**Supplementary Tables and Information**

**Table S1. Patient acceptability at three-month side-by-side preference comparison**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Recent use of traditional latrine(n=46)n (%) | Recent use of SaTo Pan Latrine(n=28)n (%) | P value | Test |
| On a scale of 1 (very poor) to 5 (very good), what do you think about the toilets at this HCF? | 3.0 [3.0-4.0] | 4.0 [3.0-4.0] | **0.02** | Wilcoxon |
| Was there visible feces around the toilet or floor when you used it? (Yes) | 2 (4.3) | 2 (7.1) | 0.37 | Fisher exact |
| Was there a bad smell in the toilet when you used it? (Yes) | 23 (50) | 5 (18) | **0.02** | Chi-square |
| Were there flies in the toilet when you used it? (Yes) | 12 (26) | 0 (0.0) | **<0.01** | Fisher exact |
| What was the main reason for your choice of latrine? |  |  |  |  |
| Convenience | 34 (76) | 15 (54) | **<0.01** | Fisher exact |
| Preference | 7 (16) | 13 (46) |  |  |
| Unknown | 4 (8.9) | 0 (0) |  |  |

**Table S2: In-charge and cleaner preferences at endline in healthcare facilities in intervention arm**

|  |  |
| --- | --- |
|  | Intervention HCFs(n=18)n (%) |
| **In-charge Report** |  |
| Number surveyed | *n=18* |
| Would you like to keep all of the SaTo pans installed? | 14 (78) |
| **Cleaner Report** |  |
| Number surveyed | *n=20* |
| Difficulty cleaning SaTo floor versus previous/other latrines |  |
|  More difficult | 0 (0) |
|  Same difficulty | 2 (10) |
|  Less difficult | 18 (90) |
| Difficulty cleaning SaTo drophole versus previous/other latrines |  |
|  More difficult | 2 (10) |
|  Same difficulty | 1 (5) |
|  Less difficult | 17 (85) |
| Have you experienced any challenges with the SaTo pan? (Yes) | 6 (30) |
|  Too little space | 2 (1) |
|  Bucket stolen | 1 (0.5) |
|  Bucket broken | 1 (0.5 |
|  Bucket used for other purpose | 2 (1) |

