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Oneida	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Oneida	862	1005	854	1716	1859	8.3%	34748

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Ontario County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Ontario County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 97 days from 02/24/2009 - 06/01/2009.

District Deployment

Ontario County is evenly split between urban and rural settings located in Western New York State and has a population of over 103,000 residents. The Ontario County DSS has approximately 20 CPS staff (including 15 caseworkers, two senior caseworkers, two supervisors, and one manager) who are responsible for child protective services. The Ontario County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can reduce the number of overdue cases, increase the timeliness of entering progress notes, and enhance the accessibility to information after business hours.

The Ontario County DSS deployed 20 Dell D630 laptops on 02/24/2009 to all CPS caseworkers and staff. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device. The Ontario County DSS also tested the use of GPS devices. GPS devices were used on a as-needed basis for rural areas and brought along for some unknown city locations. The Ontario County DSS also purchased 10 broadband wireless cards that were shared by CPS caseworkers on an as-needed basis. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

No special training was provided to laptop users. However, manuals were handed out and IT staff were available to answer questions users may have. Ontario County DSS is currently in the process of finalizing a formal security protocol that will be provided to the laptop users.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased slightly from 403 in the pre-pilot period to 463 during the pilot period, a 15% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 253, up from 204 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 199 in the pre-pilot period to 210 during the pilot period. It is important to note that in Ontario County the total number of cases available to be worked on decreased from slightly 708 in the pre-pilot period to 697 during the pilot period, a 2% decrease.

Since the total number of cases available to be worked on remained similar during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
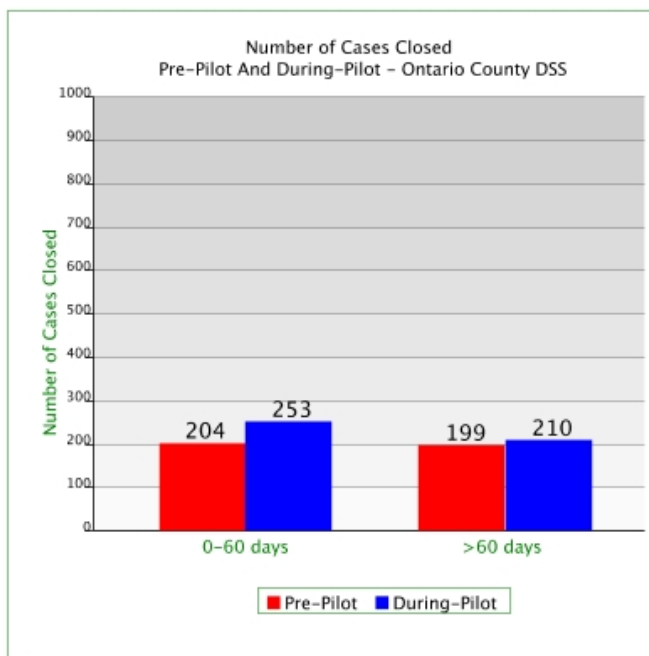

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is almost same that of the pre-pilot period.

Overall, there is very little difference between the timeliness of note entry across the two periods. The overall increase in case closings during the pilot period demonstrates an increase in volume of work despite a decrease in cases available to be worked on. By this measure, caseworkers maintained current timeliness patterns. With less than 60 percent of notes entered by the fifth day, opportunities for technology impacts still exist.
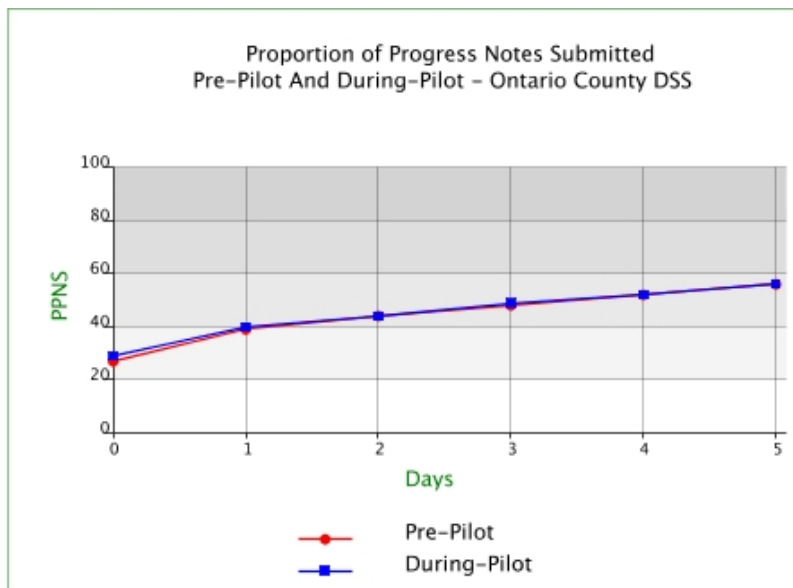

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 245 in the pre-pilot period to 286 during the pilot period. The number of safety assessments submitted after seven days increased from 158 to 177 during the pilot period.
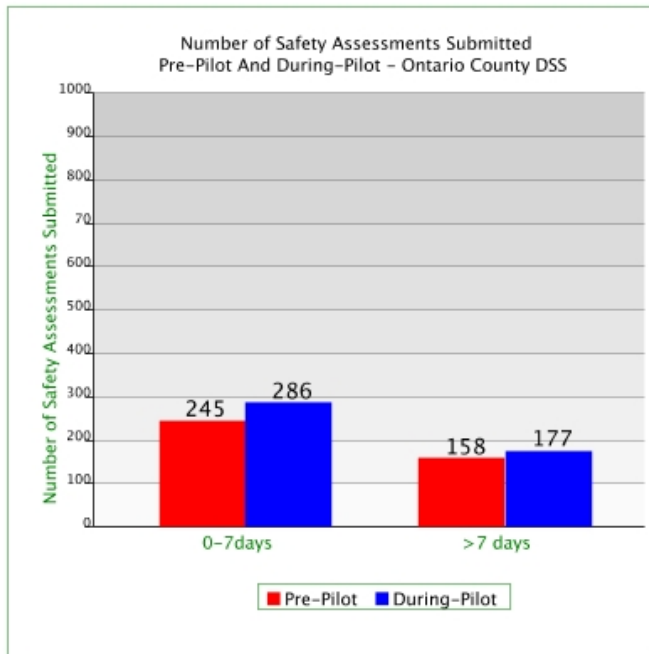

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Ontario	20	0	20	10	20

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Ontario	97	11/18/2008	2/23/2009	2/24/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Ontario	403	392	305	708	697	(-1.6%)	10792

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Orange County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Orange County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 95 days from 02/26/2009 - 06/01/2009.

District Deployment

Orange County is one of the largest agricultural counties in New York State and is considered one of the fastest growing urban/suburban counties in the state. It has a population of over 340,000 residents. The Orange County DSS has 50 CPS staff (including one senior case supervisor, seven supervisors, 29 caseworkers, and 13 family assessment response caseworkers) who are responsible for child protective services. The Orange County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can decrease the amount of backlog case work experienced by caseworkers and if it can increase their productivity.

The Orange County DSS deployed 50 Dell D630 laptops on 02/26/2009 to all CPS caseworkers and staff. (See Appendix B for device specifications). All CPS caseworkers and staff received their own dedicated device. The Orange County DSS purchased 41 broadband external wireless cards that were shared. The purpose of this was to evaluate the utilization of the wireless service prior to investing in the remaining nine wireless cards. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

The Orange County DSS IT department provided group training sessions prior to deploying the laptops. The training was aimed at topics of general use and security. The training session also highlighted the objective of the demonstration project. Additional individual training and instruction were provided upon the receipt of the laptops for those requiring additional assistance.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. The total number of cases closed decreased moderately from 670 in the pre-pilot period to 580 during the pilot period, a 13% decrease. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) decreased during the pilot period, down from 287 in the pre-pilot period to 233 during the pilot period. The number of cases closed in over 60 days decreased from 383 in the pre-pilot period to 347 during the pilot period. It is important to note that in Orange County the total number of cases available to be worked on slightly increased from 1390 in the pre-pilot period to 1581 during the pilot period, a 14% increase.

The increase in number of cases available to be worked during the pilot period appears to have had a negative impact on the timeliness of case handling and closing. This is a reasonable result if a priority was given to working on older cases. Orange County District officials stated that working to close cases older than 60 days was a priority for their testing of mobile technology. Similar results could also occur if the staff was already working at full capacity before the increase in cases occurred. In addition, the transition from desktop to laptop computers may have had an effect on overall productivity.
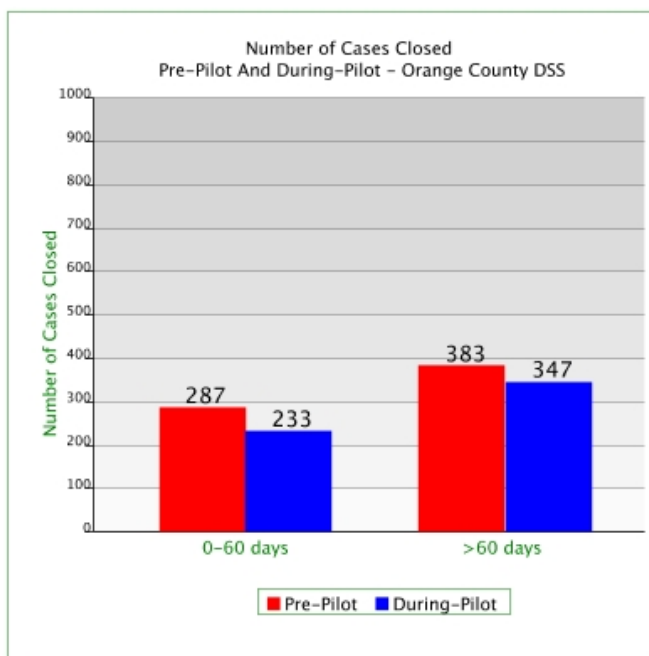

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly below that of the pre-pilot period.

There may be multiple reasons for this slight decrease in the timeliness of note entry. The overall increase in cases available to be worked on may have changed the usual pattern of progress note entry. There may also have been a disruption of normal work procedures associated with using a new technology. The timeliness of progress note entry was already relatively high in the pre-pilot period and continued to be high, albeit slightly lower, during the pilot period. This indicates less room for technology impacts on timeliness.
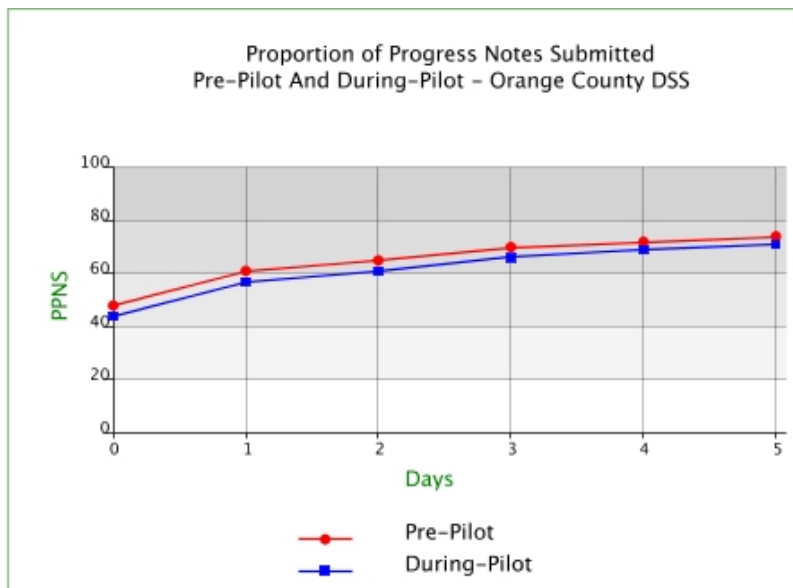
Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) decreased during the pilot period, down from 539 in the pre-pilot period to 456 during the pilot period. The number of safety assessments submitted after seven days increased from 115 to 117 during the pilot period.

