Strategy of Making Hand Washing a Routine Habit: Principles of 5Es and 3Rs

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ABSTRACT

Regular hand washing habit has potential to reduce morbidity and mortality due to diseases and improves child development and reduces absenteeism of children, teachers and workforce. Improving hand washing behavior is more cost effective than improving clean water and sanitation infrastructure. There are numbers of initiatives and interventions in place, which have gained momentum with key messages of a call to action with increasing investment in schools, engaging policy makers and demonstration them with evidence. However, change in behavior as a routine habit has not reached to an optimum level and requires institutionalizing hand washing practices in schools, from schools and by schools and develop it as a curriculum. Therefore, we are purposing principles of 5Es and 3Rs – a strategy to make hand washing a routine habit. These 5E principles are: i) Embedding in a system, ii) Enabling Environment, iii) Eliminating Friction, iv) Encouraging all, and v) Establishing intervention and 3Rs are practicing them Religiously, Routinely and Repeatedly. Numbers of interventions have well demonstrated that hand hygiene educational interventions can help maintaining good practices. Finally, if schools and community start doing today, we can observe behavioral change practices for hand washing as a routine habit by at least 10 years after.

Keywords: *hand washing; routine habit; principles of 5Es and 3Rs; educational interventions; school*

INTRODUCTION

Regular hand hygiene habit has a potential to reduce morbidity and mortality due to various diseases spread by either direct transmission like respiratory infections or feco-oral transmission like diarrheal diseases.[1] Diarrheal diseases attributed to 2 million deaths per year in developing countries and an additional 1.5 million deaths due to acute respiratory infections.[2-4] Various interventions have shown that proper hand washing to reduce rates of these infections by up to 33%. (2, 4) Improve hand hygiene not only prevents infectious diseases, but also improve child development and school attendance.[5,6] Hence, hygiene promotion is one of the efficient and effective interventions for prevention of communicable diseases and reducing absenteeism of teachers, students, and workforce. [7, 8, 9] Improving hand washing behavior is more cost effective than improving clean water and sanitation infrastructure.[2]

Lack of awareness of the potential benefits of hand washing behavior;[3, 4, 10] complacency on hand washing by individuals and family over time;[10, 11] unavailability of hand washing utensils [12] are the commonest causes of poor hand washing practices. Number of interventions have been initiated and conducted over the course of several decades; however, still hand washing practices as a routine behavior is limited and remained an elusive goal.[3,13] Researches have shown that awareness of hand washing benefits is linked with its repeated practice in schools and other forums like a mother's club or community clubs.[14,15] Some examples like environmental health club in Nigeria, Doctor Kecil in

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Indonesia and the safeguard school program in Pakistan have demonstrated children are the agents of change for behavioral change for hand washing.[16]

The study finds that only 6% of hand washing practice are more in families with access to water in households compared to the households without access to water.[17] In several countries like India,[17] Ghana,[18] China, Bangladesh,[20] and Kenya[21], only between 2% and 29% of participants washed their hands with soap after defecation or toilet use. Even in developed countries like the United Kingdom, hand washing has remained below optimum from a public health perspective, despite easy availability and accessibility of soap, water and high level of education in the population.[22,23] Hence, lack of soap is not a significant barrier to hand washing. An 11 country review of hand washing behavior shows that even 95% of poor households having soap rarely used for hand washing.[19] Laundry, bathing and washing dishes is seen as the priorities for soap use.[24] Some study has shown that mass media intervention alone was not effective in reaching a targeted audience with the hand washing message and therefore failed to improve the hand washing knowledge of mothers and caregivers and to generate a behavior change that could improve child health.[25] These information recommends that effective behavior change might need more than just communication of information.

