WASH & CLEAN:

A situation analysis of hygiene on maternity wards in India and Bangladesh

The SHARE Research Consortium and the Water Supply and Sanitation Collaborative Council (WSSCC) formed a research partnership in 2013 to investigate the specific impact of inadequate access to water, sanitation and hygiene (WASH) facilities on women and girls in India and Bangladesh.

Women and girls are particularly disadvantaged as a result of multiple sociocultural and economic factors that deny them equal rights with men. Millions of women today are denied access or lack the facilities and means to manage the simple biological necessities of defecation and menstruation, and are often forced to adopt a range of coping strategies.

This partnership supports four studies which focus on:

- Specific WASH needs of women and the deleterious impact of coping strategies in Vadu, Maharashtra
- Hygiene in maternity wards in Gujarat and Dhaka
- Social and psychological impact of limited access to sanitation, the link between menstrual hygiene practices and reproductive tract infections, and between WASH practices and pregnancy outcomes in Bhubhaneshwar and Rourkela, Odisha
- Links between the psycho-social stress women face of where to relieve themselves and wider structural inequalities in Pune, Maharashtra and Jaipur, Rajasthan.

All four studies converge on the lack of safe and acceptable choices for women and girls. Links between unsafe sanitation and women and girls' poor health in terms of stress and infections are raised and major evidence gaps are highlighted. The higher incidence of reproductive tract infections linked to poor menstrual hygiene management under socioeconomically deprived groups is striking. Also remarkable is the lack of WASH facilities accessible by pregnant women.

This partnership brings together the expertise of the SHARE Research Consortium in delivering rigorous research relating to key challenges in the sanitation sector with WSSCC's networks and experience in linking policy and practice in developing countries for the realization of the human right to water and sanitation.

While the primary aim of this collaboration is to raise important questions that have not been given sufficient attention, it also aims to catalyze changes in public policy in order to see the rights of Indian women and girls realized.

OUTLINE OF RESEARCH QUESTIONS

Increasing the proportion of deliveries in healthcare institutions has been at the core of national strategies to reduce maternal and newborn deaths in low-income countries for more than 25 years. Globally, more deliveries now take place in health facilities than at home, and with the projected continuing increase, there is an urgent need to ensure the quality of the environment and the care received by women at birth is improved and sustained. Adequate water, sanitation and hygiene (WASH) in health facilities are crucial elements of quality care, and also highly relevant to infection prevention and control (IPC) policies and procedures. Nevertheless, until fairly recently, WASH & IPC as strategic priorities for low-income healthcare settings have not been fully-aligned and there is much scope for greater integration. India has seen significant growth in the institutional delivery rate over the last five to six years, particularly through the introduction of the Janani Suraksha Yojana (JSY) conditional cash transfer programme (Lim et al, 2010). However, the prospects of this trend leading to healthgain for mothers and babies is seriously undermined where health facilities do not have the capacity to cope with the increased demand, in terms of trained healthcare workforce and the physical environment including water, sanitation and hygiene (WASH), and will inevitably lead to an increase in infection-related morbidity and mortality (Hussein et al, 2011). standardized quality of life and mental health indicators.

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Research Objectives:

1. To develop and pilot a suite of tools for capturing objectively levels of cleanliness and the determinants (structures), processes and outcomes of cleaning on the labour ward. This will include the determinants in terms of WASH infrastructure, management, supervision and cleaning resources, and individual drivers such as social norms (the structures), the cleaning practices in terms of who cleans what and how (the processes), and the effectiveness as measured satisfaction and acceptability of user and provider in terms of visual cleanliness, and by basic microbiology in terms of safety of the healthcare environment (the outcomes).
2. To apply the suite of tools to a small stratified sample of maternity units in Gujarat State, India, and in Dhaka Division, Bangladesh. The inclusion of Bangladesh is to allow for cross-cultural comparisons and to strengthen the generalizability of the tools (NB. The Soapbox Collaborative funded the Bangladesh arm of the study).
3. To synthesize, translate and communicate the findings, including identification of potential candidate improvement interventions for subsequent work.

APPROACH AND METHODOLOGY

The development of a conceptual framework for the WASH & CLEAN study was informed by a comprehensive review of the published and grey literature. The framework postulates the interactions between the state of hygiene (outcomes) and the proximate and distant determinants at the level of individual actors, institutions and the health system. Using this framework to adapt existing audit, observational and survey instruments, a suite of preliminary data capture tools, which included novel elements such as the use of photography and environmental swabbing, was developed to conduct a situation analysis.

Hospital toilet

The suite of tools was piloted in two maternity units in Gujarat and two in Dhaka. Following the pilot, refinements were made to the instruments and the main phase was undertaken from February to May 2014 in 15 maternity units; eight in Dhaka Division, and seven in Gujarat. The units were purposively-selected to include public and private facilities (for profit and not-for-profit), high and low case-loads (>50 & <50 deliveries a month), and obstetric functionality (CEmOC & BEmOC).

Following the securing of permissions, the "Walkthrough Checklist" and "Facility Needs Assessment Tool" were applied. During the Walkthrough Checklist swab samples and photographs were taken of high-risk hand touch sites. Staphlococcus aureus (S. aureus) was the selected pathogen of interest. Following the application of these instruments, interviews were conducted with key stakeholders: members of management, healthcare providers, cleaners and recently-delivered women. All participants were explained the purpose of the study and informed consent was obtained. With the exception of members of management, interviews were "photo-prompted" using a technique called photo elicitation. Quantitative and qualitative analysis of findings was conducted using SPSS 20 and ATLAS.ti.

