MOVING TOWARDS GREEN THEATRES

Operating theatres are the most energy-intensive parts of hospitals and major contributors of waste. A recent HFMA roundtable, supported by KARL STORZ, looked at ways to reduce their carbon footprint. Steve Brown reports

If the NHS is to deliver its net zero carbon emissions ambition, it will need to reduce the environmental impact of some of its most resource-intensive areas in hospitals – operating theatres. Delegates at a recent HFMA roundtable detected a mood change from a year ago, with environmental considerations moving more into the mainstream of decision-making. But there remains a long way to go.

According to research, operating theatres are often three to six times more energy-intensive than the rest of a hospital and major contributors of waste. Anaesthetic gases alone account for 2% of NHS emissions and 5% of a typical hospital's emissions, with the NHS long-term plan committing to a reduction of these emissions by 40%.

So, if the NHS is to pick up the pace on reducing its carbon footprint, the operating theatre is a good place to start.

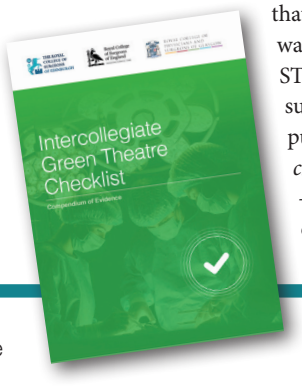
The roundtable, supported by KARL STORZ Endoscopy (UK), brought together clinicians, finance directors and sustainability managers to discuss approaches, what works and where the NHS can pick up pace. It is the second roundtable held by the association to look at how the NHS can make progress towards net zero. Since that first roundtable, which was also supported by KARL STORZ Endoscopy (UK), the surgical royal colleges have published a *Green theatre checklist* – **hfma.to/apr231** – providing a compendium of peer-reviewed evidence, guidelines and policies to support trusts in making their own local changes.

HFMA ROUND TABLE

Roundtable chair Nicky Lloyd, chief finance officer at Royal Berkshire NHS Foundation Trust, was keen to explore how the checklist was being used in trusts across the NHS.

'A welcome surprise' was how Paul Southall, consultant anaesthetist at Worcestershire Acute Hospitals NHS Trust described it.

The checklist covers all aspects of theatre operations. But rather than treat it as a critical checklist – for example, like the World Health Organization surgical safety checklist – the trust was using it to identify the areas it wanted to tackle next in terms of improving the environmental performance of theatres. And he added that it was helpful to have central



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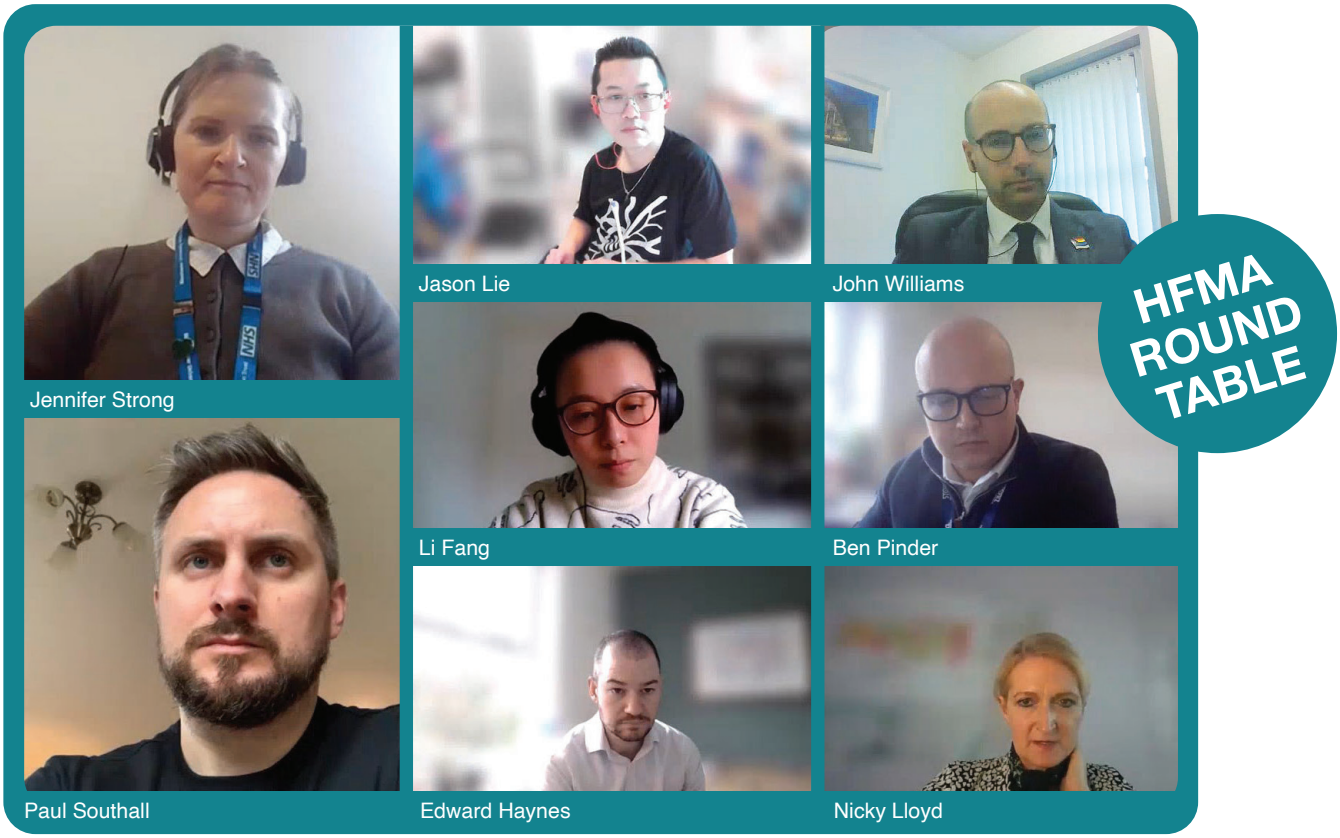

