





**Emergency  
Room**



**Main  
Entrance**



## Healthcare: introduction

Hospitals are complicated buildings. Used intensively, round the clock, by healthcare professionals, staff, public and patients, in various care settings, using a vast range of treatments and equipment. Other healthcare premises such as doctors' practices, care homes, specialist clinics, outpatient centres, face specific challenges: changing occupants, fluctuating footfall and, in many cases, vulnerable occupants.

The challenges for the drainage systems of these premises are, therefore, also complex. Health facilities managers know what a headache it is when the systems break down. Sewage backing up behind a blockage and flooding a hospital ward is not uncommon – and can mean having to move patients to other busy wards while the area is cleaned and sanitised.

Blocked drains in hospitals are a major cause for concern, and entire wards can be closed if drainage issues get out of hand. Wards are shut more frequently than you might imagine.

A recent Freedom of Information submission to 122 NHS England hospital trusts revealed that 9% of the 94 which responded, had had hospital services interrupted and wards closed due to drainage issues. Most concerning, the figures included operating theatres closed by blocked drains. Ensuring that wastewater infrastructures are fit for purpose and maintaining the integrity of the drains is only part of the story.

Older installations may be more susceptible to ageing pipes, collapse and damage, but even brand new drains will block if they are routinely misused. That's why it's important for everyone — doctors, nurses, porters, cooks, cleaners, patients and the public — to take an active role in reducing the risk.

# 24/7



# A Drainage Strategy

Best practice for healthcare environments therefore should address both the physical structure and the use of it.

So what can estates managers and FM companies do to mitigate the risks inherent in hospital drainage?

Here are the key elements of an effective drainage management strategy, followed by a do's and don'ts list which identifies activities that increase the chance of drain pollution incidents on healthcare premises. This is based on staff training and best practice processes.

## Step 1. Know your drains

Many hospital sites have developed ad hoc over the years and mapping of drainage systems may not have kept up with this process. Plans may be inaccurate or incomplete. It means that identifying the source of drainage problems – such as blockages, seepage or ground contamination – can be difficult, and planning solutions harder still. Responding quickly to service-critical emergencies may be impossible. Also, misconnections (linking a sewage outlet to a surface water system — which is illegal) are not uncommon.





You need to know that your system is big enough to cope. When a new facility is built, a drainage capacity survey should be carried out, but that isn't always the case. For example, attending a sewage flood in a treatment area of a new unit, our CCTV equipment identified a pinch-point in the drainage system. The drainage system couldn't handle the peak flow rates with the addition of the new unit. In the event, a larger-diameter foul water downpipe was installed but that was more costly than installing a pipe with adequate capacity in the first place.

#### Action:

- An accurate plan should be the starting point of your drainage maintenance strategy. Mapping the system identifies connections, water flows, system capacities and allows you to assess the condition of the asset. Remedial work to tackle defects or problem areas can be scheduled according to urgency.
- Surveying is carried out using a range of tools, including robotic CCTV drainage cameras which provide HD-quality video footage of the inside of pipes. Pipes and chambers may be laser scanned to create 3D point cloud images for assessing capacity and structural integrity.

## Step 2: Maintain the system

Preventative maintenance is essential to manage the demands placed on drainage systems of healthcare premises. In older buildings, downpipes may be cast iron, so their capacity can be reduced by oxidation. Caustic chemicals will accelerate this process.

### Sanitation gels and detergents build up in pipes:

it's not unusual to find the diameter of downpipes reduced to as little as two centimetres by this process. Pipes then have to be descaled using a specialist electro-mechanical cleaning device.

Blockage problems outside buildings such as tree roots growing into the pipes and drain collapses are common causes of sewer blockages. The good news is that there are techniques for rectifying such problems cost-effectively and quickly. Compared with traditional excavation methods, no-dig repair such as patch- or full-pipe lining minimises the impact on patient care, however dealing with a potential deterioration before it becomes critical is clearly preferable.



# Drainage Access

It is important for facilities teams to ensure that hospital drainage systems can be accessed quickly and as easily as possible. This does not always happen. Pipework can be installed without any access points. Manholes can be covered over during refurbishment work. Pipe access plates can seize up because they are not adequately maintained. Internal drainage systems may be suspended from ceilings, making finding and dealing with blockages difficult without disrupting patient care.

