Toilets unblocked: A literature review of school toilets

Sarah Burton

September 2013

Contents

1. Introduction

Toilets and sanitation systems cater for one of the most basic human functions. Inadequate facilities, poor access and poor knowledge of urinary or bowel health can have wide ranging implications for physical, emotional and psychological health. This is true for adults and children, but it is children who are often powerless to bring improvements to this aspect of their life. While inadequate access to clean, pleasant toilets will affect all children badly, it can have a particularly negative impact for children with disabilities and/or additional support needs, for children with bladder or bowel conditions, or for children experiencing bullying.

During *a RIGHT blether*, the national consultation undertaken by Scotland's Commissioner for Children and Young People in 2010, the inadequacy of school toilets in Scotland, particularly their lack of cleanliness and poor state of repair, was raised repeatedly. Dissatisfaction with toilets has been highlighted by both the Children's Parliament and the Scottish Youth Parliament and has been mentioned to the Commissioner consistently and without prompting, at informal meetings and during visits with children in schools. It has also been raised by health professionals. For these reasons, the office of Scotland's Commissioner for Children and Young People has commissioned this literature review to bring together research findings and recommendations from across the UK and overseas to examine what Scotland's school toilet facilities need to provide and how to ensure they best support the physical and psychological wellbeing of those who use them.

Toilets can be a neglected facility in school buildings and become a battleground for power relationships and control in education settings, functioning as barometers of the relationships between adults and children. Properly regarded and appropriately managed, they can become a significant physical space within a school and provide a vital and valuable means of support for children in managing their own health, particularly as part of a whole-school ethos promoting health and wellbeing through the curriculum and upholding children's rights.

Sanitation systems that are poor or absent have been identified as a cause of ill health to adults and children worldwide for many years. But while the impact of inadequate toilet facilities and hygiene practices in education settings has been repeatedly addressed in small scale studies, particularly in the UK and Sweden, the findings have not made the widespread impact they deserve. And there is a knowledge gap concerning the long-term impact of negative childhood experiences on urinary and bowel health conditions.

Scotland is well placed to make a difference to children's experiences of school toilets. The forthcoming Children and Young People's Bill will require local authorities to consider how they are realising children's rights in line with the United Nations Convention on the Rights of the Child. Children's “Right to Go” (ERIC: Education and Resources for Improving Childhood Continence, 2013), and the right to go somewhere clean and pleasant, should be a priority.

Many small scale investigations have been carried out in Scotland in the context of new building programmes. Good practice exists, as this review makes clear, but more could be done. Toilets are a rich topic for interdisciplinary study within Scotland's unique Curriculum for Excellence, incorporating science, culture, engineering, health, biology, architecture, history, literature and, of course, jokes. This review sets out the challenges, but also the many opportunities for change.

2. Scope and methodology

This literature review presents the current material on the standards of school toilets and their role in the health and wellbeing of children, with specific reference to Scotland.

The review assesses published research on children's attitudes to and experiences of school toilets, and the impacts on their health. It highlights both gaps in knowledge and opportunities for change.

This document is based on an earlier literature review (Burton, 2011).[1] The original review has been revised and updated to examine key themes requested by Scotland's Commissioner for Children and Young People in response to issues highlighted by children, young people and health professionals. These themes are:

- health and wellbeing
- safety and respect
- facilities and standards
- adults' and children's equality of access; and
- issues of power and control.

The review also has sections on the school curriculum, legislation, policy guidelines, and campaign material. It includes debates online and in the media, while recognising these cannot be exhaustive or fully representative of all opinion and practice. Most studies consider children in primary school (from four years old in the United Kingdom) and secondary school. This review considers briefly the experience of children in preschool or nursery settings, but predominantly focuses on institutions where it is assumed children without additional support needs will have gained full continence. It considers only briefly the particular needs of children with disabilities or requiring additional support, examining standards for mainstream schools.

While the review is international in scope, its intention is to consider the way forward for research, policy and practice in Scotland. An initial search for published research was carried out in 2011, with a further search conducted in January 2013.

[1] The original review was conducted as part of a Masters degree (Open University), which looked at published research over the last 10 years with occasional reference to older texts with contemporary influence (Burton, 2011).

3. Health and wellbeing

The state of schools toilets is a matter of concern both in the UK and internationally, especially the impact on the health and well-being of children and young people. In many countries the sanitation, including that provided by schools, can be a matter of life and death.

Where hygiene is poor or nonexistent, the health risks to both children and adults are well documented. Girls in developing countries (OECD, 2005) report missing classes, particularly when they are menstruating, in order to ensure privacy in a communal toilet. Young people seeking privacy outside the school building may encounter snakes or other dangers (IRC, 2005; Patchett, 2010; Scott, 2010; WASH, 2011). While Scotland may avoid the risks faced in some developing countries, reluctance to use dirty, smelly, or inappropriately public facilities can lead to shared avoidance strategies that may have major short and long-term health implications. Both boys and girls may respond by limiting their intake of water during the day to reduce the need to use the toilet, or suppress any physical urge, contributing to physiological problems in eliminating waste effectively.

In some cases lack of cleanliness or poor toilet hygiene and usage represents a very specific risk of passing on infection and disease which can cause short term illness and absence from school. In others it contributes to conditions that will persist beyond school and may be manifested in more serious forms in later life.

Awareness and encouragement of good practice, and ensuring appropriate standards are maintained, can go a long way towards improving the health, confidence and self esteem of children, young people and adults in education settings.

There are a number of areas which highlight hygiene issues. These are:

- Hand-washing
- Threadworm
- Bladder and bowel health
- Urinary tract infections and dysfunctional voiding
- Psychological impact.

Handwashing

Poor handwashing can be directly linked to an increased spread of disease and illness that affects school attendance (WASH, 2011).

In the UK, an outbreak of gastroenteritis in 1989 which had an affect on 10% of children in one London primary school led to an investigation of school toilets, revealing very poor standards of sanitation (Jewkes, 1990). Following an outbreak of *E. coli* in a school in Wales in 2005, where one child died, microbiologist Hugh Pennington demanded local authorities address the standards of school toilets and children's lack of access to soap and water (Pennington, 2009), resulting in 2012 in the publication of *School Toilets: Good Practice Guidance for Schools in Wales* (Welsh Government, 2012). Val Curtis, of the London School

of Hygiene and Tropical Medicine, commented in her 2010 study of children's access to soap and water and likelihood of handwashing: "Britain's 12 million cases of norovirus, gastroenteritis, MRSA, *E-coli* and now swine flu infections are mainly down to dirty hands" (London School of Hygiene and Tropical Medicine, 2010).

Threadworm

Threadworm (also known as pinworm) is a common result of poor toilet hygiene, particularly a lack of handwashing before eating.

The prevalence of this parasite has declined across Europe since 1947, when research showed 40–60% of European children were infected (Stoll, 1947 cited in Bøås *et al.*, 2012). A Norwegian study puts current levels of infection in Norwegian children at around 18% (Bøås *et al.*, 2012). An NHS website suggests that threadworm are "particularly common in young children, infecting up to half of all children under the age of 10" (NHS, 2012). However, no studies appear to have been carried out within the last 10 years into infection rates within the UK.

In 2001 a Taiwanese study into the prevalence and cause of threadworm concluded that although the infection is not linked to serious illness it should not be regarded only as a nuisance. Very easily spread, the symptoms of infection are an intensely itchy anus or vagina, and the study concluded the cost of screening and treatment was clearly justified by the significant improvement in quality of life for the children affected. The majority of parents in Taiwan responded positively to the proposal of initiatives to prevent and control threadworm (Sung *et al.*, 2001).

Bladder and bowel health

The Bog Standard Campaign, based in England, sets out the health implications of not being able to make use of toilets in ways that are good for health.

Interrelated physical impacts identified include:

Bowel problems

- Constipation
- Soiling (as a result of long term constipation)

Bladder problems

- Daytime wetting
- Worsening of overactive bladder
- Development of residual urine (urine left in the bladder)
- Urinary tract infection (UTI)
- Inability to empty the bladder properly due to muscular problems (known as dysfunctional voiding)
- Bedwetting (nocturnal enuresis)

Other health issues include dehydration (Bog Standard, 2008).

