

Publicly Accessible Toilets after COVID-19

A 2021 update to inclusive design guidance

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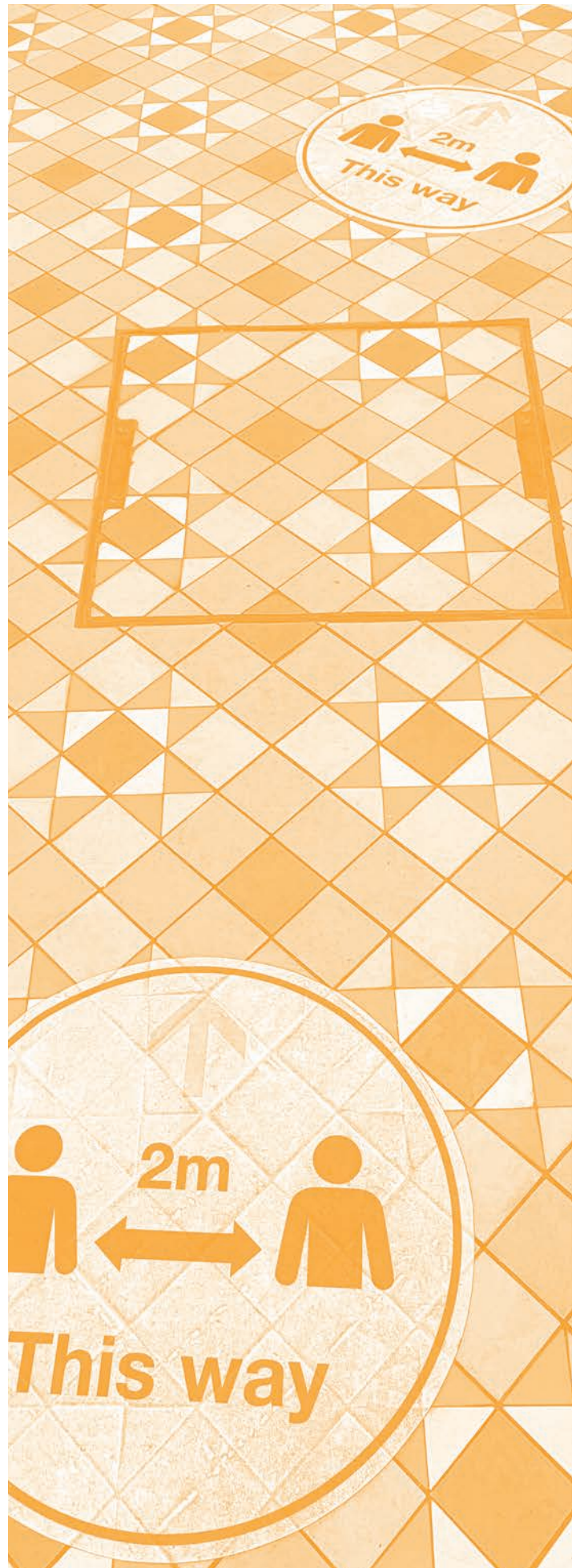
Don't
Panic!



Royal College of Art
Postgraduate Art & Design

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Introduction

Publicly Accessible Toilets after COVID-19 (2021)

The pandemic has shed light on the importance of publicly accessible toilets to people in the UK. In this update to **Publicly Accessible Toilets: An Inclusive Design Guide** (see panel, right), we show how future toilets can be designed to be more hygienic, and also more accessible and inclusive, as a critical part of public health infrastructure.

This update, developed from desk research, focuses on guidance about publicly accessible toilet design and provision affected by COVID-19, including:

- how to share information about a facility with the public, including gathering feedback;
- inclusive improvements to toilet design that also minimise transmission of viruses;
- how to improve and communicate levels of hygiene.

This update is designed for those who own or manage publicly accessible toilets, designers and built environment professionals. Some guidance also applies to other shared toilets, such as workplace and customer-only facilities.

Design Ideas

In each section, we have created some future concepts and provocations, that can be used for discussion and consideration. Each of these is marked with a symbol to indicate how far from implementation we think it is, as shown below.



immediate; simple to implement



near future; needs development

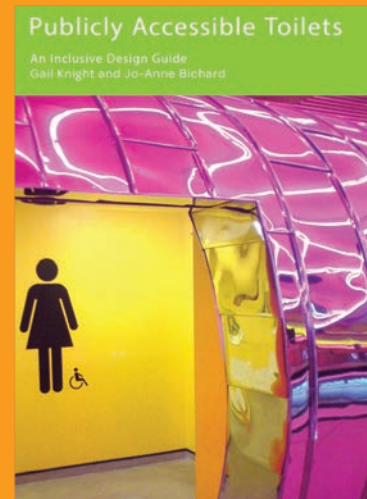


longer term; complex design

Publicly Accessible Toilets: An Inclusive Design Guide (2011)

Our original design guide - [available for free download \(pdf\)](#) - shares ideas large and small to make public toilets more inclusive.

Written by Gail Ramster (née Knight) and Jo-Anne Bichard at the Royal College of Art, it is based on their empirical research into public toilet design. The guide shares the difficulties that many people face when trying to find and use the UK's public toilet provision. It focuses on differences in age and ability, and draws attention to the needs of people with conditions that affect continence.



What are Publicly Accessible Toilets?

Publicly accessible toilets are all toilets that the public can access, except for customer-only toilets and those in workplaces and educational settings. Publicly Accessible Toilets can be publicly- and privately- managed. They include:

- public toilets,
- toilets in shopping centres,
- toilets in the public transport and road networks,
- toilets in public buildings (town halls, libraries, hospitals, leisure centres)
- toilets in businesses that allow people to use their toilets without buying anything. These include some supermarkets, shops, cafes and pubs, and council-run Community Toilet Scheme participants.

Why this matters

We are currently living through a global pandemic that has required urgent societal and behavioural changes.

The COVID-19 pandemic resulted in the temporary closure of most of the UK's publicly accessible toilets. Many local authorities closed their facilities during lockdowns even though public toilets were recognised as an 'essential service' [1]. The challenges this created for many people has shown why we must identify the need, highlight the demand and ensure that publicly accessible toilets are safely available for use by the public [2][3][4].

Prior to the pandemic, the 'loo-leash' that some people felt restrained by was already an ongoing issue. People struggled with unsuitable out-of-home toilet provision which put a strain on around 20% of the public venturing out of their homes freely, rising to 43% [5] for those with conditions requiring frequent toilet use.

A staggering 14 million people in the UK suffer from some form of bladder condition and 6.5 million with a bowel condition. 94% of people with a bladder or bowel condition said they felt anxious about leaving their homes due to a lack of toilet facilities, and just over 90% felt that they could not leave their homes to go to work or visit the shops for the same reason [6].

