Water, Sanitation and Hygiene in Health Care Facilities Overview of the evidence

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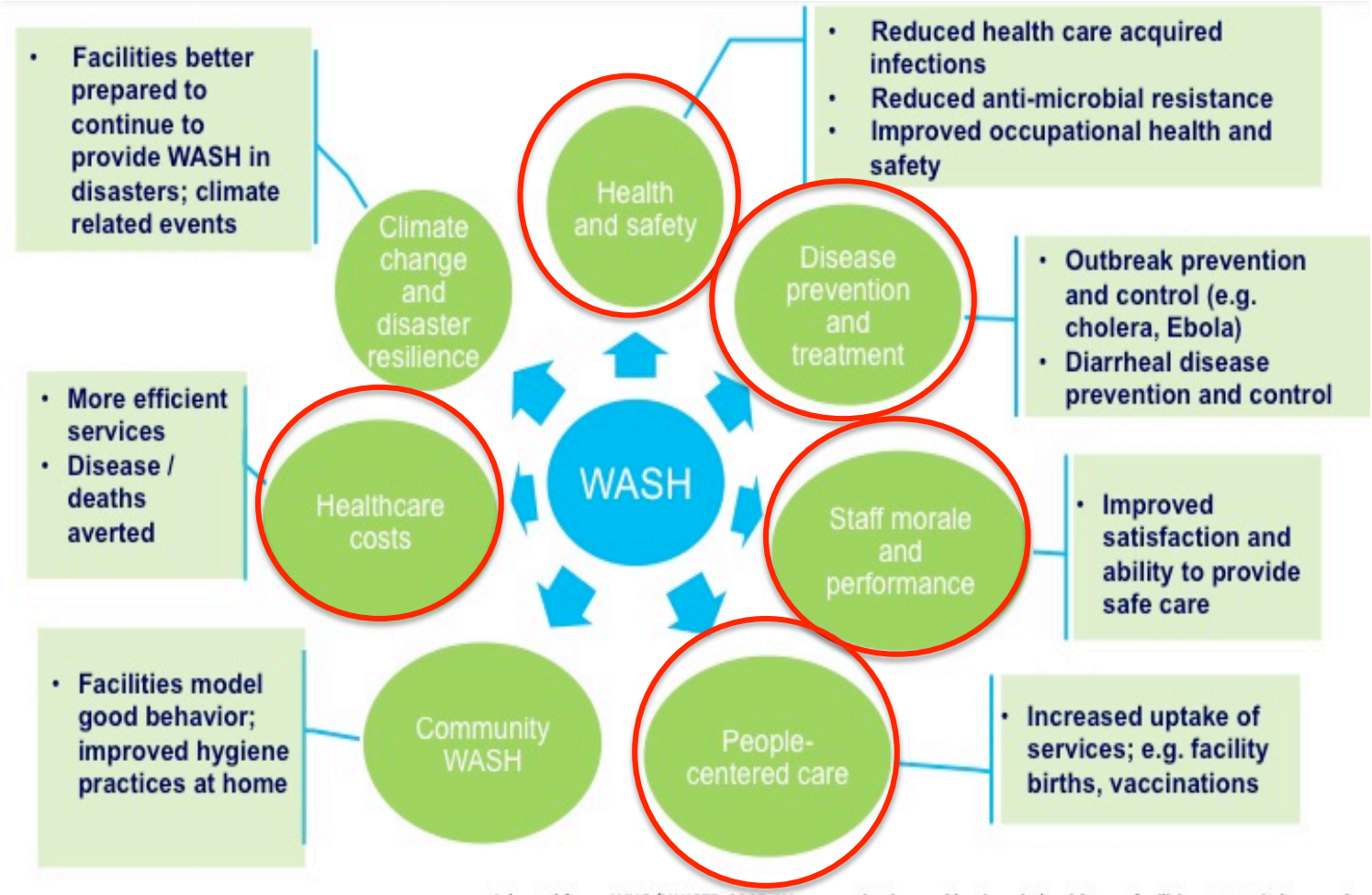
Overview

- What's the problem?
- Health-care Associated Infections
- Antimicrobial Resistance
- Care seeking behaviour
- Staff morale & performance
- Healthcare costs

WASH in HCFs underpins safe and quality service provision for achieving universal health coverage



Adapted from: WHO/UNICEF, 2015. Water, sanitation and hygiene in health care facilities: status in low- and middle-income countries and way forward.