authoritative support for some of the work it wanted to progress.

John Williams, chief finance officer at Sheffield Children's NHS Foundation Trust, said the checklist looked useful, although it wasn't a 'live document' in his trust.

However, he wondered if there was an earlier step. 'Before getting through the door, have we done everything possible to avoid using a theatre environment?' he asked.

This might involve looking at day case rates or using outpatient procedure rooms as an alternative location for a procedure, he added.

Jennifer Strong, acting group sustainability manager at Manchester University NHS Foundation Trust, said her trust was likely to use the checklist to guide progress on specific issues within the theatre environment.

'It's a fine balance between accepting how clinicians undertake clinical practice and what is negotiable for sustainability purposes,' she said. 'So it is being used as a talking point.'

She suggested a next step might be to use the checklist to undertake a baselining exercise to understand what is happening across the trust's 10 hospital sites, identifying where there are key opportunities for improvement.

But she added that the big step changes she had witnessed in sustainability came when change was mandated or where organisations were required to report publicly on performance in key areas.

Ms Lloyd contrasted the NHS approach on encouraging sustainability good practice with how the airline industry rapidly rolls out safety procedures or even recalls of devices or drugs in the NHS.

'I still very much sense that we are in the place of gentle nudging rather than "must act now" on the green agenda,' she said.

'It can be frustrating if achieving net zero carbon is seen as optional. It is about trying to get the message across in a way that is helpful, without shroud waving, and to get some urgency. If we make one small change, but it happens millions of times every week because of our multiple outlets, then it amounts to a very big change.'

Some participants suggested that requiring organisations to review practices against the checklist could help to accelerate action in theatres.

Li Fang, the chief sustainability officer's clinical fellow in NHS England's Greener NHS team, said there were no current plans to mandate its use. However, the national body welcomes its release and supports its principles, and is interested in the different ways it is being implemented by trusts.

Participants

- Li Fang, NHS England
- Jason Lie, East Lancashire Hospitals NHS Trust
- Nicky Lloyd (chair), Royal Berkshire NHS Foundation Trust
- Ben Pinder/Edward Haynes, KARL STORZ Endoscopy (UK)
- Paul Southall, Worcestershire Acute Hospitals NHS Trust
- Jennifer Strong, Manchester University NHS Foundation Trust
- John Williams, Sheffield Children's NHS Foundation Trust

Incentivising behaviours

There was general agreement that the net zero requirements had more prominence now than a year ago. But roundtable participants also said that more should be done to expand on the groups of enthusiasts in individual organisations who were often behind progress with carbon reduction.

Mr Williams said there was a need for 'greater policy levers to incentivise the right behaviours'.

'Linking payment mechanisms to a department's green or carbon efficiency could drive the right behaviour and get us beyond the constituents of the willing,' he said.

