National Standards for WASH in Health Care Facilities

State of Palestine
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State of Palestine
تقنية:

ينبغي نظام المياه والصرف الصحي والنظافة (WASH) في مراكز الرعاية الصحية من أهم المتطلبات الأساسية في الحصول على خدمات صحة عالية الجودة لضمان سلامته المرضى خلال تقديم الخدمات وذلك من خلال توفير مراكز الرعاية الصحية نظيفة وأمنة. تعمل على زيادة الثقة والطاقة على الخدمات وتحسن من جودة المرضى في تلقى الرعاية والتي تتعاون إيجابياً مع الموظفين وأدائها، وتؤكد على أهمية دورهم كنموذج ملهم في المجتمعي من أجل الرعاية لقواعد النظام المجتمع.

إن معالجة المشاكل المتعلقة بالمياه والصرف الصحي والنظافة الصحية في مراكز الرعاية الصحية، هي قضية عالمية عملت عليها منظمة الصحة العالمية من خلال إصدار معايير الصحة البيئية الأساسية في الرعاية الصحية حيث أطلقت مع العديد من الشركاء خطة عالمية بشأن المياه والصرف الصحي والنظافة الصحية من أجل العمل عليها في مراكز الرعاية الصحية، حيث يتم تطوير العديد من الموارد الإضافية من أجل دعم التدابير الوطنية لمكافحة الوبائي من الدوام ومكافحتها والمياه والصرف الصحي والنظافة في أماكن الرعاية الصحية، واستناداً إلى ذلك كان لابد من العمل على إعداد هذا الدليل الرشادي الخاص بالمعايير التوجيهية للمياه والصرف الصحي والنظافة في المراكز الصحية في فلسطين كما هو الحال في العديد من البلدان.

إن العمل على تطوير المعايير والمبادئ التوجيهية الوطنية للمياه والصرف الصحي والنظافة الصحية في المراكز الصحية يعزز من جودة النظام الصحي لمنح تشخيص الأمراض، والسيطرة والاستجابة الفعالة لحالات الطوارئ والسيطرة على حدوثها.

إن مراكز الرعاية الصحية هي من أكثر المراكز التي ينتشر فيها ويشكل كبير عوامل الأمراض المعدية والتي ليس فقط تؤثر على المرضى والعاملين في مجال الصحة وقدمي الرعاية ولكن أيضًا على المجتمع بأكمله من خلال انتشار الأمراض في حالة كانت الصحة البيئية غير كافية.

لذا يعتبر تطوير خدمات الممارسة الصحية والتغذية أهمية ركيزة أساسية لتقديم خدمات رعاية صحية صريحة وعالية الجودة بشكل فعال في مراكز الرعاية الصحية على جميع مستوياتها وعليه فإن معالجة الصحة توجه بالشكر والتشجيع لكل المؤسسات ومحل العمل وأيدي العامل وراجحة وكل من ساهم بإثراء هذا الدليل على الجهود والإنجاز المميز ودعم من منظمة الصحة العالمية.

الدكتورة في سالم الكيلة
وزيرة الصحة الفلسطينية
The water, sanitation and hygiene (WASH) system in health care facilities is considered one of the most basic requirements in obtaining high-quality health services to ensure the safety of patients while receiving services by providing clean and safe health care facilities that increase trust and demand for services and improve the experience of Patients receive care, which reflects positively on the staff and their performance, and emphasizes the importance of their role as a role model in the community in order to prepare for the rules of community hygiene.

Addressing problems related to water, sanitation and hygiene in health care facilities, is a global issue that the World Health Organization has worked on by issuing basic environmental health standards in health care, where it launched with many partners a global plan on water, sanitation and hygiene in order to work on it. In health care facilities, many additional resources have been developed to support national measures to address infection prevention and control and water, sanitation and hygiene in health care settings. Based on that, it was necessary to work on issuing this guideline for water, sanitation and hygiene in health facilities in State of Palestine, as is the case in many countries.

Working to develop national standards and guidelines for water, sanitation and hygiene in health facilities enhances the resilience of the health system to prevent disease outbreaks, and allow for effective response and control of emergencies when they occur.

Health care facilities are among the places where infectious disease agents are most prevalent, affecting not only patients, health workers and caregivers but also the entire community through the spread of disease if environmental health is inadequate.

Therefore, the development of water, sanitation and hygiene services is an essential pillar for effectively providing safe and high-quality health care services in health care facilities at all levels.

Accordingly, His Excellency the Minister of Health extends thanks and appreciation to all partners, work teams, preparation and review committees, and everyone who contributed to enriching this evidence of effort and outstanding achievement, with the support of the World Health Organization.

Dr. Mai Salem Al-Kila
Palestinian Minister of Health
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At the Ministry of Health, we appreciate the efforts of Salam al-Ratrout, Nadir Barhoush, Lina Ali, Mahmoud Othman, Azzam Shbib, Rabi al-Abadleh and all other staff who took time to answer questions and review recommendations.

As our work would not have been possible without the full support of We World-GVC, words of deep gratitude go to Andrea Sparro, Giovanni Pedron, Karam Matar and Basel Al A‘ila.

Thanks to all governmental, non-governmental, national clusters, and international organizations that participated in the study and contributed to the different workshops and meetings conducted.

And, finally, we thank Agence Francaise de Développement (AFD) and UNICEF for their financial and technical support for the development of the national standards. We appreciate the work of UNICEF’s team, especially Gemma Querol, Mohammed Amro, Mohammed Hussein, Eman Aqeel, Selena Bajraktarevic, Amani Badwan, Rana Awad, and Jamal Abdul Fattah.
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<tr>
<td>DWQS</td>
<td>Drinking Water Quality Standard</td>
</tr>
<tr>
<td>HAI</td>
<td>Healthcare Associated Infections</td>
</tr>
<tr>
<td>HCF</td>
<td>Health Care Facilities</td>
</tr>
<tr>
<td>IPC</td>
<td>Infection Prevention and Control</td>
</tr>
<tr>
<td>IPD</td>
<td>In-patient Department</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>JMP</td>
<td>Joint Monitoring Program</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>OPD</td>
<td>Out-Patient Department</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operation and Maintenance</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Healthcare Centre</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PWA</td>
<td>Palestinian Water Authority</td>
</tr>
<tr>
<td>PWD</td>
<td>People with Disability</td>
</tr>
<tr>
<td>RO</td>
<td>Reverse Osmosis</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>SHC</td>
<td>Secondary Healthcare Centre</td>
</tr>
<tr>
<td>SWMC</td>
<td>Solid Waste Management Council</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>UNRWA</td>
<td>United Nations Relief and Works Agency for Palestine Refugees</td>
</tr>
<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
</tr>
<tr>
<td>WASH-FIT</td>
<td>Water and Sanitation for Health Facility Improvement Tool</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WSP</td>
<td>Water Safety Plan</td>
</tr>
<tr>
<td>WW-GVC</td>
<td>WeWorld-GVC Onlus</td>
</tr>
</tbody>
</table>
BACKGROUND

The availability of sustainable water, sanitation, and hygiene (WASH) in health care facilities (HCF) is a prerequisite for quality health services and infection prevention and control (IPC). The link between safe water and sanitation for hygiene in health facilities and the reduction in disease transmission has long been established. It increases trust and demand for services, improves the experience of care, strengthens staff motivation and retention of staff, reduces costs in infections averted, and leads to more efficient service delivery (WHO, 2008).

Addressing the problems on WASH in HCF, the World Health Organization (WHO) released the Essential Environmental Health Standards in Health Care in 2008 (WHO, 2008). Subsequently, UNICEF and WHO along with several partners launched the Global Action Plan on WASH in Health Care Facilities in 2014, aiming to increase the momentum around addressing the needs to improve WASH in HCFs globally. Several additional resources have been developed since then to support national measures to address WASH and IPC in HCFs. In 2019, the Joint Monitoring Program released the “Global Baseline Report for WASH in Health Care Facilities.” (JMP, 2019) According to the report, one in four HCFs globally lacks basic water services, and 896 million people have no water service at their HCF (JMP, 2019). Subsequent to the baseline report, a Practical Steps Guideline for Nations was developed to provide universal access to quality care through the provision of basic WASH services (WHO, 2019). The Guideline lays out a strategy for governments and stakeholders to achieve minimum universal WASH in HCF through institutional policy strengthening and increased monitoring and infrastructure upgrades. This Standards document falls in line with the global strategy.

The legal institutional framework governing the health sector is embodied in the Palestinian Basic Law (2003) and the Public Health Law (2004). Accordingly, the MoH is the steward of the health system and is responsible by law for overseeing the system and ensuring equitable and affordable access to quality health services for all Palestinians (WHO, 2012).

Consistency in service delivery across the facilities is lacking due largely to infrastructure that is inadequate or unreliable. Reliability of water supply, sanitation accessibility, and inadequate monitoring processes are prevalent challenges impeding efforts in quality care delivery. The lack of gender-sensitive WASH services hinders the provision of WASH for all. Integration of gender equality and social inclusion aspects to address specific WASH needs of women and vulnerable population is important no one is left behind in access to WASH in healthcare facilities. Furthermore, the health facility context varies in healthcare delivery complexity from small mobile clinics to the much larger hospitals that by their nature require more detailed and advanced standards. Minimum standards contextualized for the State of Palestine are widely agreed to address the problems and threats created by poor WASH in HCFs.

The National Standards for WASH in Health Care Facilities (HCF) in the State of Palestine have been developed in 2022 by UNICEF with the technical support of WeWorld-GVC, in coordination with the WASH Cluster and the WASH in health Working Group and with close cooperation and ongoing feedback with the Ministry of Health, who has officially endorsed this document.
Purpose and Scope

The minimum standards for WASH in Health Care Facilities are prepared based on the global WHO guidance (Ben Harvey, 2012) and the “Essential Environmental Health Standards in Health care” (WHO, 2008) with reflection on the Palestinian context. Ministry of Health regulations and guidelines are also referred to, including “Drinking Water Quality Control in Hospitals Guidelines”, “Dialysis Water Quality Control Guidelines”, “Infection Control Regulation” and the “MOH Medical Waste Management Guidelines”. This Standards document aims to provide guidance and recommendation on Water, Sanitation and Hygiene (WASH) and Waste Management in health care settings and act as a point of reference for policy, strategy, guidance development and planning with the Ministry of Health.

Objective

The objective of the WASH in HCF Standards is to serve as a general reference and a practical tool for the Ministry of Health by providing basic standards and guidelines for water, sanitation, hygiene, and waste management in different levels of Health Care Facilities.

Specifically, the Standards aim to:

- Support the Ministry of Health and associated health care service providers to maintain the safety, quality and dignity of the population by ensuring access to adequate, efficient and gender-sensitive WASH services at HCFs.
- Ensure that WASH services in HCFs deliver a minimum basic standard of services needed for the delivery of quality care.
- Encourage patients, outpatients, and visitors to utilize HCFs and learn and practice life-long positive hygiene behaviors.
- Strengthen WASH and Infection Prevention and Control (IPC) status to ensure lower infection rates.
- Provide a framework to develop, monitor and continuously implement adequate WASH services.
Rational

*Justification*

In low and middle-income countries, WASH services in many health care facilities are inadequate and/or insufficient. According to the 2019 global JMP baseline report, one in four HCFs lacked access to a basic water source, one in five facilities had no sanitation service and only 27 of HCFs in the least developed countries had basic waste management services (JMP, 2019).

Adequate and gender-sensitive WASH services strengthen the resilience and the ability of health systems to prevent disease outbreaks and allow effective response to emergencies. Women’s perspectives are critical in WASH improvement efforts. Women are the primary users of health services and the primary caregivers for family members. They have unique needs around the time of menstruation, pregnancy and childbirth.

Standards of WASH in HCF are directly linked with health services; Healthcare-Associated Infections (HAIs) are one of the most common patient complications, affecting 7% of patients in developed countries each year (Hayward, 2020). More people die every year from unsafe care than lack of care in low and middle-income countries; an estimated 15% of patients in low- and middle-income countries develop one or more infections during a hospital stay (WHO, 2019). Infections associated with unclean births account for 26% of neonatal deaths and 11% of maternal mortality, accounting for more than 1 million deaths each year. In State of Palestine, the latest maternal mortality rate is recorded at 27 deaths per 100,000 live births (Knoema, 2017). According to the UNICEF Multiple Indicator Cluster Survey (MICS) 2020-2019, the neonatal mortality rate is 9.4 per 1000 live births and the infant mortality rate is 12.1 per 1000 live births (UNICEF, 2020).

Poor medical waste management exposes health care workers, patients, and their families to preventable infections, toxic effects and injuries. Universal access to WASH services could reduce by 60% treatment of millions of cases of diarrhea with antibiotics. The over-reliance on antibiotics as a result of WASH conditions is further driving the emergence of antimicrobial resistance. Prophylactic use of antibiotics after giving birth is common in many countries where WASH is inadequate and infectious diseases risks are high. (WHO, 2019).
The economic benefits of investing in WASH in HCFs are considerable; estimated at almost US$ 5 return on every dollar invested due to reduced health care costs for individuals and society and greater productivity in the workplace. (Haller L, 2007). Access to WASH in HCFs is an essential aspect of leaving no one behind in SDG 6 (sustainable WASH for all), is fundamental to achieving SDG 3 (good health and well-being), and ensuring SDG 5 (gender equality through equal access to reproductive rights and health). The Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) is an UN-Water initiative implemented by WHO which reveals that only 47 countries out of a participating 110 countries reported that they have national targets for drinking water, sanitation and hygiene in health care facilities (GLAAS, 2019). Whilst WASH in HCF policies do exist in State of Palestine, national targets are yet to be met. (GLAAS Palestine, 2019).

Infectious diseases are naturally highly prevalent in health care settings from which patients and staff need to be protected. The general public in the vicinity of the Health Care Facilities may also be exposed to medical wastes and hence face infection if the environmental health is inadequate. Health care settings are a potential source of diseases themselves.
Table 1 below shows the risk related to environmental health in HCFs with some preventive measures. Indicators directly related to WASH in HCFs are highlighted:

### Table 1: Disease risks and preventive measures in healthcare settings

<table>
<thead>
<tr>
<th>Disease Risk</th>
<th>Prevention Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airborne infections (e.g. Legionella, avian influenza, SARS, tuberculosis)</td>
<td>+ Ventilation.</td>
</tr>
<tr>
<td></td>
<td>+ Space available per patient.</td>
</tr>
<tr>
<td></td>
<td>+ Spacing of beds.</td>
</tr>
<tr>
<td></td>
<td>+ Use of separate rooms for highly vulnerable or infectious patients.</td>
</tr>
<tr>
<td></td>
<td>+ Use of masks and correct incineration of wastes.</td>
</tr>
<tr>
<td></td>
<td>+ Control of patient flow.</td>
</tr>
<tr>
<td>Water, food-or hand-borne infections (e.g. HEV, diarrhea)</td>
<td>+ Water supply (quality and access).</td>
</tr>
<tr>
<td></td>
<td>+ Excreta disposal.</td>
</tr>
<tr>
<td></td>
<td>+ Hygiene facilities.</td>
</tr>
<tr>
<td></td>
<td>+ Food hygiene.</td>
</tr>
<tr>
<td></td>
<td>+ Hand hygiene.</td>
</tr>
<tr>
<td>Infection of wounds/surgical incisions from contaminated water, medical devices and dressings (e.g. sepsis)</td>
<td>+ Use of single-use medical devices and dressings.</td>
</tr>
<tr>
<td></td>
<td>+ Pre-disinfection.</td>
</tr>
<tr>
<td></td>
<td>+ Cleaning and sterilization of instruments and dressings.</td>
</tr>
<tr>
<td></td>
<td>+ Sufficient quantity of good quality water.</td>
</tr>
<tr>
<td></td>
<td>+ Asepsis in surgical or dressings procedures.</td>
</tr>
<tr>
<td>Blood-borne infections due to contaminated needles and syringes, unsafe blood transfusion (e.g. HBV, HCV, HIV)</td>
<td>+ Health-care waste management and use of single-use needles and syringes.</td>
</tr>
<tr>
<td></td>
<td>+ Safe blood transfusion.</td>
</tr>
<tr>
<td>Heat-and cold-related stress and discomfort (e.g. higher fever)</td>
<td>+ Heating, ventilation, air-conditioning (HVAC), and insulation.</td>
</tr>
<tr>
<td>Vector-borne disease transmission (e.g. malaria, dengue, leishmaniosis)</td>
<td>+ Control of disease vectors in and around buildings.</td>
</tr>
<tr>
<td></td>
<td>+ Protection of patients.</td>
</tr>
<tr>
<td></td>
<td>+ Protection of infrastructure.</td>
</tr>
</tbody>
</table>

**HBV:** hepatitis B virus.

**HCV:** hepatitis C virus.

**HEV:** hepatitis E virus.

**HIV:** human immunodeficiency virus.

**SARS:** severe acute respiratory syndrome.

(Ref: WHO, Essential Environmental Health Standards in Health Care).
Health care facilities in the West Bank and the Gaza Strip can serve as role models for hygiene and sanitation in State of Palestine. Standards and Guidelines for WASH in HCF will make government and civil society accountable to the provision of adequate gender-sensitive WASH services and should facilitate the provision of more resources for WASH.

**Modes of Transmission of Microorganisms Found in Water:**
- Direct contact (hydrotherapy).
- Ingestion of water (drinking water, ice).
- Indirect contact (improperly reprocessed medical device).
- Inhalation of aerosols (showers, in the case of Legionella spp).
- Aspiration of contaminated water.

Health care facilities in the West Bank and the Gaza Strip can serve as role models for hygiene and sanitation in State of Palestine. Standards and Guidelines for WASH in HCF will make government and civil society accountable to the provision of adequate gender-sensitive WASH services and should facilitate the provision of more resources for WASH.

**Health System in State of Palestine**
In the State of Palestine, there are different types of health facilities ranging from primary healthcare facilities to large tertiary level hospitals. The majority of health care facilities are managed by the Ministry of Health. Others include those operated by UNRWA, NGOs, and the private sector. These different sectors are involved in providing healthcare across all levels of service from primary to tertiary healthcare.
Primary Health Care (PHC) facilities provide basic preventive and curative services ranging from maternal and child health care, family planning, and immunization (level 1) to dental healthcare, laboratory, and radiology services (level 4). Below are the operational definitions for each level of PHC classification:

**Table 2: Health system service providers in the State of Palestine (MOH, 2021)**

<table>
<thead>
<tr>
<th>Provider</th>
<th>MoH</th>
<th>UNRWA</th>
<th>NGOs</th>
<th>Private HC providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4,75</td>
<td>65</td>
<td>192</td>
<td>17</td>
</tr>
<tr>
<td>No.</td>
<td>63.4%</td>
<td>8.7%</td>
<td>25.6%</td>
<td>2.3%</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>749</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Primary service health care is provided by mobile clinics, health centers and clinics. Approximately 153 mobile clinics serve communities in Area C of the West Bank, the Israeli-controlled parts of Hebron City (H2), and seam zones that have no access to primary healthcare services (Health Cluster, 2021). These clinics include a doctor, nurse, and midwife and provide curative and laboratory services in addition to primary healthcare. The mobile clinics visit communities at least 4 times a month, either door to door or at a temporary building facility.

Hospitals in State of Palestine deliver specialized care services with inpatient facilities. In 2020, hospitals totaled 87 with an average bed rate of 12.8 per 10,000 population (MOH, 2020). 28 hospitals are currently operated by the MOH – 15 hospitals in the West Bank, and 13 hospitals in the Gaza Strip, (MOH, 2020).

These standards were developed in part based on WASH baseline assessment obtained from 637 HCFs in the Gaza Strip and the West Bank. 2021 HCFs were surveyed by the WASH Cluster to obtain a snapshot of the WASH status of HCFs across the relevant WASH domains (WW-GVC, 2021).
DEFINITIONS

**Service Levels**
WHO and UNICEF, through the Joint Monitoring Program (JMP) produce regular updates on WASH globally. Together, they are responsible for monitoring the 2030 Sustainable Development Goal (SDG) targets 6.1 and 6.2. The first JMP report on WASH in Health Care Facilities introduces definitions for basic level services (Table 5) that contribute toward global monitoring of SDG targets for universal access to WASH (SDG 6.1 and 6.2) and universal health coverage (SDG 3.8).

**Table 5: Basic service levels for WASH in HCFs as defined by the JMP (JMP, 2019)**

<table>
<thead>
<tr>
<th>Water in Health Facilities</th>
<th>Sanitation in Health Facilities</th>
<th>Hand Hygiene in Health Facilities</th>
<th>Waste Disposal in Health Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water from an improved source is available on-premises.</td>
<td>Improved Sanitation facilities are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.</td>
<td>Functional hand hygiene facilities (with water and soap/alcohol-based rub) are available at points of care and within 5m of toilets.</td>
<td>Healthcare waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.</td>
</tr>
</tbody>
</table>

**Key Term and Definitions**

Below are definitions of some of the key terms relevant to WASH in Health Care Facilities:

**Table 6: Key Definitions**

<table>
<thead>
<tr>
<th>Water Quality</th>
<th>Basic Service Water:</th>
<th>Improved Water Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water quality refers to the characteristics of a water supply that will influence its suitability for a specific use.</td>
<td>Water from an improved source is available on-premises.</td>
<td>Those which by nature of their design and construction have the potential to deliver safe water. These include piped water, boreholes, protected dug wells, protected springs, rainwater harvesting (directly off roof structures into covered storage tanks) and packaged or delivered water.</td>
</tr>
<tr>
<td><strong>Advanced Service Water:</strong></td>
<td>Meeting the criteria given in WASH standards for advanced level under the Advanced Standards Section (pg. 33).</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Basic Service Sanitation:</strong></td>
<td>Improved toilets are usable, gender-sensitive, separated for patients and staff, separated for women and allow menstrual hygiene management, and meet the needs of people with limited mobility.</td>
<td></td>
</tr>
<tr>
<td><strong>Improved Sanitation Facilities:</strong></td>
<td>Those designed to hygienically separate human excreta from human contact. These include flush and pour-flush toilets connecting to sewers, septic tanks, wet or dry pit latrines with slabs and composting toilets.</td>
<td></td>
</tr>
<tr>
<td><strong>Advanced Service Sanitation:</strong></td>
<td>Sanitation facilities include improved toilets gender-sensitive, hand washing facilities, laundry etc. connected to a piped water sewer system, septic tanks or pits that are safely managed and meet the criteria given in WASH standards for advanced level under the Advanced Standards Section (pg. 33).</td>
<td></td>
</tr>
<tr>
<td><strong>Basic Service Hand Hygiene:</strong></td>
<td>Hand hygiene materials, a basin with water and soap or alcohol hand rub available at points of care and toilets.</td>
<td></td>
</tr>
<tr>
<td><strong>Advanced Service Hand Hygiene:</strong></td>
<td>Meeting the criteria given in WASH standards for advanced level under the Advanced Standards Section (pg. 33).</td>
<td></td>
</tr>
<tr>
<td><strong>Alcohol-Based Hand Rub:</strong></td>
<td>An alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to inactivate microorganisms and/or temporarily suppress their growth. Such preparations may contain one or more types of alcohol, and other active ingredients with excipients and humectants.</td>
<td></td>
</tr>
<tr>
<td><strong>Water Safety Plan:</strong></td>
<td>A plan aimed at assessing and managing water supply systems and ensuring effective operational monitoring to prevent microbial contamination in water supply and ensure its ongoing safety.</td>
<td></td>
</tr>
<tr>
<td><strong>Points of Care:</strong></td>
<td>Out-patient department (OPD), In-patient department (IPD), Emergency Room, Waiting area.</td>
<td></td>
</tr>
<tr>
<td><strong>Gender-Sensitive WASH Facilities:</strong></td>
<td>Equal access and control over safe water, sanitation and hygiene infrastructure, and equitable engagement in their management, are enjoyed by girls and women.</td>
<td></td>
</tr>
<tr>
<td><strong>Healthcare Waste:</strong></td>
<td>All the waste, hazardous or not, generated within healthcare facilities, research centres and laboratories related to medical procedures.</td>
<td></td>
</tr>
<tr>
<td><strong>Basic Service Healthcare Waste:</strong></td>
<td>Waste is safely segregated into at least three (3) different colour-coded containers Infectious waste is treated and disposed of properly and safely.</td>
<td></td>
</tr>
<tr>
<td><strong>Advanced Service Healthcare Waste:</strong></td>
<td>Meeting the criteria given in WASH standards for advanced level under the Advanced Standards Section (pg. 33).</td>
<td></td>
</tr>
<tr>
<td><strong>Sharps:</strong></td>
<td>All objects and materials, infected or not, that pose a potential risk or injury due to their potential to puncture or cut through flesh.</td>
<td></td>
</tr>
<tr>
<td><strong>Hazardous Waste:</strong></td>
<td>Constitutes 25-10% of the total waste produced in health care facilities can cause health risks because it contains substances that have one or more of the following characteristics: infectious, genotoxic, radioactive, and sharp.</td>
<td></td>
</tr>
<tr>
<td>Waste Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Infectious Waste</td>
<td>Waste that contains or is suspected to contain infectious pathogens (bacteria, viruses, parasites, and fungi) and includes media and materials used for infectious disease analyzes in laboratories, waste of patients isolated in the infectious diseases’ unit, and waste of the dialysis unit from disposable devices, filters, gloves, covers, shoes and bibs, contaminated cotton and gauze changes, swabs and other waste coloured with patient secretions.</td>
<td></td>
</tr>
<tr>
<td>Anatomical (Pathological) Waste</td>
<td>Waste related to the patient’s body or its components of tissues, amputated parts, or embryos.</td>
<td></td>
</tr>
<tr>
<td>Chemical waste</td>
<td>Solid, liquid or gaseous waste resulting from personal, therapeutic, experimental, cleaning, disinfection, or management activities, and characterized by one or more of the following characteristics: toxic, corrosive, flammable and rapidly reacting surfaces and tools, and porous genes.</td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical waste</td>
<td>It is the expired raw materials, medicines and pharmaceutical preparations that do not conform to specifications or are no longer used for one reason or another, as well as some solid, semi-solid, liquid and gaseous pharmaceutical wastes.</td>
<td></td>
</tr>
<tr>
<td>Genotoxic waste</td>
<td>Wastes that can cause mutations or congenital malformations in the human body or have carcinogenic consequences for cells. They include: chemotherapy waste resulting from the manufacture, transportation, preparation or administration of chemotherapy and the secretions of the patient receiving chemotherapy as urine or stool.</td>
<td></td>
</tr>
<tr>
<td>Radioactive waste</td>
<td>Solid, liquid, or gaseous waste contaminated with radioactive materials used in tissue examinations, human fluids, tumor diagnostic and treatment procedures, as well as in medical diagnostic and therapeutic research work.</td>
<td></td>
</tr>
<tr>
<td>Vector-borne disease</td>
<td>Infections transmitted by the bite of infected arthropod species, such as mosquitoes, ticks, triatomine bugs, sandflies, and blackflies.</td>
<td></td>
</tr>
<tr>
<td>Primary healthcare services</td>
<td>Basic first level of contact between individuals and the health system. The general practitioners, the family physician, the physiotherapist are the usual primary health care providers. Immunization, basic curative care services, maternal and child health services, and prevention of diseases are examples of primary healthcare services.</td>
<td></td>
</tr>
<tr>
<td>Secondary healthcare services</td>
<td>Services provided by medical specialists. They may not have first contact with patients. Patients access these services through physician referral.</td>
<td></td>
</tr>
<tr>
<td><strong>Tertiary healthcare services:</strong></td>
<td>Specialized consultative healthcare for inpatients. The patients are admitted on a referral from primary or secondary health professionals. Tertiary health care is provided in a facility that have personnel and facilities for advanced medical investigation and treatment.</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Standard:</strong></td>
<td>Requirements that must be met to achieve minimum essential environmental health conditions in healthcare settings. They must be clear, essential and verifiable statements.</td>
<td></td>
</tr>
<tr>
<td><strong>Guideline:</strong></td>
<td>The recommended practices to achieve desirable minimum environmental health standards in healthcare settings. They are not lawing but should be used as guidance.</td>
<td></td>
</tr>
<tr>
<td><strong>Waste:</strong></td>
<td>Medical waste resulting from the remnants of various medical activities and operations or their ashes that retain the properties of hazardous materials and that have no subsequent uses inside or outside the institution, whether solid, liquid or gaseous.</td>
<td></td>
</tr>
<tr>
<td><strong>Waste Management:</strong></td>
<td>All works related to waste separation, classification, collection, storage, transportation, and treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>Transporter:</strong></td>
<td>The person authorized to transport waste.</td>
<td></td>
</tr>
<tr>
<td><strong>Transportation:</strong></td>
<td>The process of transporting waste by means of transportation designated for this and approved by the local authority.</td>
<td></td>
</tr>
<tr>
<td><strong>Means of Transportation:</strong></td>
<td>The vehicle or other vehicle that transports waste and to which the specifications and conditions set forth in this system apply.</td>
<td></td>
</tr>
<tr>
<td><strong>Temporary storage:</strong></td>
<td>Keeping waste in designated storage places for a specified period of time.</td>
<td></td>
</tr>
<tr>
<td><strong>Temporary Storage Places:</strong></td>
<td>The place designated for storing waste temporarily in preparation for its transfer to the treatment plant and its disposal.</td>
<td></td>
</tr>
<tr>
<td><strong>Waste collection:</strong></td>
<td>The process of collecting waste inside the establishment and classifying it according to its type and nature in preparation for its transfer to the temporary storage place or the waste treatment unit inside the establishment.</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment:</strong></td>
<td>Operations carried out on waste to change its chemical, physical or biological properties or composition, reduce its volume, or transform it from hazardous waste to safe or less dangerous waste when transported, stored, or permanently disposed of.</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment unit:</strong></td>
<td>The place designated for treating waste inside or outside the establishment before transferring it to the landfill.</td>
<td></td>
</tr>
<tr>
<td><strong>Wastewater:</strong></td>
<td>Water polluted by solid, liquid, or gaseous substances or microorganisms produced or left behind by the establishment, the presence of which may pose a danger to living organisms and the environment.</td>
<td></td>
</tr>
<tr>
<td><strong>Discharge:</strong></td>
<td>Direct or indirect dumping, leakage, emission, pumping, infusion or discharging of any of the environment pollutants into the air, land, or internal or regional waters.</td>
<td></td>
</tr>
<tr>
<td><strong>Waste disposal:</strong></td>
<td>The final disposal of the product or residues of medical waste after treatment so that it cannot be reused or used again, and does not have any dangerous or harmful effect on public health and the environment.</td>
<td></td>
</tr>
<tr>
<td><strong>Landfill:</strong></td>
<td>The site designated and approved by the competent authorities and which obtains an environmental approval for the final disposal of waste after its final treatment in accordance with the provisions of this system.</td>
<td></td>
</tr>
</tbody>
</table>
MINIMUM WASH PACKAGE FOR HEALTH CARE FACILITIES

The following table provides a guideline on minimum WASH requirements for health facilities based on the varying tier levels of HCFs available in the State of Palestine. WASH guidelines are provided for hospitals, health centers, clinics and mobile clinics. The guidelines are based on a combination of existing MOH guidelines and international standards. In all cases, consideration of gender-sensitive and age-segregated WASH facilities is crucial to ensure equitable access to WASH for all.

Table 7: Minimum WASH requirements based on HCF Tier Levels of State of Palestine

<table>
<thead>
<tr>
<th>Facility Type:</th>
<th>Hospital</th>
<th>Health Centre</th>
<th>Mobile Clinic¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum quantity (litres/day)</td>
<td>&lt; 100 beds: greater of 10,000 L/day or 200 L/bed/day</td>
<td>Inpatient &amp; outpatient facility: 10,000 L/day or 30 L/occupied/day</td>
<td>20L/ outpatient consult/day</td>
</tr>
<tr>
<td></td>
<td>200 – 101 beds: 20,000 L/day</td>
<td>Outpatient only: 20L/consult/day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 200 beds: 30,000 L/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Protected/ improved source²</td>
<td>Protected/ improved source.</td>
<td>Protected/ improved source.</td>
</tr>
<tr>
<td>Groundwater Abstraction Methods</td>
<td>Submersible solar or grid-powered pump with generator back-up.</td>
<td>Submersible solar or grid-powered pump with generator back-up.</td>
<td>Submersible solar or grid-powered pump or trucked water if no water source.</td>
</tr>
<tr>
<td>Storage⁴</td>
<td>Elevated black/ dark tank for gravity flow system with 3-day back-up storage based on HCF capacity (refer Table 9).</td>
<td>Elevated black/ dark tank for gravity flow system with 3-day back-up storage based on HCF capacity (refer Table 9).</td>
<td>Elevated black/ dark tank for gravity flow system with 2-day back-up storage based on HCF capacity (refer Table 9).</td>
</tr>
<tr>
<td>Distribution</td>
<td>Pipe network to water supply points in latrines, labour and operating rooms, wards, laboratories as required.</td>
<td>Pipe network to water supply points in latrines, labour rooms, wards, laboratories as required.</td>
<td>Piped to consulting room and latrines.</td>
</tr>
</tbody>
</table>

1. Mobile clinics shall be hosted by community building that include the requirements below.
2. Minimum hospital water demand is based on 200 litres/bed. Specific average water demand per facility is based on data available for outpatient and inpatient departments, staffing, and various health services/procedures provided. Refer to Table x under Water Supply for minimum per-capita consumption.
3. Protected sources shall be pipe-borne, boreholes, hand-dug wells, and spring catchments.
4. Storage volume requirements shall be informed by the Minimum quantity (litres/day) as described in Table 9.
<table>
<thead>
<tr>
<th>Facility Type:</th>
<th>Hospital</th>
<th>Health Centre Clinic /</th>
<th>Mobile Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toilets/ Latrines</strong></td>
<td>Pipe-connected flushable toilets.</td>
<td>Pipe-connected flushable or pour flush toilets.</td>
<td>Pipe-connected flushable or pour flush toilets.</td>
</tr>
<tr>
<td>At least 1 toilet per inpatient room + 1 per 100 daily outpatients available in each service delivery department.</td>
<td>At least 1 toilet per inpatient room + 1 per 100 daily outpatients. Minimum 4 toilets gender &amp; staff separated (2 for staff, 2 for patients).</td>
<td>At least 2 toilets separated by gender.</td>
<td></td>
</tr>
<tr>
<td>Ensure separation of toilets between genders (male/ female) and staff and patients in each service delivery department.</td>
<td>Ensure separation of toilets between genders (male/ female) and staff and patients in each service delivery department.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability access to all toilets are available at every level and service department.</td>
<td>At least one toilet designed for disability access.</td>
<td>At least one toilet designed for disability access.</td>
<td></td>
</tr>
<tr>
<td>Menstrual management materials and disposal means provided to all female toilets.</td>
<td>Menstrual management materials and disposal means provided to all female toilets.</td>
<td>Menstrual management materials and disposal means provided to all female toilets.</td>
<td></td>
</tr>
<tr>
<td>Max 30m distance access to any toilet from any ward or service delivery department.</td>
<td>Max 30m distance access to any toilet.</td>
<td>Max 30m distance access to any toilet.</td>
<td></td>
</tr>
<tr>
<td><strong>Excreta and greywater Disposal/ Storage</strong></td>
<td>Connected to local sewer network or underground septic/cesspit tank.</td>
<td>Connected to local sewer network or underground septic/cesspit tank.</td>
<td>Connected to local sewer network or underground septic/cesspit tank.</td>
</tr>
<tr>
<td>On-site storage of excreta (isolated septic tanks)/ wastewater shall be over 25m from any water source.</td>
<td>On-site storage of excreta (isolated septic tanks)/ wastewater shall be over 25m from any water source.</td>
<td>On-site storage of excreta (isolated septic tanks)/ wastewater shall be over 25m from any water source.</td>
<td></td>
</tr>
<tr>
<td>Excreta storage desludging shall be carried out as needed or every 6 months. Supported by MOH/ PWA</td>
<td>Excreta storage desludging shall be carried out as needed or every 6 months. Supported by MOH/ PWA</td>
<td>Excreta storage desludging shall be carried out as needed or every 6 months. Supported by MOH/ PWA</td>
<td></td>
</tr>
<tr>
<td>Facility Type:</td>
<td>Hospital</td>
<td>Health Centre Clinic /</td>
<td>Mobile Clinic</td>
</tr>
<tr>
<td>----------------</td>
<td>----------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Handwashing facilities</strong></td>
<td>Functional water points with basin and soap available at all healthcare delivery points (operating, delivery room, ward etc.) and service areas (latrines, laboratories etc.) Location max 5m from latrines, 10m from a ward.</td>
<td>Functional water points with basin and soap available at all healthcare delivery points (delivery room, consulting room etc.) and service areas (latrines, laboratories etc.) Location max 5m from latrines, 10m from a ward.</td>
<td>Functional water point with basin and soap available at all healthcare delivery points (consulting room etc.) and service delivery points (max 5m from latrines)</td>
</tr>
<tr>
<td></td>
<td>At least 1 handwashing station in a ward with more than 10 beds. Separate handwashing point for patient room (6-5) patients at distance 5M away from patient’s bed.</td>
<td>At least 1 handwashing stations in a ward with more than 10 beds.</td>
<td>Hand hygiene promotion materials clearly visible and understandable in key places.</td>
</tr>
<tr>
<td></td>
<td>Hand hygiene promotion materials clearly visible and understandable in key places¹</td>
<td>Hand hygiene promotion materials clearly visible and understandable in key places.</td>
<td>Hand hygiene promotion materials clearly visible and understandable in key places.</td>
</tr>
<tr>
<td><strong>Excreta and greywater Disposal/ Storage</strong></td>
<td>Appropriate and well-maintained materials for cleaning (detergent, mops, buckets etc. available at all times.</td>
<td>Appropriate and well-maintained materials for cleaning (detergent, mops, buckets etc. available at all times.</td>
<td>Appropriate and well-maintained materials for cleaning (detergent, mops, buckets etc. available at all times.</td>
</tr>
<tr>
<td><strong>Shower/ bathing facilities</strong></td>
<td>At least one shower per inpatient room. Separate showers for staff and patients. Hot water shall be provided at all shower facilities.</td>
<td>Showers shall be provided for staff. Hot water shall be provided at all shower facilities.</td>
<td></td>
</tr>
<tr>
<td><strong>Laundry</strong></td>
<td>Machine washing powered by national power grid with backup power and running water, provision of wash basin, well drained and sheltered, including drying area.</td>
<td>Where laundry is carried out on site, pipe-borne water, provision of 6-4 washing basins well drained to sewer or a soak-away pit and well sheltered and enclosed, with provision of drying area/lines.</td>
<td></td>
</tr>
</tbody>
</table>

¹ Key places include at points of care, the waiting room, at the facility’s entrance and within 5m of latrines
<table>
<thead>
<tr>
<th>Facility Type:</th>
<th>Hospital</th>
<th>Health Centre Clinic /</th>
<th>Mobile Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solid waste management collection</strong></td>
<td>Colour coded bins with liners in all points of waste generation. Sharps boxes and biohazard plastic container to be provided where applicable.</td>
<td>Colour coded bins with liners in all points of waste generation. Sharps boxes and biohazard plastic container to be provided where applicable.</td>
<td>Colour coded bins with liners in all points of waste generation. Sharps boxes and biohazard plastic container to be provided where applicable.</td>
</tr>
<tr>
<td><strong>Waste treatment</strong></td>
<td>External collection by MOH approved contractor. If collection by a specialist is not available, on-site electrical autoclave or double chambered incinerator 12000C (DE Montfort 9 or equal). Placenta pit, sharps pit and ash pit.</td>
<td>External collection by MOH approved contractor. If collection by a specialist is not available, on-site electrical autoclave or double chambered incinerator 12000C (DE Montfort 8a or equal). Placenta pit, sharps pit and ash pit.</td>
<td>All waste collected by external MOH contractor or transported to larger HCF for storage.</td>
</tr>
<tr>
<td><strong>Healthcare waste storage/ treatment site</strong></td>
<td>Designated area suitably fenced with adequate drainage and &gt;25m from any water source. Storage of waste prior to collection shall be under protected cover and safely tied in liners.</td>
<td>Designated area suitably fenced with adequate drainage and &gt;25m from any water source. Storage of waste prior to collection shall be under protected cover and safely tied in liners.</td>
<td>Storage of waste prior to collection shall be under protected cover and safely tied in liners.</td>
</tr>
<tr>
<td><strong>Leadership</strong></td>
<td>Dedicated WASH personnel responsible for all WASH related monitoring and maintenance.</td>
<td>Dedicated IPC nurse responsible for all WASH related monitoring and maintenance.</td>
<td>Dedicated cleaner for any temporary structure being used as a facility.</td>
</tr>
<tr>
<td><strong>Cleaning/ hygiene</strong></td>
<td>Dedicated cleaners available on a daily basis. Routine programmed cleaning of all surfaces.</td>
<td>Dedicated cleaners available on a daily basis. Routine programmed cleaning of all surfaces.</td>
<td>Dedicated cleaners available on a daily basis. Routine programmed cleaning of all surfaces.</td>
</tr>
<tr>
<td><strong>Sustainability/ Operation &amp; Maintenance</strong></td>
<td>WSP/ M&amp;E plan approved by the MOH. Facility management and maintenance of infrastructure. Provide tool kits, spare parts and training. MOH to make budgetary provision.</td>
<td>WSP/ M&amp;E plan approved by MOH. District and facility management committees oversee management and maintenance of infrastructure. Provide tool kits, spare parts and training. District council to make budgetary provision.</td>
<td>District and facility management committees oversee the management and maintenance of any temporary infrastructure.</td>
</tr>
</tbody>
</table>
BASIC STANDARD LEVEL INDICATORS FOR WASH INFRASTRUCTURE IN HEALTH CARE FACILITIES

Water Supply

Guideline 1: Water Access
Sufficient water source and water collection points are available to allow convenient access to fresh water for medical interventions, infection control activities, drinking, hygiene, laundry and cleaning.

- Health Care Facilities must have a reliable improved source of water accessible at all times. Improved water sources include boreholes, piped water, rainwater, or protected dug well.
- Health Care Facilities must have a backup improved water source to ensure that safe water is supplied to all HCFs in normal and emergency situations.
- A functional water point is available in all areas where health care is delivered (e.g. Operating theatres, wards, delivery room, consulting room) and in-service areas (e.g. sterilization, laboratory, kitchen, laundry, showers, toilets).
- At least two handwashing basins with soap should be provided in wards with more than 20 beds.
  - One handwashing point with soap should be provided for every five users.
- A functional water point with soap is available in consulting rooms and delivery rooms.
- A handwashing point with soap should be provided within 10m of any ward.
- A handwashing point with soap should be provided within 5m of any latrine.
- Separate handwashing point for patient rooms (6-5) patient’s bed at distance 5M away from patient’s bed.
- In any in-patient setting showers should be provided at a ratio of one shower per inpatient room:
  - Separate showers should be provided for staff and patients, and men and women, and adapted for PWD to keep an adequate level of privacy and cultural sensitiveness, increasing the global protection of women and girls.
  - A laundry facility, with soap or detergent, is available for the inpatient setting.
  - Water piping, fittings, pumps and storage must be functional (i.e. No major leaks, all end points are connected to an available water supply). All water lines to HCF WASH facilities shall have measures to prevent contamination of the system.
- Drinking water should be made present, accessible and available to staff, caregivers, patients and visitors at all times.
**Water Quality**

**Guideline 2: Water Quality**
Water for drinking, cooking, personal hygiene, medical activities and laundry is safe for the purpose intended.

**Water Quality Analysis**

- Bacteriological analysis (coliform).
  - The E.coli is the most useful test for detecting fecal contamination of water supplies. Chlorinated samples should have < 3 coliform bacterium per 100ml.
  - Bacteriological assays of water should be performed at least every month.
- Testing chlorine-treated water supplies for free residual chlorine (0.6 mg/L) to assess the effectiveness of disinfection.
  - Free residual chlorine should be greater than 0.2 and less than 0.6 mg/l (after contact with water for 30min at pH below 7.0 and NTU is less than 1-unit Jackson).
  - Free residual chlorine tested by the DPD (N, N-diethyl-4 ,1- phenylenediamine) colorimetric technique.
- Measuring the pH of the water.
  - The pH can affect the efficiency of chlorine disinfection. Chlorination is more effective at a pH below 8 and at higher temperatures.
- Testing for turbidity or cloudiness of the water.
  - By calibrated turbidity tube, can be important in determining whether a water supply is acceptable. Ideally drinking water should have a turbidity value of less than 1 TU. At 5 NTU, turbidity can be seen by eye and water is not acceptable for use. -Nephelometric turbidity units (NTU).

**Domestic Water Quality**

- Domestic water shall be free of turbidity and odors.
  - Water shall have appropriate free residual chlorine (0.6-0.2 mg/L) or free of E-coli:
    - **E-coli risk levels:**
      - Low (<1 per 100 mL).
      - Moderate (10-1 per 100 mL).
      - High (100-11 per 100 mL).
      - Very high (>100 per 100 mL).
  - Water samples for microbiological testing shall be taken regularly by the MOH Infection Control officer or by the Environmental Health Inspector at the Environmental Health Department according to the approved plan (please refer to Annex 1 MoH Drinking water policy policies).
**Drinking Water Quality**

- The water used in health facilities must comply with the Palestinian instructions and specifications:
  - Procedures Manual for the Work of Water Treatment Units Used in Dialysis Units in Hospitals/Ministry of Health, 2016.
  - Drinking water quality should meet parameters stipulated under MoH Infection Prevention Control Policy or Environmental Health Department (refer to Annex 2&1). Drinking water parameters are summarized in Table 8 below. Detailed information on water quality requirements for dialysis can also be found under the MOH Dialysis Manual 2016.
  - The source of drinking water must be from a source licensed by the Palestinian Water Authority, drinking water shall be either obtained from a certified water supplier or either filtered or treated to ensure microbial safety up to the point of consumption. Drinking water shall be stored in a sealed container/vessel and placed in a setting accessible by people with disability and children. The container must be clearly labeled as drinking water. Drinking water should have appropriate free residual chlorine (0.2mg/L or 0.5mg/L in emergencies) or 0 E. coli/100ml and is not turbid.
  - Water samples for microbiological testing shall be taken regularly by the MOH Infection Control officer or Environmental Health Department to the approved plan (please refer to Annex 2&1 MoH Drinking water policy policies and annex 6 Water IPC).
  - Water born disease (annex 5).

**Water for Medical Purposes**

- Water use for some medical interventions needs to be of drinking water quality as a minimum or higher, such as for hemodialysis or pharmaceutical production as there are strict criteria concerning microbial and chemical contamination. Refer to Table 8 for MoH guidelines on water quality for such practices, and annex 2.
  - Microbiological testing of water for medical purposes shall be carried out monthly to ensure the safety of water in accordance with MoH policy (please refer to Annex 4 Safe water characteristic - MoH).
  - Water for medical purposes such as ... must be stored in a sealed and properly cleaned container/vessel and clearly labeled, dated, and stored in a safe environment. (please refer to Annex 3,4 MoH Drinking water policy policies).
**Water for Dental Purposes**

**Dental Unit Waterlines, Biofilm, and Water Quality**

Studies have demonstrated that dental unit waterlines (i.e., narrow bore plastic tubing that carries water to the high-speed hand piece, air/water syringe, and ultrasonic scalar) can become colonized with microorganisms, including bacteria, fungi, and protozoa.

Infection or colonization caused by Pseudomonas species or nontuberculous mycobacteria can occur among susceptible patients through direct contact with water or after exposure to residual waterborne contamination of inadequately reprocessed medical instruments.

No standards exist for an acceptable level of endotoxin in drinking water, but the maximum level permissible in United States Pharmacopeia (USP) sterile water for irrigation is only 0.25 endotoxin units/ml.

**Dental Unit Water Quality**

Research has demonstrated that microbial counts can reach 200,000 colony-forming units (CFU)/mL within 5 days after installation of new dental unit waterlines. And levels of microbial contamination <10^6 CFU/mL of dental unit water have been documented. These counts can occur because dental unit waterline factors (e.g., system design, flow rates, and materials) promote both bacterial growth and the development of biofilm.

Standards also exist for safe drinking water quality as established by EPA, the American Public Health Association (APHA), and the American Water Works Association (AWWA); they have set limits for heterotrophic bacteria of <500 CFU/mL of drinking water (341,342).

**Strategies to Improve Dental Unit Water Quality**

In 1993, CDC recommended that dental waterlines be flushed at the beginning of the clinic day to reduce the microbial load. However, studies have demonstrated this practice does not affect biofilm in the waterlines or reliably improve the quality of water used during dental treatment. Because the recommended value of <500 CFU/mL cannot be achieved by using this method, other strategies should be employed. Dental unit water that remains untreated or unfiltered is unlikely to meet drinking water standards. Commercial devices and procedures designed to improve the quality of water used in dental treatment are available; methods demonstrated to be effective include self-contained water systems combined with chemical treatment, in-line micro filters, and combinations of these treatments. Simply using source water containing <500 CFU/mL of bacteria (e.g., tap, distilled, or sterile water) in a self-contained water system will not eliminate bacterial contamination in treatment water if biofilms in the water system are not controlled.
DHCP should be trained regarding water quality, biofilm formation, water treatment methods, and appropriate maintenance protocols for water delivery systems. Water treatment and monitoring products require strict adherence to maintenance protocols, and noncompliance with treatment regimens has been associated with the persistence of microbial contamination in treated systems. Clinical monitoring of water quality can ensure that procedures are correctly performed and that devices are working in accordance with the manufacturer’s previously validated protocol. Dentists should consult with the manufacturer of their dental unit or water delivery system to determine the best method for maintaining acceptable water quality (i.e., < 500 CFU/mL) and the recommended frequency of monitoring. Monitoring of dental water quality can be performed by using commercial self-contained test kits or commercial water-testing laboratories. Because methods used to treat dental water systems target the entire biofilm, no rationale exists for routine testing for such specific organisms as Legionella or Pseudomonas, except when investigating a suspected waterborne disease outbreak.

**Maintenance and Monitoring of Dental Unit Water**

DHCP should be trained regarding water quality, biofilm formation, water treatment methods, and appropriate maintenance protocols for water delivery systems. Water treatment and monitoring products require strict adherence to maintenance protocols, and noncompliance with treatment regimens has been associated with the persistence of microbial contamination in treated systems. Clinical monitoring of water quality can ensure that procedures are correctly performed and that devices are working in accordance with the manufacturer’s previously validated protocol. Dentists should consult with the manufacturer of their dental unit or water delivery system to determine the best method for maintaining acceptable water quality (i.e., < 500 CFU/mL) and the recommended frequency of monitoring. Monitoring of dental water quality can be performed by using commercial self-contained test kits or commercial water-testing laboratories. Because methods used to treat dental water systems target the entire biofilm, no rationale exists for routine testing for such specific organisms as Legionella or Pseudomonas, except when investigating a suspected waterborne disease outbreak.

