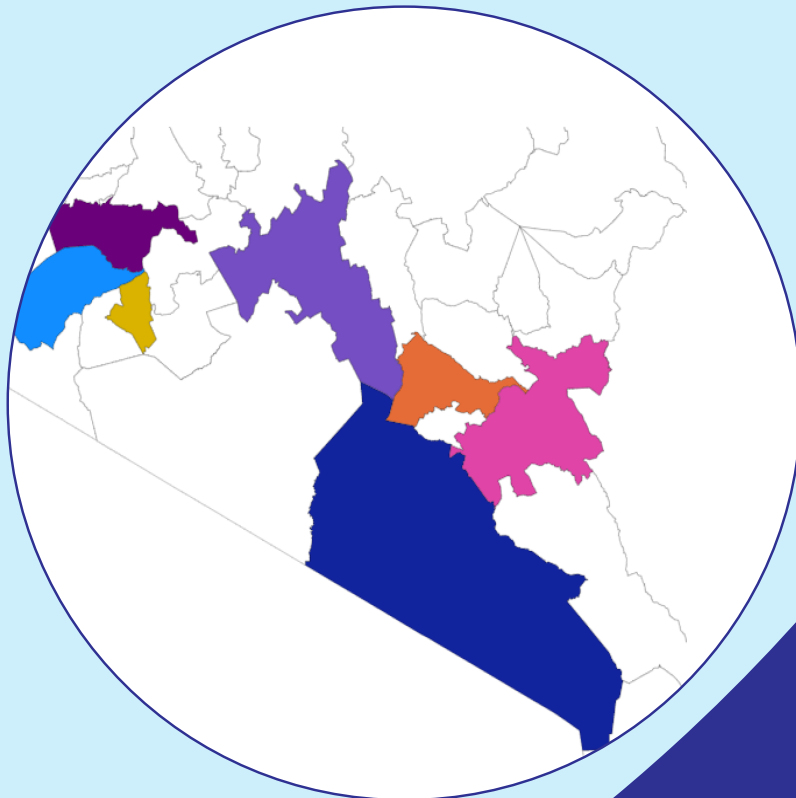


REPUBLIC OF KENYA



MINISTRY OF HEALTH

**KENYA STATUS REPORT ON INFECTION
PREVENTION AND CONTROL IN
HEALTH CARE FACILITIES:
BASIC HYGIENE AND HAND-WASHING SERVICES**



OCTOBER 2022

EDITION 1.0

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FOREWORD

Adequate clean water, safe sanitation and good hygiene in health care facilities are fundamental to infection prevention and control (IPC) of waterborne diseases and hospital acquired infections as the backbone of patient safety. However, alarming gaps exist in the provision of basic hygiene and handwashing services in health care facilities across many countries. These gaps were recently brought forth by the joint WHO/UNICEF joint report on Water, sanitation and Hygiene (WASH) in health care facilities titled “An unmet need “*The world can no longer afford to overlook the fundamentals*”. The report from 47 countries, mainly from Africa Region, brought forth key gaps and related mortality. It specifically noted that one in four health care facilities (1/4) do not have basic water services, one in ten health care facilities (1/10) have no sanitation services, and one in three (1/3) globally do not have adequate facilities to clean hands where care is provided. The report noted that as a result, more than 90% of healthcare workers do not adhere to recommended hand hygiene practices, and up to one million mothers and newborns die from preventable infections linked to unclean births.

To galvanize global efforts, the World Health Assembly resolution on WASH in health care facilities in May 2019 provides for public commitment by all member states to invest in actions towards Universal Coverage of basic hygiene and hand washing in health care facilities by 2030. Towards this, Kenya’s’ Ministry of Health Environmental Sanitation and Hygiene policy and strategy envisions hygiene and sanitation as part of health systems development. However, the actual coverage of basic hygiene and handwashing services in Kenya was undocumented, and its impacts on preventable causes unknown. Through this assessment, it has however been established that though 63.7% of the health facilities had adequate water, water was unsafe in half (49.5%) of those facilities. Also 58% did not have adequate hand washing stations, 62% did not have functioning hygiene stations at points of care, 45% did not have dedicated decontamination area, and 21% did not have reliable sterile material supply or sterilization equipment. To improve on the low coverage, The Organization of African First Ladies for Development (OAFLAD) champions the regional agenda. It will be recommendable for County Governors or First ladies to also take key advocacy role as County goodwill Ambassadors.



Susan Mochache, CBS.
PRINCIPAL SECRETARY, MINISTRY OF HEALTH

ACKNOWLEDGEMENT

The Ministry of Health leadership approved the assessment of basic hygiene and hand washing services as a core component of infection prevention and control in healthcare facilities. The team then embarked on harmonization of the assessment tool, leading to the actual assessment through to the finalization of this report.

This report is a result of joint contributions, with efforts and guidance of the Ministry of Health in partnership with partners in Water and Sanitation represented by WASH Alliance, AMREF Kenya, and KWAHO amongst others. The technical leadership and financial support were provided by World Health Organization. The process involved the Counties of Homabay, Kajiado, Kiambu, Kisumu, Machakos, Nakuru and Nyamira as early adopter counties while Kisii and Migori were involved in the development of the WASH Assessment tool.

Special thanks to the Directorate of Public Health under the leadership of Brigadier Dr. Francis Kuria, Department of Environmental Health headed by Colonel Susan Mutua, Ministry of Health National WASH hub team comprising Adam Mohammed, Janet Mule and Ibrahim Basweti, Doyle Leonard, Emmah Mwendu and Anita Kamanda and WHO technical lead, Solomon Nzioka.

The WASH Division further would like to acknowledge the department of Public Health team, County Departments of Health of Machakos, Kajiado, Kiambu, Kisumu, Homabay, Nyamira and Nakuru Counties for their support throughout the assessment by actively participating in the data collection process and the final documentation of the assessment findings.

The process of conducting this assessment and subsequent data analysis and documentation was possible through technical and financial assistance from the WHO. To this end, I wish to sincerely thank the WHO County Representative, Dr. Diallo Abdourahmane for providing the required UN leadership in this all-deserving area of infection prevention and control.



Dr. Patrick Amoth, EBS.

Ag. Director General for Health

GLOSSARY (WORKING DEFINITION)

Adequate water	The water necessary for human or sanitary use or for preparation of food products and other purposes for which the water is intended for use
Clean water	Safely managed drinking water surfaces that are; located on premises, available when needed and free from contamination. (<i>WHO-2020</i>)
Cleaning material	Items used to remove contaminants and other materials such as dirt and grease.
Decontamination	Process of removing soil and pathogenic microorganisms from objects such as medical devices so that they are safe to handle. The decontamination process involves cleaning, disinfection, and sterilization
Defecation	In which excreta of adults or children are deposited (directly or after being covered with a layer of earth) in the bush, field, beach, or other open areas: and are discharged into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded. The defecation is not in a latrine or covered pit.
Disinfection	Elimination of most or all pathogenic microorganisms, except bacterial spores, on inanimate objects.
Duty roster	A list which gives details of the order in which different people must do a particular job.
Fully Vaccinated	A person who has received the three antigens as per the recommended schedule
Functional latrine	A latrine with a pit for collection and decomposition of excreta from which liquid infiltrates into the surrounding soil.
Hand hygiene station	This is a facility put up in a health facility to clean hands regularly with running water and soap or alcohol-based rub which is a highly cost-effective way to protect people's health. (<i>UN-water facts</i>).
Health Hazard	Chemical, physical or biological factors in our environment that can have negative impacts on our short- or - long-term health.
Hygiene	A set of practices associated with the preservation of good health and healthy living. It consists of behaviors related to the management of human waste, such as hand washing with soap or safe disposal of

sanitary products. (*Menstrual Hygiene management strategy 2019-2014*)

Hygiene Promotion	A planned and systematic approach to preventing sanitation-related diseases through the widespread adoption of safe hygiene practices. It aims to enable people to take action to prevent or mitigate water, sanitation, and hygiene-related diseases. (<i>Kenya Environmental Sanitation and Hygiene Policy 2016-2030</i>)
Improved toilets	Hygienic toilets that are inclusive; that caters to all users including special groups e.g., PWDs, women and girls.
Isolation	A state of separation between persons or groups. Denoting a hospital or ward for patients with contagious or infectious diseases.
Isolation Room	A specialized patient care area usually in a hospital
Open defecation	Practice of defecating in the open in open fields, waterways, and open trenches without any proper disposal of human excreta. This, therefore, means defecating in a shallow pit latrine where faecal matter is accessible to flies for lack of an aperture lid is also open defecation.
Partially vaccinated	A person who has received any of the three vaccines (COVID-19, Tetanus and Hepatitis B) but not all or some of the doses as per recommended schedule.
Personal protective equipment	Protective clothing, helmets, gloves, face shields, goggles, facemasks and/or respirators or other equipment designed to protect the wearer from injury or the spread of infection or illness.
Pit Latrine	Latrine with a pit for collection and decomposition of excreta and from which liquid infiltrates into the surrounding soil. (<i>Kenya Environmental Sanitation and Hygiene Policy 2016-2030</i>)
Record of cleaning	Documentation of what has been done and by who on a piece of paper as per WHO and national IPC guidelines.
Risk	Likelihood or chance that something will harm or otherwise affect one's health
Safe Water	Having water at home, whenever needed, and free from contamination. (<i>UNICEF; How unsafe water, sanitation and hygiene puts children at risk. By Phillipa Lysaght and Lear Selim</i>)

Standards of Operation (SOP)	A set of step-by-step instructions compiled by an organization to help workers carry out routine operations.
Sterilization	A process that destroys or eliminates all forms of microbial life by physical or chemical methods
Vaccination	Inoculation with three antigens (COVID 19, Tetanus and Hepatitis B) to waste handlers to produce immunity
Waste Collection Bin	A type of container made of plastic or metal; pedal operated with a lid. They are colour coded with corresponding liners depending on the type of waste they carry.
Waste Disposal area	Any area of land on which waste disposal facilities are physically located or final discharge point without the intention of retrieval but do not mean a reuse or recycling plant or site. (<i>Health Care Waste Management Guidelines</i>)
Waste management	All activities; administrative, operational, and transportation involved in handling, treating, conditioning, storing, and disposing of waste.
Wastewater	Water is discharged from all hospital activities, both medical and non-medical, including activities in surgery rooms, examination rooms, laboratories, nursery rooms, radiology rooms, kitchens, and laundry rooms
Waste handler	A person who takes the action required to manage waste from its inception to its final disposal. The process of waste handling includes the collection, transport, treatment, and disposal of waste, together with monitoring and regulation of the waste management process and waste-related laws, technologies, economic

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1.0 INTRODUCTION

Safe sanitation in health care facilities is an essential component of quality of care and infection prevention and control strategies, especially for preventing exposure of health service users and staff to infections (WHO, 2016a), and particularly in protecting pregnant women and newborns from infections which may lead to adverse pregnancy outcomes, sepsis, and mortality (Benova, Cumming & Campbell, 2014; Padhi et al., 2015; Campbell et al., 2015). Access to safe sanitation systems and health care facilities is essential for overall well-being.

Health care workers in low- and middle-income countries (LMICs) deal with many challenges to deliver the highest quality of care. For example, many health care facilities (HCFs) lack adequate environmental conditions and basic standard precaution items to prevent and treat infection in the very places where patients seek care. So, what are environmental conditions and standard precaution items? Think water, sanitation, and hygiene (WASH) – essential components to providing basic health services that include water availability and quality, presence of sanitation facilities, availability of soap and water for handwashing, personal protection supplies like gloves and gowns, infectious waste disposal, sterilization equipment, and energy services. These standards and precautions are critical to safe patient care, preventing infections and the spread of disease, and the protection of health care workers, visitors, and the community.

The above was confirmed by a recent WHO/UNICEF joint assessment report on Water, sanitation and Hygiene (WASH) in health care facilities titled “An unmet need “The world can no longer afford to overlook the fundamentals” brought forth key gaps and related mortality. This was based on an analysis of country reports from 47 countries, mainly from Africa Region. The key highlights from WHO / UNICEF 2019 assessment report included;

Globally, major gaps in basic water, sanitation, hygiene (WASH) and waste management services exist in health care facilities

1. One in four health care facilities (1/4) do not have basic water services, which means 1.8 billion people lacked basic water services at their health care facilities and 712 million have no water at their health care facility.
2. One in ten health care facilities (1/10) have no sanitation services
3. One in three (1/3) globally do not have adequate facilities to clean hands where care is provided

4. One in three health care facilities (1/3) do not segregate waste safely.

Critical lack of WASH services especially in the least developed countries

- 1 in 2 (50%) of health care facilities lack basic water services and 3 in 5 (60%) have no sanitation services.
- 7 out of 10 (70%) health care facilities in the least developed countries lack basic health care waste management services.
- The economic fall-out from COVID-19 restriction measures threatens to widen this gap.

Impact of low basic water services, hygiene and WASH in Healthcare facilities;

1. More than 90% of healthcare workers do not adhere to recommended hand hygiene practices
2. Up to 1 million mothers and newborns die from preventable infections linked to unclean births
3. In Africa, up to 20% of women get wound infections after caesarean section
4. Hospital-born babies in low-income settings are at a higher risk of being affected by neonatal sepsis
5. On average, about 15% of patients in low-income and medium countries will acquire one infection while undergoing acute care in hospitals

The WHO / UNICEF Health care facility WASH assessment report did not only give out a report but most importantly, proposed certain action points for Kenya which have a timeline and are simple to implement, namely;

- Situation analysis: undertake baseline assessment on basic water services and hand washing in healthcare using the WHO infection prevention and control framework (component 7 - build environment)
- Leadership: Focused on country support and tracking Workforce development, standards/regulation, monitoring, costing/budgeting, and infrastructure improvements. This should lead to the consolidation of efforts toward the completion of the Kenya HCFs WASH Guidelines and Standards by 2022.
- Resources: Governments, partners and donors increase investments in WASH and IPC with ring-fenced financing by 2023
- Towards universal coverage: At least 80% of facilities have basic WASH services by 2025

In 2021, WHO / UNICEF carried out a follow-up on the country's progress on the suggested proposed action Point. More than 70% of countries have conducted related situation analyses,

86% have updated and are implementing standards and 60% are working to incrementally improve infrastructure and operation and maintenance of WASH services. Case studies from 30 countries demonstrate that progress is being propelled by strong national leadership and coordination, the use of data to direct resources and action, and the mutual benefits of empowering health workers and communities to develop solutions together. Unfortunately, Kenya is one of the Countries that did not assess as recommended and proposed in the WHO / UNICEF report.

In response to the WHO / UNICEF proposal, MOH, with WHO support undertook a baseline assessment on basic water / WASH services and handwashing in healthcare facilities using the WHO infection prevention and control framework. Seven Counties were randomly selected from the 47 Counties in Kenya. The counties which participated in the exercise were Machakos, Kajiado, Nakuru, Nyamira, Kisumu, Homabay and Migori. MOH National, County Public Health and WHO staff participated in the assessment. Each county had one LEVEL 5, two LEVEL 4, four LEVEL 3 and six LEVEL 2 facilities included in the assessment randomly. The assessment found very important findings and applicable and cost-effective and impact recommendations.

2.0 METHODOLOGY

2.1 Study Area

The survey involved 7 out of 47 Counties. The counties included; Nyamira, Homabay, Kisumu, Nakuru, Machakos, Kiambu and Kajiado in Kenya, due to high diarrhea cases.



Figure 1 Map of Kenya indicating target Counties

2.2 Study design

The survey employed the descriptive cross-sectional study design and was both qualitative and quantitative. The descriptive study design was appropriate for identifying the WASH IPC gaps in health facilities.

2.3 Target population

The survey involved a total of ninety-one (91) health facilities across the seven (7) counties; of which 35, 28, 21 and 7 were level 2, 3, 4 and 5 respectively. Participants in the assessment were in-charges of the health facilities.

Inclusion and Exclusion Criteria

Inclusion criteria: All the public health facilities from level 2 to level 5 across the seven (7) counties.

Exclusion Criteria: Private and Faith based health facilities were excluded from the survey

2.4 Sampling procedure and sample size

The survey used a combination of probability and non-probability sampling techniques. The sampling techniques used were stratified random sampling and purposive sampling techniques. The health facilities were divided into strata of levels across the seven counties using simple random sampling, 91 health facilities were purposively assessed.