A reduced ability to access suitable and safe toilets has a greater effect on women who experience more incidence of Irritable Bowel Syndrome (IBS) and Urinary Incontinence [7][8], who tend to be primary carers of children and older family members, and who experience more chronic health conditions and disability in ageing [9].

The fear of being unable to venture out can prompt people to deliberately dehydrate themselves. This was practised by over half (56%) of the public, and can seriously affect health and exacerbate existing medical problems [5]. Delaying toilet use can itself lead to a range of medical health conditions [10].

Consequently, the prolonged closures of public toilets during the pandemic, impacted and restricted those who were already isolated. The widespread closure of toilets has affected those with limited access to washing facilities due to homelessness [11] despite

those in shared accommodation already being at a higher risk of transmission [12].

Mobile workers rely on regular access to public toilets as part of their working life. Taxi drivers reported several negative effects, which they attributed to the lack of toilet provision during the pandemic including: developing Covid-19 due to no access to hand-washing; worsening of longstanding conditions such as diabetes and IBS; bladder infections; and humiliation and negative health effects during menstruation [13].

Furthermore, a lack of COVID-19 appropriate public toilets can result in anti-social behaviour such as open defecation, leading to a significant social and community issue [14].

And yet public toilets are one of the pinnacles of advancements in public health.

As well as providing the means for people to regularly access toilets in comfort and dignity, they also provide the opportunity for regular handwashing, a recognised and advised essential behaviour when navigating life through the pandemic and to reduce future transmission of infectious diseases.

As restrictions ease, the pressure on providers to provide adequate toilets for the growing number of local people and tourists is likely to increase. This goes against the trend of the last 20 years where public toilets in England & Wales have fallen in number from 6087 in 2000 to 3990 in 2021 [15], a reduction of 35%.

The 'unlocking' of the UK provides an opportunity to recognise the role that publicly accessible toilets play in UK society, and to hold onto and improve our provision, to make it cleaner, more accessible and more inclusive for post-COVID life.

People profiles

These four examples have been drawn from recent articles to highlight the struggles that people have faced during the closure of public toilets during lockdown. Designing and managing with these people in mind can help providers to improve their toilet provision, as restrictions ease.



Sianny is one of 23,000 people in Wales with Inflammatory Bowel Disease.

"As someone with Crohn's, going out takes a lot of initial planning; you develop a 'mind map' of where all the loos are and where you can go,"

"Conditions like mine are exacerbated by stress, and it's a spiral for people, when they get stressed the condition worsens and they deteriorate, knowing the toilets were open would give people a lot of relief."

Interviewee in [Public loo closures 'debilitating and degrading'](#). BBC News [16]

Neil has Irritable Bowel Syndrome (IBS) and feels that there had to be a way of allowing toilets to remain open safely during the lockdown.

"I have been there where you are literally afraid to leave the house and have been absolutely miserable." The use of public toilet provision is a "basic human necessity" which affects everyone. Neil says he would go motorcycling most weekends before Covid-19, but he would always be thinking about the nearest toilet on the way.

Interviewee in [Public loo closures 'debilitating and degrading'](#). BBC News [16]



Mandy who lives in the Clive Vale area of Hastings and has chronic IBS says she is avoiding public transport due to the COVID-19 crisis and, as a result, she is walking to her work at a care home.

Avoiding using public transport may be a strong consideration for some, even when restrictions have been lifted. Due to the avoidance of public transport, the commute is taking her an hour and 15 minutes, during which time Mandy says she often needs to go to the toilet. Mandy said public toilets are essential for her when she is out of the house.

Interviewee in [Hastings key worker asks for publicly accessible toilets to be reopened](#). Hastings Observer [17]

Eliza explains how the lack of toilet facilities during the pandemic has affected her.

"Being a young woman and having stomach and bladder issues is tiring as it is, along with the physical symptoms of pain, discomfort, tiredness etc, it also comes with added stress of finding the next toilet, will I be able to find it on time?"

Respondent to ["Tell us if your toilets are open"](#). Bladder & Bowel Community [18]



Types of toilet and access

The following terms are used throughout this guide to refer to types of toilet, provision and access:

Accessible cubicle: Provision for people with access needs, visible or invisible disabilities or health conditions, who need the specialist features that standard facilities do not provide. These include a transfer space, grab rails, a shelf, washbasin and appropriate disposal facilities. Design guidance can be found in British Standards BS8300 [19] as well as Building Regulations.

Automatic Public Convenience (APCs): a direct access cubicle of standard, accessible or universal design, which is accessed directly from the street and has automatic cleaning functions between uses.

Changing Places cubicle: a larger, fully accessible cubicle for people with multiple and complex disabilities, who cannot use toilet facilities unassisted. Additional features include a adult-size changing table and hoist system. Design guidance can be found in BS8300 [19], from Changing-Places.org [20] and Building Regulations.

Community Toilet Scheme: a local network of publicly accessible toilets, often managed and promoted by councils. The Community Toilet Scheme operator encourages businesses to open their facilities to non-customers, often with an annual financial incentive.

Direct access cubicle: a cubicle with handwashing facilities within. Almost all accessible toilets are direct access cubicles, and they are an emerging design for standard provision too. They do not require shared circulation space within the facility, and many are directly accessed from a corridor or street.

Gender-neutral / unisex toilets: cubicles accessible to all genders. This includes universal cubicles, APCs, and most accessible toilets, as well as some standard or direct access provision.

Just Can't Wait card: a card provided by charities to people who need to use the toilet urgently due to a medical condition. Showing this card to a provider can help people avoid a potentially embarrassing situation by communicating their need discreetly.

RADAR/NKS Keys: A universal RADAR key (also known as NKS key) is available to people with disabilities or health conditions, via local councils and other organisations, to give independent access to many accessible toilets in the UK. The RADAR Key Scheme or National Key Scheme (NKS) is now operated by Disability Rights UK.

Standard provision: a facility of mostly or entirely standard (i.e. non-accessible) cubicles, with shared circulation and handwashing space. Design standards can be found in British Standards BS6465: 1-4 [21].

Universal cubicle: a single accessible cubicle that is provided for all users.



Accessible cubicle



Automatic Public Convenience (APC)

Changing Places facility



RADAR Key



Community Toilet Scheme



Standard provision



Direct Access Cubicles



'Just can't wait' cards



Communication

With shops and businesses closed, more people than ever have relied upon public toilets to enjoy time outdoors, yet access and information has been patchy and inconsistent across regions and providers. Clear and accurate communication can build public confidence in a reliable toilet provision.