These symptoms and conditions are outlined in most studies conducted to determine the state of school toilets (for example, Croghan, 2002, Vernon et al 2003, Lundblad, 2005, 2007). Professionals' experience of treating children is often the trigger for their investigation of the facilities children have to use (for example, Jones and Wilson, 2007).

Urinary tract infections and dysfunctional voiding

Repeated urinary tract infections, linked to poor toilet usage, poor diet and dehydration, can have long term consequences, including renal failure, that manifest later in life.

The National Institute for Health and Clinical Excellence (NICE) estimates that around one in 10 girls and one in 30 boys will have had at least one urinary tract infection by the age of 16 years (NICE, 2007). Dysfunctional voiding, characterised by difficulty in passing urine, and dysfunctional elimination syndrome – the frequently combined difficulties of bowel and bladder – are related conditions.

Increased risk is linked both to poor toilet usage and to a poor diet (Inan *et al*., 2007; Chan and Chan, 2010), placing many children in Scotland – particularly those with socioeconomic disadvantage, whose diets are often low in fruit and vegetables and high in soft drinks (Currie *et al*., 2012) – at greater risk. Another risk factor is low fluid intake, with most children having an inadequate fluid intake in school. (Kaushik *et al*., 2006).

As well as improved diet, treatment for urinary tract infections and dysfunctional elimination syndrome is regular, frequent and easy access to toilets. NICE recommends the following:

> Dysfunctional voiding ... can be addressed by improving opportunities for children to void whenever necessary by providing appropriate and readily accessible toilet facilities, and an environment which assists adequate and timely bladder emptying. An holistic approach incorporating strategies that address all these issues would facilitate the best management for the children and help those who deliver this care. (NICE, 2007)

Psychological impact

Coping in the school environment with the symptoms of physical problems linked to poor toilet hygiene and management has been shown to have an impact on children's welfare and behaviour. In 2006 Joinson *et al.* found parental report rates for psychological difficulties involving attention and activity problems, oppositional behaviour and conduct problems to be twice as high in children experiencing daytime wetting compared to those with no daytime wetting. The precise relationship between cause and effect may be difficult to pinpoint, but other studies indicate problems of self esteem are more likely to be resolved when daytime wetting has been treated (Hagglof *et al*., 1998).

Swedish researchers Lundblad, Hellström and Berg have highlighted the difficulties children can face in reconciling physical and mental health needs. When instructed by clinicians to follow a prescribed pattern of toilet use to aid bladder problems, they found children preferred instead to protect their psychological needs: “Conflicting rules, a risky toilet

environment and uncertainty concerning social support at school were experienced … they used various tricks to avoid disclosing their bladder disturbances and enabling postponement of toilet visits" (Lundblad *et al*., 2007).

Poor toilet usage can have a negative impact on both physical and psychological health and wellbeing. While the extent of the impact may be difficult to trace, the potential damage to health has been clearly indicated.

The NICE guidelines on urinary tract infections call for an "holistic approach" to reduction and management. A similarly holistic approach to research would recognise that children are beings with their own viewpoints needing to be understood, and that their bodies are not machines. Exploring school toilets through a wide-ranging perspective ensures an holistic understanding that can be used to find holistic solutions.

4. Safety and respect

> "The quality of the school building is an important message of respect to the student, e.g. clean, secure toilets demonstrate trust."
>
> *Building Excellence, Exploring the implications of the curriculum for excellence for school buildings, Scottish Government, 2007*

Research motivated by health and hygiene often uncovers insights into the social function of school toilets. They can be places of fear or refuge, they can express an institution's respect for and trust of children, or be objects of suspicion, surveillance.

Social space

Privacy is important for children, not just as a requirement for using the toilet, but as personal space. Toilets can be a place to 'hang out' (Vernon *et al.*, 2003). For example, two schools in Moray Council in 2005 made a strong association with toilets and social spaces as part of a process of the redesign of a high school: "What pupils wanted was a social space and greater comfort" (Cunningham, 2005).

Lundblad's 2009 study found the toilet: "had several uses and purposes. It could be used as a place of refuge to give or receive consolation, a place to drink water, to check on appearance and as a pretext to take a break".

Discussing children's rights, Priscilla Alderson refers to 1970s American research showing toilets functioning as a social space that guarantees privacy within a hospital: "In an American cancer unit, children talked together in the toilets in order to protect their parents from knowing how much they knew" (Myra Bluebond-Langner, cited in Alderson, 2008). Toilets can be places of refuge from the adult controlled environment; a social space for children only. This can result in conflict with adults, evidenced by online commentary (Bog Standard, 2011b). In fact, the site of this battleground is incidental, as what is at issue is not the toilet facility but an unmet need in the absence of other enclosed, private communal spaces to offer children a break from the unrelenting surveillance of the school (see Lundblad *et al.*, 2010, for a discussion of Foucault and school surveillance).

Bullying

Another aspect of toilets as a social space is as a location for bullying. Most surveys of toilet facilities and children's attitudes report them as being places of social intimidation to some extent. Children either dislike going to the toilet when other children are present and can hear what they are doing, or they might have experienced intimidation, for example: "if you have a coin then you can open the toilet from the outside, that happened to a friend of mine, he didn't come to school for a week" (Lundblad et al., 2010).

Shaping social spaces

Adults' reaction to bullying or vandalism has often been to increase surveillance or to change the design of toilets, creating different social spaces. These attempts are not documented or researched but are illustrated by recent press reports.

A press report into investment in one North Ayrshire primary school reports the "innovative design of ... school's toilets had demonstrated respect for pupils, which they had reciprocated by keeping them in good condition" and "Where pupils were 'scared' to go to the toilets, Mrs Denningberg [the headteacher] now refers to them as "social places"' (Hepburn, 2009).

A survey of the number of CCTV cameras in school toilet areas (Big Brother Watch, 2012) found that while these exist in many schools in England and Wales, no Scottish schools were recorded as having CCTV cameras. This might not be accurate, as a press report on Clydebank High in Glasgow states it has "CCTV coverage of all hand-washing areas and the outside of cubicle doors". Cameras are seen as an absolute last resort by campaign organisation ERIC: "High quality toilets sited at the heart of schools and near staff areas, with better design ... and includes visible handwashing areas can eradicate the need for CCTV" (Department for Education, 2007).

Consultation with children and parents is key, although this may not result in consensus. The redesign of Clydebank High's toilets involved a survey of adults and children, and shared objectives were clear: "no urinals, no smells, privacy, cleanliness and no opportunities for bullying". An open plan toilet design was favoured by the majority of pupils, but not all, and was not the preference of all adults (TES, 2011).

Attempts to solve one social barrier to children's toilet use, or to protect school property, can create different barriers to toilets being used. For example, unisex toilets near public spaces lack the privacy many children cite as being important. But for others, the security of facilities being under surveillance by adults makes them feel safe.

Additional support needs/disability

Research about school toilets rarely considers the provision of toilets for, or the experience of children with, additional support needs and disabilities in mainstream schools. The Bog Standard website has the only survey reference to the existence of toilets for disabled children in primary schools in 2003 (Bog Standard, 2011c).

Enquire, the Scottish Advice Service for Additional Support for Learning, sets out the facts clearly: "Under the *Equality Act 2010* it is unlawful for education authorities to discriminate against a pupil for a reason related to his/her disability. This law includes duties not to treat a pupil less favourably and to make reasonable adjustments. It is unlawful to discriminate, without justification, against disabled pupils and prospective pupils, in all areas of school life".

Online debates (for example in England: TES, 2010) suggest parents are sometimes required to attend school to help children use the toilet or provide support with what would be described as intimate care needs. There is a lack of research evidence about the experience of children with disabilities and other additional support needs in using school toilets in Scotland, and the UK.

5. Facilities and standards

Ensuring the existence of basic facilities is the usual starting point for a health-centred approach to toilets and handwashing. However, as has been illustrated by Lundblad et al (2007 and 2010), there can be more complex and subtle barriers that undermine what might be viewed as satisfactory facilities.

When children – and parents – have been asked about their attitudes and opinions on the state of school toilets, surveys suggest there is still some way to go. Investigations are usually conducted as a result of concerns about hygiene and general health. It is noticeable that the context of research is usually based on what adults perceive to be the 'correct' usage of toilets, and the barriers that may prevent this.