Many carbon reducing changes will also result in a cost reduction. But Jason Lie, consultant anaesthetist and sustainability lead at East Lancashire Hospitals NHS Trust, said it was frustrating that these savings did not find their way back to the originating department.

'Our work on nitrous oxide and desflurane reduction must have saved the trust hundreds

of thousands of pounds,' he said. 'But none of that is coming back to help develop further projects. It is inevitable that there are only a certain number of projects you can do for free and eventually some of them will need investment – for volatile capture technology, for example. We are trying two companies currently but ultimately, with no investment, it will just hit a brick wall.'

'That's a challenge for all chief finance officers,' said Ms Lloyd. 'How do you make sure you are incentivising the right behaviours and have the mechanisms to repatriate the savings to areas that have delivered them? That is within the gift of the senior finance leadership, to make sure the money gets channelled back to the entrepreneurs who are making the green changes that are sustainable and saving money.'

HFMA ROUND TABLE

Dr Southall warned that the challenge of funding sustainability would get tougher and tougher.

'I'm not sure that everyone realises that we are in the halcyon days,' he said. 'More or less everything that makes a carbon difference at the moment probably also makes a financial saving. But there is only going to be a finite amount of time – three to five years as an estimate – when that will continue to be the case. A lot of the things we need to do to really get to net zero are going to cost money and we shouldn't kid ourselves about that.'

He added that he rarely found any opposition to what should be done to improve environmental performance. But there was a dearth of information about how to do it.

This was where academic involvement could really help – potentially in the form of academic health science networks. The West Midlands NHS community, for example, is working with the West Midlands network to produce an all-encompassing guide to greening estates in general and healthcare processes. 'This can add a degree of intellectual kudos and robustness,' Dr Southall said, adding that having data to back up proposed changes could help take-up.

Ms Lloyd agreed, acknowledging the nature of the NHS, and the need to be risk-averse in general could otherwise lead to maintaining the status quo.

'There can sometimes be inertia around any change, on the grounds that what we are doing at the moment is safe and proven,' she said. Data and evidence were vital to overcome this.

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Green governance

Environmental impact has to be factored into every decision made by NHS bodies if the net zero ambition is to be realised. And that means embedding sustainability into governance arrangements.

Royal Berkshire's Nicky Lloyd said her trust was reformatting its business case proformas. 'Now, not only will we look at cash, capital, net present value, revenue costs, leadership time and whole-time equivalents, but we are also looking at the impact of the proposed investment on our carbon load,' she said.

Manchester University NHS Foundation Trust has created a climate emergency response board as a new layer of governance. It is chaired by the trust's chief operating officer and includes some of the trust's hospital chief executives and senior officers. Jennifer Strong said the involvement of a senior finance director in the group gave the body some authenticity, embedding action for sustainable healthcare as 'business as usual' rather than a nice-to-have green initiative.

Sheffield Children's trust's John Williams suggested there were three ways that governance should change. 'You need to bring it into the business planning process,' he said. It should also be built into the board assurance framework as one of the significant risks to achieving an organisation's strategic objectives. 'And the third is about getting environmental sustainability as a strand within the clinical strategy, so that it is anchored in how we deliver clinical services.'

He added that his trust's green programme was wrapped in its broader quality improvement programme. 'All our reporting updates sit alongside the other quality improvement programmes and it gets wrapped into the governance that way and so it is not forgotten about.'

Paul Southall said environmental concerns were moving steadily more towards the mainstream. As part of Worcestershire Acute Hospitals NHS Trust's future strategy, the environment is being considered as an umbrella issue across all the normal workstreams such as clinical services, estates, finance and IT. 'If you consider green issues in isolation, it will never work because it feeds into everything the trust does,' he said.

"If we make one small change, but it happens millions of times every week because of our multiple outlets, then it amounts to a very big change"

Nicky Lloyd, Royal Berkshire NHS Foundation Trust

Illusion of choice

Many trusts have made good progress with reducing the use of high emissions anaesthetic gas desflurane – Scotland recently announced that it had become the first country in the UK to eliminate use of the gas in the NHS, and England is due to follow next year.

Roundtable participants said that changing practices could take time and warned against big bang approaches. Worcestershire Acute has eliminated use of desflurane, but Dr Southall

said getting the behavioural change was all about 'the illusion of choice'.

'We went from being proportionally the biggest user of desflurane in the country, in terms of percentage of total anaesthetic vapour, to not using it at all in just over four years,' he said.

