ShowCase

cleanyourhands

Topic:

Infection control

Organisation:

National Patient Safety Agency (NPSA)

Location:

England and Wales

Dates:

2004 to 2010

Budget:

£712,000 (development, piloting and first year roll-out across England and Wales)

Overview

The clean**your**hands campaign was a national initiative in England and Wales to combat preventable healthcare associated infection by improving the hand hygiene of healthcare staff.

The programme used a marketing mix to educate, prompt and enable healthcare staff to clean their hands at the right time, every time, during their care of patients. The key message of the campaign was for staff to clean their hands at the point-of-care, using either alcohol handrub or soap and water.

An evaluation prior to national implementation suggested that even if infection rates were reduced by 0.1 per cent, the campaign would result in an overall cost saving for the NHS.

Results:

- Threefold increase in procurement of soap and alcohol handrub
- Alcohol handrub at point-of-care (by the bedside) in most wards in 94 per cent of acute trusts
- Considered a top priority by 84 per cent of acute trusts
- Audit and feedback occurred in most wards in 75 per cent of trusts
- Declines in MRSA bacteraemia incidence rates

Healthcare associated infection (HCAI) causes unnecessary suffering and distress to patients. It is estimated that there are 300,000 HCAIs per year, leading to 5,000 deaths, and the cost to NHS hospitals of caring for people that acquire a HCAI is over £1billion a year. It is estimated that one in three HCAIs are preventable.

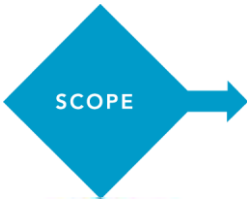
NHS
National Patient Safety Agency

The National Patient Safety Agency (NPSA), formed in 2001, sought to develop a campaign that could help the NHS in England and Wales reduce the rates of HCAIs. While the causes of HCAIs are complex, substantial evidence has shown that improved hand hygiene amongst healthcare staff plays an important role and that there were unacceptably low levels of hand hygiene compliance amongst healthcare staff. At the outset of the campaign, the global average rate of compliance with hand hygiene was estimated to be around 40 per cent; this meant that, on average, staff were cleaning their hands less than half the number of times they should and therefore placing patients in danger. For this reason the behaviour of healthcare staff became the target of the programme.

The NPSA established that the overarching aim of clean**your**hands would be to reduce preventable HCAI by supporting NHS trusts to take an organisation-wide approach to improving the hand hygiene of healthcare staff.

The key behavioural objective of the programme would be to change the hand hygiene behaviour of healthcare staff so they clean their hands at key moments during patient care.

The programme was influenced by key policy documents, including the Department of Health's (DH's) Infection Control Policy (England) to improve hygiene, as detailed in *Winning Ways: working together to reduce healthcare associated affection in England* (2003) and *Healthcare Associated Infections – A Strategy for Hospitals in Wales* (2004).



Research

In 2002 the NPSA began a programme of work to assess the barriers to hand hygiene compliance and learn from existing good practice in this area. Research included studies of work carried out in Oxford Radcliffe Hospitals NHS Trust, University Hospital Lewisham and from a long-term study conducted in Switzerland. However, the challenge was to design a solution that would work on a national scale across England and Wales.

A questionnaire was circulated to all infection control teams working in acute trusts in England and Wales (192) in late October and November 2002, which obtained a response rate of 84 per cent. This survey concluded that there was widespread support for further impetus to be given to hand hygiene improvement through the NPSA. In particular it was identified that the NPSA could add value to infection control teams' efforts at a local level through:

- Evaluation of hand hygiene strategies
- Wide implementation of near-patient alcohol handrub
- Design and distribution of posters
- Involvement of patients

- Involvement of ward housekeepers and modern matrons

Insights

Formative research identified a range of factors that prevent healthcare staff from carrying out optimum hand hygiene. These include:

- Belief that it is time-consuming and inconvenient
- Too few sinks available to wash hands before every patient contact
- Skin problems associated with frequent hand washing
- Negative influence of colleagues – it is not the social norm
- Low internal motivation and general low prioritisation of hand hygiene – if hands do not look visibly dirty, they are probably 'clean enough'

The combination of these reasons meant that infrequent hand washing had become a 'routine violation' – a shortcut that most staff took throughout their working day.

