Water Isn’t just for drinking: how water, sanitation and hygiene conditions affect girls’ use of menstrual cups and sanitary pads for primary schoolgirls in rural, western Kenya

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OU Water Conference
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Introduction

- 18 month acceptability and feasibility study

- Study began in May 2012 and is ongoing until November 2013

- Collaborative study between:
  - Liverpool School of Tropical Medicine
  - Kenyan Medical Research Institute (KEMRI)/CDC
  - Safe Water and Aids Program (SWAP)
  - Ministry of Public Health and Sanitation
Background: Menstruation a Challenge for Girls in School

- Improving WASH facilities in schools reduces absenteeism (for boys and girls)

- Qualitative studies have reported:
  - Girls miss school during their period
  - Menstruation and puberty not discussed
  - Menstruation a top stressor for school girls
  - Currently used menstrual items - leak or cause chaffing
    - Few girls can afford pads, and instead use: cloths, rags, socks, newspaper, schoolbook papers, foam from mattresses, grass, leaves
  - Sex for pads (or money to purchase pads)

Blanton et al., 2010; Freeman et al., 2011; Mason et al., 2013; McMahon et al., 2011; Sommer 2009, 2010
Key Questions

- What are girls currently using and what are the issues?
  - Are current practices acceptable, effective, safe?

- What impact does menstrual management have on the life and wellbeing of schoolgirls?
  - Do girls have trouble engaging and staying in school?

- Are there specific issues for different menstrual solutions?

- What are the water, sanitation and hygiene resources at the school and in the home; and do these play a role in the girls use of different menstrual solutions?
The Menstrual Solutions: 
Three arms with ten schools each

1. **Usual practice**: (control)
2. **Sanitary pad**: Common brand of disposable sanitary pad; 16 per month per girl
3. **Mooncup**: Medical grade silicone bell to collect menstrual flow; 1 per girl
   - Reusable for 10 years
   - Recommend handwash before/after
   - Studies in Kenya, Nepal, Europe, Canada
     - No evidence of TSS, or other risks
     - 1-3 month adjustment period
     - High satisfaction once used
     - Change 4-8 hours, no leakage

Studies: Nairobi (African Population and Health Research Council); Nepal (Oster and Thorton, 2009); Europe (Stewart et al., 2010); Canada (Howard et al., 2011)
The Basic Package – all 30 schools

- Puberty education
- Nurse assigned to each school for continuous monitoring
- Soap given to each school
School WASH eligibility criteria

Baseline WASH information collected from 62 primary schools in rural western Kenya (Gem, Siaya County).

30 schools randomly selected from the 41 that met criteria:

- Girls in separate bank from boys
- Pupil-latrine ratio <70
- Handwashing water available on day of unannounced visit
Girl eligibility criteria

- Class 5-8
- Age 14-16
- Three periods
- Parental consent
- Lives in catchment area of Health Demographic Surveillance System (HDSS)
  - Over 200,000 residents enrolled
Data collection methods

- Baseline
  - WASH data collected in schools and homes
  - FGDs with girls, parents and teachers
  - Document current menstrual solutions
  - Evaluation of school registers (entire school population)
Data collection methods

- **Routine**
  - **School WASH**
    - twice per term; three terms per year
  - **Nurse screening** – current use and issues with menstrual solutions, reported RTI symptoms, difficulties, illness or absence
  - **Girls self-administered surveys** – their version of information given to nurses
  - **Menstrual calendars** to record menstrual issues, use of products, detailed reasons for school absences
  - **Unannounced head counts** of students
    - classes 5-8
- **Retrospective evaluation** of class registers
Results

GIRLS’ URINAL
Always wash your hands with soap after visiting the latrine...
School WASH baseline (n=62)

Sanitation

- 75% were pit-latrines; one third had lockable doors

- Mean pupil to latrine ratio 36:1 (GoK target 25:1)

- 86% of schools had girls latrines in separate block

- 13% of schools had materials for latrine cleaning
School WASH baseline (n=62)

