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MINISTRY OF HEALTH-ETHIOPIA

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HEALTHIER CITIZENS FOR PROSPEROUS NATION!

National Infection Prevention and Control Policy

January 2021

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FOREWORD

Infections that originate within health care facilities have always presented a major problem in delivering health care. Health care-associated infections (HAIs), which can be blood-borne, airborne, or transmitted directly through physical contact, endanger the safety of anyone who enters the health care setting: patients and their families, clients, health care workers (HCWs), and support staff.

These infections can lead to prolonged hospital stays, long-term disabilities, financial burdens for health care facilities, additional costs for patients and their families, and often-avoidable deaths.

The ongoing world globalization, extensive travels between countries, changing pattern of infections and the emergence/re-emergence of viral disease pandemics and bacteria that are resistant to multiple antibiotics; have only exacerbated this problem in recent years.

Infection prevention and control (IPC) initiatives should therefore be a high priority for all health care facilities. Good IPC practices can make health care safer by protecting patients, clients, and HCWs from HAIs. All HCWs must understand and adhere to evidence- based IPC practices in order to provide high-quality health care services and to prevent unnecessary illness, expenses and death.

The Ministry of Health (MoH) recognizes the critical role that IPC plays in preventing HAIs. To this effect, the Ministry in collaboration with all relevant stakeholders; in line with internationally acclaimed standardized recommendations has developed this National Infection Prevention and Control Policy for Health Care Services to assist HCWs and other IPC stakeholders in the design, implementation, monitoring, and evaluation of IPC programs in Ethiopia. The Ministry remains firm that these efforts will improve health care delivery, lead to a reduction in infections, and move the country towards the achievement of the broader goals of the Ethiopian Healthy Policy.

The policy is to be used in conjunction with other relevant documents, such as the National IPC Strategic Plan 2021/22-2025/26 and the National IPC Guidelines for Health Care Services in Ethiopia; and all other IPC related guidelines in the country.

Finally, I wish to extend my heartfelt gratitude to all individuals and institutions that have contributed to the development of this IPC policy.

Lia Tadesse M.D. MHA
Minister, Ministry of Health

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ACRONYMS

CASH	Clean and Safe Healthcare Facility
CRC	Compassionate, Respectful and Caring
EHRIG	Ethiopian Hospital Reform Implementation Guideline
GoE	Government of Ethiopia
HAIs	Healthcare-facility Acquired Infections
HCFs	Healthcare Facilities
HCWs	Healthcare Workers
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immuno-deficiency Syndrome
IPC	Infection Prevention and Control
IPCC	Infection Prevention and Control Committee
IPCU	Infection Prevention and Control Unit
MoH	Ministry of Health
OHS	Occupational Health and Safety
PEP	Post Exposure Prophylaxis
PPP	Public Private Partnership
STIs	Sexually Transmitted Infections
TOR	Terms of Reference
WaSH	Water, Sanitation and Hygiene

1. INTRODUCTION

1.1 BACKGROUND

Infection prevention and control (IPC) is a comprehensive approach to prevent morbidity and mortality in patients and healthcare workers (HCW) from transmissible infectious diseases. The ultimate goal of IPC is to promote health care quality, which is safe for patients, health care workers, others in the health care setting and the environment. Developing an IPC policy and strategy provides a framework to develop and implement guidelines and standard operating procedures (SOPs) to improve the quality of healthcare in healthcare facilities.

1.2 HEALTH CARE ASSOCIATED INFECTIONS

Healthcare-associated infections (HAI) are one of the most common adverse events in care delivery and a major public health problem with an impact on morbidity, mortality, and quality of life. At any one time, up to 7% of patients in developed and 5.7% to 19.1% in developing countries will acquire at least one HAI (3). These infections also present a significant economic burden at the societal level. However, a large percentage of HAI are preventable through effective infection prevention and control (IPC) measures (3).

The risk of acquiring HAI is universal. In most cases, infection is due to multiple causes related to the systems and processes of patient care and human behavior. By changing the system and practices, health care facilities can successfully reduce the risk of infection to patients and increase cost effectiveness of health services (3).
Globally, the threats posed by epidemics, pandemics and antimicrobial resistance (AMR) have become increasingly evident as ongoing universal challenges and they are now recognized as a top priority for action on the global health agenda. Effective IPC is the cornerstone of such action.

