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Version: Supplemental Material

Article:

Supplementary Materials

Supplementary Table 1. Facility actors who responded to the surveys

Respondent	Administrator/ Facility or Ward In-charge	Nurse/ Mid-wife	Medical assistant /Clinician	Environmental Health Official	Other	Total
General facility survey	34	0	0	8	2	44
Maternity survey	8	23	0	0	0	31
Outpatient survey	24	3	10	4	3	44

Supplementary Table 2. Names of facilities assessed, by facility type and region in Malawi

Region	Central Hospital	District Hospitals	Health Centers	Health Posts/Dispensaries
Northern	Mzuzu Central Hospital	Nkhata Bay	Kande	Mwaya
		Rumphi	Mzokoto	Jalawe
		Karonga	Iponga	Mlare
Central	Kamuzu Central Hospital	Salima	Chipoka	
			Mchoka	
		Dowa	Dzaleka	Chibwata
		Dedza	Golomoti	Mdeza
		Mchinji	Mkanda	Gumba
		Kasungu	Mtunthama	Dwangwa
Southern	Queen Elizabeth	Thyolo	Magunda	Amalika
		Mulanje		Chisitu
		Mangochi	Namwera	Chiponde
		Balaka	Chiendausiku	Namanolo
		Mwanza	Kunenekude	Kapise
		Chikwawa	Ndakwera	Bereu

Supplementary Table 3. Operational hours at assessed facilities

Category	number of facilities (percentage of facilities)
Hours of facility operation (n=42)	
24 hours	39 (93 %)
<24 hours	4 (7 %)

Supplementary Table 4. Status of lighting in maternity wards at assessed facilities

Category	Number of facilities (percentage of facilities)

Regular and sufficient electricity in birth facility for lighting (n=31)	
Yes	12 (39 %)
Yes, with disturbances (daily)	2 (6 %)
Yes, with disturbances (weekly)	12 (39 %)
No	5 (16 %)

Supplementary Table 5. Water availability and reliability at assessed facilities

Category	Number of facilities (percentage of facilities)
Primary water system type (n=44)	
Piped into facility from municipal source	22 (50 %)
Onsite source, piped into facility	10 (23 %)
Onsite borehole	7 (16 %)
Piped water to yard/plot	2 (4 %)
Other	3 (7 %)
Water system status	
Functional	38 (86 %)
Non-functional	6 (14 %)
Primary water source breakdowns in last six months	
0	17 (40 %)
1 or 2	6 (14 %)
3 to 5	3 (7 %)
6 to 10	4 (5 %)
More than 10	15 (35 %)
Months of low water supply (mark all that apply)	
January	3 (11 %)
February	3 (11 %)
March	2 (7 %)
April	2 (7 %)
May	2 (7 %)
June	3 (11 %)
July	4 (14 %)
August	11 (39 %)
September	15 (54 %)
October	21 (75 %)
November	18 (64 %)
December	12 (43 %)
Reported as not seasonal	16 (36 %)
Regular and sufficient electricity in birth facility to pump water (n =24)	

Yes	12 (50 %)
Yes, with disturbances (daily)	2 (8 %)
Yes, with disturbances (weekly)	7 (29 %)
No	3 (13 %)

Supplementary Table 6. Type of sterilization used

Category	number of facilities (percentage of facilities)
Sterilization type for child delivery equipment (select all that apply) (n=31)	
Electric autoclave	25 (81 %)
Non-electric autoclave	3 (10 %)
Chemical disinfection (Chlorination)	31 (100 %)
Soap and water	28 (90 %)

Qualitative interview guide for administrators

1. Can you tell me a little about yourself?
    a. Prompt: Ask about their educational background
    b. Prompt: Ask about their occupational training
    c. Prompt: Ask about post-school training, such as refresher trainings, in-service trainings, etc.

2. How long have you worked here?
    a. Is your contract renewable? Or, do you have a permanent position? (i.e. understanding incentives for engaging in improving environmental health)

3. Are you satisfied with the number of skilled workers at this facility? Why, Why not?
4. Has the facility lost any skilled workers in the past month?
    a. Prompt: Are you able to care all patients who require a service available in your facility?
    b. Prompt: In the last year?
    c. Prompt: Why do you think that is?

5. Can you tell me about your roles and responsibilities here?
    a. Prompt: Ask them to talk about their job description. Is environmental health included?
6. How do you define environmental health in health care delivery?
7. We define environmental health as environmental components that impact the safety and the quality of health care which include water, sanitation, hygiene, waste, and energy. Are these considerations included in your roles and responsibilities?

I am interested in the environmental health conditions in your HCF. I will ask you a few questions about policies and procedures as they relate to water, sanitation, hygiene, waste, and energy. Please feel free to share any particular experiences or stories on any of these topics and it is okay if you do not know the answers to some of my questions.

Water
8. Who is responsible for maintaining the water system?
    a. Prompt: Can you describe their duties?

b. Prompt: What is the procedure for notifying the relevant party that the water system has broken down?

9. Who pays for the water system to be fixed?
   a. Prompt: Do healthcare workers share any of the responsibilities in this process?
   b. Prompt: Do you think it would be useful for healthcare workers to share water system maintenance responsibilities?

10. Do you have a back-up plan if water is unavailable?
    a. Prompt: What is included in this plan?
    b. Prompt: If a plan does not exist, what would be required to create one?

11. Is water quality tested at this facility?
    a. [If yes] Prompt: Under what circumstances is it tested?
    b. Prompt: If your water is contaminated, what is the procedure for reporting this and addressing the issue?

Infection Prevention

12. Is training on infection prevention provided at this HCF?
    a. [If yes] Prompt: How often? To whom is this training provided?
    b. Prompt: Who carries out the training?
    c. Prompt: What is included in this training?
    d. Prompt: Is hand hygiene a component of this training?
    e. Prompt: At what moments in patient care are providers trained to wash their hands?

13. Are there specific policies related to infection prevention?
    a. [If yes] Are they available for us to look at a copy after this interview?

Sanitation Facilities and Waste Management

14. Who is responsible for fixing the sanitation facilities if they break?
    a. Prompt: Can you describe their duties?
    b. Prompt: What is the procedure for notifying the relevant party that the sanitation facility has broken down?
    c. Prompt: Who pays for the sanitation facility to be fixed?
    d. Prompt: Does this process happen efficiently?
    e. Prompt: Do healthcare workers share any of the responsibilities in this process?
    f. Prompt: Do you think it would be useful for healthcare workers to share sanitation facility system maintenance responsibilities?

15. Are there procedures in place for reporting healthcare waste transport and disposal related injuries?
    a. [If yes] Prompt: Could you describe these procedures?
    b. Prompt: Is there a copy of them we could look at after this interview?

16. Is there a procedure in place for minimizing risk to patient and staff exposure to waste and bodily fluids?
    a. [If yes] Prompt: Could you describe these procedures?
    b. Prompt: Is there a copy of them we could look at after this interview?

17. Could you describe any general established cleaning protocol or procedures?
    a. Probe: Is there a copy of it we could look at after this interview?

Energy

18. Are you satisfied with the energy supply in your facility? Why, why not?
    a. Prompt: Does it ever impact your ability to work? Impact others in the facility?

19. Do you have a backup energy supply?
    a. [If yes] Prompt: Do you have to prioritize certain services when using this backup supply?
    b. [If yes] Prompt: How do you select the services which are prioritized?
    c. Prompt: Do you feel able to perform your duties well?
    d. Prompt: Do you feel your staff is able to complete their duties?
    e. Prompt: What do you think is necessary to maintain an adequate energy supply?
    f. Prompt: What do you think is the main reason for inadequate or unreliable energy supply?

20. Are you satisfied with the maintenance of the energy system in your facility? Why, why not?
    a. Who is responsible for maintaining the energy system?
    b. Prompt: Can you describe their duties?

   c. Prompt: How could maintenance be improved?

Government Interaction and Budget
21. Do you ever contact a government official about issues such as water, hygiene, or sanitation within your facility?
   a. [If yes] Prompt: Who is your primary contact?
   b. Prompt: How often do you communicate with this contact?
   c. Prompt: How do you communicate with this contact?
     i. Hint: Through committee meetings (Health Advisory Committee)? Reach out directly?
   d. Prompt: Do you feel like the issues you bring forward are adequately and efficiently addressed?
     i. [If no] What do you think could be done to improve this process?
22. Who is responsible for deciding how much money your facility receives each year?
23. Who is responsible for allocating the budget to the facility's different needs?
   a. How much of the budget is allocated to water?
     i. To IP?
       1. Hint: This includes trainings on hygiene, purchasing cleaning equipment, etc.
     ii. To energy?
24. Are you a member of a governance committee or organization?
   a. Prompt: Area Development Committee? Health Advisory Committee?

