

Centre Projects

EVALUATION OF THE IMPACT OF POINT OF CARE CLINICAL INFORMATION SYSTEMS ON STAFF AND CLINICAL WORK

Funding Source: ARC Linkage Projects

Investigators: Johanna Westbrook, Rick Iedema, Jeffrey Braithwaite, Margaret Williamson, Mandy Ampt, Andrew Georgiou, Nadine Mallock, Rowena Forsyth, Nerida Creswick, Geoff McDonnell, Toby Mathieson and Enrico Coiera

Duration: 2003-2006

Description: This project aims to evaluate the impact of point of care clinical systems (order entry/results reporting) on hospital organisational processes and outcomes. The research will be conducted before the order entry system is implemented in several hospitals, and at 6 and 18 months after implementation of the system.

This is a joint project of the Centre for Health Informatics and the Centre for Clinical Governance Research in Health at the University of New South Wales. We are undertaking a range of studies to understand factors that help or hinder the uptake and use of the systems and the impact of the systems on staff and clinical work.

Pre-system implementation studies have been undertaken between February and May 2004 following negotiation with ward staff. These studies are described below.

Working in clinical teams

Research evidence suggests that health care delivery is influenced by the way in which clinical teams work. We administer a short survey that takes around 5 minutes to complete to all clinical staff (doctors, nurses and allied health) on a ward. This survey provides an indication of how clinical teams are functioning and we are interested in examining how the introduction of an order entry system may influence the way clinical team members work together and vice versa.

Work sampling

In order to understand how an order entry system changes doctors and nurses' work patterns we undertake work sampling studies.

Centre Projects

This study will provide a good overview of patterns of work. For example, the proportion of time spent writing and chasing up orders, or clarifying hand written orders.

Observational study

We unobtrusively film individual clinicians as they are engaged in information activities related to the ordering process. This is important in obtaining a full picture of the way in which the ordering process occurs. Videoring this process often captures steps in the process that are left out when individuals provide verbal accounts. Participants can request that filming be ceased or data deleted at any time. Patients will not be filmed unless verbal consent is obtained. The researchers will be seeking 2 volunteer doctors and nurses to participate in this study. The identity of doctors and nurses who are filmed will be disguised within 24 hours of the filming process. This is undertaken using 'pixelation' software which, in essence, smudges faces and other distinguishing characteristics.

Safety attitudes questionnaire

We also ask participants to complete a questionnaire about safety climate. On average, the survey takes 10 minutes to complete. This survey provides an indication of staff's views about how safety issues are handled in their clinical area.

Organisational profiling

To develop a detailed profile of the hospital and to assess performance indicators, we analyse hospital data including budgets, staffing profiles and skill-mix, service profile, organisational structure, existing process indicators and current information technologies. The study will not be concerned with individual patient information or medical records.

Clinical indicator and performance data analyses

Analyses of clinical indicator information, pre and post system implementation, will assist in assessing the impact of the system on work practices and overall organisational performance. Key performance outcome indicators will be used, such as rates of duplicate orders, transcription errors, lost orders, volume and type of orders, and costs for different groups of patients. This information is compiled by researchers liaising with hospital staff.

Centre Projects

Interviews and focus groups

To find out what staff think about the new order entry system, six months after implementation, staff will invite participants to discuss their experiences of using the order entry system and how its use has impacted upon work practices. These group discussions are tape recorded and analysed.

Output: The project will improve understanding of the ways that information technology influences clinical work and identify factors which influence its adoption and effective use in improving patient care. Results of the research will be made available to participants and will be disseminated widely. The research will result in an evaluation model for assessing the impact of point of care clinical systems on health care organisations, clinical work and patient outcomes.

Selected Publications and Presentations

Forsyth R, Iedema R (2004) Video ethnography as a method for studying professional communication in healthcare. Paper given to *The Australian Sociological Association Conference*, 8-11 December.

Iedema R, Forsyth R, Delaney G, Jacob S, Westbrook JI, Braithwaite J, Barton M. (2004) Video ethnography as a methodology for studying the technologization of practice. *11th World Congress on Medical Informatics (Medinfo)* [Poster].

Iedema R, Forsyth R, Georgiou A, Braithwaite J, Westbrook JI (submitted). Video research in health: visibilizing the normative and affective complexities of contemporary care. *Health Sociology Review*.

Westbrook JI, **Braithwaite J, Iedema R, Coiera E** (2004) Evaluating the impact of information communication technologies on complex organizational systems: a multi-disciplinary, multi-method framework. Proceedings of the *11th World Congress on Medical Informatics* (Editors Fieschi M, Coiera E, Yu-Chan J) Washington: IOS Press, p1323-1327.