In many African countries infection prevention and control measures aimed at preventing infections in health facilities are still not fully implemented. When WHO assessed clinics and hospitals across the continent for these measures, only 16% of the nearly 30,000 facilities surveyed had assessment scores above 75%. Many health centers were found to lack the infrastructure necessary to implement key infection prevention measures, or to prevent overcrowding. Only 7.8% (2213) (4,5) had isolation capacities and just a third had the capacity to triage patients (3). This situation is further complicated as in many countries surveillance systems providing reliable data on HAI do not exist and the burden of HAI is largely underestimated and practically unknown by healthcare professionals and policy makers.

The situation in Ethiopia is not as such different from the rest of the regional countries .However, based on its health policy, Ethiopia has always been striving to promote

preventive measures also in preventing HAIs as attested by the recommendations laid out in a variety of health care guidance documents such as Ethiopian Hospital Reform Implementation Guideline(EHRIG), Ethiopian Health Service Transformation Guideline(EHSTG), Ethiopian Health Center Reform Implementation Guideline(EHCRIG), IPC and Patient safety guidelines, IPC reference manual, IPC training materials, and initiatives like Water, Sanitation and Hygiene (WaSH), Clean and Safe Healthcare facility (CASH) within the limits of availability of resources.

However, poor social environment, deficiencies in infrastructure, lack of basic equipment, poor quality of supplies, lack of national IPC policy and co-existence of other major health problems have been affecting the quality of patient care. Moreover, HAIs in Ethiopia have not previously been systematically tracked or studied except for surgical Site infections.

Given the progressively expanding COVID-19 Pandemic in the country, and the global threat of further pandemics and growing antimicrobial resistance, it is imperative that the country establishes national guidance and a framework for implementation of IPC practices and procedures. These will help to combat against impending disease dangers and protect its citizens from becoming prey to preventable existing and emerging infections by nosocomial pathogens.

1.3 LEGISLATIVE MANDATES

The preparation of this policy draws its mandate from relevant international and national laws and regulations. The International Health Regulations (IHR) position effective IPC as a key strategy for dealing with public health threats of international concern (6). More recently, the United Nations Sustainable Development Goals (SDG) highlighted the importance of IPC as a contributor to safe, effective high-quality health service delivery, along with WaSH and quality and universal health coverage (7).
Nationally, Ethiopian Constitution, National Health Policy, Proclamation no. 200/2000 public health proclamation, Proclamation no.1112/2019 a proclamation to provide for food and medicine administration also enact the practice of effective IPC at all levels of the health system, including management of disease outbreaks and occupational safety (8,14,15).

1.4 RATIONALE FOR DEVELOPING THE NATIONAL IPC POLICY

The rationale for developing a National IPC Policy is to establish the foundations for IPC programs at the national, regional, and healthcare facility levels, and across both public and private sectors. These foundational components include:

- Organization, roles and responsibilities of IPC programs at national, regional, and healthcare facility and community levels
- Human resources needed to implement IPC practices

- National IPC standards and guidelines
- IPC education, training and quality improvement
- Healthcare facility infrastructure needed for IPC practices
- HAI surveillance
- Research and development
- Accountability processes - monitoring and evaluation of the IPC Program
- Financing and sustainability of IPC activities

1.5 MOH COMMITMENT

The Ministry of Health -Ethiopia (MOH-E) is committed to ensuring that the healthcare workforce, patients, and the community are protected from HAIs. In recognition of the need to establish and strengthen IPC at all health facilities, the MOH-E is committed to:

- Developing national IPC policy, strategy, roadmap, guidelines, and standard operating procedures (SOPs).
- Providing adequate resources to the establishment and functioning of national, regional and healthcare facility level IPC structure
- Establishing a system for monitoring, evaluating, and reporting key IPC indicators.
- Strengthening the technical capacities of facility-based laboratories nationwide
- Collaborating with key stakeholders to strengthen IPC program.
- Strong partnership with educational institutions that educate and train healthcare providers.

1.6 OPERATIONAL DEFINITION FOR KEY TERMS

In this policy document unless the context provides otherwise:

"Policy" means a high-level, overall plan embracing the general goals and acceptable procedures especially of a governmental body.
"Strategy" means a general direction, set for the organization and its various components to achieve a desired state in the future.
"Road map" means a strategic plan that defines a goal or desired outcome and includes the major steps or milestones needed to reach it.
"Health Service Delivery" means an immediate output of the inputs into the health system, such as the health workforce, procurement and supplies, and financing.
"Infection prevention and control (IPC)" means a practical, evidence-based approach which prevents patients and health workers from being harmed by avoidable infection and as a result of antimicrobial resistance.
"Ministry" means the ministry of health of Ethiopian government.