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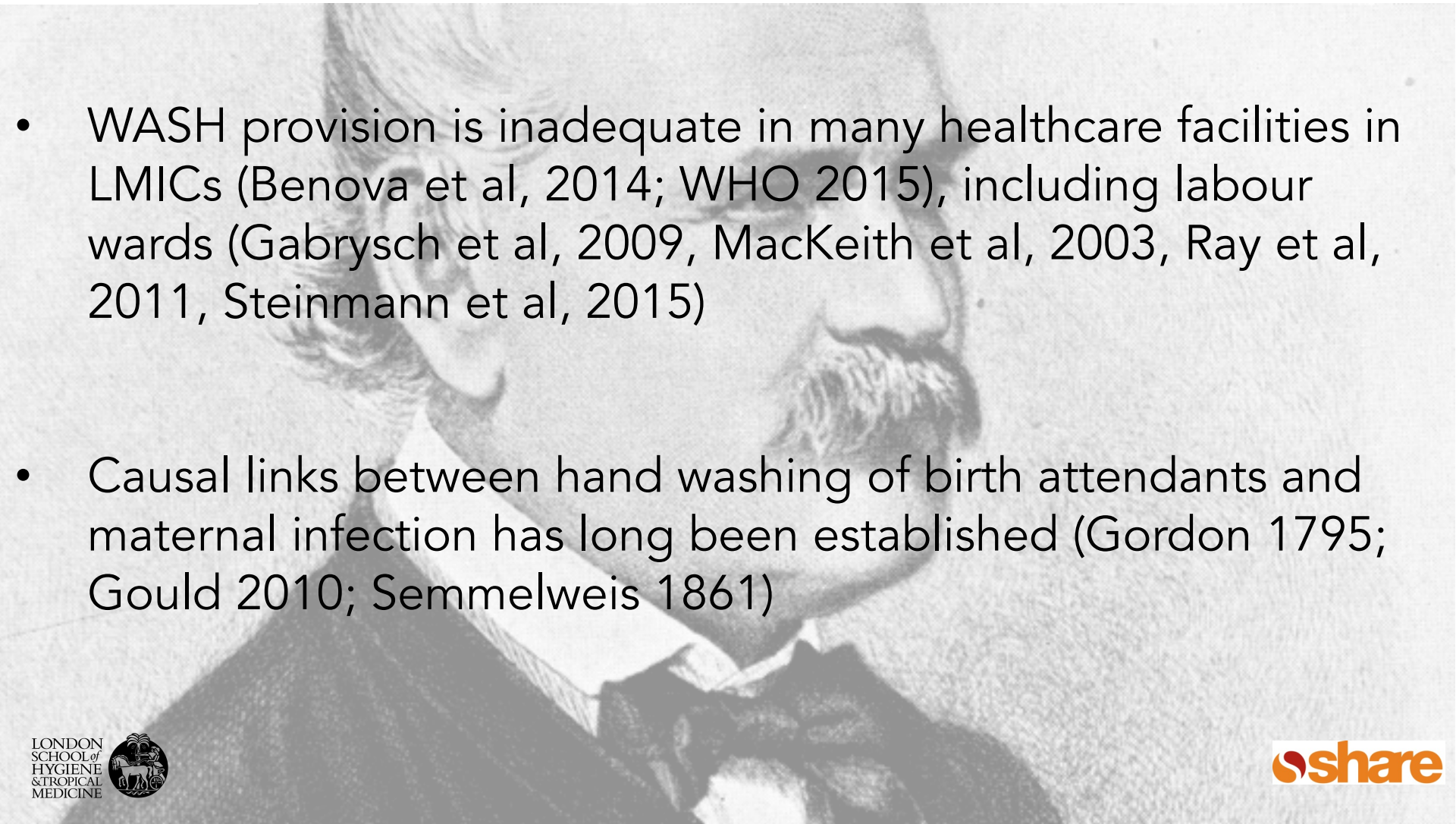
What's the problem?