Table 1: No. of facilities Assessed by County and Level of service

County	Level 5	Level 4	Level 3	Level 2	Total Facilities
Homabay	0	2	6	5	13
Kajiado	0	2	5	6	13
Kiambu	1	2	4	6	13
Kisumu	1	2	4	6	13
Machakos	1	2	4	6	13
Nakuru	1	2	4	6	13
Nyamira	1	3	4	5	13
Total Facilities	5	15	31	40	91

2.5 Data collection

The survey used the mixed methodology approach to collect data quantitatively and qualitatively. Data were collected through observation, interview, and the use of a questionnaire. The data collection instruments included the use of the checklist, questionnaire, and interview schedule.

2.6 Data collection tools

The data collection tools used in this study included a semi-structured questionnaire, observation checklist, and interview guide. The questionnaire was used to collect quantitative data. Semi-structured questionnaires consisted of open-ended and closed-ended questions. They were administered to 91 Health facility heads.

The observation involved the use of a checklist to assess the availability of a cleaning roster and materials, Personal Protective Equipment, decontamination areas, disinfected and sterilization and waste collection bins and medical waste treatment option.

Qualitative data was collected by conducting interviews with ninety-one (91) heads of health facilities across the seven (7) counties. The information collected described the context and phenomenon of WASH IPC gaps in eight thematic areas.

2.7 Data Processing, Analysis, and Presentation

The questionnaires were checked for completeness and consistency before data coding and entry using STATA Version 17. The entered data was then cleaned and analyzed. Data were analyzed using descriptive statistics and frequency counts, where data was presented using charts, percentages, and proportions. For diarrhea data (continuous variable), mean values were used to arrive at the class intervals for overall distribution, level of care specific distribution and county level distribution of the recoded data based on low, moderate and high categorization. Additionally, for measures of association, Pearson's χ^2 test was applied to assess difference in distribution of categorical variables with diarrhea cases as the dependent variable and various hygiene indicators as independent variables.

2.8 Ethical Consideration

Administrative permission was sought from the county department of health. Further, the team involved in the survey explained the purpose of the survey to the respondents before obtaining informed consent.

3.0 CURRENT STATUS

3.1 Hygiene Services in Health Care Facilities

Water, sanitation, and hygiene (WASH) services can be singled out as essential to quality health and healthcare (Waddington et al, 2009, Bartram and Platt, 2010, Benova et al, 2014, Steinmann et al, 2015, UNICEF, 2019). It is estimated that more than 9% of the disease burden and 6% of deaths could be prevented by improving WASH (Bartram and Platt, 2010). To provide quality care, healthcare facilities need to have a safe and accessible water supply, clean and safe sanitation facilities, hand hygiene facilities at points of care and toilets, and appropriate waste disposal systems; this is according to the CDC report on Global Water, Sanitation and Hygiene. For this report, various components of hygiene services were assessed as highlighted below: -

3.1.1 Availability of adequate water

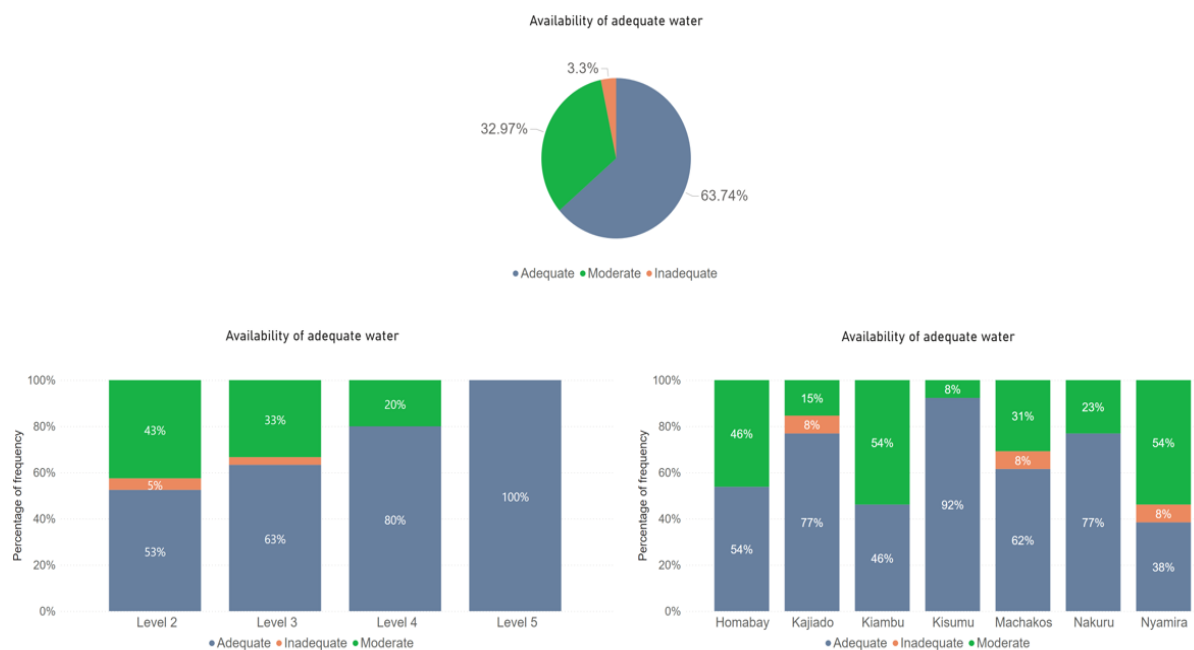


Figure 2: Availability of adequate water

It was found that most of the facilities (63.7%) had adequate availability of water accounting for, while the rest of the facilities (36.3%) had less than adequate water supply. This shows that water availability was a likely threat to full adherence of Infection Prevention and Control practices in majority of the facilities assessed. This may be seen a slight improvement as compared to the WHO/UNICEF 2020 report which indicated that 1 in 4 (25%) health facilities lacked basic water supply. The assessment revealed that water availability increases with the

level of care at 53%, 63%, 80% and 100% for Level 2, 3 4 and level 5 respectively. This is indicative that there is much priority given to higher levels of care, though majority of persons are served at the lower levels of care. More emphasis should therefore be put on levels 2 and 3 for improved adherence to IPC practices.

Out of the counties assessed, only Kisumu County at 92% met the threshold of above 80% as per the recommended National targets on Basic Hygiene and Handwashing by 2025. The remaining counties had lower coverage in terms of water adequacy with Nyamira recording the least at 31%. The other facilities that did not have adequate availability of water require improvement to the adequacy, as they put the facilities at risk of hospital acquired infections (HAIs). The National IPC (2021) policy recommends for the availability of water at all times and in sufficient quantities.

3.1.2 Availability of safe, clean water

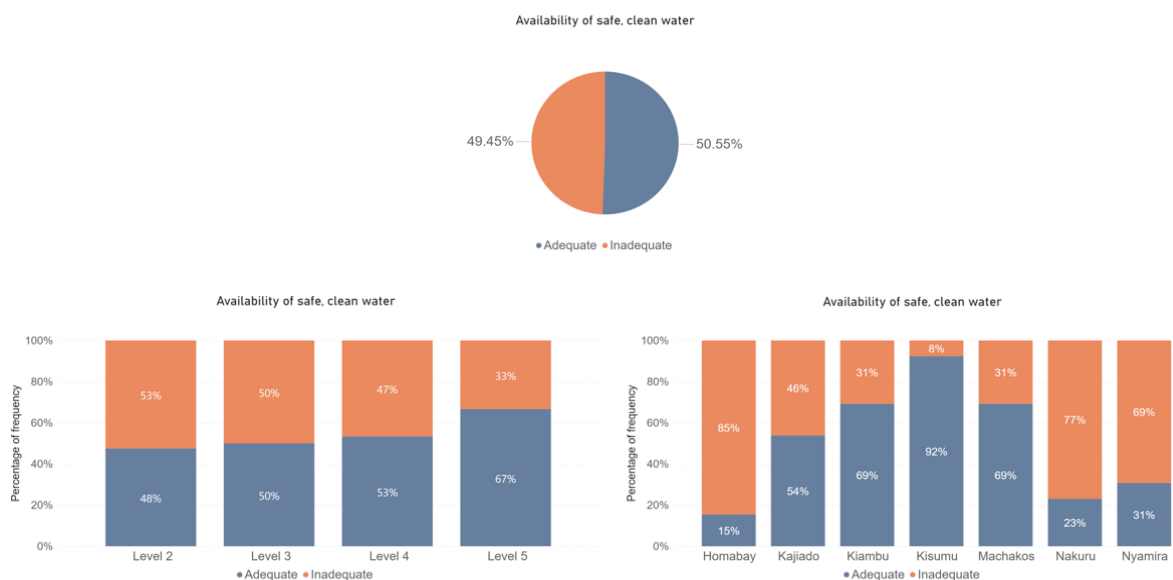


Figure 3: Availability of safe, clean water

Assessment of the availability of safe clean water revealed that slightly more than half (50.6%) of the facilities had access to safe water while the rest had an unsafe water supply. This is an indication that a significant (49.5%) number of facilities have unsafe water supply which is a great health risk factor for both the health care workers and the clients. Comparatively, WHO and UNICEF reported in 2017 that only 71% of the global population used safely managed drinking water and 2.2 billion persons were still without safely managed drinking water (SDG goal no. 6)

Though the availability of safe and clean water increases with the level of care, there remains a considerable proportion of facilities with less than adequate safe and clean water at 49.5%. This trend indicates that healthcare workers and their clients are at risk of infection due to unsafe water supply across all levels of healthcare. Consequently, most medical procedures may be a source of infection, e.g. Direct observed therapy (DOT) for TB treatment.

County wise, Kisumu recorded the highest access to safe water at 92%, whereas Nyamira, Homabay, Nakuru had the least access to safe water at 31%, 23%, and 15% respectively. According to the WHO report on WASH in health facilities (2019), all healthcare facilities should have a basic supply of clean and safe water by 2030 as per the global targets set by member states.

3.1.3 Clearly visible Hand hygiene promotion materials at key places

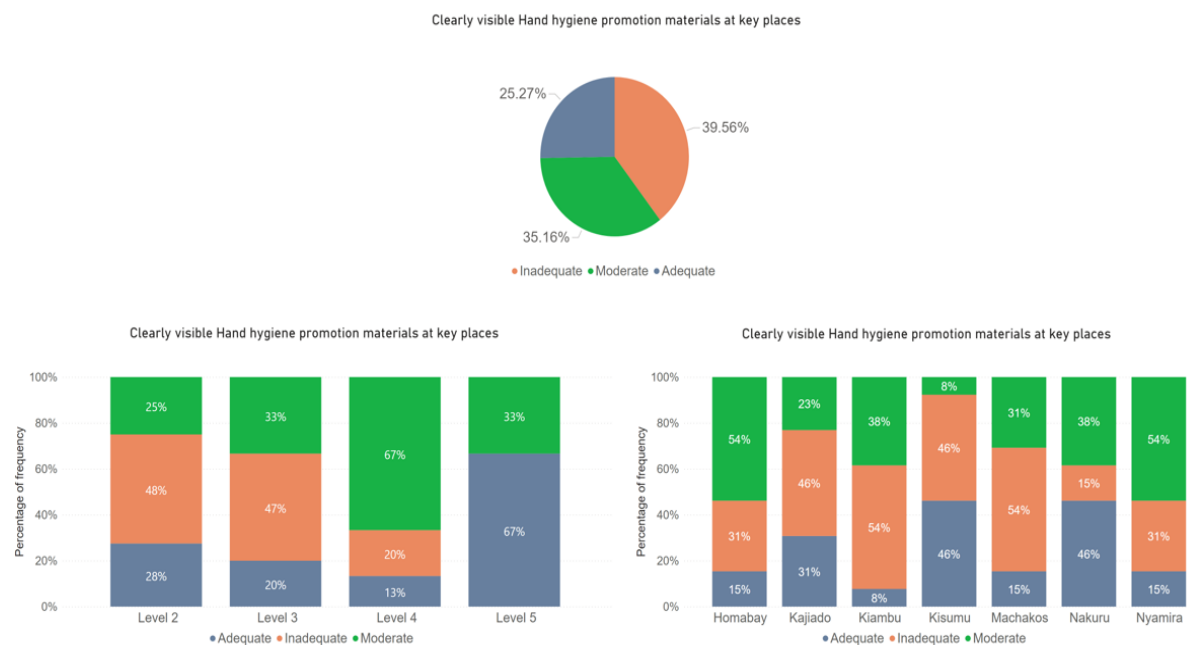


Figure 4: Clearly visible Hand hygiene promotion materials at key places

One in four (25.3%) of the facilities had clearly visible and understandable hand hygiene promotion materials at key places, while a sizable proportion (74.7%) of the facilities did not have the materials. However this was skewed by level of care with most (67%) of the Level 5 facilities having clearly visible hand hygiene promotion materials at key places, while the rest had less than 30% adequacy of IEC materials.

By county all had less than 50% coverage of IEC material for communicating desired IPC practices; Kisumu and Nakuru had the highest at 46% whereas Kiambu had the least coverage

at 8%. Hand hygiene promotion materials encourage adoption of sustainable behavior change among the health care providers and clients. The National IPC Policy (2021) recommends the provision of functional hand hygiene stations with adequately displayed posters.

3.1.4 Availability of hygiene protocol

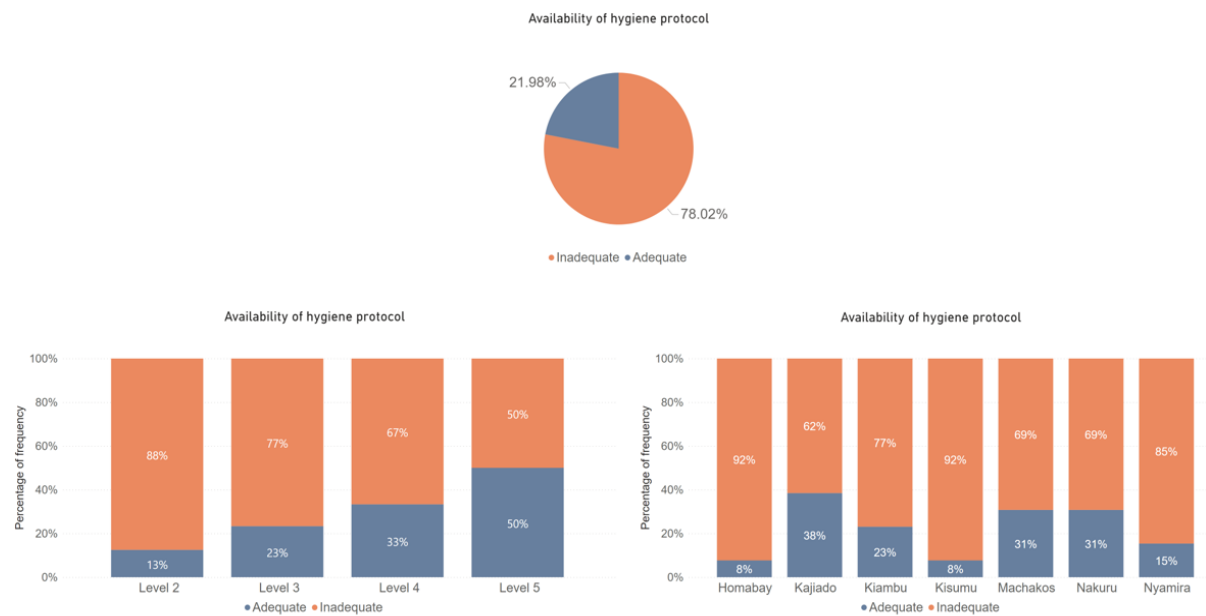


Figure 5: Availability of hygiene protocol

Majority (78%) of the assessed facilities did not hand hygiene protocols in place. This is indicative that most of the facilities may not be aware of the need for hand hygiene protocols which could lead to poor hygiene practices. The assessment revealed that, availability of hygiene protocols improved with level of care, from level 2 at 13% and Level 5 at 50%. The overall availability of hand hygiene protocol was highest in Kajiado at 38%, and least in Homabay and Kisumu each at 8%. This indicated a low availability of hand hygiene protocols across the counties, a key IPC requirement for setting and monitoring adherence in optimal hand hygiene behavior.