2. INFECTION PREVENTION AND CONTROL POLICY

2.1 POLICY AIM AND OBJECTIVES

This policy document provides guidance on the institution of IPC programmes at all levels of the health care system by outlining roles at each level of the health care system. In addition, this document lays out the MoH's vision to use the core components of IPC in designing framework for implementation of IPC structures, practices, procedures and monitoring and evaluation of IPC programs.
The aim of this policy is to establish and institutionalize high standards of IPC to reduce the risk of HAIs, improve the safety of patients, healthcare workers, and the public, and attain the highest quality of healthcare across all levels of the Ethiopian healthcare system.

The objectives of this policy are to:

- Provide guidance for the establishment and implementation of IPC programs at all levels of the healthcare system in both the public and private sectors.
- Provide guidance on IPC roles, responsibilities, and activities at all levels of the healthcare system.
- Set IPC infrastructure requirements for IPC across all the healthcare system.
- Advocate the mobilization for appropriate allocation of funds to optimize IPC program resources in healthcare settings.
- IPC wing regulation by the health and health related institutions regulatory directorate.
- Provide guidance to pre-service/in-service healthcare worker training institutions, professional health boards, councils, and associations in developing frameworks and standards for IPC training.
- Educate healthcare leadership and management on IPC programs.

2.2. POLICY PRINCIPLES

This policy will be guided by the following key principles.
Prevention: Every effort will be made to identify all possibilities for infection and to put interventions in place to prevent them.
Privacy: The rights of patients and HCWs to privacy and confidentiality will be upheld, within the confines of safe practice.
Occupational health and safety: The health and safety of HCWs will be considered with every plan, action, and intervention.
Integration: Healthcare facility-based IPC programmes should be integrated with other relevant programmes, such as those related to WaSH, HIV/AIDS or STIs, environmental health, occupational safety and health, tuberculosis, National Public Health Laboratories Services, pharmaceutical services, comprehensive care, disease

surveillance, the control of communicable diseases and CRC.

Patient safety: is the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum.

2.3. SCOPE OF THIS POLICY

This policy applies to all national level health sectors that are within the jurisdiction of the Ministry of Health- Ethiopia and the Regional Health Bureaus in the country.
Other health care facilities that do not fall under the jurisdiction of the Ministry of Health and Regional Health Bureaus must also use this policy to facilitate their respective IPC programs including private and NGO facility in the health sector.

3. POLICY FOCUS AREAS

The policy focus areas that are detailed under this section of the Policy have been identified and adopted from the WHO IPC core components (1,3) that are known to be evidence based and are recommended for use in establishing and implementing effective IPC programs at all levels of a health system in a country.

3.1 IPC PROGRAM MANAGEMENT AND INSTITUTIONAL COORDINATION STRUCTURE

IPC structures at all levels of healthcare system (especially at MOH level with steering and multidisciplinary team) shall be established.

3.2 NATIONAL INFECTION PREVENTION AND CONTROL STANDARDS AND GUIDELINES

To enable the implementation of this policy, the MoH will develop a national guideline and will continually update evidence-based IPC standards and IPC guidelines for all levels of care.

- Evidence-based infection prevention and control standards for all levels of care will be developed and validated by the structure that is going to be established at MOH.
- The structure that is going to be established will develop, and on a continuous basis update, a comprehensive manual on infection prevention and control guidelines.

3.3 IPC EDUCATION, TRAINING AND QUALITY IMPROVEMENT

Education and training are key ingredients for improving and assuring quality as it relates to IPC. The pre-service education and training of all HCWs shall include the principles and practices of IPC, with an emphasis on adherence. The MoH, in consultation with HCWs' training institutions and other stakeholders, shall work to incorporate IPC training

into pre-service curricula. The IPC coordinators and IPC focal persons with trainer of trainees will provide in-service training, such as on-the-job training and continuous medical and professional development. Other innovative methods of training, such as e-learning shall be identified and incorporated into training initiatives.