**Special Consideration**

Dental Handpieces and Other Devices Attached to Air and Waterlines Multiple semi-critical dental devices that touch mucous membranes are attached to the air or waterlines of the dental unit. Accordingly, any dental device connected to the dental air/water system that enters the patient’s mouth should be run to discharge water, air, or a combination for a minimum of 30–20 seconds after each patient. This procedure is intended to help physically flush outpatient material that might have entered the turbine and air and waterlines. Heat methods can sterilize dental handpieces and other intraoral devices attached to air or waterlines. For processing any dental device that can be removed from the dental unit air or waterlines, neither surface disinfection nor immersion in chemical germicides is an acceptable method. Ethylene oxide gas cannot adequately sterilize the internal components of hand pieces. In clinical evaluations of high-speed hand pieces, cleaning and lubrication were the most critical factors in determining performance and durability. Manufacturer’s instructions for cleaning, lubrication, and sterilization should be followed closely to ensure both the effectiveness of the process and the longevity of hand pieces.
CDC Recommendations for Dental Unit Water Quality
Use water that meets US Environmental Protection Agency (EPA) regulatory standards for drinking water (i.e., < 500 CFU/mL of heterotrophic water bacteria) for routine dental treatment output water. Consult with the dental unit manufacturer for appropriate methods and equipment to maintain the recommended quality of dental water.

Follow recommendations for monitoring water quality provided by the manufacturer of the unit or waterline treatment product.

Sterile Irrigating Solutions
Use sterile saline or sterile water as a coolant/irrigator when performing surgical procedures. Use devices designed for the delivery of sterile irrigating fluids.

Water for other purposes

- Water whose quality is below drinking water standards can be used for cleaning, laundry, sanitation, and hygiene, as long as it is used with a disinfectant or a detergent.
- Regardless of use, all water supplies in HCF should be disinfected and have a free chlorine residual of at least 0.2mg/L.

Table 8: MoH Maximum permissible levels of contaminants for drinking water, dialysis water and pharmaceutical use (MoH Guidelines for Dialysis Water Control in Hospitals – refer to Annex 2)

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>MoH standards Water intended for human consumption No. 2010/26 Max. Conc. (mg/L)</th>
<th>AAMI Maximum for Dialysis Water (mg/L)</th>
<th>European Pharmacopeia for Pharmaceutical use (mg/L)</th>
<th>WHO Guideline Values for Drinking Water (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.2</td>
<td>0.01</td>
<td>0.01</td>
<td>0.2</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.005</td>
<td>0.006</td>
<td>0.006</td>
<td>0.02</td>
</tr>
<tr>
<td>Arsenic</td>
<td>0.01</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>Barium</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Beryllium</td>
<td>0.0004</td>
<td>0.0004</td>
<td>0.0004</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.005</td>
<td>0.001</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td>Calcium</td>
<td>100</td>
<td>&gt; (0.1mEq/L)</td>
<td>&gt; (0.1mEq/L)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Chloramine</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Chlorine</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>Residual free 5.0, 30 at least 0.5 ≤ minutes contact 8.0 &gt; time at pH</td>
</tr>
<tr>
<td>Chromium</td>
<td>0.05</td>
<td>0.014</td>
<td>0.014</td>
<td>0.05</td>
</tr>
<tr>
<td>Cooper</td>
<td>2</td>
<td>0.1</td>
<td>0.1</td>
<td>2</td>
</tr>
<tr>
<td>Fluoride</td>
<td>1.5</td>
<td>0.2</td>
<td>0.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Contaminant</td>
<td>Palestinian standards Water intended for human consumption No. 2010/26 Max. Conc (mg/L)</td>
<td>AAMI Maximum for Dialysis Water (mg/L)</td>
<td>European Pharmacopeia for pharmaceutical use; (mg/L)</td>
<td>WHO Guideline Values for Drinking Water (mg/L)</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Lead</td>
<td>0.01</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>Magnesium</td>
<td>10</td>
<td>4 (0.3 mEq/L)</td>
<td>2 (0.15 mEq/L)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.0001</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.001</td>
</tr>
<tr>
<td>Nitrate</td>
<td>50 (short term exposure)</td>
<td>2</td>
<td>2</td>
<td>50 (short term exposure)</td>
</tr>
<tr>
<td>Potassium</td>
<td>10</td>
<td>8 (0.2 mEq/L)</td>
<td>2 (0.08 mmol/L)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Selenium</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.01</td>
</tr>
<tr>
<td>Silver</td>
<td>0.005</td>
<td>0.005</td>
<td>0.005</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Sodium</td>
<td>200</td>
<td>70 (3.0 mEq/L)</td>
<td>50 (2.2 mEq/L)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Sulfate</td>
<td>250</td>
<td>100</td>
<td>100</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Thallium</td>
<td>0.002</td>
<td>0.002</td>
<td>0.002</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Zinc</td>
<td>5</td>
<td>0.1</td>
<td>0.1</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Bacteria</td>
<td>E-Coli: 0 CFU/ml HPC 100 CFU/ml (Action level 50 CFU/ml)</td>
<td>CFU/ml 0 : E-Coli CFU/ml 100 HPC 50 Action level (CFU/ml)</td>
<td>CFU/ml 0 : E-Coli Not regulated 0 Total Coliform %95 CFU/ml in of samples taken</td>
<td></td>
</tr>
<tr>
<td>Endotoxin</td>
<td>Not regulated</td>
<td>EU/ml 0.25 Action level (EU/ml 0.125)</td>
<td>EU/ml 0.25 Action level (EU/ml 0.125)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>Null</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Hardness</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDS</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Guideline 3: Water quantity**

Sufficient water quantity is available at all times for drinking, infection prevention and control, medical activities, cleaning, laundry, hygiene, and food preparation purposes.

- Ensure sufficient quantities of water are available to meet the minimum daily requirements in the HCF (refer to table 9).
- Sufficient water storage volume is available on-site to provide the HCF with 48 hours (2 days) of backup supply:
  - It is essential to have sufficient water storage for infection control in addition to drinking, hand washing, laundry, bathing, latrine, and medical activities.
  - On-site, water reservoirs should hold at least two full days of backup water in case of interruptions to supply, conflict, or natural disaster damage.
  - Water storage should be covered to prevent contamination and cleaned and chlorinated on a regular basis (at least once every 6 months). The storage should be free from any holes, cracks and leakages.
  - Storage tank cleaning and maintenance should be carried out in accordance with MoH Infection Control Regulation – Cleaning and disinfection of water tanks in Hospitals (See Annex 7).
  - In coordination with the Infection Prevention and Control or Environmental Health Department, the tanks are disinfected and cleaned, and after each cleaning of the tanks, they are examined and samples are taken once a month.
  - The area around the tanks must be kept clean and protected from external access and tampering.
Table 9: Minimum Water Quantities required in HCFs - Source: Essential Environmental Standards in Health Care (WHO, 2008)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Water Quantity</th>
<th>Min WHO standard</th>
<th>With cistern flush, toilet facility add</th>
<th>With shower facility add</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCF staff</td>
<td>5 liters / staff / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Outpatient department</td>
<td>5 liters / consultation</td>
<td>(+3)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Inpatient department</td>
<td>40-60 liters / patient / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Operating theatre / maternity unit</td>
<td>100 liters / intervention</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Dry or supplementary feeding centre</td>
<td>5 liters / consultation</td>
<td>(+3)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Wet supplementary feeding centre</td>
<td>15 liters / consultation</td>
<td>(+3)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Inpatient therapeutic feeding centre</td>
<td>30 liters / patient / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Cholera treatment centre</td>
<td>60 liters / patient / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Severe acute respiratory disease (eg Covid 19) isolation centre</td>
<td>100 liters / patient / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Viral haemorrhagic fever isolation centre</td>
<td>400-300 liters / patient / day</td>
<td>(+15)</td>
<td>(+15)</td>
<td></td>
</tr>
<tr>
<td>Pathology lab</td>
<td>10 liters / test</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Backup in case of supply failure</td>
<td>Minimum 2 days volume of storage in case of supply system failure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: the figures stated shall be considered as the minimum values. Actual quantities required will depend on local water use practices and type of water use facilities such as type of toilet. For facilities with cistern flush toilets figures are based on 3 liters per flush, 5 flushes per day for inpatients, 1 flush per day for outpatients. Shower use based on 15 liters shower / patient / day (for inpatient setting).
Guideline 4: Toilets and Excreta Disposal
Sufficient numbers of adequate, accessible, safe and gender-sensitive toilets are provided for patients, staff and caregivers

→ Improved, sufficient, and gender-sensitive toilets are available: one per inpatient room settings; at least 4 toilets per outpatients setting (at least two gender-separated toilets in the case of mobile clinics covering smaller catchment areas).

→ Toilets are safe, ensure privacy, and are easily accessible including for people with disabilities (within 30 meters from all users).
  → In multi-story buildings, there should be toilets available on all floors, and routes used to reach toilets should be smooth and flat, for easy access for people in wheelchairs.
  → Access route should be lit at night.
  → Toilets should be lockable from inside.

→ Separate toilets are required for men and women and separate toilets should be provided for staff and patients.
  → They should be signposted and easily identifiable to help users find them.
  → At least four toilets in an outpatient setting; two for staff separate for men and women and two for patients separate for men and women.

→ At least one toilet should be available for easy access by children and people with disabilities, heavily pregnant women, elderly people and people who are sick (refer to Annex 5 for design guidelines).
  → Disability access toilets should be properly indicated and appropriately designed including all the supporting items.
  → Accessible without stairs or steps, and include an unobstructed pathway from the HCF (if outside the building).
  → Built with sufficient room within the cubicle/stall for a wheelchair to turn around.
  → Built with a door that is at least 1-meter wide.
  → Secure railings shall be provided within reach next to the toilets and handwash basins.
  → Door handles and toilet seats shall be within reach for people in wheelchairs and crutches.
Toilets should satisfy hygienic standards and be acceptable to use at all times.

- Patient toilets should be equipped with (soap, disinfectant and brushes) to make them easy to clean.
- A regular monitoring and cleaning schedule should be in place. Cleaning should take place at least twice a day with a disinfectant used on all exposed surfaces.
- Maintenance should take place regularly to ensure functionality at all times. Ensure water is always available for flushing and sewerage collection pipework is free-flowing and suitably sized. There should be no leaks or structural failures in the toilet.

Appropriate menstrual management materials and disposal means shall be provided to all women's toilets.

- Women's toilets should have a bin with a lid for disposing of used menstrual hygiene products and water and soap available in a private space for washing.

Toilets should have a handwashing point close by or at the exit of the toilet (within 5 meters) with available soap, water, and adequate drainage.

Appropriate and environmentally friendly sludge emptying measures (at least every 6 months) should be in a place where sewerage septic tanks or pits are used.

- Any excreta storage (isolated septic tank) shall be no less than 25m from any water source.
Wastewater Disposal

Guideline 5: Wastewater Disposal
Wastewater is disposed of rapidly and safely

- All wastewater produced from basins, showers, sinks, etc. (grey water) and flushing toilets (black water) should be drained to a standard off-site sewer or a nationally approved soak-away pit.
- Wastewater should be managed to avoid contamination of the healthcare setting and the broader environment.
- Rainwater and surface run-off are effectively drained and do not carry contamination from the health-care setting to the outside surrounding environment.
- All open wastewater drainage systems shall be covered to prevent the risk of disease vector breeding and contamination from direct exposure.
- On-site waste pits or trenches shall not overflow into the Health Centre grounds:
  - Any drainage pit or system shall be above the groundwater table and 25m from any groundwater source.
- No toxic Any drainage pit or system shall be above the groundwater table and 25m from any groundwater.
Hygiene

Guideline 6: Handwashing:
Sufficient functional hand washing facilities are available in the health center.

- Adequate and proper placement of hand washing facilities is the major engineering and infection control method for reducing risks.
- Hospital design must consider sufficient numbers and proper placement of handwashing sinks. Usage is not only critical to preventing spread of infection, but improper placement and maintenance can add to the environmental reservoir of contaminants.
- The American Institute of Architects (AIA) guidelines do not consider waterless agent dispensers as equivalent to sinks, understanding soap and water is still required for washing hands contaminated with visible soil.
- A functional hand washing point with soap and wastewater disposal is available in:
  - All areas where health care is delivered (e.g. wards, consulting room, delivery room).
  - All service areas (e.g. toilet, laboratory, sterilization).
- A functional handwashing station with soap and wastewater disposal is available within 10m of a ward.
- A functional handwashing station with soap and wastewater disposal is available within 5m of any latrine.
- All handwashing stations shall be served by an improved water source.
- The handwashing points shall be conveniently located and at appropriate heights (min 1m max and 1.3m above ground).
- Handwashing sinks/ basins shall be cleaned regularly and drain monitored to avoid blockages and ponding.
- Hygiene promotion is important for staff, patients and careers. Constant reminders should be given of the importance of infection control and the routine measures required to achieve it.
  - Hand hygiene promotion materials shall be clearly visible and understandable at key places including points of care, waiting rooms, the facility’s entrance and within 5m of latrines
- Equipment Design Issues in the Handwashing Stations.
  - Faucets
    - Non-touch faucet fittings have increased in usage.
  - Location
    - Sinks need to be placed in convenient and accessible areas, but should be positioned to prevent splashing of nearby equipment and supplies.
    - Nearby surfaces should be nonporous to resist fungal growth.
    - Areas beneath sinks should not be used for storage because of proximity to sanitary sewer connections and risks of leaks or water damage.
→ soap
  → Built-in refillable soap dispensers should be avoided to reduce need for cleaning and prevent contamination problems.
  → Small bars of soap may be used, washable dispensers with disposable cassettes are effective in reducing contamination risks, and maintenance is far less labor-intensive.

→ Drying
  → Sufficient space should be provided for paper-towel dispensers, soap, and waste disposal.
  → Paper-towel dispensers should be designed to protect against soil or dust and provide for single-unit dispensing.
  → Ideal designs dispense the towel without direct hand contact with the dispenser.
  → If hot-air dryers are used, installation should preclude possible contamination by recirculation of air.

→ Aerators
  → Aerator usage is not recommended, though CDC guidelines indicate removal is an unresolved issue for immunocompetent patients.
  → Proper sink design (i.e., depth of the sink, length of the spout, distance between the spout and sink drain) may reduce or eliminate the hazard.
  → Regular cleaning also will reduce risks if aerators are used.
  → American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends cleaning and monthly disinfection of aerators in high-risk patient-care areas as part of Legionella control measures.

→ Sink controls
  → Faucets can be operated by hand, by elbow-, knee-, or foot-operated controls, or automatically by electronic or other sensor-driven controls.
  → Blade handles on clinical sinks should be at least 6 inches long for operation without hands (i.e., elbow operated).
  → Foot, knee, or sensor controls are more expensive but are preferred in areas where risk of touch contamination should be eliminated (e.g., scrub sinks for operating rooms and neonatal intensive care units).
Health Care Facilities should refer to the National Medical Waste Management By-Law Articles “2012” and the Ministry of Health Medical Waste Management Guidelines (Annex 8).

All waste shall be segregated at the point of generation, according to its type into the following colour-coded categories (table 10).

The waste disposal zone should be fenced off with concrete flooring and a water point with soap and detergent for handwashing or disinfecting containers.

Sharps should be placed immediately in puncture-proof covered boxes which are regularly collected for disposal.

Infectious waste shall be collected in colour coded containers with lining (40 – 15 liter capacity), collected, emptied, cleaned, disinfected and replaced after each intervention or twice daily.

Hazardous waste shall be collected and stored in an appropriate and labelled container placed in a secure location.

General waste (60 – 20 liter containers) should be collected, emptied, cleaned and replaced daily.

For the above categories of waste, it is recommended that waste containers are maximum of 5 meters from the point of waste generation, in two sets for each location for a minimum of three types of waste. At least one set of waste containers should be provided per 20 beds in a ward.

For mobile clinics or primary health care facilities open a few days a week, medical waste shall be transported to larger facilities for disposal.

Waste management practices shall comply with laws and regulations stipulated under the Ministry of Health (MoH), the Environment Quality Authority (EQA) and the Ministry of Local Governorates (MoLG).

(Refer to Technical Guidelines for Waste Management under Appendix).

HCF manager, dedicated waste management personnel, Infection Control Officer, medical service providers, cleaners, external contractors and heads of departments in health institutions should undertake responsibilities in health care waste management.
National medical waste management by-law /2012.

Article 5 - The functions and powers of the institution:

→ The institution is obligated to manage the waste generated from it in accordance with the provisions of this system, as follows:
  → Separation and sorting of waste and determining its types accurately.
  → Follow different methods as much as possible to reduce waste, such as re-disposal, reuse, recycling, or others.

→ Controlling the quantity and type of waste to reduce its danger by taking measures, including:
  → Reducing the use of mercury machines and using electronic devices as an alternative.
  → Reducing the use of PVC materials to reduce the emission of toxic fumes resulting from waste when burned.
  → Replacing highly toxic disinfecting or cleaning materials with less toxic and more effective materials.
  → Use environmentally safe, reusable or manufacturing materials such as cardboard or plastic.

→ Conducting primary treatment of waste whose nature and characteristics so require.

→ Clean the contaminated places and sterilize them well after removing the waste.

→ Collecting and transporting waste to temporary storage places or a treatment unit inside the establishment or preparing it for transfer to a treatment unit outside the establishment or a landfill in accordance with the provisions of this system.

→ Create a waste record in which each type of waste is recorded, its quantity, how it is managed, and the state it has devolved to after treatment.

Article 7- Each institution must adopt a manual for its waste management in accordance with the provisions of this system, to be approved by the Ministry, provided that it includes the following:

→ Color index of bags, containers, and labels used for waste collection.
→ Corridors designated for transporting and collecting waste.
→ Temporary storage places for waste.
→ The foundations of control and supervision of waste management operations.
→ The mechanism for following up and treating accidents and errors that may occur during waste management, and the procedures to be followed in holding the culprits and those responsible for managing them accountable.
→ The responsibility of the waste management staff, each according to the tasks assigned to him.
Article 14- The type and color of the packages intended for the segregation, the containers needed to collect waste inside the facility according to the color guide as the following table 10:

Table 10: Color Coding for Waste Segregation
(National medical waste management by-law /2012.)

<table>
<thead>
<tr>
<th>#</th>
<th>Waste type</th>
<th>Color</th>
<th>Container quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ordinary waste</td>
<td>Black color</td>
<td>Plastic bags or containers</td>
</tr>
<tr>
<td>2</td>
<td>Infectious waste</td>
<td>Yellow</td>
<td>bags inside solid plastic containers that do not leak liquids and can be sterilized by steam</td>
</tr>
<tr>
<td>3</td>
<td>Sharp medical waste</td>
<td>Yellow</td>
<td>Solid plastic box or cardboard box that does not leak liquids.</td>
</tr>
<tr>
<td>4</td>
<td>Pathological and anatomical waste</td>
<td>Red</td>
<td>Bags in hard, non-leaking plastic containers</td>
</tr>
<tr>
<td>5</td>
<td>Pharmaceutical and chemical waste</td>
<td>Brown</td>
<td>Solid, non-leaking plastic containers with a label indicating the type of waste.</td>
</tr>
<tr>
<td>6</td>
<td>radioactive waste</td>
<td>colorless</td>
<td>Lead containers marked with radioactive material.</td>
</tr>
<tr>
<td>7</td>
<td>mixed waste</td>
<td>The most dangerous waste color</td>
<td>Solid plastic containers that do not leak liquids, provided that a clear mark is placed on that container indicating the type of mixed waste.</td>
</tr>
<tr>
<td>8</td>
<td>Other hazardous waste</td>
<td>Red</td>
<td>Solid plastic containers that do not leak liquids, provided that a clear mark is placed on that container indicating the type of such waste.</td>
</tr>
</tbody>
</table>

Article 15- sharp waste collection:

- Sharp waste is collected in flammable plastic or cardboard boxes with a tight-fitting lid that is allowed in and not allowed out, and a label is placed on it with the phrase “Warning - Hazardous Waste.”
- These boxes are required to be non-halogenated, solid, durable and not subject to puncture or breakage, and have a manual handle to carry them with.
- Small boxes or packages of reinforced plastic labeled “hazardous waste” should be used to collect the remnants of needles and syringes immediately after use, so that these boxes or packages do not allow waste to escape from them.
Sharp waste must be placed in the bins completely and without breaking, and appropriate sterilization materials such as chlorine or any other substance must be used according to the instructions of the institution.

Sharps bins are closed tightly, sterilized, and strong adhesive tape is placed around them before being sent to the waste treatment unit or temporary storage place.

**Article 16- Infectious waste collection:**

- Infectious waste is collected in a solid, non-halogenated and flammable plastic container with a tight-fitting lid, on which a label stating the phrase "Warning - Hazardous Waste - Infectious", and inside it contains a yellow single-use plastic bag with the same warning printed on it.
- When the container is full, the bag inside it is tightly tied, considering that none of the packed materials will leak out or protrude from it, then close the container tightly and place reinforced adhesive tape around it before sending it to the waste treatment unit.

**Article 17- Collection of highly infectious waste:**

- Highly infectious wastes must be separated from other infectious wastes and other wastes, and primary treatment should be carried out directly within the medical and research departments producing them, by sterilizing them by one of the following means:
- Fumigation The time and temperature used in the device depending on the volume and total weight of the materials to be sterilized and on the type of microbes and the degree of their resistance to steam, according to the instructions of the company that produced the sterilizer.
- b- Put it in formalin at a concentration of 10% for twenty-four hours.
- Put it in a refrigerator with a temperature of less than (20) degrees Celsius for a period not exceeding one week.
- The highly infectious waste products are collected after initial treatment as infectious waste.
Guideline 8: Food Storage and Preparation
Food for patients, staff and careers is prepared and stored in a way that minimizes the risk of disease transmission

- Food handling and preparation are done with utmost cleanliness.
- Food preparation premises shall be kept meticulously clean.
- Storage of food and kitchen shall be well ventilated and protected from rain and sun and protected from insects, rodents and other animals.
- Food shall be kept at safe temperatures.
- Safe water and raw ingredients shall be used at all times for washing and food preparation.

Management

Guideline 9: Management of WASH services in HCFs
Adequate measures and resources are in place to ensure quality and sustainable WASH services to Health Care Facilities

- A MOH endorsed Water Safety Plan or monitoring & evaluation tool contextualized for both the Gaza Strip and the West Bank shall be developed and implemented in each facility on a regular basis. The global tool such as WASH-FIT (available for downloading at https://washfit.org/#/) can be adapted to the indicators presented in these standards and the local context.
- Dedicated cleaners and WASH maintenance staff shall be available for each facility.
  - Availability of appropriate budget and spare parts for associated WASH infrastructure shall be a key consideration by public ministries and service providers.
  - Routine programmed cleaning of surfaces and fittings is carried out with detergents to ensure the health-care environment is visibly clean at least daily and whenever horizontal surfaces are soiled.
- Each facility shall have a dedicated WASH/IPC focal person responsible for the implementation of regular WASH monitoring and surveillance.
Implementation

This section outlines the steps, roles and responsibilities at all levels (national and sub-national) for generating and implementing the guidelines as well as applying the guidelines to specific healthcare settings. A supportive policy environment should allow stakeholders at all health-setting levels to establish effective management to plan, fund, implement and maintain WASH based on this standard.

Roles and Responsibilities

Table 11 below presents the roles and responsibilities of stakeholders at the subnational and local levels. It also outlines some of the things they can do to help achieve and maintain adequate environmental health conditions in health care settings.

Table 11: Roles and Responsibilities for implantation of WASH standards in Health Care Facilities (WHO, 2008)

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Contribution to improved environmental health in HCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>Comply with procedures for use and care of WASH facilities, and observe appropriate hygiene measures</td>
</tr>
<tr>
<td>Health Care Workers</td>
<td>Carry out prevention duties (cleaning, medical waste management, hand hygiene and asepsis) consistently and well</td>
</tr>
<tr>
<td></td>
<td>Encourage patients and careers to adopt appropriate behaviors</td>
</tr>
<tr>
<td></td>
<td>Participate actively in achieving and maintaining targets</td>
</tr>
<tr>
<td>HCF Managers</td>
<td>Plan and implement programs to set, achieve, monitor and maintain targets</td>
</tr>
<tr>
<td></td>
<td>Nominate a focal person within HCF to monitor WASH services.</td>
</tr>
<tr>
<td></td>
<td>Ensure the informational environment in HCFs is conducive to WASH awareness-raising and advocacy</td>
</tr>
<tr>
<td></td>
<td>Sanctions for staff non-compliance</td>
</tr>
<tr>
<td></td>
<td>Create conditions in which staff are motivated to meet and maintain targets</td>
</tr>
<tr>
<td></td>
<td>Supervising the management of medical waste in the health facility and health center</td>
</tr>
<tr>
<td></td>
<td>Training of cadres on how to deal with medical waste.</td>
</tr>
<tr>
<td></td>
<td>Providing personal protective equipment for medical waste workers and crew</td>
</tr>
<tr>
<td>Ministry of Health at National and Governorate Levels</td>
<td>Provide resources and direction for setting, achieving, and maintaining targets</td>
</tr>
<tr>
<td></td>
<td>Define targets and indicators in accordance with standards and monitoring tools</td>
</tr>
<tr>
<td></td>
<td>Regular coordination with other non-health authorities.</td>
</tr>
<tr>
<td></td>
<td>Advocacy and awareness-raising of WASH in HCFs</td>
</tr>
<tr>
<td></td>
<td>Public health preparedness</td>
</tr>
<tr>
<td></td>
<td>Compliance with prevention guidelines</td>
</tr>
<tr>
<td></td>
<td>Develop internal regulations and rules to influence norms for healthy behavior, identify and respond to health threats enforce health and safety standards</td>
</tr>
</tbody>
</table>
The standards shall integrate with the existing governing structure of the Ministry of Health in State of Palestine. A supportive policy environment should allow stakeholders at subnational and health-setting levels to establish effective governance and management arrangement to coordinate improvements and maintain standards.

These guidelines can be used to set standards at the national, governorate, or local level (either the HCF itself or the local community). There are essential steps for managing the standards at each level. These steps are shown in Table 12 below (WHO, 2008).