Qualitative interview guide for health care workers

1. Can you tell me a little about yourself?
    a. Prompt: Ask about their educational background
    b. Prompt: Ask about their occupational training
    c. Prompt: Ask about post-school training, such as refresher trainings, in-service trainings, etc.

2. How long have you worked here?
    a. Is your contract renewable? Or, do you have a permanent position? (i.e. understanding incentives for engaging in improving environmental health)

3. Can you tell me about your roles and responsibilities here?
    a. Prompt: Ask them to talk about their job description. Is environmental health included?
    b. How do you define environmental health in health care delivery?
    c. We define environmental health as environmental components that impact the safety and the quality of health care which include water, sanitation, hygiene, waste, and energy. Are these considerations included in your roles and responsibilities?

4. Could you please describe how the following people interact? Is the interaction positive or negative (i.e. verbal, physical)?
    a. Patients and health care providers?
    b. Non-medical staff and health care providers?
    c.
5. What is the method of communication used when you need to speak with another staff member?
    a. What are the challenges associated with this method of communication?

6. Now I will ask you some questions about this facility.
    a. Is demand for service is low/med/high? Is there overcrowding?
        i. Prompt: You might ask about which times of the day are the busiest; which times of year; etc. This gives us a picture of daily/weekly/annual variation. Ask for specific numbers.
    b. Are you satisfied with the cleanliness in this facility? Why, why not?
        i. Prompt: Are oyu able to appropriately sterilize medical equipment before use?
            1. Prompt: [If yes] How? [If no] Why not?
        ii. Prompt: How is your healthcare waste managed?
        iii. Prompt: Do you feel protected from infectious or hazardous materials in this facility? Are patients? Why or why not?
        iv. Prompt: Would improving cleanliness allow you to better care for patients? How so?

I am interested in the environmental health conditions in your HCF. I will ask you a few questions about water, sanitation, hygiene, waste, and energy. Please feel free to share any particular experiences or stories on any of these topics and it is okay if you do not know the answers to some of my questions.

7. The following questions will relate to water at this facility.
    a. Who has access to the water?
        i. Prompt: Patients, cleaning staff, nurses, doctors, admin, etc.? Do these people access separate water sources?
    b. How easy or difficult is it to get access to clean drinking water at the HCF?
        i. Prompt: Is it shared with a nearby community? Do lots of people use it? Is it always available? Etc.
    c. Can you recall a time when you did not have access to water? How did you cope?
        i. Prompt: [If water was not available] Ask why.
            1. [If water access is energy related] Is the water ever unavailable due to energy reasons?
        ii. Prompt: Ask about daily/weekly/monthly availability (and if they can actually remember). Is it erratically available or predictably available? How many hours per day is It available? Ask if availability is seasonal.

      d.   [If water access is energy related and a non-energy reason was given for lack of water availability] Prompt: Is the water ever unavailable due to energy reasons?

      e.   Prompt: Do you have hot water for personal or patient hygiene, or other purposes?

      f.   Are you satisfied with the provision of drinking water in this facility? Why, why not?
           i.   Prompt: Would improving the availability of safe food and water allow you to better care for patients? How so?

8.   The following questions will relate to hygiene and infection prevention at this facility.
      a.   Can you tell me the appropriate steps of hand washing?
      b.   Who has access to hand washing stations?
           i.   Prompt: patients, cleaning staff, nurses, doctors, admin, etc.?
      c.   Do you receive any training on infection prevention at this HCF?
           i.   [If yes] How often?
      d.   What is included in this training?
           i.   Prompt: Is hand hygiene a component of this training?
      e.   Do you know of any specific policies related to infection prevention?
           i.   [If yes] Are they available for us to look at a copy after this interview?
      f.   Do you talk to your patients about infection prevention practices?
      g.   How easy or difficult is it to access personal protective equipment?
           i.   Prompt: Gloves, eye protection, face masks, etc.
      h.   How easy or difficult is it to practice hand washing at points of care?
      i.   Can you recall a time when you were providing medical services and did not have access to hand washing station with soap? How did you cope?
      j.   What do you use to dry your hands after washing? How do you cope if you don't have materials to dry?
      k.   Please briefly describe up to five key moments where you should wash your hands.
      l.   As a health care provider, what main challenges do you face in your work in terms of hygiene and safety?

9.   The following questions will relate to sanitation at this facility.
      a.   How easy or difficult is to access sanitation facilities? When you do not have access, how do you cope?
      b.   Who has access to sanitation facilities?
           i.   Prompt: Patients, cleaning staff, nurses, doctors, admin, etc.
           ii.   Prompt: Are these facilities separate or combined for staff and patients?
      c.   Can you describe the sanitation facilities?
           i.   Prompt: Are they clean? Ask about the number relative to the HCF population
      d.   Where do people go to the bathroom if they don't use the sanitation facility provided (or if there is no sanitation facility available)?
      e.   How easy or difficult is to wash hands after using sanitation facilities?
      f.   How easy or difficult is it for women to have a private and safe space to take care of menstrual hygiene?
           i.   Are water and/or sanitary pads provided?
      g.   Do people feel safe using the facilities? Do they afford privacy?
           i.   Prompt: Is there adequate lighting? Do the doors lock? Ask about safety issues. Can they use it privately? Does it smell? Are there anal cleansing materials provided?
      h.   Do you use the sanitation facility?
           i.   Prompt: Do you feel safe using it? Do you think it's private?
           ii.   Prompt: If you don't use it, why not.
      i.   In the past year, has there been any flooding on the grounds?
           i.   Probe: If so were the sanitation facilities impacted?

10.   The following questions will relate to energy at this facility.
      a.   Are you satisfied with the lighting at night in this facility? Why, why not?
           i.   Prompt: Indoor lighting? Outdoor lighting?
           ii.   Prompt: Is the facility open at night? Do you feel safe working at night?

iii.   Prompt: Can you describe a time that lighting has interfered with your ability to serve a patient?

iv.   Prompt: Would improving lighting allow you to better care for patients? How so?

b.   Are there services you cannot provide when energy is not available?

     i.   [If yes] Prompt: How do you cope?

c.   Are you always satisfied with the temperature in this facility? Why, why not?

     i.   Prompt: Is there ventilation or air conditioning?

    ii.   Prompt: Do you ever feel too hot or too cold? Do patients?

   iii.   Prompt: Would improving temperature control allow you to better care for patients? How so?

Summing it up:

11.   Given our conversation today about environmental health conditions in this facility, what would you say is the most positive aspect of environmental health in this facility?

12.   On the other hand, what would you say is the biggest challenge to maintaining hygiene and environmental health in this facility?

13.   What incentives are needed for staff to improve environmental conditions?

    a.   Prompt: Higher pay? Better incorporated into job description? Better training?