- WASH provision is inadequate in many healthcare facilities in LMICs (Benova et al, 2014; WHO 2015), including labour wards (Gabrysch et al, 2009, MacKeith et al, 2003, Ray et al, 2011, Steinmann et al, 2015)

- Causal links between hand washing of birth attendants and maternal infection has long been established (Gordon 1795; Gould 2010; Semmelweis 1861)

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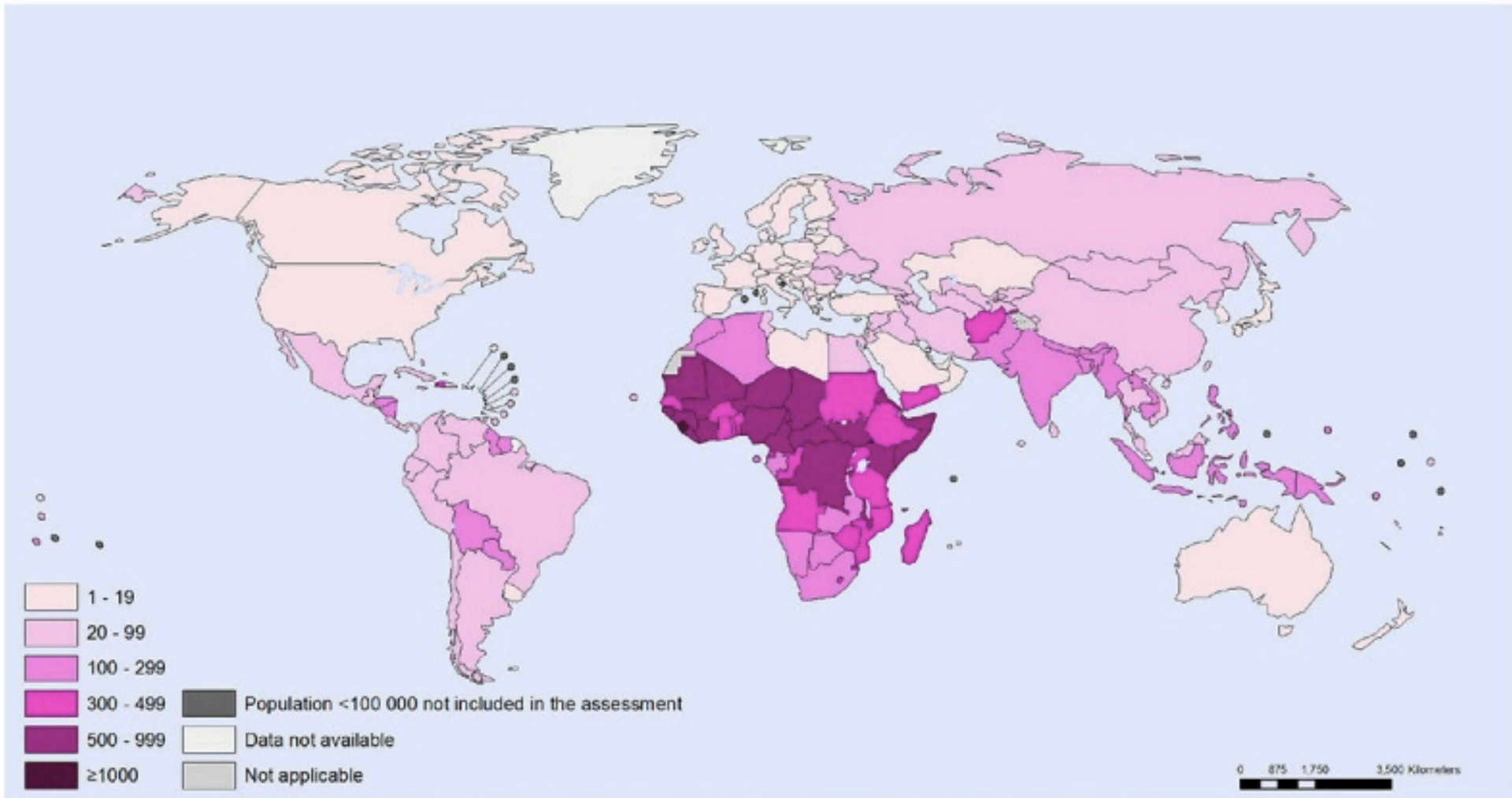
What's the problem?