Rather than a big brother approach – stopping the use of desflurane overnight – as it got towards the final few percentage points, the trust just made it more difficult to use.

'So if you want to use desflurane, that's fine, but it's locked in a cupboard and the operating department practitioner will have to go and get it,' he added.

The trust has taken a similar approach with nitrous oxide, making it available only via cylinders rather than through the pipeline.

'The plan is to do that for a year and then at the end of the year, it is all going,' he said. 'It is about giving people a timeframe to get used to the change. Doing it softly may take a little longer, but we are more likely to bring people along on the journey.'

Dr Lie said he had also taken a gradual approach and mounted a campaign of information ahead of finally shutting off nitrous oxide.

This had involved demonstrating how little the trust actually used – two cylinders across its most heavily used theatres over two months. It also highlighted the extent of leaks, with the manifold officially reporting that it had dispensed just 2% of what had actually been released, and providing details of the significant cost to check for where the leaks were occurring.

'After this gradual process, I then shut it down – first in Blackburn and then Burnley six months later.'

There was some initial negative response, he said, but people quickly got used to it.

Ms Strong said that getting the right messenger was also important. These changes have to be clinically led, but it might require a senior anaesthetist to really drive a change project.

Mr Williams also underlined the importance of taking a multidisciplinary approach to changing the use of anaesthetic gases. 'You can't do this in isolation from the pharmacy team, the estates team and the porters who move the cylinders about,' he said. 'If you don't do it with the involvement of the right people, it can be really difficult.'

With desflurane being decommissioned from early next year in England, NHS England is turning more attention to tackling nitrous oxide waste.

Dr Fang, who is also a senior trainee anaesthetist, said the national body was aware of challenges reported by trusts undertaking nitrous oxide waste audits, particularly with time. Some questions being explored include whether the NHS could 'skip some of these steps'.

She wondered: 'If we simply decided as a group of anaesthetists that we don't need nitrous oxide – or that there is very little need for it – could we miss that middle step?'

This approach was reinforced by reports that up to 98% of the gas was being wasted before reaching a patient. She added that NHS England was keen to hear suggestions for how it might support the acceleration of the nitrous oxide manifold decommissioning programme.

Returning to the discussion about creating incentives for good environmental practice, Ms Lloyd wondered about the potential for capital funding to be linked to environmental targets.

'Perhaps if you could demonstrate that you have stopped using desflurane, you could claim some form of financial prize,' she said. 'There may be fines to pay for carbon credits if you haven't reduced your carbon correctly. But it would be good to have some incentives as well, because we are all motivated by different things.'

"The aim is circularity – so that you have negligible amounts of things ending up in a bin. But to do that properly requires a proper partnership"
Li Fang, NHS England

HFMA ROUND TABLE

Circular debate

The roundtable also covered the issue of reusable equipment. Medical equipment contributes 10% of the NHS carbon footprint and the *Green theatre checklist* states that 'reusable versions of equipment will, in almost every circumstance, reduce carbon footprint, as well as plastic consumption and cost'. It calls for the streamlining of surgeon equipment preference lists, with items that are definitely needed kept separate from those that are 'optional'.

Dr Southall said there was significant potential to expand the use of reusable equipment, but there were also a number of 'qualified ifs'.

'What we've found regionally is that, after 20-odd years of [going down the] single use route, sterile services departments have been downgraded,' he said. 'So we can't suddenly go back to reusable, because there isn't the capacity to autoclave everything.

'And we are still on single use gowns and single-use drapes because we don't have the laundry services to be able to go back to reusable ones. There is not an obvious way out without spending millions of pounds to upgrade sterile services.'

He added: 'We are not going to get to net zero without going back to a lot of reusable devices. But how we do that is probably going to take us pretty close to 2040 because it's going to be a slow burn – there's not a quick fix.'

Ms Strong agreed it was a difficult issue, made even harder by the lack of consistency across different sites in Manchester.

'Different items are being used in different sites, in different theatres and by different teams,' she said. 'We are gradually trying to make that a bit more consistent and have established a sustainable procurement working group. I think that is the way we can get our procurement colleagues to understand what we are trying to achieve.'

However, she said it was difficult for procurement colleagues to assess the green credentials claimed by different suppliers for their products.

The sustainability team has developed a 'supplier triage form', which the trust gives to suppliers, asking them to provide specific details of their product and the estimated carbon benefits to the trust.