14.   Have you ever worked at a different public HCF before? What was that like? How does it compare to this one?

15.   Is there anything else you would like to share with me today?

General facility survey

1. Name of health care facility
   1.1. Text entry
2. Type of facility (pre-programmed)
   2.1. Central hospital
   2.2. District hospital
   2.3. Health Center
   2.4. Dispensary
   2.5. Health Post
3. Facility's region and district
   3.1. Text entry
4. What types of services does this facility? (select all that apply)
   4.1. Inpatient pediatric services
   4.2. Outpatient services
   4.3. Maternity/Delivery
5. Position/Title of person responding to this portion of the survey? *Time/Date stamp embedded in mWater *GPS location embedded in mWater
   5.1. Facility Administrator
   5.2. District Official (Environmental Health Officer)
   5.3. Assistant Environmental Health Officer
   5.4. Health Surveillance Assistant
   5.5. Physician
   5.6. Nurse/Midwife
   5.7. Other (please specify)
6. Is there more than one separate ward (i.e. maternity, inpatient, outpatient) in this facility?
   6.1. Yes
   6.2. No
7. Is the facility open 24 hours?
   7.1. Yes
   7.2. No
8. How many days in a week is the facility open?
   8.1. 1
   8.2. 2
   8.3. 3
   8.4. 4
   8.5. 5
   8.6. 6
   8.7. 7
9. (If 6=No) How many medical staff work at this facility? (hint: physicians, nurses, midwives, etc.)?
   9.1. Numerical entry
10. (If 6=No) How many of the staff are full-time?
    10.1. Numerical entry
11. Do you have an official record of the number of patients who visit this facility?
    11.1. Yes
    11.2. No
12. (If 6=No) What is the number of patients visiting this facility in a particular day? (if no official record--ask for estimate)
    12.1. Numerical entry

13. What is the estimated population size served by this facility?
    13.1. Numerical entry
14. (If 6=No)How many beds are in this facility?
    14.1. Numerical entry
15. (If 6=no) Does the facility consistently have enough beds for the patients seeking care?
    15.1. Yes
    15.2. No

Prompt: The next few questions will ask about water availability and access at the facility
16. What is the main source of water for this facility?
    16.1. Piped water into facility from municipal supply
    16.2. Piped into facility from onsite source
    16.3. Piped water to yard/plot
    16.4. Public tap/standpipe
    16.5. Tube well/Borehole
    16.6. Unprotected dug well
    16.7. Protected dug well with handpump
    16.8. Protected dug well without handpump
    16.9. Protected spring
    16.10. Unprotected spring
    16.11. Rainwater catchment
    16.12. Tanker truck
    16.13. Bottled water
    16.14. Other
17. What is this source used for? (select all that apply)
    17.1. Drinking water
    17.2. Medical procedures
    17.3. Cleaning
    17.4. Cooking
    17.5. Other
18. How long does it take to walk to and from the main water source? (Skip if 16=1 or 16=2)
    18.1. 5 minutes or less
    18.2. 10 minutes
    18.3. 30 minutes
    18.4. >30 minutes
    18.5. Not applicable
19. Is the main water source for the facility currently functional? (hint: functional means it enough water to meet all of the needs of the facility today)
    19.1. Yes
    19.2. No
20. Are patients expected to bring their own drinking water?
    20.1. Yes
    20.2. No, drinking water is provided at the facility
21. If the main source is not available, what is (are) the alternate source(s)?
    21.1. Piped water into facility from municipal supply
    21.2. Piped into facility from onsite source
    21.3. Piped water to yard/plot
    21.4. Public tap/standpipe
    21.5. Tube well/borehole
    21.6. Protected dug well with handpump

21.7. Protected dug well without handpump

21.8. Unprotected borehole

21.9. Unprotected dug well

21.10. Protected spring

21.11. Unprotected spring

21.12. Rainwater catchment

21.13. Tanker truck

21.14. Bottled water

21.15. Surface water

21.16. There is no alternate source

21.17. Other

22. (If alternate source=piped water into facility from municipal supply) What is the piped water into facility from municipal supply source used for?

22.1. Drinking water

22.2. Medical procedures

22.3. Cleaning

22.4. Cooking

22.5. Other

23. (If alternate source=piped water into facility from onsite source) What is the piped water into facility from onsite source used for?

23.1. Drinking water

23.2. Medical procedures

23.3. Cleaning

23.4. Cooking

23.5. Other

24. (If alternate source=piped water to yard/plot) What is the piped water to yard/plot source used for?

24.1. Drinking water

24.2. Medical procedures

24.3. Cleaning

24.4. Cooking

24.5. Other

25. (If alternate source=public tap/standpipe) What is the public tap/standpipe source used for?

25.1. Drinking water

25.2. Medical procedures

25.3. Cleaning

25.4. Cooking

25.5. Other

26. (If alternate source=tube well/borehole) What is the tube well/borehole source used for?

26.1. Drinking water

26.2. Medical procedures

26.3. Cleaning

26.4. Cooking

26.5. Other

27. (If alternate source=unprotected dug well) What is the unprotected dug well source used for?

27.1. Drinking water

27.2. Medical procedures

27.3. Cleaning

27.4. Cooking

27.5. Other

28. (If alternate source=protected dug well with hand pump) What is the protected dug well with the hand pump source used for?
   28.1. Drinking water
   28.2. Medical procedures
   28.3. Cleaning
   28.4. Cooking
   28.5. Other
29. (If alternate source=protected dug well without a hand pump) What is the protected dug well without a hand pump source used for?
   29.1. Drinking water
   29.2. Medical procedures
   29.3. Cleaning
   29.4. Cooking
   29.5. Other
30. (If alternate source=protected spring) What is the protected spring source used for?
   30.1. Drinking water
   30.2. Medical procedures
   30.3. Cleaning
   30.4. Cooking
   30.5. Other
31. (If alternate source=unprotected spring) What is the unprotected spring source used for?
   31.1. Drinking water
   31.2. Medical procedures
   31.3. Cleaning
   31.4. Cooking
   31.5. Other
32. (If alternate source=rainwater catchment) What is the rainwater catchment source used for?
   32.1. Drinking water
   32.2. Medical procedures
   32.3. Cleaning
   32.4. Cooking
   32.5. Other
33. (If alternate source=tanker truck) What is the tanker truck source used for?
   33.1. Drinking water
   33.2. Medical procedures
   33.3. Cleaning
   33.4. Cooking
   33.5. Other
34. (If alternate source=bottled water) What is the bottled water source used for?
   34.1. Drinking water
   34.2. Medical procedures
   34.3. Cleaning
   34.4. Cooking
   34.5. Other
35. (If alternate source=surface water) What is the surface water used for?
   35.1. Drinking water
   35.2. Medical procedures
   35.3. Cleaning
   35.4. Cooking

35.5. Other
36. Is anything done to the water at the facility (i.e. is it treated)?
    36.1. Yes
    36.2. No
37. What method is used primarily to treat drinking water at this facility?
    37.1. Water is treated elsewhere (hint: drinking water utility)
    37.2. Boiling
    37.3. Solar disinfection
    37.4. Ceramic filters
    37.5. UV treatment
    37.6. Biosand filters
    37.7. Chlorination
    37.8. Other
    37.9. I don't know
38. Is water quality tested at the facility?
    38.1. Yes
    38.2. No
39. (Skip if 38=No) How often is water quality tested?
    39.1. Monthly (or more frequently)
    39.2. Yearly
    39.3. Less than once per year
    39.4. Never
40. (Skip if 38=No) What water quality parameters are assessed? (Select all that apply)
    40.1. E. Coli
    40.2. Total coliform
    40.3. Fecal coliform
    40.4. Turbidity
    40.5. Nitrate/nitrite
    40.6. Chlorine residual
    40.7. Other
41. Do people come to the facility specifically to get water from your water supply?
    41.1. Yes
    41.2. No
42. Approximately how many times has the water source been unavailable/non-functional in the past 6 months?
    42.1. 0
    42.2. 1 or 2 times
    42.3. 3-5 times
    42.4. 5-10 times
    42.5. More than 10 times
43. (If Approximately how many times has the water source been unavailable/non-functional in the past six months isn't 0) Why was water unavailable in the past six months? (select all that apply)
    43.1. Machinery (i.e. pump) broken
    43.2. Lack of water due to weather conditions
    43.3. Inability to pay for water
    43.4. Other (please specify)
44. During the most recent time water was unavailable or the system nonfunctional, how long did it take to restore service?
    44.1. Less than one day

44.2.   One day
44.3.   Less than one week
44.4.   Less than one month
44.5.   Not applicable
44.6.   Other

45.   Is there a specific time of year when you expect the facility to face water shortages?
45.1.   Yes
45.2.   No

46.   (Skip if 45=No) When is the facility more likely to not have enough water? Select all that apply
46.1.   January
46.2.   February
46.3.   March
46.4.   April
46.5.   May
46.6.   June
46.7.   July
46.8.   August
46.9.   September
46.10.   October
46.11.   November
46.12.   December

47.   How is water stored at the facility?
47.1.   Water is not stored here
47.2.   Drum
47.3.   Water tank
47.4.   Bucket
47.5.   Bottles
47.6.   Other (please specify)

48.   (If 47 isn't 1) For what length of time will the facility have water based on storage?
48.1.   2 or more days
48.2.   Less than 2 days
48.3.   Don't know

49.   Has there been a time in the past six months when the facility couldn't provide service? (Hint: had to shut down)
49.1.   Yes
49.2.   No
49.3.   Don't know

50.   (If 49=yes) What is/are the reason(s) the facility couldn't provide service? (Select all that apply)
50.1.   Lack of water
50.2.   Staff not available
50.3.   Adverse weather
50.4.   Medication not available
50.5.   Other, please specify

Prompt: The next few questions will ask about sanitation
51.   (If 6=no) How many toilets or latrines are in this facility?
51.1.   Numerical entry
52.   (If 6=no) What type(s) of latrine(s) is (are) used in the facility? (Select all that apply)
52.1.   Flush toilet

52.2. Pour flush toilet

52.3. Pit latrine with slab

52.4. Pit latrine without slab

52.5. Ventilated improved pit latrine

52.6. Composting latrine

52.7. Hanging latrine

52.8. No latrines

52.9. Other

53. (If 6=no; Skip if 52= no latrines) Is there a latrine available exclusively for women to use?