What this 'correct' use involves is not always made clear. The presumption in the UK tends to be that a child can use the toilet when needed, that girls (and sometimes boys) should sit on a clean toilet seat, not stand (Lundblad *et al*., 2007), use suitable toilet paper, leave the toilet in a clean and tidy state, and use soap and running hot water to wash their hands. With this often unarticulated model in mind many studies attempt to discover barriers to performing this process by devising questionnaires to discover physical facts about toilets (for example Barnes and Maddocks, 2002; Vernon *et al*., 2003).

Analysis of Western school toilets usually centres on existing conventional facilities which have changed little over time. At its most basic this is the number of toilets to children, and the location and number of washbasins, as required by legislation (Bog Standard, 2011a). As detailed guidance in the UK was nonexistent at the time most of these studies were conducted, surveys have generally been built on health professionals' perceptions of the concerns of children with toilet-related health problems.

Surveys carried out almost yearly over the past decade have found similar inadequacies, but this has led only to occasional guidance being published rather than translating into developments in legislation and widespread change.

Toilet surveys

Studies suggest a continuing problem with both facilities and access.

Only one study – of primary school toilets in New Zealand (Upadhyay *et al*., 2008) – has considered measures of socioeconomic disadvantage in relation to toilet standards. This found, in individual inspections of six schools, those with children from “low socio-economic communities” rated worse than those with the smallest proportion of children from this social group. The correlation was high, but it was a small group, and no connection was made to children's use of the toilets, their voiding patterns or health.

Two small studies have been carried out in Scotland, one of children in 2007 and one of parents in 2012. These are discussed below.

Young people's viewpoints

In 2002, two small scale studies were published in the UK, both by health professionals. Croghan (2002), like Jewkes (1990), surveyed school nurses, predominantly in primary settings, and looked at the physical characteristics of toilets, whether they were only available at set times, and access to drinking water. Barnes and Maddocks (2002) mainly surveyed primary school pupils about the physical state of toilets, but also asked about usage, whether they were happy to pass stools or urine at school, and whether bullying happened in toilets. Both studies considered the issue to be the quality of facilities where children performed a health function. Both provided conclusive evidence of the poor state of toilets and Barnes and Maddocks documented children's avoidance of using them.

In 2003 a larger, cross-national study was published of children aged 9–11 years in Newcastle, UK and in Goteborg/Mölndal, Sweden. A model of ideal standards focusing on physical characteristics of school toilets was drawn up and children completed questionnaires in school. There was an open question inviting children to provide suggestions for improvements.

Each of these questionnaire-based studies focused on facilities, with some insight into social usage and the emotional and psychological process of children in their decision to avoid using unpleasant facilities. However, answering questions in classrooms with the researcher and, very likely, teachers present (their presence is not documented) may have limited children's willingness to criticise their institution or reflect on its difference to other settings, such as the home.

Lundblad and Hellstrom published another study in 2005, again a questionnaire in school classrooms with teachers and researchers present. Open questions elicited children's reasons for deciding not to defecate at school. The conclusion highlights the significant risks to children's health and suggests children undergoing bladder or bowel treatment are "fragile" in this environment.

In 2007, two Glasgow-based continence nurses attempted to look at the state of toilets in Glasgow schools and surveyed a group of children attending community daytime and nocturnal wetting clinics on the south side of Glasgow. Of the 75 children taking part, 38 said toilet doors in schools did not lock; 44 said there was not enough toilet paper; 33 said there were no soap or hand drying facilities; and 49 said they did not have free access to toilets (Jones and Wilson, 2007).

Parents' views

Surveys tend to ask children about their experiences. Another way of gaining insight is to find out parents' perceptions. A 2011 survey carried out by the website Netmums and the children's continence organisation ERIC found: "a quarter of all school children avoid using the school loos as they find them dirty, smelly and missing soap, toilet paper or even locks on the doors." Fluid intake was also a concern: "Over half of all parents who took the survey said they were concerned that their child didn't drink enough during a school day" (ERIC, 2011).

A survey of 107 parents in Scotland by the Scottish Parent Teacher Council in 2012 found 54% of respondents think their child's school toilets are well maintained; 26% say their children are not allowed to visit the toilet when they need to; and 36% say their children hold off using school toilets and wait until they come home. However, 60% say the school toilets are an issue which the school/local authority is addressing or has addressed (SPTC, 2011).

Facilities matter. Many complaints about toilets are related to the age and maintenance of the fabric of the building. A Scottish study of the impact of new school buildings in East Dunbartonshire examined attitudes to toilet provision and found what had been one of the worst features of the old school environment was perceived much more positively in the new buildings (Small, 2011).

In summary: what studies consistently highlight

- restricted access (for example break times only)
- missing, unreachable or dirty soap
- lack of toilet paper
- doors that don't lock
- toilets that smell
- fear of bullying
- embarrassment at having to ask to use the toilet, or for allocated paper
- missing/broken toilet seats
- restricted time available – being hurried
- lack of sanitary bins
- toilets blocked/won't flush
- dislike of urinals
- lack of free access or access controlled by adults.

6. Adults' and children's equality of access

Barnes and Maddocks (2002) project an adult-defined idea of standard toilet use based on workplace legislation. Observing that 52% of children lacked lockable toilet doors they comment: "this would deter most adults from using a toilet facility". Children's avoidance is justified by it being understood and meaningful to adults. Comparisons with workplace legislation that exists for teachers in school, but is absent for children (in England and Wales in particular – Scottish law requires lockable toilets), is a reminder of the low status afforded children. However, while adults and children should share the right to a high standard and free access to toilets, there are two issues to remember.

First, adults – like children – make use of toilets in ways that are social and cultural, as well as biological. This review does not consider surveys of adult toilet habits, except to note a survey by the Cooperative Pharmacy in 2010 which found privacy was more important to adults than cleanliness, for women in particular (Cooperative Pharmacy, 2010).

Second, adults' access to toilets during the school day is also often restricted during class teaching time. An online debate on the TES website records teachers' perspectives on this. One teacher notes how she makes use of other adults in the room or nearby office to maintain an adult presence in her classroom while she uses the toilet (TES, 2011).

In discussing parity between children's and adults' access to a high standard of toilet facilities, it is important to reflect on their very different experiences within the social system that is school and their means and methods of expressing their dissatisfaction. While under Scottish law there are different provisions for regulating toilet facilities for children and adults (Bog Standard, 2011a), both are subject to the school system and adults might be said to be subject to systems of power and control different to those experienced by children, but which might also negatively affect their health.

7. Issues of power and control

What children choose to do in relation to school toilets – to comply or to protest – is political in that it is their embodied expression of everyday power struggles.

In school, it will usually be an adult who has the power to decide if, and when, a child may use the toilet. This is frequently less about taking children's motivations or experiences into account, and more about adults' requirements within the school setting. Children are adept at negotiating power relations in both home and school environments, but although adults control both, the home environment offers greater room for negotiation and children's agency (Mayall, 1998).

Home and school

Berry Mayall analyses child health policy in England, which emphasises personal responsibility for health maintenance, but makes this difficult through school systems that dictate the timings of bodily functions of eating, physical activity and toilet use. Nurseries typically offer more democratic, negotiated relationships between adults and children, as shown by one study in participation where children worked with adults to make the nursery toilets less frightening – and more like home – by installing a radio (Nutbrown and Clough, 2009).

While some studies examine how diet contributes to dysfunctional voiding, and gather data from parents (Inan *et al*., 2007; Chan and Chan, 2010), there is no study surveying parental attitudes to children's toilet usage and how parents regulate or support behaviour beyond the initial transition from nappies to toilet. Considering toilet and health experiences at home and in out-of-school settings would help build a comprehensive picture of children's views and experience of school toilets and explain adults' – and children's – understanding and opinions about the regulation of bodily functions.

Psychology not biology

A study of access to drinking water in school among children aged 6–7 and 9–10 shows how adult concerns result in children's perspectives being overlooked (Kaushik, 2006). The research involved monitoring toilet use, noting both frequency of visits and the volume of urine passed, and whether visits to the toilet increased with an increase in water intake.

The conclusion that "contrary to teachers' expectations, [children who drink more] do not visit the toilet any more frequently" might indicate that those children are 'holding on' until convenient toilet breaks and either voiding with fuller bladders or perhaps waiting for home toilets. Such an interpretation would be supported by Mattsson *et al.* (2003), who found through detailed measurement that: "Voiding pattern is more dependent on social activities and convenience than on physiological factors such as bladder capacity, filling and diuresis. Healthy children typically void when they want to, not necessarily when they need to, and only exceptionally with a full bladder."