The pandemic has shown how serious a concern access to public toilets is for those whose day-to-day lives rely on these facilities. This could be for work (professional drivers, community nurses and other mobile workers), or for those with frequency of use and access considerations (older people, those with continence-related conditions and those who are disabled).

With providers taking different approaches to toilets closing and reopening, the addition of temporary measures and longer cleaning routines, it is important for people to be able to find accurate information on which toilets are open and how to find them.

This section highlights two ways to improve communication with people when reopening public toilets:

- Finding toilets
- Within and around toilets



Finding toilets

Online information

Online information helps people to find out toilet locations, availability and accessibility, especially those with continence concerns, who want to plan ahead and travel with confidence.

Local authorities and other providers must keep online information up-to-date. Yet not all local authorities have a 'toilet page' on their website. For those that do, the information is not always current. If there are restrictions or temporary measures in place, these should also be mentioned on the existing toilet webpage, so that visitors won't miss vital information. Webpages should be clear when the information was last checked, so visitors can decide how reliable it is.

Digital maps

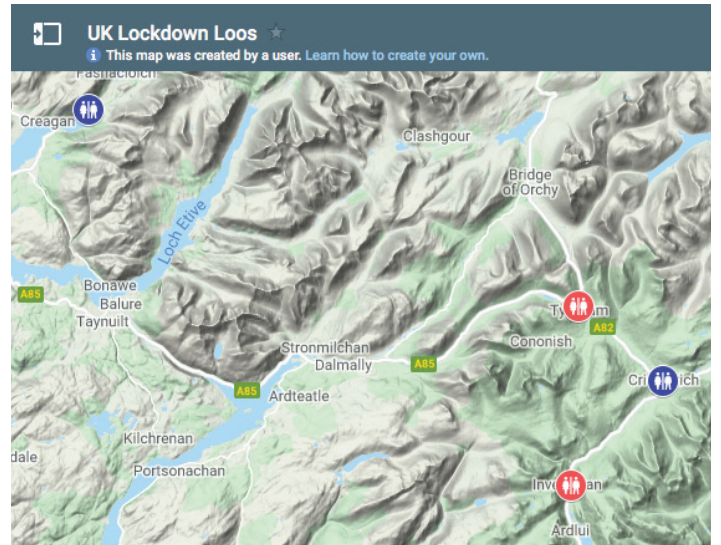
Third-party online maps include toilets from across the country. Most rely on updated information submitted from providers and the public. [Lockdown Loo](#) is a crowd-sourced map of facilities open during the pandemic, including when each report was added. [The Great British Public Toilet Map](#) is the UK's largest database of 13000 publicly-accessible toilets. This map focuses on pre- and post- pandemic toilet availability, with details including accessible toilets, gender-neutral toilets and baby-changing facilities. The [Changing Places Toilet Map](#) aims to hold accurate information and photos of all Changing Places facilities across the country.

Printed maps

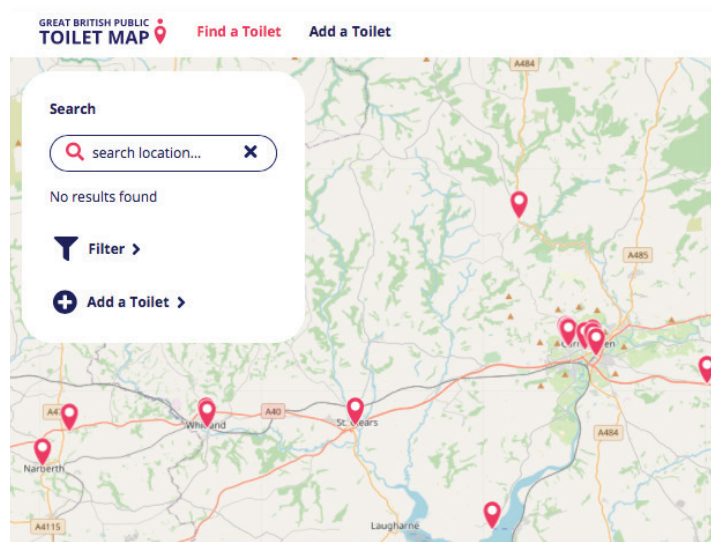
Printable paper maps that show a town or district's publicly accessible toilets are useful if up-to-date, particularly if they show all local toilets that the public can use, not just those provided by the local authority, with information on specific facilities and opening hours.

Physical signs

An illuminated sign or entrance can show from a distance where toilets are, and that they are open. This



credit: lockdownloo.com



credit: toiletmap.org.uk



credit: changingplaces.uktoiletmap.org

helps indicate public toilets outside daylight hours, as well as in large indoor spaces such as department stores and stations. Directional floor signs from a building's entrance could emphasise the availability of toilets on arrival, and help the directional flow of users.

Directional signs such as fingerposts can be improved by adding information e.g. how many minutes walk; baby-changing and accessible toilet pictograms; and opening hours. Signs need to be clear, bold and well-lit to assist people with visual impairments.

For both permanent and temporary information, small directional signs or stickers at regular intervals on street furniture can be used, e.g. bus stops or lampposts. In built-up areas, these are inexpensive and unobtrusive, and helpful to people visiting the area. Signposting is particularly important for people who are mobility-impaired or who experience 'urgency' and cannot hold on to find another facility [22].

These lower-cost directional signs are also useful to highlight nearby Community Toilet Scheme participants, which will need updating once restrictions ease, as well as printed maps at 'entrance points' such as car parks, town centres and public transport hubs.



Pop-up map of toilet locations. credit: HHCD



Digital occupancy display. credit: rainhamrailenthusiasm.com

Within and around toilets

Toilet management

Publicly-accessible toilets should have clearly displayed opening hours, as well as friendly signage that asks and informs about new protocols so that people are reassured and don't feel uneasy about such a simple activity as using a public toilet facility [23]. Maps or signage at the facility indicating the next closest toilets are useful for ongoing journeys, particularly if visitors find a facility is closed, or shut temporarily for in-depth cleaning. Ways of getting in touch with the provider (by phone call, text message or email) should be provided, meeting accessibility requirements.

Raising the profile of toilet attendants, cleaning teams and cleaning schedules can enhance people's confidence in the facility. Toilet providers should also request feedback from the public (online and/or on-site) to reinforce their commitment to managing and maintaining their facilities. See section Maintaining Hygiene.

Hand sanitizer should be provided upon entry of public toilet facilities to reduce the possibility of viral transmission within toilets.