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Contribution to improved environmental health in HCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private waste collection services</td>
<td>Collect and dispose of healthcare waste in a centralized facility</td>
</tr>
<tr>
<td>Public Environmental Health Services</td>
<td>Provide specialist advice for identifying problems and recommending solutions for water supply, sanitation and hygiene</td>
</tr>
<tr>
<td>Education Sector (MoEHE &amp; Medical colleges)</td>
<td>Raise awareness in medical schools and all other sectors. Health communication campaigns. Provide training for the health sector on relevant WASH behavior</td>
</tr>
<tr>
<td>Politicians</td>
<td>Provide and mobilize political and financial support for improvements. Develop incentives and deterrence policies (e.g., civil and criminal penalties for risky behaviors). Identify &amp; assess alternative policies</td>
</tr>
<tr>
<td>Municipality water Utilities</td>
<td>Construction, operation and maintenance and reliability assurance of piped water networks, treatment plants, desalination plants and sewer networks servicing HCFs.</td>
</tr>
<tr>
<td>Palestinian Water Authority (PWA)</td>
<td>Regulation of all water and sanitation infrastructure servicing HCFs to ensure safe and reliable provision of WASH services</td>
</tr>
<tr>
<td>National and international funding bodies</td>
<td>Provide funding for new HCFs, upgrading or renovation of existing ones and ongoing maintenance of targets. Advocacy for fundraising</td>
</tr>
<tr>
<td>Other communities</td>
<td>Participate in disease control sessions through community health organizations that might exist. Report on health care waste found outside HCFs</td>
</tr>
<tr>
<td>Steps</td>
<td>National Level (MoH)</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1</td>
<td>Review existing national policies and ensure that there is a national policy framework that supports improved conditions in HCSs.</td>
</tr>
<tr>
<td>2</td>
<td>Ensure that national bodies exist for setting and monitoring standards</td>
</tr>
<tr>
<td>3</td>
<td>Provide national expertise and knowledge through information dissemination mechanisms</td>
</tr>
<tr>
<td>4</td>
<td>Add to national standards if needed. Ensure that there is an effective regulatory framework that encourages and supports compliance.</td>
</tr>
<tr>
<td>5</td>
<td>Provide and/or facilitate funding for national programs</td>
</tr>
<tr>
<td></td>
<td>National Level (MoH)</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Monitor progress at national level and promote consistent application of standards in all regions and at all levels.</td>
</tr>
<tr>
<td>7</td>
<td>Produce training and information materials appropriate to a range of healthcare settings. Ensure appropriate curriculum for healthcare worker training.</td>
</tr>
<tr>
<td>8</td>
<td>Periodic review and update of policies, standards, training contents, evaluation and monitoring tools.</td>
</tr>
</tbody>
</table>
Operation and Maintenance Guidelines

The efficient operation and maintenance (O&M) of WASH infrastructure is crucial to supporting a safe HCF environment by sustaining IPC performance and ensuring safe water is delivered as per designed quality and quantity with adequate pressure on a sustainable basis. O&M includes routine maintenance, minor repairs and corrective maintenance.

O&M Guidelines for Groundwater Bore Wells

While the expected service life of a well will depend on its design and construction, proper maintenance will help to improve its performance and may increase its life span. With respect to drilled wells, HCFs should undertake the following actions:

1. Keep records of power consumption and well discharge operating hours to detect signs of declining pump performance of water table.
2. Carry out periodic chemical and bacteriological analysis of water and treat it when necessary.
3. Check well cap and security around the vicinity of well annually to avoid source or potential contamination.
4. Ensure regularly that the site is free from any health care waste that can alter water quality.
5. Undertake periodic cleaning of screens by adding chlorine or other proprietary disinfectants followed by the agitation of the water in the well.

O&M Guidelines for Rainwater Harvesting Systems

A rainwater harvesting system must have a periodic inspection to prevent contamination from potential debris collected over the roof surface. All rainwater harvesting systems should include an adequate first flush system.

1. Empty the first flush system following every rain event to ensure the debris from the roof catchment area.
2. Check and clean the storage tank periodically.
3. Cover and ventilate the tank to avoid mosquito breeding, prevent insects and rodents’ entry and minimize algae growth.
4. Provide filter to tank and clean monthly.
O&M Guidelines for Water Storage Tanks

It is important to clean and disinfect water storage tanks at least once every three months. Cleaning and disinfecting storage tanks aim at removing algae, silt, and harmful bacteria.

**The steps below should be followed in cleaning and disinfecting water storage tanks:**

1. Empty the tank.
2. Scrub or pressure wash the interior walls to remove dirt and grime with detergents.
3. Rinse out the tank.
4. Check pipe fittings for rust and clean if found.
5. Scrub or pressure wash the interior walls of the tank with 0.2% chlorine solution and leave for 2 hours.
6. After 2 hours, thoroughly rinse the tank with clean water.
7. Refill the tank.

O&M Guidelines for Sanitation Facilities

Sanitation infrastructure and facilities require routine and periodic maintenance to ensure sustainable services and limit the risk of contamination and infection spread in the HCF environment. The following practices should be followed for the maintenance of hygiene of sanitation systems:

1. There should be a clear description of staff roles in the management of sanitation infrastructure and services.
2. Toilets should be cleaned whenever they are dirty and at least three times a day with a disinfectant used on all exposed surfaces and a brush to remove visible soiling.
3. Users of toilets should be reminded through a visibly displayed poster that they must flush and leave the toilet clean after use.
4. There should be a weekly and daily cleaning schedule that specifies when sanitation facilities should be cleaned and supplied with cleaning and hygiene agents. The cleaning schedule should identify persons or groups responsible for undertaking the cleaning tasks and their supervisors. These schedules should be displayed for easy access and be shared among responsible managers.
5. Orientation, training and education of users is an important aspect of operations that must be implemented. Orientation materials, personnel and time should be dedicated to training newcomers, regular visitors and staff members.
6. O&M plan must be put in place to cover the running of repairs of sanitation infrastructure and services. This should include regular or incidental repairs and scheduled maintenance activities.
7. Monitoring tools for sanitation in HCFs will be developed centrally. It will be the responsibility of each HCF to obtain the tools and make sure they are being implemented as intended.
8. On-site faecalis sludge storage cisterns and septic tanks should be emptied when ¾ full.
9. Bedpans should be immediately cleaned and disinfected after being used by patients.
10. Cleaning and maintenance inspection activities should be documented and reported in weekly meetings.
ADVANCED STANDARD GUIDELINES OF WASH FOR HEALTH CARE FACILITIES

Below is a description of advanced WASH parameters with associated references. These guidelines are applicable beyond the preceding basic standards for enhanced quality of WASH services delivery. The standards and guidelines indicated are applicable mostly to hospitals to align themselves with existing international standards for hospital and Specialized Care (TAHPI, 2019).

All water supply and sanitary systems associated with HCFs shall be compliant with policy and regulations of the Palestinian Water Authority (PWA). These include but are not limited to:


Advanced Water Supply Standards for Health Care Facilities

Water systems in HCFs shall be designed in accordance with the latest edition and requirements of the relevant standards, codes, and guidelines issued by authorities having jurisdiction and internationally recognized institutions including but not limited to the entities listed below.
### Table 13: Associated International Codes and Standards for Water quality standards for Healthcare Facilities

<table>
<thead>
<tr>
<th>Code Reference</th>
<th>Description</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS EN 805</td>
<td>Water Supply System</td>
<td>BS EN 508, BS EN 10221, BS EN 7501, HTM 40-10, HTM 70-40, HBN-31, HBN 70-10 &amp; 20, IoP, IPC, UPC, ASPE, HSE – L8, WSR - 999, NRC, WHO</td>
</tr>
<tr>
<td>BS 6700</td>
<td>Design, Installation, Testing and Maintenance of Services Supplying Water for Domestic Use within Buildings</td>
<td></td>
</tr>
<tr>
<td>BS EN 12201</td>
<td>Polyethylene Specification for Water System</td>
<td></td>
</tr>
<tr>
<td>BS EN 1057</td>
<td>Copper Specification</td>
<td></td>
</tr>
<tr>
<td>HTM 01-04</td>
<td>Safe Water in Healthcare Premises</td>
<td></td>
</tr>
<tr>
<td>HTM 04-07</td>
<td>Water Management &amp; Water Efficiency Best Practice for Healthcare Sector</td>
<td></td>
</tr>
<tr>
<td>HBN-13</td>
<td>Sterile Services Department</td>
<td></td>
</tr>
<tr>
<td>HBN 02 &amp; 01-07</td>
<td>Satellite Dialysis Unit &amp; Main Renal Unit</td>
<td></td>
</tr>
<tr>
<td>IoP</td>
<td>Institute of Plumbing – Plumbing Engineering Services Design Guide</td>
<td></td>
</tr>
<tr>
<td>IPC</td>
<td>International Plumbing Code</td>
<td></td>
</tr>
<tr>
<td>UPC</td>
<td>Uniform Plumbing Code</td>
<td></td>
</tr>
<tr>
<td>ASPE</td>
<td>American Society of Plumbing Engineers</td>
<td></td>
</tr>
<tr>
<td>ASHRAE Applications</td>
<td>American Society of Heating &amp; Refrigeration Air Conditioning Engineers Applications, Chapter 50</td>
<td></td>
</tr>
<tr>
<td>HSE – L8</td>
<td>The Control of Legionella Bacteria in Water Systems</td>
<td></td>
</tr>
<tr>
<td>WSR - 1999</td>
<td>Water Supply Regulations (Water Fittings) 1999 (U.K)</td>
<td></td>
</tr>
<tr>
<td>Laboratory Safety Guidance - OSHA</td>
<td>Laboratory Safety Guidance – OSHA</td>
<td></td>
</tr>
<tr>
<td>NRC</td>
<td>Nuclear Regulatory Commission</td>
<td></td>
</tr>
<tr>
<td>WHO</td>
<td>WHO – Guidelines for Drinking Water Quality</td>
<td></td>
</tr>
</tbody>
</table>
Water Supply Design Criteria

- Water systems and components shall comply with regulating bodies stated in Table 13 above and local Palestinian Water Authority.
- One of the most important factors regarding water quality is the concern of legionnaires disease. The control and elimination of legionella is very crucial, and measure must be provided. The United Kingdom’s Health and Safety Executive (HSE) 274 & L8, provides one of the best Approved Code of Practice and guidance on regulations ‘Legionnaires’ disease: The control of legionella bacteria in water systems. This guideline or the guideline from ASHRAE should be utilized for the projects.
- It is recommended that plumbing installation contractors and companies have the appropriate qualifications and the industry knowledge and competence of installing the correct system suitable for healthcare facilities.

Water Source

- Depending on the water source the incoming TDS/PPM can vary from 2000 PPM to 80PPM. Water must be treated to reach water quality levels of 150 – 0PPM.
- The water sources to the healthcare facility must be split into two systems for resiliency, redundancy and avoiding having a concern of inadequate water supply to the system. One supply will be an emergency supply to the system.
- Both the main incoming supply as well as the emergency water supply will need to have components to protect the healthcare facility from infection. This is provided through backflow prevention valves or Double Check Valves.

Water Quality

- Water quality shall be according to the references and guidelines indicated under the Basics WASH Standards.
- The design engineer should consider the type of water treatment used by the water network supplier to ascertain what type of water treatment should be used. In some supplies, the water may have residual chemical treatment used during extreme hot climates and cool weather at different times of the year. This will affect certain immunodeficient patients in the healthcare facility.
- The design of the healthcare facility must also consider any possible concerns that will affect the quality of water in the facility such as “dead leg” or “stagnate water areas”. The design must eliminate these areas.
**Water Storage**

→ For Healthcare Facilities, 3 days of Potable Water Storage is recommended:
  
  → Out of the 3 days, 2 Days are actual Raw Water Storage.
  → The second 1-day storage tank will contain treated water.

→ The main 2-day storage tank shall be a concrete, buried or Glass Reinforced Plastic (GRP) tank. The treated water storage tanks must be GRP tanks.

→ To avoid the risk of deterioration of water quality, Low-level chemical treatment, as well as circulation pumps, must be provided.

→ If there is no risk of flooding, it is preferable to locate a portable water tank at the lower levels of any healthcare facility (basement, ground floor etc.).

**Hot Water System**

→ The Hot water system in healthcare facilities should be designed as outlined by BS 6700 (with respect to the Water Supply (Water Fittings) Regulations 1999, BS EN 806 (Parts 5–1), BS 8558 and BS EN 6700.

→ The potable water serving the hot water plant shall be treated via Ultraviolet, before connecting to the hot water system.

→ The design of the system must be provided with a backup water heating strategy along with the above-mentioned hot water systems. Generally, the electrical heating element is the backup to the other two systems, but it may also be the primary source of hot water generation.

→ Solar water system to be provided with a duty and standby system setup.

→ The water storage temperature must be kept at a minimum of 65 - 60 to prevent bacterial growth within the stagnant water.

→ The hot water service needs to be blended down to warm conditions with the use of a thermostatic mixing valve (TMV) to avoid the risk of scalding. Wash hand basins and scrub sinks will be provided with a TMV that allows outlet temperature control. This limits the maximum temperature of water delivered from the basin taps.
Table 14: Sanitation Standards for Healthcare Facilities

<table>
<thead>
<tr>
<th>Location</th>
<th>Advanced level sanitation indicators</th>
<th>Basic service level indicator comparison</th>
</tr>
</thead>
</table>
| Registration/ waiting area | 1 male block (1 toilet, 3 urinals, double handwash basin)  
1 female block (3 toilets, double handwash basin)  
1 disability access toilet with hand wash basin | Max 30m distance access to any toilet (at least one male, one female, one staff and one disability access toilet) from waiting area |
| Outpatient Department | 1 toilet per 100 male outpatients, 1 urinal per 50 male outpatients, 2 toilets:100 for female patients, 1 disability access toilet with handwash basin | Max 30m distance access to any toilet (at least 4 toilets: one male, one female, one staff and one disability access toilet) from outpatient department |
| Inpatient ward       | 1 toilet per inpatient room for male and 1 per inpatient room for female  
1 shower per inpatient room (at least one shower accessible by people with disability including wheelchair access and hand rails)  
1 wash basins up to 10 beds and 1 additional for every 10 beds  
1 urinal for every 12 beds  
1 disabled toilet with bathing facility | Max 30m distance access to any toilet (greater of 1 per 20 inpatient users or 4 toilets minimum: one male, one female, one staff and one disability access toilet) from inpatient department |
| Operating Room       | Scrub room with sluice                                                                                   | Max 30m distance access to any toilet from operating room                                                  |
| Pathology Block      | One toilet with handwashing basin                                                                          | Max 30m distance access to any toilet                                                                            |
| Labour room          | One toilet with handwashing basin                                                                           | Max 30m distance access to any toilet from operating room                                                     |
| Delivery Room        | Sluice with handwashing facility                                                                            | Max 30m distance access to any toilet                                                                            |
Table 15: Hygiene standards for Healthcare Facilities

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Advanced level handwash indicators</th>
<th>Basic Service Level Indicator Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathing Facilities</td>
<td>Separate for male and female: minimum 1 shower per inpatient room.</td>
<td>1 shower per inpatient room.</td>
</tr>
<tr>
<td>Handwash stations (include soap and hand drying, paper towel/electric drying)</td>
<td>Inpatient department: 1 per inpatients room. Separate handwashing point for (6-5) beds at distance 5M away from patients' bed One in each section listed below: Operating wards, consulting room, dressing rooms, sterilization area, laboratory, kitchen, laundry, bathing area, toilets, waste zone, mortuary</td>
<td>Functional water points with basin and soap available at all healthcare (operating, delivery room, ward etc.) and service (latrines, laboratories etc.) delivery points (max 5m from latrines, 10m from a ward)</td>
</tr>
<tr>
<td>Messaging and Hygiene promotion</td>
<td>Should be elaborated in guideline on effective messaging on Hygiene at specific locations for patients, careers and service providers and Hygiene promotion integrated with all service delivery Messages such as Handwashing with soap, baby and young infants care practices, etc. is essential to display at right place</td>
<td>Hand hygiene promotion materials shall be clearly visible and understandable at key places including points of care, waiting rooms, the facility’s entrance and within 5m of latrines</td>
</tr>
<tr>
<td>Capacity Building</td>
<td>Should be conducted on IPC and importance of WASH to staff of HCF</td>
<td>Should be conducted on IPC and importance of WASH to staff of HCF</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Use a needle cutter (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segregation of waste must take place at the bed site, at the operation theater, at ward, at laboratory, wherever it is generated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of biogas plant/ composting (in a pit) for biodegradable waste (left over food, vegetables, fruits etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of non-burn technology (e.g. autoclave, microwave etc.) for infectious waste (gloves, syringes, IV sets, blood bags, sharps etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of chemicals (e.g. 5% Sodium hypochlorite etc.) for laboratory highly infectious waste and use of these chemicals before disposing waste as per “Technical Guidelines for Medical Waste Management”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separate and adequate space for collection/storage and treatment (e.g. autoclaving) of waste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability and use of personal protective equipment (PPE) (mask, cap, boot, apron, utility gloves etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper and safe disposal of non-risk waste and risk waste after proper treatment, in municipal container/ private collector or recycling agents or any designated area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information on HCWM should be visible for Health Workers, patients and visitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formation of HCWM committee and regular meeting in the HCF. Orientation / training of HCWM at least once a year.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate amount of budget for HCWM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Health Facility Guidelines:

http://www.healthfacilityguidelines.com

UNICEF. (2020). Palestinian Multiple Indicator Cluster Survey. UNICEF.

UNICEF. (2021). WASH in HCF Vulnerability Mapping Data Summary. UNICEF.


WHO. (2019). Water, sanitation, hygiene and health - A Primer for Health Professionals.

ANNEXES:

National Standards for WASH in Health Care Facilities
State of Palestine
Annex 1 – MoH Drinking Water Quality Control in Hospitals Guidelines

<table>
<thead>
<tr>
<th>Policy No.:</th>
<th>IPC-0</th>
<th>Policy name:</th>
<th>Drinking water quality control</th>
</tr>
</thead>
<tbody>
<tr>
<td>version number:</td>
<td>First</td>
<td>Policy type:</td>
<td>infection control</td>
</tr>
<tr>
<td>Release Date:</td>
<td>00/00/2021</td>
<td>Policy Maker:</td>
<td>Safety and infection control unit</td>
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<td>Review Date:</td>
<td>00/00/2021</td>
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<td>All departments in the enterprise of its health</td>
</tr>
<tr>
<td>Authorized by:</td>
<td></td>
<td>Number of pages:</td>
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</table>

1. Politics: Monitoring the quality of water and maintaining its continuity, safety and compliance with the standards in force in the health facility

2. Purpose: Maintaining water quality in compliance with the standards required in the facilities of the health facility to protect workers, patients and visitors

3. Application: Engineering and Maintenance Department

4. Definitions
   - **Water Quality Control**: The process of ensuring the safety of water by taking samples from different water points inside the health facility for the purpose of conducting the required tests to ensure its suitability for use.
   - **Water Quality Standards**: They are physical, chemical, microbial and radiological standards that are required to be available in the water suitable for consumption.

5. Responsible parties
   - Infection Control Officer
   - Environmental Health Department
   - Department of Administrative Affairs (Administrative)
   - Engineering and Maintenance Department

6. Follow-up
   - The health facility management is committed to providing safe water according to recognized quality standards to protect patients, employees and visitors
   - The infection control officer shall take microbiological samples monthly according to the approved plan of the water to make sure it matches the specifications
   - The laboratory shall conduct analyzes periodically, with the obligation to document the results in records of laboratory results related to water quality control
   - The head of the infection control department is obligated to provide the management of the engineering and maintenance department with the observations that are monitored through the quality control of drinking water to take the appropriate corrective measures
   - Head of the Infection Control Department must make sure suitable response by engineering and maintenance department to the health facility cleaned and disinfected networks supply of water is periodically according to the schedule time frame specified

7. Procedures:
Chlorination systems are checked daily to ensure that the supply of chlorine compound does not run out and that it is provided within the required limits. All efforts must be made to prevent the risk of contamination of the water supply system due to the chemicals used, renovation, construction, fire or other related industrial, agricultural and human activities. Must implement a health program every institution routine maintenance to maintain the water distribution system is clean and acceptable. The engineering and maintenance department must properly treat chemical water to ensure safe water, Engineering Department is committed for the processing system of water supply security, the reverse flow inhibitor to prevent reverse pressure and mutual pollution as recommended in never to form air gaps to prevent the contamination by sewage.

Water Distribution Management Plan:

1- Preventive Procedures:
Preventive and maintenance program, purification and disinfection of water supply system will include developing a specific schedule for taking samples from the supply of drinking water supplies of washing total, water supply in emergency departments
2- Equipment Selection:
- Physical and chemical water quality testing shall be carried out annually
  And send a copy of it to the infection control officer in the facility
  - Ensure that all water equipment is in good operating condition in all facilities
  - The water must be aesthetically acceptable to consumers, and the change in color and taste is an essential sign of water contamination

Water sampling should be carried out according to the following steps
- Pine should be washed for one minute
- You must first allow hot and then cold water to pass through the faucet for one to ten minutes, depending on the location of the faucet and the frequency of its use.
- Close the faucet and sterilize the faucet nozzle with 70% alcohol or chlorine 500-600 ppm
- Turn on the tap and let it run for a few seconds before taking the sample
- Sodium thiosulfate reducing agent should be added to neutralize residual chlorine and other halogens
- The sample location, time and date must be written on a label and affixed to each sample
- Water samples should be kept in cold containers about 4 degrees Celsius and sent to the laboratory immediately, preferably within 24 hours
- The number of heterogeneous plates, plate casting, diffusion plate, or organ filtration
- Incubator temperature should be closer to water temperature, not within 24 hours for kidney coliform and 44°C for fecal coliform bacteria within 48 hours.
infection control measures to prevent contamination risk in power interruptions or breaks in water line
- If power outages affect water flow, special procedures required to reduce risks from potentially contaminated water.
- Policies should include planning for supplying water for drinking, cleaning, bathing and toilet flushing, as well as follow-up flushing of lines following restoration of power or water flow.

Corrective and remedial actions in the event of a complaint of water pollution:
- In the event of any complaint from pollution a full investigation and corrective measures undertaken immediately.
- Every unscheduled maintenance event must be carefully reviewed without compromising the water supply.
- Maintenance and corrective actions are then performed during periods of low activity.
- Isolating the work area using temporary barriers.
- Maintain a negative air pressure environment at the job site in order to prevent the transfer of borne pollutants.
- Change air filters if necessary.
- Samples must be re-taken to ensure that contamination is eliminated, with the results recorded and attached with the required reports.
- It is preferable to use sterile reducing nutrient media such as dilute peptone and RA.
# Annex 2 – MoH Dialysis Water Quality Control in Hospitals

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<tr>
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<td>hospital manager</td>
</tr>
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## 1. the introduction

The water treatment unit and networks are essential in the treatment of dialysis patients, as in the event of water contamination or non-compliance with standards, it leads to many diseases and deaths for dialysis patients. Therefore, all standards must be met and all medical staff trained on how to perform routine checks to detect water quality and suitability.

The water used in the dialysis unit must be treated to get rid of chemical compounds, pollutants and bacterial toxins so as not to harm the patient. When the water is purified from chlorine during the treatment process to be used in the dialysis process, there is more opportunity for bacterial growth, so caution and care must be taken at every stage during the treatment process.

## 2. Politics:

The commitment of the workers in the water treatment unit to the quality of water for dialysis and the periodic follow-up to it.

## 3. the purpose:

Maintaining standards for the quality of treated water for dialysis.

## 4. Field of application:

All workers in dialysis water treatment units.

## 5. Definitions

- **Carbon filter:** A filter that removes chlorine, chloramines, and organic materials found in drinking water. When it fails, it must be replaced and not repaired.
- **Reverse Osmosis (RO) filters:** A filter used to get rid of 90-99% of the types of bacteria, viruses, toxins, minerals and ions, and it depends on the osmotic difference and the hydrostatic pressure difference on both sides of the membrane to get rid of organic compounds.

## 6. Responsibilities and roles

- Staff working in the dialysis water treatment unit
- The company operating the dialysis water treatment plant

## 7. Follow-up

- Infection control officer
- Head of the dialysis water treatment unit
- Head of the kidney department
- Public health laboratory
- Head of engineering and maintenance department

## 8. procedures:

- You must train the crew of the responsible for the initial and routine surveillance of water used in the conduct of the process of washing kidney.
- Must respect the standards of water quality treatment for dialysis and conduct all tests to follow up and monitor the quality and validity of the use of treated water. (Attached is a table of maximum permissible levels of water pollutants)
- AAMI and European Pharmacopoeia Maximum Allowable levels of Contaminants in Water
Hemodialysis risks associated with water contamination

- Monitoring the quality of the water used in the dialysis process
  - Water purity must be measured (water hardness) before and after water purifier (softener) every 6 months and after changing the carbon filter.
  - Must be measured (chlorine up to (0.2) & chloramine up to (0.1)) daily and before the start of each shift.
  - Bacterial cultures should be taken every month.
  - Toxicological examination should be carried out every month.
  - A thorough chemical check of all water compounds should be done every 6 months and after changing the carbon filters and reverse osmosis filters.

- Microbiological Monitoring:
  - The microbiological monitoring of the treated water should be done at least once a month and increase the number of times if any problems are proven.
  - Water samples should be used in the assembly of dialysis when the outlet water filters from the T osmotic reverse (RO) and at the point where the water reaches the machine.
  - Samples of the water used in dialysis should be collected during or after the dialysis process.
  - The total numbers of live bacteria present in the dialysis water should not be more than 100 CFU per milliliter, and the total numbers of live bacteria in the dialysis solution should not be more than 200 CFU per milliliter.
  - Immediate corrective action to reduce bacterial contaminants should be initiated if the total numbers of live bacteria in the water used in the dialysis solution exceed 50 bacterial colonies per milliliter.
  - Coli groups are not allowed coliforms and (E. coli) in the water of dialysis units.
  - No bacteria allowed. Pseudomonas, Enterococcus, of Streptococcus, faecal s, Anaerobic Bacteria reducing sulfur meaning the in the water of dialysis units.

