

THE ROLE OF A GLOBAL HAND HYGIENE PROGRAMME IN SUPPORTING INFECTION PREVENTION AND ANTIMICROBIAL RESISTANCE CONTROL

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As resistance to antibiotics becomes more common and a significant global burden, the role of hand hygiene in infection prevention and control (IPC) becomes ever more essential in preventing the spread of resistance and subsequent overuse of antibiotics. The best way to protect patients from microorganism cross-transmission is to apply a multimodal improvement strategy within healthcare systems to enhance hand hygiene action at the point of patient care (1). Compliance with recommended hand hygiene practices remains unacceptably low worldwide. Even in high-income countries with resources available for supplies, training and promotion programmes, average compliance reported in a 2010 review of available studies was approximately 40% (2). The World Health Organization (WHO) launched and executed the First Global Patient Safety Challenge, “Clean Care is Safer Care”, between 2005–2015 with the aim of targeting healthcare-associated infection (HAI) reduction, primarily through hand hygiene action.

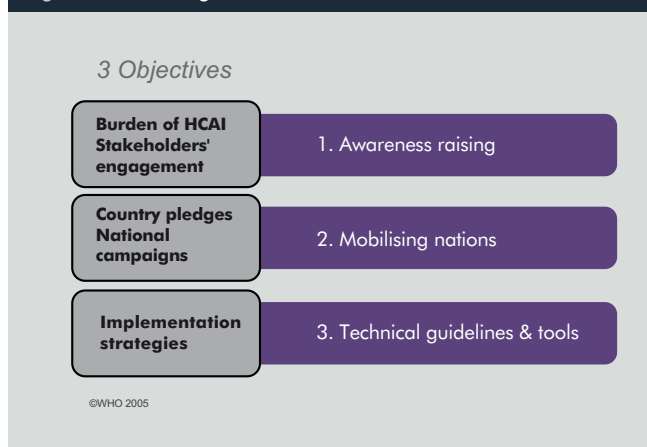
Each year, hundreds of millions of patients around the world are affected by HAI. Understanding and assessing the global burden of HAI was one of the key areas of work of the WHO “Clean Care is Safer Care” programme. Systematic reviews of the literature were conducted which led to the WHO Report on the burden of endemic healthcare-associated infection worldwide (3), as well as a publication on the magnitude of the problem in both developed and developing countries (4). Additionally, surveys have been conducted on understanding the burden of multidrug-resistant organisms among inpatients and surgical antibiotic prophylaxis prescribing in healthcare (5). These add to the wealth of literature available on the global burden of antimicrobial resistance (AMR).

An article concerning United States healthcare facilities participating in the WHO global campaign “SAVE LIVES: Clean Your Hands” highlighted that almost 42% still lack a team formally dedicated to hand hygiene activities (6). A WHO report in 2012 also confirmed that progress with improvement is variable around the globe (7).

Common ongoing challenges

Hand hygiene is a simple and cost-effective intervention, but in the years since the chapter on behavioural considerations in the *WHO Guidelines on Hand Hygiene in Healthcare* (8) was published, it has become increasingly clear that it is a behaviourally-driven science. Goal-setting, award incentives and accountability have recently been highlighted as specifically important in achieving a safety climate (9), while addressing different combinations of determinants is deemed definitively important (10). Improved behavioural strategies need to be further investigated to understand the corrective leverage necessary to stimulate change at local level. Patients have a voice too and the role of patient participation can be a powerful approach to achieve improvements in healthcare by building and strengthening a strong patient safety climate (11,12,13), but there are many cultural aspects to be taken into consideration. Finally, useful economic evidence for public health practitioners, service commissioners and government officials on the effectiveness of a hand hygiene improvement

Figure 1: CCISC change model



strategy will be increasingly important to convince them to allocate resources in a competing world of health system strengthening.

Going global to improve infection prevention and control (IPC) and prevent healthcare-associated infection (HAI)

The “Clean care is Safer Care” global programme was based around a change model with three objectives (see Fig. 1). It fostered partnerships and coordinated activities as set out in its programme plan (14). By May 2016, 140 of the 194 United Nations’ Member States had pledged their support to implement actions to reduce HAI, corresponding to 95% coverage of the world population (Fig. 2). The finalized *WHO Guidelines on Hand Hygiene in Healthcare* was launched (8) in 2009 alongside a tried and tested multimodal improvement toolkit (1). The improvement strategy, and therefore the toolkit, comprises five critical components: (i) system change; (ii) healthcare workers’ training and education; (iii) evaluation and feedback; (iv) reminders in the workplace; and (v) promotion of an institutional safety climate. Additionally, WHO has over this time coordinated more than 50 national campaigns and, importantly, launched the global annual healthcare worker call to action; the “SAVE LIVES: Clean Your Hands” campaign (15), to maintain a profile on hand hygiene action at the point-of-care. By November 2015, almost 19,000 healthcare facilities had registered their commitment to action.