3.1.5 Hygiene protocol with a dedicated staff roster

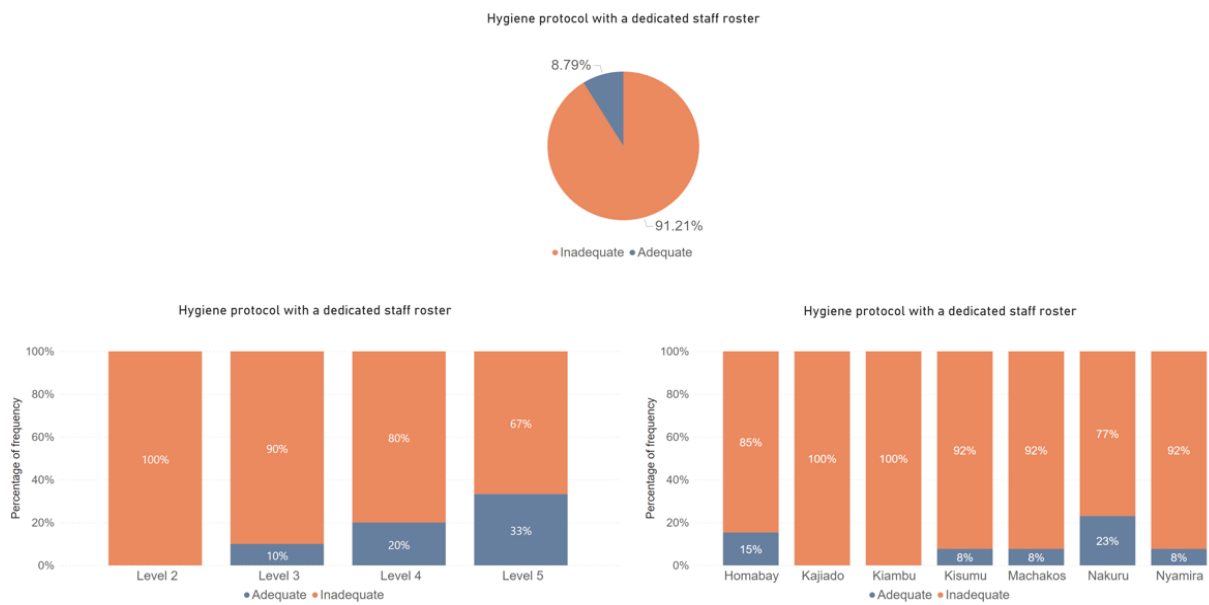


Figure 6: Hygiene protocol with a dedicated staff roster

Majority (91.2%) of the assessed facilities did not hand hygiene protocols with dedicated staff roster. This was the case across all levels of care with level twos (100%) having none, and only 33% level fives having hand hygiene protocols with dedicated staff roster. This implies that there is nobody taking charge of monitoring and enforcing compliance to hand hygiene practices thus poor outcomes as there are no clearly defined mandates on hand hygiene protocol at the health facilities. County wise, this was less than 25% in all counties with Nakuru having a highest presence at 23%, Kisumu, Machakos and Nyamira had the least at 8% each.

3.1.6 Are functioning hand hygiene stations available at all points of care

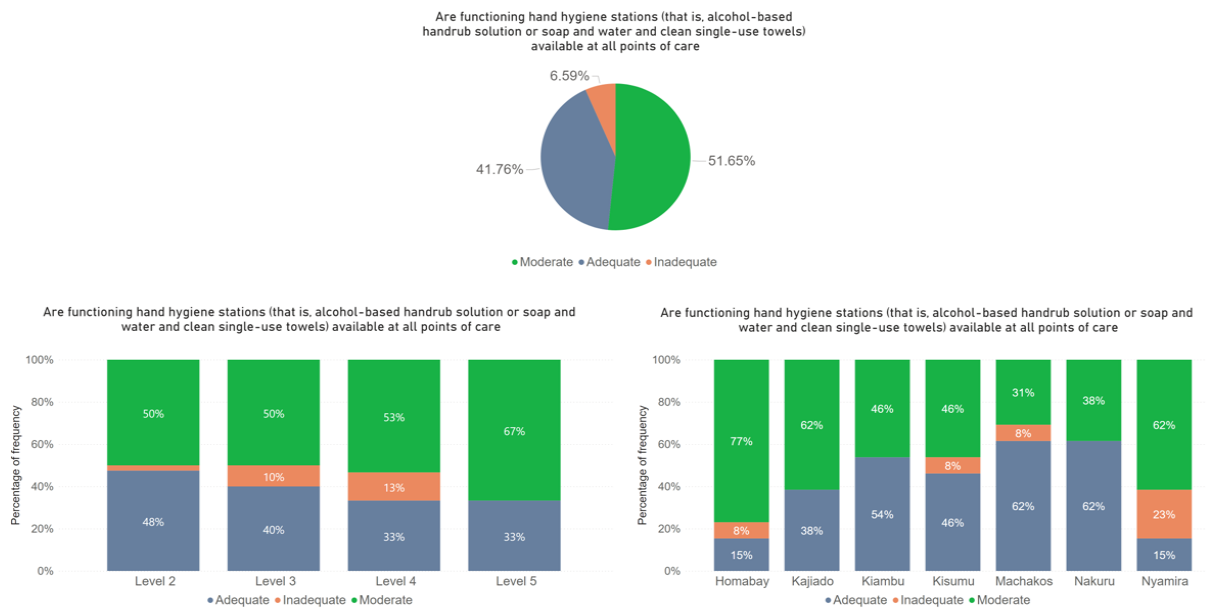


Figure 7: Are functioning hand hygiene stations available at all points of care

According to National IPC guidelines for healthcare service in Kenya (2021), in order to provide high-quality health care services and prevent unnecessary HAIs, strict adherence to simple and cost-effective IPC practices such as hand hygiene must be observed. Hand hygiene at the point of care (POC) is recognized as a best practice for promoting compliance at the moments when hand hygiene is most critical. The POC is defined as the place where the following 3 elements come together: the patient, the health care worker, and the provision of care or treatment.

The recommended coverage of functional hand hygiene stations as per the National IPC Policy for Health Care Services (2021) should be 100%. However, from this assessment, it was reported that less than half (41.8%) of the facilities had functional hand hygiene stations at all points of care while. Thus over half of the health facilities do not practice hand hygiene at every service point posing great health risks to clients and healthcare providers. According to WHO/UNICEF global report (2020), a third (30%) of health facilities lack hand hygiene facilities at the point of care. As noted, this situation is far worse in Kenya with the assessment revealing almost two thirds (60%) of the facilities as having inadequate hygiene stations at service delivery points.

The availability of functional hand hygiene facilities was highest at the level 2 facilities (48%) and lowest in level 5 facilities (33%) indicating that the higher the level of health care, the less

the availability of functional hand hygiene facilities. This implies that optimum hand hygiene practices at all levels of care are not fully practiced in the assessed facilities. For Counties, availability of functioning hand hygiene stations at all points of care Machakos and Nakuru at 62% and lowest Nyamira and Homabay at 15%.

Overall, efforts should thus be put in place in compliance with the WHO First Global Patient Safety report that identified two specific geographic zones within the health care setting: the patient zone and the health care area. The patient zone is defined as a patient's intact skin and his/her immediate surroundings colonized by the patient flora and the health care area as containing all other surfaces. POC hand hygiene products should be accessible without leaving the patient zone (*WHO guidelines on hand hygiene in health care: first global patient safety challenge—clean care is safer care* Geneva, Switzerland (2005)

3.1.7 Functioning hand hygiene stations within 5 m

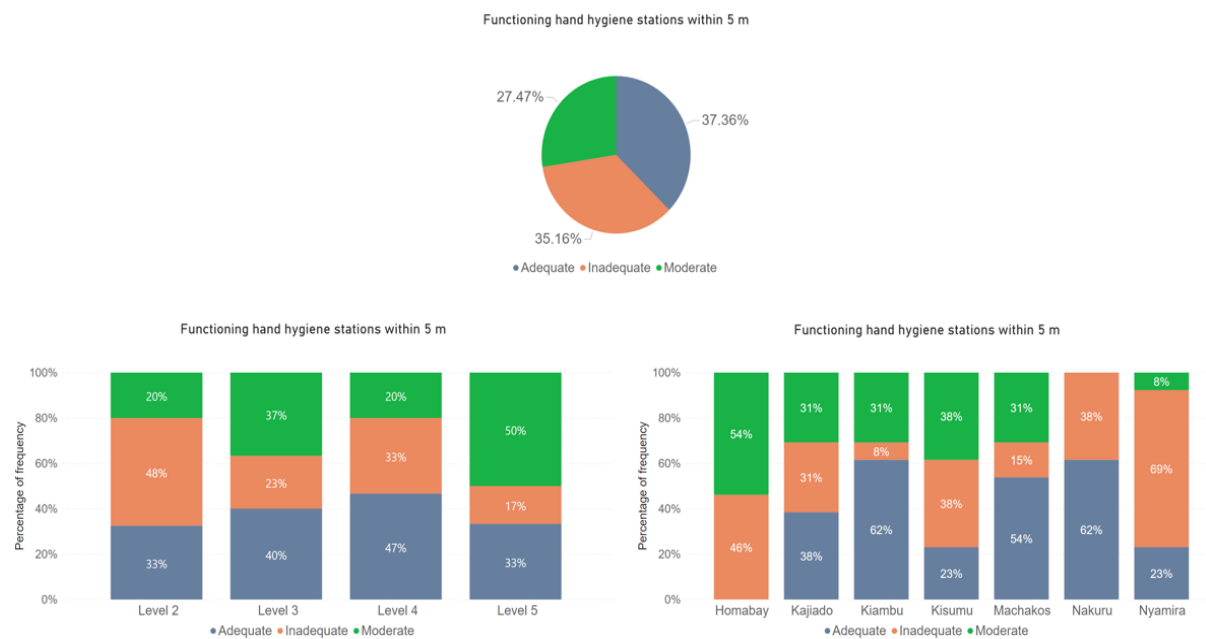


Figure 8: Functioning hand hygiene stations within 5 m

When hand hygiene station within latrine vicinity was assessed, it was reported that the presence of functional hand hygiene stations within 5M from the latrine was less than half (50%) across all facilities, at slightly over a third (37.4%) in all the facilities. By level of care, it was highest at level 4 (47%) health facilities, and lowest at level 2 and 5 (33%). By County, Nakuru and Kiambu had the highest coverage (62%), and lowest in Kisumu and Nyamira at 23%. This is far too low as the National IPC (2021) Policy recommends for provision of adequate hand hygiene facilities at the ablution blocks. This shows that a substantial number

of clients and healthcare providers do not have opportunity to wash their hands after visiting the latrines hence can comprise adherence to IPC practices

3.1.8 Functioning hand hygiene stations in waste disposal area

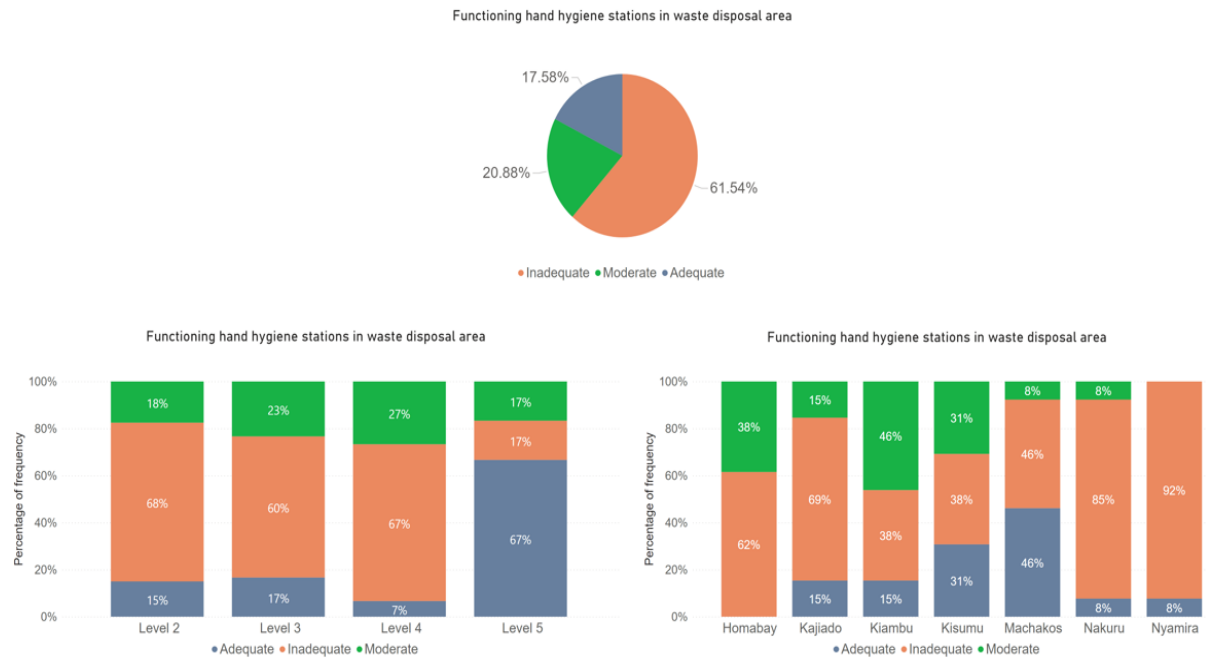


Figure 9: Functioning hand hygiene stations in waste disposal area

Healthcare waste is a potential reservoir of pathogenic microorganisms and requires appropriate, safe, and reliable handling. As per the National IPC guidelines for health care services in Kenya (2010), safe management of healthcare waste is a key issue in controlling and reducing hospital acquired infections. The assessment revealed that only a small proportion (17.6%) of the facilities had adequate hand hygiene facilities within the healthcare waste disposal area, thus indicating critically low hand hygiene practices around the waste disposal facilities.

The availability of functional hand hygiene stations at waste disposal areas was highest (67%) at Level 5, less than 20% in all other levels of care, and lowest at Level 4 at 6.7%. This implies that the waste handlers may not wash their hands and equipment that carry the wastes regularly thus could be a high potential source of infection within our healthcare settings, thus exposing the healthcare waste handlers and the entire healthcare providers and those seeking care within the facilities.

By county, Machakos and Kisumu Counties had highest coverage at 46% and 31% respectively, while coverage in the rest of the counties was 15% and below. These are low coverages as per the National guidelines for safe management of Health Care waste (2022). The guidelines recommend regular hygiene procedures that comply with the Infection Prevention and Control Policy at storage and incineration facilities.

3.2 Sanitation Services in Health Care Facilities

3.2.1 Availability toilets or improved latrines

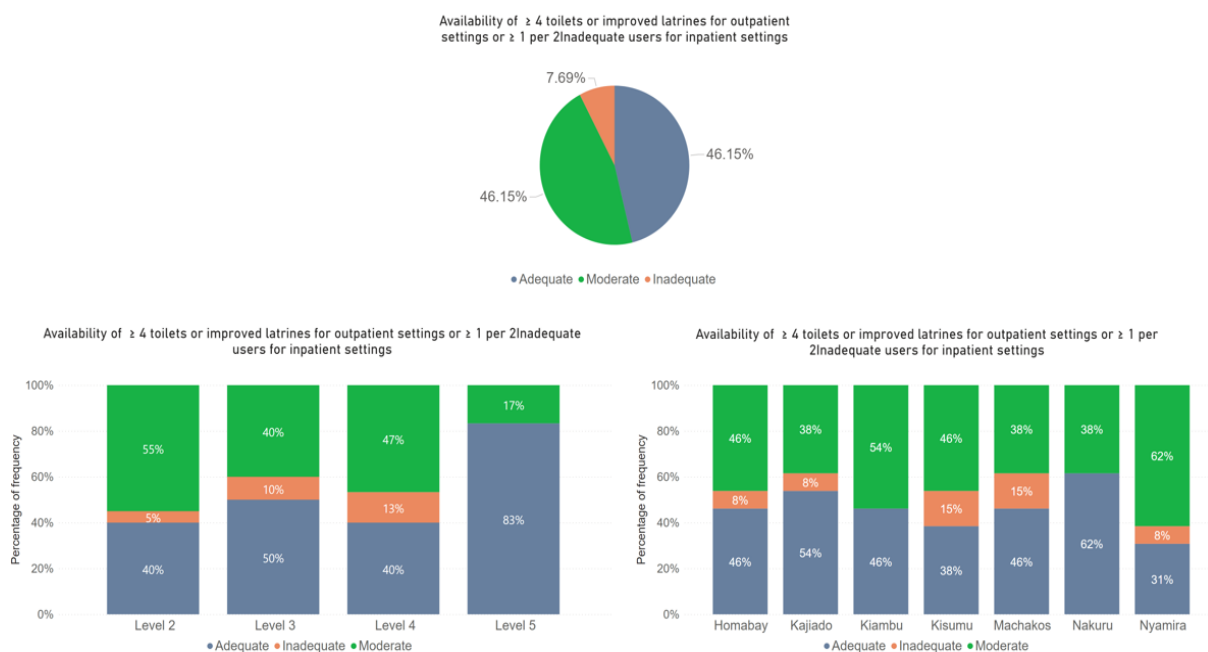


Figure 10: Availability toilets or improved latrines

About half (46.2%) of the facilities assessed had at least 4 toilets or improved latrines for outpatient settings or not less than 1 toilet per 20 users for inpatient but supplies for anal cleansing were mainly missing. This translates to the existence of toilets which are not usable with some lacking water for the flush/pour toilets and others with leaking cisterns. Lack of toilets and unreliable toilets results in the use of open defecation which increases the risk of diseases to the users. Open defecation from the facilities considered environmental reservoirs are sources of resistant pathogens and resistance genes and studies have established a link between improper sanitation and antimicrobial resistance in health care settings.