In 2007 Lundblad *et al*. published qualitative data collected through open-ended interviews with children in their own homes who were attempting to carry out treatment, following the instructions of clinicians, in a school environment. The children were actively managing their bodies to treat themselves, rather than passively receiving medication. The study found children fully understood their treatment, but found it almost impossible to carry out the instructions without psychological distress. The findings, directed at clinicians and not school staff, concluded: “clinical interventions must … include analysis of the school environment and also the meaning of performing treatment at school from a child’s perspective.”

A Senegalese study of children's attitudes towards school toilets found they used toilets as a way of expressing anger or frustration with those responsible for them: “Sometimes, to express their frustration at adults’ lack of interest in pupils' hygiene, they throw garbage into the toilets. Graffiti on toilet walls often made derogatory comments about the people in charge of the school toilets” (Hygiene Centre of the London School of Hygiene and Tropical Medicine, 2007). The study concluded: “Schools are social worlds in their own right, with social dynamics that it is crucial to understand if we are to develop strategies for better hygiene promotion programs in schools.” Part of this social world is the construct of rules and systems of power.

Toilet rules

School toilets and the rules associated with them was high on the list of things preschool children should know about, according to Australian primary school children. One study found young children's top concern about starting school was understanding the rules (Docket and Perry, 2003).

The subject of rules is explored by Lundblad *et al*. in 2010. This small-scale piece of research uses qualitative approaches, which generate depth about how children negotiate rules about toilets. It reveals it was adults – the teachers in schools – who devised rules about access to toilets, but that these were not written down or discussed with children. In essence, the majority of children were expected to use toilets during breaks and not during class. Requests during class were made publicly and sometimes negotiated with demands to wait, to explain or justify the need, or to be quick. Children balanced a dislike of using toilets in busy times with the embarrassment of challenging unwritten rules about going during class time.

The study confirms Mattsson’s conclusion that children chose the time for going to the toilet for their own behavioural and social reasons, rather than biological functions. Short break times brought other demands and distractions for children as well as not always being a time children felt they needed to go (attitudes echoed by children in Dakar in 2007). The study's conclusion that “the rules for going to the toilet came from the teachers’ need for maintaining order in the classroom and were not adapted to the children’s physical and developmental needs” is the first research to assert the many complaints populating online forums on websites such as Bog Standard (2011b).

While this study sets out how children negotiate and experience these rules and challenge them with individual strategies, it is not clear whether these concerns are raised at a whole-school level.

Children's political voice

The official means of political participation in schools in Scotland and the UK is through pupil councils. The functioning of these has been studied in England (Baginsky and Hannam, 1999) and Scotland (Cross *et al*., 2009; Children in Scotland and the University of Edinburgh, 2010). Baginsky and Hannam found the most frequent topics for pupil councils were "canteen matters, uniforms and toilets". Observing pupil councils in action in Scotland, Deuchar comments: "many S1 pupils seemed confined to talking about the issues relating to Baginsky and Hannam's 'charmed circle' of school dinners, toilets and uniforms" (Deuchar, 2009). The boundaries between the overt control of subject matter by staff and the conscious or unconscious self-policing of subject matter by children, are unclear. However, while there may be criticism of focus being skewed towards so-called trivial issues, the state of school toilets is evidently of concern to children UK wide (if not world wide) (Children in Scotland and the University of Edinburgh, 2010).

Successful pupil councils have managed to have toilets repainted or locks fixed, but do not appear to raise the issue of unlimited access, while research suggests this is a serious issue for many children. This absence of advocacy may be in part because of a failure to place access to toilets in the context of human rights. Other than in the report *Lifting the Lid* (Children's Commissioner for Wales, 2004)[2], children's rights are not explicitly mentioned in any research on school toilets. This suggests a lack of political and policy knowledge among health-focused researchers, as well as among children.

Participation in school democracy is potentially correlated with greater toilet satisfaction. Children in primary schools are, according to Deuchar, (2009) more used to taking part in pupil councils and offering their views more widely than children in secondary schools where participation is more confined. School toilet research by Lundblad and Hellstrom (2005) finds that toilet avoidance increases with age. No research has investigated the connections

---

[2] In 2004, the Children's Commissioner for Wales published *Lifting the Lid*, echoing Lundblad and Hellstrom's findings, and making the connection between fluid intake and toilet usage. The report is significant in mentioning children's rights for the first time in this context, in particular referencing the United Nations Convention on the Rights of the Child:

- State parties shall ensure that the institutions, services and facilities responsible for the care or protection of children shall conform to the standards established by competent authorities, particularly in the areas of safety and health. (Article 3)
- Children have the right to good quality health care and to clean water, nutritious food and a clean environment so that they will stay healthy. (Article 24)
- Children have the right to express their opinions freely and to have their opinions taken into account in any matter or procedure affecting them. (Article 12)

(United Nations Convention on the Rights of the Child, 1989)

No other study of school toilets has explicitly mentioned rights.

between school democracy, acknowledgement of children's rights and unlimited access to school toilets, but there is a potential link.

However, the overt expression of participation through official school democracy is not everything. Kay Tisdall (Tisdall *et al*., 2008) writes: "Whilst political action through dialogue may be effective for some, it seems important to remember that debate and representation do not exhaust the possibilities of the political." Kallio and Hakli (2011) introduce children's political expression as a neglected area of study. They identify two major trends in childhood studies: the first, concerned with children's agency in policy making, sees children as competent, skilled social actors able to participate and contribute to the adult political sphere (like pupil councils, above). The second examines children's everyday lives in particular circumstances such as poverty, war, or health crisis, to inform adult decision making on behalf of children in such extremes. They observe that: "this means the majority of children are conceived as free from political struggle in their everyday lives … this proposition seems absurd because it does not acknowledge politics as a pervasive aspect of human life and political identities as socially embedded" (Kallio and Hakli, 2011).

Kallio's observations drawn from assessing the strategies of compliance or resistance by Finnish children evacuated to Sweden during the Second World War can be applied to the everyday conflicts around school toilets. Instead of physical examination by Swedish medical staff we can substitute the control of school rules, buildings and culture, bringing inevitable conflict, but unpredictable responses. Children might be able to bring their bodies into compliant order, or they might avoid toilets and soil their underwear, or graffiti toilet walls with derogatory comments, as reported in Dakar. Unfortunately, these means of expressing dissatisfaction are often harder for adults to interpret and act upon, partly because they are less used by adults. Adults have access to more powerful formal methods of protest, such as trade unions, that lead to legislation ensuring standards are maintained.

It has also been within adults' power to keep the subject matter of toilets and sanitation out of school curricula.

8. Toilets in the curriculum

> "Teach teachers about constipation and include it in the school curriculum so everyone learns about it."
>
> Child, (NICE, 2010)

Beyond the key themes discussed, the topic of school toilets can also be considered within the curriculum.

Toilets present a huge learning resource with the potential to improve children's knowledge and management of their own health and their understanding of a wide range of other subjects. This is not systematically addressed in Scotland – or indeed elsewhere – but is evident in the examples below.

Learning to use a toilet and practising handwashing are activities that take time and attention within early years settings, particularly in full-day care. Mostly this is from a medical or developmental perspective concerned with acquiring appropriate toilet habits. For young children, learning to use toilets in a public or shared setting could be described as being part of the curriculum (Millei, 2012).

Health and wellbeing is a key theme of Curriculum for Excellence, which covers education from three to 18 years old in Scotland, and is also the subject of legislation in the *Schools (Health Promotion and Nutrition) Scotland Act 2007*. But neither Curriculum for Excellence nor the 2007 Act refer to urinary and bowel health and its connection to nutrition, nor do they reference the impact of poor handwashing on spreading illness. Curriculum for Excellence is not prescriptive, and the subject would fit well with its approach, but although the Experiences and Outcomes document for this theme explicitly mentions activity and exercise, diet and food-related hygiene, and the importance of everyday routines such as toothbrushing, nothing is included about other basic aspects of children's health such as using the toilet (Education Scotland, undated, a). The guidance for the Health Promotion and Nutrition Act is clear about a whole school environment having to be "conducive to health promotion", but has no mention of the importance of free access to good toilets as part of promoting good health. Clearly school toilets are little recognised either as part of the curriculum or as a requirement for health promotion. Extensive material on handwashing is available, but it exists as a campaign and is not integrated into curriculum or legislative requirements (for example, www.washyourhandsofthem.com).