53.1. Yes

53.2. No

54. (If 6=no; Skip if 52= no latrines) Is there a latrine available exclusively for staff use?

54.1. Yes

54.2. No

55. (If 6=no; Skip if 52= no latrines) Is there a latrine available for children to use?

55.1. Yes

55.2. No

56. (If 6 =no; Skip if 52= no latrines) How often is/are the sanitation facility(ies) in this facility cleaned?

56.1. More than once per day

56.2. Daily

56.3. Weekly

56.4. Monthly

56.5. Never

56.6. Other (please specify)

57. (If 6=no; Skip if 52= no latrines) How often do you receive complaints from patients or staff about the latrines/toilet?

57.1. Never

57.2. A few times per year

57.3. Monthly

57.4. Weekly or more often

Prompt: The next few questions will ask about wastewater management.

58. (Display if 6=yes) Are flush toilets (automated or pour flush) used at this facility?

58.1. Yes

58.2. No

59. (Display if 58=1) Where does the wastewater go after flushing?

59.1. Flush to sewer system

59.2. Flush to septic tank

59.3. Flush to pit

59.4. Flush to elsewhere

59.5. Flush to don't know where

60. (If 59 = flush to septic) Are you in charge of or knowledgeable about managing the septic tank?

60.1. Yes

60.2. No

61. (Display if 59= flush to septic) How often is the septic tank emptied?

61.1. Whenever full

61.2. Yearly

61.3. Never

61.4. Other (please specify)

62. (If 59 = flush to septic) When/If the septic tank is full, whose job is it to empty it?
    62.1. Facility Administrator
    62.2. District Official (Environmental Health Officer)
    62.3. Assistant Environmental Health Officer
    62.4. Health Surveillance Assistant
    62.5. Physician
    62.6. Nurse/Midwife
    62.7. External provider
    62.8. Cleaner
    62.9. No one
    62.10. Other (please specify)

63. (Display if 59= flush to septic) Does the septic system ever overflow?
    63.1. No, never
    63.2. Yes, once/week
    63.3. Yes, once/month
    63.4. Yes, once/year
    63.5. Don't know

64. (Display if 52 does not =1 or 2; Skip if 52= no latrines) What is done with the waste when a pit fills up?
    64.1. Pit emptied by hired person/organization
    64.2. Pit emptied by staff member
    64.3. Pit sealed/ buried
    64.4. Pits have never filled up
    64.5. Other (please specify)

65. (Display if 64=1 or 2) What happens after the pit is emptied (e.g. where does the excreta go?)
    65.1. Excreta removed from facility
    65.2. Dumped somewhere within facility compounds
    65.3. Other (please specify)

66. How often does the wastewater drainage system overflow within or around the facility?
    66.1. About Once/week
    66.2. About Once/month
    66.3. About Once/year
    66.4. Never
    66.5. Other (please specify)
    66.6. Not applicable

67. How is water used for handwashing disposed of?
    67.1. Drain to soakage pit
    67.2. Drain to sewer system
    67.3. Drain to septic tank
    67.4. Drain to outside
    67.5. Dump outside
    67.6. Other
    67.7. Don't know

68. Is there a laundry facility/area within this facility? (If no, skip next 2 questions)
    68.1. Yes
    68.2. No

69. (Display if 68=yes) Is wastewater that is generated from the laundry treated before disposal/discharge?
    69.1. Yes
    69.2. No

70. (Display if 68=yes) How is water used in the laundry facility disposed of?
    70.1. Drain to soakage pit

70.2. Drain to sewer system
70.3. Drain to septic tank
70.4. Drain to outside
70.5. Dump outside
70.6. Other
70.7. Don't know

Prompt: The next few questions will ask about waste management.
71. Who is responsible for collecting waste from the points of care where waste is generated? (hint: individual rooms)
  71.1. Facility Administrator
  71.2. District Official (Environmental Health Officer)
  71.3. Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
  71.4. Physician
  71.5. Nurse/Midwife
  71.6. External provider
  71.7. Cleaner
  71.8. No one
  71.9. Other (please specify)
72. How often is waste collected from the points of care where waste is generated?
  72.1. Daily
  72.2. Weekly
  72.3. Whenever filled (or at a specifically designated level)
  72.4. Other (please specify)
73. Is waste stored in a central waste disposal area before it is taken to the final disposal location? (If no skip waste storage observations)
  73.1. Yes
  73.2. No
74. Who is responsible for overseeing the waste management and disposal? (Hint: who makes sure that waste, such as sharps, other medical and general waste is collected and properly disposed of)
  74.1. Facility Administrator
  74.2. District Official (Environmental Health Officer)
  74.3. Assistant Environmental Health Officer
  74.4. Health Surveillance Assistant
  74.5. Physician
  74.6. Nurse/Midwife
  74.7. External provider
  74.8. Cleaner
  74.9. No one
  74.10. Other (please specify)
75. How does the facility dispose of its sharps?
  75.1. 2-chamber incineration
  75.2. Brick incineration
  75.3. Autoclave
  75.4. Open burning in protected area
  75.5. Open burning in unprotected area
  75.6. Dump without burning in lined, protected area
  75.7. Dump without burning in unprotected area
  75.8. Chemical disinfection with hypochlorite

75.9.   Not treated and added to general waste

75.10.   Remove off site with protected storage

75.11.   Other (please specify)

76.   How does the facility dispose of its medical waste (hint: infectious waste, not including sharps)?

    76.1.   2-chamber incineration

    76.2.   Brick incineration

    76.3.   Autoclave

    76.4.   Open burning in protected area

    76.5.   Open burning in unprotected area

    76.6.   Dump without burning in lined, protected area

    76.7.   Dump without burning in unprotected area

    76.8.   Chemical disinfection with hypochlorite

    76.9.   Not treated and added to general waste

    76.10.   Remove off site with protected storage

    76.11.   Other (please specify)

77.   How does the facility dispose of noninfectious (general) hospital waste?

    77.1.   2-chamber incineration

    77.2.   Brick incineration

    77.3.   Autoclave

    77.4.   Open burning in protected area

    77.5.   Open burning in unprotected area

    77.6.   Fenced burial pit/waste dump onsite

    77.7.   Unfenced burial pit/waste dump onsite

    77.8.   Collected and removed off site by waste management authority

    77.9.   Other (please specify)

78.   (If How does the facility dispose of its sharps OR How does the facility dispose of its medical waste OR How is noninfectious (general) hospital waste managed= 2-chamber incineration OR Brick incineration) Is the incinerator currently functioning?

    78.1.   Yes

    78.2.   No

79.   (If How does the facility dispose of its sharps OR How does the facility dispose of its medical waste OR How is noninfectious (general) hospital waste managed= 2-chamber incineration OR Brick incineration) Is fuel currently available for the incinerator?

    79.1.   Yes

    79.2.   No

80.   (If How does the facility dispose of its sharps OR How does the facility dispose of its medical waste OR How is noninfectious (general) hospital waste managed= 2-chamber incineration OR Brick incineration) Where is the ash disposed of after the incinerator?