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

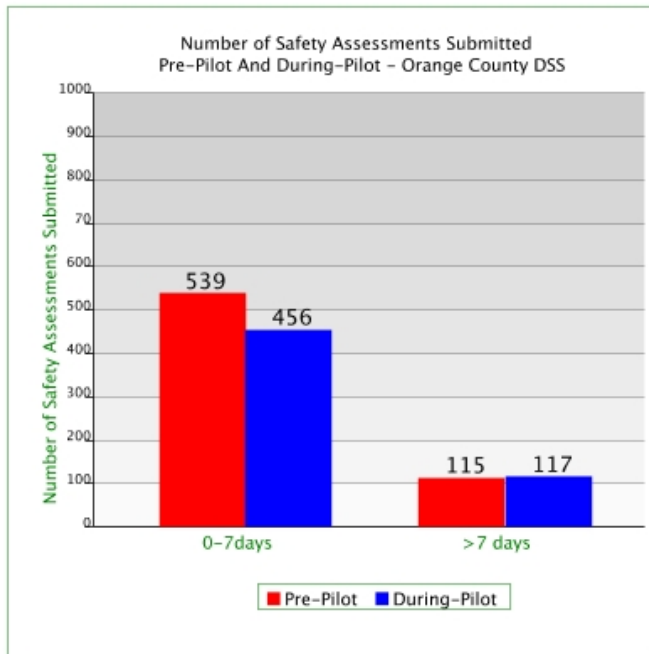The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Orange	50	0	50	41	48

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Orange	95	11/22/2008	2/25/2009	2/26/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Orange	670	861	720	1390	1581	13.7%	23718

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Oswego County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Oswego County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 102 days from 02/19/2009 - 06/01/2009.

District Deployment

Oswego County is predominantly a rural county of towns and villages with two urban cities in northwest New York State and has a population of over 122,000 residents. The Oswego County DSS has 28 CPS staff (including a director, one supervisor, six senior caseworkers, and 20 caseworkers) who are responsible for child protective services. The Oswego County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase the timeliness of entering safety assessments, report closings, and investigation documentation; improve access to case records from the field; and enhance communication between supervisors and court liaisons.

The Oswego County DSS deployed 32 Dell D630 laptops on 02/19/2009 to all CPS caseworkers and share four laptops between on-call staff. (See Appendix B for device specifications). All 20 CPS caseworkers received their own dedicated device. In addition to the laptops, the Oswego County DSS used GPS devices and signed them out as need. Twenty-seven of the caseworkers' and supervisors' laptops were equipped with a district-provided external broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Group training sessions were held and individual assistance was provided on a need basis.Representatives from the wireless carrier also held a special session to install the wireless cards and provide CPS staff with instructions on how to use the wireless broadband in the field. Prior to deploying the laptops, the Oswego County DSS had a computer security policy, which remained in effect without any changes.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 330 in the pre-pilot period to 496 during the pilot period, a 50% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 211, up from 120 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 210 in the pre-pilot period to 285 during the pilot period. It is important to note that in Oswego County the total number of cases available to be worked on increased moderately from 863 in the pre-pilot period to 1098 during the pilot period, a 27% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
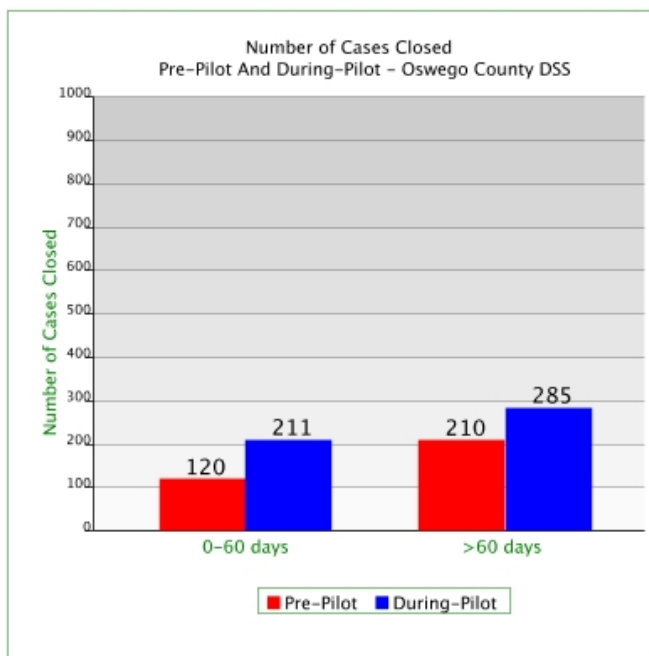

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, just under 60 percent of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry. With less than 60 percent of notes entered by the fifth day, opportunities for technology impacts still exist.

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 174 in the pre-pilot period to 239 during the pilot period. The number of safety assessments submitted after seven days increased from 153 to 257 during the pilot period.

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

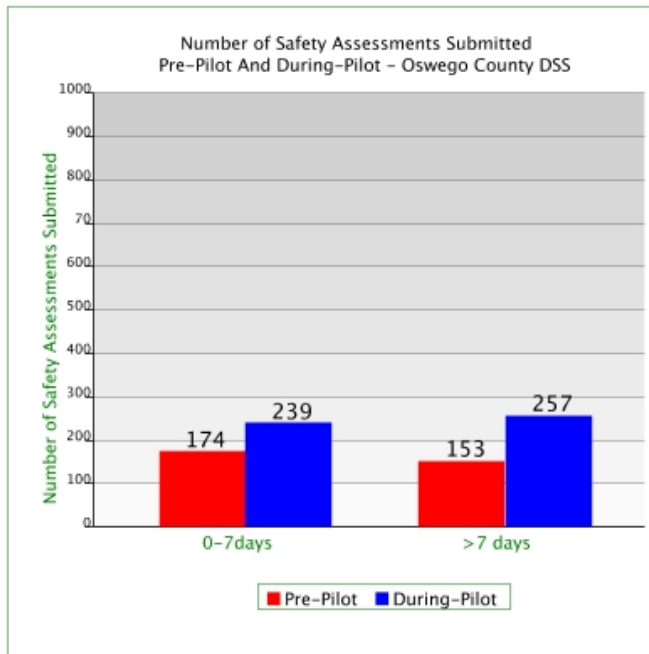The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Oswego	32	0	32	27	26

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Oswego	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Oswego	330	565	533	863	1098	27.2%	19676

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in Child Protective Services

Rensselaer County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook
Anthony M. Cresswell
Natalie Helbig
Bahadir K. Akcam
Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Rensselaer County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 101 days from 02/20/2009 - 06/01/2009.

District Deployment

Rensselaer County is largely a rural county with one metropolitan center located in the Capital District of New York State and has a population of over 150,000. The Rensselaer County DSS has 37 CPS staff (including a director, six supervisors, 29 caseworkers, and one CPS family court liaison) who are responsible for child protective services. The Rensselaer County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility, improve performance and efficiency by enabling work outside of the office after business hours and while on-call, ensure that cases are up to date, and enhance the timeliness of entering notes.

The Rensselaer County DSS deployed 25 Dell D630 laptops on 02/20/2009. (See Appendix B for device specifications). Three supervisors, all 21 caseworkers, and the family court liaison received their own device. In addition, Rensselaer County DSS purchased GPS devices, which were assigned to each CPS unit. The GPS devices were shared amongst caseworkers in each unit and were controlled by the unit supervisor. Due to a budget freeze, the Rensselaer County DSS did not equip the laptops with a district-provided broadband wireless card. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers received one-on-one training by the local LAN administrator. The training provided caseworkers with a general understanding for using the laptops. Formal written instruction was also provided to caseworkers regarding security procedures. Those receiving a laptop were required to sign a form acknowledging the receipt of the laptop and recognizing their understanding of the security procedures needed to secure the laptops.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased slightly from 595 in the pre-pilot period to 693 during the pilot period, a 16% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 435, up from 305 in the pre-pilot period. The number of cases closed in over 60 days decreased, down from 290 in the pre-pilot period to 258 during the pilot period. It is important to note that in Rensselaer County the total number of cases available to be worked on decreased very slightly from 970 in the pre-pilot period to 945 during the pilot period, a 3% drop.

Since the total number of cases available to be worked during the pilot period remained steady, the decrease in case closings that are more than 60 days old coupled with an increase in the number of cases closed within 60 days indicates improvements in timeliness and volume of work during the pilot period.
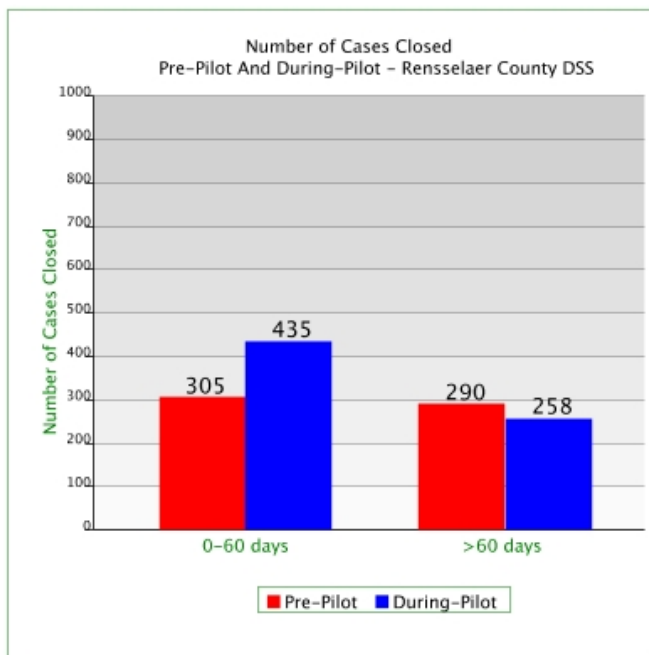

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, 60 percent of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry. With less than 60 percent of notes entered by the fifth day, opportunities for technology impacts still exist.

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 272 in the pre-pilot period to 352 during the pilot period. The number of safety assessments submitted after seven days increased from 322 to 337 during the pilot period.