Moving around safely

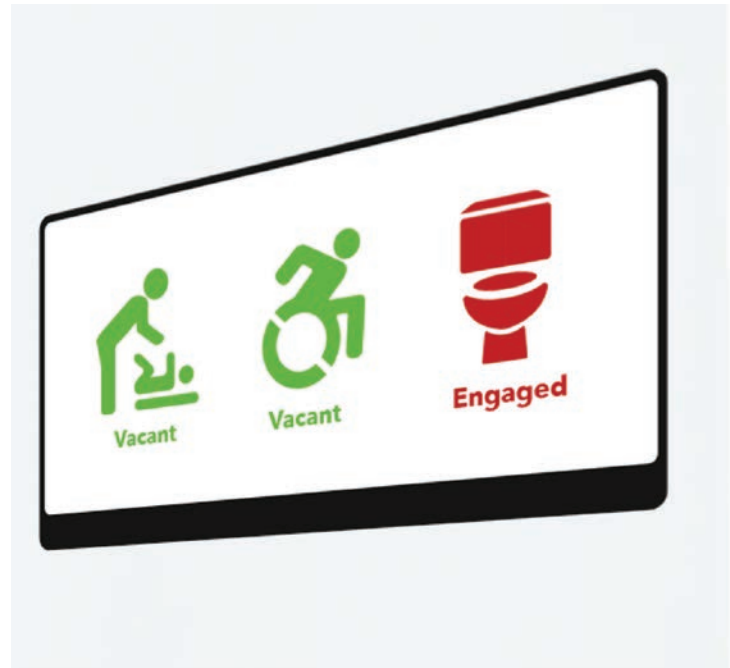
Whilst social distancing may remain in place for some time, adjustments to allow for it have also highlighted ways to improve the general throughflow of users, which is of long term benefit for very busy facilities. This includes one-way systems that enable people to safely navigate shared indoor spaces.

Any space provided for queuing should not interfere or become an obstruction with public footpaths or walkways. At certain times or locations, attendants may need to oversee one-in, one-out entry systems [24], or direct users to show which cubicles are available or have just been cleaned. People could also self-manage if provided with a digital display that indicates wait times [14] or occupancy. This is particularly useful in facilities with unusual layouts, where the front of the queue cannot see all cubicles, so cannot know if one is available.



Design Idea - Sensor signage

Clear signage can be placed above the entrance of toilets to display the type and number of facilities available. This could be implemented on raised signage for people to see from afar, or at eye-level so that people can wait outside until a facility becomes available before entering.



Inclusive toilet design

This section highlights inclusive improvements to the physical design of existing or new public toilets, factoring in COVID-19 considerations.

Inclusive Toilet Provision

Due to the inaccessible design of standard cubicles, the pressure on accessible toilets is often heightened. Baby-changing facilities should not only be available in the accessible toilet. Where possible, separate baby-changing facilities should be provided [23], and also accessible to a wheelchair user. Within gender-segregated toilets, baby-changing tables should be in both mens and womens facilities. Designers should also consider if adults can access a toilet themselves or with toilet-trained children, without leaving babies or young children in buggies unattended.

Direct access toilets (which include handwashing) might provide a more hygienic environment if well ventilated between users. They also meet the needs of those who need access to water within the cubicle, due to medical conditions, hygiene rituals or during menstruation, reducing pressure on the accessible cubicle [25].

Queues for women's toilets are often longer than for the men's toilet, due to inequitable levels of provision [25]. The pandemic has further exacerbated this inequality, by reducing capacity through social

distancing measures and more frequent cleaning regimes. In some places, providers have since adapted facilities to be gender-neutral, to ensure any available cubicle can be accessed by the next person. Gender-neutral toilets are also more inclusive of trans-people; adults and carers of children; and adults assisting or assisted by someone of a different gender [25][26].

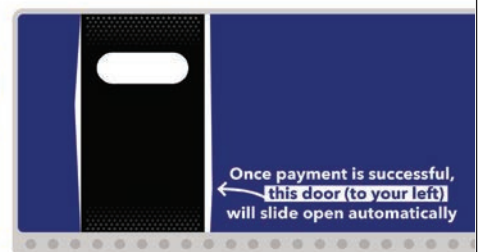
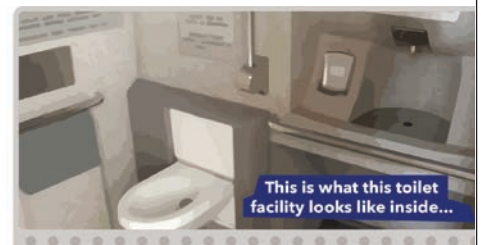
Automatic Public Conveniences

Automatic Public Conveniences (APCs) are single-use stand-alone cubicles which are automatically cleaned between uses. This design should help maintain hygiene and reduce transmission of diseases. However, many design challenges remain with existing provision. These include:

- The instructions can be too complex, which can discourage potential users.
- Poor information design or mechanical failure leads to negative user experiences.
- Positioning in an open space can make users feel vulnerable and exposed [27].
- Poor reputation - past research found 71% would not use APCs [23].

Design Idea - Inclusive video

APCs could be improved through an inclusive, short video (audio & visual aids) that clearly explains what the facility looks like inside, and how to enter.



Paying for toilets

Whilst charging for toilets can help a provider to keep the facility in good order, the charging mechanism inevitably creates barriers for users. These barriers are both physical (turnstiles) and economic (cost of use, not having the right coins) [27].

Coin use has dramatically fallen during the pandemic in favour of contactless payment. Contactless payment for public toilets is already found in a few locations and is likely to become more widespread for facilities that charge.

Contactless access with different user permissions would also have advantages. Whilst RADAR keys are useful to give independent access to the user, and to ensure priority for those with the greatest need, the design could be more inclusive. Some disabled people are unable to use RADAR keys, such as those with tremors and/or impaired co-ordination, who have reported difficulty in placing keys in locks [23].

People with visual impairments may have difficulty locating the lock. People with cognitive disabilities have reported frustration because they forget to take the key with them when they go out, as it is too cumbersome to be kept on a daily keyring [23].

Design Idea - Inclusive RADAR key

RADAR Keys could be redesigned as a contactless keychain fob, to make them more accessible for individuals who have limited hand capabilities/grip issues and struggle to use the existing key.



Design Idea - Public Toilet Access Card

A Public Toilet Access Card could be provided for those who are homeless in order to have free toilet access to paid facilities. An RFID can be embedded into the card, similarly to any wireless/contactless card, to unlock facilities.



Reducing Touchpoints

The pandemic has highlighted the benefits of reducing the number of surfaces and mechanisms that people need to touch when sharing facilities.

As well as being more hygienic, this can help children and any adults who have lower levels of strength or dexterity, making it easier for them to use many features of the toilet.