During the delivery of healthcare, staff would often have to clean their hands when there may be no apparent reason or incentive to do so. Staff were often unaware of the appropriate moments for hand hygiene and the consequences of inappropriate hand hygiene may not be immediate or directly linked to the actions of an individual healthcare worker.

Pretest and pilot

clean**your**hands aimed to make hand hygiene a routine element of care provision – shifting the emphasis from 'are your hands clean?' to 'are your hands safe?'; maximising the convenience of hand cleaning facilities; and reducing barriers to use as far as possible.

Prior to national roll-out, the clean**your**hands toolkit and marketing materials were piloted and pretested in six acute trusts from July 2003 to January 2004. In this way, the actual audience for the programme contributed to its design and development. The pilot was scheduled to last six months, but overran by one month due to unforeseen delays in starting.

The pilot aimed to:

- Evaluate the impact of the campaign on staff in terms of its effectiveness
- Evaluate changes in behaviour by staff
- Find out what patients thought about being involved in the campaign
- Find out what patients thought about staff hand hygiene
- Determine the suitability of each part of the campaign for use in the national roll-out

The Patient Experience and Public Involvement Team (PEPI) at the NPSA extended the number of sites piloting the patient involvement aspect of the campaign to a further three trusts. The views of patients and the public outside of the 'artificial' environment of a pilot site added weight to the findings. Key stakeholders in the three patient-only sites were the PALs leads/patient representatives and the infection control leads. The patient survey was distributed to the trusts and minor adaptations were made to the evaluation form. One of the sites also held a focus group.

The pilot was evaluated using the following:

- Staff survey (twice during the pilot)
- Patient survey and interviews
- Interviews with onsite lead
- Onsite lead diary and activity log
- Records of pilot site local working group meetings
- Observation of hand hygiene (over time)
- Product usage (before and at the end of pilot)

The evaluation of the pilot showed quantifiable improvements, including an increase in use of alcohol handrub and an average increase in

staff hand cleaning between each patient contact from 28 per cent to 76 per cent. The evaluation of the pilot led to changes to the toolkit prior to national implementation.

In developing the campaign, the NPSA worked with a range of individuals and agencies including the Hospital Infection Society, Infection Prevention Society, DH, NHS Estates, NHS Supply Chain, Welsh Assembly Government, Welsh Health Supplies, and other stakeholders previously involved in improvement work around hand hygiene.

Habit-Forming Theory

NPSA looked to Habit-Forming Theory to inform the clean**your**hands campaign. As Derek Butler, Chairman of the charity MRSA Action UK, said: "Hand hygiene should be a process of excellence that is the cornerstone of good infection prevention and control. Aristotle once said 'We are what we repeatedly do.' Excellence, then, is not an act but a habit…Hand hygiene has to become habit forming."

The 21-Day Habit Theory, propounded by Dr Maxwell Maltz, suggests that it takes 21 days to create a new habit. Our brain does not accept 'new' data for a change of habit unless it is repeated each day for 21 days in a row.

While clean**your**hands did not strictly adhere to the 21-day rule, it worked on the principle that if staff are prompted repeatedly and in a sustained manner to clean their hands at key moments, the action would eventually become routine and habitual.

Interventions

Based on the principles of Habit Forming Theory, the NPSA developed a multimodal approach to educate, prompt and enable healthcare staff to clean their hands at the right time, every time:

Alcohol handrub at the point of care

- Enables healthcare staff to quickly and effectively clean their hands at the critical point of care
- Overcomes difficulties about access to hand cleaning facilities – can be positioned where care is provided or carried by staff
- In conjunction with soap and water, is the system-change needed to make optimal hand hygiene possible
- Means patients can see healthcare staff cleaning their hands, giving them confidence in the care they receive
- National contracts were put in place for England and Wales, ensuring the NHS has access to tested high quality products at reasonable prices, supported by an effective delivery mechanism

