



HEALTHY INNOVATION

A new procurement system could be the prescription for better illumination on NHS wards. **Jill Entwistle** reports

The average hospital is felt by some users to be one of the environments least conducive for healing – especially when it comes to lighting. Wards often lack natural light, despite the fact that everyone from the Romans through to Florence Nightingale and Le Corbusier has recognised its importance in well-being.

Hospital artificial lighting is often reliant on over-bright fluorescent downlighting, not only using more energy than necessary but also not altogether helpful when most of the building's occupants are recumbent

on their backs. Night lighting can also be hit and miss. In her research paper submitted for the SLL Young Lighter of the Year award, Jemima Unwin described nurses using laptop screens as light sources to make notes by, and holding torches in their mouths in order to accomplish two-handed tasks such as administering injections.

So the fact that a top priority for Rotherham NHS Foundation Trust was 'a step change in the patient experience' when it planned a major refurbishment is, to say the least, heartening. What is also



The lighting solution applied came at the same price as a more traditional approach, according to experts

“ A biodynamic setting allows the patient to be awakened more naturally with a gradual rise in light level

encouraging is that the new procurement method it has been trialling could prove a much better way of achieving that goal. While budget is always a driver, the aim of Forward Commitment Procurement is to allow the process of innovation more breathing space, rather than immediately dragging everything down to the bottom line (see box below).

An initiative from the Department for Business Innovation and Skills, the step-by-step approach, is designed to encourage suppliers to help manage the risk that thinking outside the box might involve in terms of time and money. Rather than telling suppliers what to do, the process is about communicating the desired outcome and allowing companies to arrive at the solution.

So how did the process translate in terms of Rotherham, a 500-bed acute hospital, looking for a low-carbon rethink of the ward environment? It began in 2008 with what was effectively a workshop that allowed Rotherham to set out what its goals

were, and for suppliers to respond with possible concepts. For many suppliers – there were initially 30 – it didn't get much beyond this because they didn't grasp the aim of the exercise and simply reworked existing ideas. The idea of souping up a traditional bedhead system with the installation of LED lighting was missing the point.

However, Andrew Bissell, director of consultancy Cundall Light4, realised that a piecemeal approach wouldn't work and that a rethink of the ward environment was needed. He also saw that this required skills and specialities beyond lighting.

‘I took the view that ultra-efficient lighting means getting the daylight in, getting the interior design right, and getting the right source in the right place for the right solution. I took a holistic view and started pulling a team of people together. We were the only ones who turned up with a team and said; ‘We are going to redesign the space because that way we can improve patient experience

A rethink of the ward environment was at the centre of plans to renovate the hospital



Cundall Light4

IMI
NATURAL AND ELECTRIC LIGHTING COMPONENTS

- Access to daylight, sunlight and views (recommended);
- Biodynamic lighting to create ambience;
- Dedicated reading lights;
- Dedicated visitor lights;
- Dedicated medical light;
- Dedicated night-time floor wash light;
- Daylight-linked lighting controls; and
- Simple icon-based lighting handsets.

and give you ultra-efficient lighting.'

Cundall and architect Austin Smith Lord formed a partnership called Integrated Medical Interiors (IMI), which became a consortium that now comprises Osram, Fagerhult, Intechno/Jung, Wandsworth, Leisure Technique (off-site construction) and Ecophon (acoustic specialist).

The winning concept they came up with was the IMI Pod, a prefabricated modular unit which offers storage as well as lighting

and can be configured in a variety of ways, ranging from single to six-bed options. The integral lighting addresses the full range of needs of both patients and medical staff: reading light, medical examination light, resting and ambient scenes, as well as a biodynamic setting which allows the patient to be awakened more naturally, with both a gradual rise in light level and colour temperature changes according to the time of day.



Rotherham hospital Anatomy of the lighting changes

Indirect biodynamic light/bedhead unit (Fagerhult): 2 x 54W T5 fitting with prismatic louvre lighting the back leaning wall and ceiling. Colour temperature (lamps are 2700K/6500K) shifts according to time of day.

