

The fight against germs

There is a need for more pre-school books that provide children with health information. This article explores how interactive resources and knowledge can aid in improving young children's hygiene.



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There are few children's books about hand washing, yet learning the hygiene practice of washing hands after using a potty or toilet is fundamental to the health of children. Being invisible to the naked eye it is hard for pre-school aged children to understand the association between these invisible germs and them feeling unwell or being sick. Bridging this gap in children's knowledge is essential.

Germs on hands after using the toilet are transmitted by the faecal-oral route, this is when residue of faeces or urine containing micro-organisms, such as *E.coli*, remain on children's hands. This is common due to children being in the process of learning how to clean themselves, inadequate toilet training or just being in a rush to return to fun activities.

The importance of hand washing to the child is often not embedded in their learning with specific classroom-led activities, rather, it is an oral instruction or reminder given by teachers and Teaching Assistants (TAs) prior to toilet visits.

Consequently, young children go to the toilet on their own, then go on to place their hands in their mouths, which can be related to sucking their thumbs or biting their nails, whereby micro-organisms then enter the gut and cause illness. When good hygiene practices are absent from the home or learning environment, the infection can be passed on to relatives or other children at school, nurseries or playgroups.

The current *Early Years Foundation Stage*, effective from April 2017, only

refers to health and hygiene in the broadest sense, not in such specifics as hand washing. In fact, the framework states the following in relation to young children's health:

'Health and self-care: children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.'

To address the issue of helping children understand the importance of hand washing and learning about going to the toilet, and basic hygiene, we created a book especially targeted at children who have not learnt or are learning to read, and need to follow the idea of washing germs away.

We know very young children learn from doing and from repetition, such that every time they go to the toilet, they always need to wash their hands afterwards. These learning practices can be aided by the children understanding about germs, which the book does through a graphical journey, to help children understand the process of contact and contamination.

The book follows the journey of a germ and combines interaction, play and learning, to develop conceptual understanding in young children. Piaget's (1963) theory of learning and cognitive development refers to the development of schemas or conceptual frameworks as a way of understanding the world, and this book aims to support this development.

Research has shown hand washing to be the most effective measure in infection control to prevent cross

contamination of disease (Hugonnet and Pitte, 2000). With a third of infections being preventable with good hand hygiene (Judah et al, 2009), however, young children often do not have the appropriate etiquette and knowledge to readily implement hand washing routines, and educational resources and interventions are often required for them to do so (Randle et al, 2013).

In a randomised, controlled study in primary schools, assessing factors influencing hand washing, it was found that children learning why and how to wash their hands is perceived as important by teachers, and knowledge about the spread of germs was important to pupils when implementing hygiene practices (Chittleborough et al, 2012).

Empowering young children with the knowledge of why they are washing their hands is paramount, hence why *A Germ's Journey* was born – a book and interactive website (www.agermsjourney.com) that encourages and teaches young children about hand washing and its importance.

Engaging pre-school children in hand washing

So how do we engage children with washing hands?

Reading – children love to learn through discovery (Piaget, 1963), which means learning through exploring the world and objects around them, including books. Our book was developed in association with the Society for Applied Microbiology, for children aged three to five-years-old; this is a key age in developmental learning of self-hygiene and before

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formal reading begins. The book aims to engage children using bright and bold illustrations to demonstrate the concept of washing hands.

The disappearing thermochromic ink adds an interactive element to learning, helping the children to understand the difficult concept of the 'invisible germ', whereby you cannot see the bacteria, but they are really there. The book aims to help children to visualise this concept. In addition, it provides opportunities for parents and caregivers to interact with their child through a series of structured prompts and questions.

Online – children love to learn through technology and the rise in the use of mobile devices and interactive tablets among young children led the researchers to develop a companion website to the book – www.agermsjourney.com. The website includes interactive games and downloads. This further supports the educational aspect of the book and can be used as a teaching tool by both teachers and parents.

Creative play – many education psychologists promote the practice of learning through creative play, such as drawing pictures of germs and where they might be found. Games have important implications for children's emerging cognitive capabilities and can be used to embed the idea of how germs spread.