- Places from which samples are collected:
  - After the first carbon filter.
  - After the second carbon filter.
  - After water softener and before reverse osmosis filter pre-RO Module/post Softener).
  - Immediately after reverse osmosis filters (Post-RO module).
  - The beginning of the treated water distribution network inside the unit.
  - The end and farthest point of the treated water network inside the unit.
  - At the points of connection of the machines with treated water.
  - Water leaving the machine after use.

- Collection method and cultivation of microbiologic samples:
  - Samples must be collected by a specialized employee of the dialysis unit so that the samples are not contaminated during collection.
Samples should be collected at the start of the treated water after reverse osmosis filters "Reverse Osmosis" RO and at the point of water contact with the machine and at least 3 points of contact with the machines.

The sampling site must be disinfected by rubbing the outlet of the faucet with a gauze pad moistened with alcohol and waiting for 30 seconds.

Water must continue to flow strongly from the director Al Z at least a minute before taking the sample so as not to be contaminated samples or flow equivalent to two liters of water before taking the sample, then closes the water flow.

The sample should be collected in a sterile 100ml container, preferably air-tight.

The date, time, and location of the sample should be written on the container after the sample was taken.

Toxin samples are sent Endotoxin to the chemical laboratory directly.

Microbiological samples are delivered to the laboratory within 1-2 hours. In case of delay, they must be kept and transported in a refrigerator at 4°C, and they can be kept at this temperature for 24 hours.

Filters are used to filter samples by micron0.45 membrane filter and the samples are planted on Trypticase soy agar as this media is the best for planting water samples from dialysis units according to the recommendations AAMI.

Samples are placed in incubation at 35° for 24 hours for total coliform at a score of 44.5 for 48 hours for fecal coliform.

Media is used Tryptone Glucose Extract Agar TGEA according to the French and Swedish recommendations.

Chlorine test.

The actions that must be taken when there are bacteria or toxins higher Z than allowed by percentages:

i. The water tanks and pipes of the treatment unit connected to washing machines must be disinfected.

ii. Disinfection is carried out in several ways:

- Disinfection by raising the degree of water Z more than 75 degrees Celsius if the water pipes connected to the machines bear such high temperatures (cross-linked polyethylene, Polyvinylidene Fluoride and stainless steel)

- Disinfection with chemicals so that the water pipes connected to machines and tanks are of types that are not affected by chemicals such as Acrylonitrile butadiene styrene "ABS", cross-linked polyethylene "PEX" stainless steel "High grade 316 L" equivalent per acetic acid 2-3% or chlorine dioxide

- Disinfection by ozone can be used with all types of tubes previously mentioned

iii. After the disinfection process, samples for bacteria or toxins are taken every week for a month.

iv. Routine disinfection should be carried out every 6 months as a maximum for tanks and water pipes in the normal position.

Should follow quality water’s Monthly dialysis.

- Within each unit, there should be records of the results of all chemical, bacterial and toxicological analyzes that are performed for the dialysis water quality standards.

- It is retained within the department and a department head UMS A well fight infection with the lab results go.
## Table A.1: Maximum permissible levels of water pollutants

### AAMI and European Pharmacopoeia Maximum Allowable levels of Contaminants in Water

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>AAMI Maximum for Dialysis Water, mg/L</th>
<th>European Pharmacopoeia</th>
<th>WHO Guideline Values for Drinking Water, mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.01</td>
<td>0.01</td>
<td>0.2</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.006</td>
<td>0.006</td>
<td>0.02</td>
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<tr>
<td>Arsenic</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>Barium</td>
<td>0.1</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Beryllium</td>
<td>0.0004</td>
<td>0.0004</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.001</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td>Calcium</td>
<td>2 (0.1 mEq/L)</td>
<td>2 (0.1 mEq/L)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Chlorine</td>
<td>0.1</td>
<td>0.1</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Chloramine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
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<td>0.014</td>
<td>0.05</td>
</tr>
<tr>
<td>Cooper</td>
<td>0.1</td>
<td>0.1</td>
<td>2</td>
</tr>
<tr>
<td>Fluoride</td>
<td>0.2</td>
<td>0.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Lead</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>Magnesium</td>
<td>4 (0.3 mEq/L)</td>
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<tr>
<td>Mercury</td>
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<td>0.001</td>
</tr>
<tr>
<td>Nitrate</td>
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<td>2</td>
<td>50 (short term exposure)</td>
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<td>Potassium</td>
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<td>Zinc</td>
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</tr>
<tr>
<td>Bacteria</td>
<td>HPC 100 CFU/ml (Action level 50 CFU/ml)</td>
<td>HPC 100 CFU/ml (Action level 50 CFU/ml)</td>
<td>Not regulated 0 CFU/ml</td>
</tr>
<tr>
<td>Endotoxin</td>
<td>0.25 EU/ml (Action level 0.125 EU/ml)</td>
<td>0.25 EU/ml (Action level 0.125 EU/ml)</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

HPC: Heterotrophic Plate Count
CFU: Colony Forming Units
AAMI: Association for the Advancement of Medical Instrumentation
ملحق (1)

المؤشرات والحدود

المؤشرات الميكروبية

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<td>القولونية الكلية</td>
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<td></td>
<td>Fecal coliform</td>
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<td>القولونية البرازية</td>
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المؤشرات العددية (عدد المستمرات على درجة مئوية)

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<tr>
<td>22 / 100</td>
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<tr>
<td>22 / 100</td>
<td>Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>3 / 100</td>
<td>Total coliform</td>
</tr>
<tr>
<td>3 / 100</td>
<td>القولونية الكلية</td>
</tr>
<tr>
<td>3 / 100</td>
<td>القولونية البرازية</td>
</tr>
<tr>
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<td>عدد المستمرات على 22 درجة مئوية</td>
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الجزء الثاني

المؤشرات الكيميائية (**)

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عدد الوحدات المشکل لمستمرة (**)

يجب ان لا يقل محتوى المياه من الاملاح الناتجة الكلية (TDS) عن 100 مكم/أصل على ان لا يقل محتوى المياه من المغنيسيوم عن 10 مكم/أصل والكالسيوم عن 30 مكم/أصل.

مكم = مايكروغرام
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<td>فينيل كوريودين</td>
<td>مكم/لتر</td>
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المحفظة (1): يتم تحديد المقدار عند ملاحظة الشكل.

الملاحظات (2): يجب استكمال جمع التدابير المناسبة للتلقيح من تركيز الرصاص في المياه المعدة لللناح تمكين الأنشطة.

الملاحظات (3): يجب تلقيح المياه والتنقية من التلوثات قبل أن تصبح آثار غريبة على صحة الإنسان.

الملاحظات (4): يجب التأكد من اختبار المراقبة المناسبة للتكون من تركيز الرصاص في المياه المعدة لللناح تمكين الأنشطة.

الملاحظات (5): يجب تلقيح المياه والتنقية من التلوثات قبل أن تصبح آثار غريبة على صحة الإنسان.

الملاحظات (6): يتم تقدير المعدلات ما بين:

- المبيدات العضوية للطحالب
- المبيدات العضوية للماء
- المبيدات العضوية للفطريات
- المبيدات العضوية للديدان خفيف أو المتكيفة
- المبيدات العضوية للماء السلف والأسود والقراد
- المبيدات العضوية للماء
- المبيدات العضوية للحشرات
- المبيدات العضوية للقارات
- المبيدات العضوية للحشرات والآفات المشابهة المتاحة للماء الغريفي.
المنتجات ذات العلاقة بما سبق (ما فيها منظمات النمو) والمنتجات ذات الصلة بالمواد الأساسية بعمليات

الابيض وبرودود الماء والانحلال.

يجب مراقبة تلك المبيدات فقط والتي من المحتمل أن تكون موجودة في ترويض معين.

الملاحظة (7)

(heptachlor epoxide) (heptachlor)

البيوما-كلية تضمن مجموعة جميع المبيدات الفردية المكتشتها والمعدلات المحددة.

الملاحظة (8)

المركبات المحددة هي:

(heptachlor epoxide)

البيوما-كلية تضمن مجموعة جميع المبيدات الفردية المكتشتها والمعدلات المحددة.

الملاحظة (9)

(heptachlor epoxide)

المراقبة (10)

يجب العمل للوصول إلى معيار أقل حيثما امكن دون الساس بالطهور.

المركبات المحددة هي: (bromodichloromethane) (bromodichloromethane) (bromodichloromethane) (bromodichloromethane)

يجب التأكد من اتخاذ جميع التدابير المناسبة للificantly. توزيع الأمكاة من تركيز THMs في المياه المعدة للاستهلاك الأساسي خالط بعدة لقاحات الماء عند تطبيق التدابير المطلوبة هذا الحاد، يجب إعطاء الأولوية لتلك المناطق التي يكون تركز في في الماء THMs المحددة للاستهلاك الأساسي فيها الابيض.

الجزء الثالث

المؤشرات المئارية

<table>
<thead>
<tr>
<th>الملاحظات</th>
<th>الوحدة</th>
<th>الحد</th>
<th>المنشور</th>
</tr>
</thead>
<tbody>
<tr>
<td>ملاحظة 1</td>
<td>مكم/لتر</td>
<td>200</td>
<td>Aluminium</td>
</tr>
<tr>
<td>ملاحظة 2</td>
<td>مكم/لتر</td>
<td>0.50</td>
<td>Ammonium</td>
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<tr>
<td>ملاحظة 3</td>
<td>مكم/لتر</td>
<td>250</td>
<td>Chloride</td>
</tr>
<tr>
<td>ملاحظة 4</td>
<td>عدد/100 ملتر</td>
<td>0</td>
<td>Clostridium perfringens (including spores)</td>
</tr>
<tr>
<td>ملاحظة 5</td>
<td>مكم/لتر</td>
<td>2500</td>
<td>Conductivity</td>
</tr>
<tr>
<td>ملاحظة 6</td>
<td>مكم/لتر</td>
<td>9.5-6.5</td>
<td>pH Hydrogen ion concentration</td>
</tr>
<tr>
<td>ملاحظة 7</td>
<td>مكم/لتر</td>
<td>200</td>
<td>Iron</td>
</tr>
<tr>
<td>ملاحظة 8</td>
<td>مكم/لتر</td>
<td>50</td>
<td>Manganese</td>
</tr>
<tr>
<td>ملاحظة 9</td>
<td>مكم/لتر</td>
<td>5.0</td>
<td>Oxidisability</td>
</tr>
<tr>
<td>ملاحظة 10</td>
<td>مكم/لتر</td>
<td>250</td>
<td>Sulphate</td>
</tr>
<tr>
<td>ملاحظة 11</td>
<td>مكم/لتر</td>
<td>200</td>
<td>Sodium</td>
</tr>
<tr>
<td>الملاحظات</td>
<td>الوحدة</td>
<td>المعرض</td>
<td>القيمة</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>22 º</td>
<td>عد المسمى</td>
<td>Colony count 22 ºC</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>عدد/100 مليلتر</td>
<td>لا يوجد تغير غير عادي</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>لا يوجد تغير غير عادي</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>الكربون العضوي الكلي (TOC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>مللي متر/ساعة (Turbidity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>مجموع الجرعة الدالة (Total indicative dose)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

النتائج الإشعاعية

- يجب أن تكون المياه غير نووية.
- لا يوجد حاجة قياس هذا المعرض إلا إذا كان منشأ المياه من مياه محيطة أو إنها تتأثر بها، في حالة عدم وجود مياه نووية في المياه الموزدة للناطق، يجب عليه اتخاذ الحماية المناسبة.
- بالنسبة للمياه التي تناولها في قنان أو عيوب، فإنه يمكن تحصين المعرض الاجتماعي إذا كانت تجاوز 4.5 وحدة.
- بالنسبة للمياه التي تناولها في نتائج تجارة، فإنها يمكن تحصين المياه الاجتماعي إذا كانت تجاوز 4.5 وحدة.

الملاحظات الإشعاعية

- لا يوجد حاجة قياس هذا المعرض إذا تم تحصين مؤشر الكربون العضوي الكلي (TOC) بالنسبة للمياه المعبأة في قنان أو عيوب تكون وحدة قياس 300. (5 مللي متر/ساعة).
- لا يوجد حاجة قياس هذا المعرض إذا كان تزويدي المياه أقل من 1000 ملم/يوم.
- في حالة مهارة المياه المستعملة، يجب النظر عليه عند تجاوز 1.0 NTU (وحدة في مياه العكرية جهاز أت. التيلوميتر) في المياه المعبأة مباشرة من ماء العقار.

- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).

الملاحظات الإشعاعية

- بمساعدة التريتو (tritium) و (potassium-40) والراديون (radon) في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).

الملاحظات الإشعاعية

- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
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الملاحظات الإشعاعية

- تتبين تحميل كمية الدقة في مقياس (2).
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- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).

الملاحظات الإشعاعية

- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
- تتبين تحميل كمية الدقة في مقياس (2).
**Table A.2.1: Dialysis risks associated with water pollution.**

**Haemodialysis risks associated with water contamination**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Possible water contaminants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>Aluminium, chloramine, copper, zinc</td>
</tr>
<tr>
<td>Bone Disease</td>
<td>Aluminium, fluoride</td>
</tr>
<tr>
<td>Hemolysis</td>
<td>Copper, nitrates, chloramine</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Calcium, sodium</td>
</tr>
<tr>
<td>Hypotension</td>
<td>Bacteria, endotoxin, nitrates</td>
</tr>
<tr>
<td>Metabolic Acidosis</td>
<td>Low pH, sulphates</td>
</tr>
<tr>
<td>Muscle Weakness</td>
<td>Calcium, magnesium</td>
</tr>
<tr>
<td>Neurological deterioration</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Nausea and Vomiting</td>
<td>Bacterium, calcium, copper, endotoxin, low pH, magnesium, nitrates, sulphates, zinc</td>
</tr>
<tr>
<td>Death</td>
<td>Aluminium, fluoride, endotoxin, bacteria, chloramine</td>
</tr>
</tbody>
</table>
## Annex 3 – Water Quality and safety characteristics - MoH

<table>
<thead>
<tr>
<th>IPC-0</th>
<th>رقم السياسة</th>
<th>خصائص جودة وسلامة المياه</th>
<th>اسم السياسة</th>
<th>نوع السياسة</th>
</tr>
</thead>
<tbody>
<tr>
<td>الأولى</td>
<td>مكافحة العدوى</td>
<td></td>
<td></td>
<td>معد السياسة</td>
</tr>
<tr>
<td>00/00/2021</td>
<td>وحدة السلام ومكافحة العدوى</td>
<td></td>
<td></td>
<td>نطاق السياسة</td>
</tr>
<tr>
<td>00/00/2021</td>
<td>جميع أقسام المنشأة الصحية</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>مصروح بواسطة:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>عدد الصفحات:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1. المقدمة:
- يجب ألا تشكل المياه خطرًا على الصحة من مسببات الأمراض ويجب حمايتها من التلوث داخل بيئة الرعاية الصحية نفسها.
- يجب أن تقي المياه المتوفرة لأمكاة الرعاية الصحية بالمعايير الوطنية وأن تтяب الدلالل الإرشادية لمنظمة الصحة العالمية بشأن جودة مياه الشرب وتكون أمنة للغرض المقصود (منظمة الصحة العالمية، 2006).
- تستخدم هذه المياه للشرب والطبخ والنظافة الشخصية والإنشطة الطبية والتنظيف والغسيل.

### 2. السياسة:
- يجب أن تمتل إدارتها الصحة البيئية بالمنشأة الصحية مع قسم الهندسة والصيانة لوضع أسس الحصول على مياه آمنة تباع لمعايير منظمة الصحة العالمية، وقسم مكافحة العدوى لمقاومة الجودة الميكروبيولوجية للمياه في بيئة الرعاية الصحية، كجزء من برنامج المراقبة والمكافحة الروتينية.

### 3. الغرض:
- ضمان اتخاذ جميع الاحتياطات المعقولة لإدارة خطر الإصابة بالأمراض المنقولة عن طريق المياه والسيطرة عليها نحو فعال.

### 4. مجال التطبيق:
- اللهجونيلا (Legionella species) هي كائنات شائعة تنقلها المياه، وقد ارتبطت أجهزة القياس الهندسة والصيانة.

### 5. التعرفات:
- مثالي لبرامج التدريب وأنظمة المياه الساخنة والمتحفظات الصحية التي تستخدم المياه الرئيسية.

### 6. المسؤوليات والأدوار:
- قسم الهندسة والصيانة
- قسم مكافحة العدوى
- إدارة المنشأة

### 7. المتابعة:
- مações عامية وإجراءات الوقاية الروتينية من التلوث الميكروبي والسيطرة على انتشار الكائنات الدقيقة التي تتقل عبر المياه.

### التوصيات والإجراءات العامة لضمان سلامة جودة المياه:
- يجب تصميم خطة سلامة المياه التي تهدف إلى تقييم إدارية أمنة المياه، وضمان المراقبة التشغيلية الفعالة، وتطويرها وتثقيفها لمنع التلوث الجرثومي في المياه وسلامتة المستمرة.
- يتم معاينة جميع مياه الشرب بمناطق مضبوطة لضمان سلامة الميكروبيات حتى نقطة الاستهلاك أو الاستخدام.
- يجب أن تكون هذه المياه خالية من الملوثات واللوغن والرائحة التي من شأنها أن تؤثر أو استخدامها.

- الوقاية الروتينية من التلوث الميكروبي والسيطرة على انتشار الكائنات الدقيقة التي تتقل عبر المياه.

- يجب ممارسة نظافة البيئة لمنع انتقال وانتشار الكائنات الدقيقة المسببة للأمراض المنقولة بالماء، واستخدام الاحتياطات القياسية (مثل القوارض) على النحو المحدد في المبادئ التوجيهية الأخرى.
contaminated fluid environmental reservoirs

- يجب التخلص من المياه الملوثة أو
- على سبيل المثال، في المعدات أو المحاليل (حيثما يمكن ذلك)
- يجب تنظيف وت-kind الأحواض على أساس متظم باستخدام منظف/مطهر موابع عليه
- في المنشأة كما هو محدد في السياسات الأخرى للمشئ:
- يجب تقييم المصادر البيئية الممتلئة (على سبيل المثال، المياه الصرف الصحي أو ما شابهها)
- يتم عزل الكائنات الحية المفيدة المفيدة بالمياه (مثل NTM)
- مستمرة من البيئة السريعة (على سبيل المثال، المياه التي تم جمعها بطريقة متجمعة من
- موانع مقنعة، الاستخدام يحدث بعد استخدام ماء الصب أو في رعاية المرضى.
- يجب تجنب وضع التواقيع وأحواض الأسماك في مناطق رعاية المرضى.
- في حال وجود التواقيع المزلفة في المناطق العامة من مراقب الرعاية الصحية، يجب
- تأكد من تطهيرها وصيانتها.

الوقاية الروتينية من التلوث الميكروبي الناجم عن انتقاله بالمياه داخل نظام التوزيع

- يجب المحافظة على درجة حرارة الماء الساخن (≤15 درجة مئوية) والماء البارد (أقل من
- 20 درجة مئوية) عند نقطة الاستخدام.
- إذا استفاد هذا الأمر يجب تطهير الماء الساخن باستخدام الكلور على أن يكون الكلور
- المتبقي بمخرج صانير النقل من 1 جزء في المليون.
- يجب التظليل والتظليل الشهري باستخدام الكلور 500 جزء في المليون للمصابي الخاص
- بصانير المياه ورؤوس دش الاستحمام.

بالإضافة إلى الإجراءات العامة المذكورة أعلاه يجب اتخاذ تدابير إضافية للوقاية من مرض
الفيلق.

- يجب إجراء تقييم لمخاطر مكافحة المدى بالمنشأة لتحقيق ما إذا كان هناك مرضى
- معرضين لخطر الإصابة أو مرضى يعانون من نقص المناعة الشديد.

استراتيجيات المتاحة عند التتبغ ع ووجود حالة إصابة بمرض الفيلق عند المرضى الذين لا
- يعانون من نقص المناعة:

- يجب منع استخدام المياه الخاصة بالقسم لحين قنبلة خلو المياه من ميكروبي اللوجنلا
- يجب استخدام ماء معمق للشرب وإنشاؤه رعاية الفم والأسمى وكذلك أثناء تطبيقات أتابيب
- التغذية المعرفة.
- يجب استخدام مياه من مصدر آخر خال من ميكروبي اللوجنلا لاستخدام المرضى.
- إذا تم تحديد حالة واحدة من حالات الفيلق المحتملة المتشابهة والمتشابهة للمرضية الصحية، أو
- إذا حدث ذات حالات أو أكثر من حالات الفيلق المرتبطة بالرعاية الصحية المشاهدة بهما
- في المختبر خلال فترة 6 أسابيع، فإن العدد القيام بما يلي:
- يجب إبلاغ الإدارة الصحية المحلية عن هذه الحالات.

- يجب إجراء تقييم وظائي، بما في ذلك المراقبة الاستعادية والبيانات
- الميكروبيولوجية والسيروپولوجية/بيانات ما بعد الوفاة للبحث عن حالات غير
- مكتشدة أو معدلة في قبول مرضى الفيلق المرتبطة بالرعاية الصحية، والبدء في
- المراقبة المكلفة لمثل هذه الأمور. 67
إذا لم يكن هناك دليل على استمرار انتقال العدوى المرتبطة بالرعاية الصحية، يجب اتخاذ التدابير. عناصر المراقبة، يجب إجراء تقييم بيعي لتحديد مصدر العدوى. 

- تأكد من تطبيق الإجراءات الإiancesية في الإATES، واتخاذ تدابير إيجابية لمنع انتقال العدوى. 
- يجب إجراء تحليلات للمياه في المواقع المرتبطة بالرعاية الصحية. 
- يجب الاتصال بالإدارة المحلية للرعاية الصحية للإبلاغ عن أي حالات مشتبهة. 

التدابير الهندسية لمكافحة وتقليلズ معدل إصابات المرض: 

- يجب تنظيف وتطهير مصدر المياه الخاصة بالقسم باستخدام الكحول. 
- يجب استخدام مصادر المياه الخاصة بالقسم ضمان 2 جزء في المليون أو أكثر لمدة لا تقل عن 5 دقائق. 
- يجب استخدام مصادر المياه الخاصة بالقسم ضمان 71 - 77 درجة مئوية من مسحات الغرف لمدة أكثر من 5 دقائق. 
- يجب المحافظة على درجة حرارة الماء الساخن (≥51 درجة مئوية) ونواتج الاختبارات البيئية. 

الأجراءات المتعلقة بإجراءات أخرى:

- يجب استخدام مصادر المياه الخاصة بالقسم ضمان 2 جزء في المليون.
- لا توجد أي توصية بمعالجة المياه في نظام التوزيع بالمفرقع بثمان أسابيع أو أيونات المعادن الثقيلة (مثل النحاس أو الفضة)، أو المونوكرامين، أو الأوزون، أو الأشعة فوق البنفسجية.

<table>
<thead>
<tr>
<th>Hazard/ Hygiene Indicator</th>
<th>Timing/ Frequency of Testing</th>
<th>Result</th>
<th>Interpretation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legionella</td>
<td>As indicated by risk assessment</td>
<td>&gt;1000 cfu/l</td>
<td>UNSATISFACTORY</td>
<td>Re-sample and review control program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;100 but &lt;1000 cfu/l</td>
<td>System under Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;100 cfu/l</td>
<td>SATISFACTORY</td>
<td>No action; system under control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard/ Hygiene Indicator</th>
<th>Timing/ Frequency of Testing</th>
<th>Result</th>
<th>Interpretation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>In augmented care units, if indicated by risk assessment</td>
<td>&gt;10 in 100ml</td>
<td>UNSATISFACTORY</td>
<td>Investigate cause and put corrective actions in place. Re-sample after 3 weeks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1–10 in 100ml</td>
<td>UNDESIRABLE</td>
<td>Re-test and refer back to those responsible for the Water Safety Plan to determine what actions may be required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 in 100ml</td>
<td>SATISFACTORY</td>
<td>No action; system under control</td>
</tr>
</tbody>
</table>
المقدمة:

يعتبر تحسس جودة المياه في مرافق الرعاية الصحية أمر يُعتبر من الأهمية لضمان جودة وسلامة الخدمات الصحية المقدمة. وتنقل الخطير العدوى للمرضى ومقدمي الرعاية الصحية وضمان سلامة المجتمع بأسره. حيث أن الحفاظ على جودة مياه الشرب يتطلب متابعة مستمرة للتأكد من خلو المياه من الميكروبات الجرثومية والlicosات الضارة التي تنقل عن طريق الاتصال المباشر وغير المباشر للمياه المتصلة من الصناعات أو الأحواض أو عن طريق البيئة الجوية. وتعتبر المخاطر الإجمالية لانتقال هذه العناصر المرضية من الماء أثناء الرعاية الصحية منخفضة نسبياً.

يجب أن تتطابق الخصائص الميكروبيولوجية للمياه حسب ما هو مبين بالجدول أدناه.