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technol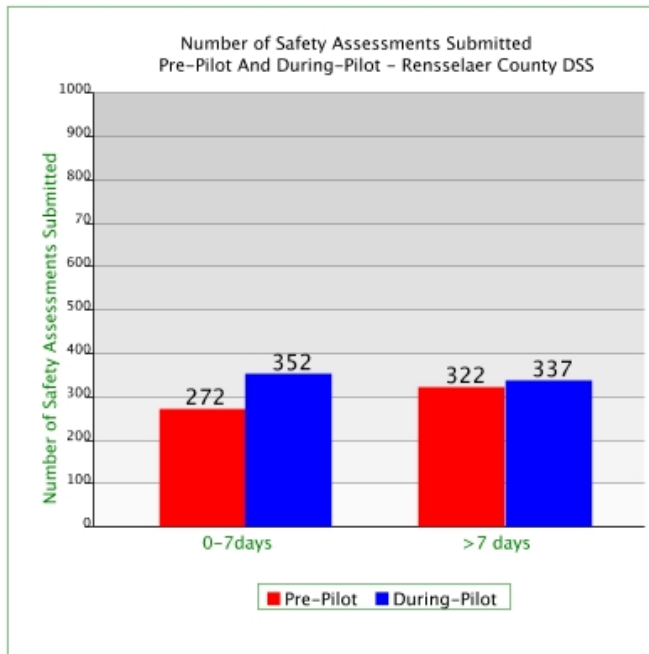ogy Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Rensselaer	25	0	25	0	20

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

		Pre-Pilot Period		Pilot Period	
District	# of Days with Mobile Technology (Pilot Length)	Start	End	Start	End
Rensselaer	101	11/10/2008	2/19/2009	2/20/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	**Pilot Cases Only**	**Cases in Both Periods**	**Total Pre-pilot**	**Total Pilot**	**% change from Pre to Pilot**	**Total Progress Notes (both periods)**
Rensselaer	595	570	375	970	945	(-2.6%)	18126

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Schenectady County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Schenectady County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 94 days from 02/27/2009 - 06/01/2009.

District Deployment

Schenectady County is split between rural and urban/suburban settings located in the Capital District of New York State and has a population of about 150,000 residents. The Schenectady County DSS has 37 CPS staff (including seven supervisors and 30 CPS caseworkers) who are responsible for child protective services. The Schenectady County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility and convenience by enabling work outside of the office.

The Schenectady County DSS deployed 18 Dell D630 laptops on 02/27/2009. (See Appendix B for device specifications). Schenectady County DSS received 20 laptops in 2007. The remaining 10 caseworkers received their own dedicated machine in 2009. Those receiving a laptop had their desktop computers removed and replaced with a docking station (including external monitor and keyboard). None of the 18 laptops deployed in 2009 received broadband wireless cards. However, regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

The local administrator held a group training session for caseworkers. While there were no handouts available, the training session was hands-on and laptop users were allowed to ask for clarifications when the need arose. Finally, the supervisors discussed security procedures with their caseworkers.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 191 in the pre-pilot period to 335 during the pilot period, a 75% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 87, up from 58 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 133 in the pre-pilot period to 248 during the pilot period. It is important to note that in Schenectady County the total number of cases available to be worked on increased moderately from 511 in the pre-pilot period to 639 during the pilot period, a 25% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened with a simultaneous improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
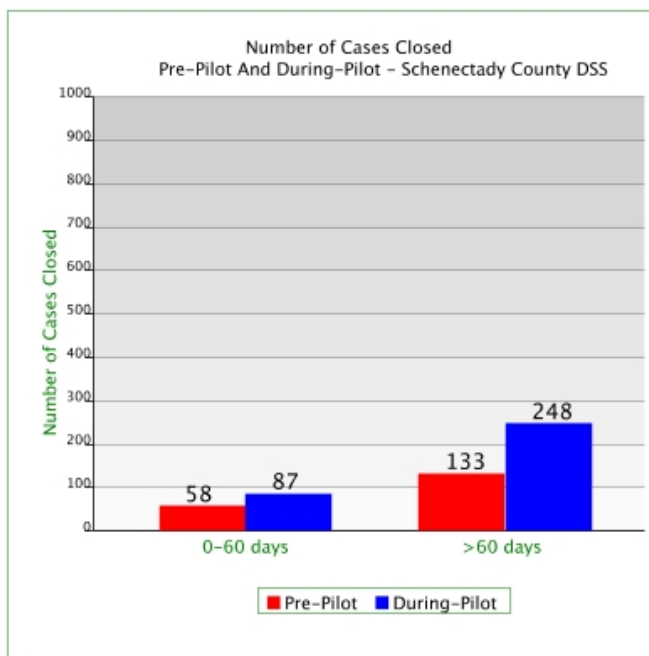

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and the increase in case closings during the pilot period demonstrate an increase in the overall volume of work. By this measure, caseworkers were able to improve the timeliness of their progress notes during the pilot period.

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 43 in the pre-pilot period to 87 during the pilot period. The number of safety assessments submitted after seven days increased from 144 to 246 during the pilot period.

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can h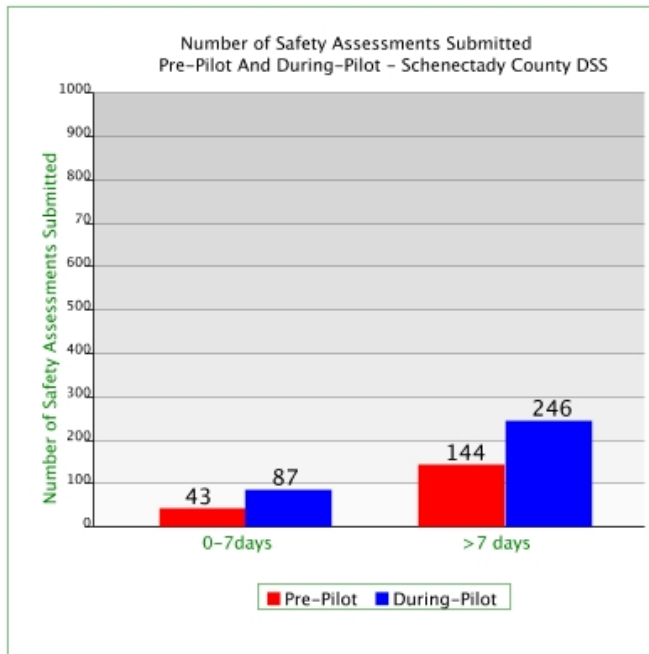ave positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	Laptops	Tablets	Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
Schenectady	18	0	18	0	16

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1.   **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2.   **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3.   **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1.   The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2.   The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Schenectady	94	11/24/2008	2/26/2009	2/27/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Schenectady	191	319	320	511	639	25.0%	5085

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Center for Technology in Government

Assessing Mobile Technologies in
Child Protective Services

Schuyler County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Schuyler County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 111 days from 02/10/2009 - 06/01/2009.

District Deployment

Schuyler County is a predominantly a rural county located in Central New York and has a population of approximately 20,000 residents. The Schuyler County DSS has approximately ten CPS staff (including four CPS investigators, one supervisor, one manager, and four cross-trained protective/preventative staff used as needed) who are responsible for child protective services. The Schuyler County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can decrease the number of overdue cases, reduce backlogs, improve productivity in entering progress notes, and increase CPS caseworker flexibility and convenience by enabling work outside of the office and by improving the accessibility to CONNECTIONS.

The Schuyler County DSS deployed seven Dell D630 laptops on 02/10/2009. (See Appendix B for device specifications). All four CPS caseworkers, the supervisor, the manager, and the deputy commissioner received a dedicated machine. CPS staff receiving laptops were provided with a docking station and an external monitor to use while in the office. The Schuyler County DSS purchased two broadband wireless cards and will evaluate their usefulness before purchasing additional cards for the remaining laptops. The broadband wireless cards are signed out on a first-come, first-served basis, however on-call caseworkers have access to wireless cards during the night shift. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers received both group and individual training upon the receipt of the laptops. Those receiving laptops were required to sign the county security disclosure. Additionally, security-related information is an ongoing discussion amongst CPS workers at staff meetings.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased slightly from 75 in the pre-pilot period to 85 during the pilot period, a 13% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 33, up from 26 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 49 in the pre-pilot period to 52 during the pilot period. It is important to note that in Schuyler County the total number of cases available to be worked on moderately increased from 130 in the pre-pilot period to 155 during the pilot period, a 19% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
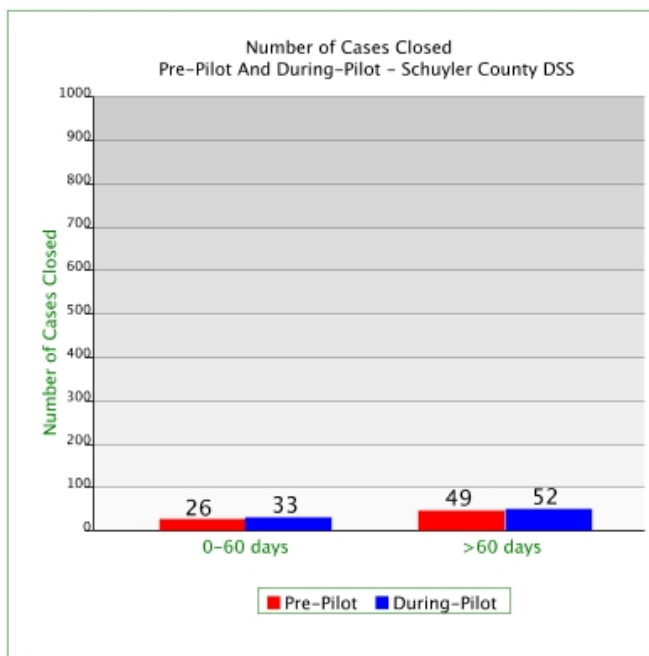

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
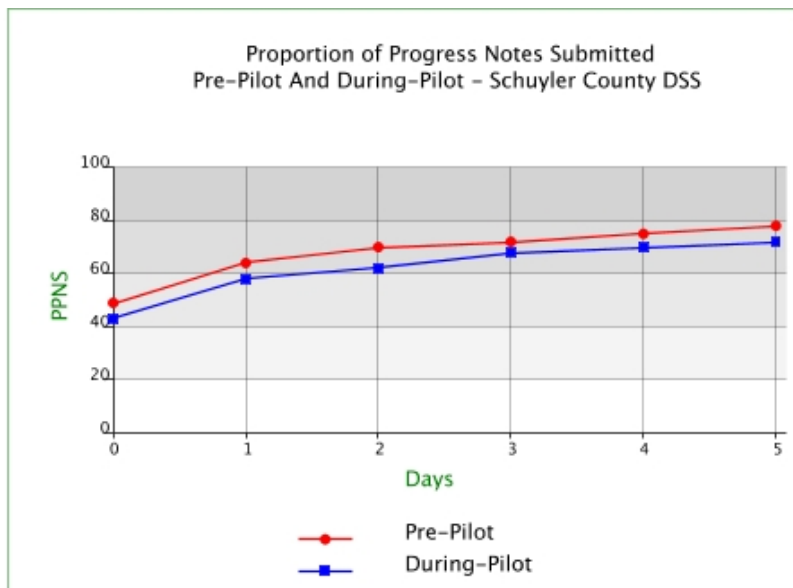

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 59 in the pre-pilot period to 68 during the pilot period. The number of safety assessments submitted after seven days decreased from 14 to 12 during the pilot period.

