



Award Winning Solution for Infection Control at  
the Golden Jubilee National Hospital



Excelicare is a powerful toolset-based application that allows the creation of highly tailored clinical systems to reflect the complex working patterns of clinicians across the healthcare spectrum. It incorporates advanced telecommunication, multi-media and decision support technologies within a clinician-friendly Electronic Patient Record (EPR) framework. Currently in use in several sites across the NHS in Scotland and England, it provides support to clinicians in diverse areas of care. Implementations span complex cancer care across a region-wide network, remote monitoring of COPD patients living at home, to blood pressure, diabetes

and colposcopy clinics, demonstrating its wide and varied scope of use. In December 2005, Excelicare was chosen as the National Generic Clinical System for the NHS in Scotland.



According to a recent National Audit Office Report, it is estimated that hospital acquired infection costs the NHS £1 billion per year. The NHS Plan, published in 1999, stipulates that all NHS organisations should have effective systems in place to tackle these infections in order to minimise risk to patients and staff. One area currently being monitored is Surgical Site Infection (SSI), which is an important outcome indicator after surgery. The costs to the patient, hospital and community care team are considerable and is estimated that the NHS in England spends around £61 million per annum treating SSI.

It is now recommended for hospitals to report on post surgical procedures up to 30 days after discharge but there has been no real guidance or formal procedures set for hospitals on how patients should actually be monitored. This notoriously difficult problem of surveillance of post discharge SSI rates however, has been successfully tackled by the Infection Control Team at the Golden Jubilee National Hospital, Glasgow where they have developed an imaginative project using an automated telephone system to monitor patients. The system is run on the Excelicare Direct solution from AxSys Technology and its success has gained them national recognition as well as The Nursing Times Award for Infection Control.

#### The Scottish National Programme

In Scotland all acute hospitals take part in a National Programme called The Scottish Surveillance of Healthcare Associated Infection Programme (SSHAIP) co-ordinated by Health Protection Scotland (HPS). SSHAIP collects information from hospitals on behalf of HPS, which is used to calculate rates of surgical wound infection suffered by in-patients from different types of operations. The Golden

Jubilee has been involved in surveillance since being a pilot site for the program in 2001. The hospital became Scotland's National Waiting Times Centre in 2002.

The original project, initiated five years ago, was driven by Maggie McCowan, Infection Control Manager and Sandra McAuley, Infection Control Nurse. They realised that there was an increasing need to know what happened to wounds after surgery when patients went home.

*"As the Golden Jubilee is a national hospital patients come from all over Scotland so it was very difficult to monitor their progress. Patients would disappear out to their local community and there was no way of obtaining feedback on their subsequent condition and follow-up plus cost of treatment," commented Maggie McCowan. "We had to find a way of closing the loop and this is when our discussions with AxSys began. Telecare was the obvious way forward for monitoring patients and the system had to be automated so it did not require constant manning. Developing the tele-monitoring service was very much a collaborative approach with AxSys as they helped us develop a method for obtaining*

*accurate information on the condition of the patient's wound and subsequent treatment.*

*"Funding was an issue but with the recommendation that the post-discharge infection rates should be known up to 30 days post-op, and with the diverse geographical spread of our patients, our NHS Board agreed to cover the cost of the software programme. With our drive and determination and AxSys' clinical knowledge and innovative technology the system went live and has become a vital resource for us."*

#### The Solution and How Patients are Being Monitored

The infection control monitoring service at the Golden Jubilee is now led by Jane McNeish, Infection Control Surveillance Nurse and is available for patients who have had hip, knee or cardiac surgery. This is in line with SSHAIP requirements which stipulates all acute NHS Health Boards collect data on SSI following two categories of surgical procedure from a list of ten, one of which has to be orthopedic (the second mandatory surveillance requirement is Caesarean section, a procedure not carried out at the Golden Jubilee).

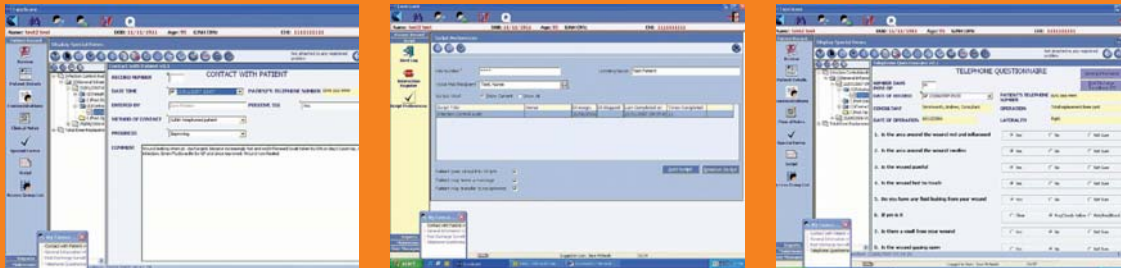
The automated post-discharge SSI surveillance system is set up on Excelicare Direct. This provides an interactive telephone-based, patient home monitoring module linked to an electronic patient record. This record is generated by the surveillance nurse who interviews patients before they are discharged. All patients are given instructions on how to use the system

A fundamental aspect of improving the delivery of patient care is the facilitation of multidisciplinary collaboration and the effective sharing of information. The Collaborative Care model, which also involves patients in their own self-care, is widely recognised as a method of delivering consistent, high quality healthcare resulting in improved outcomes for patients.