الأول/ الخصائص الميكروبيولوجية

<table>
<thead>
<tr>
<th>جدول رقم (1): الخصائص الميكروبيولوجية</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>الRemarks</strong></td>
</tr>
<tr>
<td>------------------------------------------</td>
</tr>
<tr>
<td>عند الضرورة: صحي</td>
</tr>
<tr>
<td>95% من العينات يجب أن تكون خالية 5% من العينات الباقيه تسمح بوجود 5 مستعمرات</td>
</tr>
<tr>
<td>صحي</td>
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<td>صحي</td>
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<td>صحي</td>
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<tr>
<td>عامل مؤشر</td>
</tr>
<tr>
<td>عند الضرورة: صحي</td>
</tr>
<tr>
<td>صحي</td>
</tr>
</tbody>
</table>
يجب أن تتطابق الخصائص الكيميائية للمياه حسب ما هو مبين بالجدول أدناه

ثانيً/ المعايير الكيميائية:

جدول رقم (2) المعايير الكيميائية

| رقم البدن | الاملاح الذاتية الكلية \( (T.D.S) \) | الكوريون | النترات | النترويت | الأمونيا | العصر الكلي \( \text{Total Hardness} \) | الفلوية \( \text{Alkalinity} \) | الكربنات | الصوديوم | الكالسيوم | الماغنسيوم | الصوديوم | الكالسيوم | الكالسيوم | الكالسيوم | الكالسيوم | الكالسيوم | الكالسيوم | الكالسيوم | المangan | البوتاسيوم | الفلورايد | الكحولاء المنفي |
|------------|---------------------------------|------------|---------|----------|--------|----------------|-----------------|-----------|----------|-----------|-------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| 1          | 1000                            | 100        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | FR.CI     |
| 2          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 3          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 4          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 5          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 6          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 7          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 8          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 9          | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 10         | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 11         | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 12         | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 13         | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |
| 14         | ...                             | ...        | ...     | ...      | ...    | ...           | ...             | ...       | ...      | ...       | ...          | ...    | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       | ...       |

التعليقات:
- التصفيف على درجة مئوية
- التحليلات وفقاً لlcd
- التركيزات
- النتائج
- المتغيرات
- القيم المذكورة
- الزمن الملاحظ
- الوردة
ثالثاً/ العناصر الثقيلة والسامة

يجب ألا يزيد تركيز العناصر الثقيلة أو السامة عن الحدود المبينة في الجدول رقم (3) والموضح أدناه

جدول رقم (3) العناصر الثقيلة والسامة

<table>
<thead>
<tr>
<th>رقم البند</th>
<th>الحدود</th>
<th>الحديد (Fe)</th>
<th>الالمنيوم (Al)</th>
<th>النحاس (Cu)</th>
<th>الزئبق (Zn)</th>
<th>المنغنيزيوم (Mn)</th>
<th>النيكل (Ni)</th>
<th>الرصاص (Pb)</th>
<th>السيريوم (Sb)</th>
<th>السيلينيوم (Se)</th>
<th>الزئبق (As)</th>
<th>الكادميوم (Cd)</th>
<th>السبائك (Cr)</th>
<th>الزئبق (Hg)</th>
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<tbody>
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<td>1</td>
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</tr>
</tbody>
</table>
Annex 5 – Water borne disease – MoH

مصادر انتقال العدوى المرتبطة بالمياه في المنتهاج الصحية:

- مياه الشرب
- منحازات الصنابير
- الاستحمام
- مياه غسيل الكلى
- محطات مياه وحدة طب الأسنان وغسيل العين أو الأذن

طرق انتقال الكائنات الدقيقة الموجودة في الماء:

- تلوث المים (الجروح)
- الاتصال المباشر (المعالجة المائية)
- شرب الماء (مياه الشرب)
- تلوث خزانات المياه
- انتقال غير مباشر (استخدام جهاز طبي أعيد معالجته بماء ملوث)
- استنشاق الزبادي (الاستحمام، في حالة الليمينولا)

الأمراض المرتبطة بالمياه:

<table>
<thead>
<tr>
<th></th>
<th>Community</th>
<th>Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water –borne</td>
<td>Diarrheal diseases</td>
<td>Diarrheal diseases</td>
</tr>
<tr>
<td></td>
<td>Hepatitis A</td>
<td>Legionnaire’s disease</td>
</tr>
<tr>
<td></td>
<td>Typhoid</td>
<td>Typhoid</td>
</tr>
<tr>
<td></td>
<td>Cholera</td>
<td>Cholera</td>
</tr>
<tr>
<td>Water-washed</td>
<td>Diarrheal diseases</td>
<td>Impetigo</td>
</tr>
<tr>
<td></td>
<td>Trachoma</td>
<td>Gp A streptococcal infection</td>
</tr>
<tr>
<td>Water-based</td>
<td>Schistosomiasis</td>
<td>Malaria</td>
</tr>
<tr>
<td></td>
<td>Guinea worm</td>
<td>Dengue</td>
</tr>
<tr>
<td>Water- related vector</td>
<td>Malaria</td>
<td>Yellow fever</td>
</tr>
<tr>
<td><strong>Bacteria</strong></td>
<td><strong>Viruses</strong></td>
<td><strong>Protozoa</strong></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Cryptosporidium parvum</td>
<td>Norwalk-like</td>
<td>Campylobacter</td>
</tr>
<tr>
<td>Giardia lamblia</td>
<td>Entero (poliomyelitis, coxsackie, echo, rotavirus)</td>
<td>Escherichia coli</td>
</tr>
<tr>
<td>Cryptosporidium parvum</td>
<td>Norwalk-like</td>
<td>Campylobacter</td>
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<tr>
<td>Giardia lamblia</td>
<td>Entero (poliomyelitis, coxsackie, echo, rotavirus)</td>
<td>Escherichia coli</td>
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<td>Shigella</td>
<td>Rotavirus</td>
<td>Entamoeba histolytica</td>
</tr>
<tr>
<td>Yersinia</td>
<td></td>
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</tr>
<tr>
<td>Vibrio (non-cholera)</td>
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<tr>
<td>Salmonella (typhoid)</td>
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</tr>
<tr>
<td>Yersinia</td>
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<td></td>
</tr>
<tr>
<td>Vibrio (cholera)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legionella</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- أعمدة المياه بالمنشأة الصحية وإجراءات مكافحة العدوى

- أعمدة المياه الرئيسية

  يجب تزويدها بالمياه في المنشأة الصحية بشكل مستمر وذلك من خلال توفير أذين من خطوط المياه المنفصلة تماماً لضمان عدم انسقاط خدمات المياه.

  يجب أن تحتوي شبكات المياه على صمامات عزل تسمح بإغلاق المياه في حال وجود عطل أو إصلاح في الشبكات، وتسمح بإعداد المياه إلى باني المنشأة الصحية.

  يجب تركيب صمامات داخل شبكات المياه تمنع التدفق العكسي في المناطق عالية الخطورة مثل أقسام الغسيل الكهربائي.

  يجب أن تكون أعمدة المياه بعيدة عن أعمدة الصرف الصحي بمسافة 60 سم.

  يجب تجنب أنابيب إعداد المياه ذات الطرق المحدودة لتقليل الإمكانات لروك المياه مما يساعد على تكاير Legionella spp.
تدخل مياه البنية الملاجئة إلى المشأة الصحية عبر أنابيب المياه وتتم توزيعها في جميع أنحاء المبنى بواسطة شبكة من الأنابيب مصنوع من الحديد المقلن والنحاس والزئبق كلويرdio (PVC).

يجب أن تكون مسارات الأنابيب قياسية بقدر ما هو عملي حيث إعداد الدوران المستخدمة.

- يجب عزل مسارات الأنابيب.

- أحوال غسل الأيدي: يفضل أن تكون الصابون ذاتية العمل بدون نس أو تعمل بالكود كما يجب أن تكون الأحوال في أماكن مغلفة بعيدة عن الأجهزة والمواد وجب أن تكون متساوية.

- وسائل التنظيف لتجنب نمو الفطريات.

- بالنسبة للمسافات في نهاية الصنبور يجب أن يتم فكها وغمسها وتطبيقها مرة شهريا أو أزالتها بالنباتات حتى تقبل الإصابة بالجبايا.

- يجب أن تكون المسافة بين نماذج واسعة مساحة 6 أنش.

- صيغة التخلص:

  - يجب مراقبة النظام عند اختيار شكل خطantes المياه ومكان وضعها.
  - دخل الرياح والغيار والمادة الغريبة السائدة.
  - القرب من التصرفات والمعدات والمواد الأخرى.
  - يجب أن تكون الأغذية محكمة الإغلاق.
  - مساحة الوصول إلى الصيانة.
  - العدد الأدنى من المكونات الداخلية لتجنب الرواسب ونمو الطحالب والتآكل.
  - البطانات الداخلية خاصة لنمو البكتيريا والمحيطات.
  - الموقع بعيدا عن أشرطة الشعاع و بعيدا عن مصادر الحرارة الأخرى.

- أنواع صيغة التخلص:

  - صيغة قابلة للتنظيف:

    - التنظيف والتطهير يجب أن يكون دوري مرة واحدة شهريا في الصيف و كل ثلاثة أشهر في الشتاء.
    - يتم تغذية خطان المياه وتنظيفه من الداخل بطرق المكمل برشاحة خشنة واستخدام منظف ثم شطفه بالماء للإزالة من الرواسب وبقايا المنظف.
    - يتم إعادة ماء الخزان و إضافة مطهر مثل الكور بضافت 1 لتر كور لكل 1000 لتر ماء.
    - ترك ليلة ساخن.
    - يتم تغذية الخزان من المياه والكؤوس بشكل كامل.

  - صيغة غير قابلة للتنظيف: (لا يمكن تنظيفها وتوجد صعوبة لدخول العمال داخل الخزان)

    - يجب من الخزان بالمياه.
    - يضاف 1 لتر كور لكل 1000 لتر ماء وترك لمدة 24 ساعة.
    - يتم تغذية الخزان من المياه والكؤوس بشكل كامل.
    - شفط الصيانة.
بم مطرق الخزان بالمياه بالكامل وبعدما تفردها مباشرة (التي تبين نسبة الكروت المتبقي داخل الخزان) تكرر هذه العملية 3 مرات كحد أدنى، لحين عدم توقف الكروت أثناء الشرب.

**التحكم في التلوث بالليجيوينيلا:** نقل بعد الجدول

العوامل التي تساهم على الاستعمار بالليجيوينيلا داخل المنتشة الصحية

- درجة الحرارة من 25-42
- زرود الماء
- التربتيات والفصول
- وجود بعض الأمينات التي تساعد على نمو الليجيوينيلا

**طريقة العدوى بالليجيوينيلا:**

وينتمي من شخص آخر.

**مصادر الليجيوينيلا**

- أجراه التبرغ.
- أحوال الامراض.
- انبايب المياه وفوهات الصنابير.
- نفاوتات المياه ورشاشات النباتات.
- اجراه الاستشعار واجهة التنفس الصناعي.
- الماء الراكدة.

**خطة إدارة توزيع المياه:**

1. الإجراءات الوقائية:

- يتضمن برنامج السياسة الوقائية لمراقبة وتنفيذ وتطبيق نظام امداد الماء.

- وضع جدول محدد لأخذ العينات من (أعدادات مياه الشرب، امدادات الغسيل الكلي، امدادات المياه في الاقسام الخطيرة).

2. معدات الانحرار:

- يجب إجراء فحص تفريقي، كيميائي لجودة الماء وأخذ العينات سنويا.

- ورسائل تسعة من صاحب مكافحة الماء بالمياه.

- والتاؤد من أن جميع معدات المياه في حالة تشغيلية جيدة في جميع المراكز.

- يجب أن يكون الماء مقبولاً من الناحية الجمالية للمستهلكين ويعتبر تغيير النحو والطعام علامة أساسية.

- لوجود نتوء بالمياه.

- تتزامن إدارة المنتشة الصحية بصورة توفر مياه صالحة حسب معايير الجودة المتعارف عليها لحماية المرضى والموظفين والزوار.

- يتمكن من صاحب مكافحة المعدات من أخذ عينات مكروبيولوجية بشكل دوري منتظم وفق خطة معتمدة.

- يتزامن المختبر بإجراء التحاليل بشكل دوري مع الالتزام بوثق النتائج بسجلات النتائج المختبرية المتعلقة بمراقبة جودة المياه.

- يتزامن المختبر بإجراء التحاليل بشكل دوري مع الالتزام بوثق النتائج بسجلات النتائج المختبرية المتعلقة بمراقبة جودة المياه.
- يلتزم رئيس قسم مكافحة العدوى بتوزيد اداة قسم الهندسة والصيانة بالابلاغات التي يتم رصدها من خلال مراجعة جودة مياه الشرب المقدم بتقديم الإجراءات التصحيحية المناسبة.
- يجب على رئيس قسم مكافحة العدوى التأكد من سرعة استجابة قسم الهندسة والصيانة للإبلاغ.
- يجب الانتباه إلى شكاوي امدادات المياه بشكل دوري وفق جدول زمني محدد.
- يتم فحص أنظمة العلاج بالكثير يوميًا، وضمان عدم تشذيب إمدادات الكور والضمان توفيره ضمن الحدود المطلوبة.
- يجب بدلاً من كل الجهات مفعول خطة نظافة امدادات المياه بسبب الالود الكيميائية المستخدمة، التجديد، والبقاء في المواقع غير قادرة على الاستجابة دون الحاجة إلى تشذيب مياه نظيفة وموثوق.

يجب على قسم الهندسة والصيانة متابعة حماية المياه الكيميائية بشكل صحيح لأمان وضمان هرمية المتواجد.
- يتم إعداد نظام الاستجابة لتمكين إمدادات المياه الإنمائي وتباع التدفق العكسي من مفعول الضغط.
- المكونات والتفاصيل حيث يوصي بفاعل أن يتعلم بالصرف الصحي.

إجراءات جمع العينات المائية والخزان:
- يجب أجراء أخذ عينات المياه وفقًا للمعطيات التالية.
- يجب أن يكون الشنبر لذا دقيقة واحدة.
- يجب السماح أولاً للعينة المائية لإزالة البذور من خلال الشنبر لمدة واح. 4-8 ساعات وذلك بناء على مكان الشنبر وتصريف الماء.
- يتم فحص الضوء بصليب واتم نقل العينة إلى مكان البعض وتصريف الماء.
- يتم إضافة محلات مدعية موجات تشعيل الكور المتربيد والخلايا المائية الأخرى.
- يجب كتابة موقع الالود والوقت، ونتيجة على منصف وربت على كل عينة.
- يجب حفظ عينات المياه في حاويات باردة حتى 4 درجات مئوية وارسالها للمختبر على الفور.
- الرحلات خلال 24 ساعة.
- عود المسالح غير م했습니다 أو صب اللاح أو لوحة الاستعراض أو ترشيح الأغذية.
- يجب أن تكون درجة حرارة الماء الأقصى 24 درجة مئوية بالنسبة للكلور.
- الكل و44 درجة مئوية للكيتيكية البولونية البولونية لطيف خلال 48 ساعة.

الاستراتيجيات لمكافحة مرض الفيتيق عند المرضى الذين لا يعانون من نفس المناعة:
- يجب تنفيذ استراتيجيات عامة للكشف عن مرض الفيتيق والوقاية منه.
- يجب إتباع عملية ترصد و胸怀 للكشف عن مرض الفيتيق الناتج عن بالرعاية الصحية.
- يجب إبلاغ موظفي الرعاية الصحية (مثل قسم مكافحة العدوى، والأطباء، ومختلف مميز الرعاية الحيوية، والهندسة والصيانة) فيما يتعلق بتحليه مرض الفيتيق بالإضافة إلى التدابير الرامية إلى الوقاية من داء الفيتيق المرتبط بالرعاية الصحية ومحاذته.
- يجب وضع آليات لتوزيد الطبيب بالاختبارات المعملية اللازمة لتشخيص مرض الفيتيق، على سبيل المثال، الزرع، ومستضد فizational، والخلايا المقترن مباشرة، و[DFAS]، واختبارات الأسمال.
- يجب إجراء مراجعة دورية لتدريب وإعداد طبي من اختبارات التشخيص المخبري للزم لمرض الفيتيق في المشاهدة مع القيام بعملية تقييم على تفكيك استخدام الأطباء لهذه الاختبارات.
Annex 7 – Water tanks Infection Control Regulation

Date: 2018/3/18
Infection Control Regulation
Subject: Cleaning and disinfection of water tanks in hospitals
Dear: Hospitals directors

Based on the above subject and as required by the interest of work and to reduce the spread of infection which may result from after the water tanks used in Hospitals, kindly follow these policies and infection control measures, and which can be summarized thus:

Policy name: Cleaning and disinfecting water tanks.

→ Introduction: is the cleaning and disinfection of drinking water tanks in public water systems, important components to prove the safety of drinking pure water and consuming consumers, and to prevent diseases transmitted Aviate Coordination Water.
→ Tanks must be cleaned:

At least once every six months, depending on the quality and source of the water; In addition to the following cases:

→ if sediment or biological growth is observed inside the tank (eg algae growth).
→ In the event of any repairs or modifications to the water system.
→ if coliform bacteria are detected in the water system.

The risk of faecal contamination is shown based on the number of Escherichia coli (E. coli) bacteria detected, ranging from

low (<1 E. coli per 100 mL),
moderate (10-1 E. coli per 100 mL),
high (100-11 E. coli per 100 mL) and very high risk (>100 E. coli per 100 mL).
If there are any noticeable changes in water quality (taste, odor, color problems)

**General safety measures:**

- Tanks must be tightly closed and not have any holes or openings, allowing entry of any insects.
  
The area around the tanks must be kept clean and away from waste collection places.
- Samples should be taken to examine the water quality of the water and make sure they are free from any contamination periodically and at least 4 times per year (every 3 months) and when there are changes in water quality or the maintenance.
- Samples are taken from the main sources of water, reservoirs, desalination plants, and the places where the water reaches the users.

**Pre-cleaning steps:**

- Separate the tanks to be cleaned from the water network.
- In case of that it is not possible to separate the tanks from the water network, an order is issued to prevent the use of water in the network until the completion of the cleaning and treatment process.
- Empty the tank of water completely.

**Large tanks: workers can enter inside to clean them:**

- Personal protective equipment is to be worn by the worker (a mask, a waterproof leather apron, long-necked shoes, and heavy-duty cuffs).

**Cleaning:**

1. You should use a brush with a long handle.
2. You must use a powder or detergent (washing powder or liquid soap).
3. All sediments must be removed from inside the tank.
4. You must scrub and scrub all the walls and floors of the tank well with the brush and the cleaner to remove all stuck objects.
5. Rinse the tank well with water and remove all sediments and soap residues from the tank.

**Cleanable tanks: tanks can be cleaned by rubbing and scrubbing with brush and soap**

1. The tank must be filled with water.
2. Add 1 liter of 5% chlorine per 1000 liters of water and leave for two hours.
3. The tank is completely emptied of water and chlorine.

   **ii. Tanks that cannot be cleaned they cannot be cleaned, and it is difficult for workers to enter the tank**

   1. The tank must be filled with water.
   2. Add 1 liter of 5% chlorine/1000 liters of water and leave for 24 hours.
   3. The tank is completely emptied of water and chlorine.

**Rinsing for the tank:**

The tank is filled with water completely and then immediately emptied to reduce the percentage of chlorine remaining inside the tank. This process is repeated 3 times as a minimum, until no chlorine is tasted while drinking.
Calculation of tank volume capacity in liters

1. Rectangular Tanks:
   
   capacity in liters = \((\text{length} \times \text{width} \times \text{height})\)
   
   Note: The unit of measurement is in meters

2. Round tanks:
   
   Capacity in Liters = \(\pi \times \frac{\pi D^2 L}{4}\)

3. Oval tank:
   
   Capacity in Liters = \(\pi \times (D + W)(\frac{16}{2} \times \text{L} \times 1000)\)
Annex 8 – Medical Waste Management

8.1 National medical waste management By-law Articles (2012).

Article (2)

System Scope

→ The provisions of this system shall be applied to all establishments and every producer or supervisor of medical waste management.

→ The institutions and each producer or supervisor of medical waste management shall bear the responsibility for any damage to the environment or public health.

Article (5)

The functions and powers of the institution

→ The institution is obligated to manage the waste generated from it in accordance with the provisions of this system, as follows:

→ Separation and sorting of waste and determining its types accurately.

→ Follow different methods as much as possible to reduce waste, such as re-disposal, reuse, recycling, or others.

→ Controlling the quantity and type of waste to reduce its danger by taking measures including:

→ Reducing the use of mercury machines and using electronic devices as an alternative.

→ Reducing the use of PVC materials to reduce the emission of toxic fumes resulting from waste when burned.

→ Replacing highly toxic disinfecting or cleaning materials with less toxic and more effective materials.

→ Use environmentally safe, reusable or manufacturing materials such as cardboard or plastic.

→ Conducting primary treatment of waste whose nature and characteristics so require.

→ Clean the contaminated places and sterilize them well after removing the waste.

→ Collecting and transporting waste to temporary storage places or a treatment unit inside the establishment or preparing it for transfer to a treatment unit outside the establishment or a landfill in accordance with the provisions of this system.

→ Create a waste record in which each type of waste is recorded, its quantity, how it is managed, and the state it has devolved to after treatment.
Article (6)

Protection of waste management personnel

- The institution is committed to procedures to protect its employees working in waste management, as follows:
- Appointing trained and qualified personnel responsible for waste management.
- Training of employees responsible for waste management according to a program that includes the following:
- Periodic training on waste management operations.
- Educating employees about the dangers of waste and providing them with information about these dangers resulting from the different departments and the procedures to be followed in the event of any accident.
- Employees put identification cards and wear gloves and protective coats to prevent them from being exposed to any dangers, and to abide by the provisions of public safety.
- Conduct periodic medical examinations for employees in general, and waste management employees in particular, and vaccinate them.
- Insurance with one of the insurance companies licensed to operate in State of Palestine, against the occupied risks that may result from waste management operations.
- Establishing a special register for the employees who undertake the tasks of waste management.

Adoption of the waste management manual

- Each institution must adopt a manual for its waste management in accordance with the provisions of this system, to be approved by the Ministry, provided that it includes the following:
- Color index of bags, containers and labels used for waste collection.
- Corridors designated for transporting and collecting waste.
- Temporary storage places for waste.
- The foundations of control and supervision of waste management operations.
- Mechanism to follow up and treat accidents and errors that may occur during waste management and the procedures to be followed in holding the culprits and those responsible for managing them accountable.
- The responsibility of waste management staff, each according to the tasks assigned to him.
Article (10)

Medical waste

→ Medical waste is classified according to its degree of hazard as follows:

→ Radioactive waste: Any gaseous, liquid or solid waste containing radioactive materials that emit ionizing radiation, whether electromagnetic or particulate, such as cobalt 60 and iodine 131.

→ Infectious and highly infectious waste, which is divided into two parts as follows:

→ Infectious wastes are those likely to contain pathogens or their toxins in sufficient concentrations to cause disease, such as equipment and tools used in the treatment, diagnosis and prevention of diseases that have come into contact with body fluids, including bandages, swabs, microbial culture dishes, and blood bags. It includes liquid waste such as feces, urine, blood and other body secretions. And spit and lung secretions.

→ Highly infectious wastes are those resulting from medical analysis laboratories for bacterial culture and stocks of highly infectious pathogens, including body fluids of patients with highly infectious diseases such as cholera or typhoid.

→ Sharp waste: Every sharp tool or object used in the establishment and that can lead to cutting, pricking or causing wounds in the body, whether contaminated or not, such as needles, scalpels, scissors, and others.

→ Cytotoxic and Genetic Wastes:

Waste resulting from drugs used in the oncology unit or radiotherapy unit, which may lead to harmful mutations or poisoning of cells. The stool, vomit and urine produced by the patient treated with cytotoxic drugs or chemotherapy are considered genotoxic waste.

→ Chemical waste:

Waste containing chemicals, whether solid, liquid or gaseous, resulting from sterilization and cleaning works and used in diagnosis, treatment and experiments, and characterized by one of the following characteristics:

→ toxicity.

→ They contain strong corrosive acids and bases.

→ flammable.

→ Quick-reacting materials such as explosive, reactive with water, or highly sensitive to shocks.

→ Pharmaceutical waste:

Medicines, antibiotics, vaccines, raw materials for the production and preparation of expired or non-conforming pharmaceutical products and ointments, which a decision was issued to destroy, including the packages, tubes and vials that they contained.

→ Pathological waste and Anatomical waste:

Pathological waste: It is the waste that consists of human organs, organs, tissues and body fluids such as blood, whether they are infectious or non-infectious.

Anatomical waste is a subgroup of pathological waste consisting of well-defined body parts, whether infectious or non-infectious.
→ **Waste with high content of heavy metals:**

This waste is considered part of chemical waste, but it is characterized by its high toxicity, such as mercury from broken thermometers and pressure gauges, cadmium from some types of used batteries and the remains of dental fillings.

→ **Pressurized packaging:**

Containers that contain or contain pressurized liquids, powders or gases such as anesthetics (nitro oxides), sterilization (ethylene or oxides) and oxygen, which may explode if exposed to high pressure or heat from the inside or outside.

→ **Mixed waste:**

Wastes that included more than one type of waste mentioned above, which were mixed with each other, whether as a result of overlapping medical operations and activities or by mistake, which take the character of the most dangerous waste and are classified, treated and disposed of based on this basis.

**Article (12)**

**Waste classification and identification instructions**

The Minister shall issue instructions related to the classification and identification of wastes according to their nature and degree of danger, in accordance with the provisions of Article (10) of this system.

**Chapter III**

Separation and collection of waste.

**Article (13)**

**Waste separation procedures:**

The establishment shall be committed to separating the waste and placing it in its appropriate containers, and making sure that it does not mix with each other in any case according to the following procedures:

→ The process of separation, sorting and packaging should be carried out at the source of waste production.

→ Providing sufficient numbers and quantities of tools for waste collection, considering the provision of colors and sizes that are commensurate with the type and quantity of waste produced.

→ Provide suitable containers for separating waste at the source of its production, in accordance with the waste management manual approved by the Ministry.