Association between WASH practices and pregnancy outcomes: A prospective cohort of pregnant women (n=651) in their first trimester (12-15 weeks) in rural and tribal locations in Odisha were identified from the baseline survey and tracked over their pregnancy to document their WASH practices and pregnancy outcomes. A community health worker (CHW) visited the home to obtain consent for participation in the study and to administer a first-trimester questionnaire. The questionnaires recorded women's SES, personal handwashing and bathing practices, defecation practices, and the context of the defecation site (distance, water availability, hygiene conditions, safety, privacy, accessibility). The CHW then conducted follow-up visits and questionnaires each trimester with the participant until her pregnancy had concluded. The primary birth outcomes of interested were classified as preterm birth (<37 weeks of gestational age) and birth of a low birth weight infant (<2.5 kg), although other secondary outcomes (miscarriage and maternal mortality) were also recorded. Logistic regression models were used to test for association between sanitation-related practices and conditions and each primary birth outcome.

KEY FINDINGS

Policymakers:

To minimize risks to patients, national health authorities should be at the centre of the effort to improve WASH and IPC through strengthening the system, environment, processes and practices in the field of IPC. Findings from the qualitative interviews and Facility Needs Assessment Tool found inadequacies in training in IPC for healthcare providers and an absence of training for cleaners. Cleaners were identified as a neglected cadre in the health workforce reflected in the absence of any training, as well as poor remuneration, benefits and contractual security. Lack of written policies and protocols and standard operating procedures further contributed to suboptimal standards of IPC. Here is a major opportunity to bring about change and improvement in the effectiveness of cleaners.

Monitoring and supervision systems need to be strengthened, such as the establishment and sustainability of effective IPC committees, routine supportive supervision of cleaning staff, and strengthening the use of simple audit cycles. The experience of the WASH & CLEAN study points to the value of mixed methods and sources of data to monitor the state of hygiene on maternity units, such as observational and microbiological techniques, and practical mechanisms to triangulate findings and handle data by the facilities themselves.

Practitioners:

Much of the global focus on preventing healthcare-associated infections has concentrated on hand hygiene. Whilst this is a necessary intervention, there is growing recognition that it is not sufficient alone and that more attention is needed on the physical healthcare environment in order to break the transmission chain of infection. This is particularly important for clinical areas both with patients at higher risk, including maternity wards, and with high risk hand touch sites, such as delivery beds.

There was a wide difference in the presence of S. aureus between facility types and between swab sites within the same facility, which is suggestive of inconsistent implementation of IPC standards. Whether a potential pathogen becomes an active pathogen by virtue of causing disease (infection) depends on many factors, including the vulnerability of the host, but it is well-accepted that patients on maternity wards - both mothers and babies - face particular risks owing to both natural and complicated physiological processes of birth, such as cutting of the umbilical cord, perineal tears, or caesarean section wounds. There was no clear relationship found between the visually assessed state of cleanliness and the presence of potential pathogens, suggesting that the reliance on visual inspection is necessary but not sufficient and consistent implementation of IPC standards is critical regardless of the appearance of 'visual' cleanliness.

Labour room barrier clothing

Poster advocating handwashing

FURTHER EVIDENCE GAPS

As demonstrated in the WASH & CLEAN study, visual assessment alone of cleanliness on maternity units is an inadequate basis on which to conclude safety in terms of potential pathogens. However, in many low-income healthcare settings, laboratory capacity overall is often weak, including for testing for blood pathogens, and this provides part of the explanation for the limited application of environmental screening and the heavy reliance on visible cleanliness alone.

Whilst broadening strengthening of facility laboratory capacity is widely acknowledged (Olmsted et al, 2010), options for simplifying environmental microbiological techniques for swabbing hard surfaces and culturing and reading plates, along with training of technicians, requires research and could have significant benefits for routine monitoring and supervision of cleaning and hygiene on maternity units at many levels of the health system, and not just major hospitals.

While the WASH & CLEAN study has provided rich insights on the drivers of cleaning behaviour, there is a further need for research around motivation - what is it, for example, that makes individuals perform well and motivate their colleagues while other individuals become apathetic? Clearly some definitions and drivers of concepts and beliefs relating to cleanliness and hygiene are highly socially and culturally-specific (Curtis et al, 2009), and not amenable to influence solely by standard IPC policies and processes. Prior research into the determinants of handwashing behaviour, for example, found that emotional drivers (disgust, nurture, comfort and affiliation) had more influence than health beliefs (Curtis et al, 2009). The subject of health-related hygiene is now gaining more political and policy attention, although investment in improvements still remain low (Curtis et al, 2011). Useful lessons can be learnt from research conducted into hygiene behaviour in the community to help further inform enquiries in the different context of healthcare settings, such as exploring individual variability and how the practices of healthcare workers differ between home and their work environment.

Another research gap relates to finding practical mechanisms for healthcare providers to appreciate the consequences of poor hygiene practices for the patients for whom they care. The lack of routine data on the prevalence and risk factors for sepsis for mothers and newborns was notable in the participating facilities. Research is needed not only to strengthen health information systems, but also assess the impact of direct feedback to staff on HCAIs in terms of changing their hygiene behaviour.

ADDITIONAL RESOURCES

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Hussein, J., Mavalankar, D., Sharma, S. & D'Ambruoso, L. (2011) A review of health system infection control measures in developing countries: what can be learned to reduce maternal mortality. Globalization and Health 7:14

Lim, S., Dandona, L., Hoisington, J., James, S., Hogan, M. & Gakidou, E. (2010) India's Janani Suraksha Yojana, a conditional cash transfer programme to increase births in health facilities: an impact evaluation. Lancet 375(9730): 2009-2023

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