Inadequate hand hygiene practices have been estimated to affect 80% of the population globally.[26] Three stars approach has sought for daily supervised hand washing sessions as a fundamental component of making hand washing as part of WASH in schools; however, it has not adequately addressed the importance of making it a routine habit. It has envisaged these practices in primary or early days of schools only.[27] One of the evaluation has found no effect of the WASH in Schools (WinS) training sessions on self-reported hand-washing frequencies or on behavioral determinants for hand washing.[28]

The time has come to look hand washing initiatives and practices from different angles. Recalling tooth brushing campaigns of the 60s to 80s by commercial companies, who had repeatedly campaigned and aired messages in public the importance of brushing teeth, which has now become a habit to everybody, who has access to brush and a toothpaste (there are people who don't have access to these commodities too).[29] Though the campaign was aimed to promote toothpaste sales rather than developing a habit. Those companies have looked things from a different angle and blessing in disguise, which has helped keep billions of teeth healthy today.

Despite a lot of efforts by many agencies and governments, still hand washing practices in many parts of the world are limited.[3,4,10-13,17-23,25-28] Posters, community advocacy, campaigns, media airing & mobilization, demonstration in public forums, schools, offices; all sorts of modalities have been developed, advocated and experimented.[10-13,16-23,25-28,30] However, change in behavior is not that significant as expected since its initiation since decades long ago.[3,4,10-13,17-23,25-28] There are some improvements, but this hasn't reached a level of behavioral change practices in public and communities. Had it been in place as a routine habit, we wouldn't have seen frequent diarrheal disease outbreaks, flu outbreaks and not even ongoing Ebola outbreaks.[2-4]

The conventional methodology to encourage hand washing – top-down, health-focused campaigns that promote the anticipation of diseases and deaths – have had minor achievement in changing people's behavior. [3, 4, 10-13, 17-23, 25-28] Now the time has come that "Business as Usual" will not lead to success and have to strategize differently. This is not a responsibility of one sector alone, be it health, environment, education or behavioral change campaigners; it should be "Everybody's Business" with a lead from education sector or from the highest level of the government.

The bottom line is we need to institutionalize hand washing practices routinely in schools and ask school children to do the same back home with their family members. This can be called Hand Washing in School, from School and by School and develop it as a curriculum. Some of the meta-analysis have demonstrated that hand hygiene educational interventions can help maintaining good practices.[9] This doesn't mean that there are no initiatives in place. There are plenty of initiatives in places and the most recent one is WASH in Schools, which is creating an enabling environment for not only hand washing but also for sanitation and hygiene.[24,27,16,30] Therefore, we are purposing principles of 5Es and 3Rs as a strategy to making hand washing a routine habit.

PRINCIPLES 5ES AND 3RS – "STRATEGY OF MAKING HAND WASHING A ROUTINE HABIT"

1. **Embedding in a System**: Hand Washing should be a part of school curriculum and education sector or the government has to take the lead on establishing it. This should be taught, learned and practiced as done for other subjects like Maths, Sciences, English, etc. For instance, this has to be practiced regularly as we taught ABC (alphabets) or $(a+b)^2 = a^2 + 2ab + b^2$ in school and repeatedly. Various studies and interventions have demonstrated improved hand washing rates through education program and other interventions.[9,31,32] Many of the hand washing initiative and intervention have

been mentioned in school programs; however, very few have recommended establishing this as a curriculum. [27,28]

2. **Enabling Environment:** Making a curriculum is not enough alone and creating an enabling environment is the key to success. The school has to have a provision of hand washing with required utensils and materials (water, soap etc.).[27,30] This also depends on demand and supply (availability). There should be an environment where children demand for provision and accessibility and somebody provides (at home, school or public places) and vice versa.[27,30] Sensitization on demanding can be introduced at school for children and the same applies to other places (however, this has linked to economic status for accessibility and affordability). To practice, Maths, students demand math books, geometric sets and even calculators and schools and families made them available. Researches have shown environmental changes enable improved hand washing behavior and [33,34,35] WASH in school initiative with life skills based hygiene education have already started on creating this.[30]

3. **Eliminating Friction:** There is a complexity of hand washing techniques, combining soap and water and their accessibility.[36] By routine and repeated trainings, these complexities can be eliminated; however, another major friction is not coming automatically or reflexly (emotionally saying – not coming from the heart). For many students they don't like homeworks but still many of them do it. Similar principles of why and how they are doing home works could be applied for hand washing through repeated supervision and monitoring. Norms of social behavior are an integral structural component and are adopted and reproduced by individuals.[37] Being part of a structure where hand washing is demonstrated and promoted is likely to positively influence hand washing practices.

