

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



LSHTM Research Online

Allegranzi, Benedetta; Donaldson, Liam J; Kilpatrick, Claire; Syed, Shams; Twyman, Anthony; Kelley, Edward; Pittet, Didier; (2019) Infection prevention: laying an essential foundation for quality universal health coverage. *The Lancet Global Health*. ISSN 2214-109X DOI: [https://doi.org/10.1016/s2214-109x\(19\)30174-3](https://doi.org/10.1016/s2214-109x(19)30174-3)

Downloaded from: <http://researchonline.lshtm.ac.uk/4652877/>

DOI: [https://doi.org/10.1016/s2214-109x\(19\)30174-3](https://doi.org/10.1016/s2214-109x(19)30174-3)

Usage Guidelines:

Please refer to usage guidelines at <http://researchonline.lshtm.ac.uk/policies.html> or alternatively contact researchonline@lshtm.ac.uk.

Available under license: <https://creativecommons.org/licenses/by/3.0/igo/>

<https://researchonline.lshtm.ac.uk>

Infection prevention: laying an essential foundation for quality universal health coverage



Countries from across the world gathered in Astana, Kazakhstan, in October 2018, to reaffirm and expand their commitment to prioritise, promote, and protect the health and wellbeing of their populations. This was the opportunity for a new generation of health policy makers and leaders to honour the ideals of the 1978 Alma-Ata Declaration¹ and to reinterpret these in the current era. Over the past 40 years, many countries have designed health systems that improve access to quality essential services, social stability, and health security, as well as having economic benefits.² The health-related aspects of the UN Sustainable Development Goals have a strong focus on universal health coverage (UHC), with quality of health services increasingly emphasised as essential for success.³

When Florence Nightingale, considered the mother of infection prevention and control (IPC), echoed the Hippocratic ideal to “first, do no harm” in the 1860s, she recognised that the first steps to providing organised beneficial health care were inherently risky in nature. Although Florence Nightingale was a late adopter of the germ theory of disease, she was among the first to recognise that a caregiver could be at the origin of patient harm, particularly infection. She was an early pioneer of the practical application of quality improvement at the bedside. Health-care-associated infection remains an ever-present companion, irrespective of where and when it is delivered.

Health-care-associated infections are a consequence of poor-quality care and a deadly cause of harm affecting hundreds of millions of patients worldwide every year.⁴ They generate twice the total burden of disability-adjusted life-years than all other 32 communicable diseases reported in Europe.⁵ Antibiotic-resistant microorganisms are responsible for most infections and 75% of disability-adjusted life-years attributable to antimicrobial resistance (AMR) in Europe are due to health-care-associated infections.⁶ This places a clear duty on policymakers, health leaders, facility managers, and practitioners who design, build, and operate health systems to ensure that they prevent the spread of infections. Without this essential foundation for quality health services, UHC risks being an empty promise.⁷

IPC is an evidence-based approach to halt the spread of infection and AMR.⁸ It embodies all three core domains of quality care (ie, care that is safe, effective, and people-centred), and strongly supports the attainment of other key global health priorities that will eventually contribute to high-quality UHC (figure). Strong IPC capacity and programmes ensure adequate preparedness and response to protect people from outbreaks. Their reinforcement is an essential pillar for recovery and health system strengthening after the shock of an epidemic. IPC is also complementary to

Published Online
 May 3, 2019
[http://dx.doi.org/10.1016/S2214-109X\(19\)30174-3](http://dx.doi.org/10.1016/S2214-109X(19)30174-3)



Figure: Linkages between infection prevention and control and other health priorities to achieve quality universal health coverage

For the **global hand hygiene campaign** see <https://www.who.int/infection-prevention/campaigns/clean-hands/5may2019/en/>

and enhances water, sanitation, and hygiene (WASH) interventions. WASH monitors infrastructure indicators, whereas IPC provides evidence of an effect on health workers' behaviour and patient outcomes through improved infrastructures.

Synergies and interconnections are particularly effective when IPC supports strategies aimed at reducing AMR. Notably, the increasing availability of IPC equipment and infrastructure (eg, alcohol-based handrubs) at the point of care and isolation beds are associated with a proportionate reduction of the most common AMR patterns that are associated with health care.⁸ Combining IPC interventions with antimicrobial stewardship programmes is the most effective approach.^{8,9} Among these, hand hygiene is the most crucial, whether implemented as a stand-alone intervention or integrated into multifaceted interventions.^{9,10} IPC interventions often provide a starting point for developing a culture of quality improvement in health facilities.

Despite this compelling evidence, only 58% of countries report having a national IPC programme or plan and related guidelines. Even more alarmingly, only 15% have a system to assess their compliance and effectiveness.¹¹ These gaps are more striking in low-income countries where surveillance indicators for infections associated with health care are present in only 5% of countries and the monitoring of IPC in only 30% (WHO, unpublished data).

In a global call to action in 2017, leaders of the Global IPC Network identified global and country-specific IPC priorities to be achieved by 2022.¹² These priorities require serious reflection and forceful actions. World Health Assembly resolutions can provide a strong basis for policy and regulation development and enforcement. Powerful resolutions on AMR and sepsis prevention already exist and new ones on patient safety and WASH are in the pipeline for full endorsement by the World Health Assembly in 2019. IPC is a key element. None of these resolutions can be implemented without strengthening the size and competencies of health work forces, which are also essential to achieve UHC, because inadequate staffing substantially increases the risk of infection and spread of AMR.⁷

As an immediate tangible action, WHO calls upon everyone this year to be inspired by the global movement to achieve quality UHC and has crafted its global

hand hygiene campaign message to achieve this wider goal: "clean care for all—it's in your hands!" The call to action has also been expanded and adapted to facilitate ownership and adoption by specific audiences, including highlighting clean care as a human right for all patients. Additionally, WHO strongly encourages ministries of health and health-care facilities to bridge the gap in the scarcity of IPC data by participating in a global survey on the level of progress of IPC and hand hygiene programmes. Clean and safe care should be universally available to every person worldwide. It can be achieved through improved IPC practices and monitoring everywhere, driving the foundation for quality care in the UHC era.