**Figure S1: Instructional poster demonstrating flushing of SaTo pan, annotated to show functional components**



**Figure S2: Photograph of SaTo pan installed within cement platform of pit latrine in healthcare facility**



**Questionnaire S1: Patient Questionnaire**

|  |  |
| --- | --- |
| **Question** | **Response** |
| 2. Name of Sub-county: | 1 Nyando2 Nyakach |
| 4. [READ CONSENT] Are you willing to participate? | 1 Yes0 No |
| 5. How old are you? |   |
| 6. [DO NOT READ OUT LOUD] Respondent sex | 1 Male2 Female |
| 7. Are you here with anyone else? | 1 Yes0 No |
| 8. Number of Children (under 5 years) |   |
| 9. Number of other adults (anyone over 5 years old) |   |
| 10. Have you EVER used the toilets at this health facility? | 1 Yes0 No99 Don't know |
| 11. In the PAST WEEK, have you used the toilets at this health facility? | 1 Yes0 No99 Don't know |
| 12. On a scale of one to five, where 5 is very good and 1 is very poor, what do you think about the toilets at this health center/dispensary/hospital? | 5 Very good4 Good3 OK2 Poor1 Very poor99 Don't know |
| 13. Was there visible feces around the toilet or floor when you used it? | 1 Yes0 No99 Don't know |
| 14. Was there a bad smell in the toilet when you used it? | 1 Yes0 No99 Don't know |
| 15. Were there flies in the toilet when you used it? | 1 Yes0 No99 Don't know |
| 16. Was there a cover over the hole in the toilet? | 1 Yes0 No99 Don't know |
| 17. Were you able to close the door when you used the toilet? | 1 Yes0 No99 Don't know |
| 18. Were you able to lock the door when you used the toilet? | 1 Yes0 No99 Don't know |
| 19. Did you feel secure when you used the toilet? | 1 Yes0 No99 Don't know |
| 20. Do you consider the toilet at this health center (dispensary, hospital) acceptable to use? | 1 Yes0 No99 Don't know |
| 21. Why? (select all that apply) | 1 Clean2 No smell3 Not broken4 No flies5 Private6 Menstrual hygiene facilities7 Handwashing station8 Drophole cover99 Don't know |
| 22. Why not? (select all that apply) | 1 Toilet too full2 Visible feces on floor, drophole, or walls3 Bad smell4 Broken slab/floor5 Flies6 No privacy7 Lack of menstrual hygiene facilities8 Lack of a handwashing station9 No drophole cover10 Door locked (can’t open)11 Too crowded/not enough toilets99 Don't know |
| 23. Do you prefer to use the toilet at this health facility or the one at your home? | 1 This facility2 Own home |
| 24. (If at this facility) What are all the reasons? (select all that apply) | 1 No facility at home2 Cleaner3 Less smell4 Easier to access5 More comfortable6 My children can use it7 More private8 Less flies9 Disposal for menstrual hygiene material present10 Handwashing station present11 Drophole cover present |
| 25. (If at own home) What are all the reasons? (select all that apply) | 1 No facility at home2 Cleaner3 Less smell4 Easier to access5 More comfortable6 My children can use it7 More private8 Less flies9 Disposal for menstrual hygiene material present10 Handwashing station present11 Drophole cover present |
| 26. Please choose the 3 most important things that prevent you from visiting a toilet [READ choices out loud or show tablet] | 1 Toilet too full2 Visible feces on floor, drophole, or walls3 Bad smell4 Broken slab/floor5 Flies6 No privacy7 Lack of menstrual hygiene facilities8 Lack of a handwashing station9 No drophole cover10 Door locked (can’t open)11 Too crowded/not enough toilets99 Don't know |
| Enumerator Comments |   |

**Questionnaire S2: Latrine Observation**

|  |  |
| --- | --- |
| **Question** | **Response** |
| Name of Sub-County: | 1 Nyando2 Nyakach |
| 1. How many toilets/latrines (holes) TOTAL are in the block? |  |