Certain designs for locks, flushes and taps are already specified for accessible toilets to allow people with a range of physical, sensory and cognitive impairments to use the facility safely, comfortably and with dignity [19]. Introducing these more inclusive features into standard cubicles would reduce the number of people needing to use the accessible toilet [25].

Doors: It is important that the weight of doors and door closers are not too heavy for people that have limited upper body mobility or limited arm strength to use [19][23]. Door closers also obscure which cubicles are vacant, reducing capacity. An external door to the toilet facility is not always required, which removes another touchpoint. See section **Increasing Ventilation: External Doors**.

Handles and locks: Lever action locks are already specified for accessible cubicles to help people with dexterity. An accessible lock is one that can be operated by a closed fist, or elbow. These could be used for all cubicles. Being unable to lock a toilet door can make people feel vulnerable and lead them to rushing, increasing the risk of falling or injury [23].

Sensor and electronic locks and doors would reduce a touchpoint, however many people have found electronic locks confusing, and sometimes fail to lock the door. People with cognitive disabilities, dyslexia, tourists and those who do not speak English as a first language, may all find instructions for complex multi-stage locking systems difficult to understand and operate [23].

Toilet paper dispensers: Single-sheet toilet paper dispensers are recommended as they require less strength to use compared to toilet rolls. This may also reduce both waste and blockages. See section **Reducing contact: Toilet lids and Flushing**.

The Flush: To enable a WC to be flushed, the activation device should be correctly located, easy to access and of an accessible design (can be used with a closed fist or elbow) in both the accessible and standard cubicles [23]. No-touch sensors can be used, which are more hygienic. Time-interval automatic flushing may be less pleasant for people who need to use the toilet for a longer time.

Taps: Lever taps can be used with a minimum amount of grip or by using forearms. Sensor taps eliminate a touchpoint, though the design should make it clear that the tap is sensor-controlled and be intuitive to activate, through the visibility and position of the sensor.

Sensor or time-limited taps can cause issues if installed within the accessible cubicle, because some users may require more water and may not be able to adequately clean themselves. Those with limited arm or hand movement, coordination and strength may have difficulty placing their hands under the sensor. Those with cognitive disabilities may not recognise an unfamiliar design. As some users need to be seated on the toilet whilst accessing water, the hand basin must be located on the closest side to the toilet [23].



Standard cubicle with hooks, grabrails, single-sheet toilet paper dispenser and shelf; Wellcome Collection. credit: HHCD

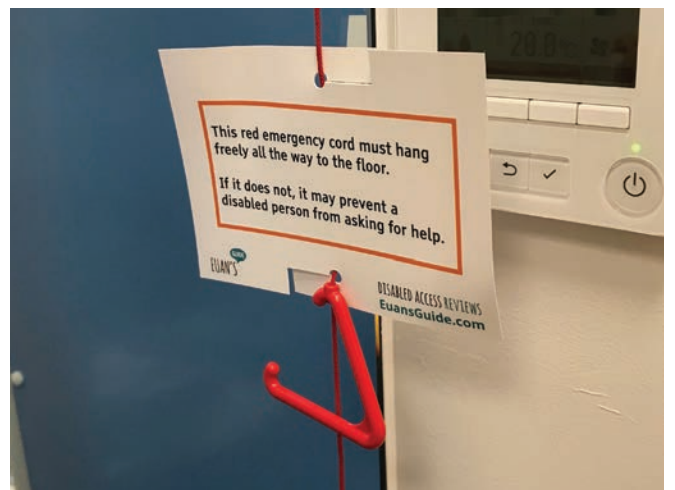
Soap and hand sanitiser dispensers: These should be automatic or require little effort to operate. They should be positioned at a height and location to be within reach of wheelchair users and children. Hand sanitiser is increasingly available prior to entry to toilets [24], which helps keep any remaining touchpoints clean, such as handles, locks and grab rails.

Shelves and hooks: For people with colostomy, ileostomy or urostomy pouches, among others, it is essential to have access to a flat surface or shelf, as well as good lighting and access to hot water [23]. In some settings, these might be misused for illegal substance abuse.

Hooks positioned at different heights can be used for coats and for those who may need to partially or fully remove clothing to attend to specialist medical requirements. Bag hooks could be positioned within reach for people to access hygiene products.



Hooks at different heights, grab rails and other accessible features help more people to use standard cubicles. Wellcome Collection. credit: HHCD.



EuansGuide.com cards are to remind people of the importance of not tying the red emergency cord 'out of the way'. Wellcome Collection. credit: HHCD.



Sensor tap, sensor soap dispenser, and single sheet paper towel dispenser. Wellcome Collection. credit: HHCD.



'Way Out' signs can help throughflow as well as people with neurocognitive conditions. Wellcome Collection. credit: HHCD.

Increasing ventilation

Good ventilation has always been an important aspect for toileting in comfort prior to the pandemic. As indoor spaces, there is a higher risk of aerosol transmission of COVID-19 and other diseases [28][29]. As well as extractor fans, air purification units or air vents, increasing natural ventilation can also improve the user experience as well as reducing risk.

Air-fresheners: In the past, poor ventilation might be masked through air fresheners. However, this can cause problems for those who suffer from respiratory issues such as asthma due to the high chemical content. Allergy-friendly plants and flowers can be used to increase air purification, create a fresh, natural feel and give a strong impression that the facility is well looked after and maintained [27]. In a participatory design exercise that we ran for public toilet research, participants universally placed plants within toilet facilities to indicate a clean, healthy environment.

External doors: Many modern public toilets are designed without external doors, with partial walls to obscure sightlines of people inside. This removes another object that people must touch, and improves access and safety [27][30]. It also improves the natural air flow through the facility. In the short term, doors could be fixed open [24][28][29] to improve air flow, where permitted within Health & Safety and Fire regulations. This must not affect user privacy or dignity.