Both pre-service and in-service training shall be based on the following guidelines:

- The HCWs' employer should provide the employee with IPC information, training, and supervision to ensure the safety of HCWs and the healthcare service users, as part of the induction package.
- Integrate IPC training modules into one comprehensive in-service IPC training curriculum for all HCWs.
- The Human Resource Development Directorate (HRRD) at the MOH and Other concerned units in the MoH shall, in consultation with the relevant professional health boards and councils, determine training standards for IPC practitioners (the HCWs who advise and oversee IPC activities on a fulltime basis).
- The structure that is going to be established at MOH should ensure that training is carried out to provide an adequate supply of trained IPC officers within all regions.
- The head of each health establishment should ensure the following:
  - Suitably trained officers are appointed to provide the infection prevention and control function.
  - Annual in-service infection prevention and control training programmes for the relevant categories of health workers and disciplines is developed and executed.
  - An infection prevention and control orientation-training program is developed and executed.
  - Officers appointed to head the Central Sterilizing Department are suitably trained.

3.4 HAIs SURVEILLANCE

The NIPCCB in collaboration with the RHBs shall develop a national surveillance system for the monitoring of nosocomial infections and identifies the pathogens and conditions to be placed under surveillance. This system will generate quality data on HAIs that will be used for facilitation of proper investigation into outbreaks and implementation of prevention and control measures.

At facility level, regular reports of comparative data on the levels of healthcare associated infections within the facility should be made available to treating clinicians to make them aware of their local resistance profiles, to enable them to make better empirical

treatment choices where necessary and to assess implications of their treatment choices and infection control practices.

Data management and analysis will be conducted by trained and dedicated staff. The data needs to be analyzed by an expert in the field of medical microbiology or infectious diseases. Reports should be prepared and regularly discussed with the relevant IPC officers, committees, and/ or health departments. Cooperation of laboratory services and healthcare facilities should be coordinated and optimized to ensure optimal use of laboratory data for the diagnosis of healthcare associated infection.

3.5 MULTIMODAL STRATEGIES AND POLICY IMPLEMENTATION

Following multimodal approach in an integrated way to improve the practices of Infection Prevention and Control, improving the outcome, and changing the behavior is very critical and may comprise system change, education, and training, monitoring and evaluation and providing data feedback, communications, and culture change. National IPC programs should coordinate and facilitate the implementation of IPC activities through multimodal strategies at the national or sub-national level.

At the facility level, IPC activities should be implemented using multimodal strategies to improve practices, reduce HAI and contribute in the response of public health outbreaks/epidemics.

3.6 WORKLOAD, STAFFING & BED OCCUPANCY

The more crowded healthcare facilities and the more overloaded healthcare workers (Nurses, physicians, etc.) contribute to increasing HAIs and the spread of AMR. Workload, staffing and bed occupancy of healthcare facilities affect the ability to implement good IPC.

In addition to standard IPC practices, workload, staffing, and bed occupancy must be addressed as core component of IPC by all healthcare facilities. In order to reduce the risk of HAI and the spread of AMR, bed occupancy should not exceed the standard capacity of the facility and health care worker staffing levels should be adequately assigned according to patient workload.

3.7 BUILT ENVIRONMENT, MATERIALS & EQUIPMENT

Each healthcare facility will ensure a clean and safe environment for implementing the National IPC guidelines with a focus on strengthening the infrastructure needed to effectively apply standard precautions at the point of care.

It is well understood that adherence and compliance to IPC procedures and practices in resource limited healthcare settings is highly affected by lack of adequate and

inappropriate infrastructure and equipment. Integration, collaboration and engagement with all stakeholders such as Ministry of Water Irrigation and Energy (MoWIE) is very important in addressing the infrastructure of healthcare facilities.

Each healthcare facility should strive to provide clean water, sinks, soap for all healthcare workers, patients, and visitors in order to facilitate appropriate and effective hand hygiene. While hand-washing facilities are under construction, each healthcare facility should provide a temporary water supply (e.g. bucket taps, scoops) and alcohol-based hand rub to staff, patients, and visitors.

Infrastructure and supplies to implement other standard precautions such as personal protective equipment, sharps safety management, safe hospital laundry, environmental cleaning, and waste management should be in accordance with the national IPC guideline.

3.8 RESEARCH AND DEVELOPMENT

The policy encourages:

- The generation & utilization of evidence through surveillance, surveys, research and systematic review to improve IPC practices
- The use of evidence that should guide, determine prioritization, design and implement specific interventions to be addressed by the relevant national, regional and health facility level infection control bodies.
- The adoption and adaption of international IPC practice evidences and recommendations as deemed necessary in the context of the country.