Across levels of care, level 5 recorded the highest availability of at least 4 toilets or improved latrines for outpatient settings or not less than 1 toilet per 20 users at 83% , this reduced through

the levels of care with level 4 and 2 having the least at 40%. For counties, only Nakuru and Kajiado performed above the average coverage of 46.1% at 62% and 54% respectively.

Most of the level 5 complied with the Ministry of Health infrastructure norms and standards of 2017 general standards that require all facilities to comply with OSHA 2007 and Public Health Act 242. However, poor management practices coupled with lack of goodwill may be contributing to the overall coverage of adequate toilet, and more so at Level 4, 3 and 2. Thus advocacy/ awareness creation and resource allocation is very key to increasing the adequacy to the recommended levels of at least 4 toilets or improved latrines for outpatient settings or not less than 1 toilet per 20 users.

3.2.2 Availability of toilets or improved latrines in the ward clearly separated for staff and patients

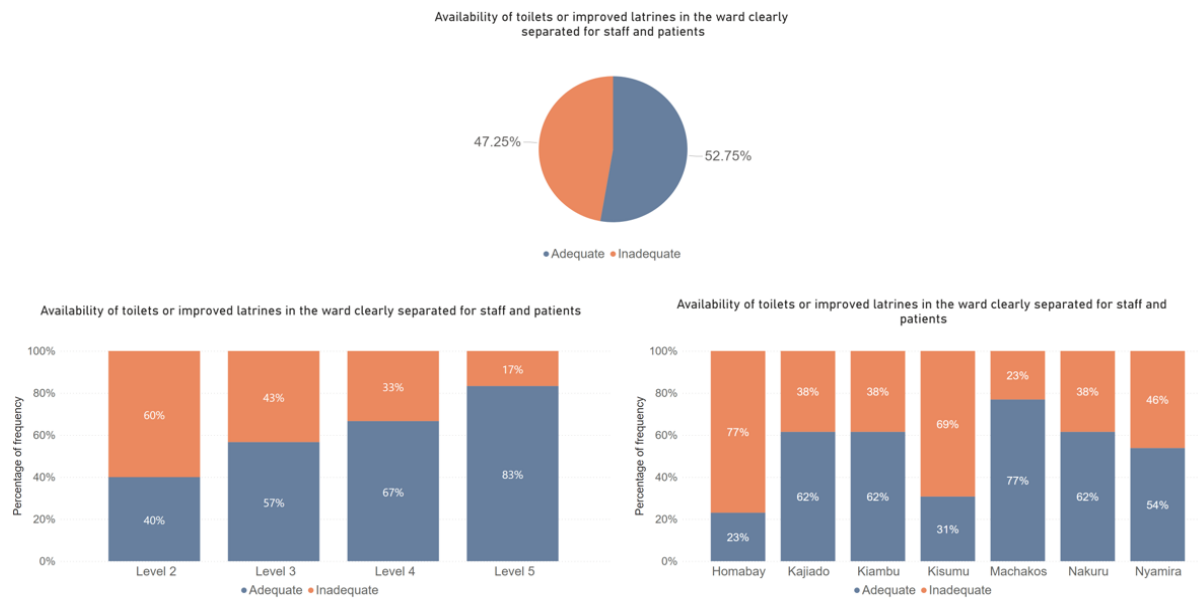


Figure 11: Availability of toilets or improved latrines in the ward clearly separated for staff and patients

This indicator was assessed across all levels not only for the wards, but also level 2 and level 3 outpatient facilities were assessed as well. Overall, 52.8% of all the facilities assessed had toilets/improved latrines clearly separated for staff and patients. Across the levels of care, availability of toilets/improved latrines clearly separated for staff and patients improved with level of care, with level 1 having 40% to level 5 at 83%. Kisumu and Homabay performed below the combined average of 52.7% at 31% and 23% respectively as compared to the highest counties of Kajiado, Kiambu and Nakuru who scored 62% each. From infection prevention perspective, it's clear that about half of the facilities have complied with the prerequisite

requirements of having sanitary facilities separated for staff and patients. Lack of this brings the risk of disease transmission among the individuals accessing health facilities but also those who are tasked with the responsibility of providing that necessary service.

Not having dedicated toilets to staff and patients could likely pose a risk to infection especially of the emerging and re-emerging diseases. The less than 100% score could be due to inadequate resource allocation, prioritization of in the County Integrated Development Plans (CIDPs) and inadequate space in the health facilities. This could be due to lack of awareness amongst the decision making on the need for adequate space for sanitary facilities within the health facilities, as well as need for separate toilets for staff members

3.2.3 Availability of at least one toilet in the wards for disabled

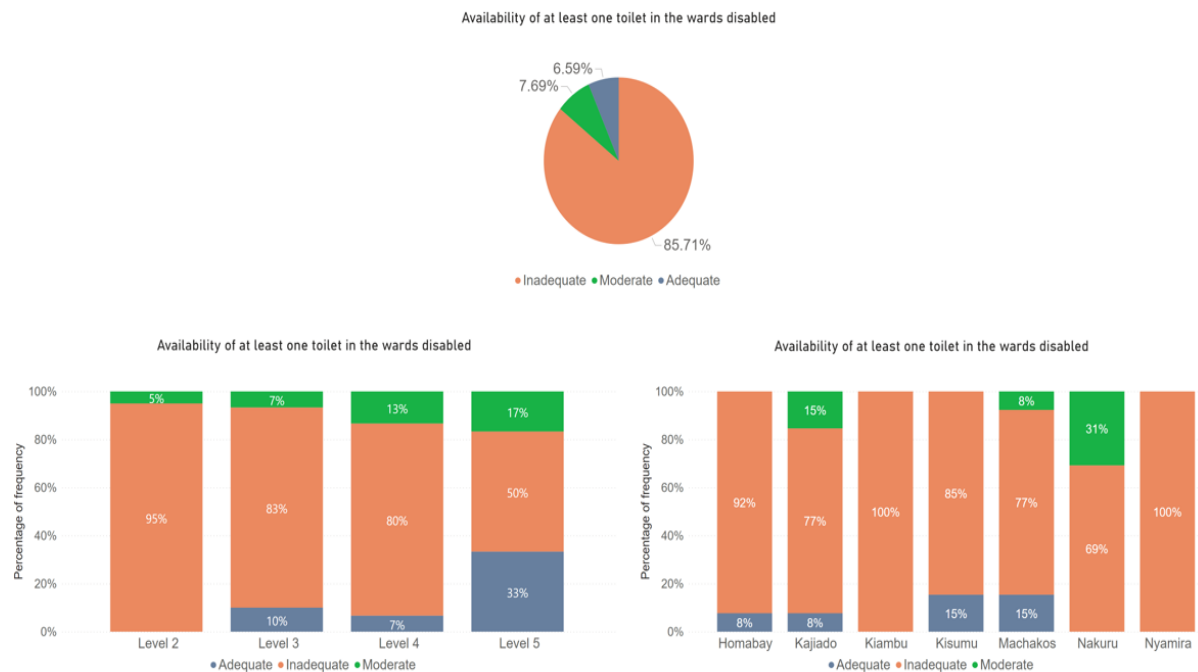


Figure 12: Availability of at least one toilet in the wards for disabled

This indicator was also assessed across all levels not only for the wards, but also level 2 and level 3 outpatient facilities were assessed as well. Of the facilities assessed, 93.4 % did not have toilets that met the needs of persons with disabilities. All level 2 facilities (100%) did not have at least one toilet that met the needs of persons with special needs and disability, but better status was recorded at higher levels of care with level 5 having 33%. The situation was appalling across all counties at 15% and below. This has necessitated a lot of challenges for people with disabilities while accessing healthcare services from most facilities. This either

due to ignorance or low awareness by the decision makers, limited resources and competing priorities; hence the need to scale up sensitization of health facility managers and other relevant stakeholders to prioritize provision of sanitation facilities which are disability friendly (toilets), and compliance with the health policy guidelines on addressing needs of persons with disabilities. According to the UNICEF report (2017), 10% latrines provided should be accessible to people with disabilities while in a hospital set up; where only one latrine is provided, it should be accessible to children and disabled people. Such needs included toilets with ramps, wide doors, presence of handrails, having door handles and clearly marked within reach for persons with limited mobility.

3.2.4 Availability of at least one toilet that provides for MHM

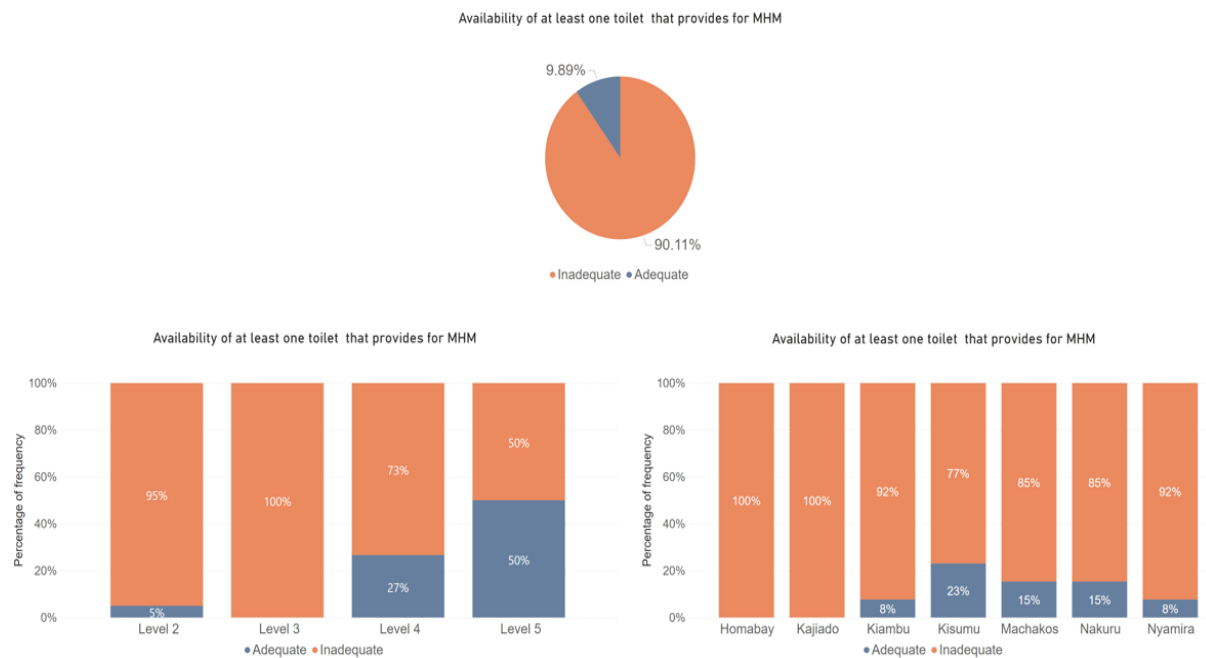


Figure 13: Availability of at least one toilet that provides for MHM

The Kenya Menstrual Hygiene Management (MHM) policy (2019-2030), the mission is ‘ To ensure all women and girls in Kenya can manage menstruation hygienically, freely, with dignity without stigma or taboos, and with access to the right educational information on MHM, Menstrual products, services and facilities, and to safely dispose of menstrual waste.

From the assessment, overall, only 1 in 10 (9.9%) of all health facilities provided at least one toilet facilities meeting menstrual hygiene needs. Majority of the facilities (90.1%) have gender insensitive facilities which possess a risk of infections among the women for they are not able to maintain good personal hygiene while on their menstrual periods; therefore dignity and self-esteem is lowered hence may affect their performance at their workplace. This included lack

of sanitary bins, adequate running water, shower rooms and also lack of separate latrines for females. By level of care, at least half (50%) of level 5 health facilities provided for MHM needs whereas the lower levels had worse proportions with level 2 and 3 being critically low at 5% and 0% respectively. Kisumu county had a better overall provision at 23% of the facilities while Homabay and Kajiado had no health facility with MHM provisions.

SDG Goal 5-Gender Equality clearly indicates that there is need to ‘End all forms of discrimination against all women and girls. KESSH Policy (2016-2030) ,Section 5.4.9 clearly states that ‘improved MHM and appropriate facilities in public places should provide women and girls with the security, privacy and dignity they need during menstruating’ -basically always having such in public spaces. Further, the Protocol to the African Charter on people and human rights of women in Africa, Article 3 on Rights to dignity provides that ‘Every woman shall have the right to dignity inherent in a human being and to recognition and protection of her human and legal rights’.

3.3 Waste Management Services in Health Care Facilities

3.3.1 Availability of PPEs personal protective for waste management

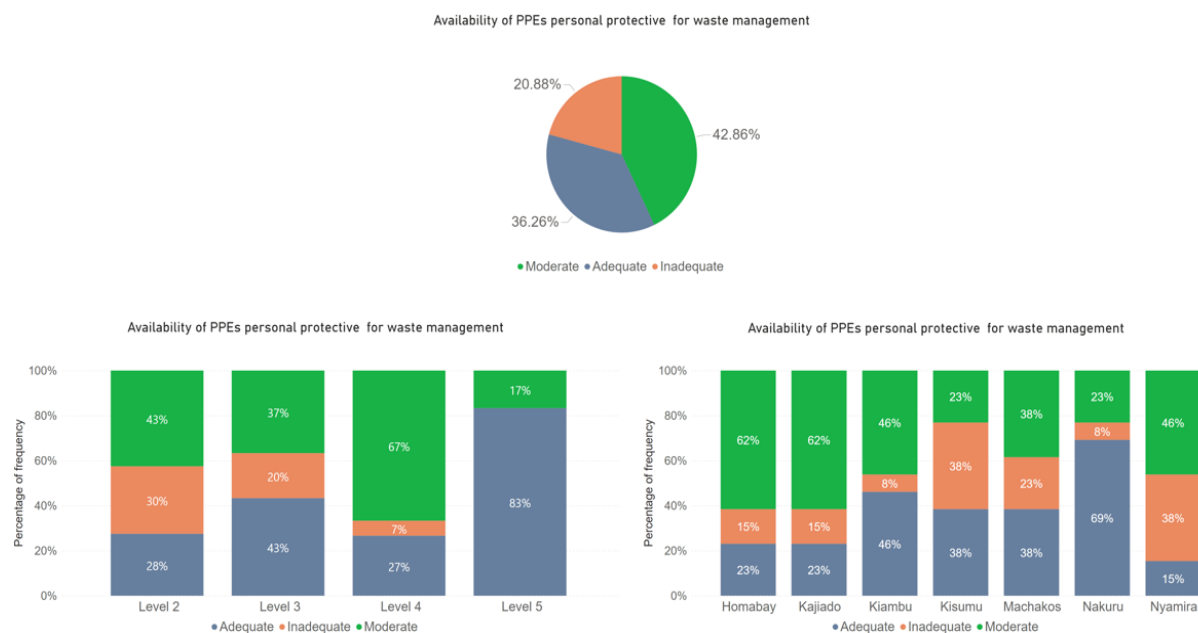


Figure 14: Availability of PPEs personal protective for waste management

To ensure safety of waste handlers, all the health care facilities should ensure availability and usage of all the necessary Personal Protective Equipment (PPE). This should be accompanied by advocacy and or training to ensure behavior change among waste handlers . Of all the facilities visited, only about a third (36%) had all appropriate personal protective equipment for all staff handling health care waste. These included heat/heavy duty protective gloves, goggles, respirators, heavy duty boots, protective footwear, overalls, and helmets. Across the levels of care, 83% of level 5 health facilities had all the required PPEs available for use by the health care waste handlers, whereas the proportion was less than 50% in the other levels with a range of 27% - 43%. Three counties, Kiambu had the best score at 69% whereas Nyamira had the least availability of PPEs at 15%.

However, even the best county score is still lower than the requirement of the IPC guidelines which provides for all health facilities to have all the required PPEs in place at all times. This could be attributed to lack of a dedicated IPC budget line for these facilities.

