

Minimising medication errors

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Minimising medication errors in care homes

New barcode technology designed to help prevent drug administration errors in care homes has been independently evaluated in a recent study. Deidre Wild and Sara Nelson from University of the West of England, Bristol and Ala Szczepura from University of Warwick explain the study and report on its findings.

Last year a study by University of London's School of Pharmacy found that 70 per cent of residents, in 55 care homes reviewed, experienced one or more medication errors including administration errors made by care home staff.

Despite high investment in education to raise standards, a high proportion of all care homes in England have been described as failing to meet the required standards in their medication systems and improvement in nursing home performance was identified as particularly poor.

The study, conducted by a team from University of the West of England, Bristol and University of Warwick, into new barcode technology involved both residential and nursing care home. In nursing homes, medication administration is only one of the many complex tasks carried out by trained nurses, who are onsite 24-hours per day to meet the clinical needs of residents. In contrast, in residential homes with no on-site nursing staff, the administration of prescribed medication is undertaken by social care staff that may have had little formal training in safe practice.

SYSTEM UNDER EVALUATION

The 18 month evaluation of the pharmacy controlled medication system, the Proactive Care System (PCS), which utilises bar code technology, involved nine residential homes and four nursing homes for older people. Nursing and social care staff responsible for medication administration in these homes participated in the research. The PCS was introduced following a short staff training programme provided by the pharmacy company.

This system covers administration of medication, stock management, clinical readings and communication in care homes. It provides automatic, real-time alerts, generated by the system itself, to draw attention to inappropriate or unsafe attempts to administer drugs. A hand-held device holds data on the care home resident and their prescribed medications. During a medication round, the medication administrator uses the device to scan each resident's photograph and barcode identifier in order to call up the correct file.

The system then carries out a number of checks to ensure the following are correct: resident, medication, time, dose, quantity and date. If the proposed drug administration is incorrect, the system alerts the medication administrator immediately.

Each week a report is sent to the care home manager with details of any potential but averted mistakes and identifies the members of staff involved. Where administration of a medicine within the correct time frame is missed, the system enters this as a 'missing record'.

EVALUATION METHODS

The study explored the opinions of staff before and after the introduction of the system in order to determine its effectiveness, efficiency and acceptability and including comparison with their old system (a paper-based MAR system). In addition to completing repeated questionnaires, staff participated in interviews and focus groups.

A further part of the study focused on the pattern of PCS alerts and averted medication errors. This was based upon a total of approximately 190,000 'real-time' medication administrations day and night, each recorded by the computer system over a three month period. All attempts to administer medication were analysed in order to identify the pattern of any potential medication administration errors. Errors were classified to include attempts to administer drugs at the wrong time, to the wrong person, or when medication had been discontinued.

STAFF RESPONSES

Before the introduction of the new system, most staff reported their awareness of flaws in the paper-based MAR system, especially incorrect entries and omissions. In anticipating the introduction of the new technology, some staff expressed a reluctance to abandon their old paper-based system because they were nervous of change. Others however believed that their confidence in administering medication would be undermined without MAR paperwork as evidence.

However, once the system had been introduced, staff opinions showed that most, and including older staff in particular, had overcome their fear of the new computer-based technology. The desire to retain the new system following the evaluation period, rather than revert to their old system, was marked with four-fifths of the sample saying they wanted to keep it. Staff responses demonstrated significantly more confidence in the PCS as a safer system than their former paper-based MAR system in delivering the right medication in the right dose.

ERRORS REDUCED

The quantitative analysis of the computer recorded medication administration attempts showed that over the three month period staff were alerted to some 2,000 potential administration errors which were consequentially averted. Overall, it was calculated that 90 per cent of residents (n=345) were exposed to at least one near miss error. The most common potential error was attempting to give medication at the wrong time.

When questioned before the system was introduced, staff identified distraction and interruptions during medication rounds as the main reasons for errors. However, the physical presence of the PCS was described as having the beneficial effect of formalising the administration activity and thereby raising awareness of its importance.

Finally, another core output from the PCS was the weekly computer generated report of identified and averted near miss errors sent to managers. By identifying each staff member involved, managers were able to target remedial medication training at an early stage. It was recognised that with their old paper-based hand written system, near miss errors could easily go undetected.

CONCLUSIONS

This study demonstrated that the PCS computerised barcode system was effective in detecting inappropriate attempts to administer drugs to residents. In doing so, the potential for costly and unnecessary admissions to hospital were avoided. As the system was equally well received by social care staff and by nurses responsible for medication administration, this suggests that it can be reliably used in both nursing and residential homes. Overall, the evaluation concluded that the computerised control medication system was of benefit to staff, service users and through increased safety, could enhance the reputation of the care homes.

FURTHER READING

The State of the Adult Social Care Workforce in England, 3rd Report – Skills for Care, 2008.

Building a safer NHS: improving medication safety – Chief Pharmaceutical Officer, Department of Health, 2003.

Handled with care? Managing medication for residents of care homes and children's homes - a follow-up study – CSCI, 2006.

Care homes' use of medicines study: prevalence, causes and potential harm of medication errors in care homes for older people – Barber ND, Alldred DP et al, Qual Saf Health Care, 2009.

The system used in the research study was the Proactive Care System (PCS), which is available for care homes and is currently being used by a number of care providers. Pharmacy Plus is the only company in the UK with a commercially available pharmacy managed barcode system (PCS) that is capable of ensuring that the correct drug administration always takes place, i.e. 'able to identify the right drug, right dose, right time, and right resident'.

For further information about PCS please contact Martin Wall at Pharmacy Plus on 0845 121 1001.

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