Posters and other materials

- Act as prompts for behaviour change and raise awareness of hand hygiene

- Posters are initially changed monthly to avoid becoming part of the wallpaper
- Other materials included signs to highlight hand cleaning facilities; posters promoting local champions who support the campaign; point-of-care prompts – reusable stickers that can be placed at the point of care; and a guidance video for use in training

Involving patients

- Encouraged to remind staff if they think they have forgotten to clean their hands
- Message 'It's OK to ask' is used on some of the campaign materials
- Patients and visitors believe they have a role in supporting the improvement of staff hand hygiene

Resources to support local implementation and staff engagement

- Three-month preparation period undertaken prior to going 'live' with the campaign, guided by the campaign handbook *Ready Steady Go!* which outlined the process and necessary actions at the organisational, group and individual levels
- Each trust has a lead campaign coordinator who is the main point of contact for the NPSA regarding the campaign. Some trusts have appointed a dedicated Hand Hygiene Coordinator whose sole purpose is to focus on hand hygiene improvement
- Guidance video to educate staff about hand hygiene
- Updated guidance provided for each year of the campaign
- Templates provided for letters, briefing documents and press releases that can be adapted for use locally
- clean**your**hands 'champions' to create role models of best practice and professional aspiration

Overcoming barriers

The interventions sought to overcome key barriers that had been identified by the research in the scoping phase:

NHS trusts

- **The campaign looks expensive – "We don't see the point"**
  The whole programme, including the design, development, production and delivery of the entire campaign in year one, equated to the cost of less than a penny per patient per day. The cost of the acute programme was less than 0.1 per cent of the cost of HCAIs in England and Wales. In the acute sector alone, clean**your**hands had the potential to save at least £140 million and 450 lives a year. In terms of return on investment, hand hygiene improvement of this nature has been described as one of the most cost-effective improvement strategies possible.

- **Financial burden of purchasing alcohol handrub locally**
  The NPSA worked with NHS Purchasing and Supply Agency and Welsh Health Supplies to put national contracts for alcohol handrub in place, ensuring the NHS had access to high quality products at competitive prices. A 'cost calculator' was provided to enable trusts to calculate the cost of implementation versus the cost-savings generated by reducing infection rates.

- clean**your**hands **would be an extra burden on infection control teams**
  While each NHS trust had a local campaign coordinator, who was generally part of the infection control team and was the main point of contact for NPSA regarding the campaign, the implementation guidance supported and encouraged an organisation-wide approach to implementation. The NPSA worked with the NHS Purchasing and

Supply Agency to deliver campaign materials monthly directly to the ward level alongside clinical supplies. For example, individuals in the different areas were required to take responsibility for changing the posters and replenishing the alcohol handrub.

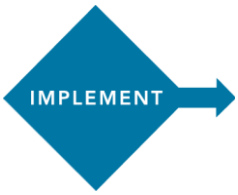
- **Staff will become desensitised to the posters**
  For the first two years of the campaign, posters were designed to be changed monthly, thereby avoiding the 'wallpaper effect'. Extensive research was undertaken to ensure the materials stood out in the healthcare environment.

Healthcare staff

- **"Couldn't we just wear gloves?"**
  Wearing gloves does not replace the need for hand hygiene and inappropriate glove usage can be related to self-protection rather than protecting the patient. Gloves should be worn for appropriate tasks and then removed and hands cleaned. clean**your**hands also emphasised that the same pair of gloves should not be worn for the care of more than one patient.

- **"Doesn't alcohol dry the hands when applied?"**
  Modern alcohol handrub should not dry the hands. Today's generation of alcohol handrubs all contain skin-softeners, which will help prevent drying. The alcohol handrub products on national contract to the NHS in England underwent rigorous testing and in-use product acceptability assessment.

- **Sensitivity to skin irritation**
  Of the published studies available, many describe that nurses who routinely use alcohol handrubs have less skin irritation and dryness than those using purely soap and water. Allergic contact dermatitis due to alcohol handrubs is very rare.



The clean**your**hands campaign was launched in September 2004, when the NPSA issued a Patient Safety Alert on hand hygiene, which instructed acute trusts in England and Wales to install alcohol handrub at the point-of-care and invited them to join the clean**your**hands campaign. The campaign was well-received and adopted by all NHS acute trusts in England and Wales.