However, although largely undocumented currently, there are examples of toilets becoming part of the curriculum. Nature kindergartens and forest schools are growing in popularity in the UK where, imitating Nordic settings, children spend several hours or all day outdoors. Coping with going to the toilet outdoors has been a source of concern and discussion for staff new to the idea (Robertson *et al*., 2009). One nature kindergarten in Fife became the centre of media attention when the local council recommended fresh running water be available for handwashing at all times to maintain hygiene standards sufficient to prevent risk of illness. The ethos of the outdoor curriculum was at stake, with its risk taking and independence, and the ability to move freely to different spaces unencumbered by transporting a large volume of water. The debate gained considerable media attention (Secret Garden, 2010). At its heart was the view that going to the toilet and keeping clean

while outside should be *part* of the curriculum on offer to children in this nursery setting, not an *interruption* of it. Defending toilet and hygiene arrangements outdoors became a defence of a curriculum.

Some studies of early years settings have considered children's views of toilets (for example, Clark, 2007; Nutbrown and Clough, 2009). In Australia, a study of traditional open plan toilets in a preschool setting explored how children felt about the lack of privacy (which resulted in changes) and their use of toilet areas as a social and cultural space (Millei, 2012). However, there are no studies of children's experiences or views about going to the toilet outdoors.

Studies have highlighted adults' lack of knowledge of children's physical needs related to water intake and toilet use (Cooper *et al.*, 2003; Boyt, 2005; Moosavi *et al*., 2007), which suggests the topic needs more attention. There is little material to support learning within schools. The ERIC website has resources to help teachers discuss the subject (Bog Standard, 2011d) and a short article by the National Union of Teachers makes points about toilet policies in schools while mainly emphasising that assisting with children's 'accidents' is not the teacher's job (NUT, 2011). None is available on the publicly accessible Educational Institute of Scotland (EIS) website.

Nor have any studies analysed whether or how incorporation of the topic into school curricula could contribute to children's understanding of their bodies and their own health management. Education Scotland's website has no obvious reference to good toilet health. The only curriculum references in Scotland are concerned with children and young people involved in school design during which toilets were discussed: for example, the Project CLEAN website reports a study for high school students focusing on "safety, cleanliness, privacy and security" (Cunningham, 2005; Project CLEAN, 2011).

Helping children understand how bodies work and how to keep themselves healthy is the subject of a BBC 'Cbeebies' programme *Get Well Soon*, aimed at children in pre- and early primary. Puppets present their ailments to Dr Ranj, a real doctor, who chats – and sings – about the symptoms and how to get better. Subjects include urinary tract infections (the "wee wee bug"), with advice about wiping from front to back, to wash hands and to go to the toilet when you need to; and constipation, with advice on eating fruit and vegetables: http://www.bbc.co.uk/cbeebies/get-well-soon. Channel 4's *Embarrassing Bodies* series has addressed the topic too, for both young people and adults, with plenty of detailed advice online: http://www.channel4embarrassingillnesses.com/.

The system and design of school toilets has changed little over the last 70 years (Cunningham, 2005). Schools and homes still use clean water to flush waste away. However, as suggested by The Bill and Melissa Gates' Foundation's search for innovation *Reinvent the Toilet*, it does not have to be that way (http://www.gatesfoundation.org/watersanitationhygiene/). Some schools have explored environmental and sustainable approaches that reveal different methods of dealing with waste. A school-owned mountain cottage in Northern Ireland could not be connected to a mains system, and instead its composting toilet demonstrates environmental sustainability. Other primary schools have conducted surveys of school toilet use and water wastage, installing water saving devices

into their flush systems. One eco-school is linked to a school in Burundi which has a composting toilet (Eco-schools, 2011). In these examples, toilets have meaning as subjects of the curriculum, for health, sustainable development, learning about other countries and cultures, engineering, and design.

Clearly there is scope for this topic to be addressed in the same way as other areas of physical and emotional wellbeing such as nutrition and exercise, but there is also potential to link with other subject areas that make it ideal for incorporation within Curriculum for Excellence.

9. Legislation, guidance and best practice

Scotland has more effective legislative requirements relating to school toilets than other parts of the UK, but the lack of national policy and guidance should be addressed in conjunction with developing its presence within the school curriculum.

Legislation does not always guarantee implementation, but it signals a government's priorities and intention, and provides recourse if standards fall too low. Legislation without advice, guidance and support may mean only a basic minimum is achieved.

England

Legislation governing school toilets in England has recently been amended in *The School Premises (England) Regulation 2012*, and lists no particular requirements other than:

1. Subject to paragraph (3), suitable toilet and washing facilities must be provided for the sole use of pupils.
2. Separate toilet facilities for boys and girls aged 8 years or over must be provided except where the toilet facility is provided in a room that can be secured from the inside and that is intended for use by one pupil at a time."

Ratios of the number of toilets available to children are now non-statutory, which has proved particularly controversial at a time when new schools are being built.

There are no current best practice guidelines except for a 2007 publication that was part of the Building Schools for the Future programme, available on the Department for Education website (Department for Education, 2007). It includes detailed plans and suggestions for toilet design and construction that attempt to address issues raised by organisations such as ERIC.

Wales

Wales is not subject to England's 2012 regulations. The 2012 regulations state at section 1(2) that these apply to schools maintained by local authorities in England. Additionally, at section 3, an amendment has been made preserving the 1999 regulations for Wales.

As part of the Welsh Government's attempt to improve infection control following the 2005 *E.coli* outbreak, best practice guidance was published in 2012, including examples of school toilet policies provided by ERIC and suggestions on how to survey children about their experiences and opinions in order to make changes. It also references legislation that does not directly mention school toilets, but conveys the importance of supporting children's health and wellbeing, suggesting a high standard of toilets are required.

The Welsh Government is working with Estyn (Her Majesty's Inspectorate for Education and Training in Wales) on a thematic review of hygiene in schools, which will cover a range of issues including school toilets. The review is intended to assess the impact of the 2012 good practice guidance.

Scotland

Scottish legislation (Legislation,1967) sets out ratios of children to toilets and toilets to washbasins, and is the only UK legislation requiring a lock on doors stating that:

- In every school providing for pupils beyond stage PIV in the sanitary accommodation for girls there should be suitable provision for the disposal of sanitary towels
- In every school every sanitary appliance or group of sanitary appliances shall be situated near to a washbasin or washbasins
- In every school every water closet shall be provided with a lockable door and with partition sufficient to secure privacy.

While no guidance for school toilets along Welsh lines exists, there is extensive material aimed at encouraging good handwashing. The place of handwashing in the approach to infection control in daycare settings is clearly explained in *Infection prevention and control in childcare settings* published by Health Protection Scotland (Health Protection Scotland, 2012), and following the high profile debate over hand hygiene practice in an outdoor nursery, Health Protection Scotland published a review of evidence online (Health Protection Scotland, 2010).

Like England and Wales, Scottish legislation requires children's health to be prioritised. The *Schools (Health Promotion and Nutrition) Scotland Act 2007* requires authorities to "endeavour to ensure that ... schools are health-promoting". However, there is no mention or suggestion of toilets, bowel or urinary health, despite references to other aspects of health, such as dental hygiene.

10. Conclusion

It is clear there is considerable knowledge, expertise and resources around what makes for good school toilets. It is also clear this knowledge is not universally applied.

Only two studies relate directly to Scotland, one involving a small group of children (Jones and Wilson, 2007), the other a small group of adults (SPTC, 2011). Other children have been consulted during new build processes, but this information is not publicly available. As a result it is difficult to judge the situation. While it is easy to find cases of good practice and positive approaches that go beyond the confines of one school, for example Highland Council's Education, Culture and Sport Service winning of the Loo of the Year award in 2011, (Highland Council, 2011) the impact on children's attitudes to and use of their school toilets is not known. It is clear from the surveys in England, Wales and Sweden discussed in this review and those continuing to be undertaken (for example, Eric, 2013), that there is much to lament about children's experience of school toilets. We need to know what the picture is in Scotland.