Examination light (Fagerhult): Two 1 X 49W T5 (3000K) asymmetric fittings located on either side of the bed, at the edges of the recessed part of the pod, and angled towards

the bed centre. The white-painted micro-lamella louvre camouflages the fitting when not switched on. Measuring 1797mm long, the fitting has a light opening of 1500mm, with the remaining 243mm covered with a plate housing an LED reading light. Shielded to prevent glare, the 700lm fitting has a fixed angle to optimise illumination for reading.

Night light (Fagerhult): Two LED cove lights (350lm)

recessed into the MDF board and positioned 500mm above the floor on each side of the bed. Colour temperature will be warm and fittings are dimmed to a suitable level.

Visitor light (Fagerhult/Osram): Two LED narrow-beam (12 degrees) fittings (700lm) are located either side of the bed above the patient table, recessed into a cone for design and glare protection. All fittings are Dali-controlled.



Cordell Light4

For the hospital's refit, the project team devised the IMI Pod, a prefabricated modular unit which offers storage as well as lighting and can be configured in a variety of ways ranging from single to six-bed options

As with all the settings, this can be overridden by the nurse should the patient need to be left to sleep. Control is via two handsets, which account for the visual acuity and ability of the patient, and feature easily understood pictures – chair for visitor scene, book for reading.

The pod is also future-proof. The control system can potentially be linked to handheld devices using android or Apple systems and, while the sources are currently half LED and half fluorescent, that balance will shift to favour LEDs as they improve.

By year three, it should be 100% LEDs, and by year seven it should be half LEDs and half OLEDs. It already cuts energy use by 30%, according to IMI. 'Technically we have to show continuous improvement in energy efficiency and maintenance,' says Bissell.

IMI has been named as a group one supplier for any future ward refurbishments, which will involve 26 wards over a seven-year period. The installation of a working four-bed bay by the end of this year will allow for patient feedback – two mock-ups have already provided staff reactions. The full refurbishment is scheduled to start in April/May 2012.

'Huge amounts of interest' have also been shown by other UK and international hospitals, says Bissell.

The real clincher for the concept is that it comes in at the same price as a traditional

solution. 'If you just looked at this as lighting, then we would be more costly,' says Bissell. 'But we haven't put everything into one light fitting, we've put it into a ward design. We've gone beyond the scope of the lighting.'

'What we said was, what if we design the patient environment as a complete solution and include the storage, and look at changing the angle of the beds – to give the

patient a view or prevent them staring up the gown of the patient opposite, for

Nurses were using laptop screens as light sources to make notes

instance – and we do this offsite? Then as an offsite single product it's the same cost as screwing everything to the wall, which is what you get now.

'It is a huge leap of faith and it's involved a huge amount of trust, but everyone believes this needs to happen and it's the right thing to do,' concludes Bissell.

'The point is this process gives you a blank piece of paper and leads to better quality lighting than we currently have.' **CJ**



ADVANTAGES OF THE IMI POD

- Same investment as traditional build
- One-week reduced construction period per four-bed bay
- Energy consumption savings of 30% – existing lighting load: 4.2 kWh per day; 1515.5 kWh per year. Proposed lighting load: 2.7 kWh per day; 996.5 kWh per year
- Maintenance savings of 85%
- Future-ready modular design

Source: IMI



Forward Commitment Procurement (FCP)

Give the supply chain time to innovate:

- Think ahead, signal long and medium-term direction of travel to the market
- Communicate forthcoming needs and procurements in advance of formal procurement

Allow room for innovation:

- Communicate needs in outcome terms – throw away the catalogue and state what

you want, not what you think is available or affordable

- Look for progressive improvements and future proofing

Invite feedback from the supply chain:

- Market consultation allows requirements to be tested and problems ironed out in advance of procurement

Source: BIS