Can technology change the work of nurses? Evaluation of an electronic drug monitoring system used in an ambulatory rheumatology setting

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Highlights

After implementation of the electronic drug monitoring system (eDMS):

- Nurses spent **significantly less time** on medication monitoring tasks (33.1% versus 26.4%).
- Nurses spent **significantly more time** on patient care (6.5% to 18.1%).
- Nurses commented that the eDMS made the medication monitoring process **much simpler** and **more standardised.**
- Time saved allowed nurses to spend a greater proportion of their time on other patient care activities.

Background

Medication monitoring for chronic rheumatology disease patients is time consuming and complex. It involves communication between patients, doctors, nurses and laboratories and the use of multiple information systems – both manual and electronic - to ensure patients are appropriately monitored with blood tests and timely follow-up of abnormal test results. Information technology has the potential to improve the care process for patients on long-term immunosuppressive rheumatology medications.

Objective

The aim of the study was to evaluate the impact of an electronic drug monitoring system (eDMS) used for ambulatory rheumatology patients on time nurses spent on, and the process of, drug monitoring.

Methods

Sample: Nurses working in the Rheumatology Department of one large metropolitan hospital (3 registered nurses and 1 clinical nurse specialist).

Intervention: The Electronic Drug Monitoring System (eDMS) was developed in-house as a module of the Hospital Clinical Information System. It provides an electronic auditable, legible trail of actions related to drug monitoring.

Data collections: We used a Work Observational Method by Activity Timing (WOMBAT) measurement tool (Figure 1) to collect timing data before and after the implementation of the eDMS relating to:

- time spent on specific nursing activities;
- who nurses spent time with; and
- format and location of documentation monitoring;.

Interviews, observations and video recording of drug monitoring work tasks were undertaken to ascertain nurses' perceptions of whether the eDMS changed their monitoring activities.

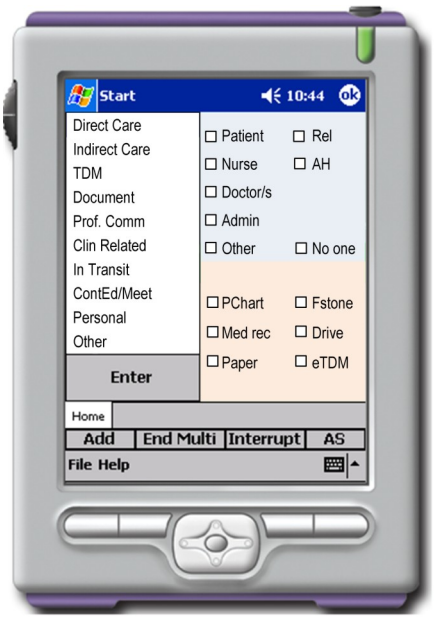

Figure 1: PDA Data Collection Tool

Results

Timing data were collected for approximately 80 hours by one researcher for a two week period before and a two week period after implementation of the eDMS.

"...it (medication monitoring) would have taken me half an hour before and now it takes me five minutes or under"
(Rheumatology nurse)

How did nurses spend their time after implementation of the eDMS ?

- Nurses spent significantly less time on medication monitoring tasks (33.1% to 26.4%)
- Nurses spent significantly more time on patient care (6.5% to 18.1%)
- Nurses spent significantly more time with patients (7.7% to 19.8%) and with relatives (0.4% to 3.7%)

Implications for nursing practice

What were nurses' perceptions of the impact of the eDMS on their work in the clinics?

"...I can monitor the medications on a daily basis... more efficiently and not worry that I've missed out on somebody"
(Rheumatology nurse)

The eDMS made the medication monitoring process much simpler, more standardized and less time-consuming. There was less transcribing of patient data between systems.

Did the eDMS free up nurses' time for more patient related activities?

Time saved by nurses meant they could undertake more nurse-led clinics. The number of nuse-led clinics increased from two prior to the eDMS to four after the system was implemented. This resulted in an increase in patients seen by nurses in these clinics from 34 for a six month period prior to implementation to 99 for a six month period after eDMS implementation.

Conclusions

This study showed that the work of nurses changed after implementation of the electronic drug monitoring system with drug monitoring activities being more standardised and taking less time. This allowed nurses to spend more time on patient care related activities and to increase the number of nurse directed clinics.

"...I don't need to re-check and double check and cross check...it's all there, it's a standard form, it's all uniform, everybody's getting the same standard information...I'm not transcribing anywhere "
(Rheumatology nurse)

Further information

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- Associate Professor Richard Paoloni, Concord Repatriation General Hospital.

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*This presents a summary of **work in progress**. The information presented is designed to provide initial feedback to those who participated in the research process. All final conclusions will be dependent on the completion of the full study.*