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# Handheld computers for survey and trial data collection in resource-poor settings: Development and evaluation of PDACT, a Palmâ„¢ Pilot interviewing system

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### Abstract

#### Objective

Handheld computers (personal digital assistant, PDA) have the potential to reduce the logistic burden, cost, and error rate of paper-based health research data collection, but there is a lack of appropriate software. The present work describes the development and evaluation of PDACT, a Personal Data Collection Toolset

([www.healthware.org/pdact/index.htm](http://www.healthware.org/pdact/index.htm)) for the Palmâ„¢ Pilot handheld computer for interviewer-administered and respondent-administered data collection.

Methods

## Methods

We developed Personal Data Collection Toolkit (PDACT) software to enable questionnaires developed in QDS, a Windows application, to be compiled and completed on Palm Pilot devices and evaluated in several representative field survey settings.

## Results

The software has been used in seven separate studies and in over 90,000 interviews. Five interviewer-administered studies were completed in rural settings with poor communications infrastructure, following one day of interviewer training. Two respondent-administered questionnaire studies were completed by learners, in urban secondary schools, after 15 min training.

Questionnaires were available on each handheld in up to 11 languages, ranged from 20 to 580 questions, and took between 15 and 90 min to complete. Up to 200 Palm Pilot devices were in use on a single day and, in about 50 device-years of use, very few technical problems were found. Compared with paper-based collection, data validation and cleaning times were reduced, and fewer errors were found.

PDA data collection is easy to use and preferred by interviewers and respondents (both respondent-administered and interviewer-administered) over paper. Data are compiled and available within hours of collection facilitating data quality assurance. Although hardware increases the setup cost of the first study, the cumulative cost falls thereafter, and converges on the cumulative cost of paper-based studies (four, in the case of our interviewer-administered studies).

## Conclusion

Handheld data collection is an appropriate, affordable and convenient technology for health data collection, in diverse settings.



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## Keywords

Mobile data collection system; Health survey questionnaire; PDA structured medical record form; Computer-assisted personal interview

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