Ten years of “Clean Care is Safer Care”

As well as country pledges, facility registrations and national campaigns, described here are other achievements of the “Clean Care is Safer Care” programme:

- ➔ “Clean Care is Safer Care” work has put a focus on patient engagement as a way of tackling hand hygiene improvement and WHO has issued patient engagement guidance and tools in conjunction with experts (8,16).

Box 1: 140 Countries committed to addressing HAI (as of January 2015)

African region: Algeria, Benin, Burkina Faso, Burundi, Cameroon, CAR, Chad, Cape Verde, Comoros, Congo, DRC, Eritrea, Ethiopia, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Cote d’Ivoire, Kenya, Liberia, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zimbabwe (38)

Americas region: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, Guatemala, Honduras, México, Nicaragua, Panama, Paraguay, Peru, United States of America, Uruguay and 14 Caribbean States (34)

Eastern Mediterranean region: Afghanistan, Bahrain, Egypt, Islamic Republic of Iran, Jordan, Kingdom of Saudi Arabia, Kuwait, Lebanon, Sultanate of Oman, Tunisia, Pakistan, Sudan, Qatar, United Arab Emirates, Yemen (15)

European region: Austria, Belarus, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Georgia, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kyrgyzstan, Luxembourg, Malta, Republic of Moldova, the Netherlands, Norway, Poland, Portugal, Russian Federation, Serbia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, United Kingdom of Great Britain and Northern Ireland (33)

South East Asian region: Bhutan, Bangladesh, India, Indonesia, Myanmar Thailand (6)

West Pacific region: Australia, China, Cambodia, Japan, Laos, South Korea, Malaysia, Mongolia, New Zealand, the Philippines, Singapore, Viet Nam, HK, Tonga (14)

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- ➔ Many articles have been published by a large group of authors, including those initiated under the leadership of “Clean Care is Safer Care”, which can persuade health workers of the continued need for hand hygiene action. In 2010, trends in publication dynamics were presented, comparing hand hygiene with other health-related topics in publication (17).
- ➔ Seven years of “SAVE LIVES: Clean Your Hands” have seen a range of foci in order to maintain engagement, including new posters, surveys and relationship-building. WHO has also emphasized that hand hygiene is not a standalone action. In 2014, posters and educational messages were created to emphasize the role of hand hygiene in antimicrobial resistance (18).
- ➔ In 2015, a massive surge of interest in and commitment to hand hygiene was again seen through the campaign in the form of #safeHANDS, when thousands of people sent a strong message across the world.
- ➔ Between 5 May and 5 September 2015, hospitals and healthcare institutions worldwide were invited to participate in “Hand Sanitizing Relays” by the WHO Collaborating Centre on Patient Safety at the University of Geneva Hospitals. The relays consisted of chains of

Figure 2: 140 countries committed to address HAI



healthcare workers rubbing their hands according to the WHO "How to Handrub" technique (19) and passing the alcohol-based handrub on from hand to hand. This activity engaged more than 30,000 staff worldwide and ensured a large mobilization from participating healthcare settings (20). This initiative was modelled on the action proposed by the Hong Kong Baptist Hospital who established a new Guinness World Record on 5 May 2014 with 266 staff

involved in a Hand Sanitizing Relay. When assessed before and after the relay, overall compliance with hand hygiene was shown to improve institution-wide, as outlined by Seto et al (21).

- WHO's alcohol-based handrub formulation was added to the WHO Essential Medicine List in 2015 which aimed to have an impact in low- and middle-income countries in particular (22).
- An initiative called "Private Organizations for Patient Safety" (POPS) was launched to support capacity-building and global reach in healthcare hand hygiene improvement. With the aim of engaging with private industry companies with a focus on corporate social responsibility, POPS has already delivered on a number of projects (23).

Figure 3: Five moments in hand hygiene

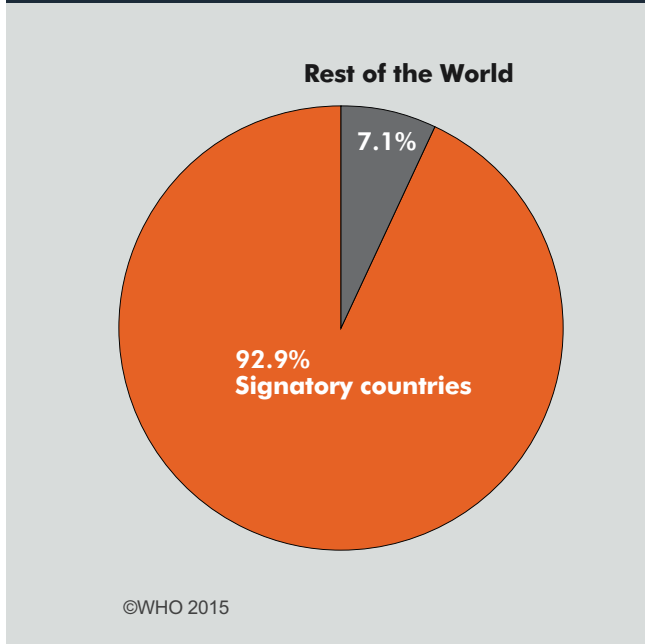


WHO's "My 5 Moments for Hand Hygiene": The foundation of action at the point of patient care to ensure successful IPC