Number of Safety Assessments Submitted
Pre-Pilot And During-Pilot – Schuyler County DSS

Number of Safety Assessments Submitted (y-axis: 0 to 1000)

- 0–7 days: Pre-Pilot 59, During-Pilot 68
- >7 days: Pre-Pilot 14, During-Pilot 12
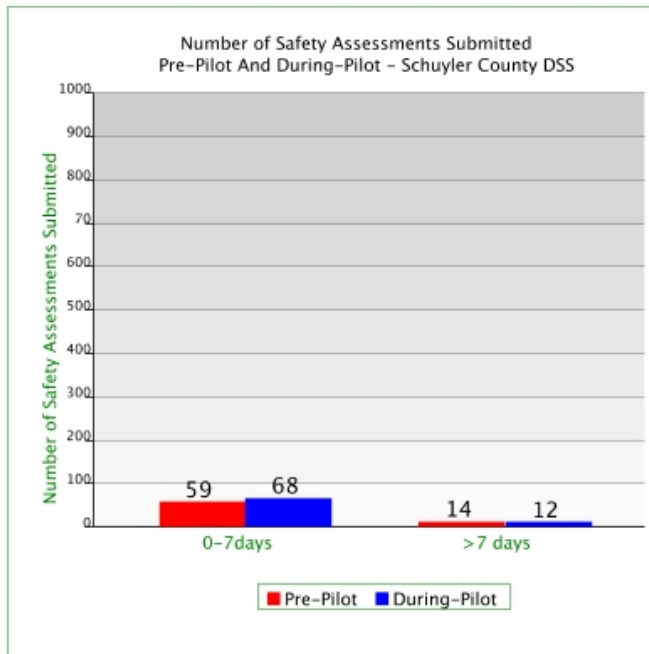
Legend: Pre-Pilot (red), During-Pilot (blue)

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Schuyler	7	0	7	2	6

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Schuyler	111	10/21/2008	2/9/2009	2/10/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Schuyler	75	100	55	130	155	19.2%	3749

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

Sullivan County Department for Children, Youth, and Families District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Sullivan County Health and Family Services. Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 110 days from 02/11/2009 - 06/01/2009.

District Deployment

Sullivan County is a rural county of towns and villages along the Pennsylvania border separated by the Delaware River. It has a population of approximately 76,000 residents. The Sullivan County Health and Family Services has approximately 18 CPS staff (including 15 caseworkers and three supervisors) who are responsible for child protective services. The Sullivan County Health and Family Services participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the capability to enter documentation into CONNECTIONS in a timely manner, as well as increase caseworkers' flexibility by enabling work outside of the office.

The Sullivan County Health and Family Services deployed 18 Dell D630 laptops to all CPS caseworkers and supervisors on 02/11/2009. (See Appendix B for device specifications). All CPS caseworkers and supervisors received their own dedicated device. The Sullivan County Health and Family Services equipped all 18 laptops with district-provided broadband wireless cards. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Caseworkers and supervisors received individual training and a demonstration of how to use the laptops. There was no discussion of the security procedures caseworkers and supervisors need to follow.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 250 in the pre-pilot period to 440 during the pilot period, a 76% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 116, up from 59 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 191 in the pre-pilot period to 324 during the pilot period. It is important to note that in Sullivan County the total number of cases available to be worked on increased moderately from 673 in the pre-pilot period to 819 during the pilot period, a 22% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
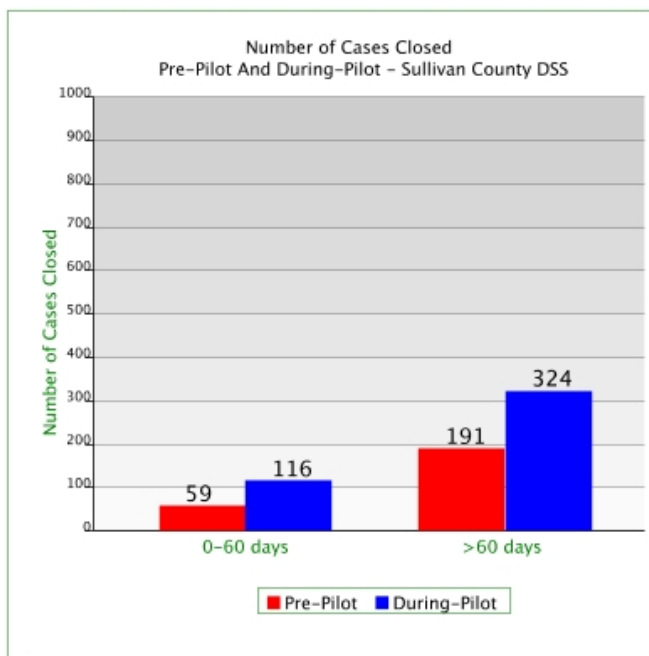

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing older cases, which also could have changed the usual pattern of progress note entry.
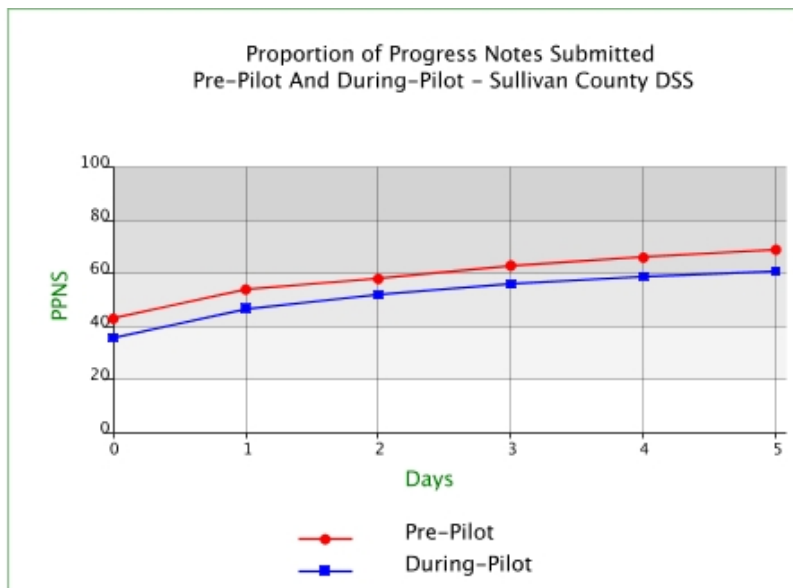

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 51 in the pre-pilot period to 107 during the pilot period. The number of safety assessments submitted after seven days increased from 176 to 297 during the pilot period.
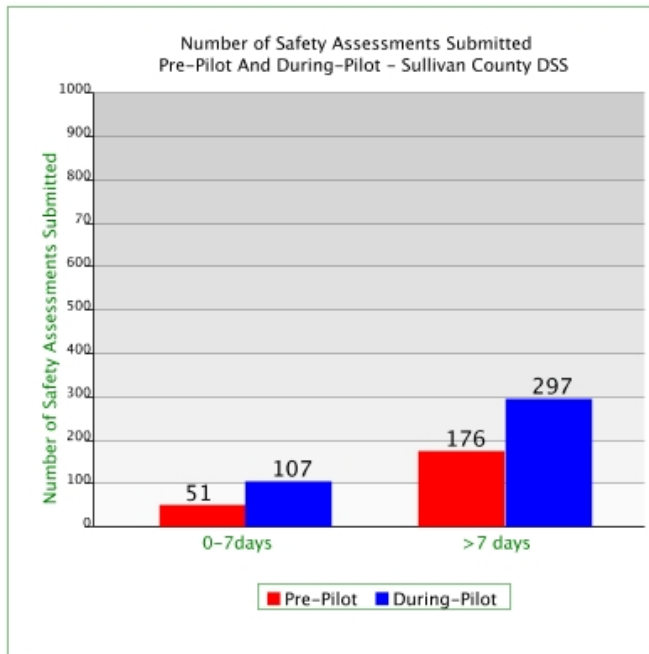

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Sullivan	18	0	18	11	17

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Sullivan	110	10/23/2008	2/10/2009	2/11/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

> Pre-Pilot Cases Only
> - Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Sullivan	250	396	423	673	819	21.7%	10899

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training?
- What is the geographical area, population, and urban/rural makeup of your district.
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Tioga County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook

Anthony M. Cresswell

Natalie Helbig

Bahadir K. Akcam

Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Tioga County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 102 days from 02/19/2009 - 06/01/2009.

District Deployment

Tioga County is predominantly a rural county located in the Southern Tier of New York State, bordering Pennsylvania, and has a population of about 52,000 residents. The Tioga County DSS has twelve CPS staff (including two supervisors, three senior caseworkers, and seven caseworkers) who are responsible for child protective services. The Tioga County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the productivity and efficiency of caseworkers and to increase CPS caseworker flexibility and convenience by enabling work outside of the office.

The Tioga County DSS deployed 11 Dell D630 laptops on 02/19/2009. (See Appendix B for device specifications). All 20 caseworkers received a dedicated machine and one laptop was designated for on-call caseworkers. The remaining laptop was reserved for a non-CPS staff responsible for on-call service and was rotated as needed. The deployed laptops replaced caseworkers' desktops. Caseworkers receiving laptops also received a docking station and an external monitor for use while in the office. In addition to the laptops, the Tioga County DSS received GPS devices that were shared amongst caseworkers and signed out as needed. Four broadband wireless cards were purchased and are being evaluated. The Tioga County DSS intends to purchase additional cards if and when the need arises. The broadband wireless cards were shared on a first come basis, however, priority was given to on-call CPS caseworkers. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Hands-on demonstrations illustrating the proper way to dock and take out the laptops was provided to the caseworkers. The hands-on demonstrations also included instructions on how to connect to the network. Caseworkers were provided with some security guidelines to abide by. As part of the process of receiving the laptops, users were required to read and sign a remote access Memorandum of Understanding (MOU).

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased very slightly from 129 in the pre-pilot period to 130 during the pilot period, a 1% increase. Figure 1 below shows that the rate of timely closing of cases (in 60 days or less) during the pilot period increased to 108, up from 100 in the pre-pilot period. The number of cases closed in over 60 days decreased, down from 29 in the pre-pilot period to 22 during the pilot period. It is important to note that in Tioga County the total number of cases available to be worked on increased slightly from 202 in the pre-pilot period to 231 during the pilot period, a 14% increase.

