CASE
CASE WESTERN RESERVE UNIVERSITY

Using Tablet PC's in Dental Practice Research: Technology, Cost Savings, and Direct Data Entry "On the Go"

Sudano JJ[1,2], Wotman S[3].

[1]Departments of Medicine and Epidemiology and Biostatistics; [2]Center for Health Care Research and Policy, Case at the MetroHealth System; [3]Department of Community Dentistry, Case School of Dental Medicine

ABSTRACT

Objectives:
Recent technological developments have greatly simplified data collection, recording, and transfer in studies relying on direct observation in practice-based research networks, reducing both cost of data collection and time necessary to prepare data for analysis. We provide an example of how technology can be used to eliminate intermediate data collection steps is provided by our experience using tablet computers as part of a direct observation study of dentists and hygienists in their daily practice.

Methodology:
Our methodology includes a direct observation technique developed at UC Davis, questionnaires from patients and practitioners, billing and chart data, and qualitative reports.

Direct Observation of Dental Encounter

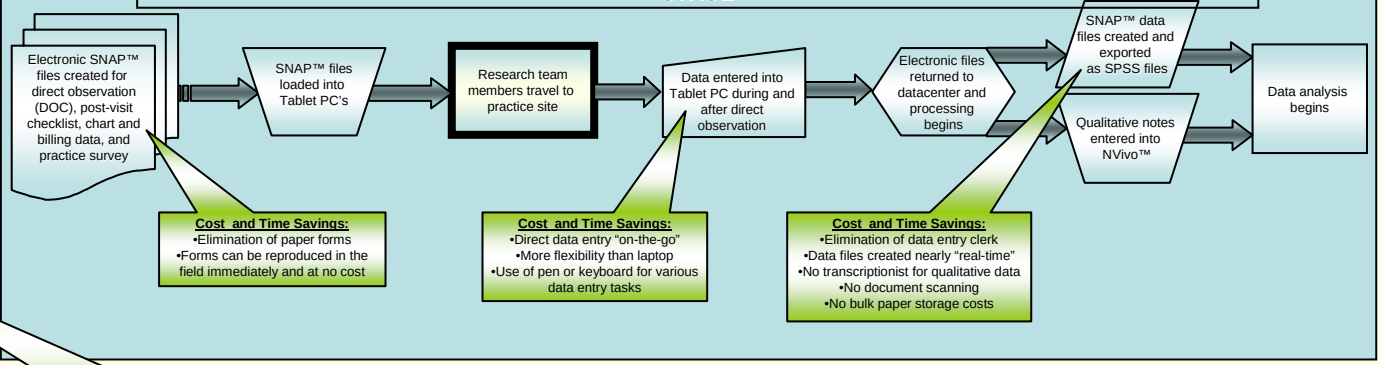
Results:
Our Tablet PC of choice was the Motion Computing Model M1400. The tablet PC was ideal our main application, i.e., entering data directly in a mobile environment with quick turnaround time for data examination, cleaning, and processing. Learning to use the tablets was easy for observers who enjoyed using the pen/stylus, voice recognition, and note-jotting applications. The tablets handled the need for having multiple files and multiple applications running simultaneously. Additionally, we were able to eliminate substantial costs: we reduced printing, scanning and bulk-paper storage costs, and eliminated the need for both a data entry clerk and a full time transcriptionist for qualitative data.

Conclusions:
In the final analysis, we are very satisfied with the performance of Tablet PC's in their use as direct data entry devices. Researchers from a broad spectrum of disciplines and substantive fields contemplating mobile data entry should seriously consider them, as they can be easily adapted to a wide range of purposes.

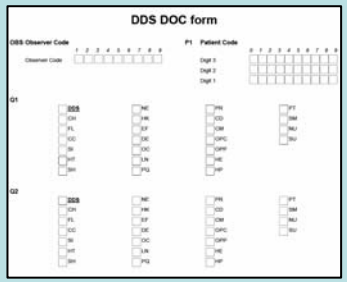
Study Staff Members and Support
We wish to acknowledge the contributions of our study staff members, Marlene Rodriguez, Marianne Scherry, Kate Mingus, Gail Perry, Joy Wiedemann, Becky Slivka, Marian Kofford, Tom Parma, and Tori Hirsch.

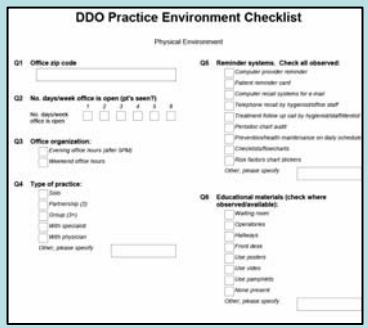
This project was supported by NIH/NIDCR Grant 1R01DE015171.

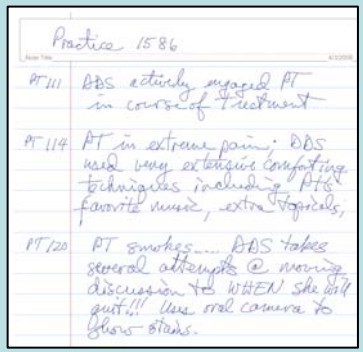
FLOW CHART OF DATA COLLECTION FROM INSTRUMENT/FORM PREPARATION TO DATA ANALYSIS STAGE



Direct Observation of Dental Encounter
•Observer codes various dentist (or hygienist) activities/behaviors
•Observes for 25 seconds, records for 5 seconds
•24 codes include information gathering, procedures, verbal interactions, preventive services delivery and instructions.
•After visit ends, a post-visit checklist is filled out
•Observers can jot down notes during, between, and after visits
•Other surveys are filled out on-site (e.g., practice environment)







Limitations/Disadvantages:
•No paper copy means potential data loss (backup often and in multiple places)
•Bright lighting reduces screen visibility (newer model screens have overcome this limitation)
•Weight of tablet causes some discomfort (newer models smaller and lighter)