Handwashing
• 1 school (2%) had soap
• 66% of schools had water for handwashing

Menstrual-specific facilities
• 13% of schools had water for girls menstrual hygiene
• 10% reported always providing sanitary pads to girls
  – 23% sometimes and 63% never
NGOs that provided water or handwashing interventions in schools in the past five years had a positive influence on WASH.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
<th>P</th>
<th>RR</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observed Schools</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handwashing water available for pupils</td>
<td>36 (84)</td>
<td>6 (32)</td>
<td>&lt;0.001*</td>
<td>2.7</td>
<td>1.4, 5.2</td>
</tr>
<tr>
<td>Handwashing facility at school</td>
<td>37 (86)</td>
<td>10 (53)</td>
<td>0.01*</td>
<td>1.6</td>
<td>1.1, 2.5</td>
</tr>
<tr>
<td><strong>Reported Schools</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handwashing water available today</td>
<td>34 (79)</td>
<td>10 (53)</td>
<td>0.07</td>
<td>1.5</td>
<td>1.0, 2.4</td>
</tr>
<tr>
<td>Water for handwashing is &quot;always&quot; available</td>
<td>32 (74)</td>
<td>8 (42)</td>
<td>0.03*</td>
<td>1.8</td>
<td>1.0, 3.1</td>
</tr>
<tr>
<td>Washing water provided for girls</td>
<td>27 (63)</td>
<td>3 (16)</td>
<td>0.001*</td>
<td>4.0</td>
<td>1.4, 11.6</td>
</tr>
<tr>
<td><strong>Observed</strong></td>
<td>101 (18)</td>
<td>31 (13)</td>
<td>0.05*</td>
<td>1.5</td>
<td>1.0, 2.1</td>
</tr>
</tbody>
</table>

*Significant at <0.05. P is p-value for Yates uncorrected $\chi^2$ test; RR is risk ratio; CI is confidence interval.
Home WASH – water (n=712)

Main water source

- **Borehole**: 27%
- **Surface water**: 9%
- **Unprotected spring**: 6%
- **Protected spring**: 9%
- **Rainwater**: 2%
- **Other**: 47%
# Home WASH – water (N=712)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water storage container: bucket, jerrican, claypot, large plastic storage container</td>
<td>630 (90)</td>
</tr>
<tr>
<td>Water storage container(s) had a lid</td>
<td>519 (74)</td>
</tr>
<tr>
<td>Handwashing station reported</td>
<td>93 (13)</td>
</tr>
<tr>
<td>Handwashing station observed</td>
<td>81 (11)</td>
</tr>
<tr>
<td>Soap observed at handwashing station</td>
<td>30 (4)</td>
</tr>
</tbody>
</table>
Reported soap availability

- **59%** Always Available
- **40%** Sometimes Available
- **1%** Never Available

Home WASH (N=712)
## Home WASH – sanitation (N=712)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>House has access to a latrine</td>
<td>586 (82)</td>
</tr>
<tr>
<td>Latrine in compound</td>
<td>363 (62)</td>
</tr>
<tr>
<td>Latrine outside compound</td>
<td>222 (38)</td>
</tr>
<tr>
<td>Pit latrine</td>
<td>571 (97)</td>
</tr>
<tr>
<td>Latrine had “door”</td>
<td>391 (67)</td>
</tr>
<tr>
<td>Girl has private place in home (reported)</td>
<td>587 (82)</td>
</tr>
</tbody>
</table>
School WASH (second) follow-up (n=30)

- 53% soap for handwashing
- 80% water for handwashing
- 5 (17%) had water in or near girl’s latrines
  - 21 schools report that they always provide water for girls to use
- 9 (30%) had a private place for girls to change
Results: Girls’ enrollment

Rolling enrollment due to logistical challenges

– As of June 2013 over 750 girls were enrolled in the study

– Over 400 girls will be followed for at least one full year
Results: Girls’ survey: use

• Mooncups
  – Girls are reporting to nurses (and in netbooks) that they are using Mooncups and have high satisfaction
  – Viability checks of Mooncups confirm use
  – Very few reports of sharing
Results: Girls’ survey: use

- **Mooncups**
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- **Sanitary pads**
  - Girls are satisfied with pads
  - Girls are giving pads away to friends / family members
Results: Girls’ survey: leakage

Out of over 700 enrolled girls and 2387 observations during the follow-up period:

- 209 reports of blood leakage on clothes while at school

Reports were recorded by:

- 6% of girls receiving Mooncup
- 8.3% of girls receiving pads
- 12.2% of girls usual practice
Results: Girls’ survey: leakage

• 56% of girls with leakage reported that water was provided at the school for them to wash
Results: Girls’ survey: leakage

• 56% of girls with leakage reported that water was provided at the school for them to wash

• If they had leakage what did they do?
  – 26% stayed at school all day
  – 52% went home to change, returned to school
  – 22% went home and did not return that day
Results: Girls’ survey: Disposal

- The majority of girls are throwing pads inside latrine pits
  - Many also report throwing on latrine floor or in field by school

- Girls in the usual practice schools also report throwing (non-reusable/washable items) inside the latrine
  - Some report carrying items home for disposal, or throwing in field
Results: Girls’ survey: Disposal

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Concerns:

a. **Sustainability**: latrine pits filling quickly

b. **Safety**: particularly for younger pupils

c. **Environmental**: pads don’t easily burn or biodegrade
Next steps

• How can we improve outcomes for adolescent girls?
  – Proposal for a full-scale trial
  – Consider interventions besides menstrual management that would improve outcomes for adolescent girls

• Present concerns about disposable pads to GoK
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Thank You
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.