Interactive learning and play – play is engaged in primarily for enjoyment, rather than as a conscious decision to find out how things work, because it is satisfying and fun. Through playful discovery, psychologists highlight how play can support and encourage learning. Developmental psychologists believe that play (including playing games, digital and non-digital) can be best understood in terms of drives for exploration, curiosity and manipulation.

Using play activities, such as hand washing with UV glowing soap or glitter, which is difficult to scrub off, can help to reinforce the importance of hand washing and aid hygiene awareness in young children.

The fight against disease

It has been suggested, by Jim O'Neill, that, by 2050, 10 million people

a year will be dying of infectious diseases, due to the lack of effective antibiotics. Antibiotic resistance arises through factors, that include: A lack of new antibiotics; over prescribing; misuse; and also lack of understanding! Knowledge and understanding is essential in the fight against antibiotic resistant bacteria and it can start with young children.

Although hand washing in children seems a long way from the fight against antibiotic resistant micro-organisms (the 'Super Bugs'), it is important to start hygiene awareness early. Hand washing is paramount in infection control, whether that is a stomach bug, childhood illness or those bacteria associated with hospitals.

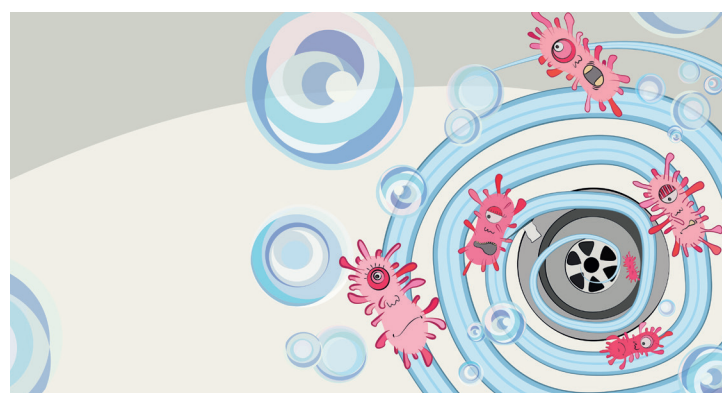
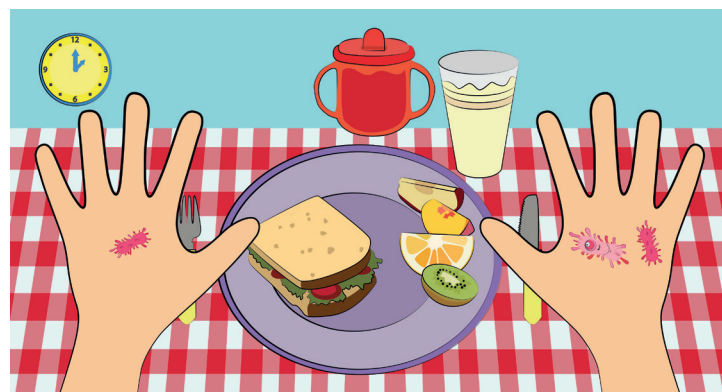
Giving children understanding of what germs are and how they are spread ensures they learn hygiene practices for life that aids in limiting the spread of disease. This knowledge could feed into a greater awareness of what bacteria are and why antibiotics are only effective against bacteria and not viruses. This could limit the misuse of antibiotics and the pressure put on healthcare professionals to prescribe antibiotics for diseases they are not effective against.

This journey of understanding can start with you, working with very young children at the beginning of their lives, as they learn about hygiene and the importance of washing their hands.

This supports the statutory framework for EYFS (April 2017) and, in particular, meets the requirements identified on page 11, which states that children need to learn how to manage their own basic hygiene. Understanding why children need to do this, with respect to minimising the spread of germs, can be facilitated through interactive play. **eye**

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Useful resources

- Interactive website – www.agermsjourney.com
- A Germ's Journey is available from Medina Publishing – <https://medinapublishing.com/product/a-germs-journey/>