Without adequate access points, engineers may be forced to excavate to gain access to pipes, or cut new access points in high-level pipes. In emergencies, when patient care is threatened, this can cause critical delays.

## Action:

- Choose your drainage partner and agree an on-going maintenance programme to suit your site and needs. That will involve automatic site visits at appropriate intervals to clean, jet and check your drainage system. Keeping it free from silt and debris will ensure that the network continues to flow freely. Planned maintenance programmes are also a pre-requisite of the **ISO 14001** environmental management accreditation.

## Step 3. Control what goes in the drains

What patients and healthcare workers do at home, they will do in hospitals and other premises. So thousands of sanitary products and wet wipes will be disposed wrongly down hospital toilets every day, despite the presence of sanitary waste bins. Wipes are often marked as 'flushable', but should never enter the drainage system.



## Action:

- Training staff and educating patients and visitors about what can and cannot be disposed of down toilets is an effective way of preventing problems. Hospital bathrooms tend to see wet wipes and paper towels more than the average bathroom. They may be a necessity, but should be disposed of correctly. Visit our website for more about the issues wipes can cause. <https://www.lanesfordrains.co.uk/domestic/advice/using-drains-and-sewers/wipes/>

- Plasters, bandages, sanitary towels and cotton swabs should also be placed directly into the bin to avoid serious drainage issues. If your bins aren't big enough, increase bin capacity to stop items from being incorrectly flushed away.
- In canteens and kitchens, fats and oils will find their way into drains, either in residual amounts or through irresponsible disposal. Known as 'FOG', fat, oil and grease collect in pipes and congeal to form 'fatbergs' in drain lines. If not dealt with, these will continue to grow, completely blocking the pipe.
- Make sure grease traps are regularly maintained and of sufficient capacity.
- Give kitchen staff clear instructions about drainage housekeeping. Put all oil or fat into the waste bin, wiping away residue with a paper towel. It's important to remember that even if you wash away fat with hot water, it will cool and solidify in the drain.
- Waste food will create drainage issues too, so plates should be scraped into the waste bin thoroughly before washing. (Ask for our Catering Best Practice leaflet.)







- Obviously waste and unwanted medicines should never be washed down the sink as they may contaminate the water system. Even the smallest amount can have a damaging effect.
- Make sure that instructional signage about good drain behaviour is clear, concise and visible to all staff and visitors.

### Good practice is the key

Time is precious in busy hospitals and health centres, and budgets are stretched, so avoiding blocked drains and sewage spills by following good practice is common sense.

If you would like to know more about maintaining hospital drainage, please speak to the **Lanes' team** on **0800 526 488**.



## Case Study: Aberdeen



To support a £38 million refurbishment scheme at Aberdeen Royal Infirmary, Lanes surveyed and cleaned 88 combined foul and rainwater downpipe stacks, with a total length of 1,500 metres, and surveyed and cleaned 1,000 metres of underground pipework.

The CCTV drainage surveys, combined with extensive dye testing, allowed Lanes to map the drainage system and its outflows across the entire building, which will help the hospital's facilities team maintain the drainage.





Lanes depot in Preston is delivering reactive and planned drainage maintenance services to multiple NHS estates across the city to ensure their drainage systems are in good working order.

Ensuring surface water and foul drainage pipes remain blockage-free is critical to service continuity, so regular maintenance visits keep drains flowing.

Key services include CCTV drainage surveys, drain blockage removal, high pressure water jet cleaning, and pump station cleaning.

The wellbeing of patients, staff and visitors comes first so drainage maintenance work is programmed around those needs, avoiding times and locations where work would disrupt the smooth delivery of patient care, and under the strictest health and safety procedures system.



A comprehensive CCTV drainage survey of Bristol's main hospital is helping the estates department plan an £8 million programme to improve the King Edward Building. Since 2011, the University Hospitals Bristol NHS Foundation Trust has spent £86m refurbishing the site to develop new services and improve patient care. Drainage records were sparse, with some structures dated back to the 18th Century being surveyed for the first time since they were installed.

Following the four-day survey, Lanes produced a complete map of the hospital's drainage system and HD-quality video evidence of its condition, gathered using flexible rod cameras and remote-controlled robotic crawler cameras. Much of the work was done at night, when the hospital is at its quietest, to minimise impact on staff and patients.





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