- Newborn mortality has decreased slowly (WHO, 2014).
- The average maternal mortality ratio in HICs 16 per 100,000 live births compared with 230 in LMICs (WHO, 2014)
- A recent systematic review found that "clean birth practices" in both homes and facilities were associated with reduced all-cause, sepsis and tetanus neonatal deaths (Blencowe et al, 2011).
- In 2014 a systematic review found evidence of association between sanitation and maternal mortality and between water and maternal mortality (Benova et al, 2014)

Maternal mortality ratio (per 100 000 live births), 2015



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization

World Health Organization

Source - WHO Trends in Maternal Mortality 1990 to 2015

What's the problem?

Globally we are seeing an increase in facility–based births

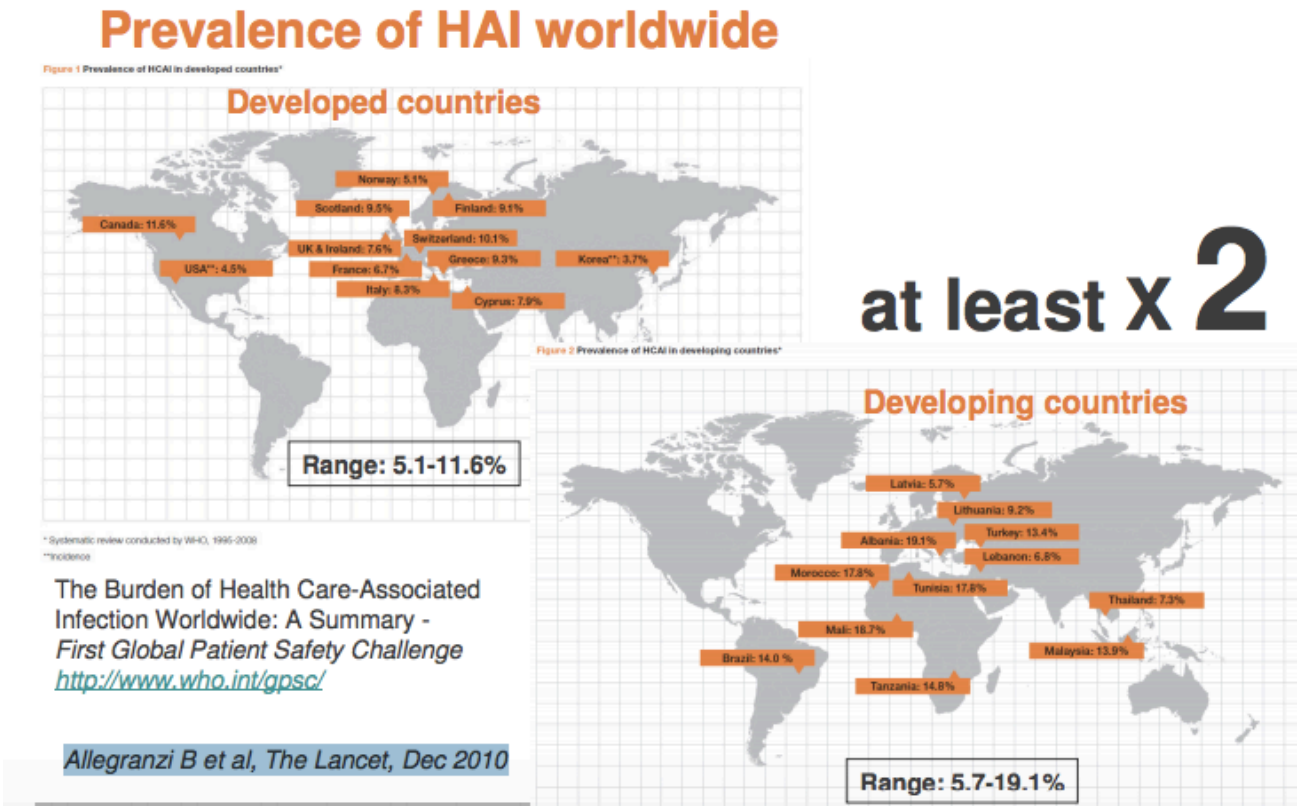
Emerging anti-microbial resistance

Weak HMIS and disease surveillance systems

Health-care Associated Infections

Global burden remains uncertain, because of challenges in collecting data, especially LMIC (Cummings & D'Mello-Guyett 2016)