There is an absence of data worldwide on the links between children's urinary and bowel health and their experience of school toilets and access to drinking water. Specifically, we need to know if children's perception that their toilets are places to be avoided correlates with levels of urinary tract infection, dysfunctional elimination syndrome or dysfunctional voiding, and to consider the impact of social economic status and diet. Eradicating health inequalities is a key social policy strategy for the Scottish Government; the data available from the Information Service Division's Practice Team Information Statistics shows increased rates of urinary tract infection among children in areas of socioeconomic disadvantage (Information Service Division, 2011). Again, we lack evidence on how this correlates with school toilet provision.

As well as gaps in general data about children's experiences – with a particular absence of child-led research[3] – we also lack information about the particular experiences of children with additional support needs. This would include children with continence problems, who are likely to have more negative experiences if mainstream provision is of low quality. Insight into negative impacts on health and wellbeing needs to consider the psychological implications as well as physical health.

How and what we think about access to toilets affects their status and condition. A rights-based approach such as that taken by the Welsh Government can be useful in integrating toilet policy into a whole-school ethos, along with the "The Right to Go" resources from the campaign organisation ERIC (ERIC, 2013). Exploring how adults and children experience access to toilets in the same building encourages open debate that can contribute to solutions that benefit everyone: many teachers experience uncomfortable limits on their access to toilets.

---

[3] There is an absence of child-directed research on the subject, with only one child-led study discovered in this review: a Singaporean study (Jung *et al.*, 2003) undertaken by children which, like adult research, was concerned with physical conditions only.

It is beyond the scope of this review to look at the wider issue of public and private toilet use, but what happens in schools should not be separated from experience in the wider community, from very young children in homes and in nursery settings, to workplaces, care homes and for the wider public. Support should be available for parents and those working in early years settings to ensure children's early years are characterised by informed and supportive approaches to moving from nappies to toilets ensuring even young children feel able to take responsibility for their own health and wellbeing. Local authorities' provision of public toilets should match priorities for its schools and other services. Financial cuts may be having a negative effect on public toilets in Scotland, since providing toilets is not a statutory function of local authorities across the UK (George, 2012).

Making a difference depends on adults who are informed and motivated; there is no information available about school staff's or the wider public's understanding of the importance of having free access to high quality toilets. While they may be a controversial subject for discussion, there are plenty of opportunities for improving the state of school toilets in Scotland.

11. Key findings

This literature review has examined a number of key themes: health and wellbeing; safety and respect; facilities and standards; adults' and children's equality of access; and issues of power and control. It has also looked at the inclusion of toilets in the curriculum and the legislative background. From this the following key findings can be noted.

Children's health and wellbeing

A number of issues around school toilets from a health perspective can be highlighted:

- Restricted access and poor quality toilets can result in inadequate hand hygiene leading to illnesses such as gastroenteritis, or unpleasant conditions such as threadworm.
- Poor toilet use can contribute to bladder problems such as urinary tract infections, wetting and dysfunctional voiding, and to bowel problems such as constipation, soiling and dysfunctional elimination syndrome. These may have long term health consequences.
- As well as physical impacts on health, children who have day or night time wetting are twice as likely to have psychological difficulties, which are often resolved when wetting ceases.
- Children's urinary and bowel health is not a concern of school alone, but improvements in schools would aid children's self-management. Increased awareness and understanding of the issues among the wider public – and parents in particular – would aid an holistic approach to good hygiene and toilet use.

Views of Children and Young People

This review has highlighted a number of points about school toilets from the perspective of the views of children and young people:

- Children often express dissatisfaction with school toilets through pupil councils, but their concerns are not always addressed. They may also express dislike through antisocial behaviour such as careless use or vandalism, or through behaviour harmful to health, such as toilet avoidance through 'holding on'.
- Research studies have ranged from simple questionnaire surveys to more in-depth studies. All provide useful insights into facilities, access, attitudes and experiences. However, the in-depth studies have been more useful in uncovering subtle barriers to usage and demonstrating how children prioritise psychological health over physical wellbeing.
- This is a sensitive area of study and should be addressed carefully with respect and understanding. It can provide an opportunity for sharing information and challenging misconceptions as well as for gathering viewpoints.
- Sensitivity to the function of research is essential. Findings that highlight toilets as

an important social space for children may lead to designs that reduce social functions for fear of bullying, which can seem betrayal by the children who disclosed this viewpoint. It might also provide disincentives for children to take the time they need, for example to wash their hands properly, as they may prefer to reduce time on hygiene practices in favour of time spent in social interaction.

Gaps in knowledge

One of the tasks of this literature review was to highlight where are gaps in knowledge which might inform the work of the Commissioner's office:

- There has been little assessment of school toilets in Scotland, although many new build projects have raised and addressed the issue from the point of view of facilities provision. Two small studies highlight negative experiences, while media or online accounts provide positive stories. Given that the Scottish school system and buildings share similarities with England and Wales, where more surveys have been conducted, it is likely that children in Scotland experience similar difficulties, particularly regarding unrestricted access.
- Traditional health inequalities are likely to be found with toilet-related conditions such as urinary tract infections, but there is insufficient research in this area, particularly in relation to any correlation between long term impact on urinary health through toilet avoidance.
- The extent of teachers' knowledge and experience of this area of children's health is unknown, and it is likely many parents have limited knowledge about best health practice.

12. Next steps

Beyond opportunities for change there are a number of issues arising from this literature review about the way ahead.

It is important that changes to school toilets and policies about access are carried out with children and young people's involvement. Since they are the day to day users, they will know best what influences their willingness to use them[4]. It is also important to recognise a school might have perfect toilets and wonderful access policies, but if children feel negatively towards other aspects of school life and are unable to express this in conventional methods, toilets might become a means of communication *in extremis*. Changes and developments to toilets should be part of a whole-school ethos that supports children's rights and finds ways for children to influence all aspects of school life.

Scotland is well placed to bring about change in this area. The Curriculum for Excellence encourages interdisciplinary learning that is child led. The approach of material designed to encourage different ways of thinking about food in schools could easily be applied to toilets and sanitation (Education Scotland, undated, b). The Children and Young People's Bill requires the Scottish Government and public sector to raise awareness of, promote and realise the rights set out in the United Nations Convention on the Rights of the Child. Reviewing and improving school toilet provision should be part of any local authority or school's development of a rights-respecting agenda.

[4] In Senegal, behaviour trials to determine what would encourage children to use soap provided insights for practical implementation (Hygiene Centre of the London School of Hygiene and Tropical Medicine, 2007). Behaviour trials in developed countries in relation to school toilets are not documented and might prove fruitful. Another study, criticising overreliance on articulate child informants, urges researchers, in the spiritof Kallio's understanding of child politics, to go into the field and see child politics in action (White and Choudhury, 2007). While detailed observations of children's toilet habits would be valuable, observation and interviews on this subject matter are of course personally and ethically sensitive (Morrow, 2008).

The list below sets out the next steps for school toilets in Scotland. These are actions for a range of duty-bearing organisations and agencies to take forward. Achieving change will require individuals and institutions to work together.

- **Amend legislation to make more detailed minimum standards for schools** in Scotland, at least matching workplace legislation.
- **Amend existing health and wellbeing legislation** to include specific mention of free access to high quality toilets.
- **Develop national guidance** for use by local authorities and individual schools that is connected to a children's rights-based agenda.
- **Ensure school toilets are a key part of school inspections**, not just requiring quality provision, but assessing accessibility and children's access to water, as well as how connections are made to children's rights and to the broader curriculum.
- **Develop Curriculum for Excellence guidance materials**, highlighting ways children and adults can investigate and learn together about the many aspects of school toilets, health and sanitation.
- **Assess teachers' knowledge of the subject** in the context of children's health and wellbeing. Provide opportunities for professional development, perhaps through collaboration with the school nursing community for those in post and for those in initial education.
- **Find out more about the links between school toilets and children's health and wellbeing,** looking particularly at health inequalities. Target initial improvements in provision and access in areas of high deprivation.

The role of Scotland's Commissioner for Children and Young People could be championing and campaigning for change, extending from a rights-based approach and ensuring children and young people participate, and that their views are heard and acted on.

References and further reading

Alderson, P. (2008). *Young Children's Rights: Exploring Beliefs, Principles and Practice*. Jessica Kingsley: London.