Internal greenhouse, London Victoria. credit: HHCD

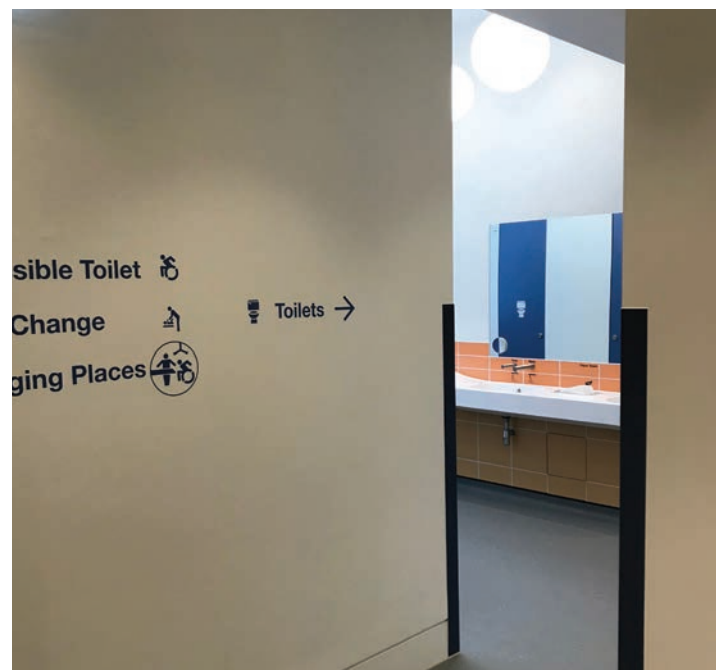
Reducing transmission

Urinals: Simulated urinal flushing shows 57% of virus laden particle movement detected travelling away from the urinal after flushing [31]. It has not been proven whether this could infect a person with COVID-19. Spacing and/or partitions of urinals would maintain hygiene, as well as increasing privacy for those who experience paruresis.

Toilet lids and flushing: Researchers have identified the virus's presence in excrement and the gastrointestinal tract which raises the possibility of transmission via WC pan. In previous research on the 2003 SARS epidemic, flushing the toilet had resulted in mini-droplets of contaminated air passing into the respiratory system [10]. COVID-19 has also proven to have high detection rates in fecal-derived aerosols [32]. However, no definitive research shows fecal-oral transmission is a direct way of contracting COVID-19.

Closing the lid of the toilet prior to flushing could be encouraged to reduce the risk of contaminated air. The World Health Organisation have recommended that toilets should be flushed with the lid down to prevent droplet splatter and aerosol clouds [33].

Communication: Public health communication signs should be located by dwell points (urinals, toilet doors, by sinks and bins) to encourage people to absorb the information [34].



Doorless entry, Wellcome Collection. credit: HHCD

For example, clear signage and posters by bins could communicate the importance of using a tissue when coughing or sneezing, or to encourage use of personal handkerchiefs or towels, to be used instead of disposable tissues or paper towels.

This could help to reduce infectious waste, for sustainability, and be an alternative in facilities that experience theft or arson of paper products like tissues and paper towels. See section **Handwashing: Personal Towels**.

Design Idea - Self cleaning seat

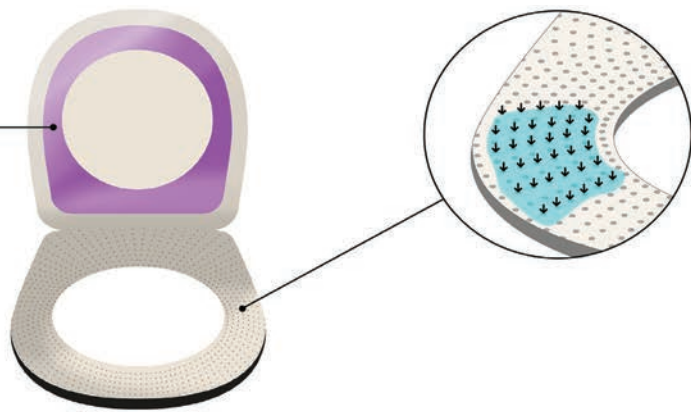


Toilet seats could be designed to better prevent the transmission of bacteria and viruses by ensuring the lid is closed while flushing and the surface is clean before next use. In this concept, as the user enters the cubicle and locks the door, the seat lid automatically opens. After use, when the door is unlocked, the seat lid closes and any liquid on the perforated seat will be automatically vacuumed dry. Following that, a UV light from the seat lid will activate and cleanse the seat. This process could take approximately 20 seconds.

UV Light activated when seat is closed



Perforated seat with vacuum



1 Toilet seat lifts when door is locked



2 Toilet in use



3 Door unlocks, toilet seat closes and self cleans



Handwashing

The process of handwashing has become an essential hygiene ritual to reduce the risk of viruses spreading. It will be more common practice to see people entering public toilet facilities only to wash their hands. This could be considered in future toilet designs, by providing easy access for those only seeking handwashing facilities, separate from any toilet queue.

Handwashing procedures: Simple and clear communication such as posters and signage can be designed and used to build awareness around simple procedures such as good handwashing technique, as well as other good practice such as mask wearing, flushing, or using sanitising wipes on surfaces after use. Longer term, gamification could help people to maintain good handwashing technique.

Hand dryers: Wet hands can increase the transference of bacteria to other surfaces [24]. Slow or ineffective hand dryers can leave hands still wet, or result in people not using the dryer at all. Slow or inadequate numbers of hand-dryers can lead to a build-up of people in the facility. Some hand dryers may blow back germs into the atmosphere which can lead to the spread of other diseases [10]. Research found that hand dryers can intake bacteria from the air and deposit them onto freshly washed hands. 30 seconds of hand

dryer use can grow significant amounts of bacteria on a surface [35]. However, If hands are properly washed, then no pathogen remains to be recirculated.

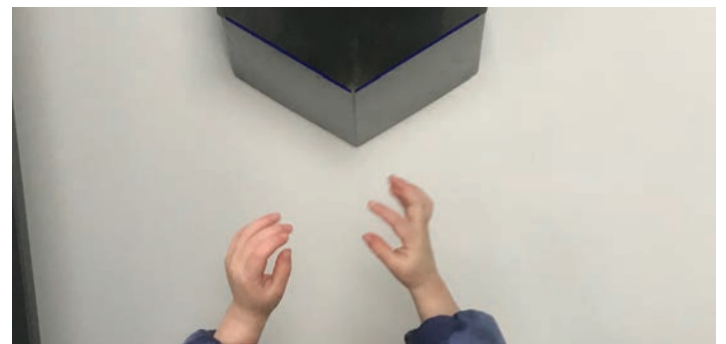
Paper towels: These can be unpopular with providers, due to sustainability, the need to refill dispensers and empty bins, the potential untidiness of loose towels and in some cases the use of towels in arson attacks [36][37][38]. It is for this reason that some fire departments have previously discouraged the use of paper towels. However, a 2012 study by the Mayo Clinic found that 'from a hygiene viewpoint paper towels are superior to hand dryers' [39].

These pros and cons of each method should be weighed up by the designer or provider of the facility.

Personal towels: One alternative is for people to return to carrying personal handkerchiefs, or small towels, to dry their hands. This is common in Japan, where many people carry 'Tenugui', a personal hand towel [40]. This is more hygienic and sustainable, as the towels are not shared and can be washed at home and reused. Whilst this would need a cultural behavioural change over time, it could be encouraged or prompted through design communications, linked to public toilet provision.



