

Overview of The Germ's Journey (GJ) Project

GJ Workshops in schools/teacher training –

A Germ's Journey educational resources were initially developed by an interdisciplinary UK research team in order to engage children in the Early Years Foundation Stage (EYFS) (3-5 years of age) and aid their understanding of germ transmission and infection prevention through the use of specifically developed interactive learning resources. The resources include a book and website (www.germjourney.com) alongside a set of set of interactive workshop activities. Activities include reading the interactive book, playing the web-based games, colouring in germ illustrations, singing a handwashing song, and a handwashing activity, where children are given glow-in-the-dark gel to rub on their hands. The gel represents germs and reinforces the concept of the invisible germ as they can only see the gel with a UV light. The children then wash their hands to see whether their hands are free from the gel/'germs'.

Workshops were conducted with EYFS classes in Leicestershire. Results found that the developed learning resources were successful in aiding children in EYFS's knowledge of germs and related health issues (80–100% ($p < 0.05$) of parents and teachers strongly agreeing/agreeing), with teachers reporting that they had seen an increased understanding in their pupils since participating in the workshops.

Train-The-Trainer workshops have also been conducted with EYFS practitioners in Leicestershire, Ahmedabad, India and Makeni, Sierra Leone in order to support the teaching of hand-hygiene and demonstrate show how the resources can be used in their own practice.

A 1000 books supported by SfAMs Educational Grant were donated to schools across the UK

In the UK we have delivered workshops to approximately 400 children and 55 teachers (to date). In India we have worked with approximately 524 children and 155 teachers (to date) and approximately 40 children and 37 teachers (to date) have participated in Germ's Journey Workshops.

GJ Gujarati Book –

As a result of feedback from teachers in Ahmedabad, India after using the UK resources, a culturally relevant Gujarati version of the book ('A Germ's Journey') was co-created alongside teachers and local organisations in Ahmedabad.

To date, The Germ's Journey research team have conducted workshops with 624 children and trained 216 teachers. After our donation of 900 culturally relevant Gujarati books, and the training of the teachers, the charities continued to implement the GJ intervention across the State of Gujarat, which to date has involved: 200 schools receiving books/teacher training with 5,207 children being taught health-hygiene via Germ's Journey. This work is ongoing.

Feedback from the teachers, after using the book in a workshop were very positive, with 96% of the teachers stating that the workshop had increased their confidence to teach microbiology/handwashing in schools and 98% stated that it was useful to them. In all, 100% stated that they thought that their pupils' handwashing practice would increase after they run the workshop themselves. Additionally a baseline assessment and identical post-workshop assessment were completed by the children who had used the Gujarati book. The findings revealed that 54% of children had an increased understanding of hand-hygiene. The children taking part in these workshops were from areas of severe deprivation and had limited access to education and thus literacy. Therefore, increasing children's understanding of germ transfer and hand-hygiene by 54% was a significant result.

In February (2020), The Germ's Journey research team returned to India to hold focus groups with the teachers that we previously worked with, to evaluate the impact of the resources. Last month's focus groups found that, of the teachers receiving the Germ's Journey resources, 100% reported that they are now able to teach handwashing and infection control more regularly and effectively, increasing children's understanding. This has resulted in better handwashing behaviour and reduced illness within the children. Teachers reported that children grasped the concept of the invisibility of germs due to the images in the book. The children also disseminated that knowledge more widely to their parents, siblings and wider community. Importantly, teachers reported a reduction in children having illnesses associated with diarrhoea and vomiting.

The development of Gujarati book was made possible by the generous donations from individuals via Crowdfunding and sponsorship by PAL International, Q Shield, Manav Sadhna, 3pl Real Estate, Little Poppets Nursery School Leicester, VSO, the Environmental Sanitation institute (ESI), Thinktank Birmingham Science Museum and SfAM.

