

HOW A SMALL HOSPITAL ROSE TO THE CHALLENGE OF A LEGIONELLA OUTBREAK

Barrow-in-Furness in Cumbria is the site of one of the largest recorded outbreaks of Legionnaire's disease. Peter Moody, clinical director of pharmacy at Morecambe Bay Hospital Trust, describes how Furness General Hospital coped with the outbreak

Barrow-in-Furness is served by Furness General Hospital, a 400-bed district general hospital and part of the Morecambe Bay Hospital Trust, which also includes Kendal and Lancaster. However, because Furness General Hospital is 30 and 50 miles, respectively, from Kendal and Lancaster hospitals, it had to bear the brunt of the clinical workload during the recent Legionnaire's disease outbreak. In 14 days, 458 people (0.5 per cent of the local population) were admitted with suspected Legionnaire's disease and there were 131 confirmed cases.

The hospital's major incident plan was activated at 3pm on Friday, 2 August, and overnight more than 40 patients were admitted via the accident and emergency department with suspected Legionnaire's disease. This was far in excess of the number initially predicted, and caused significant problems in obtaining sufficient supplies to cover this influx of patients. Several pharmacy staff were away on holiday and, to compound the situation, the junior doctor changeover occurred at the height of the outbreak. The day case ward and the five-day ward both became 24-hour medical wards, and the numbers of staff were augmented with volunteer nurses and doctors from other trusts in the north-west.

The outbreak had a double impact on the pharmacy: there was a need to discharge as many patients as possible to free beds for those admitted with suspected Legionnaire's disease and a need to provide a service to them. For the first 10 days, the pharmacy opened every day with extended hours to cover the additional ward rounds and expedite discharges and transfers into the community.

The chosen treatment options were clarithromycin IV for those who were seriously ill and could not tolerate oral medication, then oral erythromycin. Rifampicin was included in the regimen if there was a high index of suspicion or confirmation of the presence of legionella. Treatment was for 10 days. There was also a high incidence of mycoplasma infections, which were treated with the same antibiotic regimen. Ciprofloxacin was used second line for those unable to tolerate macrolides.

Daily clinical update meetings were held, with pharmacy providing an important role in ensuring adherence to treatment protocols and advice on the interactions and contraindications of the antibiotics. These were posted on the local intranet. It was agreed that no patient would go home while undergoing rifampicin treatment because of its hepatotoxic potential.

Because of the large numbers of patients requiring IV treatment, the decision was

taken to prepare the clarithromycin infusion in the pharmacy (a service not normally provided at the hospital). The Royal Infirmary at Lancaster assisted in this, and in 10 days 1,500 bags were prepared — an amount equal to the usual volume used in a year. Although the hospital had suspended all elective surgery and non-emergency work, the oncology unit still required chemotherapeutic agents and many of the suspected Legionnaire's patients required intravenous nutrition. The aseptic suite operated a three-shift system, and technicians were drafted in from the dispensary to assist.

Dispensary workload also increased by 25 per cent over normal levels. Over 10 days, in excess of 300 additional hours were worked by the pharmacy staff. No member of staff had to be asked to work extra hours; they all volunteered. This pattern was true throughout the hospital, where the team-working showed what could be achieved in times of crisis.

From the overall hospital perspective, the establishment of an incident room together with a patient helpline took a lot of pressure off front-line staff. The chief executive had a high profile on site throughout, which most staff appreciated. Twice daily press releases ensured all staff were kept abreast of developments. The chairman personally visited all departments to express his thanks, as did the local member of Parliament. The feeling of being valued aided morale at a time of stress.

LESSONS LEARNT

From the pharmacy point of view several lessons were learnt. First, the number of patients we were advised to expect proved to be a gross underestimate. Much of the Saturday morning was spent sourcing antibiotics and additional IV fluids; that several of the technicians had experience in ordering as part of their NVQ assessment was invaluable. The two main wholesalers provided a superb service, as did the sterile fluids supplier, with deliveries on both Saturday and Sunday, and neighbouring trusts also helped out. Any attempt at stock control was abandoned because goods hardly touched the "goods received" desk before being issued. Working with the internal auditor, an action plan has been agreed to ensure that stock balances are reconciled now the outbreak is under control. Should a similar situation arise in the future, we will at least double the forecast numbers of patients.

Secondly, close liaison with the incident room to monitor admissions ensured that the demand for IV antibiotics was met, and the accident and emergency stocks were

replenished frequently. Because of this, there was only once emergency night call to the pharmacist.

Thirdly, within the aseptic suite, it soon became apparent that the normal supply lines for ancillary equipment could not cope with the volume of throughput. The local supplies manager co-operated fully in obtaining additional syringes and other supplies at short notice. The usual quantity of clean-room clothing was inadequate to meet the intensity of working in the suite, and local hospitals again came to our aid. The laundry service provided a rapid turnaround and clothing was sent by courier daily. Although sustainable in the short term, this experience has shown that a permanent IV additive service would only be possible with additional staff.

This outbreak proved a challenge to a small hospital, which rose to the occasion and provided a high standard of care with a much lower mortality than expected (only four legionella-related deaths, despite a mortality prediction of 10 to 15 per cent from previous outbreaks). A patient pathway was drafted on day one, and refined almost daily. This gave a consistent approach to all patients presenting at the hospital (particularly important given that new doctors had just started) and ensured that appropriate treatment was commenced early. A scoring system was designed to identify the condition of the patients, and those showing signs of deterioration were sent for intensive care before their condition became too serious. Some high-dependency patients had to be transferred because the hospital only has six intensive care beds. An air-ambulance was used for most of these transfers. The patient pathway and scoring system have set the standard of care for future outbreaks, and are a tribute to the staff involved in their development.

The air-conditioning unit that was the suspected source of the outbreak was isolated the day before the official announcement of the outbreak was made, and no newly confirmed cases of legionella were identified beyond the 10-day incubation period.

It will be some time before Furness General Hospital resumes normal service because 40 inpatients remain, and several are still receiving intensive care at various hospitals in the north west. For the pharmacy life is now more normal, but the hospital has a large backlog of delayed surgical cases to deal with before the year end, so the pressure will not quickly be lifted.

The aftermath of the legionella outbreak has shown the National Health Service at its best, and proved the dedication of staff in all departments.