Drinking water is a helpful addition for handwashing stations. credit: HHCD



All handwashing facilities must be within reach for wheelchair users and children. credit: HHCD

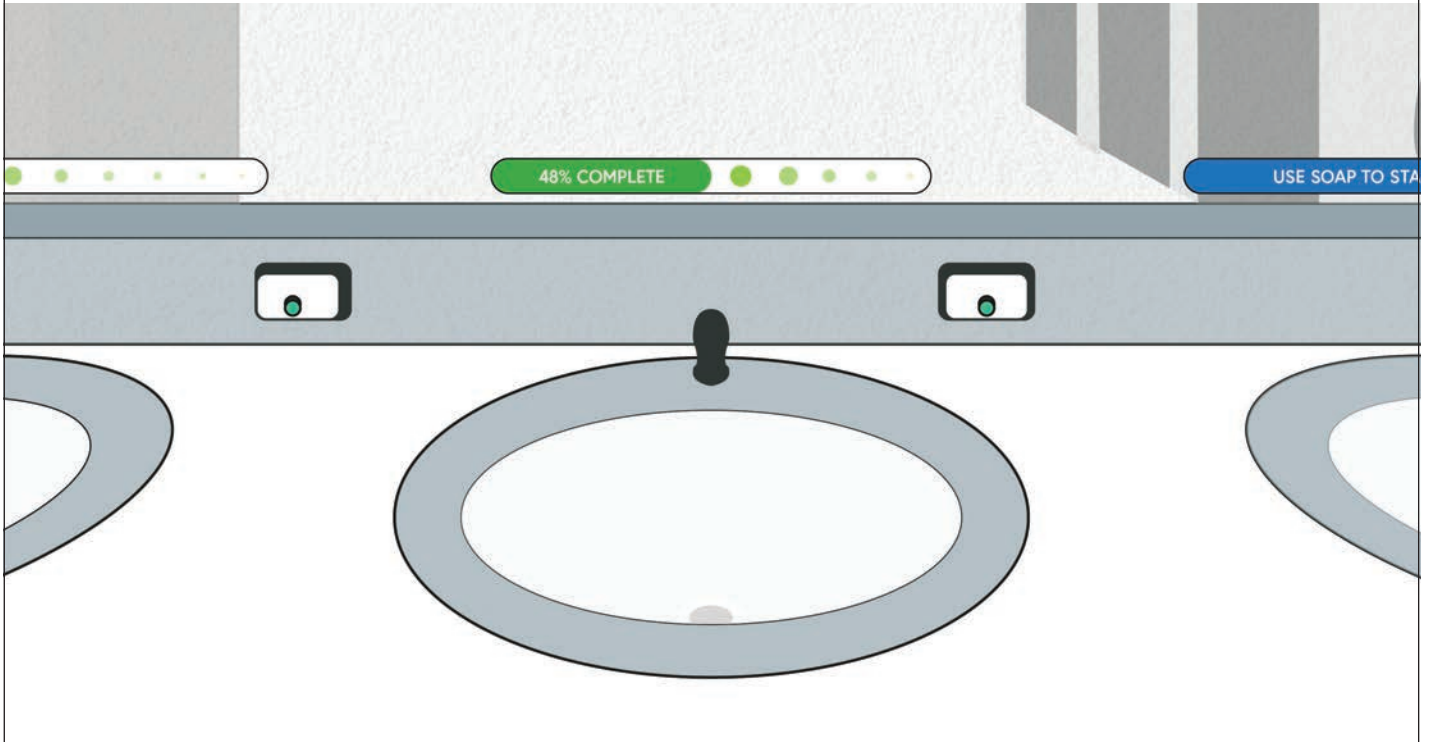


Japanese 'Tenugui' hand towels. credit: [Yanny](#) CC BY-NC-ND 2.0



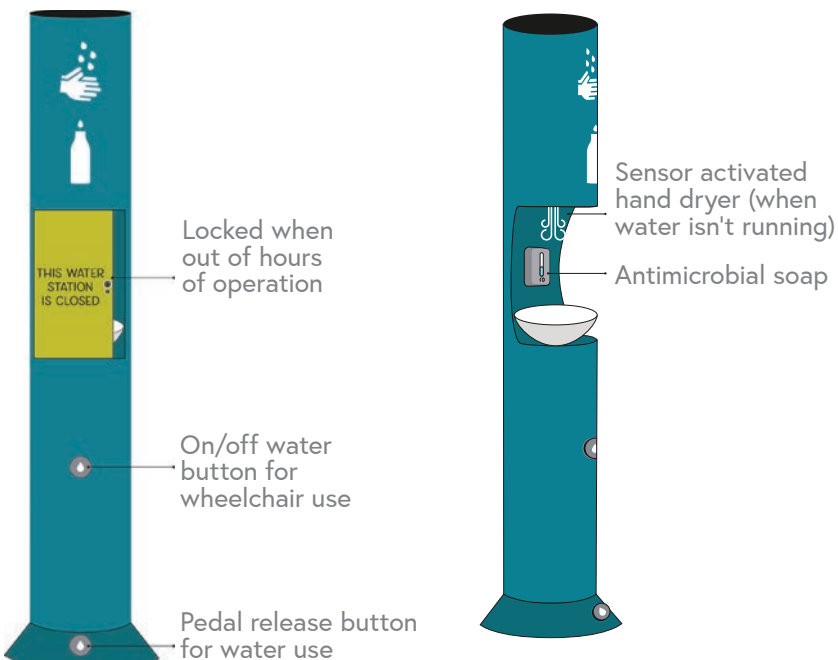
Design Idea - Gamifying handwashing

Gamifying handwashing through a digital timer visual could encourage users to wash their hands for the advised time of 20 seconds. Here, the soap dispenser starts the timer and handwashing can finish once the bar has reached 100% complete.



Design Idea - Water stations

Water stations could be located in public spaces and available during working hours to ensure that people have the ability to wash their hands and reduce the risk of COVID-19 transmission. This design offers a dual function of both handwashing and water bottle refilling.



Maintaining Hygiene

In the midst of a global pandemic, hygiene became a heightened aspect of public toilet provision. This section shares ways to help people to feel more comfortable using public toilets by increasing their confidence in its cleanliness.

Unavoidable touchpoints such as grab rails could become a site of transmission of bacteria and viruses. If sanitising wipes are provided, users could be encouraged to wipe down these touchpoints for the next user. There could be communication through signage and posters to emphasise the importance of this process. This is seen in many gyms as protocol for before and after use of exercise machines. Notices should be provided that wipes are not to be flushed, with bins provided that do not encumber the space.

