

COVID-19
INFECTION PREVENTION & CONTROL

Report of

NATIONAL TRAINING-OF-TRAINERS
Held on May 7-9, 2020

Facilitators:
NIGERIA CENTRE FOR DISEASE CONTROL

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Background

The Coronavirus disease 2019 (COVID-19) which was declared a pandemic by the World Health Organization on January 30, 2020 is the most prominent and urgent global public health challenge of today. In fact, it has rattled the health, economic and social lives of almost countries of the world. It has infected millions of people and has caused thousands of deaths.[1]

The Coronavirus disease 2019 (COVID-19) is a respiratory disease caused by a novel coronavirus (SAR-2-CoV) which was first identified in Wuhan, China in December 2019.[2] The virus is a zoonotic ailment which naturally circulates among animals. The initial cases appear to have been from animal to human in a seafood market in Wuhan. It is a highly contagious infection with major clinical symptomatology of fever, dry cough, breathing difficulties, fatigue, myalgia and ultimately severe respiratory distress syndrome with metabolic acidosis, alveolar inflammation, micro-circulatory thrombosis, coagulopathy and desaturation.[3,1]

Nigeria with a population of about 200 million people (estimated to be 401 million by 2050)[4] reported her first COVID-19 case on February 27, 2020. Ever since, confirmed cases have risen progressively leading to country's activation of a multi-sectoral response to avoid a national state of emergency. The leading technical coordinating agency of COVID-19 response in Nigeria is the Nigeria Centre for Disease Control (NCDC).[5] The Government of Nigeria also set up a Presidential Task Force on COVID-19 headed by the Secretary to the Government of the Federation to lead the National Response to provide political leadership, mobilize resources through partnerships with diverse stakeholders.

Despite significant efforts, there is steadily increasing incidents of community spread of COVID-19 in various parts of the country. Health workers in general appear very vulnerable as a matter of occupational hazard while many facilities lack adequate knowledge of infection prevention and control of the novel pandemic. Also availability of, and access to basic PPE is very challenging.[6] However, this is likely compounded by the fact that some healthcare workers have inadequate awareness of infection prevention practices.[7] adequate knowledge of a disease can influence healthcare workers' attitudes and practices, and incorrect attitudes and practices directly increase the risk of infection.[8]

Capacity Building for Catholic Healthcare Workers

The Catholic health services predates the formation of the country Nigeria. In fact, the Catholic Church established the first standard hospital in Lantoro, Abeokuta in 1895 which still functions till today. The Catholic Health Services (CHS) has continued to provide compassionate care to all Nigerians irrespective of creed or tribe. Currently, with about 439 clinics, hospitals and rehabilitation centres, the Catholic health services is reaching the "unreached" in almost every

community across the country including hard-to-access rural villages, riverine settlements and urban slums.

Given the foregoing, the Health Unit of the Catholic Secretariat of Nigeria requested for a national training-of-trainers (ToT) workshop from the Nigeria Centre for Disease Control (NCDC) for selected persons who will subsequently cascade the modules to the subnational (provincial and diocesan) structures and health facilities.

In the context of the COVID-19 pandemic, in addition to informing appropriate response efforts such as personal safety, sanitary patient care and protection of the general public and their communities, functional systems for infection prevention and control is a measure of healthcare quality. It empowers the facility personnel to provide services in a confident and secure manner. IFC compliments health education, and facilitates prevention behavioural change communication and social mobilization. In this way, the prevalence of misconceptions, poor care-seeking behaviours as well as drivers of stigma and discrimination usually associated with emerging and awe-inspiring diseases such as COVID-19, in the realm of HIV/AIDS, Ebola, Zika, etc.[9,10,11,12] will be assuaged. Facility managers can apply the knowledge of IPC to advocate for administrative, engineering and systemic changes in order to institutionalize safety for all in the context of "Do No Harm."[13]

Methodology

The three-day national training-of-trainers (ToT) workshop for the Catholic Health Services was held at the Catholic Secretariat of Nigeria Resource and Conference Centre, Durumi 1, Abuja from May 7th to 9th, 2020, from 9.00am to 5.30pm daily. The following is a synopsis of the daily proceedings from the workshop.

The Health secretary of the Catholic Secretariat of Nigeria (Dr. Emmanuel Okechukwu) welcomed the participants, and specifically introduced Rev. Fr. Dr. Uchechukwu Obodoechina – the director of the CSN Church and Society department and Dr. Tochi Okwor – team lead of the IPC Pillar at NCDC. Afterwards, participants took turn to self-introduce themselves.

The facilitators from NCDC were led by the Infection Prevention and Control Pillar team lead – Dr. Tochi Okwor – who expressed delight at the collaboration with the Catholic health services and the potential to reach the large numbers of frontline health workers at their remote locations across Nigeria. Other NCDC facilitators were: Prof. Jerome Dooga, Dr. Josephine Gatua, Dr. Mohammed Sani, Sunday Ezeagu, Dr. Zainab Bukar and Al-Bashir Aliyu Sambo.