GJ West Africa Book –

Following a research trip to Makeni in Sierra Leone, the Germ's Journey team have worked collaboratively with the University of Makeni (UNIMAK) and local teachers. Members of the executive board at UNIMAK have expressed interest in developing an on-going research study and have been involved the process of co-creating a culturally relevant Germ's Journey book and resources for Western Africa. 1000 books will be delivered to Sierra Leone early 2020 in order for UNIMAK to distribute to schools in the area. Workshops were conducted to support local teachers in their teaching of disease, germ transmission and hand-hygiene. In addition to this, focus groups were conducted as part of a scoping exercise in order to establish the teachers' current teaching methods and resources, which provided valuable information for the Germ's Journey team. Teachers who attended the workshop were provided with specifically developed Germ's Journey learning resources to use in their schools which were well-received. The Germ's Journey team intend to work collaboratively alongside UNIMAK to conduct a follow-up study to distinguish whether the book is successful in aiding the teaching and learning of germ transmission and hand-hygiene. Meetings with the Education Minister and Director for the new teaching commission in Sierra Leone resulted in discussion about Germ's Journey being included in the teaching curriculum.

Thinktank Museum –

Culturally relevant resources including handwashing posters in a variety of languages, a handwashing song/video and an interactive game have been developed in collaboration with the

Thinktank museum, Birmingham and are currently displayed as part of a specifically designed permanent STEM exhibition there for children aged 3-8 years. The handwashing song/video was specifically developed in collaboration with the education officers at Thinktank, professional musicians and pupils from a local primary school. The song/video has been created for use in Thinktank's toilets, in order to improve children's understanding of handwashing and encourage correct handwashing practice.

GJ Soaper Heroes –

A Germ's Journey Soaper Heroes are a set of hand-hygiene resources centred on superhero type characters. These will be implemented on paediatric wards, and evaluation of pre and post handwashing practice and understanding of germ transfer will be conducted. The educational intervention will involve children receiving a box containing handwashing products and accompanying health-educational resources. The box will contain anti-bacterial hand wipes, anti-bacterial hand gel and soap all manufactured and provided by the project's funders PAL International. Alongside the products, specifically developed educational resources including stickers (as part of a reward-system style sticker-chart), a colourful zine (a small booklet that unfolds into a flat poster) containing information about germs in a poster form will be included. The study is set to commence in 2020.

The Soaper Heroes Backstory:

Scrub up and meet your new best hand cleaning /bubble buddies - The Soaper Heroes!
Nasty germs are around and trying to make people poorly. Thankfully The Soaper Heroes are here to stop the germs dirty tricks and save the day. And now you can be part of the squad by collecting the whole team!

First up is King Clean and the Hygiene Queen, they are the royal rulers of the Soaper Heroes and hunt down the germs and get rid of them with the help of their clean team.

There's Gel-boy, his handy hand gel means he's ready to clear the germs wherever he goes.
Cleany-genie uses her soap saber to stop the germs in their tracks.
Evie Squeazy is too much for germs with her soap slime sending them away.
The magic foam that Sudley produces makes any germ vanish in the blink of an eye.
And finally there's Swipez and his wonder wipes being there to wave the germs bye-bye.

Collect them all and watch the germs get washed away.
Be Soaper Smart. Be a Soaper Hero.

AMR book –

'A Germ's Journey: A Fight Against Resistance' – written by Joseph Glover, illustrated by Sarah Robinson, based on the original ideas developed by Dr. Katie Laird, Prof. Sarah Younie and Sapphire Crosby.

Antibiotic resistance is an increasing problem worldwide it is thought by 2050 that many of the antibiotics that we rely on today will no longer be effective. One solution to the problem of antibiotic resistance is increased education on the importance of appropriate use of these drugs. A key age to introduce this concept is between 7- 11 years. This path-finder book aims to teach children (7-11 years) about the importance of correct antibiotic use in a fun and interactive way.

They key concepts that are included in the book are: the importance of completing courses of antibiotics, not sharing antibiotics with family members or friends and understanding the difference between a virus and bacteria and when antibiotics are required for treatment of an infection. Understanding the importance of these actions from a young age will help in the fight against antibiotic resistance and preserve current antibiotics for future use.

Psychology study –

Following a study that evaluated the impact that the Germ's Journey resources had on children's understanding of germ transfer, a multidisciplinary research team with a background in Microbiology, Education and Psychology from De Montfort University are investigating how the resources can impact handwashing behaviour/practices and germ awareness in young children under eight years. Carousel workshops using the Germ's Journey resources have been carried out in EYFS classes in primary schools across Leicestershire. The results have found that children who participated in the Germ's Journey workshops showed an improvement in their handwashing practices and knowledge of germs, both immediately after the intervention and during a follow-up study one month later.