    80.1.   In a dedicated ash pit

    80.2.   Disposed of with general waste

    80.3.   Other (please specify)

81.   How are leftover or expired drugs handled?

    81.1.   We never have excess/expired drugs

    81.2.   Open burning in protected area

    81.3.   Open burning in unprotected area

    81.4.   Dump without burning in lined, protected area

    81.5.   Dump without burning in unprotected area

    81.6.   Combined with general waste

    81.7.   Returned to pharmacy/supplier

81.8.   Other (please specify)

Prompt: The next few questions will ask about cleaning
82.   Are there cleaning procedures in place for this facility?
    82.1.   Yes
    82.2.   No
83.   Who is responsible for cleaning this facility? (Hint: general cleaning of surfaces, walls, etc.)
    83.1.   Facility Administrator
    83.2.   District Official (Environmental Health Officer)
    83.3.   Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
    83.4.   Physician
    83.5.   Nurse/Midwife
    83.6.   External provider
    83.7.   Cleaner
    83.8.   Family members/friends of patients
    83.9.   No one
    83.10.   Other (please specify)
84.   Does a mechanism exist to track the supply of cleaning materials and identify stock-outs?
    84.1.   Yes
    84.2.   No
85.   Does a mechanism exist to track the cleaning schedule?
    85.1.   Yes
    85.2.   No
86.   (If 6=no) How often are ward-based audits undertaken to assess the availability of hand-rub, soap, single use towels and other materials needed for washing hands?
    86.1.   Daily
    86.2.   Weekly
    86.3.   Monthly
    86.4.   Never
    86.5.   Other (please specify)
87.   (If 6=No and 86 isn't Never) Who conducts these audits?
    87.1.   Facility Administrator
    87.2.   District Official (Environmental Health Officer)
    87.3.   Assistant Environmental Health Officer
    87.4.   Health Surveillance Assistant
    87.5.   Physician
    87.6.   Nurse/Midwife
    87.7.   External provider
    87.8.   Cleaner
    87.9.   Other (please specify)
88.   (if 6 = no) Are bed linens used for patients in this facility?
    88.1.   Yes, linens provided for
    88.2.   Yes, patients bring linens
    88.3.   No
    88.4.   Other
89.   (If 88 isn't No) Are soiled linens washed on site?
    89.1.   No, they are cleaned elsewhere (hint: different facility or patients)
    89.2.   Yes
    89.3.   Other
90.   (if 6 = no) How often are bed linens, paper on beds/mats, mats, or other materials on which patients sit/lay during appointments/procedures changed or cleaned?
    90.1.   After each patient
    90.2.   Daily

      90.3.   Whenever infectious medical waste (blood, other bodily fluids) is present

      90.4.   Whenever non-medical waste (plastic wrappers, etc.) is present

      90.5.   Both c and d

      90.6.   Other

91.   (If 6 = no) What is the final cleaning method used for critical medical equipment? Select all that apply (hint: surgical instruments, razors, forceps, catheters, ultrasound probes).

      91.1.   Electric autoclave

      91.2.   Non-electric autoclave

      91.3.   Electric dry heat sterilizer

      91.4.   Electric boiler or steamer

      91.5.   Chemical disinfection (e.g. in chlorine solution)

      91.6.   Non-electric pot with cover for boiling/steam

      91.7.   Soap and water

      91.8.   Not applicable

      91.9.   The supplies are not cleaned

      91.10.   Other

92.   (If 6 = no) For equipment that is sterilized, do you have a method to confirm that it is sterile?

      92.1.   Yes

      92.2.   No

      92.3.   Not applicable

93.   (Display if 92=yes) What is that method used?

      93.1.   Visual inspection of equipment

      93.2.   Swab cultures

      93.3.   Agar slide cultures

      93.4.   ATP bioluminescence

      93.5.   Fluorescent markers

      93.6.   Other (please specify)

94.   Is food ever prepared at the health care facility?

      94.1.   Yes

      94.2.   No

95.   (If 94=Yes) Do food handlers receive any food safety training?

      95.1.   Yes, with refresher trainings

      95.2.   Yes, once when hired

      95.3.   They are expected to have received training before hiring

      95.4.   No

96.   (If 94=Yes) How often are surfaces used for food preparation cleaned?

      96.1.   After every usage

      96.2.   Before every time food is prepared

      96.3.   Both of the above

      96.4.   Daily

      96.5.   Never

      96.6.   Other (please specify)

97.   (If 94=Yes) What method is used to clean food preparation surfaces?

      97.1.   Soap and water with cloth

      97.2.   Chlorine/detergent and cloth

      97.3.   Other

Prompt: The next few questions will address vector control

98.   Are any measures taken to control vector-breeding sites within and around facility?

      98.1.   Yes

      98.2.   No

99.   (If 98=Yes) What are these measures? Select all that apply

      99.1.   Use of chemical mosquito repellent inside facility

      99.2.   Use of chemical mosquito repellent around facility (outside)

      99.3.   Measures taken to minimize/control standing water around facility

99.4. Screens on doors

99.5. Screens on windows

99.6. Insecticide treated nets around patient beds/mats

99.7. Other (please specify)

100. (If 99=Use of chemical mosquito repellent inside or outside facility) Who is responsible for when/how to spray or use other chemical controls?

100.1. District Officer

100.2. Assistant Environmental Health Officer

100.3. Health Surveillance Assistant

100.4. External specialist

100.5. No

101. (If 100 is not External specialist) Is this person trained on when/how to spray and use other chemical controls?

101.1. Yes

101.2. No

102. (If 99=Insecticide treated nets around patient beds/mats) How frequently are insecticide-treated nets washed and re-impregnated?

102.1. Every 6 months

102.2. Every year

102.3. Every 2-5 years

102.4. Never

102.5. Other (please specify)

In this next set of questions, I am going to ask you about infection prevention and control measures for this facility

103. Does this facility have a dedicated environmental health officer or equivalent?

103.1. Yes

103.2. No

104. Is this officer responsible for more than one healthcare facility?

104.1. No, works solely at this facility

104.2. Yes, is shared with other facilities

104.3. Don't know

105. (If 104 is "Yes, is shared with other facilities") How frequently are they at this facility?

105.1. Daily

105.2. About once per week

105.3. About once every two weeks

105.4. About once per month

105.5. Less frequent than once per month

105.6. Other (please specify)

106. Is there a written policy, guidelines, or standards related to infection prevention for this facility? (Hint: policies, guidelines or standards on protocols and procedures for preventing the spread of infection within the facility)

106.1. Yes

106.2. No

107. Could I take a picture of this book/binder/document/packet?

107.1. Image Question

108. Is there a budget for environmental health provisions for this facility? (hint: a budget that is dedicated to improving environmental health conditions; for example buying disinfection products, restocking personal protective equipment, providing fuel for a backup generator)

108.1. Yes

108.2. No

109. What do you see as the biggest challenge(s) to making improvement to environmental health at this health care facility? (select multiple)

109.1. Availability of human resources

109.2. Technical Expertise

109.3. Supplies/Procurement

109.4. Budget

109.5.   Other (please specify)
110.   (if 103=no) Who is responsible for maintaining Infection and Prevention Control in this facility? Hint: a person who is responsible for making sure that protocols and procedures related to preventing the spread of infection within the facility are in place and that financial and human resources are available for carrying out these procedures.
110.1.   Facility Administrator
110.2.   District Official (Environmental Health Officer)
110.3.   Assistant Environmental Health Officer
110.4.   Health Surveillance Assistant
110.5.   Physician
110.6.   Nurse/Midwife
110.7.   External provider
110.8.   Cleaner
110.9.   No one
110.10.   Other (please specify)
111.   Are you a member of a district committee?
111.1.   Yes
111.2.   No
112.   Does the facility have a committee or group responsible for developing, implementing, and monitoring procedures or practices to prevent the spread of infections within the facility? Hint: Infection Prevention and Control Committee, a Village Health Committee, Health Advisory Committee, or other group that may develop/recommended policies, investigate outbreaks, education and training, etc.
112.1.   Yes
112.2.   No
112.3.   Don't Know
113.   (If 112 is yes) Who is on this committee? (Select all that apply)
113.1.   Facility Administrator
113.2.   District Official (Environmental Health Officer)
113.3.   Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
113.4.   Physician
113.5.   Nurse/Midwife
113.6.   Cleaner
113.7.   Community Members
113.8.   Traditional Leader
113.9.   Other (please specify)
113.10.   Don't Know
114.   Are staff trained on Infection Prevention and Control? (Hint: procedures or practices to prevent the spread of infections within the facility, such as hand hygiene training, outbreak detection/response, prevention of surgical site infections, etc.)
114.1.   Yes
114.2.   No
115.   (If 114 is Yes) Do staff receive the training at this facility?
115.1.   Yes
115.2.   No, they are expected to have received training prior to working here
116.   (If 115 is No) Do staff receive refresher trainings at this facility?
116.1.   Yes
116.2.   No
117.   (If 115=yes) Who primarily conducts these trainings? Select all that apply
117.1.   Facility Administrator
117.2.   District Official (Environmental Health Officer)
117.3.   Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
117.4.   Physician
117.5.   Nurse/Midwife

117.6.   Cleaner

117.7.   Local NGO

117.8.   International NGO

117.9.   Other (please specify)

118.   Is information about behaviors for limiting disease transmission provided verbally by staff to patients?
(Hint: information about how and when to wash hands, etc.)