Following the publication of the Patient Safety Alert, the national campaign was rolled out in a phased approach with five waves, starting with trusts that had participated in the pilot. To enrol on the campaign, trusts were required to have chief executive support. Each trust also had to undertake a three-month preparation period to ensure that processes were in place to manage the campaign on a day-to-day basis and that staff were engaged throughout the trust before going 'live'. Trusts were provided with the

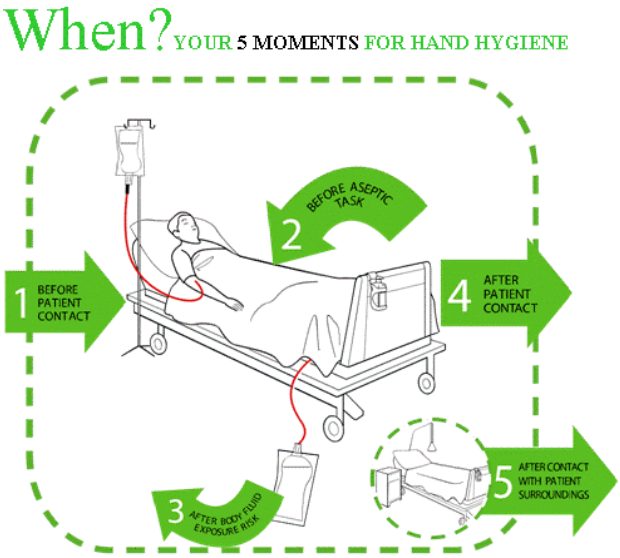
Ready Steady Go! guide and a range of marketing materials.

The second year of the campaign was launched in July 2006, with two key themes of activity. One theme was the role each individual can play and the power they have to make a difference. The second focus was on the point of patient care – that hand hygiene needs to be performed at the critical moments and places and it needs to be seen and understood as an integral part of care.

During these first two years of the campaign, posters were changed on a monthly basis. For the third year of the campaign, extensive research was undertaken to further guide design of the campaign materials. This included interviews with NHS staff, visual audits of hospitals and a survey of over 300 healthcare workers in England and Wales. Materials were developed following this research, which showed that they needed to have more impact as there was so much visual competition in the hospital context. Therefore campaign materials featuring stronger images and a striking black-and-white colour scheme were developed. Year Three launched in November 2007 with the introduction of new bolder and more striking designs for the campaign materials.

From April 2008, the programme was extended beyond acute trusts to NHS primary care, mental health, ambulance and care trusts. A review of existing control strategies in community-based care settings had been undertaken between October 2005 and February 2006. In addition, prior to the expansion of the programme, 19 organisations representing a mix of care settings agreed to test the campaign over a 6-month period.

In September 2008, exactly four years to the day after the original was published, the NPSA reissued an updated Alert. The Patient Safety Alert: *Clean hands save lives* applied to all providers of NHS care in England and Wales and outlined current best practice in hand hygiene as well as reinforcing the point-of-care message. This message incorporated the WHO's recently developed 'five moments for hand hygiene' model.



2009 saw the fourth year of the campaign in acute trusts and the second stage for primary care, mental health, ambulance and care trusts. In this year the campaign aimed to provide more flexibility and scope for adaption at local level. An online survey of the local clean**your**hands campaign co-ordinators was undertaken to assess the effectiveness of the campaign materials and implementation so far, and to inform plans for the development of Year Four. The survey was emailed to 356 contacts and there were a total of 165 respondents, giving a response rate of 46 per