Baginsky, M. and Hannam, D. (1999). *School Councils: the views of students and teachers* (summary: online). www.nspcc.org.uk/Inform/publications/Downloads/schoolcouncils_wdf48041.pdf (accessed 31 May 2011).

Barnes, P. M. and Maddocks, A. (2002). Standards in school toilets – a questionnaire survey. *Journal of Public Health Medicine*, **24(2)**, 85–7.

Big Brother Watch (2012). *Class of 1984: the extent of CCTV cameras in secondary schools and academies.* (online).http://www.bigbrotherwatch.org.uk/files/school_cctv.pdf (accessed 20 January 2013).

Bøås, H., Tapia, G., Sødahl, J., Rasmussen, T. and Rønningen, K. (2012). *Enterobius vermicularis* and risk factors in healthy Norwegian children. *The Pediatric Infectious Disease Journal*, **31(9),** 927–30.

Bog Standard (2008), *Water, toilets and health* (online). http://www.bog-standard.org/adults_water_toilets_health.aspx (accessed 12 February 2013).

Bog Standard (2011a) *The law on toilet provision for pupils in comparison with legislation for adults.* (online). http://www.bog-standard.org/factsheet_016.aspx (accessed 13 February 2013).

Bog Standard (2011b). *Pupils' Site Area* (online). www.bog-standard.org/display_messages_02.aspx?type=Student&id=13 (accessed 30 May 2011).

Bog Standard (2011c) *Why it's important: survey results* (online). www.bog-standard.org/adults_survey_results.aspx (accessed 30 May 2011).

Bog Standard (2011d) *What you can do - resources* (online). http://www.bog-standard.org/adults_resources.aspx (accessed 30 January 2013).

Boyt, M. A. (2005). Teachers' knowledge of normal and abnormal elimination patterns in elementary school children. *The Journal of School Nursing*, **21**, 346–9.

Burton, S. (2011). *Toilet blocked: Why are school toilets a continuing cause for concern?* Unpublished, available from the author: sj_burton@hotmail.com.

Chan, M. F. and Chan, Y. L. (2010). Investigating factors associated with functional constipation of primary school children in Hong Kong. *Journal of Clinical Nursing*, **19(23-24)**, 3390–400.

Children in Scotland and University of Edinburgh (2010). *Having a say at school, research briefings* (online). www.havingasayatschool.org.uk (accessed 1 June 2011).

Children's Commissioner for Wales (2004). *Lifting the Lid* (online). www.childcomwales.org.uk/uploads/publications/27.pdf (accessed 1 June 2010).

Clark, A. (2007). Views from inside the shed: young children's perspectives of the outdoor environment. *Education 3–13*, **35(4)**, 349–63.

Cooper, C. S., Abousally, C. T., Austin, J. C., Boyt, M. A. and Hawtrey, C. E. (2003). Do

public schools teach voiding dysfunction? Results of an elementary school teacher survey. *Journal of Urology*, **170**, 956–8.

Cooperative Pharmacy (2010). *New study highlights global sanitation gap* (online). www.co-operative.coop/pharmacy-old/about-us/PharmacyNews/New-study-highlights-global-sanitation-gap/ (accessed 30 May 2011).

Croghan, E. (2002). A survey of drinking and toilet facilities in local state schools. *British Journal of Community Nursing*, **2**, 77–9.

Cunningham, A. (2005). *Designs on my learning* (online). The Lighthouse: Glasgow. www.scotland.gov.uk/Topics/Education/Schools/Buildings/Designs (accessed 1 June 2011).

Currie, C., Zanotti , C., Morgan, A., Currie, D., de Looze, M., Roberts, C., Samdal, O., Smith, O.R.F. and Barnekow, V. eds. (2012). *Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey.* Copenhagen, WHO Regional Office for Europe, Health Policy for Children and Adolescents, No. 6.

Department for Education (2007). *Standard specifications, layouts and dimensions: toilets in schools*, London (online).

https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFES-00365-2007 (accessed January 2013).

Deuchar, R. (2009). Seen and heard, and then not heard: Scottish pupils' experience of democratic educational practice during the transition from primary to secondary school. *Oxford Review of Education*, **35(1)**, 23–40.

Docket, S. and Perry, B. (2003). The transition to school: what's important. *Educational Leadership,* **60(7)**, 30–3.

Eco-schools (2011). *Latest news, Eco-schools online* (online). www.eco-schools.org.uk/news/index.aspx?ID=43 (accessed 1 June 2011).

ERIC (Education and Resource for Improving Childhood Incontinence) (2011). *Quarter of pupils avoid school loos, survey finds: Time for a 'bog standard', urges leading charity* (online).http://www.eric.org.uk/assets/PR-ERIC%20-%20Quarter%20of%20pupils%20avoid%20school%20loos%20Dec11.pdf?PHPSESSID=78b2c74b78ca3 (accessed January, 2013).

ERIC (Education and Resource for Improving Childhood Incontinence) (2013). *The Right to Go: helping schools manage continence* (online).

http://www.eric.org.uk/Campaigns/TheRightToGo (accessed January 2013).

ERIC (Education and Resource for Improving Childhood Incontinence) (2013) New report reveals concerning data on school toilet use (online) http://www.eric.org.uk/WhatsNew/News/news/735 (accessed May 2013).

Education Scotland (undated, a) *Curriculum for Excellence: Health and Wellbeing experiences and outcomes*

(online).http://www.educationscotland.gov.uk/Images/health_wellbeing_experiences_outcomes_tcm4-540031.pdf (accessed January 2013).

Education Scotland (undated, b) *Exploring food and drink through Curriculum for Excellence* (online). http://www.educationscotland.gov.uk/resources/f/foodidl.asp (accessed January 2013).

George, R. (2012). *"Rose George: Why we must have relief from the toilet barbarians". Yorkshire Post* 21/2/2012 (online). http://www.yorkshirepost.co.uk/news/letters-and-columnists/rose-george-why-we-must-have-relief-from-the-toilet-barbarians-1-4266255 (accessed 12 February 2013).

Hagglof, B., Andren, O., Bergstrom, E., Marklund, L. and Wendelius, M. (1998). Self-esteem in children with nocturnal eneuresis and urinary incontinence: improvement of self-esteem after treatment. *European Urology*, **33(suppl 3)**, 16–19.

Hepburn, H. (2009). *The cost of spending a penny.* TESS, 11/9/2009 (online). http://www.tes.co.uk/article.aspx?storycode=6022749 (accessed January 2013).

Health Protection Scotland (2010). *An evaluation of the available evidence on hand hygiene for outdoor nurseries across Scotland.* (online).

http://www.documents.hps.scot.nhs.uk/hai/infection-control/publications/hand-hygiene-outdoor-nurseries-2010-07.pdf (accessed January 2013).

Health Protection Scotland (2012). *Infection Prevention and Control in Childcare Settings* (online).http://www.documents.hps.scot.nhs.uk/hai/infection-control/guidelines/infection-prevention-control-childcare.pdf (accessed January 2013).

Highland Council (2011). *Presentation of top toilet awards* (online). http://www.highland.gov.uk/yourcouncil/news/newsreleases/2012/January/2012-01-16-00.htm.

Hygiene Centre of the London School of Hygiene and Tropical Medicine in collaboration with UNICEF Senegal, WSP Africa and The National Office of Sanitation in Senegal (2007). *Can hygiene be cool and fun? Insights from school children in Senegal* (online). Field note: Dakar. www.washenescuelas.org/toolkit/documentos/promocion-de-higiene/14-can-hygiene-be-cool/.

Inan, M., Aydiner, C. Y., Tokuc, B., Aksu, B., Ayvaz, S., Ayhan, S., Ceylan, T. and Basaran, U. N. (2007). Factors associated with childhood constipation. *Journal of Paediatrics and Child Health*, **43(10)**, 700–6.

IRC (2005). Notes and news (online). International Water and Sanitation Centre: Netherlands. www.irc.nl/page/22824 (accessed 1 June 2011).

Information Services Division (2011). *Urinary Tract Infections in 0-15 year olds, by deprivation.* Unpublished, data on request: http://www.isdscotland.org/pti.

Jewkes R. K. and O'Connor, B. H. (1990). Crisis in our schools: survey of sanitation facilities in Bloomsbury health district. *British Medical Journal*, **301**, 1085–7.

Joinson, C., Heron, J. and von Gontard, A. (2006). Psychological problems in children with daytime wetting. *Pediatrics,* **118(5),** 1985–93.