→ It is forbidden to fill containers with more than 75% of their capacity, regardless of the type of waste or containers used.
Close the containers tightly in a way that prevents the waste from falling out of their containers by tying the neck, using adhesive plastic tapes, or using self-closing plastic bags. It is forbidden to close the bags with clips or metal clips.

In the event of an error in sorting a type of waste by placing it in a container not designated for that type of waste, it is prevented from correcting the error and leaving the situation as it is, provided that the type of this waste is mentioned on that package.

If ordinary waste is packed into a container designated for medical waste, such waste must be treated as medical waste.

It is forbidden to accumulate filled waste containers in the places of their production, and not to collect them or place them in the corridors and lobbies in front of passers-by and visitors.

Every sample that is sent from the different departments to the analysis laboratory must be marked showing the source, nature and degree of danger of the sample in order to be handled, treated and disposed of.

Waste is transported by special carts to the waste treatment unit or the temporary storage place within the establishment.

Directly replace the collected packages with new ones.

**Article 14**

The type and color of the packages intended for the segregation, the containers needed to collect waste inside the facility according to the color guide as the following Table A8.1:
Table A8.1 Colour Coding for Waste Segregation
(National medical waste management by-law /2012.)

<table>
<thead>
<tr>
<th>#</th>
<th>Waste type</th>
<th>Color</th>
<th>Container quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ordinary waste</td>
<td>Black color</td>
<td>Plastic bags or containers</td>
</tr>
<tr>
<td>2</td>
<td>Infectious waste</td>
<td>Yellow</td>
<td>bags inside solid plastic containers that do not leak liquids and can be sterilized by steam</td>
</tr>
<tr>
<td>3</td>
<td>Sharp medical waste</td>
<td>Yellow</td>
<td>Solid plastic box or cardboard box that does not leak liquids.</td>
</tr>
<tr>
<td>4</td>
<td>Pathological and anatomical waste</td>
<td>Red</td>
<td>Bags in hard, non-leaking plastic containers</td>
</tr>
<tr>
<td>5</td>
<td>Pharmaceutical and chemical waste</td>
<td>Brown</td>
<td>Solid, non-leaking plastic containers with a label indicating the type of waste.</td>
</tr>
<tr>
<td>6</td>
<td>radioactive waste</td>
<td>colorless</td>
<td>Lead containers marked with radioactive material.</td>
</tr>
<tr>
<td>7</td>
<td>mixed waste</td>
<td>The most dangerous waste color</td>
<td>Solid plastic containers that do not leak liquids, provided that a clear mark is placed on that container indicating the type of mixed waste.</td>
</tr>
<tr>
<td>8</td>
<td>Other hazardous waste</td>
<td>Red</td>
<td>Solid plastic containers that do not leak liquids, provided that a clear mark is placed on that container indicating the type of such waste.</td>
</tr>
</tbody>
</table>
Article (15)

Sharp waste collection:

Sharp waste is collected in flammable plastic or cardboard boxes with a tight-fitting lid that is allowed in and not allowed out, and a label is placed on it with the phrase “Warning - Hazardous Waste”.

These boxes are required to be non-halogenated, solid, durable and not subject to puncture or breakage, and have a manual handle to carry them with.

Small boxes or packages of reinforced plastic labeled “hazardous waste” should be used to collect the remnants of needles and syringes immediately after use, so that these boxes or packages do not allow waste to escape from them.

Sharp waste must be placed in the bins completely and without breaking, and appropriate sterilization materials such as chlorine or any other substance must be used according to the instructions of the institution.

Sharps bins are closed tightly, sterilized, and strong adhesive tape is placed around them before being sent to the waste treatment unit or temporary storage place.

Article 16

Infectious waste collection:

- Infectious waste is collected in a solid, non-halogenated and flammable plastic container with a tight-fitting lid, on which a label stating the phrase “Warning - Hazardous Waste - Infectious”, and inside it contains a yellow single-use plastic bag with the same warning printed on it.

- When the container is full, the bag inside it is tightly tied, considering that none of the packed materials will leak out or protrude from it, then close the container tightly and place a reinforced adhesive tape around it before sending it to the waste treatment unit.

**Article 17**

Collection of highly infectious waste:

- Highly infectious wastes must be separated from other infectious wastes and other wastes, and primary treatment should be carried out directly within the medical and research departments producing them, by sterilizing them by one of the following means:

  - Fumigation The time and temperature used in the device depend on the volume and total weight of the materials to be sterilized and on the type of microbes and the degree of their resistance to steam, according to the instructions of the company that produced the sterilizer.

  - b- Put it in formalin at a concentration of 10% for twenty-four hours.

  - Put it in a refrigerator with a temperature of less than (20) degrees Celsius for a period not exceeding one week.

  - The highly infectious waste products are collected after initial treatment as infectious waste.

**Article 18**

Pharmaceutical and chemical waste collection

- Pharmaceutical and chemical wastes are collected in a solid, non-leaking plastic container with a lid that can be closed tightly and allowed to be reopened to place the waste in it, and a label shall be placed on it indicating the type of waste.
Article 19
Pathological waste collection
- Sick waste weighing less than 100g shall be collected in single-use plastic bags with “Sick waste or cadaver remains” printed in a clear and legible font.
- Laboratory samples of pathological waste not resulting from the cultivation of microorganisms are collected in a special container that contains two plastic bags inside, so that one is inside the other. The container is emptied from the bags by pulling the two bags together and connecting them tightly as necessary when the bag is full. In all cases, the container must be emptied once at least one per day and make sure that no waste is leaking or protruding inside it.
- Organs of dead bodies are kept in special refrigerators whose temperature ranges between (3) to (8) degrees Celsius, and the prevailing values and traditions related to the disposal of corpses, dead fetuses and amputated organs from the human body that weigh more than 100 grams must be considered and treated according to the relevant laws the relationship, taking into account the removal of the causes of danger.

Article 20
Radioactive waste collection
- Radioactive waste is dealt with by specialized and qualified personnel who are subject to intense control and supervision, and are re-orientated and trained periodically.
- The treatment and final disposal of tools and materials that have been exposed to radioactive waste shall be carried out in accordance with the provisions of this system as radioactive waste.
- It is permissible to keep some tools and materials that have been exposed to radioactive waste in the designated places until they are cleaned and sterilized in a way that removes the radioactive danger from them and allows their reuse. The Ministry determines the materials and tools that may be cleaned and sterilized after exposure to radioactive waste and the used cleaning and sterilization method that allows the reuse of these materials, and tools.
- The Ministry of Environment, in coordination with the competent authorities, shall issue instructions for the management of radioactive waste and its safe and final disposal.

Article (21)
mixed waste collection
- It is prohibited to mix waste with each other in any case. In the event of mixing any of them, it is forbidden to work on separating them from each other during the process of sorting and collection.
- The director of the establishment or the person responsible for the direct supervision and control of the waste management process should be informed when it is mixed with others, in order to take the appropriate measures to prevent any damages.
Article (22)

Other waste collection

- Wastes not mentioned in this chapter shall be separated and each type shall be collected in special solid plastic containers that have a lid that can be closed tightly and a sign stating the phrase "Warning - Hazardous Waste" shall be placed on it with the identification of the type of this waste, and appropriate safety measures shall be taken when the process of collecting in a manner that prevents danger.
- These wastes are transferred to the temporary storage place or the treatment unit when the containers are full or at specific periods according to the nature and type of these wastes.

The fourth chapter
Transportation and storage of waste within the institution

Article (23)

Ordinary waste transportation

- Ordinary waste is collected in special black bags and transported and treated as ordinary household waste, separately from medical waste.

Article (24)

Medical waste transportation

- Waste is transported within the institution according to the following procedures:
- Establishing a specific program for collecting and transporting waste from the place of its collection to its temporary storage place within the institution on a regular basis.
- Waste shall be transported within the establishment by means of carts or containers with wheels designated for this purpose, provided that the following conditions are met:
- It shall be made of a material that is able to withstand corrosion due to solutions, chemicals and cleaning materials.
- It should have a smooth surface that ensures easy emptying and cleaning.
- the absence of sharp corners that lead to tearing or damaging the bags or packages during loading and unloading.
- to be impermeable to liquids.
- the presence of a label containing a warning of the presence of waste inside the container, attached to a list showing the contents of the waste, its type and quantities, the section from which it was produced and the date of production.
- to be closed tightly.
- It is forbidden to transport medical waste using vehicles
Article (25)

Storage Specifications

- The establishment shall be responsible for the temporary storage of waste until it is transferred to the treatment plant outside the establishment or the landfill, provided that it complies with the following conditions and specifications as a minimum:
- It should be separate from the rest of the departments and at a reasonable distance from the places of food preparation, patient rooms, staff and residential areas.
- The size and area of the site should be commensurate with the volume of waste produced and the type and nature of the time schedule for transferring waste from the institution to the storage site.
- The floor shall be made of solid, impermeable, smooth and easy-to-clean and sterilize material with an adequate sewage system.
- The walls shall be smooth and polished at a height of not less than 1.5 meters.
- Providing the necessary infrastructure of water, electricity and communications services.
- Providing good lighting in a way that allows for a clear view and that it contains ventilation holes that are commensurate with the size and type of waste.
- To be protected from sunlight and various climatic factors.
- To put on it a warning that includes the phrase "dangerous medical waste" and an internationally recognized sign or sign that is known to all persons, indicating that it is a place for collecting and storing medical waste.
- It shall be easily accessible and accessible by the employees responsible for transporting and handling waste and by vehicles transporting waste outside the establishment.
- To be close to the location of cleaning and sterilization materials, means and equipment, personal protective equipment, waste bags and containers.
- It should be closed in a way that prevents entry of unauthorized persons, animals, birds and insects.
Article (26)

storage procedures

- The institution is obligated to take the following temporary storage measures:
- Arrange the waste in a manner that ensures the safety of the stored waste, and it is forbidden to store any materials other than medical waste resulting from the institution.
- Completely and regularly and periodically clean the temporary storage place, at least once a week.
- Clean the temporary storage place immediately in the event of a spill or leakage of waste.
- The period of temporary storage of waste in the storage place from its production until its transfer outside the establishment for treatment or final disposal shall not exceed one of the following periods:
  - No more than 48 hours during the months from November to March.
  - B. No more than 24 hours during the months from April to October.
- Storing pathological waste whose weight exceeds 100 grams, and infectious waste, at a temperature between (3) to (8) degrees Celsius, in the event that storage continues for more than a week.
- Determining the maximum storage time according to the storage capacity of refrigerants and in a way that is consistent with the type of waste.
- The places of refrigeration and freezing of waste should be tightly closed, and clear signs must be placed on the coolers indicating the type of waste, and the phrase "No entry for non-specialized employees" must be placed.
- Not to store waste in glass and plastic at low cooling temperatures.
- Not squeezing and compressing untreated waste that contains blood and other bodily fluids.

Article (27)

Storage outside the organization

- The provisions stipulated in Articles (26,25) of this system shall apply to the process of storing waste outside the establishment.

Chapter V

Transportation of medical waste outside the institution
Article (28)
- Responsibility for transporting waste outside the establishment.
- The responsibility for transporting waste from the establishment to the treatment unit outside the establishment or to the landfill is the prerogative of the local authority, and it may delegate these powers to any competent and licensed authority.
- No entity is allowed to deal, transport and dispose of waste except after obtaining the relevant licenses from the competent authorities.
- The Ministry of Environment shall have the authority to control and supervise the process of transporting waste outside the institution in accordance with the provisions of this system.

Article (29)
**Transportation of untreated waste**
- The process of transporting untreated waste outside the establishment shall take place in the following cases:
  - If there is no waste treatment unit within the establishment.
  - If one of the processing mechanisms mentioned in this system is not available in the processing unit.
  - In the event of a malfunction or breakdown of the processing unit in the institution.
  - An establishment that does not have a waste treatment unit must notify the Ministry and the local authority that is in charge of transferring untreated waste from the establishment to the treatment unit outside the establishment, and then to the landfill in return.

Article (30)
**Precautions for waste transportation**
- The carrier is obligated to take all necessary precautions to prevent waste from falling or protruding or leaking or spilling any of the liquids, and in the event of any of them occurring, the carrier must abide by the instructions and procedures for dealing with these or other accidents.

Article (31)
**Waste Transfer Model**
- The institution, when transporting waste, fills out the form, and it is signed by the institution, the ministry and the carrier who fills out its section, and hand it over to the person in charge of the treatment plant or storage place outside the institution or landfill who signs the receipt and fills out its part, and delivers a copy from it to the Ministry of Environment.
- Each entity shall keep a copy of the form according to its competence, signed by the relevant authorities.
Article (32)

waste transport vehicles

→ The vehicle designated for transporting waste outside the establishment must have the following specifications:
→ That it is intended for transporting waste only, and it is prohibited to use it for any other purposes, and that it is written on the outer body of the vehicle:
→ The term “medical waste” with the appropriate recognized symbols.
→ Emergency phone number to call in the event of an emergency.
→ The name and address of the carrier and his land and mobile phone number.
→ It should be fitted with a tight cover and it is forbidden to use an open vehicle equipped with a compressor.
→ The waste trailer should be separate from the driver’s trailer and equipped with a system to tie the container inside the trailer to fix it, and designed in a way that prevents shocks from reaching the waste, or leaking or spilling it even when accidents occur.
→ The interior surface of the vehicle should be smooth, free of corners, and easy to wash and sterilize after each transfer and unloading of waste.
→ The material the composite is made of must be able to withstand corrosion due to solutions, chemicals and cleaning materials.
→ The height of the internal body of the waste trailer shall not be less than 1.85 meters.
→ The vehicle’s capacity should be suitable for the quantities of waste that it is transporting and be refrigerated in the event that the waste remains in it for a period of more than six hours.
→ The vehicle must have an appropriate means of communication and the following equipment:
→ Personal protective equipment, including: special masks, aprons, gloves, goggles, and safety shoes.
→ Necessary cleaning and disinfection tools and materials.
→ Tools and materials for treatment in the event of waste falling or protrusion or leakage or spillage.
→ • A first aid box equipped with all the necessary medical supplies for first aid.
→ • A thermometer to measure the temperature attached to the waste trailer.
→ • The vehicle should be easy to load and unload.
→ • Put all vehicles in a safe place away from tampering after the waste transfer process is over.
→ • The vehicle’s trajectory is predetermined and the fastest and shortest traffic route - avoiding traffic from crowded streets.
Article (33)

Requirements for transport and transport workers

- The carrier must inform the Ministry of Environment and Civil Defense in advance of the flight path in anticipation of any emergency.
- In the event of waste falling, leakage or spillage during transportation, the carrier must immediately inform the Ministry of Environment and Civil Defense about this and work to clean up the fallen, leaked or spilled waste and its place of occurrence as soon as possible.
- The carrier and workers transporting waste shall comply with the following conditions:
  - They should be trained and aware of the dangers of transported waste.
  - Postponing prior and periodic medical examinations.
  - Hanging the statement of the procedures for treating waste falling, leaking or spilling it clearly inside the vehicle in a prominent place in the place where these wastes are located and the place to be transported to it.

Chapter six

Waste treatment

Article (35)

Enterprise commitments

- The institution is obligated to conduct treatment of the waste generated from it, whether in the treatment unit inside or outside the institution.

Article (36)

Waste treatment unit inside the enterprise

- The specifications that must be available in the establishment shall be determined in the establishment in which it may establish a waste treatment unit by a decision of the Minister in coordination with the Minister of Environment, provided that it adheres to the following conditions:
  - Establishing the unit in a special place within the boundaries of the institution so that it does not lead to any damage or danger, and easy access to it by the means of transporting waste.
  - Operation, maintenance and control of the unit and waste treatment by trained personnel in the institution.
  - Waste treatment in the unit according to the nature and type of waste, and the obligation for employees to use personal protective equipment appropriate to the type of treatment.
  - Compliance with the instructions of the manufacturers of processing devices in the unit, regarding the methods and conditions of installation, operation and maintenance of the device.
  - The treatment unit shall have the necessary infrastructure of water, electricity, communications and any other necessary necessities, and the facilities necessary to serve the employees.
  - Protect the unit from sunlight and various climatic factors, and prevent entry of unauthorized persons, animals, birds or insects.
→ Ensuring the efficiency of the treatment process by providing the requirements for conducting the necessary biological, chemical and physical tests, and keeping the results of the tests and measurements in a special record.
→ Providing an instrument panel on the processing unit showing its operating conditions in terms of temperature readings, air flow quantities and other necessary readings, and taking the necessary measures of expression and maintenance to ensure that the read values match the actual values.
→ Providing the treatment unit with the necessary means of controlling the air emissions resulting from the treatment operations in accordance with the Palestinian specifications.
→ Develop appropriate alternative procedures for waste treatment in case the treatment unit breaks down.

Article (37)

→ Waste treatment unit outside the establishment.
→ A unit shall be established outside the establishment for the treatment of waste that has not been treated by the establishment or that has not been treated definitively for disposal in accordance with the provisions of this system.
→ An establishment that does not have a waste treatment unit must sort the produced waste and collect it in special places for the purpose of handing it over to the carrier to transfer it to the treatment unit outside the establishment.
→ Waste treatment is carried out in return for a special fee imposed on the establishment to be determined by the authority responsible for managing the treatment unit.
→ Processing methods.
→ Waste treatment methods are defined as follows:
→ Sterilization by steam or autoclave.
→ Chemical cleansing.
→ Heat treatment.
→ Encapsulation.
→ Passivation.
→ Incineration.
→ Other treatment mechanisms.

Chapter 8
Powers of oversight and inspection.
Article (55)

Ministry powers

→ The Ministry has the authority to monitor and supervise institutions by performing the following tasks:

→ Ensure that the institution performs all stages of waste management from its collection until its delivery to the carrier in accordance with the provisions of this system.

→ Take the necessary urgent and preventive measures to stop the dangers that may result from mishandling of waste and to prevent their aggravation and continuation.

→ Monitoring the Corporation's activity and ensuring that the provisions of the Corporation's bylaws and internal regulations are implemented.

→ Take all necessary measures to follow up on the violating institutions.

→ Providing advice and guidance to medical institutions regarding the application of the provisions of this system.

Article (56)

The duties of the Ministry's inspectors

→ The inspectors of the Ministry are authorized to monitor the waste management process of the establishment and carry out the following inspections:

→ Examination of the supplies of waste management personnel, such as insulating clothes, shoes, and masks.

→ Examine the suitability of waste containers and waste transport vehicles to the standard specifications and conditions contained in this system.

→ Examination of the suitability of medical containers and bags to the standard specifications and specifics for each category separately, and setting the international labels for each.

→ Inspection of the waste separation and sorting process in accordance with the provisions of this system.

→ Inspect waste storage and collection places within the institution and ensure that they meet the health conditions set forth in this system.

→ Examine the timetable for transferring waste from the institution to outside it, and ensure compliance with the provisions of this system.

→ Inspect the medical treatment units at the institution and their conformity with standards, and periodically measure the percentage of fumes emitted from them.

→ Inspect liquid waste disposal operations through sewage networks and ensure their compliance with the conditions set forth in this system.

→ Ensure the availability of materials used in emergency situations and investigate the causes of accidents if they occur.

→ Coordination with the director of the establishment to ensure the awareness of the establishment’s employees regarding waste management, each according to its responsibilities and powers.
Article (63)

- Responsibilities of the enterprise manager in supervision
- The director of the organization must do the following:
- Enabling the Ministry’s inspectors to:
- Do their jobs and provide them with all the data and information they request.
- B. View, photocopy and take copies of all necessary documents.
- Sampling from different places of the institution.
- Entering the various sections to view and monitor the extent to which the provisions of this system are applied.
- Notify the Ministry’s inspectors of any accidents of spillage or leakage of waste that occur inside the institution as soon as possible, and no later than (12) hours from the date of its occurrence.
- Submit semi-annual and annual reports on the different stages of waste treatment from collection to disposal.
8.2 Ministry of Health Medical Waste Management Guidelines (2016)

Waste management and separation policy

1. Policy:

1.1 All health workers are obligated to follow safe methods when dealing with medical waste and commit to sorting and separating waste and the proper disposal of all kinds.

2. Objective:

2.1 Creating a unified mechanism in hospitals and health facilities for the disposal of medical waste based on the Public Health Law, the Environmental Law and the Local Authorities Law to preserve the safety of the medical staff, patients, visitors and the community from the serious risks that result from medical waste due to the infectious and toxic substances it contains and to preserve the safety of the environment and protect it from pollution.

3. Definitions:

3.1 Medical Waste Management: The process of separating, collecting, storing, transporting and disposing of all types of waste resulting from health care activities.

3.2 Medical waste: All solid, liquid or gaseous waste generated from various medical care institutions, medical laboratories, medical research centers, human and veterinary medicine factories and warehouses, veterinary clinics and home nursing institutions. It is classified into:

Ordinary medical waste (non-hazardous): It is similar to household waste and does not pose a danger to workers and constitutes 90-75% of the total waste produced, such as office paper, toilet paper, envelopes, food leftovers and treated as household waste.

3.2.2 Hazardous medical waste: It constitutes 25-10% of the total waste produced in hospitals, and it is that part of medical waste that can cause health risks because it contains substances that have one or more of the following characteristics: infectious, genotoxic, radioactive, and sharp. Hazardous medical waste is classified into the following types:

3.2.2.1 Infectious waste: Waste that contains or is suspected to contain infectious pathogens (bacteria, viruses, parasites, and fungi) and includes media and materials used for infectious disease analyzes in laboratories, waste of patients isolated in the infectious diseases unit, and waste of the dialysis unit from disposable devices, filters, gloves, covers, shoes and bibs, contaminated cotton and gauze changes, swabs and other waste colored with patient secretions.

3.2.2.2 Anatomical (pathological) waste is related to the patient's body or its components of tissues, amputated parts, or embryos.

3.2.2.3 Sharps: Tools that may cut or sting the human body, such as syringes, needles, scalpels used in surgical operations, and pieces of broken glass.

3.2.2.4 Chemical waste: Solid, liquid or gaseous waste resulting from personal, therapeutic, experimental, cleaning, disinfection, or management activities, and characterized by one or more of the following characteristics: toxic, corrosive, flammable and rapidly reacting surfaces and tools, and porous genes.

3.2.2.5 Pharmaceutical waste: It is the expired raw materials, medicines and pharmaceutical preparations that do not conform to specifications or are no longer used for one reason or another, as well as some solid, semi-solid, liquid and gaseous pharmaceutical wastes.
3.2.2.6 Pressurized containers: Containers that may contain compressed gases such as pesticides, oxygen, ethylene oxide and others that may be used in therapeutic measures or others, and which may explode if exposed to high pressure from the inside or outside.

3.2.2.7 Genotoxic waste: They are very dangerous wastes that can cause mutations or congenital malformations in the human body or have carcinogenic consequences for cells. They include: chemotherapy waste resulting from the manufacture, transportation, preparation or administration of chemotherapy and the secretions of the patient receiving chemotherapy as urine or stool.

3.2.2.8 Radioactive waste: Solid, liquid, or gaseous waste contaminated with radioactive materials used in tissue examinations, human fluids, tumor diagnostic and treatment procedures, as well as in medical diagnostic and therapeutic research work.

3.2.2.9 Waste with a high content of heavy metals: Part of the waste is characterized by high characteristics such as mercury, cadmium (from some types of used batteries), and lead.

4. Tools:
4.1 Waste delivery and Receipt Form of the Department
4.2 Waste Classification and Weight Form

5. Responsibilities:
5.1 Administrative Officer (Program Coordinator).
5.2 Technical employee to operate the sterilizer and the hoist and to fill out forms for the collection process.

Waste collection worker or workers.

5.4 Responsibility of the Medical Waste Management Program Coordinator:
5.4.1 Supervising the management of medical waste in the health facility and health center.
5.4.2 Training of cadres on how to deal with medical waste.
5.4.3 Providing personal protective equipment for medical waste workers and crew.
5.4.4 Working on providing different types of bags and containers and ensuring their proper use.
5.4.5 Ensure that the waste is sorted according to its classification directly in the place where it is generated.
5.4.6 Ensure that infectious waste is placed in yellow plastic bags.
5.4.7 Ensuring the application of the medical waste management system in terms of closure, labeling, and provision of health requirements.
5.4.8 Supervising the transfer of infectious medical waste to the autoclave.
5.4.9 Provide a dedicated transport mechanism (the crane) to transport medical waste for this purpose and with the various hospital facilities.

6. Procedures:
6.1 Screening
6.1.1 Sorting the waste according to its classification directly at the place of its generation.
6.1.2 Putting infectious waste in yellow plastic bags.
6.1.3 Putting harmless waste in black plastic bags.
6.1.4 Putting highly infectious and pathological waste in red plastic bags.
6.1.5 Sharps be handled by following the following procedures:
6.1.5.1 Place them in special puncture-resistant containers
6.1.5.2 Place the containers in appropriate places.
6.1.5.3 Close tightly when full to two-thirds.
6.1.5.4 Dispose of containers when they are two-thirds full by collecting them from a designated operator.

6.2 Collection and Transportation
Service workers assigned to collect and transport medical waste shall adhere to the following procedures:
6.2.1 Collection of medical waste from the places where it is generated.
6.2.2 Close the bag when it is two-thirds full by tying the neck using self-closing plastic ties.
6.2.3 Filling out the label and attaching it to the bag under the supervision of the responsible nurse.
6.2.4 Carry the bag carefully and away from the body.
6.2.5 Collection of medical waste by vehicles or containers designated for this purpose Internal transport shall be carried out with special sealed and wheeled vehicles.
6.2.6 Put a new bag in place of the filled bag directly and put the date and label designated for that.
6.2.7 The containers used to put bags of infectious medical waste should be cleaned with a disinfectant solution (hypochlorite 1000 ppm) at least once a day and those in charge of hygiene should wear thick gloves when cleaning these containers
6.2.8 Ensure that waste bags arrive closed and intact at the end of the transportation process.
6.2.9 Take all necessary precautions to prevent leakage or spillage of liquids from the waste.
6.2.10 Transporting medical waste from the place we generate to the central storage place with an appropriate periodicity and ensuring that it is collected every shift (8 am, 1 pm, 10 pm) and whenever needed.
6.2.11 Bag weight where the bag weight does not exceed 12 kg.
6.2.12 Allocating a vehicle (forklift) to transport medical waste between the facilities of the health facility or health center if the need arises.