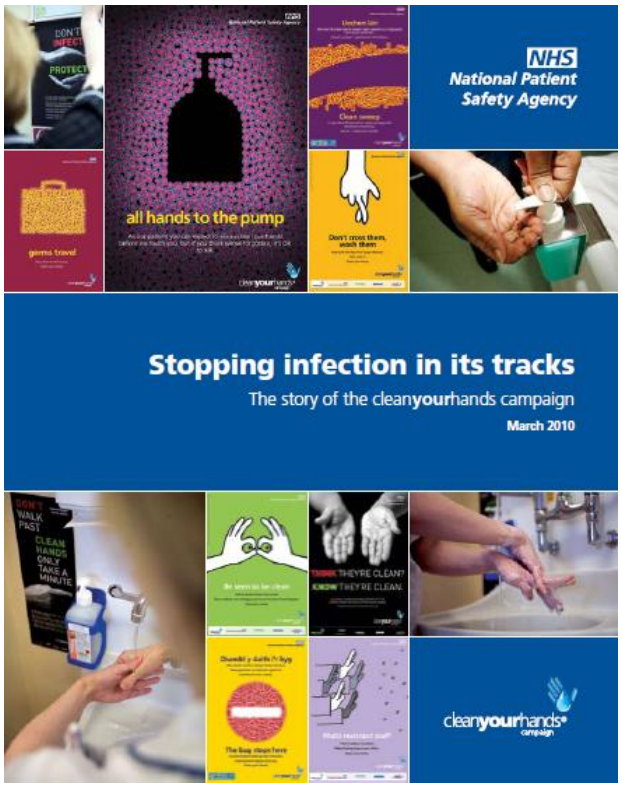
cent. A workshop was also held in December 2008 with all coordinators to enable them to have more control in the development of the campaign.

The initial aim of the campaign had been to increase the frequency of hand hygiene by staff by getting them to clean their hands at the right time, rather than focusing on how they washed their hands (i.e. technique). As clean**your**hands evolved, the messages became more complex and incorporated how staff should clean their hands and what they should use to clean their hands (i.e. soap or alcohol handrub) in different circumstances.

As the clean**your**hands campaign was rolled out, the NPSA endeavoured to be aware of other measures undertaken by the NHS to reduce HCAI. One example of this 'good' competition was the DH's Saving Lives programme in England, which worked towards the same goal as clean**your**hands, but could have competed for the audience's attention. Therefore, the clean**your**hands programme sought to work in conjunction rather than against these initiatives.

As of March 2010, a total of 387 trusts were signed up to the initiative, representing 98 per cent of acute, integrated, primary care, mental health, ambulance and care trusts in England and Wales.

The effectiveness of the national programme in acute trusts was independently assessed via the NOSEC (National Observational Study of the Effectiveness of the clean**your**hands campaign) Study, funded by the DH and commissioned via the Patient Safety Research Programme. The study surveyed infection control teams in acute trusts about programme implementation and infection rates every six months (from December 2005 to June 2008). In addition, NHS Supply Chain provided data on product procurement and usage (soap and alcohol handrub) and Hospital Episode Statistics (HES) provided the number of patient bed days per month for each trust.



The evaluation study concluded that:

- The clean**your**hands campaign was associated with sustained changes in hand hygiene behaviour. Procurement of soap and alcohol handrub increased threefold
- The main elements of the campaign were securely embedded in the majority of trusts and the campaign remained a top priority in most trusts
- There is a clear association between increased alcohol handrub procurement and reduced MRSA bacteraemia. Each 1ml increase in alcohol handrub procurement was associated with a 1 per cent drop in MRSA bacteraemia

Implementation of the clean**your**hands **campaign**
At 30 months post-rollout:

- Institutional engagement was high – clean**your**hands was a top priority in 85 per cent of trusts
- Near-patient alcohol handrub was present in most wards in 94 per cent of trusts
- Campaign posters were present in more than 75 per cent of wards in 90 per cent of trusts
- 47 per cent of respondents thought patient empowerment materials were successful
- Audit and feedback occurred in most wards in 75 per cent of trusts

Alcohol handrub and soap procurement

- Median procurement of alcohol handrub was 1ml patient/bed day (July 2004), rising to 13.6mls patient/bed day by the end of campaign rollout (June 2005). Levels plateaued until July 2006, then rose steadily, peaking at 30mls patient/bed day in December 2007
- Soap procurement remained stable until early 2006 and then began to increase gradually, peaking at 35mls patient/bed day in December 2007
- Combined soap and alcohol handrub procurement rose from 20mls/patient/bed day (July 2004) to 37mls (July 2005). By December 2007 this figure had risen to 65mls patient/bed day