**Benedetta Allegranzi, Liam J Donaldson, Claire Kilpatrick, Shams Syed, Anthony Twyman, Edward Kelley, Didier Pittet*
 Department of Service Delivery and Safety, WHO, 1211 Geneva, Switzerland (BA, CK, SS, AT, EK); Department of Non-communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK (LJD); and Infection Control Programme and WHO Collaborating Centre on Patient Safety, Faculty of Medicine, Geneva University of Geneva Hospitals, Geneva, Switzerland (DP)
allegranzi@who.int

This work is supported by WHO, Geneva, Switzerland, and the Infection Control Programme and WHO Collaborating Centre on Patient Safety (SPCI/WCC), University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland. Hand hygiene research activities at the SPCI/WCC are supported by the Swiss National Science Foundation (grant 32003B_163262). DP works with WHO on the Private Organizations for Patient Safety—Hand Hygiene initiative. The aim of this WHO initiative is to harness industry strengths to align and improve implementation of WHO recommendations for hand hygiene in health care in different parts of the world, including in the least developed countries. In this instance, companies/industry with a focus on hand hygiene and infection control-related advancement have the specific aim of improving access to affordable hand hygiene products, as well as through education and research. All other authors declare no competing interests. The opinions expressed in this Article are those of the authors and do not reflect the official position of WHO. WHO takes no responsibility for the information provided or the views expressed in this Article. We thank Rosemary Sudan for the professional editing assistance and Maraltro for the figure design. We also thank Safiah Mai for providing background documentation about universal health coverage.

This is an Open Access article published under the CC BY 3.0 IGO license which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. In any use of this article, there should be no suggestion that WHO endorses any specific organisation, products or services. The use of the WHO logo is not permitted. This notice should be preserved along with the article's original URL.

- 1 WHO. Global Conference on Primary Health Care, 25–26 October 2018. 2018. <https://www.who.int/primary-health/conference-phc> (accessed March 20, 2019).
- 2 WHO. Together on the road to universal health coverage. A call to action. 2017. <https://apps.who.int/iris/bitstream/handle/10665/258962/WHO-HIS-HGF-17.1-eng.pdf;jsessionid=F247E4CB8C9AEA227138F1844D636EF1?sequence=1> (accessed March 18, 2019).
- 3 WHO. Delivering quality health services: a global imperative for universal health coverage. 2018. <https://www.who.int/service-delivery/safety/quality-report/en/> (accessed March 18, 2019).

For the **WHO IPC global survey** see <https://www.who.int/infection-prevention/campaigns/ipc-global-survey-2019/en/>

For the **World Health Assembly** see <https://www.who.int/mediacentre/events/governance/wha/en/>

- 4 WHO. Report on the burden of endemic health-care associated infection worldwide: a systematic review of the literature. 2011. https://apps.who.int/iris/bitstream/handle/10665/80135/9789241501507_eng.pdf;jsessionid=B24D98407633F9FEE01C9329D89EDA7B?sequence=1 (accessed March 18, 2019).
- 5 Cassini A, Plachouras D, Eckmanns T, et al. Burden of six healthcare-associated infections on European population health. Estimating incidence-based disability-adjusted life years through a population prevalence-based modelling study. *PLoS Med* 2016; **13**: e1002150.
- 6 European Centre for Disease Control and Prevention and OECD. Antimicrobial resistance. Tackling the burden in the European Union. Briefing note for EU/EAA countries. 2019. <https://www.oecd.org/health/health-systems/AMR-Tackling-the-Burden-in-the-EU-OECD-ECDC-Briefing-Note-2019.pdf> (accessed March 18, 2019).
- 7 Ghebreyesus T. How could health care be anything other than high quality? *Lancet Glob Health* 2018; **6**: e1140–41.
- 8 Storr J, Twyman A, Zingg W, et al. Core components for effective infection prevention and control programmes: new WHO evidence-based recommendations. *Antimicrob Resist Infect Control* 2017; **6**: 6.
- 9 Baur D, Gladstone BP, Burkert F, et al. Effect of antibiotic stewardship on the incidence of infection and colonisation with antibiotic-resistant bacteria and *Clostridium difficile* infection: a systematic review and meta-analysis. *Lancet Infect Dis* 2017; **17**: 990–1001.
- 10 Luangasanatip N, Hongsuwan M, Limmathurotsakul D, et al. Comparative efficacy of interventions to promote hand hygiene in hospitals: systematic review and network meta-analysis. *BMJ Glob Health* 2015; **351**: h3278.
- 11 WHO, Food and Agriculture Organization of the United Nations (FAO), and World Organisation for Animal Health (OIE). <https://apps.who.int/iris/bitstream/handle/10665/273128/9789241514422-eng.pdf?ua=1> (accessed March 19, 2019).
- 12 Allegranzi B, Kilpatrick C, Storr J, Kelley E, Park BJ, Donaldson L: Global Infection Prevention and Control Network. Global infection prevention and control priorities 2018–22: a call for action. *Lancet Glob Health* 2017; **5**: e1178–80.