Since the total number of cases available to be worked on increased slightly during the pilot period, the decrease in case closings that are more than 60 days old coupled with an increase in the number of case closings within 60 days indicates improvements in timeliness and volume of work during the pilot period.
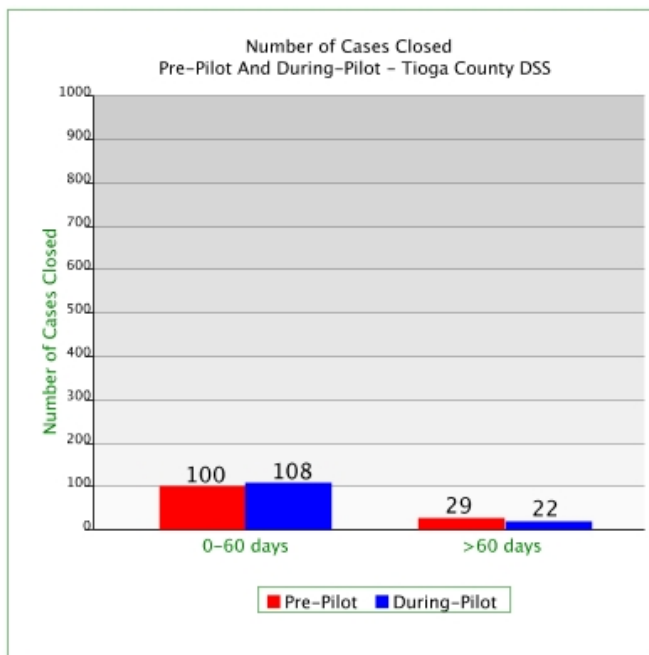

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period.

There may be multiple reasons for this decrease in the timeliness of note entry. One explanation is that the overall increase in the volume of case closings during the pilot may have changed the usual pattern of progress note entry. In addition, the data shows a pattern of behavior in closing backlogged cases, which also could have changed the usual pattern of progress note entry.
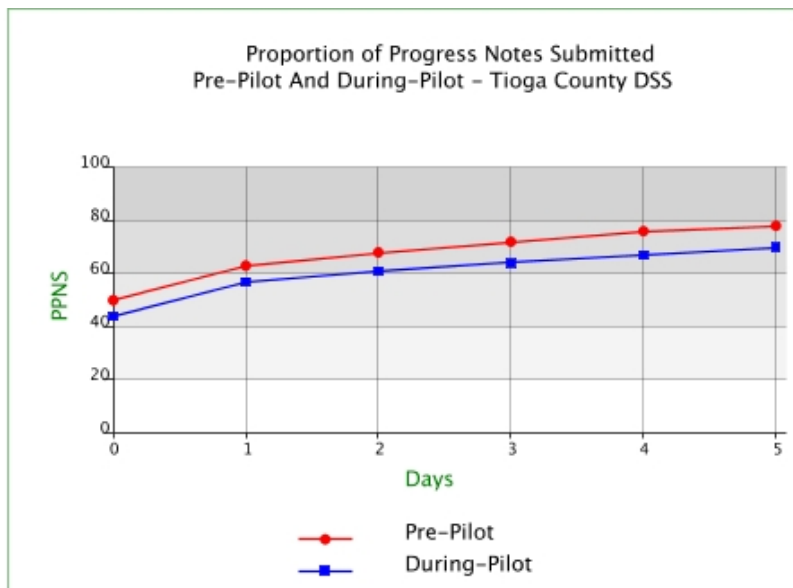

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 117 in the pre-pilot period to 120 during the pilot period. The number of safety assessments submitted after seven days were the same during both periods.

Number of Safety Assessments Submitted
Pre-Pilot And During-Pilot – Tioga County DSS

0-7 days: Pre-Pilot 117, During-Pilot 120	>7 days: Pre-Pilot 10, During-Pilot 10

(Y-axis: Number of Safety Assessments Submitted, scale 0–1000)
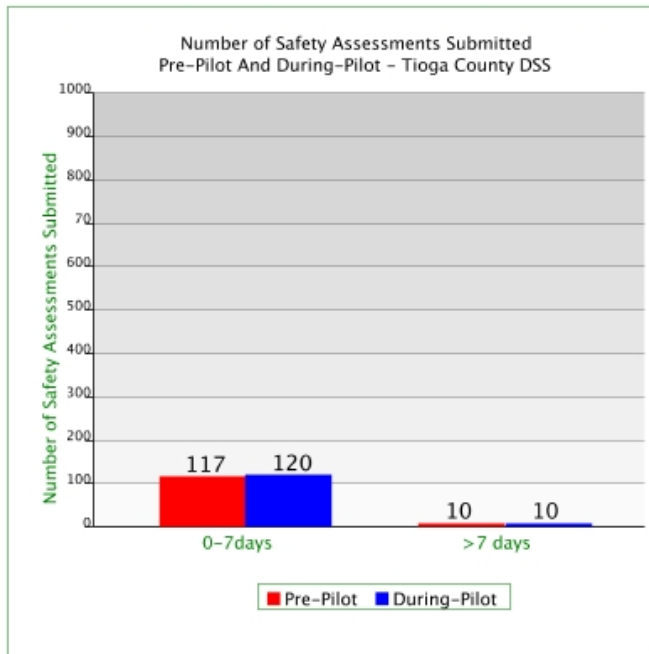
Legend: ■ Pre-Pilot ■ During-Pilot

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Tioga	11	0	11	4	10

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

		Pre-Pilot Period		Pilot Period	
District	# of Days with Mobile Technology (Pilot Length)	Start	End	Start	End
Tioga	102	11/8/2008	2/18/2009	2/19/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Tioga	129	158	73	202	231	14.4%	5014

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in Child Protective Services

Tompkins County
Department for Children, Youth, and Families
District Profile

Meghan E. Cook
Anthony M. Cresswell
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Bahadir K. Akcam
Fawzi H. Mulki

Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Tompkins County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 108 days from 02/13/2009 - 06/01/2009.

District Deployment

Tompkins County is a mostly rural area with one metropolitan center located in Central New York State. It has a population of over 96,000 residents. The Tompkins County DSS has 18 CPS staff (including 14 caseworkers, three supervisors, and one on-call caseworker) who are responsible for child protective services. The Tompkins County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the accessibility to information in CONNECTIONS, improve decision making, increase CPS caseworker flexibility and convenience by enabling work outside of the office, and reduce the number of overdue safety assessments and case determinations.

The Tompkins County DSS deployed 18 Dell D630 laptops on 02/20/2009. (See Appendix B for device specifications). All CPS caseworkers and supervisors received a dedicated machine. In addition, the Tompkins County DSS provided caseworkers with Dragon Naturally Speaking upon request. The Tompkins County DSS submitted a proposal to the County Legislature regarding the purchase of broadband wireless cards, but did not deploy wireless cards at the time of data collection. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

The Tompkins County DSS PC support staff provided users with group training on how to use the laptops. The PC support staff also prepared and provided laptop users with manuals on how to use the laptops. As part of the group training session offered, the PC support staff discussed issues related to security. A handout was included as part of the training and distributed to all users.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. The total number of cases closed decreased substantially from 236 in the pre-pilot period to 127 during the pilot period, a 46% decrease. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) decreased during the pilot period, down from 118 in the pre-pilot period to 64 during the pilot period. The number of cases closed in over 60 days decreased from 118 in the pre-pilot period to 63 during the pilot period. It is important to note that in Tompkins County the total number of cases available to be worked on increased from 381 in the pre-pilot period to 444 during the pilot period, a 17% increase.

The increase in number of cases available to be worked on appears to have had a negative impact on the timeliness of case handling and closing. This is a reasonable result if a priority was given to working on older cases. The laptop computers available for use in the pilot period were not equipped with wireless access cards, which may have limited their utility in the field. Similar results could also occur if the staff was already working at full capacity before the increase in cases occurred. In addition, the transition from desktop to laptop computers may have had an effect on overall productivity.
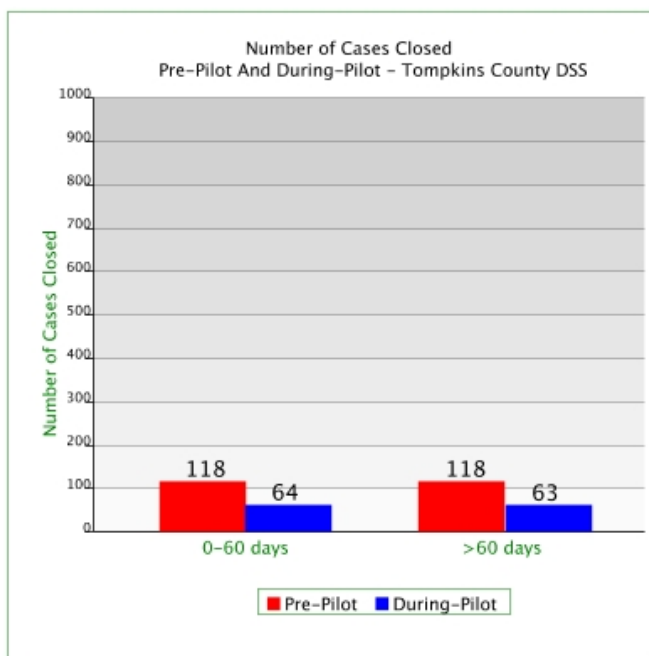

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is consistently above that of the pre-pilot period.

The overall increase in the timeliness of note entry across the two periods appears to be unaffected by the increase in the number of cases available to be worked on in the pilot period. Along with the laptops, the district did deploy voice recognition software for dictating progress notes, which may have aided timeliness as well. It is possible that a priority was given to timely documentation relative to case closing, resulting in stable progress note entry but declining volume of case closing.
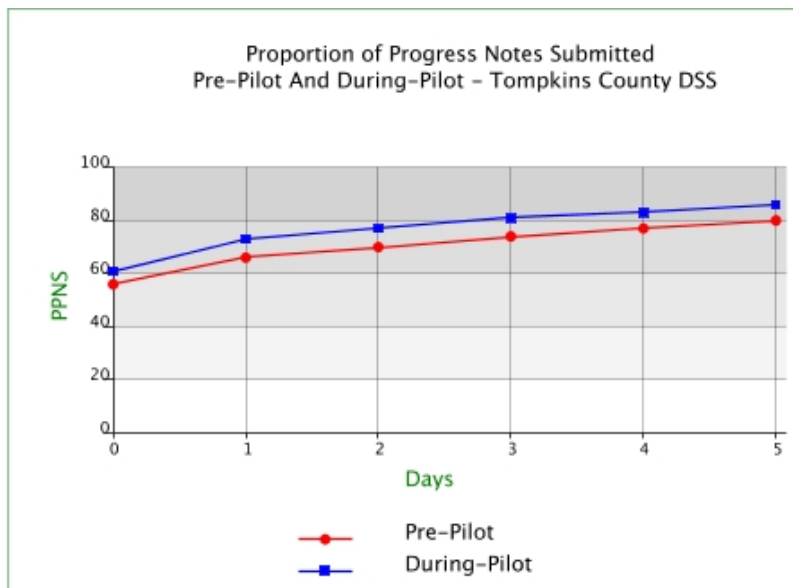