The "My 5 Moments for Hand Hygiene" approach (24), developed at the University of Geneva Hospitals, Switzerland, defines the key moments when healthcare workers should perform hand hygiene and is intended to meet the needs for training, observation, and performance reporting across all healthcare settings worldwide (Fig. 3). This is an evidence-based, field-tested, user-centred approach and it recommends healthcare workers to clean their hands before touching a patient; before clean/aseptic procedures; after body fluid exposure/risk; after touching a patient; and after touching patient surroundings.

An additional concept critical to the understanding of hand hygiene requirements is the term "point-of-care". The "point-

Figure 4: Clean Care is Safer Care: world population with potential coverage (%)



of-care” is exactly where the care action takes place and is defined as “the place where three elements come together: the patient, the healthcare worker, and care or treatment involving contact with the patient”. Although the basic principles of IPC and hand hygiene are the same in all healthcare settings worldwide, outpatient care also presents specific challenges related to the application of the WHO “My 5 Moments for Hand Hygiene” approach. Several questions have emerged about the transmission and infection risks and the application of hand hygiene concepts in these settings, which led to an additional WHO publication focused on the application of the “My 5 Moments for Hand Hygiene” in outpatient care, home-based care and long-term care facilities (25).

Considering that the point-of-care is where organisms, resistant to antibiotics or not, are most likely to enter the systems of vulnerable patients, enhanced understanding and application of the “My 5 Moments for Hand Hygiene” is still critical as part of IPC programmes.

Conclusions

Although much has been achieved through the ten years of “Clean Care is Safer Care”, going forward WHO remains committed to IPC, including maintaining a profile on hand hygiene improvement given the past ten years’ experience of understanding behaviour change and implementation science. This is critical given the antimicrobial resistance burden, ongoing HAI incidence and recent outbreak situations. With a mission of “driving IPC to the top of the agenda in all countries by providing innovative, effective technical guidelines and strong coordination, with the goal of reducing infections and



Hand hygiene is one of the top ten patient safety strategies ready for adoption now (27). Together people around the world can continue to reduce avoidable harm by averting the spread of diseases caused by viruses and bacteria, including those resistant to antibiotics, to patients and health workers.



antimicrobial resistance in healthcare and revolutionizing the way IPC is applied,” the new WHO Global Unit on IPC will focus on a range of technical areas of work. Until healthcare leaders truly accept that hand hygiene and other elements of IPC are fundamental to quality care and should be used as key quality indicators, avoidable harm will continue. Other emerging disciplines are gaining traction in the field of infection prevention, for example, human factors. Such work could play a role in behaviour change if leaders and the infection prevention community engage with those, for example, in the social sciences (26).

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She has worked with the Patient Safety/Service Delivery and Safety Department since 2008 on a range of infection prevention and control (IPC) projects. She worked at national level in public health prior to this and has led on development and implementation of many policies and healthcare improvement strategies. She currently leads the social marketing behaviour change campaign for WHO - SAVE LIVES: Clean Your Hands (in the past Claire led Scotland’s Germs:washyouhandsofthem campaign She is actively involved in publishing and promoting IPC, through traditional methods and has been a contributor to a number of World Health Organization Guidelines) and social media. She also has a track record of success as director of communications for a United Kingdom and Ireland IPC charity. She is an expert adviser on a number of national and international groups, a member of HIFA.org’s social media group, peer reviewer for a number of

journals, honorary research fellow at Imperial College London and is currently studying aspects of hand hygiene for a PhD at Radboud University Medical Centre, The Netherlands.

Professor Didier Pittet, MD, MS, CBE, is the Director of Infection Control & WHO Collaborating Centre on Patient Safety, Geneva, Switzerland, and Lead Adviser of the WHO Patient Safety Clean Care is Safe Care and the African Partnerships for Patient Safety programmes. Professor Pittet, known for his worldwide work on hand hygiene for patient safety, alongside other leading colleagues initiated the by-yearly International Conference on Prevention

and Infection Control (ICPIC) as well as a new journal Antimicrobial Resistance and Infection Control (ARIC). WAAAR is an active participator in ICPIC.

He holds Honorary Professorships in London, Hong Kong and Shanghai and is the recipient of several international honours, including a CBE awarded by Her Majesty Queen Elizabeth II (2007). He is co-author of more than 500 peer-reviewed papers and 50 textbook chapters and an Editorial Consultant for the Lancet. The book "Clean Hands Save Lives" and the movie "Clean Hands" describe Didier Pittet's medical odyssey to promote patient safety worldwide.

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