118.1.   Yes

118.2.   No

Energy Questions

1. Fill out the following matrix

Energy Use	Are the following necessary for the day-to-day functioning of your health care facility? (yes, no)	Is the energy supply always available to provide the following at your healthcare facility? (Mark yes, no, not applicable)
Lighting		
Medical devices (diagnostic tools-ultrasound, imaging methods, laboratory testing; surgical tools-respirators, monitors)		
Mechanical pumping of water		
Boiling water for drinking		
Treating wastewater		
Information technology (e.g. computers)		
Internet connection for information technology		
Communication devices (e.g. mobile phones)		
Internet connection for communication devices		
Refrigeration		
Sterilization and disinfection for reuse of medical equipment (e.g. autoclave, dry-heat, microwave)		
Space heating		
Ventilation		
Air conditioning		
Cooking		
Heating water- not for consumption		

1. How many hours is this facility open?
    1. Numerical entry
2. Do you have a backup source of electricity on the premises?
    1. Yes
    2. No
3. (If previous=yes) What is the backup source of electricity on the premises?
    1. Solar Photovoltaic (PV) System with batteries
    2. Fuel-based generator
    3. Two-way battery generator (hint: this converts AC power to DC, stores the power for use when the grid is down, and then reconverts the power back to AC)
    4. Other, specify
    5. Don't know
4. If the Solar PV system was needed today, could it be used?
    1. Yes
    2. No
    3. Don't know
5. How many batteries are stored on the premises?
    1. Numerical entry
6. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
7. If the fuel-based generator was needed today, could it be used?
    1. Yes
    2. No
8. Please specify the type of fuel used for the generator
    1. Diesel
    2. Gasoline
    3. Propane
    4. Biofuel
    5. Don't Know
9. Please specify the amount of fuel stored. Please be as specific as possible (litres of fuel stored or containers of fuel stored)
    1. Text entry
10. Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
11. What is the maximum capacity of fuel that the healthcare facility can store? (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
12. Does this facility also store backup batteries for the generator if fuel is not available?
    1. Yes
    2. No
    3. Don't know
13. How many batteries are stored on the premises?
    1. Numerical entry
14. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
15. If the two-way battery generator was needed today, could it be used?
    1. Yes
    2. No
    3. Don't Know

16. How many batteries are stored on the premises?
    1. Numerical entry
17. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
18. How long ago did the backup source become nonfunctional?
    1. Today
    2. This week
    3. This month
    4. Within the past 6 months
    5. Within the past year
19. During the past 7 days, has the facility needed to use the backup source?
    1. Yes
    2. No
20. (if yes) How many times? (in days)
    1. Numerical entry
21. Please estimate the average duration of time it was used (in hours)
    1. Numerical entry
22. During the past 6 months, has the facility needed to use the backup source?
    1. Yes
    2. No
23. (If yes) Was it needed in a predictable pattern?
    1. Yes
    2. No
24. (If yes) What time of year was the backup system used? (select all that apply)
    1. Wet Season
    2. Dry Season
25. (If yes) About how often was the backup system needed?
    1. Daily
    2. Weekly
    3. A few times a month
    4. Once every few months
    5. Once in the last 6 months
26. On average, how long was the backup system needed? (in hours)
    1. Numerical entry
27. When energy supply is limited, are some services prioritized over others?
    1. Yes
    2. No

If in the <u>off-grid diesel generator</u> serves the healthcare facility for any of the uses listed continue with the following questions:

30.   If the diesel-fuel generator was needed today, could it be used?
    1. Yes
    2. No
    3. Don't Know
31.   Please specify the amount of diesel stored on the premises. Please be as specific as possible (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
32.   Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
33.   What is the maximum capacity of fuel that the healthcare facility can store? (litres of fuel stored or containers of fuel stored)

1. Numerical entry
34. Does this facility also store backup batteries for the generator if fuel is not available?
    1. Yes
    2. No
    3. Don't know
35. (If yes) How many batteries are stored on the premises?
    1. Numerical entry
36. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know

If in the <u>off-grid propane generator</u> serves the healthcare facility for any of the uses listed continue with the following questions:
37. If the propane/LPG-fueled generator was needed today, could it be used?
    1. Yes
    2. No
38. Please specify the amount of LPG/propane stored on the premises. Please be as specific as possible (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
39. Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
40. What is the maximum capacity of fuel that the healthcare facility can store? (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
41. Does this facility also store backup batteries for the generator if fuel is not available?
    1. Yes
    2. No
    3. Don't know
42. (If yes) How many batteries are stored on the premises?
    1. Numerical entry
43. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know

If in the <u>off-grid gasoline generator</u> serves the healthcare facility for any of the uses listed, continue with the following questions:

44. If the gasoline-fueled generator was needed today, could it be used?
    1. Yes
    2. No
45. Please specify the amount of gasoline stored on the premises. Please be as specific as possible (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
46. Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
47. What is the maximum capacity of fuel that the healthcare facility can store? (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
48. Does this facility also store backup batteries for the generator if fuel is not available?
    1. Yes

2. No
3. Don't know

49. (If yes) How many batteries are stored on the premises?
    1. Numerical entry
50. Is this number of batteries sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know

If coal, wood, straw/biomass serves the healthcare facility for any of the uses listed, continue with the following questions:

51. Please specify the amount of coal/wood/straw stored on the premises. Please be as specific as possible (Hint: kilograms of fuel stored or containers of fuel stored)
    1. Numerical entry
52. Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
53. What is the maximum capacity of fuel that the healthcare facility can store? (kgs of fuel stored or containers of fuel stored)
    1. Numerical entry

If kerosene, diesel, propane/LPG, gasoline, or natural gas/biogas serves the healthcare facility for any of the uses listed, continue with the following questions:

54. Please specify the amount of kerosene, diesel, propane/LPG, gasoline, or natural gas/biogas stored on the premises. Please be as specific as possible (Hint: litres of fuel stored or containers of fuel stored)
    1. Numerical entry
55. Is this amount of fuel sufficient to meet the energy needs of the healthcare facility?
    1. Yes
    2. No
    3. Don't Know
56. What is the maximum capacity of fuel that the healthcare facility can store? (litres of fuel stored or containers of fuel stored)
    1. Numerical entry
57. During the past 7 days, was electricity always available during the times when the facility was open for services?
    1. Yes
    2. No
    3. Don't Know
58. (If 57= no) Did the facility lose electricity on more than one occasion?
    1. Yes
    2. No
    3. Don't Know
59. (If 57= no) What time of day was the interruption? (select all that apply)
    1. Morning
    2. Afternoon
    3. Night
60. (If 57= no) How long was the interruption (hours)?
    1. Numerical entry
61. (If 57= no) Was this an unexpected interruption? (hint: were you notified that there was going to be an interruption?)
    1. Yes
    2. No
    3. Don't Know

62. (If 57= no) Did this interruption affect services available to patients?
    1. Yes
    2. No
    3. Don't Know
63. (If 57 = yes) On how many occasions in the last 7 days has electricity been unavailable?
    1. Numerical entry
64. Please estimate the average length of how long the interruptions lasted (hours)
    1. Numerical entry
65. Were these interruptions in a predictable pattern?
    1. Yes
    2. No
66. (If yes) About how often are the interruptions?
    1. Daily
    2. Weekly
    3. A few times a month
    4. Once every few months
    5. Once in the last 6 months
    6. Other
67. Did these interruptions affect services available to patients?
    1. Yes
    2. No
68. During the past 6 months, was electricity always available during the times when the facility was open for services?
    1. Yes
    2. No
    3. Don't Know
69. (If no) What time of year was the interruption?
    1. Wet Season
    2. Dry Season
    3. The interruptions are not seasonal
    4. Don't Know
70. (If no) Did these interruptions occur in a predictable pattern?
    1. Yes
    2. No
71. (If yes) About how often are the interruptions?
    1. Daily
    2. Weekly
    3. A few times a month
    4. Once every few months
    5. Once in the last 6 months
72. Please estimate the average length of the interruptions (in hours)
    1. Numerical entry
73. (If 70 = yes) Did these predictable interruptions delay or affect services to patients?
    1. Yes
    2. No
74. (If 70 = no) Did these unpredictable interruptions delay or affect services to patients?
    1. Yes
    2. No