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) decreased during the pilot period, down from 138 in the pre-pilot period to 75 during the pilot period. The number of safety assessments submitted after seven days decreased from 93 to 50 during the pilot period.
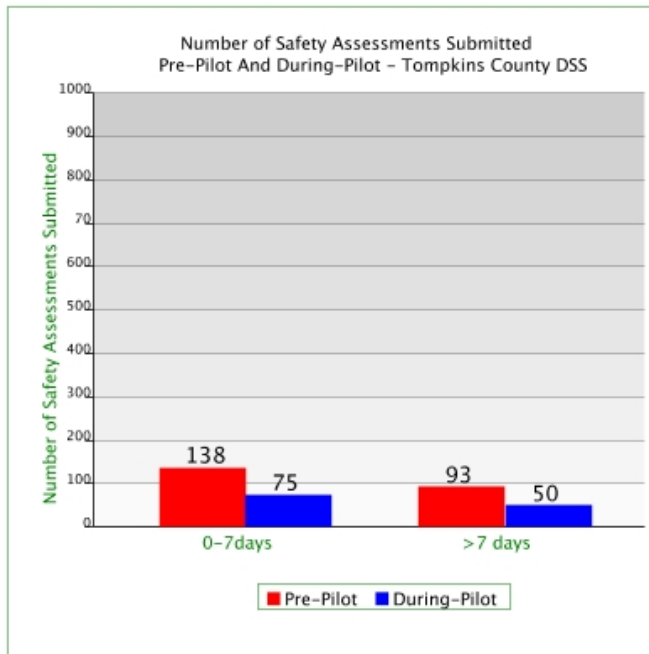

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

Districts	Device		Number of Docking Stations	Broadband Wireless Cards	# of participating caseworkers
	Laptops	Tablets			
Tompkins	18	0	18	0	21

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Tompkins	108	10/27/2008	2/12/2009	2/13/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Tompkins	236	299	145	381	444	16.5%	12183

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

Assessing Mobile Technologies in
Child Protective Services

Westchester County
Department for Children, Youth, and Families
District Profile

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Westchester County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 222 days from 10/22/2008 - 06/01/2009.

District Deployment

Westchester County is primarily a suburban county in the in the New York Metropolitan Area with a population of over 949,000 residents. The Westchester County DSS has approximately 173 CPS staff (including 138 senior caseworkers, 25 supervisors, and ten managers) who are responsible for child protective services. The Westchester County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase communication between supervisors and caseworkers while in the field; enhance the timeliness of entering progress notes, assessment, and determinations; and to gain a better understanding of best practices of using mobile technologies for child protective services.

The Westchester County DSS deployed 22 Motion Computing F5 Tablets on 10/22/2008. (See Appendix B for device specifications). One program administrator, 18 senior caseworkers, and three supervisors received the tablet PCs. CPS caseworkers and staff volunteered to take part of this demonstration project. The tablets were dedicated and were not shared amongst CPS staff. In addition to the laptops, the Westchester County DSS provided each participant with a docking station, keyboard, dictation software, digital camera, digital pen, and Microsoft One Note. At first, users had access to both the tablet and their desktops, however, the desktops were later removed and users relied entirely on the tablets. Additionally, the tablets were equipped with a district-provided internal broadband wireless card through which users connected to the Internet and state network. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Each of the participants attended a half day hands-on-training session by the tablet's manufacturer. The Westchester County DSS program administrator provided users with hand-on training at each of the district offices. Training included a demonstration of the tablet's functionality. Furthermore, four weekly discussion forums were held in the initial phase to discuss any issues users encountered. Each user also received a guide on how to use the tablet. Finally, standard New York State and Westchester County security and confidentiality policies were reviewed with the users.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased slightly from 627 in the pre-pilot period to 697 during the pilot period, an 11% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 667, up from 536 in the pre-pilot period. The number of cases closed in over 60 days decreased, down from 91 in the pre-pilot period to 30 during the pilot period. It is important to note that in Westchester County the total number of cases available to be worked on increased moderately from 756 in the pre-pilot period to 888 during the pilot period, a 17% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the decrease in case closings that are more than 60 days old couple with an increase in case closings within 60 days indicates improvements in both volume and timeliness of work during the pilot period.
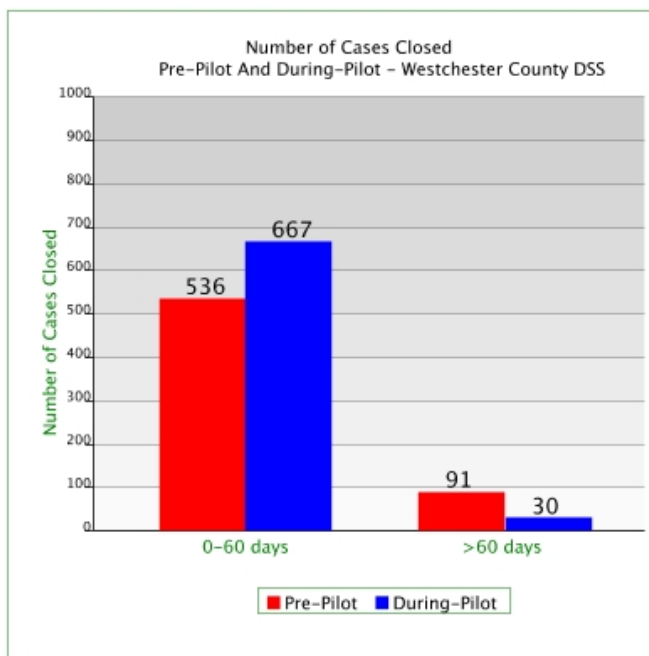

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and the increase in case closings during the pilot period demonstrate an increase in the overall volume of work. By this measure, caseworkers were able to improve their timeliness of progress notes during the pilot period.
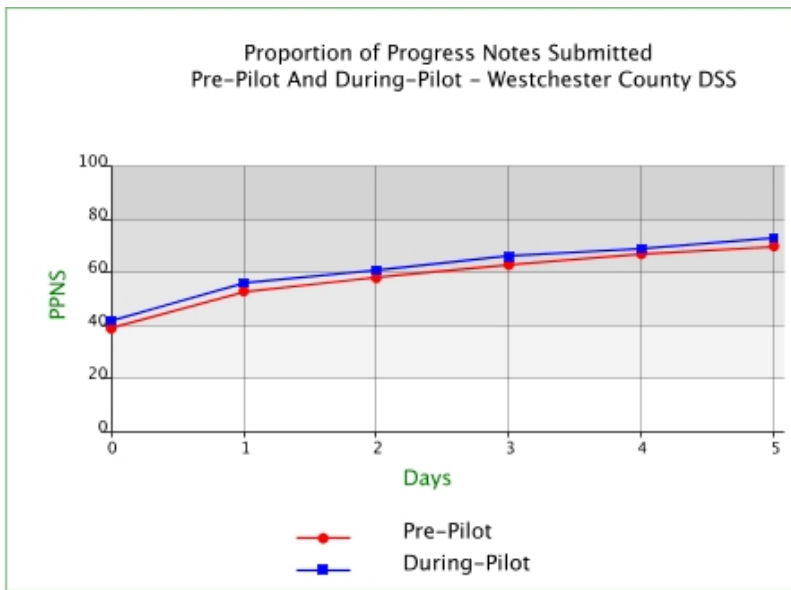

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, from 535 in the pre-pilot period to 668 during the pilot period. The number of safety assessments submitted after seven days decreased from 88 to 24 during the pilot period.
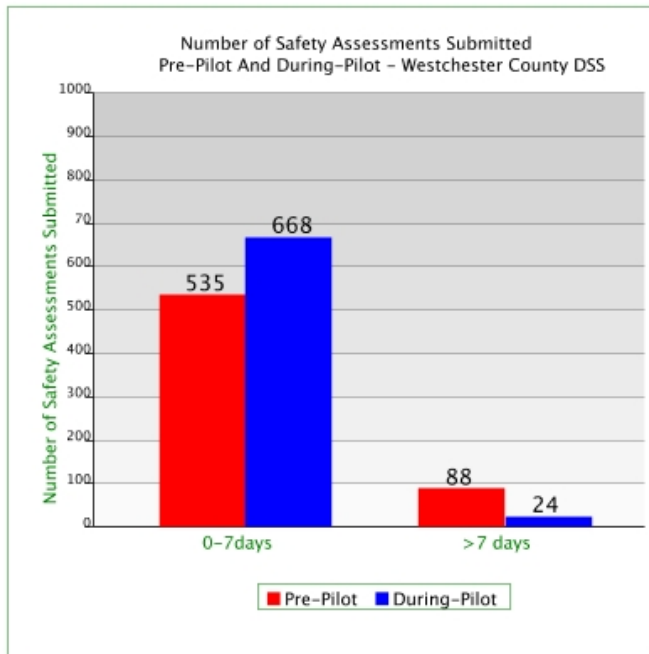

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Westchester	0	22	0	22	16

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Westchester	222	3/13/2008	10/21/2008	10/22/2008	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

| | Case Availability Status | | | | | | |
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Westchester	627	759	129	756	888	17.5%	16847

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Motion Tablet

Motion F5, Intel Core 2 Solo Processor U2200, 2MB L2 Cache1.06GHz 533MHz FSB, Intel 945GME Express, 10.4 inch XGA TFT ADDS+ LED Backlight (1024 x 768), Intel Graphics Media Accelerator 950, Maximum 256MB total with Intel Dynamic Video Memory Technology (DVMT), Intel High Definition Audio, 2GB DDR2 1.20GHz SDRAM, 80GB 1.8 inch Hard Disk Drive, Wi-Fi 802.11 a/b/g, Integrated Bluetooth, 2.0 Megapixel Camera, Integrated Fingerprint Reader with OmniPass Software, Lithium-ion 40Whr Battery, Docking Station and External Keyboard.

Encryption

PointSec encryption software was installed on each device before deployment.

Center for Technology in Government

Assessing Mobile Technologies in
Child Protective Services

Wyoming County
Department for Children, Youth, and Families
District Profile

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The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Wyoming County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 92 days from 03/01/2009 - 06/01/2009.

District Deployment

Wyoming County is a mostly rural area of small towns and villages located in Western New York State with a population of over 42,000 residents. The Wyoming County DSS has approximately six CPS staff (including four CPS caseworkers, one senior caseworker, and one supervisor) who are responsible for child protective services. The Wyoming County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can increase CPS caseworker flexibility and convenience by enabling work outside of the office, and to keep up to-date on documentation.

The Wyoming County DSS deployed six Dell D630 laptops on 03/01/2009. (See Appendix B for device specifications). All four caseworkers received a dedicated laptop, while the additional two were shared amongst the remaining staff. The shared laptops were utilized by the director of services and the domestic violence (DV) project coordinator. One broadband wireless card was purchased and was shared amongst the laptop users. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Upon receipt of the laptops, CPS caseworkers received one-on-one hands-on training by IT staff. Laptop users were reminded of existing security policies and procedures that remained in effect.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 61 in the pre-pilot period to 96 during the pilot period, a 57% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 57, up from 34 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 27 in the pre-pilot period to 39 during the pilot period. It is important to note that in Wyoming County the total number of cases available to be worked on increased slightly from 121 in the pre-pilot period to 129 during the pilot period, a 7% increase.

