

New high-tech system improves out of hours care for hospital patients

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(Medical Xpress) -- An award-winning high-tech replacement for the traditional hospital doctor paging system could free up nurses to spend more time with patients on the wards and significantly reduce in-patient stays, researchers have found.

The study, led by Dr Dominick Shaw and Dr John Blakey, in The University of Nottingham's Division of Respiratory Medicine used their experience as clinical consultants at Nottingham University Hospitals NHS Trust to look at whether a better out-of-hours system could be devised using more up-to-date technology.

Published on the peer-reviewed *BMJ Open* [website](#), the study showed that the new wireless task requesting and tracking system, dubbed 'wireless working', led to a 70 per cent drop in adverse incidents at the Trust's Nottingham City Hospital related to handover and out-of-hours response and the ones that did occur only did so outside the users of the new system.

Click here for full story The senior nurse acting as the night co-ordinator spent almost all of their time (97 per cent) receiving, logging, and making phone calls under the old system. This fell to 42 per cent of their shift time under the new system — potentially freeing up 8,000 hours of senior nurse time each year for clinical work.

Analysing the average length of in-patient stay between February and July in 2010 (old pager system in operation) and over this same period in

2011 (after the new system had been introduced), the researchers found it fell by 13 per cent on the wards covered by the new system but did not change on the wards not using wireless working.

During the six months before the new system was introduced, 26 per cent of cardiac arrest calls at the hospital were to obtain help with patients who were ill but had not arrested. This proportion fell to 11 per cent after the new system was implemented.

Interviews with healthcare staff also showed they were more satisfied with the new system than the previous on-call pager system, rising from 62/90 on a standard satisfaction survey to 82/90.

Dr Shaw said: “This new system forces you to provide all the necessary information so that the doctor is properly prepared and turns up in the right place, at the right time and with the right patient details. It also stops unnecessary referrals.”

In the UK, 75 per cent of the year is outside normal working hours and medical care during this time is delivered in hospitals by a small team of on-call junior doctors. While there are fewer elective operations during these hours, other patients typically need the same level of care as during working hours and emergency admissions still need to be managed.

This busy team of junior doctors, which can be scattered around the hospital, receives oral information, for example, from ward nurses via a nurse co-ordinator using a traditional paging and landline telephone system.

This system introduces delays as multiple pages and phone calls are needed. It has also been shown to introduce error due to multiple instances of information transfer — or ‘Chinese whispers’. It can increase the potential for information to be lost or miscommunicated

with messages often kept on bits of paper and can see experienced nurses being stuck behind a desk answering telephone calls. No central record is made of the volume and type of work being done and by whom.

The new technology was introduced in September 2010 at the Trust's City Hospital and uses a wireless task requesting and tracking system networked across desktop PCs, smartphones and tablet PCs and features call handling software.

The new technology allowed out-of-hours coordinators to support the ward [nurses](#) by providing clinical advice and making it easier and quicker to contact frontline doctors and clinical support workers. The mobile nature of the technology also allowed the Hospital @ Night coordinators to leave their desks and get back on the wards to support patients while remaining in contact with all members of the on-call team.

The researchers used a variety of assessments including interviews and a satisfaction questionnaire, as well as data extraction from clinical logs and incident reporting systems before and after the implementation of the new system.

Among the comments received from staff was one from a junior doctor who said: "I can easily contact the H@N coordinator and she can see my outstanding workload at any one time. It has taken away the worry that I'm leaving patients waiting."

A ward sister agreed: "It's great how the new system categorises everything. It forces you to provide all the necessary information so that the doctor is properly prepared and turns up at the right place and the right time with the right patient details."

The new system recently picked up the Most Innovative Infrastructure

award at the Cisco Innovation Awards, which recognise advanced technology initiatives that deliver significant improvements and improved services and is now being rolled out to the Trust's Queen's Medical Centre.

The system has also been shortlisted for a British Medical Journal Group Improving Health Award in the category of Transforming Patient Care using Technology.

Provided by University of Nottingham

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