3.3.2 Vaccination of waste handlers against Hep. B, COVID-19, and Tetanus



Figure 15: Vaccination of waste handlers against Hep. B, COVID-19, and Tetanus

It is recommended that all health care waste handlers be fully vaccinated against COVID 19, Hepatitis B and Tetanus. However, from the assessment, only 12% of the health facilities visited had all their staff handling waste vaccinated against Hepatitis B, COVID-19, and Tetanus. Across levels of care, Level 5 had better coverage at 33% with the rest having less than 15% with the worst being level 4 at 7%. Across all the counties assessed, two counties; Homabay and Kisumu had no healthcare waste handler (0%) who had been fully vaccinated against any of the three diseases. Only three counties, Machakos, Kiambu, and Nyamira scored above the national average of 12% at 31%, 23% and 15% respectively. These are way below the required threshold of 100% of the waste handlers being fully vaccinated against the three diseases.

Overall, there was general low uptake of COVID 19, tetanus and Hepatitis B among the health care waste handlers. This could be attributed to lack of awareness, poor attitude, and inaccessibility of the vaccines by waste handlers on the importance of the vaccinations. This calls for concerted efforts by all the facilities to prioritize the availability of the vaccines for all the workers handling wastes and sensitization to increase awareness on the importance of the vaccines. As a result, healthcare waste handlers are exposed to risks through their day-to-day handling of wastes, which may have adverse health effects.

3.3.3 Availability of a functional burial pit for disposal of non-infectious waste

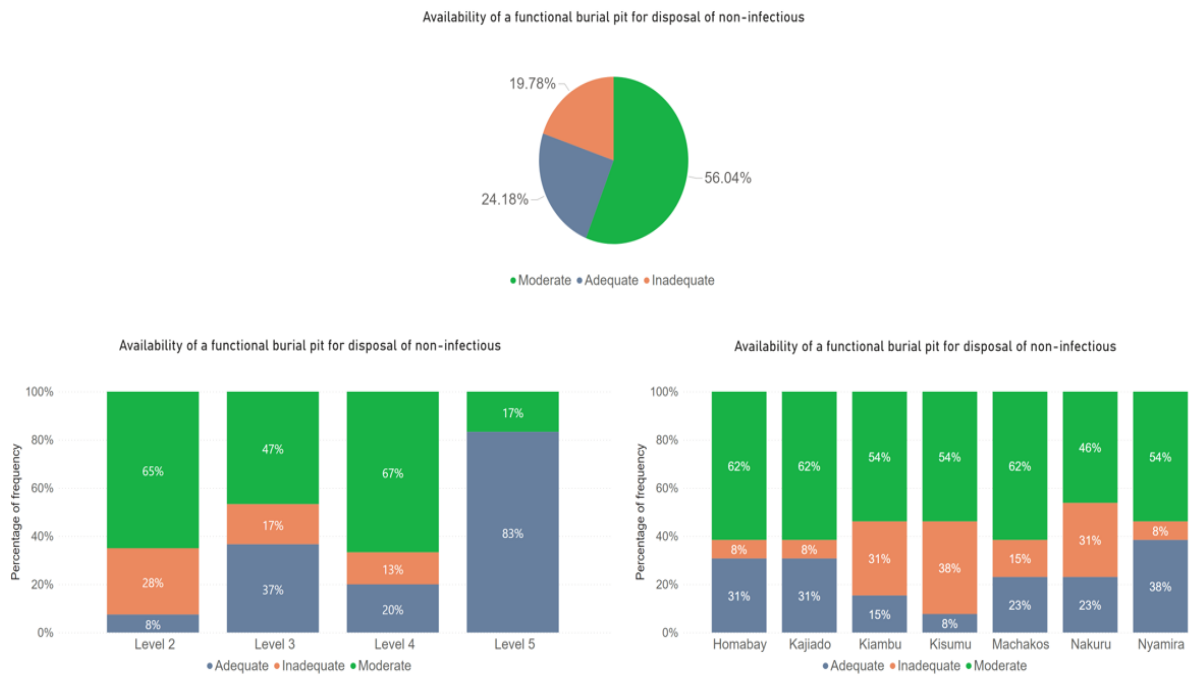


Figure 16: Availability of a functional burial pit for disposal of non-infectious waste

Proper and prompt disposal of non-infectious waste is an integral part in all levels of facilities. Open burning of non-infectious wastes is not recommended as method of disposal and instead recycling or disposal in burial pit should be done. Availability of burial pits discourages open and crude dumping of wastes. From the assessment done, 56% of the health facilities had a functional burial pit for disposal of non-infectious wastes, however, by level of service, level 5 health facilities have the highest availability at 83% while level 2 had only 8% availability. For counties, all had less than 40% availability of burial pits with Nyamira having 38% and Kisumu having the least availability at 8%.

3.3.4 Availability of a functional incinerator or alternative treatment technology operated by a licensed waste management authority

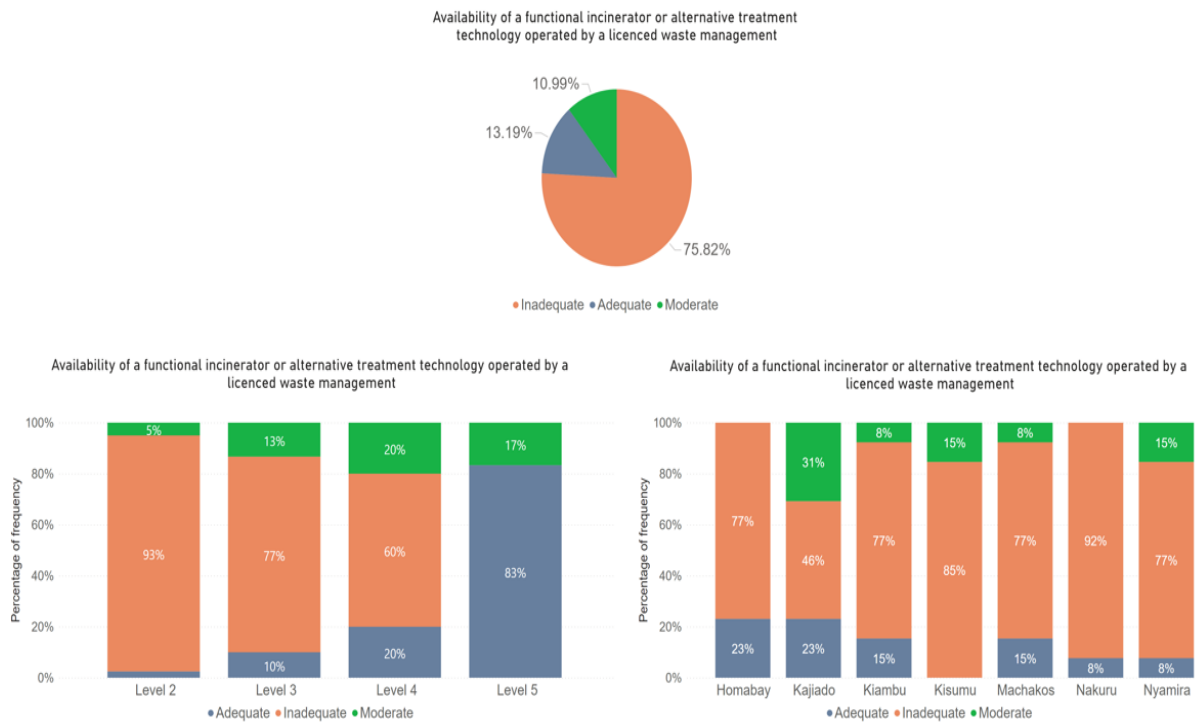


Figure 17: Availability of a functional incinerator or alternative treatment technology

Incinerators, Microwaves, and autoclaves are the recommended technologies for infectious healthcare wastes management as per the Stockholm convention compliance standards. Availability of a functional incinerator or alternative treatment technology is at 13.2%, with its availability increasing with level of care; level 5 had 83% availability whereas level 2 had less than 5% availability. This is in tune with the existing guidelines-based economies of scale, providing for level and 3 to pool wastes together. This requires them to accumulate such waste and transport them to a designated point, mainly to level 4 or level 5 facilities. Level 4 and 5 should at least have an incinerator, a microwave, or an autoclave for purposes of handling infectious wastes. Across counties, all had less than 25% availability of a functional incinerator or alternative treatment technology, with ranging from a high of 23% in Homabay to a low of 8% in Nyamira and Nakuru.

3.3.5 Availability of a functioning wastewater treatment system

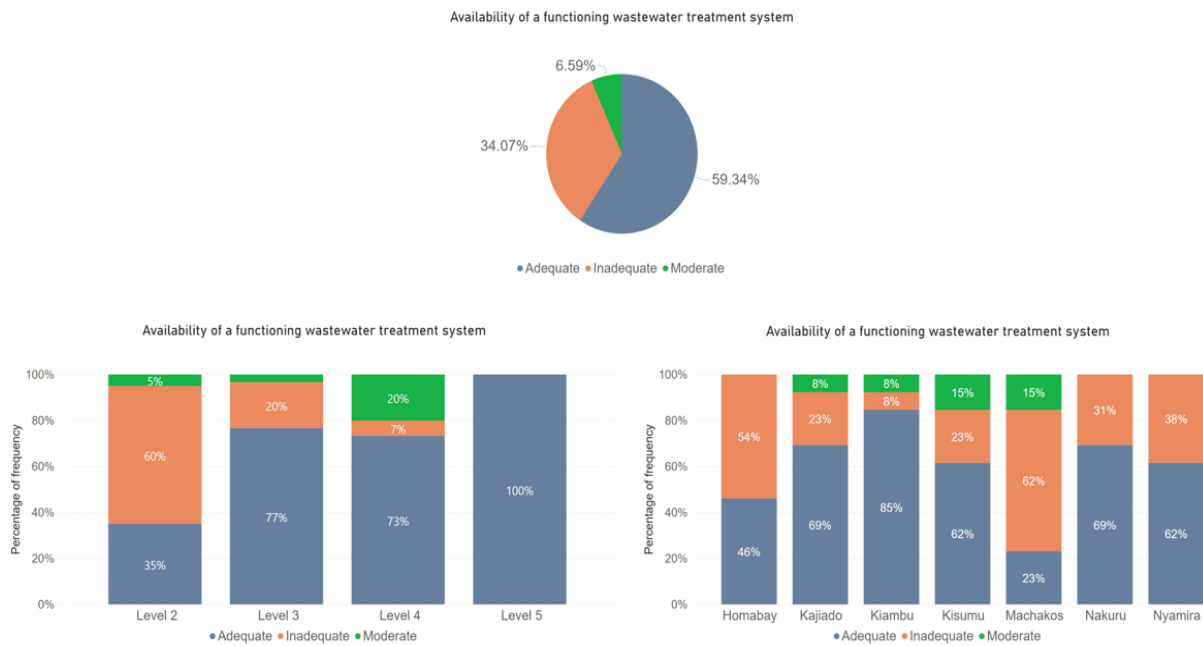


Figure 18: Availability of a functioning wastewater treatment system

Wastewater is the water discharged from all hospital activities -both medical and non-medical, including activities in surgery rooms, examination rooms, laboratories, nursery rooms, radiology rooms, kitchens, and laundry rooms. Proper drainage of this water is required to reduce spread of infections. From the assessment it was noted that the overall availability of a functional wastewater treatment system is at 59.3%, and it increased with the level of care with all the level 5 health facilities having at least a wastewater treatment system (for example, septic tank followed by drainage pit) either on or off site and functioning in a reliable manner. Comparatively, the availability of proper wastewater disposal stood at a low of 35% within level 2 health facilities. The coverage across counties was highest in Kiambu at 85%, and lowest in Machakos at 23%. With these, there is therefore high chances of contamination from the wastewaters in lower levels of health care compared to the higher levels of health care.

3.4 Infection, Prevention and Control in Health Care Facilities

3.4.1 Availability of PPEs

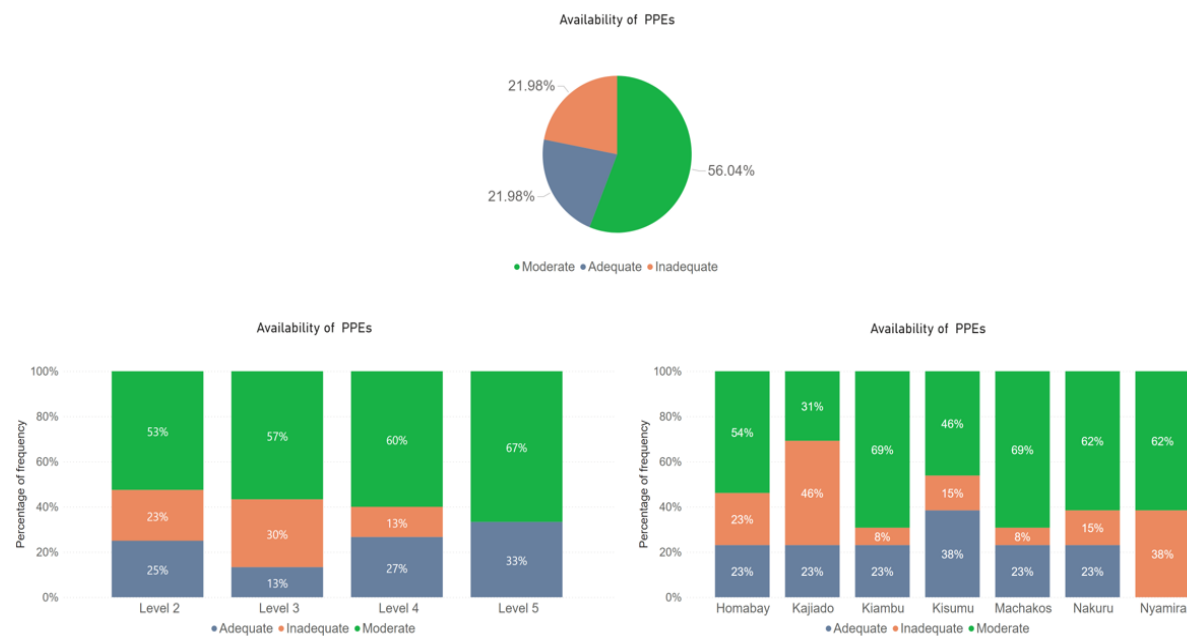


Figure 19: Availability of PPEs

In terms of Policy and regulation guiding the use of PPEs in Kenya, the OSH policy (2007) addresses PPEs for all health workers in the health facilities while the HCWM policy, which is under review, addresses PPE use for waste handling. There is no policy found specifically addressing PPEs for workers engaging in cleaning activities in the health facilities. There is need for regulation to always emphasize the provision of adequate PPEs for workers engaged in cleaning activities in healthcare.

The questionnaire sought to answer the question on availability of PPEs and in sufficient quantities for all users for all health care workers. The overall availability of PPEs across all counties is at 22%, with level 5 facilities having a slightly better proportion at 33% and level 3 the least at 13%. By county status, Kisumu had better overall proportion at 38%, and Nyamira posting nil availability of PPE in sufficient quantities for all workers.

Reasons for the poor scores include inadequate resources that must be stretched for use for a long time, erratic supplies, lack of prioritization of PPEs as a basic hygiene and sanitation supplies. In most counties, most health care workers are left with no alternative but to share and re-use the few available PPEs contrary to the prescriptions of the SOP on the use of PPEs. More emphasis needs to be put on ensuring PPEs availability and use all the time.