Since the total number of cases available to be worked on increased moderately during the pilot period, the increase in case closings that are more than 60 days old appears to reflect efforts to close older cases. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
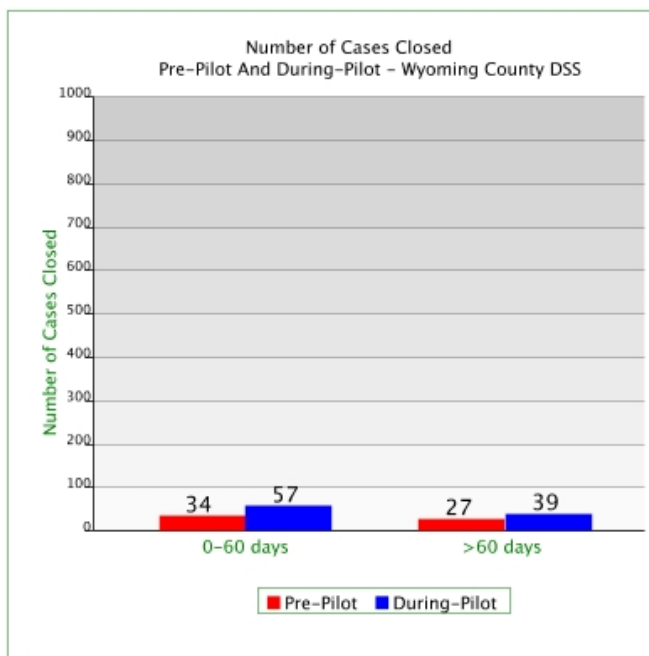

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, just under 60 percent of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and the increase in case closings during the pilot period demonstrates an increase in the overall volume of work. By this measure, caseworkers were able to improve the timeliness of their progress notes during the pilot period. With less than 60 percent of notes entered by the fifth day, opportunities for technology impacts still exist.
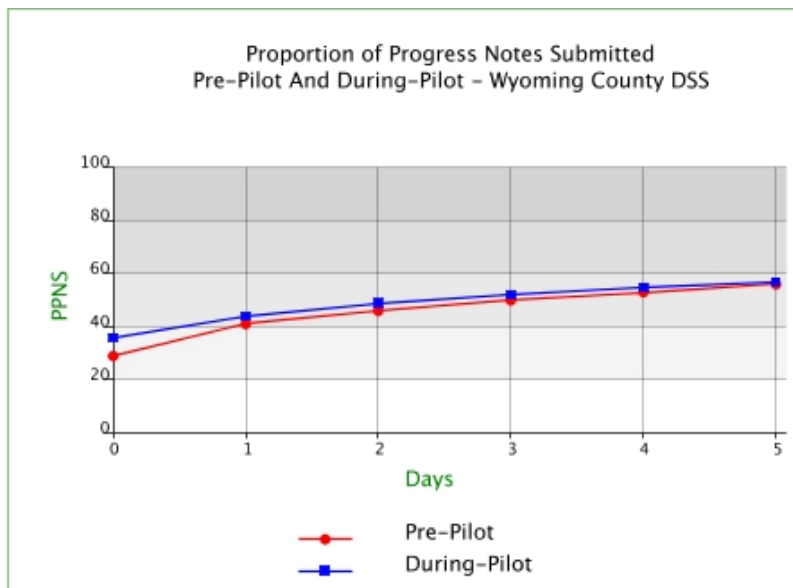

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows that the volume of timely submission of safety assessments (in 7 days or less) increased during the pilot period, up from 49 in the pre-pilot period to 79 during the pilot period. The number of safety assessments submitted after seven days increased from 12 to 16 during the pilot period.
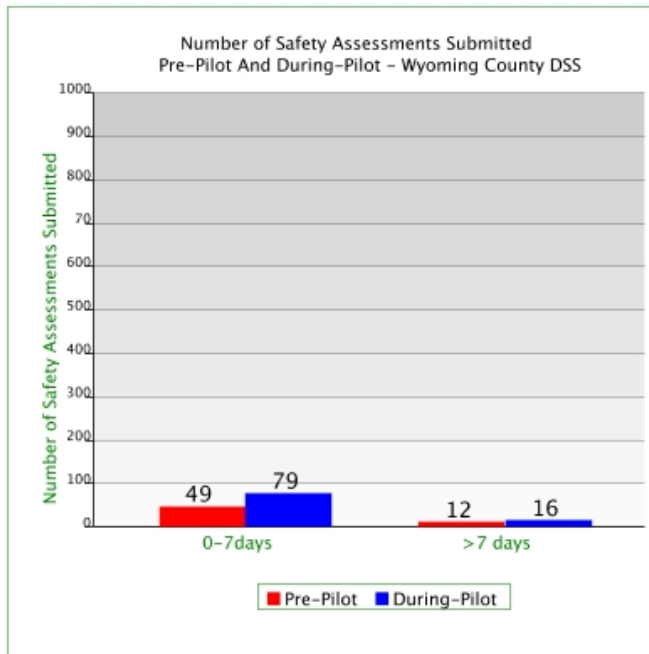

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Wyoming	6	0	6	1	4

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Wyoming	92	11/28/2008	2/28/2009	3/1/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Wyoming	61	69	60	121	129	6.6%	3073

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work across the state. This initiative has been underway for over three years and is a collaborative effort among the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG) at the University at Albany.

The 2008-2009 effort included the assessment of laptop use among CPS caseworkers in 26 NYS local social service districts. Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project, coordinated and procured wireless connectivity, and provided training to CPS staff. CTG conducted an independent assessment in all 26 districts focusing on whether the use of mobile devices impacts productivity in child protective work.

This profile presents findings for the Yates County Department of Social Services (DSS). Findings are based on data collected through district questionnaires and analysis of CONNECTIONS data. (See Appendix A for a description of the district technology, participation, and methodology). The field test lasted 90 days from 03/03/2009 - 06/01/2009.

District Deployment

Yates County is a rural county located in Western New York State and has a population of approximately 27,000 residents. The Yates County DSS has approximately 11 CPS staff (including 8 caseworkers, two senior caseworkers, and one supervisor) who are responsible for child protective services. The Yates County DSS participated in the 2008-2009 demonstration project to learn if mobile technologies can improve the timeliness of documentation, enhance efficiency and productivity, increase CPS caseworker flexibility and convenience by enabling work outside of the office, and to have better access to information when on-call.

The Yates County DSS deployed nine Dell D630 laptops on 03/03/2009. (See Appendix B for device specifications). As part of a separate program, the aggregate buy program, the Yates County DSS purchased an additional three laptops to ensure that all CPS caseworkers received their own dedicated device. In addition to the laptops, the Yates County DSS purchased two GPS devices; however, at the time of our data collection, they were not released to CPS caseworkers. Policies regarding their use were still being drafted. CPS staff were provided with docking stations and external monitors for use while in the office. Furthermore, the Yates County DSS was planning to provide one or two broadband wireless cards that would be shared amongst caseworkers on an as needed basis; the LAN administrator was working closely with a representative of the carrier to identify a plan appropriate to their needs. Regardless of the network connections used, access to the state network and CONNECTIONS was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network.

Demonstrations illustrating the proper way to dock and un-dock the laptops were provided to the caseworkers. Little additional training was required as caseworkers were already familiar with the use of laptops. The Yates County DSS LAN administrator also provided one-on-one instructions on how to access CONNECTIONS and the state network via the new VPN connection. Finally, the Yates County DSS developed a security policy and procedure document for the use of the laptops; one that is in line with the state's acceptable use for laptops. The policy and procedure document was distributed to laptop users and was discussed at a CPS unit meeting.

Productivity and Efficiency

This analysis uses central database data to examine two core questions regarding possible technology impacts within the district: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess changes in efficiency and productivity. The total number of cases closed increased substantially from 61 in the pre-pilot period to 150 during the pilot period, a 146% increase. Figure 1 below shows that the volume of timely closing of cases (in 60 days or less) during the pilot period increased to 69, up from 40 in the pre-pilot period. The number of cases closed in over 60 days increased, up from 21 in the pre-pilot period to 81 during the pilot period. It is important to note that in Yates County the total number of cases available to be worked on increased substantially from 168 in the pre-pilot period to 244 during the pilot period, a 45% increase.

The increase in case closings that are more than 60 days old appears to reflect efforts to close older cases during the pilot period. Because this happened simultaneously with an improvement in timely case closings, these results can be interpreted to indicate improvements in both volume and timeliness of work during the pilot period.
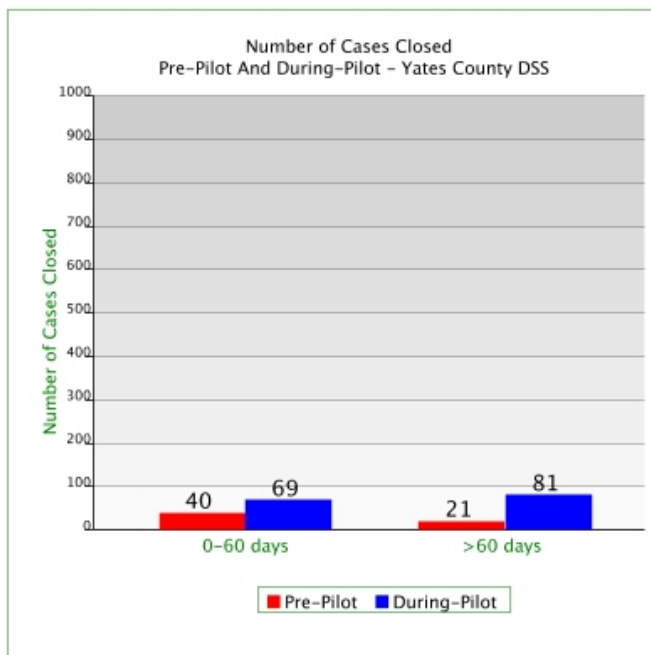

Figure 1--Proportion of cases closed (participating caseworkers)

Progress Notes

An indicator of timeliness is elapsed time or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event. The proportion of progress notes entered in each time period during the pilot period is slightly above that of the pre-pilot period.