Ms Strong said that the more suppliers could provide some assessments of the carbon impact of their product, covering the whole lifecycle of the product or service, the easier it would be for trusts to endorse.

Edward Haynes, UK business manager for laparoscopy at KARL STORZ Endoscopy

"More or less everything that makes a carbon difference at the moment probably also makes a financial saving. But there is only going to be a finite amount of time when that will continue to be the case"

Paul Southall, Worcestershire Acute Hospitals NHS Trust

(UK), agreed that there needed to be a level playing field for suppliers when providing carbon footprint data.

'We want to ensure the information provided to trusts is accurate and that there is a level playing field for all suppliers to ensure fairness when documenting full life cycle assessments,' he said.

However, he acknowledged that for suppliers with thousands of products it was a mammoth task. A robust, controlled and centralised process would ensure fairness.

Ms Strong also highlighted the importance of aligning finance, infection prevention and control and sustainability approval processes. She said it was all too easy to spend time assessing the environmental credentials of a proposed new option, only to find that it was rejected by infection prevention and control.

Dr Fang agreed with the importance of supplier involvement. 'The aim is circularity – so that you have negligible amounts of things ending up in a bin,' she said.

'But to do that properly requires a proper partnership and there is some thinking going on in NHS England about how to build that into a future healthcare system.'

Options such as leasing equipment from a supplier offer some of the desired benefits – making the supplier responsible for disposal, reprocessing and preparation for being reused. 'That might be a better angle to approach it,' she said. 'If you are the owner, then you have the incentive to make it last as long as possible and be able to survive as many reprocessing and cleaning cycles as possible, so that ultimately it is not wasted.'

Ben Pinder, surgical solutions manager at KARL STORZ Endoscopy (UK), said the convenience factor for single use products can be negated by maintenance and service solutions to ensure the availability of reusable equipment.

'Reusable equipment has to be reprocessed, stored and then transported back to the clinical department,' he said. 'Our focus as a supplier is to provide solutions for the NHS that ensure reusable equipment is available and performing to specification when required.

'Through managed equipment service contracts, the responsibility is on the supplier to ensure the equipment is prepared for use, functioning and managed throughout the equipment cycle – ultimately guaranteeing the availability and performance of reusable equipment.'

According to Dr Southall, remanufactured devices provided a halfway house between single use and truly reusable items.

'It works out at about 50% of the cost and 50% of the carbon, so it is not perfect,' he said. 'But it is a decent solution for the minute.'

The approach has been in mainstream use in Europe and the US for 20 years or so, he said, and offers a possible route for many of the devices used in theatre, including surgical scalpels.

Outside of the UK, many of these items go through a 'remanufacturing' process, enabling them to be reused three to four times. A remanufacturing company typically buys the item off a trust, which avoids the trust's disposal costs, then dismantles and rebuilds the device offsite, delivering a sterile and tested device back to the trust, which it buys often for around half the price of a single use item.

The approach is recognised in the *Green theatre checklist* as good practice for appropriate equipment. The Worcestershire trust has been trialling it for about a year and has just signed a contract with a company to start using its devices instead of around half of the usual single-use theatre items.

The roundtable agreed that progress had accelerated in the past year. However, there were still concerns that the environment was seen as a lesser priority than the immediate pressures of the financial position and elective recovery. 'I don't think there is the grasp of the scale and speed of the things that we need to do,' said Ms Strong.

In summary, Ms Lloyd said there were encouraging signs of progress. 'It feels different to a year ago, when we were almost asking for permission to do things. Now we are just getting on with it,' she said. 'I'm sensing a lot more of people being licensed to act.'

She highlighted some of the key messages, including the importance of links with academia to verify new ways of working to give the NHS confidence to break away from the status quo.

Similarly, data and evidence more generally were needed, particularly to support changes in clinical practice.

Behavioural psychology was also important in understanding how to nudge people towards new approaches. More straightforward, incentives were needed to reward green pioneers and enable them to do even more. And there needed to be greater adoption of reusable devices where appropriate.

Overall, Ms Lloyd concluded, the pace had to accelerate. But this did not necessarily mean big bang changes with new ways of working brought in immediately. Instead, the NHS must understand the tactics that would deliver the most progress.

She highlighted a proverb she thought held true for sustainability: 'If you want to go fast, go alone; if you want to go far, go together'.

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Leslieann Osborn
Assistant Director for Service Improvement,
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