3.4.2 Availability of single patient rooms for cohorting patients with similar pathogens

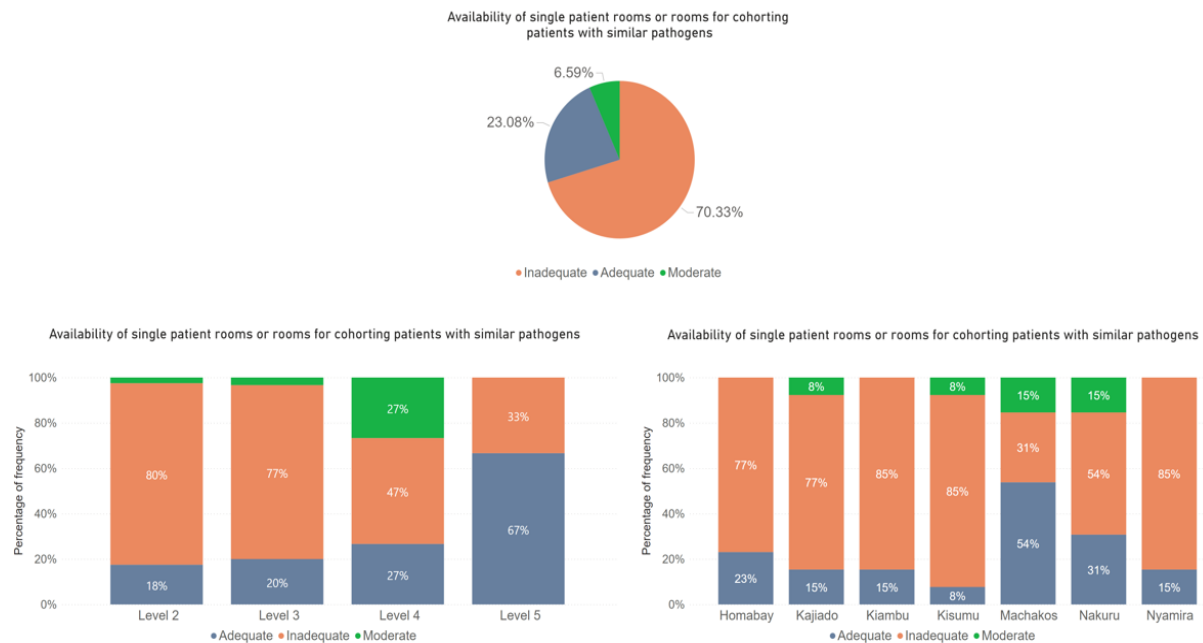


Figure 20: Availability of single patient rooms or rooms for cohorting patients with similar pathogens

One of the infection prevention strategies is isolation. Isolation facilities are critical in prevention of facility acquired infections. According to (WHO 2022), over 24% of patients affected by healthcare associated sepsis and 52.3% of those patients treated in intensive care die each year. The deaths are increased two to three-fold when infections are resistant to antimicrobials

This section focused on the availability of single patient rooms or rooms for cohorting patients with similar pathogens and if the number of isolation rooms was sufficient. Notably, only 23% of facilities had designated isolation rooms. The availability improved with level of care; ranging from level 2 at 18% to level 5 at 67%. At county comparisons, Machakos had uniquely a better score at 54%, with the rest having about 30% and below where Kisumu had the lowest at 8%. This puts patients and healthcare providers at a higher risk of acquiring hospital acquired infections while receiving or providing services in the health facilities.

Inadequacy of the isolation rooms across all levels of care reduces the capacity of the health facilities to manage highly infectious or contagious diseases predisposing the health care workers and the community to new diseases thereby an increased burden to the already stretched health resources. The health facility managements are encouraged to fully implement

the requirements on provision of isolation facilities in line with the SOPs for Health management of cases requiring isolation.

3.4.3 Availability of reliable sterilization and disinfection equipment

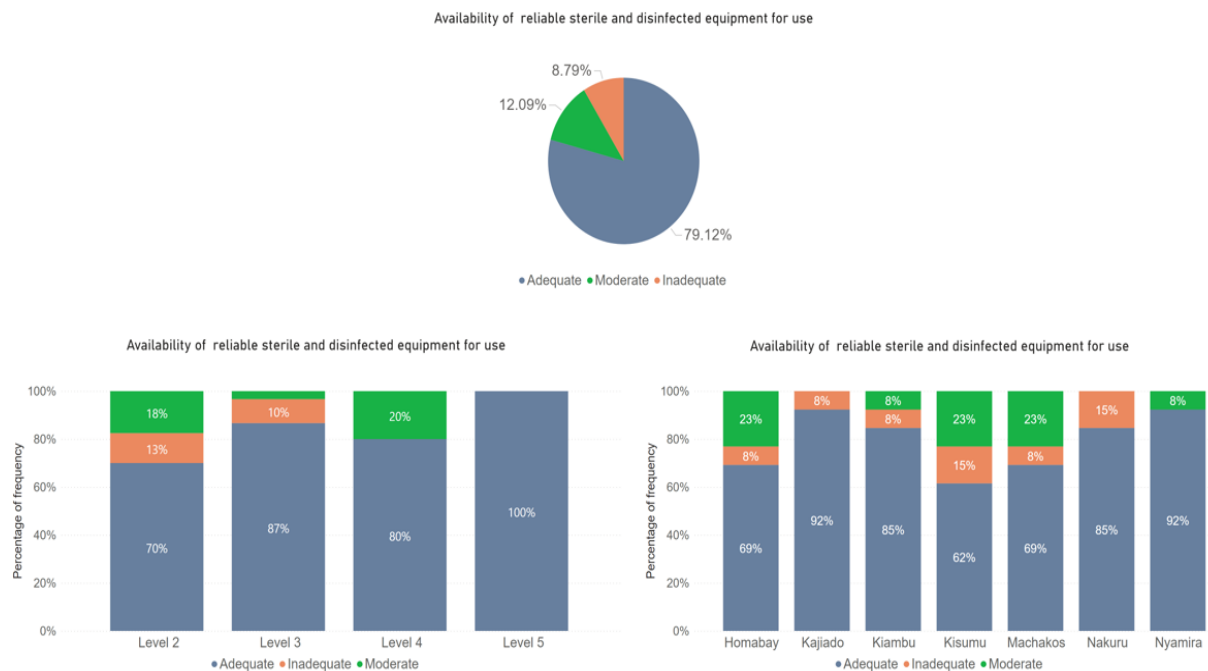


Figure 21: Availability of reliable sterilization and disinfection equipment

Availability of functional disinfected and sterile equipment has a high impact on the processes and the outcomes of any medical procedure including medical emergencies. From this assessment, about three in every four facilities (79%) of the facilities visited had a reliable sterilization and disinfection equipment available and ready for use at the time of assessment. This was relatively high across all levels of care with all level 5 (100%) having the equipment, but three in every ten (30%) of the level 2 facilities didn't have a reliable sterilization and disinfection equipment available and ready for use at the time of assessment. By county, Nyamira and Kajiado had the highest availability at 92%, whereas Kisumu had the lowest availability at 62%.

Availability of a reliable and ready to use disinfected and sterile equipment may be influenced by cost, procurement bureaucracy, and lack of preventive maintenance of the equipment amongst others.

3.4.4 Provision of a dedicated decontamination and sterilization area

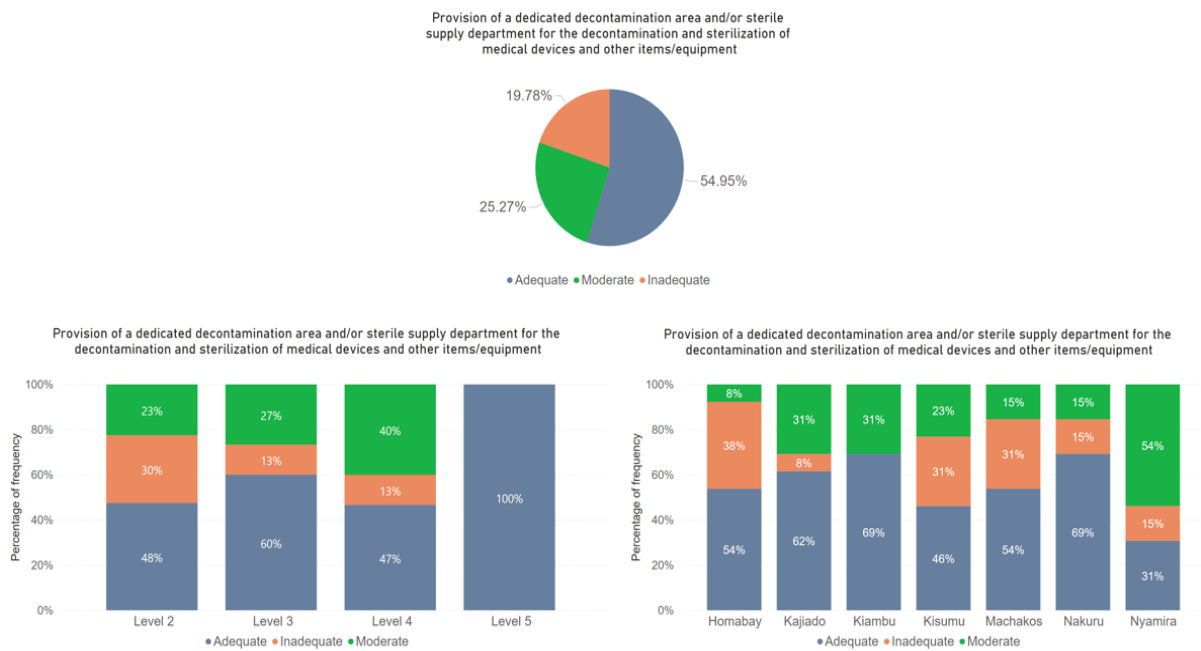


Figure 22: Provision of a dedicated decontamination and sterilization area

A dedicated decontamination area is important in control of spread of infections from one area to another. Overall, only 55% of the health facilities had such dedicated areas. By level of care, all the level 5 (100%) had such dedicated decontamination areas whereas level 2 and level 4 had exceptionally low presence of such areas at below 50%. For county level comparisons, Kiambu and Nakuru had a better score of 69% whereas Nyamira had the least presence of dedicated decontamination areas at 31%.

3.4.5 Availability of a cleaning roster displayed

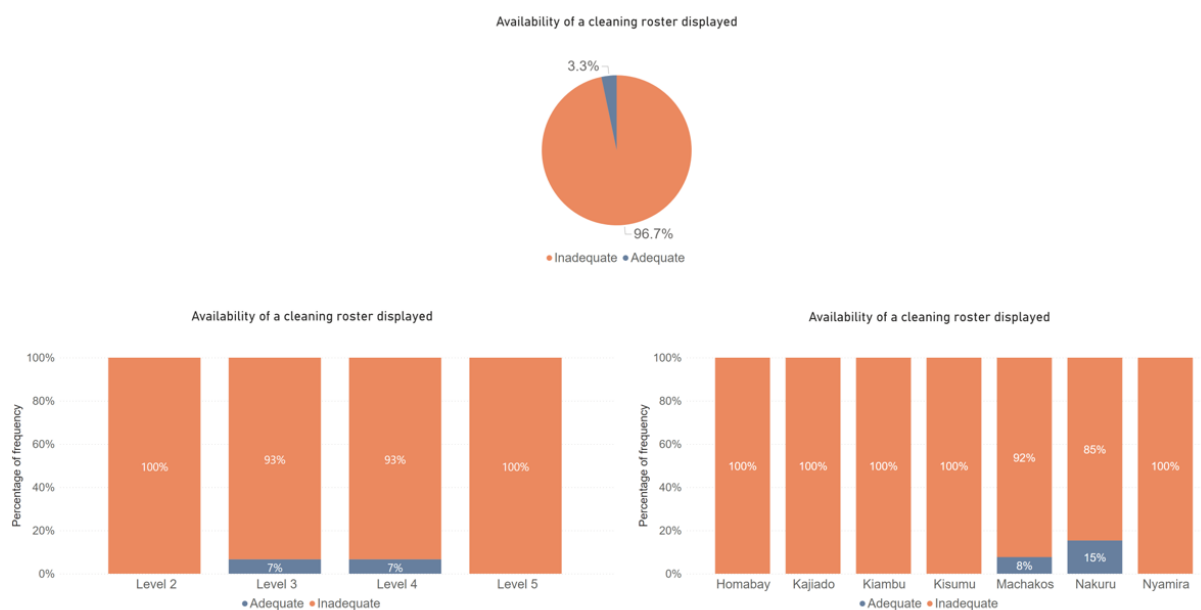


Figure 23: Availability of a cleaning roster displayed

The National infection and prevention control guidelines for health care services in Kenya 2010 recommends that cleaning schedules should be developed and displayed according to the needs of each area. This assessment was set out to collect information on whether a cleaning roster was displayed. Overall, only about 3% of the facilities had a cleaning roster, the distribution by level of care was negligible at below 7%. At County Governments, presence of cleaning roster was nil (0%), with Machakos recording better proportion at 15%. This implies that most of our public facilities do not put much emphasis on cleaning of sanitary facilities. The cleaning is normally done once or sometimes it is never done. The reason why there are no cleaning rosters could be attributed to lack of awareness and clarity on the person responsible for scheduling cleaning. There is also the issue of cleaning materials not provided, whereas some facilities lack water and thus cleaning always is affected. Lack of the display of the roster leads to inconsistency hence this does not hold the cleaners accountable and may lead to hospital acquired infections.

There is thus a need to dedicate a budget for cleaning purposes in these facilities, allocate personnel to do the cleaning, provision of water in the facilities and create awareness on the importance of having clean sanitary facilities and diseases that one may acquire if the hygiene in health facilities is not addressed. Therefore, heads of cleaning services need to ensure proper cleaning roster is in place and displayed to ensure seamless service provision.

3.4.6 Accessibility of record for cleaning, signed each day

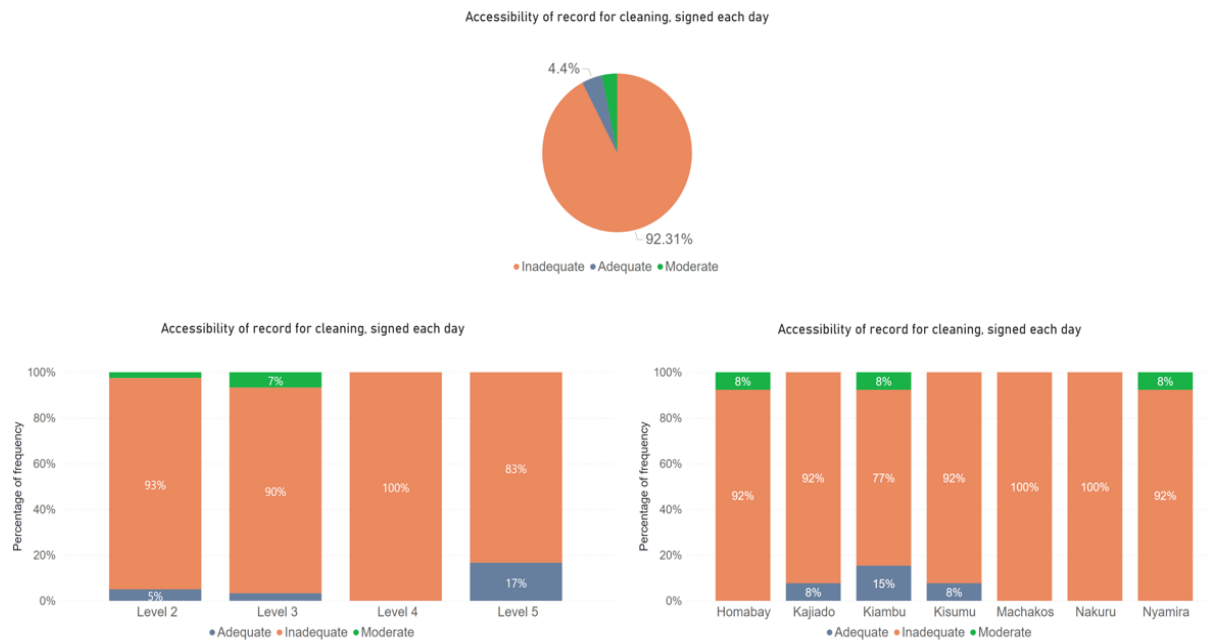


Figure 24: Accessibility of record for cleaning, signed each day

This item compliments the operationalization of the cleaning rosters/rotter. A duty roster in health facilities aids in improving efficiency and accountability, whereas cleaning records confirms who and if the actual cleaning was done. According to the Kenya IPC guidelines it is mandatory to have a cleaning roster that is signed by the cleaner and counter signed by the supervisor. The findings from this study shows that this is only available in 4% of the facilities, 7% for level 5 being the highest, and Kiambu having the relatively high score at 15%. These facilities may have their floors and surfaces being cleaned but have no documentation to serve as evidence on the same. This could be attributed to lack of information on the importance of having a duty register for cleaning staff and lack of proper organizational structure at all levels of care. There is a need for each health facility to have a structured system of monitoring the cleaning process to ensure the cleaning roster is availed and duly signed by the cleaning supervisor on regular basis. The health facility in charges should ensure strict adherence to the duty registers including daily duty signages.

3.5 Key Measures of Associations

3.5.1 Diarrheal Disease Outlook

With the basic hygiene and hand washing services in the health facilities having been assessed in May 2022, additional data on diarrheal diseases for April, May and June was gathered in order to explore if there existed any significant associations. The underlying principle being the hygiene status could likely have been the same in the previous month and were likely to remain the same in the subsequent month. A total of 75 out of the 91 (82.4%) facilities provided the required diarrheal disease profiles. Most of the facilities (48%) had low case burden as computed from the mean value of each level of care; level 2 mean case burden 60 cases, level 3 mean case burden 160 cases, level 4 mean case burden 140 cases, level 5 mean case burden 120 cases. The overall diarrheal case burden is as shown below:-

. ci means DIARHEALCASESAMJ

Variable	Obs	Mean	Std. err.	[95% conf. interval]	
DIARHEALCA~J	75	109.1333	16.49134	76.27361	141.9931

.