Maternity survey

1. Does this facility have a maternity ward? (If no, skip ward specific questions)
    1.1. Yes
    1.2. No
2. Position/Title of person responding to this portion of the survey?
    2.1. Facility Administrator
    2.2. District Official (Environmental Health Officer)
    2.3. Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
    2.4. Physician
    2.5. Nurse/Midwife
    2.6. Other (please specify)
3. Approximately how many medical staff work on this ward? (hint: physicians, nurses, midwives, etc.)
    3.1. Numerical entry
4. How many of the staff are full-time?
    4.1. Numerical entry
5. What is the average number of patients visiting this ward in a particular day?
    5.1. Numerical entry
6. How many beds are in this ward?
    6.1. Numerical entry
7. Does the ward consistently have enough beds for the patients seeking care?
    7.1. Yes
    7.2. No
8. Are women asked to bring water when they deliver babies at this facility?
    8.1. Yes
    8.2. No
9. Where is the main water supply for the delivery room located?
    9.1. In the delivery room
    9.2. Outside the delivery room, but in the facility
    9.3. Off site, within 500 m from the facility
    9.4. Further than 500m from the facility
    9.5. No water source available
10. (Skip if no water source available) What is this water used for?
    10.1. Drinking
    10.2. Handwashing
    10.3. Mother's cleaning needs before/after delivery
    10.4. Cleaning of patient room post-delivery
    10.5. Other (please specify)
11. How is the water used in post-delivery cleaning managed? (Hint: water used to clean up bodily fluids from delivery)
    11.1. Drain to soakage pit
    11.2. Drain to sewer system
    11.3. Drain to septic tank
    11.4. Drain to outside
    11.5. Dump outside
    11.6. Other
    11.7. Don't know
12. How many sanitation facilities are in this ward?
    12.1. Numerical entry
13. What type(s) of latrine(s) is (are) used in the ward?

13.1. Flush toilet

13.2. Pour flush toilet

13.3. Pit latrine with slab

13.4. Pit latrine without slab

13.5. Ventilated improved pit latrine

13.6. Composting latrine

13.7. Hanging latrine

13.8. No latrines

13.9. Other

14. Is there a latrine available exclusively for staff use?

14.1. Yes

14.2. No

15. How often are the latrines cleaned?

15.1. More than once per day

15.2. Daily

15.3. Weekly

15.4. Monthly

15.5. Never

15.6. Other (please specify)

16. How often do you receive complaints from patients or staff about the latrines/toilet?

16.1. Never

16.2. A few times per year

16.3. Monthly

16.4. Weekly or more often

17. Who is responsible for cleaning this ward? (most often)

17.1. Facility Administrator

17.2. District Official (Environmental Health Officer)

17.3. Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)

17.4. Physician

17.5. Nurse/Midwife

17.6. External provider

17.7. Cleaner

17.8. Family members/friends of patients

17.9. No one

17.10. Other (please specify)

17.11. Don't Know

18. Does the person(s) responsible for cleaning have a formal job description?

18.1. Yes

18.2. No

19. Does the person(s) responsible for cleaning have a salary?

19.1. Yes

19.2. No

20. Does the person(s) responsible for cleaning have standard work hours?

20.1. Yes

20.2. No

21. Do they wear protective gear (gloves, mask, boots, apron, etc.) while cleaning the facility?

21.1. Yes

21.2. No

22. How often is the waiting area cleaned?

22.1.   Daily

22.2.   Weekly

22.3.   Other (please specify)

23.   How often are delivery rooms cleaned?

    23.1.   Before each delivery

    23.2.   After each delivery

    23.3.   Both of the above

    23.4.   Daily

    23.5.   Other (please specify)

24.   How is the delivery room cleaned after delivery?

    24.1.   Cleaned with water

    24.2.   Cleaned with bleach and water

    24.3.   Cleaned with bleach

    24.4.   Other (please specify)

25.   What materials are needed for cleaning the delivery rooms?

    25.1.   Broom with dust bin

    25.2.   Mop

    25.3.   Bucket

    25.4.   Soap/detergent for cleaning

    25.5.   Disinfectant or chlorine solution

    25.6.   Cleaning equipment with trolley

    25.7.   Other

    25.8.   None of the above

26.   How often are ward-based audits undertaken to assess the availability of hand-rub, soap, single use towels and other hand hygiene resources? (If never skip next question)

    26.1.   Daily

    26.2.   Weekly

    26.3.   Monthly

    26.4.   Never

    26.5.   Other (please specify)

27.   Are bed linens used for patients in this facility?

    27.1.   Yes, linens provided for

    27.2.   Yes, patients bring linens

    27.3.   No

    27.4.   Other

28.   Are soiled linens washed on site?

    28.1.   No, they are cleaned elsewhere (hint: different facility or patients)

    28.2.   Yes

    28.3.   Other

29.   How often are bed linens, paper on beds/mats or other materials on which patients sit/lay during appointments/procedures changed or cleaned?

    29.1.   After each patient

    29.2.   Daily

    29.3.   Whenever infectious medical waste (blood, other bodily fluids) is present

    29.4.   Whenever non-medical waste (plastic wrappers, etc.) is present

    29.5.   Both c and d

    29.6.   Other

30.   When attending to multiple patients, do nurses and midwives change their gloves in between?

    30.1.   Yes

    30.2.   No

31.   What is the final cleaning method used for critical medical equipment used in child delivery? (hint: cord clamp, cord blade or scissors, forceps, etc.)

    31.1.   Electric autoclave

    31.2.   Non-electric autoclave

31.3. Electric dry heat sterilizer
31.4. Electric boiler or steamer
31.5. Non-electric pot with cover for boiling/steam
31.6. Soap and water
31.7. Chemical disinfectant (chlorine)
31.8. Other

32. For equipment that is sterilized, do you have a method to confirm that it is sterile?
32.1. Yes
32.2. No
32.3. Not applicable

33. How does this facility handle placentas? (most often)
33.1. 2-chamber incineration
33.2. Brick incineration
33.3. Open burning
33.4. Open dumping without burning
33.5. Not burned and added to general waste
33.6. Not burned, buried in lined, protected placenta pit
33.7. Not burned, but collected for medical waste disposal
33.8. Taken home
33.9. Other (please specify)

34. Is there a regular and sufficient supply of electricity in the birth facility to ensure lighting for women and staff?
34.1. Yes
34.2. Yes, but with disturbances every day
34.3. Yes, but with disturbances every week
34.4. No

35. Is there a regular and sufficient supply of electricity in the birth facility to ensure a functioning water pump?
35.1. Yes
35.2. Yes, but with disturbances every day
35.3. Yes, but with disturbances every week
35.4. No

36. Is there a separate ward or designated area available for mothers or newborns with infections?
36.1. Yes
36.2. No

37. Is there a 24-hr list of on-call providers for child delivery?
37.1. Yes
37.2. No

38. Is someone responsible for counseling post-partum mothers on infection prevention?
38.1. Yes
38.2. No

Out-patient survey

1. Does this facility have an outpatient ward? (If no, skip this section of ward specific questions)
    1.1. Yes
    1.2. No
2. Position/Title of person responding to this portion of the survey?
    2.1. Facility Administrator
    2.2. District Official (Environmental Health Officer)
    2.3. Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
    2.4. Physician
    2.5. Nurse/Midwife
    2.6. Other (please specify)
3. Approximately how many medical staff work on this ward? (hint: physicians, nurses, midwives, etc.)
    3.1. Numerical entry
4. How many of the staff are full-time?
    4.1. Numerical entry
5. What is the average number of patients visiting this facility in a particular day?
    5.1. Numerical entry
6. How many beds are in this facility?
    6.1. Numerical entry
7. Does the facility consistently have enough beds for the patients seeking care?
    7.1. Yes
    7.2. No
8. How many latrines are in this ward?
    8.1. Numerical entry
9. What type(s) of latrine(s) is (are) used in the facility?
    9.1. Flush toilet
    9.2. Pour flush toilet
    9.3. Pit latrine with slab
    9.4. Pit latrine without slab
    9.5. Ventilated improved pit latrine
    9.6. Composting latrine
    9.7. Hanging latrine
    9.8. No latrines
    9.9. Other
10. Is there a latrine available exclusively for women to use?
    10.1. Yes
    10.2. No
11. Is there a latrine available exclusively for staff use?
    11.1. Yes
    11.2. No
12. How often are the latrines cleaned?
    12.1. More than once per day
    12.2. Daily
    12.3. Weekly
    12.4. Monthly
    12.5. Never
    12.6. Other (please specify)
13. How often do you receive complaints from patients or staff about the latrines/toilet?