AxSys Technology, the organisation behind Excelicare, was set up by experienced doctors who recognised the benefits of the Collaborative Care model in their own clinical practice and realised that a flexible communication oriented clinical information system would be a key element in its successful delivery.

The provision of smart tools to deliver the right information at the right time and place to the right people was felt to be as important as the face-to-face encounter in the traditional healthcare model.

Excelicare was conceived as a solution for Collaborative Care and its underlying architecture has been designed to support this new mode of healthcare delivery. It is also underpinned by standards in data management and has the ability to integrate effectively with existing healthcare IT systems.



and select an identification PIN to facilitate access. All details about the patient are then registered onto Excelicare via script forms.

Patients are asked to access the system 15 and 30 days following surgery by calling a free phone number via a touch tone phone. The patient is identified by entering their PIN which activates a customised script with questions about the status of their wound. The patient responds to script questions by pressing corresponding numbers on the telephone keypad. Phone responses are fed directly into the Excelicare system which automatically assesses their answers and totals the predetermined numerical weight of their answers. It generates an alert if the patient's response scores between eight and 18. If the score is over 18 the system sends an e-mail alert to three members of the Infection Control Team. All patients with a score greater than nine receive a follow-up phone call to discuss the wound and determine if an infection is present.

Jane McNeish comments: "Although the system is intuitive and easy to use, the real beauty of Excelicare is that it gives me a complete record of all the patients' responses but only alerts me to responses that we feel need further investigation. This saves me time not having to follow-up with every patient. It also allows me to input details of my telephone conversations into specific electronic forms which complete the patient record and enable me to produce necessary audit reports.

*"The great thing also is that Excelicare alerts me to patients that have not called in. I can then follow-up with reminder leaflets which has increased our response rate from 60% to between 85 to 95%, making our statistics a lot more valid and robust."*

#### The Results and Benefits

*"The system is a great benefit to the Golden Jubilee because our patients are referred to us from all parts of Scotland. It means we can monitor their progress when they go home without them having to make repeated trips to see us. It is also a benefit to patients, as it alerts us to any problems that have developed, ensuring they can be seen earlier in clinics," states McNeish. "The use of Excelicare in the patients' home has also empowered them to become more actively involved in their own health and treatment with minimal inconvenience, cost and time expenditure. On average we now process over 300 patients every three months and this will increase once the West of Scotland Regional Heart and Lung Centre opens here."*

Reports are generated through Excelicare giving percentage infection rates after discharge up to 30 days. These are presented to the NHS Board which enables the hospital to comply with the recommendations of HPS.

"SSHAIP provides quarterly surveillance reports for in-patient infection rates. I can now add post-discharge infection rates with relative ease," adds McNeish. "We are applying to the Chief Scientist Office to obtain funding

for research nurses to view the patients wound in the community to enable us to validate this system of monitoring. A further benefit internally is that I attend the monthly orthopedic arthroplasty meetings enabling consultants to monitor their own infection rates, plus I regularly communicate results to the Cardiac Surgeons who are currently based at different sites."

To me this is all about joining up services and ensuring that different departments are communicating with each other. We talk to ward managers and staff, sit on Clinical Governance, Risk Management and Infection Control Committees allowing us to give feedback and highlight problems. We appear to have an efficient monitoring system which when proved robust by validation will show we can improve standards and consistency of care in line with national objectives.

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#### Pilot Study and the Future

As national targets are being set for the length of patient stay in hospital to be reduced it has further highlighted the issue of infection control and the need to know what happens to patients after discharge. Prior to going live with the automated system of monitoring post-discharge infection rates the Golden Jubilee conducted a pilot study. It wanted to prove that the system was feasible; it also wanted to evaluate the user friendliness and practicality of the system for patients. The conclusions of the pilot study are yet to be published but indications are that automated telephony is a feasible approach to Post Discharge Surveillance (PDS).

*"I truly believe that the monitoring system we have developed based on Excelicare is the way forward for Infection Control and could be used across a range of diagnostic groups," comments McNeish. "We need to strengthen the validity of our statistics by circulating nurses into the community to confirm the status of infections rather than just relying on patients self diagnosis and feedback. Then the system may have the potential to be extended and could provide a means of standardising post-discharge surgical site infection surveillance nationally.*

*"This is a system for the future and winning the Nursing Times Award is proof of our success. The judges praised the idea, results and benefits of the project and its relevance to local and national policies. A number of Boards both north and south of the border have shown an interest in the system for surveillance purposes or, with adaptation, for reducing visits to post-operative clinics."*