| 2. Is this latrine functional TODAY (Note: Functional means the latrine is able to be used by patients or staff)? | 1 Yes0 No |
| 3. Why is the latrine not functioning? |  |
| 4. Take a picture of the latrine, including the drophole and doorway in the picture |  |
| 5. What type of latrine is this? | 0 Flush/pour-flush (not-Satopan)1 Pit latrine, WITH Satopan2 Pit latrine, no satopan3 Don’t know and latrine locked |
| 6. What type of Satopan is it? | 0 Flex1 Pan2 Don't know and latrine locked |
| 7. Are there any visible problems with the Satopan? | 0 No problems1 Pan or flex is broken or cracked2 Drophole doesn’t close shut3 Satopan is not level (gap between pan and concrete) |
| 8. Is this latrine for patients, staff, or both? | 1 Staff only2 Patients only3 Not separated/Both staff and patients4 Don't know and latrine locked |
| 9. Is this latrine for women, men, or not separated? | 1 Women only2 Men only3 Not separated4 Don't know and latrine locked |
| [DO NOT READ OUT LOUD] |
| 10. Is there a slab (concrete with iron bars) present? | 1 Yes0 No99 I don't know |
| 11. Is the pit lined? | 1 Yes0 No99 I don't know |
| 12. Does this latrine hole have a pipe or vent that reaches through the roof? | 1 Yes0 No99 I don't know |
| 13. Is there intact feces (more than just traces) on the floors or drophole? | 1 Yes0 No99 I don't know |
| 14. Is there a strong or unbearable odor inside or outside the latrine compartment? | 1 Yes0 No99 I don't know |
| 15. Is there a puddle of urine or stagnant water inside the compartment? | 1 Yes0 No99 I don't know |
| 16. Is there rubbish, trash, used cleansing materials, or other items on the FLOOR of the latrine? | 1 Yes0 No99 I don't know |
| 17. Is the toilet private? (there are closable doors that lock from the inside and no large gaps in the structure) | 1 Yes0 No99 I don't know |
| 18. Is there a poster with instructions for how to use the Satopan in the latrine or on the door? | 1 Yes0 No99 I don't know |
| 19. How many flies are there? | 0 No flies1 A few flies2 Swarms of flies |
| 20. Is there a bin (to throw away menstrual hygiene products or trash) inside the cubicle? | 1 Yes0 No |
| 21. Does the bin have a lid on it? | 1 Yes0 No |
| 22. Open the bin (if necessary) and observe if the bin is: | 0 Empty, no signs of use1 Empty, signs of use2 Filled, but not overflowing, with waste in it3 Is overflowing with waste |
| 23. Is there a sign or other directions in the compartment indicating to throw menstrual waste in trash? | 1 Yes0 No |
| 24. Is there water in the cabin for FLUSHING? | 1 Yes0 No99 I don't know |
| Take a picture of the bucket for flushing, including any scoop |  |
| 26. Is there water for HANDWASHING inside the cubicle? | 1 Yes0 No99 I don't know |
| 27. Is there soap inside the cubicle? | 1 Yes0 No99 I don't know |
| 28. Is this toilet accessible from the patient area without stairs or steps? | 1 Yes0 No99 I don't know |
| 29. Are there handrails for support on the wall or floor? | 1 Yes0 No99 I don't know |
| 30. Is the entry at least 80 cm wide? | 1 Yes0 No99 I don't know |
| 31. Is the seat raised? | 1 Yes0 No99 I don't know |
| 32. Is the door handle within reach for someone using a wheelchair or crutches / sticks? | 1 Yes0 No99 I don't know |
| 33. Is there a functional handwashing station with soap and water within 5 meters of the toilets in this block? | 0 No handwashing station1 Handwashing station, no water2 Handwashing station with water, no soap3 Yes, handwashing station with soap and water |
| 34. Is there alcohol-based hand sanitizer available within 5 meters of the toilets in this block? | 1 Yes0 No |
| 35. Is there water for flushing within 5 meters of the SaTo Pan latrines? | 1 Yes0 No |
| Take a picture of the bucket for flushing, including any scoop |  |