However it is clear that the burden is larger and more acute in LMIC (Cummings & D'Mello-Guyett 2016)



Plausible that poor WASH is a contributing factor

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Health-care Associated Infections

HAI pathogens coming from facilities with sub standard WASH facilities (Allegranzi et al, 2011; Zaidi et al 2005; WHO 2011)

Most HAIs organisms potentially linked to environmental contamination

	Common Aetiological Agents/Isolates found in LMIC	Location found and biological plausibility to stand…	Examples of infections/disease
>1.0% culture confirmed infections	*Staphylococcus aureus (inc. MRSA); Coagulase-negative st…ylococci; Klebsiella spp (inc. E…); Escherichia coli; Pseudomonas spp…c. MDR); Acinetobacter spp Enterobacter spp Enterococci; Candida spp*	Contaminated water, unimproved sanitation, hand hygiene practices, colonised patient skin, naturally occurring in the gastrointestinal tract, direct from soil, biofilms on surfaces and equipment	…eumonia; Me…gitis; Blood stre… infections …SI); Os…myelitis; Endo…ditis; Toxic sho…yndrome; B…eremia; Seps…epticaemia; …rhoea; …rocolitis; …crotizing …terocolitis; …stroenteritis; Omphalitis; Phlebitis.
<1.0% culture confirmed infections	*Others include: S…neumoniae, Listeria spp, …Citrobacter, Salmonella spp., …eus spp, Serratia spp, N. …ingitidis, Haemophilus spp, Flav…terium meningosepticum etc.*		

Source: Cummings & D'Mello-Guyett 2016

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Health-care Associated Infections

Microbiological assessments carried out on labour wards in India found (Saxena, 2015) :

- Visibly clean surfaces were not microbiologically sterile
- Pathogenic bacteria on beds, mops and buckets
- 31% swabs samples were found to be positive for pathogenic bacteria
- 61% of samples resistant to at least one antibiotic
- All women given antibiotics regardless of indication

Antimicrobial Resistance

- Exacerbated by neglect for prevention (Holmes et al, 2015; O'Neill, 2016)
- Resistant infections lead to worse clinical outcome and higher mortality rates (WHO, 2015)
- Shift away from prevention towards treatment increasing the over-use of antibiotics (Holmes et al, 2015; O'Neill, 2016)