The main sources of general pathogen transmission (not specifically COVID-19) lie in bodily excretia (spit, mucus, blood, urine and faeces) which all need to be cleaned up by attendants and cleaners [10]. During cold weather or unheated indoor environments, the COVID-19 virus may persist on wet and cold surfaces for longer [41]. Cleaners and toilet attendants should be recognised and trained as front-line workers to prevent the spread of infections and diseases [10].

Cleaning operatives have been hailed in parliament by the Prime Minister and the opposition leader as "Essential workers" and should now be recognised as such. They carry/lead the fight against these viral threats. The role and impact of the attendant and cleaner goes beyond keeping spaces hygienic, but also helps to make people feel safer [22]. Some facilities have posters to introduce attendants and cleaners to the public. Ensuring the same attendants and cleaners work at the same facilities can not only help to create a sense of ownership, but also allow a stronger rapport to be built with the public [27].

Visible, clear cleaning schedules and countdown clocks to the next scheduled clean will reassure people that a toilet is regularly visited, clean and well managed. Public toilet facilities near one another should have different cleaning times so that there is an option to go somewhere else rather than wait.

Toilet providers can request feedback from the public to reinforce their commitment to managing and

maintaining their facilities [27]. This could be digitally online or physically onsite.

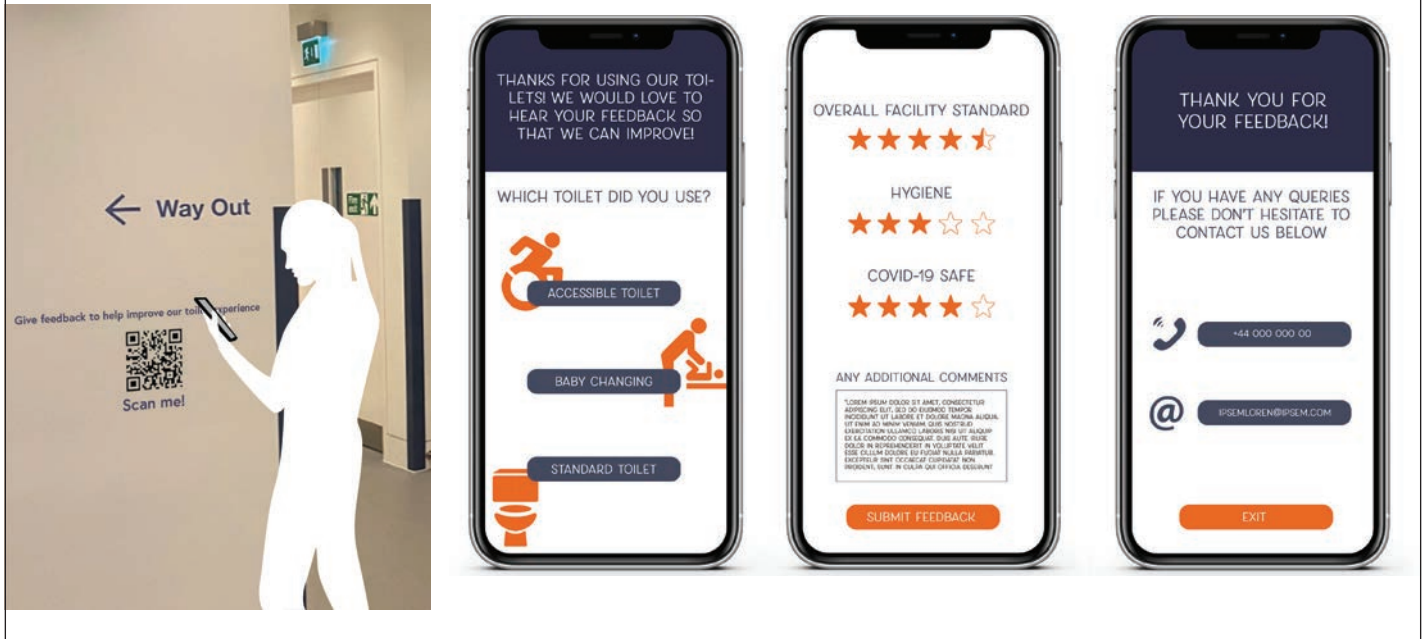
When toilets are under deep clean, levels of hygiene might be monitored by performing swab tests from toilet seats and other fixtures. These could be handed to appropriate professionals for assessment. This is commonplace when Infection Control Teams monitor hospital premises, and would demonstrate good practice and good housekeeping rules for providers [10].





Design Idea - QR Code

QR Codes can be displayed upon exiting a toilet facility to enable users to provide feedback through a digital platform. The platform would also allow users to find contact information for the toilet provider, if needed.



Design Idea - Foot pedals

These foot pedals, placed prior to exiting a toilet facility, would enable users to provide basic feedback on their experience. This low tech means of communicating can have a built-in timer between activation, so multiple reports are not recorded inadvertently.



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More information: Tinkle

The Toilets Innovation and New Knowledge Exchange (Tinkle) tinkle.rca.ac.uk is an online resource to connect you with design knowledge about public toilets, customer toilets, workplace toilets and other non-domestic toilet facilities.

Tinkle has the latest in toilets information, guidance and thinking in the UK, for those who are involved in the design, management and operation of toilets. This includes design professionals and architects, as well as local government, charities, campaigners, community groups, researchers and students.

Tinkle aims to create better toilets for all, by sharing existing resources, providing a network of toilet experts available to contact, and by encouraging open discussion of challenges in toilet design.

There are three elements to Tinkle:

- **RESOURCES:** this links visitors to existing knowledge, including published guidance, standards, regulation, toolkits, websites and research.
- **NETWORK:** featuring a range of experts across many aspects of toilets, available to contact if you need expert or peer-to-peer advice. .
- **'LATRINALIA'**, our forum is open to all who would like to ask and answer questions, participate in open debate, share new resources, support campaigns and enable research.

Tinkle is managed by the [Public Toilets Research Unit \(PTRU\)](#), in partnership with the Toilet Consortium and the [British Toilet Association](#). The PTRU undertakes inclusive and people-centred design research to improve toilet provision for all. It is part of [The Helen Hamlyn Centre for Design](#), at the Royal College of Art.

TINKLE Toilets Innovation and New Knowledge Exchange



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Public Toilets Research Unit

The **Public Toilets Research Unit** ([PTRU](#)) undertakes inclusive and people-centred design research to improve toilet provision for all. PTRU's approach uses interdisciplinary teams, with expertise across inclusive design, access, built environment, equity of provision, and open data.

PTRU is part of **The Helen Hamlyn Centre for Design** ([HHCD](#)), at the Royal College of Art. HHCD is a global leader in Inclusive Design, Design Thinking and Creative Leadership, working with government, business, academia and the third sector.



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