**Questionnaire S3: Cleaner Survey**

|  |  |
| --- | --- |
| **Question** | **Response** |
| D2. Name of Sub-county: | 1 Nyando2 Nyakach |
| D4. [READ CONSENT] Are you willing to participate? | 1 Yes0 No |
| D5. What is your role at this health facility? | 1 Cleaner |
| D6. Are you responsible for cleaning all or parts of the healthcare facility? | 1 Yes0 No |
| D7. (Respondent sex) | 1 Male2 Female |
| D8. What is the HIGHEST level of education or training you have COMPLETED? | 5 Vocational school4 Finished university3 Finished secondary school2 Finished primary school1 Finished prepatory school0 No formal schooling |
| D9. How long have you been working at this health center? (in YEARS) |   |
| D10. How long have you been working at this health center? (in MONTHS) |   |
| D11. Do you ever have to pick up human feces outside of the toilets (e.g., from pans in wards)? | 1 Yes0 No |
| D12. Do you ever have to pick up children’s feces outside of the toilets (e.g., from pans in wards)? | 1 Yes0 No |
| D13. What is the most common way you dispose of child feces? | 1 Pan2 Ground3 Latrine4 Shower5 Diaper (cloth)6 No particular method7 Trash/solid waste (non-infectious)8 Infectious waste |
| D14. Where is the diaper then disposed of? (select all that apply) | 2 Ground3 Latrine4 Shower6 No particular method7 Trash/solid waste (non-infectious)8 Infectious waste |
| D15. Where is the pan then emptied? (select all that apply) | 2 Ground3 Latrine4 Shower6 No particular method7 Trash/solid waste (non-infectious)8 Infectious waste |
| D16. Do you dispose of menstrual hygiene products in the latrine or toilet along with normal fecal waste? | 1 Yes0 No2 Not applicable |
| D17. Yes or no: Is it easy for you to complete all of the cleaning tasks that are expected of you for your job? | 1 Yes0 No |
| D18. What supplies do you normally use to clean the facility?  | 0 Bucket1 Bleach/Jik2 Soap3 Water4 Mop/rag5 Broom |
| D19. Do you feel you have access to adequate cleaning supplies to perform the tasks required for your job? | 1 Yes0 No |
| D20. How often are the toilets at the facility cleaned? | 1 Once a day2 More than once a day3 More than once a week4 Once a week (=4 times a month)5 Once a month6 Once a year0 Never99 Don't know |
| D21. How often do YOU clean the toilet? | 1 Once a day2 More than once a day3 More than once a week4 Once a week (=4 times a month)5 Once a month6 Once a year0 Never99 Don't know |
| D22. What do you normally use to clean the toilets? (select all that apply) | 0 Bucket1 Bleach/Jik2 Soap (liquid or powder)3 Water4 Mop/rag5 Broom |
| D23. Do you feel that you have access to adequate cleaning supplies to clean the toilets? | 1 Yes0 No |
| D24. What are you missing? (select all that apply) | 0 Bucket1 Bleach/Jik2 Soap (liquid or powder)3 Water4 Mop/rag5 Broom |
| D25. What do you normally wear while cleaning the toilets? (select all that apply) | 1 Gloves2 Boots3 Apron, gown or other body-covering PPE4 Goggles0 None of the above |
| D26. Do you feel that what you wear adequately protects you while you clean the toilets? | 1 Yes0 No99 Don't know |
| D27. What are you missing? (select all that apply) | 1 Gloves2 Boots3 Apron, gown or other body-covering PPE4 Goggles0 None of the above |
| D28. Have you ever received training on how to clean the toilets? | 1 Yes0 No99 Don't know |
| D29. Do you feel the training you have received on how to clean the toilet was adequate | 1 Yes0 No99 Don't know |
| D30. Which of the parts of the toilet/latrine do you usually clean? (select all that apply) | 0 Floor1 Drophole2 Door3 Walls4 Menstrual hygiene material bin5 Commode |
| D31. Are there times when you cannot or do not clean the toilets? | 1 Yes0 No99 Don't know |
| D32. What are all the reasons you cannot or do not clean them? (Select all that apply) | 1 Not enough time to clean them2 Not enough cleaning supplies3 Not enough personal protective equipment4 Too difficult to clean them5 Forget to clean them6 Avoid cleaning them because of disease |
| D33. Are there times when you clean the toilets, but do not clean the toilet floor? | 1 Yes0 No99 Don't know |
| D34. Is the toilet floor sometimes difficult to clean? | 1 Yes0 No99 Don't know |
| D35. Are there times when you do not clean the drophole? | 1 Yes0 No99 Don't know |
| D36. Is drophole sometimes difficult to clean? | 1 Yes0 No99 Don't know |
| D37. Since you’ve worked here, how many times have the toilets been emptied? | 0 0 times1 1 time2 2 times3 3 times4 4 times5 5 times6 >5 times99 Don’t know |
| D38. The last time the toilet was full, and needed to be emptied, who emptied it? | 0 I did1 Another cleaner2 In-charge3 Healthcare staff4 Outside service: emptier5 Outside service: mason6 Not applicable99 Don't know |
| D39. Does anyone else ever empty the toilet? | 1 Yes0 No99 Don't know |
| D40. Who else empties it? (select all that apply) | 0 I did1 Another cleaner2 In-charge3 Healthcare staff4 Outside service: emptier5 Outside service: mason6 Not applicable99 Don't know |
| D41. In the past 3 months, how often have you had to clean feces from the floor of the toilet? | 0 Never1 1 time2 2 times3 Once a month4 Twice a month5 About once per week6 About twice per week7 About everyday8 Multiple times per day |
| D42. In the past 3 months, how often have you had to clean feces off of the floors of wards? | 0 Never1 1 time2 2 times3 Once a month4 Twice a month5 About once per week6 About twice per week7 About everyday8 Multiple times per day |
| D43. In the past month, how often do you clean toilets with water and detergent? | 1 More than once a day2 Once a day3 2-4 times per week4 Once per week5 Less than once per week |
| Enumerator comments |   |