Healthcare associated infections

- MRSA bacteraemia incidence rates fell, particularly from July to October 2006, whereas MSSA bacteraemia rates remained stable
- *Clostridium difficile* counts remained stable over this period, apart from seasonal fluctuations
- There was a strong interaction between time and alcohol handrub procurement after July to September 2006, with a strong association between each extra ml of alcohol handrub 'used' and a 1 per cent fall in MRSA bacteraemia
- There was no correlation between soap procurement and MRSA rates

Feedback
clean**your**hands was also informally evaluated by the NPSA as it was implemented and a 2008 survey of the local campaign coordinators (165 responses) found that:

- 72 per cent thought the campaign was very effective or effective at improving hand hygiene compliance amongst healthcare workers
- 89 per cent thought the campaign was very effective or effective at raising staff awareness of hand hygiene
- 78 per cent agreed or strongly agreed that the campaign prompted staff to clean their hands at the point-of-care

The success of clean**your**hands was recognised externally through a number of awards, including winning the Strategic Communication Campaign at the Good Communication Awards 2008 and the Grand Prix at the DBA Design Effectiveness Awards in 2005.

The clean**your**hands campaign was the first national approach to target the hand hygiene of healthcare staff and has been cited as an example of good practice in the WHO Guidelines on Hand Hygiene in Health Care (2009). A number of other countries have subsequently adopted similar approaches and the clean**your**hands materials have been

shared with different hospitals and healthcare systems globally, including the US, Canada, Ireland and Mexico.

The four nations of the UK also collaborated to share the knowledge and experience from each of the different country's initiatives to improve hand hygiene and promote the UK as a centre for innovation in hand hygiene. The Collaborative met two to four times a year to discuss developments in hand hygiene policy, practice and other related issues. clean**your**hands has also worked collectively to support the WHO initiative 'Save Lives: Clean Your Hands', an annual event held in May (started in 2009), which acts as a focal point for activity to improve hand hygiene in healthcare.

In 2010, it was announced that a number of non-departmental public bodies, including the NPSA, would be abolished following the government's requirement to reduce public sector spending. Prior to this announcement, it had been declared that the emphasis of the clean**your**hands campaign post-2010 would be to embed hand hygiene as an integral and intuitive aspect of routine patient care, and the NPSA is currently looking to ensure that this is entrenched as much as possible before the organisation is closed and different elements are moved to other bodies.

Lessons learned

Proof of principle

The NPSA ensured that the intervention, products and messages were pretested. This proved to be vital with the pilot evaluation results demonstrating the diversity of the NHS, not only in terms of the differing priorities and difficulties between organisations, but also between differing professional groups. This led to further development, adaptations to formats, message evolution and changes to distribution methods throughout the duration of the campaign. Understanding the target audience's needs by undertaking audience research was a key element to the campaign's success.

Market segmentation

The campaign was initially rolled out in the acute NHS trusts in England and Wales only. At the end of the first year it was clear the need for hand hygiene improvement was wider than this. Due to the diversity among non-acute healthcare providers, a phased extension was launched in 2008 for NHS community settings. This approach resulted initially in a fragmented timeline and some management issues arose as a result. However, these issues were managed by integrating the campaign for all care settings. This integration allowed greater consistency and aimed to make the campaign messages relevant to all healthcare staff providing care in the NHS.

Message mapping

The challenge was to create resources that captured an accurate clinical message and package them in ways that aligned with the variety of motivators and priorities of the campaign's complex audience. clean**your**hands used 'message mapping' to identify motivators and how to use messages to connect with the audience. Message mapping provided a level of assurance that what the campaign was saying engaged and was understood by its target audience.

Critics and key partners

clean**your**hands invited and encouraged criticism and debate and asked its audience what campaign products they felt did not work. This was central to the development of

products and allowed critics to become valued partners.

Local resonance

clean**your**hands was more prescriptive in the earlier years than in later years. This was primarily due to the fact that in Year One a uniformly implemented change was required – the installation of point-of-care alcohol handrub. In later years, where the changes were less tangible and related to culture and behaviour, the involvement of the audience moved to a partnership model, and finally towards audience ownership with central facilitation. To succeed, change programmes must initially promote, then empower and finally facilitate audience-driven, audience-centred behaviour change.