Source: O'Neill, 2016

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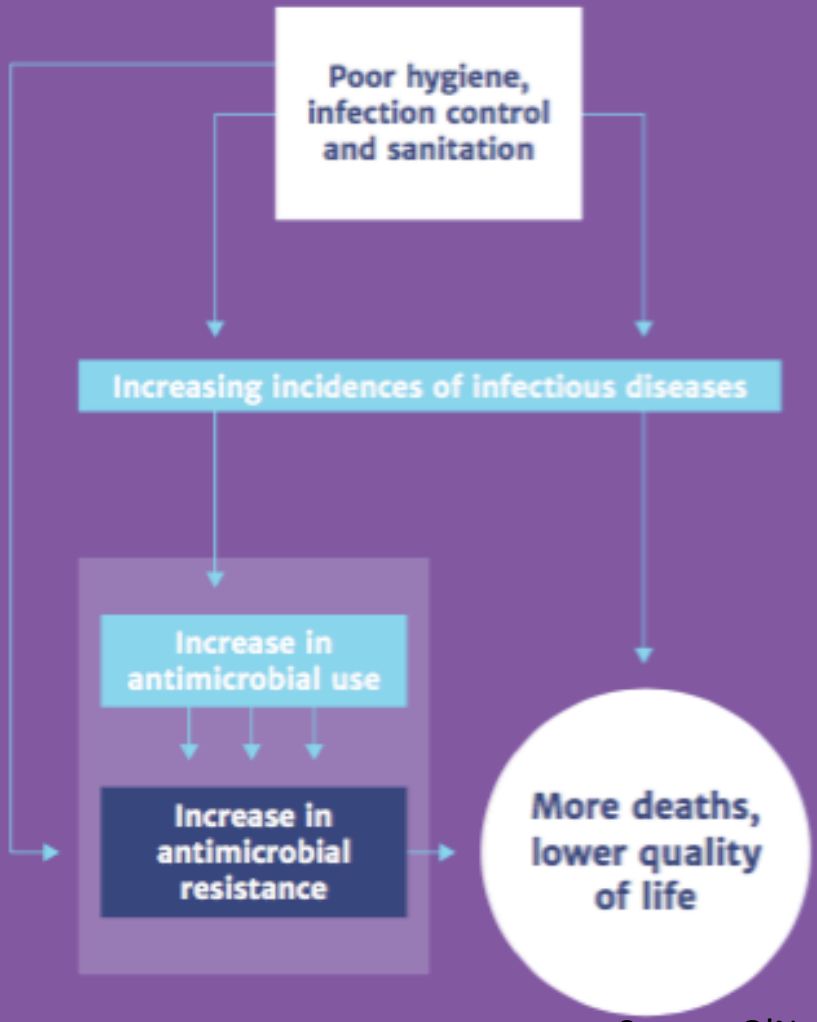
POOR INFECTION CONTROL CONTRIBUTES TO INCREASED RESISTANCE AND LOSS OF LIFE



Source: O'Neill, 2016

Care seeking behaviour

Literature on care seeking behaviors is rich in both HICs and LMICs. The issue is complex and has serious consequences on health (Boudiz, 2016)

Delays in seeking care found to be responsible for:

- 30% deaths in newborn babies in Uganda (Waiswa et al., 2010),
- 45% childhood deaths from diarrhoea and acute respiratory infections in Mexico (Bojalil et al, 2007)
- Increased odds of intrauterine foetal death in Afghanistan (Hirose et al, 2012)

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Care seeking behaviour

- Quality of services is considered to be an important barrier to using hospital care (Afsana et al, 2001)
- WASH is not the main barrier to seeking care but patients frequently report being dissatisfied (Tessema et al, 2015, Ezegwui et al, 2014, Woldeyohanes et al, 2015, Khamis et al, 2014)
- Factors other than WASH drive the selection of health care facility use and patients continue to use facilities believed to be inadequate (Boudiz, 2016)
- Very few studies conducted WASH improvement interventions and recorded impact on patient satisfaction and service use