The increase in the timeliness of note entry across the two periods and an increase in case closings during the pilot period demonstrates an increase in the overall volume of work. By this measure, caseworkers were able to improve the timeliness of their progress notes during the pilot period. With less than 70 percent of notes entered by the fifth day, opportunities for technology impacts still exist.
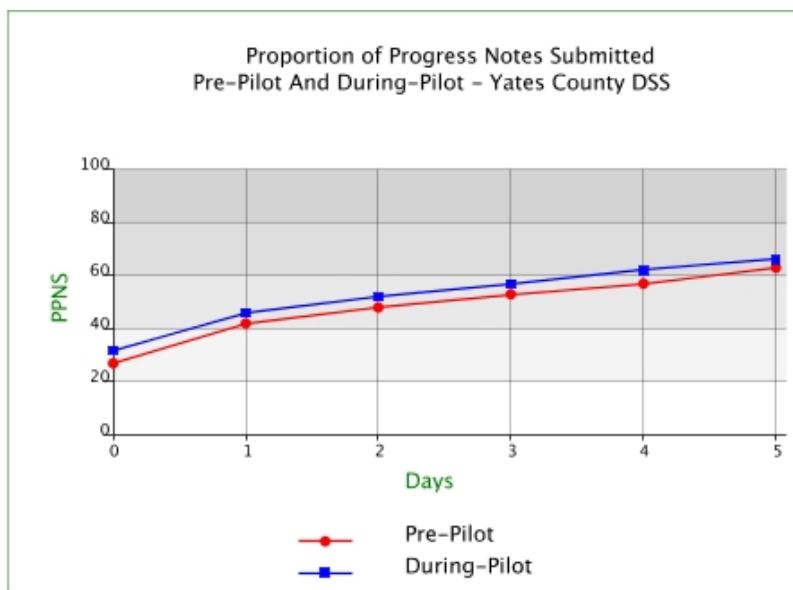

Figure 2--Number of Progress Notes Entered (participating caseworkers)

Safety Submission

The rate of completing safety assessments is one way to look at any changes in efficiency and productivity. Figure 3 below shows the volume of timely submitting of safety assessments (in 7 days or less) increased during the pilot period, up from 35 in the pre-pilot period to 67 during the pilot period. The number of safety assessments submitted after 7 days increased from 26 to 82 during the pilot period.
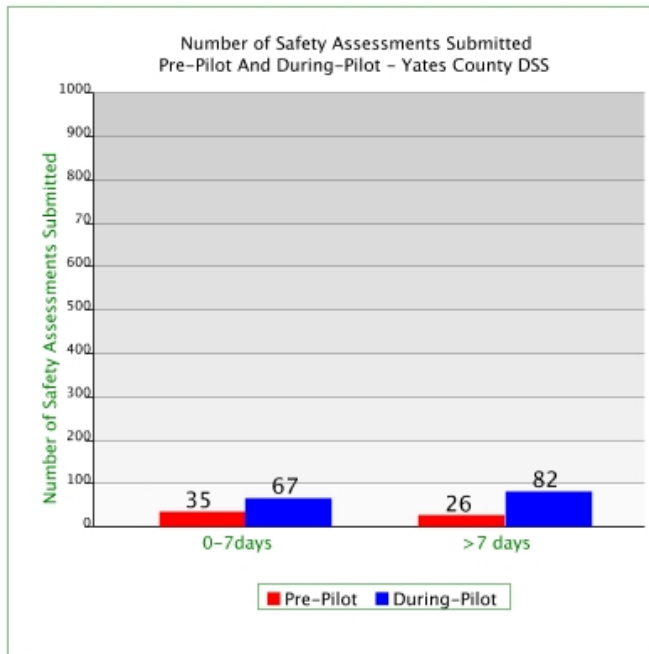

Figure 3--Number of Safety Assessments Submitted (participating caseworkers)

Conclusion

The 2008-2009 deployment of mobile technologies in CPS is one part of the multi-year effort. This assessment and the NYS Mobile Technology Demonstration Project have shown that technology can have positive impacts on productivity, but is only one piece of a complex and interdependent puzzle. We have learned that many factors come into play when making assessments about mobile technology impacts in CPS work, and this deployment is no different. In this effort, we had the opportunity to assess productivity and efficiency results by analyzing CONNECTIONS data. The analysis of CONNECTIONS data in this assessment, as in the previous analyses, show that mobile technology can, in fact, positively impact productivity (through timeliness of documentation and case closing) and satisfaction among CPS caseworkers. For full access to previous deployment's assessments visit the Center for Technology in Government's project web site at: http://www.ctg.albany.edu/projects/mobile.

APPENDIX A: District technology, participation, & methodology

Technology and participation

Working together, OCFS, the County DSS, and the NYS Office for Technology selected, procured, and jointly deployed the technologies with County DSS. The County DSS also selected CPS staff to participate in the project and provided training.

	Device				
Districts	**Laptops**	**Tablets**	**Number of Docking Stations**	**Broadband Wireless Cards**	**# of participating caseworkers**
Yates	9	0	9	0	8

Methodology

This assessment focused on productivity improvements in two main areas: timeliness of documentation and overall volume of documentation. For timeliness, we used three measures derived from data extracted from CONNECTIONS (New York State's Statewide Automated Child Welfare Information System – "SACWIS"):

1. **Timeliness of progress notes:** These notes are to be entered in the system as soon as possible following the event or activity to be documented. Timeliness would therefore be reflected in how many days elapse between a particular event date and the date the progress note conveying that event was entered. We therefore examined the proportion of progress notes entered each day following the related event. This yielded a productivity improvement measure based on the proportion of notes entered closer to the event date.

2. **Timeliness of safety assessments:** These assessments are to be completed (i.e., approved by a supervisor) within seven days of the opening of an investigation. Our measure of improvement in timeliness of safety assessments was therefore the number of assessments completed within seven days in the pre-pilot period compared to the pilot period.

3. **Timeliness of case closing:** The investigation of a case should be completed within 60 days from its opening. Our measure of improvement in timeliness of case closing was therefore the number of cases closed within 60 days during the pre-pilot period compared to the pilot period.

For volume of work, we used two measures:

1. The number of progress notes per day entered in the system, prior to and during the pilot period. Using the number per day was necessary, rather than the total number of notes, since the pilot periods varied in length among the districts from over 100 days to a little over 70 days.

2. The number of cases closed overall, both within 60 days and later than 60 days.

In designing the assessment, we constructed a pre-pilot period where no mobile technologies were in use and a pilot period where the mobile technologies were in use. This approach supports comparisons of productivity that reflect as much as possible the influence of using mobile technology. We attempted to make the pre-pilot period as close a match as possible to the pilot period. Therefore, the productivity data for the pre-pilot period was collected as much as possible for the same workers, doing the same kinds of work as in the pilot period, and for the same number of days for both periods. Since there was some turnover between periods, there is some variation in workers between the pre-pilot and pilot periods, but that variation is not large enough to affect the overall results.

In addition, by law there are specific timeframes that must be followed. For example, the "clock starts" for two important processes when a call is made to the state central registry (SCR). The date the call is made is recorded in CONNECTIONS and a caseworker has seven days from that point to do a safety assessment and 60 days to complete a full investigation. Progress notes are required to be entered contemporaneously, but the definition of contemporaneous is interpreted differently in each field office.

The two data collection methods were 1) the use of operational data from CONNECTIONS and 2) district questionnaires.

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using operational data from the statewide child welfare information system. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. Each record included information about the investigation stage, progress note entry, and safety assessment. Investigation stage information included: Stage ID, Person ID, Intake Start Date, Investigation Stage Start Date, and Investigation Stage End Date. Progress note information included: Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, and Progress Notes Purposes. Safety assessment information included: Safety Submit Date and Safety Approval Date. The table below shows the start and end times for both timeframes, and the duration of each timeframe.

District	# of Days with Mobile Technology (Pilot Length)	Pre-Pilot Period		Pilot Period	
		Start	End	Start	End
Yates	90	12/2/2008	3/2/2009	3/3/2009	6/1/2009

The CONNECTIONS data were pulled by the date a progress note was entered by participants during two timeframes—the pre- and during-pilot periods. These timeframes were equal in duration. A total of 275,234 progress note entries and 24,170 unique investigation stages made up the entire dataset from 459 CPS caseworkers in 26 districts.

Agencies have no control over the number of cases they are responsible for during any time period. Therefore productivity changes should be judged relative to the number of cases that are actually worked on by CPS staff during the pre-pilot or pilot period. We refer to that number as the number of cases available to be worked on. The table below shows the total number of cases available to be worked on during each period, the percent change in cases available to be worked on from the pre-pilot period to the pilot period, and the total number of progress notes entries for both periods.

Cases available to be worked on in each period:

Pre-Pilot Cases Only
- Cases actually worked on by CPS staff during the *pre-pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during that period. The

case is counted as available during the pre-pilot period only if the case had an intake date prior to or during an investigation end date during the pre-pilot period.

Pilot Cases Only
- Cases actually worked on by CPS staff during the *pilot* period is the number of cases in the investigation stage that have had at least one progress note entry during the pilot. The case is counted as available during the pilot period only if the case had an intake date and investigation end date during the pilot period.

Cases in Both Periods
- Since the pilot period begins immediately after the pre-pilot, some cases are started and counted as worked on in the pre-pilot and extend into the pilot period.

	Case Availability Status						
	Pre-pilot Cases Only	Pilot Cases Only	Cases in Both Periods	Total Pre-pilot	Total Pilot	% change from Pre to Pilot	Total Progress Notes (both periods)
Yates	61	137	107	168	244	45.2%	3417

Limitations of the Data

The central database records the timing and types of progress notes entered, but not their length or quality. The number of cases per tester and the notes per case varied widely, as did the types of notes entered. The participants were working on a mix of cases, some open for long periods prior to the pilot period, some started and closed during the pilot period, and others remained open at the end of the pilot period. Therefore, the notes entered during the pilot period applied to both new and older cases, ranging from as little as a day to over several weeks old. We used only those cases that had an actual investigation close date.

District Questionnaires

Each district was asked to complete a questionnaire about their district. All of the participating districts completed and submitted the questionnaire. The focus of the questionnaire was to learn about each district's goals, connectivity solutions, participant selection, technology deployment, and general information. The following are sample questions from the questionnaire:

- What were your district's objectives for participating in this pilot: What do you hope to achieve by deploying mobile technology?
- What connectivity solutions did you choose and with what provider?
- Were all devices deployed? If not, how many were not deployed and why?
- Did all participants receive their own device, or are devices shared among several participants? If shared, please describe how the devices were shared among the participants.
- How were CPS workers selected to participate in the pilot?
- Please describe the deployment training process and how each participant received the devices.
- Please describe the security procedures that were addressed during the training.
- What is the geographical area, population, and urban/rural makeup of your district?
- What is the total number of CPS workers in your district (not just those participating in the mobile technology project)?

APPENDIX B: Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS and OFT.

Laptop

Dell Latitude D630, Intel Core 2 T7250, 2.00GHz 800MHz 2M L2 Cache Dual Core, 14.1 inch Wide Screen WXGA LCF for Latitude D630, 2.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, 128 MB NVIDIA Quadro NVS 135M Latitude D630, 80GB Hard Drive 9.5MM 5400 RPM for Latitude DX30, Standard Touchpad for Latitude D630, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Pro SP2 with Vista Business License, Dell Latitude English, New Black Dell USB Optical Mouse with Scroll, Dell Slip Auto/Air/AC Adapter for Latitude D Series, 24X CDRQ/DVD for Latitude D-Family, Cyberlink Power DVD 8.1, with Media, Dell Latitude/Mobile Precision, Dell Wireless 1490 Dual Band WLAN (802.11 a/g, 54Mbps) Mini Card, D/Dock Docking Station for Latitude D630, 6-Cell/56 WHr Primary Battery, Nylon Deluxe Top Load Carrying Case, Securable Keyed Lock for Notebook.

Encryption

PointSec encryption software was installed on each device before deployment.

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