3.9 MONITORING, EVALUATION, AUDIT AND FEEDBACK

- Establish a nationally coordinated, regional, facility and community level IPC management and practice monitoring/audit and evaluation programs.
- Define routine and key IPC performance indicators and design appropriate tools for the collection and reporting of these indicators.
- Promote the use of generated data for evidence-based decision making, IPC improvement, and timely provision of feedback.

3.10 ADVOCACY, SOCIAL MOBILIZATION AND PARTNERSHIP

Media releases, including posters, pamphlets, comic books and videos on infection prevention and control, should be produced and distributed. Infection prevention and control information should be included in health promotion and marketing activities at all levels.

Strong partnerships shall be established to facilitate the implementation of this policy. This will be done through Public Private Partnerships (PPP) by strongly linking with private sectors who can facilitate the attainment of the policy aims and through strengthening links with other Government Ministries and Departments that have a role in the successful implementation of this policy.

3.11 RESOURCE AND RESOURCE MOBILIZATION

To implement this policy, the MoH together with its partners, will have to strategize so as to achieve an increased funding allocation internally from government resources and externally from other innovative initiatives. Some of the proposed resource mobilization strategies will include but not limited to:

- MoH budgetary allocation for the IPC coordinating body at national level.
- Engage with private sector and industry stakeholders to develop co-financing strategies for some IPC activities through Public Private Partnership (PPP), advocacy initiatives, and HCWs capacity building initiatives.
- Sensitize regiona level and facility level health managers to include IPC budget line items during their regular planning and budgeting processes.
- Strengthen coordination of partner and donor supported IPC initiatives to enhance resource optimization.

4. REFERENCES

1. World Health Organization, 2020. [Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level]. World Health Organization.
2. World Health Organization, 2019. Minimum requirements for infection prevention and control programmes.
3. World Health Organization, 2017. Healthcare-associated infections: fact sheet; 2014. Available on WHO website.
4. World Health Organization, 2018. Infection prevention and control assessment framework at the facility level (No. WHO/HIS/SDS/2018.9). World Health Organization.
5. World Health Organization, 2017. Instructions for the national infection prevention and control assessment tool 2 (IPCAT2) (No. WHO/HIS/SDS/2017.13). World Health Organization.
6. World Health Organization, 2008. International health regulations (2005). World Health Organization.
7. Assembly, G., 2015. Sustainable development goals. SDGs, Transforming our world: the, 2030, pp.338-350.
8. Federal Ministry of Health Ethiopia, 1993. Health policy of the transitional government of Ethiopia. Federal Ministry of Health Ethiopia.
9. Federal Ministry of Health Ethiopia, 2016. Hospital Service Transformation Guideline. Federal Ministry of Health Ethiopia.
10. Federal Ministry of Health Ethiopia, 2016. Health Sector Transformation in Quality. [A guide to support implementation of health service quality improvement activities in Ethiopian Health care facilities]. Federal Ministry of Health Ethiopia.
11. Federal Ministry of Health Ethiopia, 2015. Health Sector Transformation Plan, 2015/16 - 2019/20. Federal Ministry of Health Ethiopia.
12. Federal Ministry of Health Ethiopia. Infection Prevention and Control Reference Manual. Volume 1-3. Federal Ministry of Health Ethiopia.
13. Central Statistical Agency [Ethiopia] and ICF International. 2012. Ethiopia Mini Demographic and Health Survey 2019. Addis Ababa, Ethiopia. Ethiopian Public Health Institute and Federal Ministry of Health and The DHS Program ICF Rockville, Maryland, USA.
14. Gazeta, F.N., 2019. Proclamation No.1112/2019. A proclamation to provide for food, medicine and health care administration and control, pp.5157-5191.
15. FNG, 2000. Public Health Proclamation. Proclamation no. 200/2000, 6th year,

(28), pp.1274-1281.

16. FNG (2004) Labour proclamation. Proclamation no. 377/2003, 10th year no.12, Addis Ababa, Ethiopia, pp.2453-2504.
17. Pan American Health Organization, 2016. IPC & WASH common indicators.
18. Jhpiego, 2016. DeMallie, K. and Dzintars, K., 2018. Infection Prevention and Control. Reference Manual for Health Care Facilities with Limited Resources.
19. Langley, G.J., Moen, R.D., Nolan, K.M., Nolan, T.W., Norman, C.L. and Provost, L.P., 2009. The improvement guide: a practical approach to enhancing organizational performance. John Wiley & Sons.

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