Figure 25: Summary Statistics for Diarrhea cases (April, May, June)

The total reported diarrheal cases across all counties for all cohorts over the months of April, May and June had a mean value of 109 cases with 95% and 99% upper and lower limits of the data distribution and outlier cases are as shown below: -

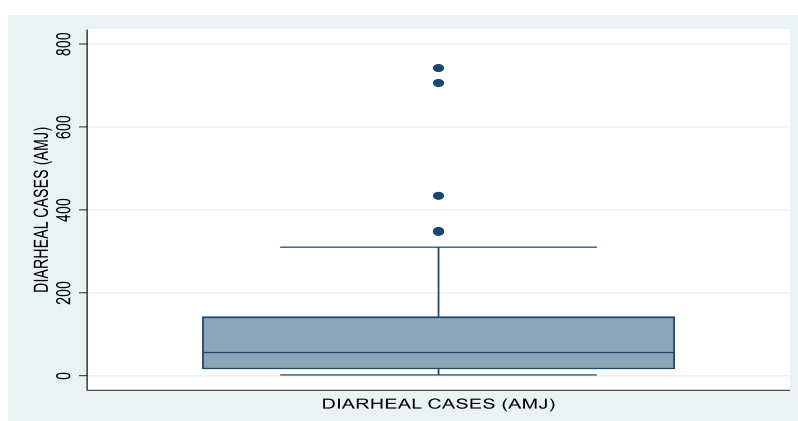


Figure 26: Overall distribution of diarrhea cases (AMJ)

When the diarrheal case profile was disaggregated by level of care and county, the distributions are as outlined in the whisk and box plots below: -

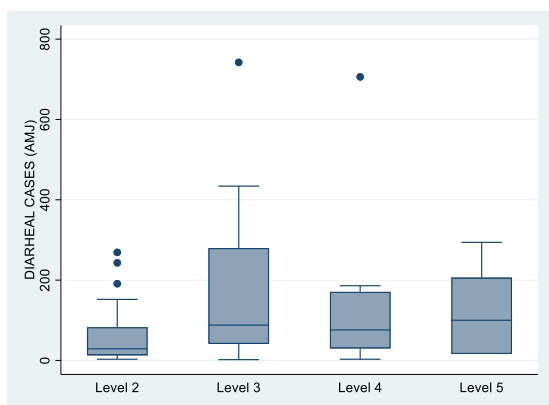


Figure 27: Distribution of diarrhea cases (AMJ) by facility level

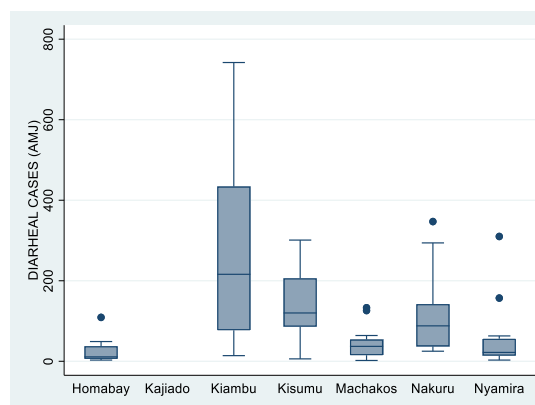


Figure 28: Distribution of diarrhea cases (AMJ) by County

3.5.2 Diarrheal disease and waste water correlation

Overall, level 3 had the highest case burden with wider distribution as compared to the other levels of care. For county profiles, Kiambu had the highest diarrheal case burden for the months of April, May, and June 2022. The above case profiles were correlated against the infection prevention and control indicators, the key associations are as presented below: -

DIARRHEAL CASES (AMJ-2)	Availability of a functioning wastewater treatment system			Total
	Adequate	Inadequate	Moderate	
High	19	4	3	26
Low	16	19	1	36
Moderate	7	5	1	13
Total	42	28	5	75

Pearson $\chi^2(4) = 9.6455$ Pr = 0.047

Figure 29: Correlation of diarrhea cases with waste water management

The availability of a functioning wastewater treatment system was the single most indicator which was found to be strongly associated with the level of diarrhea reported within the health facilities (P value 0.047); this implies that 95.3% of the recorded cases could be explained by wastewater management levels at the health facilities. Though association is not causality, it connotes that wastewater could be a high-risk factor to diarrhea occurrence within communities served by the health facilities.

4.0 CONCLUSION

From the current status of basic hygiene and hand washing services as assessed for Kenya, most of the parameters measured are within the WHO/UNICEF findings under the 2019 global report. The report highlighted the need for addressing basic infection prevention and control components so as to avert unnecessary disease burden arising from healthcare settings. The National IPC policy however recommends for the availability of water at all times and in sufficient quantities. There are some worse performing areas as compared to the WHO/UNICEF 2020 report which indicated that 3 in 4 (75%) health facilities had basic water supply. For Kenya, only this stand at 64% of the health facilities having adequate water. However, this is skewed with the assessment having revealed that water availability increases with the level of care at 53%, 63%, 80% and 100% for Level 2, 3 4 and level 5 respectively. This trend indicates that healthcare workers and their clients are at risk of infection due to unsafe water supply across all levels of healthcare.

For sanitation, the global report indicated that nine in ten (90%) of health care facilities have sanitation services. For Kenya, only about half (50%) of the facilities assessed had at least 4 toilets or improved latrines for outpatient settings or not less than 1 toilet per 20 users. Lack of toilets brings the risk of disease transmission among the individuals accessing health facilities but also those who are tasked with the responsibility of providing that necessary service. The less than 100% score could be due to inadequate resource allocation, prioritization in the County Integrated Development Plans and inadequate space in the health facilities.

The global report also provided that one in three (33%) of facilities did not have adequate facilities to clean hands where care is provided. From this assessment, two thirds (66%) of the facilities assessed did not have adequate hygiene stations at service delivery points. The availability of functional hand hygiene facilities was highest at the level 2 facilities and lowest in level 5 facilities indicating that the higher the level of health care, the less the availability of functional hand hygiene facilities. This implies that optimum hand hygiene practices at all levels of care are not fully practiced in the assessed facilities.

For infectious waste, about one in every four facilities (25%) of the facilities assessed had a reliable sterilization and disinfection equipment available and ready for use at the time of

assessment. This was relatively high across all levels of care with all level 5 (100%) having the equipment, but three in every ten (30%) of the level 2 facilities didn't have a reliable sterilization and disinfection equipment available and ready for use at the time of assessment. This is likely due to levels of supervision as indicatively; level 5 is best covered as compared to lower levels of care. In terms of non-infectious wastes, about 56% of the health facilities had a functional burial pit for disposal. However, by level of service, level 5 health facilities have the highest availability at 83% while level 2 had only 8% availability. This is again attributable to level of supervision. It is recommended that supportive supervision should include waste management as a strong area of assessment.

Overall, the availability of a functioning wastewater treatment system was the single most indicator which was found to be strongly associated with the level of diarrhea reported within the health facilities (P value 0.024); this implies that 98.6% of the recorded cases could be explained by wastewater management levels at the health facilities. Though association is not causality, it connotes that wastewater could be a high-risk factor to diarrhea occurrence within communities served by the health facilities.

With the myriad gaps noted above, most being below the global averages reported by WHO/UNICEF 2020 report, heavier than current fiscal and policy shift is required in order to enhance infection prevention and control in healthcare settings. An over-arching recommendation is for County Health Management Teams (CHMTs) for those counties not covered in this 2022 assessment to spearhead similar assessments using the standardized tool and populate dataset in the WHO portal for expanded country coverage and prompt analysis. Also, Her Excellencies County Governors and Her Excellencies First Ladies of counties could consider providing high level advocacy for reduced hospital acquired infections as County Infection Prevention Control Goodwill Ambassadors.

5.0 RECOMMENDATIONS

Sustainable Development Goal (SDG) 6 globally recommends basic water access of 60% by 2022, 80% in 2025 and 100% by 2030. In comparison, the global targets to universal coverage of basic hygiene and hand washing services in healthcare facilities was agreed to be 50% by 2022, 80% by 2028 and 100% by 2030. To achieve this, the following recommendations to County Management Teams will provide the required impetus to set Kenya in the right trajectory;

Thematic Area	Identified Gaps	Key Recommendations to County Health Management Team (CHMT)
Sanitation	Inadequate provision of sanitary facilities at 54% in at least 4 toilets for outpatient setting or at least 1 per 20 users for inpatients. Level 2, 3 and 4 contributed more to the inadequacy level.	<ul style="list-style-type: none"> ❖ Increase the number of sanitary facilities for staff and health care workers both in the inpatients and outpatient facilities. ❖ I facilities in AWPS and follow up on the resource allocation ❖ Dissemination of wash assessment tools and policy documents.
	About half of the health facilities have not provided facilities that are clearly separated for staff and patients with Level 2, 3 and 4 bearing the highest burden of inadequacy.	<ul style="list-style-type: none"> ❖ Facilitate the separation of sanitary facilities for staff and patients.
	Almost all the facilities (93%) of the accessed facilities lacked at least 1 toilet in the ward meeting the needs of persons with special needs and disability. ⁷	<ul style="list-style-type: none"> ❖ Full compliance with the provisions of persons with disabilities act.no 14 of 2003 and other relevant policy documents on disability.
	Most facilities by level and county did not have	<ul style="list-style-type: none"> ❖ Advocating for provision and dissemination of the MHM Policy and capacity building Advocacy through

	adequate provision for at least one toilet that provides for MHM NEEDS, (90%) inadequacy.	<p>capacity building. Priorities inclusion of the MHM activities in the AWP and CIDPs.</p> <ul style="list-style-type: none"> ❖ Strengthen private public partnerships 	
Water supply	36.3% of facilities had inadequate water supply, most affected were especially in levels 2 and 3	<ul style="list-style-type: none"> ❖ Ensure the provision of 100% water supply to health facilities ❖ Anchor provision of water supply to health facilities in the CIDPs ❖ Intersectoral collaboration and Public Private Partnership (PPP) 	
	Almost 50 % of health facilities had Inadequate clean safe water supply with level 2 being the most affected	<ul style="list-style-type: none"> ❖ Ensure 100% provision of clean safe water 	
Hand Hygiene	Only 51.7% of health facilities had functioning hand hygiene stations at all point of care with levels 4& 5 being most affected.	<ul style="list-style-type: none"> ❖ Provide fixed/ permanent hand hygiene stations to avoid transfer to non- target areas ❖ Capacity building and training of Health Care Providers on IPC ❖ Establish /strengthen/ operationalization of IPC committees at all levels of care ❖ Include supply of WASH/IPC commodities in the AWP ❖ Undertake regular maintenance/ replacement of nonfunctional hand hygiene facilities ❖ Conduct scheduled and regular support supervision/ monitoring and evaluation to ensure functional hand hygiene stations in all points of care ❖ IPC committees to undertake quarterly hand hygiene assessments ❖ Intersectoral collaboration & PPP 	
		Most of the facilities (63.6%) had Inadequate availability of functional hand hygiene stations within 5 M of the latrine	<ul style="list-style-type: none"> ❖ Installation of hand hygiene station near the latrines ❖ Capacity building and training of Health Care Providers on IPC. ❖ Scheduled and regular Support Supervision/ monitoring and evaluation to ensure functional hand hygiene stations next to the latrine.
		Inadequate availability of hand hygiene stations at	<ul style="list-style-type: none"> ❖ Provide/ upscale functional hand hygiene stations at the waste disposal areas

	waste disposal area (4 in 5 HF)	❖ Scheduled and regular Support Supervision/ monitoring and evaluation of waste disposal areas
	Inadequate availability of hand hygiene protocols (3 in 4 HF)	❖ Development/ provision of hand hygiene protocols
	Inadequate hygiene protocols with a dedicated staff roster (9 in 10 HF)	❖ Sensitization of workers on hand hygiene protocols
		❖ To develop a hand hygiene roster and displayed at strategic areas within the facilities
	Inadequate clearly visible hand hygiene promotion materials at key places (3 in 4 HF)	❖ Regular monitoring of the signing of the staff roster
		❖ Provision of hand hygiene promotion materials at all key places e.g., hand hygiene stations
PPEs	PPE inadequacy level averagely stood at 78% across all Counties and all levels of care.	❖ Provision of notice board for mounting of the hand hygiene promotion materials
		❖ Strengthening of Procurement and supply chain of appropriate PPEs by capturing in the CIDPs and AWP
		❖ Capacity building of Health Care waste managers and handlers on appropriate handling use storage and disposal of PPEs.
		❖ Formulation, implementation and enforcement of relevant policy guidelines to enhance compliance on use, storage and disposal of PPEs.
		❖ Adopt a clear separation of roles for streamlining of services across department in health facilities.
Cleaning	Inadequate cleaning records with only 8% of counties assessed having records signed by the cleaner and countersigned by the supervisors.	❖ Provide and implement cleaning records with provision for signing.
	Lack of prioritization of cleaning materials in county/ facility level planning processes	❖ Advocate for prioritization of cleaning materials during county budgetary processes

	Almost all the facilities by level and counties did not have a cleaning roaster displayed. (97%)	❖ Form, Operationalize and strengthen the IPC committees as per the IPC guidelines.
		❖ Integrate IPC in WASH
		❖ Coordinated follow ups within health facilities to ensure compliance.
	Lack of proper monitoring and evaluation system for cleaning	❖ Counties to put in place monitoring and evaluation mechanism for facilities cleaning processes
	Poor attitude among the cleaners and supervisors on availing the records	❖ Counties should sensitize the cleaners and their supervisors on the need to keep proper cleaning records well signed by both the cleaner and the supervisor.
	Lack of adequate cleaning materials	❖ Counties should avail budgetary allocation for cleaning materials
Decontamination and Sterilization	Inadequate decontamination areas in some health facilities	❖ Individual Counties should conduct facility analysis on decontamination areas and fill the identified gaps
	21% of facilities lacked availability of sterilized and disinfected equipment at some levels 2, 3 & 4	❖ Counties to provide focus on always availing sterile and disinfected equipment for use in LEVEL 2, LEVEL 3, and LEVEL 4 health facilities.
	Lack of budgetary allocation for procurement of decontamination and disinfection equipment	❖ Counties should implement pull system in procurement of decontamination and disinfection equipment ❖ Counties should improve sterilization of equipment from 79% to the desired target of 100%.
Waste management	20% of facilities had inadequate functional pits for disposal of non-infectious wastes among most health facilities.	❖ Counties should put in place mechanisms for the transportation of solid wastes from lower-level facilities to others with Incinerators or alternative technologies for waste treatment
	Lack of proper waste management practices in most health facilities across the counties.	❖ Counties to sensitize the waste management team/HCWs through regular CMEs in all health facilities on proper health care waste management practices and the prevailing guidelines including implementing the 3R principles (Reduce, Reuse and Recycle) non-infectious waste.

		Provision of health care waste management commodities
	Lack of waste management framework	❖ Subsequently, counties should sensitize the waste management team/HCW on proper waste management and the prevailing guidelines / policies/ standards
	Lack of proper waste treatment mechanism in most of the lower-level health facilities	❖ Establish alternative pool system of medical waste treatment for lower levels of care
Isolation	All counties across all levels lacked single patient rooms for cohorting patients with similar patients at 77% health facilities rated as inadequate.	❖ Counties to priorities provision of such rooms to reduce the risk of transmission of highly infectious and contagious diseases that require isolation of patients, and protection of health care workers.
		❖ Capacity building on of Health managers at all levels on the importance of ensure provision of the rooms for cohorting patients with similar illness.
		❖ Enforcement of the public health act cap 242 on isolation and any other relevant policy and legislation documents on isolation.
General Recommendations		1. Her Excellencies County Governors and Her Excellencies First Ladies of counties to provide high level advocacy for reduced hospital acquired infections as County Infection Prevention Control Goodwill Ambassadors
		2. Counties Health Management Teams (CHMTs) for those counties not covered in 2022 to spearhead similar assessments using the standardized tool and populate dataset in the WHO portal for expanded country coverage and prompt analysis
		3. CHMTs to undertake similar assessments on an annual basis to coincide with the global annual reporting using the standardized tool and populate dataset in the WHO portal for expanded country coverage and prompt analysis
		4. Counties to put in place monitoring and evaluation mechanism for health facilities cleaning processes including proper cleaning records well signed by both the cleaner and the supervisor

		5. Establish effective incinerators in level 4 and 5 facilities, and alternative pool system for managing medical waste treatment from lower levels of care
		6. Counties could implement pull system in procurement of decontamination and disinfection equipment
		7. Sensitize the waste management team/HCW on proper waste management and the prevailing guidelines / policies/ standards
		8. Counties should put in place mechanisms for the transportation of solid wastes from lower-level facilities to others with Incinerators or alternative technologies for waste treatment
		9. Establish alternative pool system of medical waste treatment for lower levels of care including innovative technologies in waste management e.g., non-burn technologies, green energy, and solar power

6.0 ANNEXES

6.1 WASH-IPC Assessment tool for Health Facilities

Technical Brief:

The 2019 WHO/UNICEF joint report on Water, sanitation and Hygiene (WASH) in health care facilities titled “An unmet need “The world can no longer afford to overlook the fundamentals” brought forth key gaps and related mortality. This was based on analysis of country reports from 47 countries, mainly from Africa Region. The key highlights are;

Globally, major gaps in basic water, sanitation, hygiene (WASH) and waste management services exist in health care facilities

One in four health care facilities (1/4) do not have basic water services, which means 1.8 billion people lacked basic water services at their health care facilities and 712 million have no water at their health care facility.