       13.1.   Never

       13.2.   A few times per year

       13.3.   Monthly

       13.4.   Weekly or more often

14. Who is responsible for cleaning this ward?
    - 14.1. Facility Administrator
    - 14.2. District Official (Environmental Health Officer)
    - 14.3. Facility-level Environmental Health Staff (Health Surveillance Assistant, Assistant Environmental Health Officer)
    - 14.4. Physician
    - 14.5. Nurse/Midwife
    - 14.6. External provider
    - 14.7. Cleaner
    - 14.8. Family members/friends of patients
    - 14.9. No one
    - 14.10. Other (please specify)

15. Does the person(s) responsible for cleaning have a formal job description?
    - 15.1. Yes
    - 15.2. No

16. Does the person(s) responsible for cleaning have a salary?
    - 16.1. Yes
    - 16.2. No

17. Does the person(s) responsible for cleaning have standard work hours?
    - 17.1. Yes
    - 17.2. No

18. Do they wear protective gear (gloves, mask, boots, apron, etc.) while cleaning the ward?
    - 18.1. Yes
    - 18.2. No

19. How often is the waiting area cleaned?
    - 19.1. More than once per day
    - 19.2. Daily
    - 19.3. Weekly
    - 19.4. Monthly
    - 19.5. Other (please specify)

20. How often are patient rooms cleaned?
    - 20.1. Whenever infectious medical waste (blood, other bodily fluids) is present
    - 20.2. Whenever non-medical waste (plastic wrappers, etc.) is present
    - 20.3. Both of the above
    - 20.4. Daily
    - 20.5. After each patient

21. What materials are needed for cleaning patient rooms?
    - 21.1. Broom with dust bin
    - 21.2. Mop
    - 21.3. Bucket
    - 21.4. Soap/detergent for cleaning
    - 21.5. Disinfectant or chlorine solution
    - 21.6. Cleaning equipment with trolley
    - 21.7. Other
    - 21.8. None of the above

22. How often are ward-based audits undertaken to assess the availability of hand-rub, soap, single use towels and other hand hygiene resources? (If never skip next question)

      22.1.   Daily
      22.2.   Weekly
      22.3.   Monthly
      22.4.   Never
      22.5.   Other (please specify)

23. Are bed linens used for patients in this facility?
      23.1.   Yes, linens provided
      23.2.   Yes, patients bring linens
      23.3.   No
      23.4.   Other

24. Are soiled linens washed on site?
      24.1.   No, they are cleaned elsewhere (hint: different facility or patients)
      24.2.   Yes
      24.3.   Other

25. How often are bed linens, paper on beds/mats or other materials on which patients sit/lay during appointments/procedures changed or cleaned?
      25.1.   After each patient
      25.2.   Daily
      25.3.   Whenever infectious medical waste (blood, other bodily fluids) is present
      25.4.   Whenever non-medical waste (plastic wrappers, etc.) is present
      25.5.   Both 25.3 and 25.4
      25.6.   Other

26. What is the final cleaning method used for critical medical equipment? Select all that apply (hint: surgical instruments, razors, forceps, catheters, ultrasound probes).
      26.1.   Electric autoclave
      26.2.   Non-electric autoclave
      26.3.   Electric dry heat sterilizer
      26.4.   Electric boiler or steamer
      26.5.   Chemical disinfection (e.g. in chlorine solution)
      26.6.   Non-electric pot with cover for boiling/steam
      26.7.   Soap and water
      26.8.   Not applicable
      26.9.   The supplies are not cleaned
      26.10.   Other

27. For equipment that is sterilized, do you have a method to confirm that it is sterile?
      27.1.   Yes
      27.2.   No
      27.3.   Not applicable

Code Book

Parent code	Children codes	Grandchildren codes
Preventive health	Policy level; Coordination; Decentralization; Communication with other gov't officials; Specific policy	
Season	Wet season; dry season; cold season; hot season	
HCF characteristics	HCF practices; HCF conditions; HCF infrastructure; HCF relationships; HCF supplies; Communication	**HCF practices:** cleaning practices / **HCF infrastructure**: building; incinerator; isolation room; guardian shelter; pit with fence; pit without fence / **HCF relationships**: HCW-HCW, HCW-patient; HCW-other staff; other staff-other staff; other staff-patients; **Communication**: posters; outreach; **HCF supplies**: Cleaning supplies; fuel; linens; medicine
HCF conditions	Nosocomial infections; HCF cleanliness; demand for service; quality of care	
Maternity	Safety; Maternity conditions; maternity infrastructure; maternity practices	**Maternity conditions:** neonatal mortality; maternal mortality / **Maternity infrastructure:** mattresses; showers; nursery/incubation; lighting; post-natal; ante-natal
Training	training level*	**Training level**: National; district; facility; other
Staffing	Roles and responsibilities*; qualifications; contract type; work conditions; supervision	**Roles and responsibilities**: EH responsibilities; job description
Water	Water maintenance; water reporting; water payment; water use; water access; water prioritization; water system characteristics; hot water	**Water system characteristics:** Water source; water quality; water treatment; water system type; back-up water source; water system reliability; water system breakdown; water system repair; Non-HCF use of water system / **Water use:** bathing; cleaning; cooking; drinking water
Hygiene/Infection prevention	Hand hygiene; Sterilization/disinfection; personal protective equipment; laundry;	Hand hygiene: access to stations; access to soap; access to drying materials

	ventilation; vector control; food safety; vaccines; menstrual hygiene	
Sanitation	Sanitation maintenance; sanitation reporting; sanitation payment; sanitation characteristics; sanitation access; sanitation practices; sanitation breakdown CLTS; ODF	**Sanitation characteristics:** backup sanitation source; cleanliness/quality of sanitation facilities; primary sanitation source; quantity of facilities; sanitation facility type
Waste management	Waste transport; waste segregation; waste treatment; waste disposal; waste-related injuries; wastewater	**Waste segregation:** infectious waste; non-infectious waste; sharps; placenta
Energy	Energy supply characteristics; energy maintenance; energy breakdown; energy payment; energy access; energy prioritization; Energy use	**Energy supply characteristics:** Primary source; backup source; energy reliability; energy supply quality; **Energy Use:** sterilization, lighting, water pump, refrigeration, critical equipment, energy at night; temperature control
Transportation		
Policy	Policy level; Coordination; Decentralization; Communication with other gov't officials; Specific policy	**Policy level**: International; National; district; facility / **Communication with other gov't officials**: Primary contact; Frequency of communication; Method of communication / **Specific policy:** Public Health Act; Draft Environmental Health Policy*; SDGs
Human rights	Dignity; Equity; Patient rights; Human right to EH*	Human right to EH: affirmative; negative
Challenges		
Successes		
Opportunities		
Methods	Great quote; contradiction/lie; Unclear - follow up; New code needed; Other	
Sufficiency	Sufficient; Insufficient; absent	**Sufficient**: resources; access / **Insufficient**: resources; access
Actor	HCF Administrator; Cleaner; Community; Community leader; DHO; District government; Environmental Health Official; Central government; HCF*; HCW; HSA; Maintenance team; NGO/external support actor; Patient; SHSA; Ward in-charge; Utility; Committee; Guardian; Other ministry; Other actor	**Committee:** National committee; district committee; facility committee; village committee; IP committee / **Environmental health official:** EHO, AEHO, HSA, SHSA, Central level official, district level official, facility level official / **HCF:** Central HCF, District HCF, Health center, Health

		post/dispensary / Other **Ministry:** Ministry of Water and Irrigation
Budget	National budget; District budget; Facility budget; EH budget; specific allocation	
EH definition		
Recommendations		
Inspection		
Prioritization		