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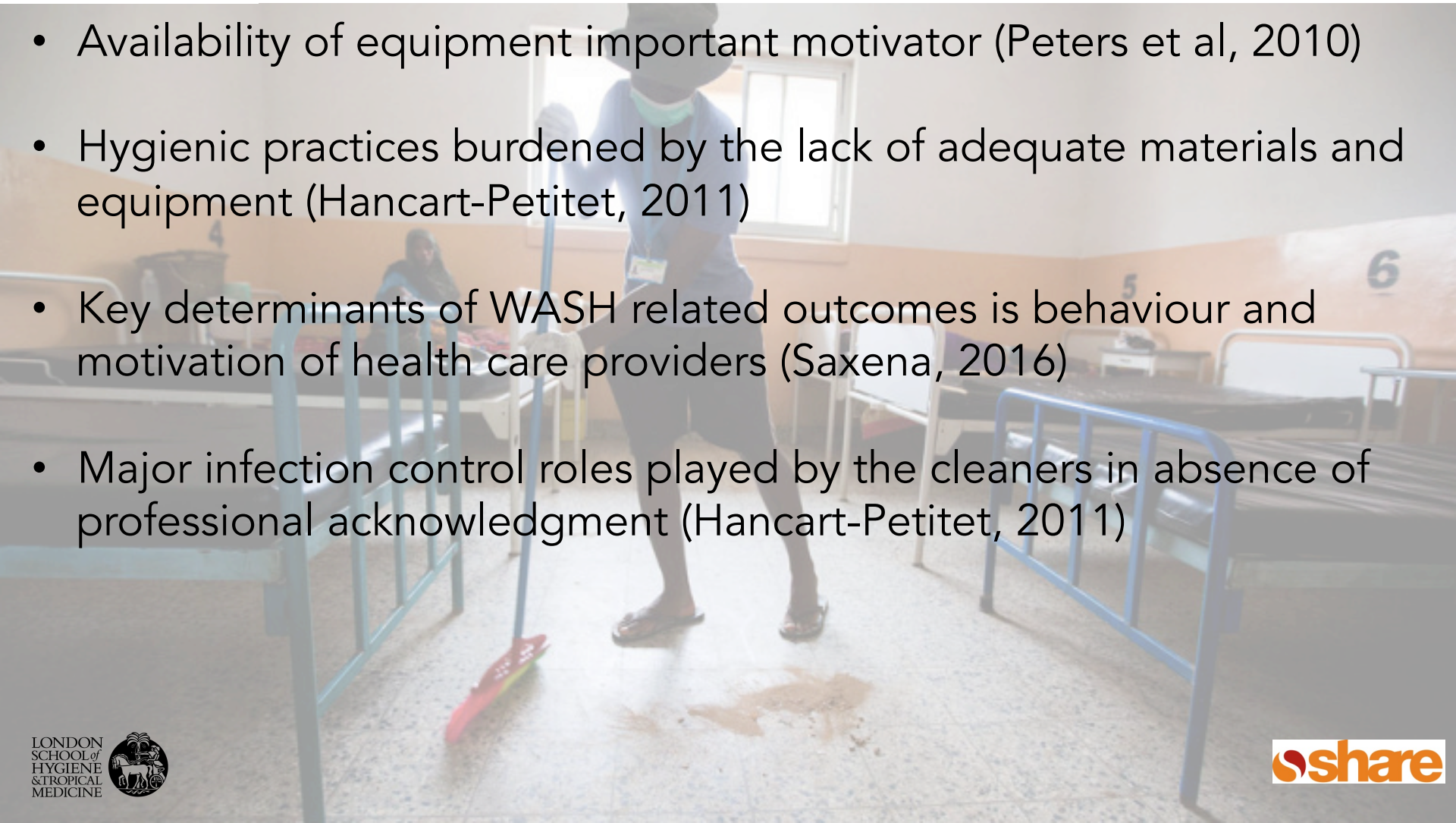
Staff morale & performance

- Availability of equipment important motivator (Peters et al, 2010)
- Hygienic practices burdened by the lack of adequate materials and equipment (Hancart-Petitet, 2011)
- Key determinants of WASH related outcomes is behaviour and motivation of health care providers (Saxena, 2016)
- Major infection control roles played by the cleaners in absence of professional acknowledgment (Hancart-Petitet, 2011)



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Healthcare costs

US: HAIs cost about US$ 4,5 billion per year. Attributable mortality: 3.6%, approximately 99,000 deaths (Klevens et al, 2007)

EU: HAIs result in 16 million extra days of hospital stay. 37 000 attributable deaths. Annual economic impact: about EUR 7 billion per year (ECDC, 2008)

Cost in LMIC unknown.

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Conclusions

WASH in HCFs underpins safe and quality service provision for achieving universal health coverage

- It is plausible that a significant proportion of HAI disease burden is associated with poor WASH in LMIC.
- The financial burden of poor WASH in HCFs is likely to be high, but there is insufficient data to produce estimates

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Conclusions

Further research is needed to:

- Identify effective interventions to improve WASH in health care facilities in different health system contexts.
- Gain a better understanding of interventions that motivate hygiene behaviours carried out by healthcare providers, including cleaners
- Gain a better understanding of the costs associated with improving WASH in HCFs

A series of systematic reviews and a burden of disease analysis are underway

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Thank you

Read more about the WASH & HCFs:
www.shareresearch.org/project/wash-maternity-units

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