4. **Encouraging All:** Incorporating it as a curriculum can help and encourage on informing the benefits of hand washing. We have evidence that the most common reason for poor hand washing behavior is a lack of knowledge about the potential benefits and the negative outcome if this behavior is not done.[3,4,10-12] Reward to students who regularly wash their hands, same as schools does when students perform well in their home works or tests. Reward children by family members (parents, siblings etc.), as that for their grades and other achievements. At the same time, family members need to practice themselves and if they are not doing then entire effort can go in vain. Hence, the school should influence students to practice, to share skills and knowledge of hand washing at home and community as part of routine or home works. School children asking parents or family members to do same every day will lead to adoption of such practices in family and community.

5. **Establishing Intervention:** This is where we have to hit repeatedly and key strategies are making it a curriculum; practices routinely from Class 1 to 10 and teaching and practicing same back home. These interventions need to carry out with the principles of the 3Rs: Religiously, Routinely, and Repeatedly in classes from 1 to 10 and at home. This requires tools (enabling environment) like schools teach sciences with available tools (books, teachers, home works, class works, science lab, experiments, mentoring & monitoring) then only students understand lever and pulley. Similarly, this has to be introduced in the community and family through children to practice hand washing with these principles of the 3Rs – Religiously, Routinely and Repeatedly. If a school student is taught to do hand washing practices every day of class 1 to class 10 – this habit will difficult to die in his/her lifetime. For instance, in Nepal in the past all kinds of school (private/government), used to the daily school ritual with singing the national anthem – "Shriman Gambhir Ra Nepali"; however, since 2006 after Nepal became republic, the national Anthem has changed to "Saya Thunga Ful Ka Hami". Despite this change, people still remember all lines of "Shriram Gambhir Ra Nepali" even though; they have not been using it since 2006. This is what it is called influence of the principles of the 3Rs.

   Another example of routine behavior is we all are taught by school teachers and parents to greet people. Today, whenever we meet anybody, we greet them with Namaskar or Good Morning/afternoon or Hola etc. This behavior is institutionalized and comes as a reflex when we see people. This is only possible due to repeated practices and reminders from teachers and parents. These days we routinely teach the same thing to our children and it goes for generations. Make hand washing practices similar routine habits with repeated practice, reminder and supervision. Hand washing behavior is not that easy as that of Namaskar and/or singing the national anthem; however, it is not impossible too, if we do it with the principles of the 3Rs during entire school period. Repeated behavioral practices over the period of years can lead to behavioral change.[36] It cannot take place just by advocating through IEC

materials or fragmented practices of demonstration and/or selecting few schools for campaigns. It has to be implemented at national levels through the government initiative and repeatedly for years and years as a curriculum.

There are various modalities of incorporating in a curriculum from beginning to end of school. With the help from curriculum experts, educators, social scientists and WASH experts, the curriculum can be developed, piloted and adopted. Some options or modalities can be considered by experts for further discussions and research:

1. Develop a curriculum on hygiene with everyday practices and demonstration incorporating other WASH related activities.

2. Incorporating hand washing as maths, science, English, history etc. like the School Network for Absenteeism Prevention (SNAP) has highlighted cross curricular, school wide education program at all grades/levels.[38]

3. Using assembly, sports sessions or other extra-curricular activities to practice and demonstrate hand washing.

4. Monitoring and supervising hand washing practices during key activities like before eating, after toilet and other opportunities.

Finally, if all schools in a community start doing today, we can observe behavioral changes by at least 10 years after. This doesn't mean that there are no initiatives in place.[10-13,16-23,25-28,30] There are plenty of initiatives in places and the most recent one is WASH in Schools, which has gained momentum with key messages of call to action with increasing investment in school, engaging who set policies, involving multiple sectors, demonstrate and monitor WASH and contribute evidence.[27,30] In addition to this, with the engagement of policy makers and multiple stakeholders and the investment in school and community, "Principles of 5Es and the 3Rs of Hand Washing" can be implemented to achieve a one and only single goal of making a hand washing a routine habit.

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