Jones, S. and Wilson, G. (2007) Better loos for Schools, *Community Practitioner,* 80

(7)

Jung, J. S., Hui, K. N., Man, L.K. and Tan Su Fei, S. (2003). *Toilet cleanliness in RGS* (online). Restroom Association: Singapore. www.toilet.org.sg/resources.html (accessed 1 June 2011).

Kallio, K. P. and Hakli, J. (2011). Are there politics in childhood? *Space and Polity,* **15(1)**, 21–34.

Kaushik, A., Mullee, M. A., Bryant, T. N. and Hill, C. M. (2006). A study of the association between children's access to drinking water in primary schools and their fluid intake: can water be 'cool' in school? *Child: care, health and development*, **33(4)**, 409–15.

Legislation (1967) The School Premises (General Requirements and Standards) (Scotland) Regulations, 1967 online http://www.legislation.gov.uk/uksi/1967/1199/pdfs/uksi_19671199_en.pdf (Accessed May 2013)

London School of Hygiene and Tropical Medicine (2010). Improve school toilets and reduce rates of absenteeism in UK schools, advise hygiene experts (online). http://www.lshtm.ac.uk/pressoffice/press_releases/2010/handwashing.html (accessed 12 February 2013).

Lundblad, B. and Hellstrőm, A. L. (2005). Perceptions of school toilets as a cause for irregular toilet habits among schoolchildren aged 6 to 16 years. *Journal of School Health*, **75(4)**,125–8.

Lundblad, B., Berg, M. and Hellstrőm, A. (2007). Experiences of children treating functional bladder disturbances on schooldays. *Journal of Pediatric Urology*, **3(3)**, 189–93.

Lundblad, B., Berg, M. and Hellstrőm, A. (2010). Children's experiences of attitudes and rules for going to the toilet in school. *Scandinavian Journal of Caring Sciences*, **24**, 219–23.

Mattsson, S., Gladh, G. and Lindström, S. (2003). Relative filling of the bladder at daytime voids in healthy school children. *The Journal of Urology*, **170(4:Pt1)**, 1343–6.

Mayall, B. (1998). Towards a sociology of child health. *Sociology of Health & Illness*, **20(3)**, 269–88.

Millei, Z. and Gallagher, J. (2012). Opening spaces for diaglogue and re-envisioning children's bathroom in a preschool: practioner research with children on a sensitive and neglected area of concern. *International Journal of Early Childhood,* **44(1),** 9–29.

Mills, I. (2004). Citizenship: pupil involvement in Scottish schools. *Pedagogy, Culture & Society*, **12(2)**, 259–80.

Moosavi, M., Mehraban, D., Samadzadeh, S. and Salehi, M. (2007). Podium session: Do public schools teach voiding dysfunction? The results of an elementary school teachers survey in Urmia City, Iran. *Urology*, **70(supplement 3A)**.

Morrow, V. (2008). Ethical dilemmas in research with children and young people about their social environments. *Children's Geographies*, **6(1)**, 49–61.

NICE (National Institute for Clinical Excellence) (2007). *Urinary tract infection in children:*

Urinary tract infection in children, diagnosis, treatment and long-term management (online). http://www.nice.org.uk/nicemedia/live/11819/36032/36032.pdf (accessed 13 February 2013).

NICE (National Institute for Clinical Excellence) (2010). *Constipation in children and young people: Diagnosis and management of idiopathic childhood constipation in primary and secondary care.* RCOG Press. London (online). http://www.nice.org.uk/nicemedia/live/12993/48721/48721.pdf (accessed 13 February 2013).

NHS (2012) Threadworm (online).

http://www.nhs.uk/Conditions/Threadworms/Pages/Introduction.aspx (accessed 12 February 2013).

Nutbrown, C. and Clough, P. (2009). Citizenship and inclusion in the early years: understanding and responding to children's perspectives on 'belonging'. *International Journal of Early Years Education*, **17(2)**, 191–206.

National Union of Teachers (2011). *Continence and toilet issues in schools: advice to NUT members, school representatives and health and safety representatives* (online). http://www.teachers.org.uk/node/12506 (accessed February 2013).

OECD (2005). *Glossary of statistical terms* (online).

http://stats.oecd.org/glossary/detail.asp?ID=6326 (accessed 30 May 2011).

Patchett, E. (2010). The curse: the impact of sanitation on schoolgirls in the developing world (online). *The Guardian*.

http://www.guardian.co.uk/journalismcompetition/sanitation-schoolgirls-in-the-developing-world?INTCMP=SRCH (accessed 30 May 2011).

Pennington, H. (2009) *The Public Inquiry into the September 2005 Outbreak of E.coli O157 in South Wales, Summary,* (online).

http://wales.gov.uk/ecolidocs/3008707/summaryen.pdf?lang=en (accessed 12 February, 2013).

Project CLEAN (2011). *Project Clean, Welcome* (online). http://projectclean.us/Welcome.html (accessed 1 June 2011).

Robertson, J., Martin, P., Borradaile, L. and Alker, S. (2009). *Glasgow and the Clyde Valley Forest Kindergarten Feasibility Study* (online).

www.forestry.gov.uk/pdf/ForestKindergartenReportApril09.pdf/ (accessed 1 June 2011).

Secret Garden. (2012). *Articles* (online) http://www.secretgardenoutdoor-nursery.co.uk/articles.htm (accessed 12 February 2013).

Sung, J.F.C, Ruey, S.L., Huang, K.C., Wang, S.Y., and Lu, Y., (2001) Pinworm control and risk factors of pinworm infection amond primary school children in Taiwan, The American Society of Tropical Medicine and Hygiene, **65(5),**558–562

Scott, H. (2010). No toilets, no schooling (online). *The Guardian*. www.guardian.co.uk/journalismcompetition/no-toilets-no-schooling?INTCMP=SRCH (accessed 30 May 2011).

Scottish Government (2007). *Schools (Health Promotion and Nutrition) Scotland Act: Health, promotion guidance for local authorities and schools, 2007* (online). www.scotland.gov.uk/Topics/Education/Schools/HLivi/foodnutrition (accessed 1 June 2011).

Scottish Parent Teacher Council (SPTC) (2011). *Parents' voice survey on toilet provision in schools* (online). http://www.sptc.info/toilet-provision-in-schools-2011/ (accessed January 2013).

Small, C. (2011). *A strong foundation for learning* (online). (21/7/11) *TESS* http://www.tes.co.uk/article.aspx?storycode=6105767 (accessed January 2013).

TES (2011). *Forums: Should pupils be free to go to the toilet whenever they wish?* (online). TES Connect. *http://*community.tes.co.uk/forums/t/51646.aspx?PageIndex=2 (accessed January 2013)

TES (2010). *Forums: Toilet accidents at school* (online).

http://community.tes.co.uk/forums/t/442473.aspx (accessed January 2013).

Tisdall, E. K. M., Davis, J. and Gallagher, M. (2008). Reflecting on children and young people's participation in the UK. *International Journal of Children's Rights,* **16**, 343–54.

Upadhyay, V., Mathai, J. and Reed, P. W. (2008). Primary school children: access to toilets. *Acta Paediatrica,* **97(11)**, 1546–9.

Vernon, S., Lundbladt, B. and Hellstrom, A. L. (2003). Children's experiences of school toilets present a risk to their physical and psychological health. *Child: Care, Health & Development,* **29(1)**, 47–53.

WASH (2011). *WASH in Schools* (online). www.washinschools.info/ (accessed 1 June 2011).

Welsh Government (2012). *School toilets: Good practice guidance for schools in Wales* (online). http://wales.gov.uk/topics/educationandskills/publications/guidance/schooltoilets/?lang=en (accessed 12 February 2013).

White, S. and Choudhury, S. (2007). The politics of child participation in international development: the dilemma of agency. *The European Journal of Development Research,* **19(4)**, 529-50.

Acknowledgements

Thank you to the following, who supplied comment, encouragement or information in response to the original literature review upon which this revised review is based: Paul Bradshaw, Nickie Brander, Edward Edgerton, Anna Hellström, Kirsi Pauliina Kallio, Jonathan Kotch, Zsuzsa Millei, Lucy Pickering, Sue Vernon and Gillian Wilson; also to Tracey Francis who helped with the editing.