<table>
<thead>
<tr>
<th>waste type</th>
<th>color used</th>
<th>bag type</th>
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</thead>
<tbody>
<tr>
<td>Anatomical (eugenic) highly infectious waste</td>
<td>red</td>
<td>Plastic bag or plastic package</td>
</tr>
<tr>
<td>Other infectious waste</td>
<td>yellow</td>
<td>Plastic bag or plastic package</td>
</tr>
<tr>
<td>sharp waste</td>
<td>red or yellow</td>
<td>Plastic packaging with special specifications</td>
</tr>
<tr>
<td>Chemical and pharmaceutical waste</td>
<td>brown</td>
<td>Plastic bag or plastic package</td>
</tr>
<tr>
<td>Chemotherapy waste</td>
<td>blue</td>
<td>Plastic bag or plastic package</td>
</tr>
<tr>
<td>Non-hazardous medical waste</td>
<td>black</td>
<td>Plastic bag or plastic package</td>
</tr>
</tbody>
</table>
6.2.13 Cleaning and disinfecting the means of transport daily or directly in the event of spillage on it with hypochlorite solution 1000 ppm.
6.2.14 The worker and crew of the technical project must wear special uniforms and personal protective equipment during the process of collection, transportation and sterilization (thick gloves and heavy-duty shoes), after which the gloves and shoes are washed with soap and water, then hypochlorite 1000 ppm after each time.
6.2.15 Specification of Waste Transfer Container Trolley:
6.2.15.1 Ease of loading and unloading.
6.2.15.2 It has smooth surfaces for easy cleaning and disinfection.
6.2.15.3 The absence of sharp corners that would tear or damage the bags or packages during loading and unloading.
6.2.15.4 The size and area of the storage site must be proportional to the volume of waste produced and the periodicity of its transportation.
6.3 Storage of medical waste
The service worker assigned to store medical waste shall comply with the following procedures:
6.3.1 We are placed in the central storage room provided that it has the appropriate characteristics.
6.3.2 Ensure that there are no leaks or cracks in the storage containers.
6.3.3 Clean and disinfect storage containers immediately unload it.
6.4 Characteristics of the sterilization chamber:
6.4.1 The place of sterilization on the ground floors of health facilities, considering the ease of access to them.
6.4.2 The floor is constructed of a smooth, impermeable solid material that is easy to clean and disinfect and served with a good sanitary drainage system.
6.4.3 The walls are smooth and polished to a height of not less than 1.5 meters.
6.4.4 Provided with a water source for cleaning purposes.
6.4.5 Good lighting and good ventilation.
6.4.6 Ease of entry for workers assigned to transport and handle the waste.
6.4.7 The possibility of closing the place to prevent the entry of unrelated persons.
6.4.8 Easy access to containers transporting and collecting waste.
6.4.9 Protection from sunlight and climate factors.
6.4.10 Prevent entry of animals and birds.
6.4.11 Waste storage period should not exceed 48 hours in winter and 24 hours in summer unless the place is refrigerated.
6.4.12 Information labelling is required detailing place of sterilization, it contains the type of waste contained in the packaging bag, the name of the department from which the waste was generated, the date of collection, and the weight of the waste.
6.4.13 Waste must be arranged inside the sterilization site in a manner that ensures the safety of waste in hospitals until sterilization
## Waste delivery and receipt

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<tr>
<th>Date</th>
<th>Waste delivery and receipt</th>
<th>Health Facility Name</th>
<th>Section</th>
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<th>Deliverer</th>
<th>Number</th>
<th>safety box</th>
<th>Black</th>
<th>red</th>
<th>the hour</th>
<th>Date</th>
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## Waste Classification and Weight Form

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<th>Health facility name: .................</th>
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<td>waste category</td>
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<tr>
<td>total (litres)</td>
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<tr>
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<td>Tuesday</td>
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<td></td>
<td>Wednesday</td>
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<td>Saturday</td>
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<td>Sunday</td>
</tr>
<tr>
<td>as a mouth</td>
<td>containers</td>
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<td>containers</td>
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<td>total</td>
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<tr>
<td>kg</td>
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Total
Policy of dealing with health facility furniture and dictates

1. Policy:
1.1 All nursing and workers are obligated to properly handle the health facility's bedding and linen, while providing health care to patients.

2. Objective:
2.1 Maintaining that all the health team and patients in the health facility are not exposed to infection transmitted through contact through sheets and furniture, and maintaining the general cleanliness of the health facility environment.

3. Tools:
3.1 Form for the receipt and delivery of linen for the departments.

4. Definitions: none

5. Responsibilities:
5.1 Department heads.
5.2 Departmental Nursing.
5.3 Departmental workers.
5.4 Laundry workers.

6. Procedures:
6.1 The health team collecting linens should wear clean gloves and wash hands before and after handling.
6.2 All furnishings and linens in the sanitary facility used must be treated as contaminated.
6.3 Linens should be changed daily and between each patient and whenever they become soiled.
6.4 The linens must be lifted with great care, with as little movement as possible, and from the edges of the linens to the inside (middle of the sheet) so as not to cause the spread of microbes in the air and the environment.
6.5 The linens shall be placed in impermeable bags (yellow color bags) and should be closed or tied to prevent leakage.
6.6 Bags containing soiled linens and covers must be placed in the closed special cart for transporting the furniture to the laundry.
6.7 Blankets to be, classify and distinguish the colors of linens and sheets in the patient care area and before transferring them to the laundry.
6.8 It must be ensured that there are no tools, machines, syringes or scalpels inside the linens while they are being collected.
6.9 The linens and furnishings shall not be placed on the floor, chair or trolley for the patient and shall be placed directly in the special bag for that.
6.10 Linens must be received and merchandised via a laundry register.
6.11 The dirty laundry cart shall be other than the clean wash cart.
6.12 Clean linens and upholstery shall be stored in the clean linen closet.
The policy of transferring the laundry from the departments of the health facility to the laundry (laundromat) and vice versa:

1. Policy:
   1.1 Transferring laundry from the health facility sections to the laundromat and back

2. Objective:
   2.1 Ensuring the transportation of laundry in the health facility within the conditions of public safety and enemy control.

3. Definitions: none

4. Tools:
   4.1 Synthetic Transport Vehicles.
   4.2 Linen delivery receipt form for departments

5. Responsibilities:
   5.1 Heads of Nursing Departments.
   5.2 Head of Laundry Department
   5.3 Nursing in all departments
   5.4 Laundry workers.

6. Procedures:
   6.1 Laundry workers shall wear occupational safety equipment when handling laundry.
   6.2 The laundry official will classify and distinguish the carts in different colors into:
   6.2.1 Carts for transporting clean laundry.
   6.2.2 Carts for transporting dirty laundry.
   6.3 Transporting bags of dirty laundry and kings from the different nursing departments to the laundry in closed carts designated for dirty washing in the elevator designated for that, if this is available.
   6.4 Transport of clean linens to the nursing departments in the closed clean laundry transport cart and in the elevator designated for that.
   6.5 Ensuring that the movement of the washing carts is correct, so that the entrance to the dirty laundry is separate from the outlet for the clean laundry, i.e. from any other direction, without overlap between them.
   6.6 Transfer the laundry into the designated bags (yellow bags) and not revealing them or touching them directly, and making sure that there is a label on them.

Linen delivery receipt form for departments
Infection control policy in the laundry department

1. Policy:
1.1 All nurses and workers in the health facility must properly handle bedding and linens during the handling of dirty and clean bedding and linens and during the reprocessing and storage process.

2. Objective:
2.1 Maintaining that all the health team in the laundry are not exposed to infection transmitted through contact through coloured furniture and linens, and the general preservation of the environment of the laundry.

3. Definitions: none

4. Tools: none

5. Responsibilities:
5.1 Coordinator, and the infection prevention and control committee.
5.2 Head of Laundry Department.
5.3 Workers in the laundry department.

6. Procedures:
6.1 For laundry workers:
6.1.1 Laundry sanitary personnel handling soiled linens and bedding must wear thick gloves for dirty laundry, shoes and a protective gown.
6.1.2 The laundry health team must wear another clean wash-cleaning glove when the linens come out of the washing machines.
6.2 For sorting (classification):
6.2.1 There should be a hand washing basin in the grading area and soap and hand drying facilities.
6.2.2 Thick, heavy-duty gloves are a must.
6.2.3 A safety box must be available to dispose of sharps waste if it is present in the furnishings.
6.3 For washing machines:
6.3.1 Chemicals that help neutralize the acidity of the water and prevent yellowing of the textiles should be added.
6.3.2 Chemical materials such as bleaching materials must be added in order to reduce the activity of microbes that are present in the linens and are added according to the manufacturer’s instructions and according to the litres capacity of the washing machines.
6.3.3 The temperature of the washing water should not be less than 72°C for at least 25 minutes.
6.3.4 Washing machines must be cleaned from the outside.
6.4 Regarding the work environment:
6.4.1 The area for receiving and sorting soiled linens and bedding should be separated from the actual work area (laundry area).
6.4.2 There should be an area for clean linens and an area for receiving and sorting soiled linens.
6.4.3 An area shall be designated for storing chemicals and detergents.
6.4.4 The laundry environment must always be kept clean and dry.
6.4.5 Laundry floors should be cleaned at least three times a day or whenever they become dirty.
6.5 For clean linens after washing:
6.5.1 Ensure that there are no stains on the laundry by wearing a washing glove and re-washing any stained laundry.
6.5.2 Laundry is dried by hot drying using automatic dryers.
6.5.3 Clean linens shall be stored on their own shelves in the clean area.

Linen handling policy in the laundry department

1. Policy:
1.1 All contaminated linens will be washed in accordance with proper sanitary conditions.
1.2 All linens from patient isolation rooms will be washed in a special washing machine in accordance with proper sanitary conditions.

2. Target:
2.1 Creating a unified mechanism for dealing with linens with the aim of:
2.1.1 Prevention of air pollution and rays through the wrong handling of contaminated cotton materials and linens.
2.1.2 Protection of personnel from infection and the risk of puncture accidents due to the possibility of the wrong presence of sharp tools.
2.1.3 Preventing the spread of infection among health staff, patients and visitors.

3. Definitions:
3.1 Linens: Cotton materials, aprons, pillowcases, covers, blankets and blankets.
3.2 Curtains.

4. Tools:
4.1 Laundry checklist (Attached).

5. Responsibilities:
5.1 The Laundry Department Working Group.
5.2. Nursing departments.
6. Procedures

6.1 Washing sheets:
6.1.1 Sorting the laundry according to its type, color and degree of contamination in order to determine the washing mechanism.
6.1.2 Weighing the quantities of laundry in line with the capacity and carrying capacity of the existing equipment so that it is less than the capacity of the washing machine 25%, in order to prevent damage to the washing machines.
6.1.3 Washing each type of laundry separately according to the proper hygienic conditions in order to prevent contamination of the linens.

6.2 Washing staff uniforms:
6.2.1 Setting a specific date for the delivery of the uniform for washing by the official of the laundry for organizational matters.
6.2.2 Writing the employee uniform receipt form in two copies, one copy to remain with the employee and the other copy with the laundry to avoid losing the uniform.
6.2.3 Inspect the laundry from the items in the pockets in order to maintain the cleanliness of the uniform.
6.2.4 The washing machine must be sterilized before washing the uniform, using oxygen (3 g/kg of laundry) to get rid of microbes and prevent contamination.
6.2.5 Peanuts should be rinsed with cold water from any contaminated material for 15 minutes to remove heavy pollution.
6.2.6 Rinse the laundry again by placing oxygen, enzyme and soap at 40°C 3g of laundry detergent/kg of laundry.
6.2.7 Rinse the laundry with cold water for 5 minutes.
6.2.8 Laundry should be rinsed with hypochlorite.
6.2.9 The laundry should be dried so that each cycle does not exceed half a minute and the temperature does not exceed 220 °C for 20 minutes.

6.3 Regular washing
6.3.1 The laundry should be rinsed in cold water for ten minutes with soda.
6.3.2 The laundry should be rinsed with hot water, oxygen, enzyme and soap at 80°C for 15 minutes.
6.3.3 Rinse the laundry in cold water for 15 minutes at a temperature of 35°C.
6.3.4 Softener is added with cold water at 20°C for 10 minutes.

6.4 Heavy Duty Laundry
6.4.1 Laundry should be rinsed in cold water for ten minutes with soda. To remove visible stains and dirt.
6.4.2 The laundry should be rinsed with hot water, oxygen, enzyme and soap at a temperature of 90°C for 30 minutes to get rid of microbes.
6.4.3 Rinse the laundry in cold water for 15 minutes at a temperature of 35°C.
6.4.4 Softener is added with cold water at 20°C for 10 minutes.

6.5 Washing of normal operations
6.5.1 Laundry should be rinsed in cold water for ten minutes with soda, to remove visible stains and dirt.
6.5.2 The laundry should be rinsed with hot water, oxygen, enzyme and soap at a temperature of 90°C for 30 minutes.
6.5.3 Hypochlorite should be added diluted in a ratio of 1 ml per 250 ml, to get rid of microorganisms.
6.5.4 Rinse the laundry in cold water for 15 minutes at a temperature of 35°C.
6.5.5 Softener is added with cold water at 20°C for 10 minutes.
6.6 Washing of orthopedics operations:
6.6.1 The laundry should be rinsed in cold water for ten minutes with soda.
6.6.2 The laundry should be rinsed with hot water, oxygen, enzyme and soap at a temperature of 90 °C for 30 minutes to get rid of suspended matter.
6.6.3 A degreaser should be added in the second rinse during the boiling phase to sterilize the laundry.
6.6.4 Hypochlorite should be added diluted in a ratio of 1 ml per 250 ml
6.6.5 Rinse the laundry in cold water for 15 minutes at a temperature of 35°C.
6.6.6 Softener is added with cold water at 20°C for 10 minutes.
6.7 pillows wash:
6.7.1 Wash the sponge in cold water only without adding any other substance for 5 minutes.
6.7.2 Add soap in the second rinse for 10 minutes at 30°C. 6.7.3 The softener is added in the third stage for 10 minutes.
6.7.4 Note: The 50 kg washing machine has a capacity of 40 pillows.
6.8 Washing the curtains:
6.8.1 Wash as per normal wash policy once a month or as needed.
6.8.2 The curtains should be washed in the isolation room according to the policy of washing the insulation and the temperature should be 60 °C with the addition of soap and enzyme to remove contamination
6.9 Washing the blankets:
6.9.1 Ordinary blankets:
6.9.1.1 Rinse with cold water for fifteen minutes.
6.9.1.2 Soap and enzyme should be placed only in the second drawer compartment and in hot water at 25°C at the rate of 3 grams per kilogram of sanitizer.
6.9.1.3 The softener is placed in the third drawer compartment for fifteen minutes with cold water.
6.9.1.4 The blankets are placed in the dryer at a temperature of 65 °C for thirty minutes to prevent dust and dirt spots in the air.
6.9.1.5 Blankets must be folded in the designated place and wrapped in bags
6.9.2 Isolation blankets:
6.9.2.1 Place inside the washing bag, open 15 cm (if it is the type that does not dissolve in laundry) and close the washing machine to get rid of contamination.
6.9.2.2 Rinse with cold water for thirty minutes.
6.9.2.3 Soap, enzyme and oxygen are placed in the second eye in hot water at a temperature of 65°C for a period of forty minutes to remove the negative charges in addition to disinfecting them.
6.9.2.4 The softener is placed in the fourth drawer compartment and in cold water for fifteen minutes.
6.9.2.5 The blankets are placed in the dryer at a temperature of sixty-five degrees Celsius for thirty minutes or according to the dryer and according to the size of the blankets to prevent the capture of dust and dirt in the air.
6.9.2.6 The blankets should be folded in the designated place and wrapped in bags to prevent the spread of infection in the health facility.
6.9.3 The isolation’s washing:

6.9.3.1 Laundry shall be placed in yellow bags and placed in a special room for each floor and a label shall be placed on it indicating the slave and type of laundry.

6.9.3.2 The isolation’s wash should be placed in a special room on the floor

6.9.3.3 Bags should be transported in a specially sealed cart for isolation directly to the laundry.

6.9.3.4 A special time must be set for washing the isolation laundry, provided that the washing is carried out on the same day of receipt

6.9.3.5 A special washer should be selected for isolation washing.

6.9.3.6 The insulation washing cart should be placed in a special room for insulation washing only.

6.9.3.7 Only one person must be appointed to be responsible for washing the isolation, and he must have taken all the special vaccinations. (The worker responsible for operating the insulation sheets).

6.9.3.8 Put the laundry in the washing machine after opening the plastic bag at a distance of (150 cm) in the absence of bags that melt in the washing machine.

6.9.3.9 Putting professional clothes inside the washing machine after completing all the bags in the washing machine by washing them and then disposing of them by placing them in red bags with medical waste.

6.9.3.10 A washing program is conducted for an hour and a half (1 hour) in cold water to remove blood, body fluids, urine and any other secretions to remove stains on the sheet.

6.9.3.11 Put into the washing machine the basic materials soda (3-2 g) kg of laundry in the first drawer compartment for 15 minutes to remove pollution.

6.9.3.12 Enzyme, soap and oxygen in the second eye with hot water to get rid of microbes.

6.9.3.13 Hypochlorite 5 g kg of laundry at a concentration of 60% in the third drawer compartment for bleaching and disinfection of laundry for 15 minutes in warm water.

6.9.3.14 A softener with an odor of 1 mm kg from the customer in the fifth drawer compartment at the last stage of washing to ensure the cleanliness of the laundry.

6.9.4 Laundry drying:

6.9.4.1 The laundry is sorted a second time after it has been dried, and in the event that it is known to be clean or contaminated with stains, it is re-washed again.

6.9.4.2 The covers are dried completely (without ironing).

6.9.4.3 Sheets humidity is maintained and sent to iron and roller according to ironing policy and are distributed to the sections according to receipt forms to inspect it in terms of cleanliness and the presence of any tear or damage.

6.9.4.4 After the washing process is finished, the laundry is taken out of the washing machine to give the desired result by the technician for the drying process.

6.9.4.5 Enter the appropriate amount of laundry, sorted according to its color and type, in proportion to the capacity of the dryer, to preserve tools from damage.

6.9.4.6 The laundry should be dried using the tools prepared for this and according to the capacity of each machine so that the weight is less than the carrying capacity by 25%.

6.9.4.7 The percent and speed appropriate to the amount of laundry inside the dryer must be fixed to ensure that it is dry.

6.9.4.8 The laundry shall be taken out of the dryer after it has been dried and kept slightly damp and placed in a clean and dry special cart to ensure that it is free of stains and dirt.
6.9.4.9 The laundry must be sorted a second time after it has been dried.
6.8.4.10 Transfers the laundry to the ironing area to complete other washing procedures
6.9.4.11 If the laundry is not sufficiently dried, the dryer is considered broken and must be repaired or maintained.
6.9.5 Ironing Sheets:
6.9.5.1 The laundry, after drying, must be transferred to the ironing area to be sorted according to its type to the type of ironing to be used.
6.9.5.2 The temperature of the roller should be commensurate with the state of the sheet after washing, and the speed of the roller is increased if the temperature of the roller is light (the temperature of the roll is 300 °C and the pressure is 5 bar).
6.9.5.3 The roll and the certificates should be waxed so that no black spots form on the sheets every two months.
6.9.5.4 The waxing method is to put the wax beads on the roller 5-4 times and run the roller.
6.9.5.5 In the event of a rupture or damage, it is returned to the department with an indication of the condition received.
6.9.5.6 The washing of each section must be sorted separately and arranged on a special cart prepared for this purpose and delivered to the sections
6.9.5.7 Laundry will be delivered to the departments during the morning shift on the same day and evening on the following day according to the linen receipt and delivery policy and according to the attached form. Considering that clean laundry comes out of the laundry door prepared for this and by using clean laundry carts.
6.9.6 Ironing Employees’ uniform:
6.9.6.1 The uniform is ironed by hand.
6.9.6.2 Define ironing phrases (to control the temperature according to the type of fabric, by ironing the neck, then the sleeves, then the back, and finally the pockets.
6.9.6.3 The hood must be pressed during ironing to remove the heat and then the fumes
6.9.6.4 The uniform is hung using the hanger and then kept in a clean place.
6.9.6.5 The link in the imagination is placed on the uniform.
6.9.6.6 The uniform is worn out by the link provided with the employee and matching it with the link on the uniform.
6.9.7 Storage of Linens:
6.9.7.1 Linens are stored according to their type and arranged in a clean and dry place.
# Laundry checklist

<table>
<thead>
<tr>
<th>L.</th>
<th>Variable</th>
<th>Yes</th>
<th>Frequently</th>
<th>No</th>
<th>Notes</th>
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<tbody>
<tr>
<td>N.</td>
<td>Is there a coordinator for controlling the enemy in the department of infection control and prevention?</td>
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<td>Are employees educated and trained in enemy control procedures?</td>
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<td>Are health personnel vaccinated against hepatitis B?</td>
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<td>Do you conduct employee checks for hepatitis B, AIDS, (CB virus)?</td>
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<td>Is the staff aware of the policy for reporting puncture wounds and injected contaminated fluids?</td>
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<td>Is adherence to and commitment not to smoke in the linen washing unit?</td>
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<td>Are protective clothing worn according to the established procedure and policy?</td>
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<td>Wear clean work uniform</td>
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<td>Wear paws/gloves while receiving and handing laundry</td>
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<td>Wear a face mask when receiving washing</td>
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<td>Not touching clean things with the paws while working (phone / pen / door handles)</td>
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<td>Are hands constantly washed according to the procedure</td>
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<td>Routine hand washing using liquid soap and water?</td>
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<td>Rubbing hands with alcohol compounds?</td>
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<td>Before and after handling linens?</td>
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<td>After personal practices (sneezing, eating...)</td>
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<td>Are there washbasins in the department and in each ward</td>
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<td>Opened and created by the elbow, foot or laser?</td>
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<td>Is Al-Masila in the right place?</td>
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<td>Is there a liquid hand sanitizer?</td>
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<td>Is there a paper towel not to eat or drink while working?</td>
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<td>Is there a written policy for the use of disinfectants and detergents?</td>
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<td>1</td>
<td>Is the used laundry transported by special means of transport only for the used laundry from the departments?</td>
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<td>Is clean laundry transported by special means of transport only for clean laundry to departments?</td>
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<td>3</td>
<td>The environment</td>
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<td>4</td>
<td>Is it adhered to and committed not to have any plants inside the department?</td>
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<td>5</td>
<td>Are the appliances in the washing unit (washer, dryer, ironing machine) numbered?</td>
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<td>6</td>
<td>Is there a special suction device for each central air-conditioning dormitory fan?</td>
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<td>Is imitation and adherence to the conditions of ventilation and storage in the warehouse or warehouse?</td>
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<td>8</td>
<td>Is there treated water available in the department?</td>
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<td>9</td>
<td>Are laboratory tests conducted periodically on the water?</td>
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<td>Are there any plants or plantings inside the department?</td>
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<td>11</td>
<td>Are washing machines and dryers cleaned?</td>
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<td>12</td>
<td>korona ammonium</td>
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<td>soapy water?</td>
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<td>Suitable disinfectant?</td>
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<td>16</td>
<td>Are surfaces (washing machine, dryer, cosmic machine) cleaned daily?</td>
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<td>17</td>
<td>The surrounding environment is clean?</td>
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<tr>
<td>18</td>
<td>Linens</td>
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<td>19</td>
<td>Is clean laundry delivered from a special place other than the clean area (for distribution)?</td>
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<td>Is the laundry received in a place designated for the unclean area for sorting?</td>
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<td>21</td>
<td>Do not drop linens during delivery?</td>
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<td>22</td>
<td>Clean linens are transported in carts separate from contaminated ones?</td>
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<td>23</td>
<td>Contaminated linens are transported in carts separate from the clean?</td>
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<td>Contaminated linens are transported in airtight, distinctive bags?</td>
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<td>Medical Waste Management</td>
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<td>Is there a written medical waste management program?</td>
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<td>Is medical and non-medical waste separated?</td>
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<td>Is there a special package for the disposal of needles and sharp tools, if any?</td>
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<td>Cleaning program</td>
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<td>Is there a program to clean and disinfect the section daily and weekly?</td>
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<td>Is cleaning and mopping the floors of the section in the form of a letter Sor 8 depending on the policy?</td>
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<td>Are the following areas kept clean</td>
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<td></td>
<td>Furniture and equipment</td>
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<td></td>
<td>Clean and unclean area</td>
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<td>Warehouses cleaning solutions and disinfectants</td>
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<td>Private transport vans for the user as well as for the clean bathrooms</td>
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<td>Are cleaning tools and equipment kept in a specific place?</td>
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Annex 9 – Disabled Toilet Design
Annex 10 – Existing national Policy, Strategy and Guidelines

The policy following documents may have some relevance to the standards related to water supply and sanitation infrastructure servicing HCFs:

- Capacity Development Policy and Strategy of the Water Sector.
- Water Law 2014 – Article (5) Every person has the right to obtain his needs of suitable quality drinking water for utilization at specific prices. Water Service Providers shall take the necessary measures to ensure this right and prepare the plans required for the development of services in this regard.