- One in ten health care facilities (1/10) have no sanitation services
- One in three (1/3) globally do not have adequate facilities to clean hands where care is provided
- One in three health care facilities (1/3) do not segregate waste safely.
- *Critical lack of WASH services especially in least developed countries*
- 1 in 2 (50%) of health care facilities lack basic water services and 3 in 5 (60%) have no sanitation services.
- 7 out of 10 (70%) health care facilities in least developed countries lack basic healthcare waste management services.

The economic fall-out from COVID-19 restriction measures threatens to widen this gap.

Impact of low basic water services, hygiene and WASH in Healthcare facilities;

- More than 90% of healthcare workers do not adhere to recommended hand hygiene practices
- Up to 1 million mothers and newborns die from preventable infections linked to unclean births
- In Africa, up to 20% of women get wound infection after caesarean section

Hospital-born babies in low-income settings are at a higher risk of being affected by neonatal sepsis

On average, about 15% patients in low income and medium countries will acquire one infection while undergoing acute care in hospitals

Proposed action for Kenya

Situation analysis: undertake baseline assessment on basic water services and handwashing in healthcare using the WHO infection prevention and control framework (component 7 -build environment)

Leadership: Focused country support and tracking Workforce development, standards/regulation, monitoring, costing/budgeting, infrastructure improvements. This should lead to consolidation of efforts towards completion of the Kenya HCFs WASH Guidelines and Standards by 2022.

Resources: Governments, partners and donors increase investments in WASH and IPC with ring-fenced financing by 2023

Towards universal coverage: At least 80% of facilities have basic WASH services by 2025

Assessment details

County	
Sub County	
Facility Name	
Facility Level	
Facility Code	
Date of Assessment	

WASH Team List

(Persons that contributed to the assessment or participated in the briefings during the WASH assessment)

Name	Designation

*Explanatory Notes for WASH indicators

Hygiene Protocol* Protocol for hand hygiene using soap and water, or alcohol-based hand sanitizer

Toilets should have a bin for disposal of waste or an area for washing, with water available.

A toilet can be considered to meet the needs of people with reduced mobility if it meets the following conditions: can be accessed without stairs or steps, handrails for support are attached either to the floor or sidewalls, the door is at least 80 cm wide, the toilet has a raised seat (between 40-48cm from the floor), a backrest and the cubicle has space for circulation/maneuvering (150x150 cm).

A functional hand hygiene station may consist of soap and water with a basin/pan for washing hands. Water should not be chlorinated. Alcohol-based hand rub is *not* suitable for use at latrines

Provision of Water

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
PROVISION OF WATER	1) Are water services available at all times and of sufficient quantity for all uses (for example, hand washing, drinking, personal hygiene, medical activities, sterilization, decontamination, cleaning and laundry)?	() No, available on average < 5 days perweek.	0			
		() Available on average ≥ 5 days per week or every day but not of sufficient quantity.	2.5			
		() Yes, every day and of sufficient quantity.	7.5			
	2) Is safe, clean water available from a tap or container?	() No.	0			
		() Yes.	10			

Hand Hygiene Facilities

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
HAND HYGIENE FACILITIES	3) Are functioning hand hygiene stations (that is, alcohol-based hand rub solution or soap and water and clean single-use towels) available at all points of care?	() Not available.	0			
		() Yes, Sometimes, or only in some places or not available for all users.	2.5			
		() Yes, accessible at all times and for all wards/groups.	7.5			
	4) Are there Functioning hand hygiene stations within 5 m of latrines?	() Not present.	0			
		() Present, not functioning or no water or soap.	2.5			

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
		() Yes.	7.5			
	5) Are Functioning hand hygiene stations available in waste disposal area?	() Not present.	0			
		() Stations present, but no water and/or soap or alcohol hand-rub solution.	2.5			
		() Yes, available with water and/or soap or alcohol hand-rub solution.	7.5			
	6) Does the facility have a hygiene protocol?	() No.	0			
		() Yes.	10			
	7) Does the hygiene protocol have a dedicated staff roster?	() No.	0			
		() Yes.	10			
	8) Does the facility have Hand hygiene promotion materials clearly visible and understandable at key places?	() None.	0			
		() Some places but not all.	2.5			
		() Yes.	7.5			
	SANITATION FACILITIES	9) In your facility, are there ≥ 4 toilets or improved latrines available for outpatient settings or ≥ 1 per 20 users for inpatient settings?	() No, not present	0		
() Stations present, but supplies are not reliably available			2.5			
() Yes, with reliably available supplies			7.5			
		() No	0			

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
	10) Are there toilets or improved latrines in the ward clearly separated for staff and patients?	() Yes.	10			
	11) Is there at least one toilet in the ward meets the needs of persons with special needs and disability (male and female ward)?	() No toilet for Persons Living with Disabilities.	0			
		() Yes, but do not meet needs or in disrepair.	2.5			
		() Yes, available and functional.	7.5			
	12) Is there at least one toilet or improved latrine that provides the means to manage menstrual hygiene needs?	() No.	0			
		() Yes.	10			
	13) Is there a cleaning roster displayed?	() No.	0			
() Yes.		10				
PPEs PROVISION	14) Do you have single patient rooms or rooms for cohorting patients with similar pathogens if the number of isolation rooms is insufficient (for example, TB, measles, cholera, Ebola, SARS)?	() No.	0			
		() No single rooms but rooms suitable for patient cohorting available.	2.5			
		() Yes, single rooms are available.	7.5			
	(15) Is PPE available at all times and in sufficient quantity for all uses for all health care workers?	() No	0			
		() Yes, but not continuously available in sufficient quantities	2.5			
		() Yes, continuously available in sufficient quantities	7.5			

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
POWER SUPPLY, VENTILATION	16) In your health care facility, is sufficient and stable energy/power supply available at day and night for all uses (for example, pumping and boiling water, sterilization and decontamination, incineration or alternative treatment technologies, electronic medical devices, general lighting of areas where health care procedures are performed to ensure safe provision of health care and lighting of toilet facilities and shower	() No.	0			
		() Yes, but only in some of the mentioned areas.	2.5			
		() Yes, and in all mentioned areas.	7.5			
	17) Is there functioning and adequate environmental ventilation (natural or mechanical) available in all operational areas of the HCF?	() No.	0			
		() Yes, but not fully functional	2.5			
		() Yes, but not fully functional	7.5			
CLEANING	18. For floors and horizontal work surfaces, is there an accessible record of cleaning, signed by the cleaners and counter signed by supervisors each day? (Complete means signed by both cleaner and supervisor	() No record of floors and surfaces being cleaned	0			
		() Yes, Record exists, but is not completed and signed by the cleaner only	2.5			
		() Yes record completed and signed daily	7.5			
	19) Are there appropriate and well-maintained materials for cleaning (for example, detergent, mops, buckets, etc.) available?	() No materials available	0			
		() Available but not well maintained	2.5			
		() Yes, available and well maintained	7.5			
DECONTAMINATION	20) Does your health care facility provide a dedicated decontamination area and/or sterile supply department (either present on or off site)for the decontamination	() Not provided	0			
		() Yes, but not functioning reliably	2.5			

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
	and sterilization of medical devices and other items/equipment?	() Yes, and functioning reliably	7.5			
	21) Do you reliably have sterile and disinfected equipment ready for use?	() Not available	0			
		() Yes, available but not of sufficient quantities	2.5			
		() Yes, available every day and of sufficient quantity.	7.5			
	22) Do you have a reliable sterilization and disinfection equipment?	() Not available	0			
		() Available but not functional	2.5			
		() Yes, available and functional	7.5			
	23) Is a functional burial pit/fenced waste dump or municipal pick-up available for disposal of non-infectious (non-hazardous/ general waste)?	() No pit or another disposal method available	0			
		() Yes, Pit in facility but insufficient dimensions; pits/dumps overfilled or not fenced/locked; or irregular municipal waste picks up	2.5			
		() Yes, functional pit/municipal pick up available	7.5			
	24) Is an incinerator or alternative treatment technology for the treatment of infectious and sharp waste (for example, an autoclave) present (either present on or off site and operated by a licensed waste management service), functional and of a sufficient capacity?	() Not available	0			
		() Yes, Available but not functional	2.5			
		() Yes, Available and functional	7.5			
		() No, not present	0			

MINIMUM REQUIREMENT THEMATIC AREA	QUESTION	ANSWERS	SCORE	Facility	OPD	Wards
	25) Is a wastewater treatmentsystem (for example, septic tank followed by drainage pit)present (either on or off site) and functioning reliably?	() Yes, but not function ingreliably	2.5			
		() Yes, and functioning reliably	7.5			

Assessment Notes and observations

6.2 List of the Facilities visited

Serial	Date	County	Facility	Level of facility
1	5/4/2022	Machakos	Machakos Sub County Hospital	5
2	5/4/2022	Machakos	Mbiuni	3
3	5/4/2022	Machakos	Muthetheni	3
4	5/5/2022	Machakos	Mbumbuni Health Centre	2
5	5/5/2022	Machakos	Yathui Dispensary	2
6	5/5/2022	Machakos	Miu Health Centre	2
7	5/5/2022	Machakos	Mwala	4
8	5/5/2022	Machakos	Masii Health Centre	3
9	5/5/2022	Machakos	Wamuyu Level 3	3
10	6/6/2022	Machakos	Matuu	4
11	6/6/2022	Machakos	Maweli	2
12	6/6/2022	Machakos	Mango	2
13	6/6/2022	Machakos	Vyulia	2
14	5/9/2022	Kajiado	Isinya Health Centre	3
15	5/9/2022	Kajiado	Kitengela Sub County Hospital	4
16	5/9/2022	Kajiado	Bisil	3
17	5/9/2022	Kajiado	Kajiado Level 5	4
18	5/9/2022	Kajiado	Kumpa	2
19	5/10/2022	Kajiado	Oletepesi	2
20	5/10/2022	Kajiado	Ngatataek	3
21	5/10/2022	Kajiado	Gataka	2
22	5/10/2022	Kajiado	Ereteti	2
23	5/11/2022	Kajiado	Olekasasi	3
24	5/11/2022	Kajiado	Namanga Health Centre	3
25	5/11/2022	Kajiado	Eluanata	2
26	5/11/2022	Kajiado	Maili Tisa	2
27	5/12/2022	Kiambu	Karbaribi	2
28	5/12/2022	Kiambu	Igegania	4
29	5/12/2022	Kiambu	Thika Level 5	5
30	5/12/2022	Kiambu	Gatwanyaga	2
31	5/13/2022	Kiambu	Mutonya	2
32	5/13/2022	Kiambu	Ndura Dispensary	2
33	5/13/2022	Kiambu	Githunguri	3
34	5/13/2022	Kiambu	Ngoliba Health Centre	3
35	5/14/2022	Kiambu	Munyu	3
36	5/14/2022	Kiambu	Magogoni	2
37	5/14/2022	Kiambu	Langata	2
38	5/14/2022	Kiambu	Ruiru	4
39	5/14/2022	Kiambu	Makongeni	3
40	5/16/2022	Kisumu	JOOTRH	5
41	5/16/2022	Kisumu	Nyalunya	3
42	5/16/2022	Kisumu	Kotunga	2
43	5/16/2022	Kisumu	Orongo	2
44	5/17/2022	Kisumu	KCRH	4
45	5/17/2022	Kisumu	Migosi Sub County Hospital	4
46	5/17/2022	Kisumu	Kuoyo	3
47	5/17/2022	Kisumu	St. Lydia Okore	2

Serial	Date	County	Facility	Level of facility
48	5/17/2022	Kisumu	Railways Dispensary	3
49	5/18/2022	Kisumu	Police line Dispensary	2
50	5/18/2022	Kisumu	Ap Dispensary	2
51	5/18/2022	Kisumu	Dunga Dispensary	2
52	5/18/2022	Kisumu	Nyalenda	3
53	5/19/2022	Homabay	Nyangiela	3
54	5/19/2022	Homabay	Rangwe	4
55	5/19/2022	Homabay	Kendu Bay	4
56	5/19/2022	Homabay	Marindi	3
57	5/20/2022	Homabay	Miniambo	3
58	5/20/2022	Homabay	Kobondo	2
59	5/20/2022	Homabay	Ober Health Centre	3
60	5/20/2022	Homabay	Nyamasi	2
61	5/21/2022	Homabay	Pala masogo	3
62	5/21/2022	Homabay	Radung	2
63	5/21/2022	Homabay	Homabay Township	3
64	5/21/2022	Homabay	Kijawa Dispensary	2
65	5/21/2022	Homabay	Okok	2
66	5/23/2022	Nyamira	Keroka	4
67	5/23/2022	Nyamira	Tombe	3
68	5/23/2022	Nyamira	Ekerenya	4
69	5/23/2022	Nyamira	Kianungu	2
70	5/23/2022	Nyamira	Endiba	3
71	5/24/2022	Nyamira	Sere	2
72	5/24/2022	Nyamira	Magombo	3
73	5/24/2022	Nyamira	Nyaiguta	2
74	5/24/2022	Nyamira	Kahawa	2
75	5/24/2022	Nyamira	Mongorisi	2
76	5/25/2022	Nyamira	Nyamaia	3
77	5/25/2022	Nyamira	Kijauri	4
78	5/25/2022	Nyamira	Nyamira County Referral	5
79	5/26/2022	Nakuru	Bahati Sub-county Hospital	4
80	5/26/2022	Nakuru	Kigonor Dispensary	2
81	5/26/2022	Nakuru	Ingobor Dispensary	2
82	5/26/2022	Nakuru	Lalwet	2
83	5/26/2022	Nakuru	Ruguru	2
84	5/27/2022	Nakuru	Menengai Crater	2
85	5/27/2022	Nakuru	Rhoda Health Centre	3
86	5/27/2022	Nakuru	Kapkures	3
87	5/27/2022	Nakuru	Ndege Ndimu	2
88	5/28/2022	Nakuru	Engashura	3
89	5/28/2022	Nakuru	Ndundori Health Centre	3
90	5/28/2022	Nakuru	Nakuru PGH Annex	4
91	5/28/2022	Nakuru	Nakuru County Teaching & Referral	5

6.3 List of participants involved in the writing of the Assessment Report

Sn.	Name	Designation	Organization	County
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6	Thomas Nyang'au	CPHO	MoH	Nyamira
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8	Judy J Rotich	PHO	MoH	Kisumu
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12	Felix Kyalo Ndang'a	SCWASH	MoH	Machakos
13	Paul Agwanda	WASH-H/Bay	MoH	Homabay
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20	Lilian Kilonzo	WASH officer	Amref	Kajiado
21	Musa Letoya	DDEHS/CPHO	MoH	Kajiado
22	Moses Obiero	DOH	MoH	Nakuru
23	Emmah Mwendu	M&E/PHO	MOH-HQ	Nairobi
24	Janet Mule	PPHO	MOH-HQ	Nairobi
25	Keziah Ruriayia	IPC Coordination	MoH	Kiambu
26	Omer AKPRO	WASH-WHO	WHO-K	Nairobi
27	Bernard Kimani	CWASH	MoH	Kiambu
28	Teresia K Njoroge	DPHS	MoH	Kiambu
29	Paul Malusi	DHI	MOH-HQ	Nairobi
30	Geoffrey M. Kibaki	Food safety	MOH-HQ	Nairobi
31	Rose Mokaya	PPHO	MOH-HQ	Nairobi
32	Anita Kamanda	PHO	MOH-HQ	Nairobi
33	Vivian Mmbone	PHO	Academia	Nairobi
34	Anthony Wainaina	DDPH	MOH-HQ	Nairobi
35	Doyle Leonard	PPHO	MOH-HQ	Nairobi

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