Cross-section of participants during a session

Each day began with a recap of the previous day's activities. The topics were presented with active engagement by the participants through questions and perspective-sharing. The following sessions were presented with their educational/training content:

1. *Effective Facilitation Techniques*
   Showed participants the principles and techniques of facilitating educational sessions with the application of adult group pedagogy (learning and teaching). This was viewed as critical since the trainees are subsequently expected to undertake the training of others. To be effective, the facilitator should:
   - *Be sincere, be brief, and be seated.* Make it short and simple (KISS) – speak with conviction. It will affect your tone of voice.
   - Use icebreakers (a joke, a relevant anecdote, use a metaphor or draw comparisons, tell a touching story). Do not sound condescending. If you do, your audience will notice and may tune off mentally.
   - Respect your audience
   - Make it simple – break it down
   - Focus on the main points
   - Consider your audience as professionals; because in fact, that is what they are.

2. *Basics of COVID-19*
   Provided a background on the 2019 novel Corona virus (its biology epidemiology, cased definition and clinical symptomatology as well as the associated disease mortality, morbidity and sundry statistics. Specifically, in December 2019 increased cases of pneumonia in Wuhan, China was noticed; by January 2020, the Chinese Centre for Disease Control identified it as Corona virus – a strain of the Severe Acute Respiratory Syndrome. The causative agent is known as Coronavirus (SARS-2-CoV); the disease is Coronavirus disease discovered in 2019 (COVID-19)
   The facilitators of its transmission are:
   - Environmental conditions – overcrowding, humidity, hygiene, temperature, air pollutants
   - Poor medical care and infection prevention and control (IPC) measures – Quality and access

- Host factors – e.g. older age, cigarette-smoking, immune and nutritional status, underlying medical conditions.
- Pathogenic characteristics, including modes of transmission, transmissibility, virulence factors and

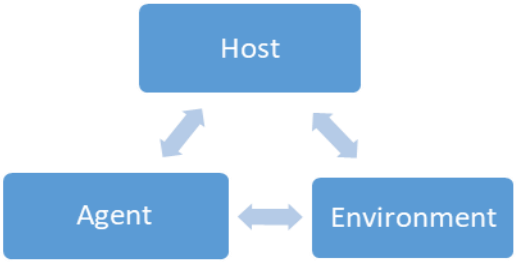
Transmission is through inhalation of droplets expelled from infected persons – through coughing, sneezing; contact with patient's respiratory secretions and via hands-to-mucosa through contact with surfaces contaminated by the infected secretions.

3. *National Response Strategy*
   Discussed the major thrusts of Nigeria's response strategies against the COVID-19 pandemic. These are essentially three, to:
   a. Prevent and limit community transmission of COVID-19
   b. Prevent amplification around healthcare facilities in Nigeria, and
   c. Protect healthcare workers from nosocomial infection with COVID-19.

The following activities are designed and being implemented to achieve the strategic objectives

- Develop and continue to review evidence-based guidelines to guide the response both at national and sub-national levels
- Develop training materials on priority IPC activities to prevent healthcare-associated spread of COVID-19
- Build capacity of IPC workforce to support the response
- Link national and sub-national IPC focal points to COVID-19 response activities for consistency
- Develop forecasting plans for PPE and other IPC consumables (sanitizers, etc.)
- Provide isolation/treatment centres with appropriate guidelines, training and support

4. *Understanding Disease Transmission*
   Explained the basis of disease spread - 6 main links (Links must be continuous for infection to occur). Infectious agent – Reservoir (animal, person, another host) - Susceptible Host – Mode of transmission – Portal of Exit – and Portal of Entry (susceptible part of a Susceptible Host).



The infection-relay triad

Therefore, in order to break the chain of transmission of any disease, including COVID-19, the following strategies should be adopted to prevent or control the contagion:

a. Remove the reservoir/agent – isolation of infected patient, treatment of the Infected, Waste management, Cleaning, Disinfection and Decontamination;
b. Interrupt the mode of transfer – Wash hands, Cleaning/Disinfection and sterilization, Observe respiratory etiquette, use of PPE.
c. Protect susceptible host – Protective isolation, Prophylaxis, Vaccination, PPE

5. *Introduction to Infection Prevention and Control: Standard Precautions*

Discussed the key elements of infection prevention and control (IPC) with particular application to COVID-19. Infection prevention precautions are applied whenever providing patient care, despite the patient's diagnosis; it aims to prevent unprotected contact with body fluids including blood, respiratory and other secretions and excretions. IPC should be used for all contacts in order to minimize or prevent transmission of disease-causing agents.

On the other hand, Standard Precautions are designed to:

- Protect staff and patients (WHO)
- From contact with infectious agents (WHAT)
- Wherever health care is delivered (WHERE)
- To be used all the time, whether infection is known or not (WHEN)
- In order to prevent infection in patients and staff (WHY).

Accordingly, standard precautions include but are not limited to the following: hand hygiene, protective clothing, patient placement, clean equipment between patients, respiratory etiquette, keeping environment clean, handling waste correctly, being careful with sharps, safe injection practices, handling linen correctly and observing occupational hygiene.

6. *Transmission-based Precautions*

Contact, Droplet and Airborne – Highlighted the important elements of contact, respiratory and airborne controls with application to COVID-19. It was explained that knowledge of these facts are basic for the appropriate use of PPE. Since COVID-19 is droplet infection with possible aerosolization, health workers need to be guided accordingly.

Transmission-based precautions are iterative actions related to the mode of transmission of a given pathogen. They are implemented with an understanding that a pathogen may have more than one route of transmission, and include the following:

- Contact precaution
- Airborne Precaution
- Droplet Precautions (as for COVID-19)

Transmission-based precautions are required to contain highly transmissible and /or epidemiologically-important pathogens, based on the specific mode of their transmission. They are always applied in addition to Standard Precautions.

7. *Point of Care Risk Assessment and PPE Selection*
   Emphasized the strategic need for risk-based approach to IPC during patient/client engagement such as in selecting and using PPE. The importance of rational choice and use of appropriate PPE for the public was stressed. But more importantly, health workers should deploy point-of-care risk assessment (POCRA) to determine the most effective and safe PPE in their daily work routine.

8. *Hand Hygiene Demonstration and 5 Moments*
   Discussed the importance of hand hygiene and enumerated the five instances (moments) when every health worker should observe it:
   - Before patient contact
   - Before aseptic task
   - After bodily fluid exposure task
   - After patient contact
   - After contact with patient.



Hands-on hand washing demonstration

There was a hands-on demonstration of good hand washing steps by both facilitators and participants. Finally, the use of alcohol-based hand rub (ABHR) was presented. While hand sanitizers are useful in the absence of hand washing fonts and liquid soap, they are not to be applied when the hands are obviously soiled with organic filths.

9. *Healthcare Waste Management*
   Provided an overview of hazards of healthcare waste management including sharps handling. The waste produced in healthcare facilities are best processed by instituting a sanitary system, beginning with training and provision of necessary job aids and reminders for the personnel as well as providing the appropriate PPE and colour-coded bags and waste bins. In all, segregation at point of generation ensures safety, efficiency and cost-effectiveness of this inevitable component of healthcare service delivery.

Both within the context of COVID-19 and beyond the pandemic, sanitary management of healthcare waste is a public health imperative. Consequently, both proprietors and operators of healthcare institutions are jointly and severally responsible to ensure policies and protocols and materials are available to prevent healthcare worker as well as nosocomial (hospital-acquired) infections for patients, their significant others and the general public.

Categories of waste bags/containers

a. Black – general waste, non-risk and not infectious (domestic waste).
b. Yellow – infectious waste. Sharps boxes (puncture-proof)
c. Red – highly infectious waste (all waste generated in the suspect and confirmed wards)
d. Brown – pharmaceutical waste and some chemical waste)

10. Cleaning and Decontamination. Linen Management

Discussed the different types and degrees of removing pathogenic agents from an object. Environmental cleaning is a fundamental intervention for infection control, because environmental contamination plays huge role in the transmission of infections within health care settings. The key terms are:

- Cleaning – is the general removal of organic matter (dirt, food, blood, saliva, and other body secretions) that contribute to the proliferation of bacteria and viruses.
- Disinfection – is the process of removing significant amount of pathogens that cause infection or disease and must be preceded by cleaning. Only items and surfaces. Disinfection is not done to remove all contaminants, but instead reduce the amount of contamination.
- Decontamination – the process of decreasing microbial presence in an area or on a surface.
- Sterilization - is a type of decontamination along with disinfection and antisepsis. Used for instruments that touch inside human bodies (invasive procedures).

11. Triage in Healthcare Facilities: Screen. Isolate and Notify

This module provided an understanding on case definition (which is currently very iterative), additional controls for COVID-19 infections. It dovetailed into the module which explained the operational concept of Screen, Isolate and Notify (SIN) in the management patients in health facilities.

A. Screened for relevant exposure (at least one of the following):

- Recent (<14 days) travel to high risk zone
- Close contact with confirmed cases of COVID-19
- Exposure to healthcare facility in a country/state where COVID-19 infections have been reported

- Close contact with a person who came back from any of the high risk zones or countries in the previous 14 days.

B. Moving from screening to Isolation

If patient has symptom and exposure, move patient to holding area and Isolate the patient using appropriate IPC criteria. Specifically isolate patients with suspected respiratory symptom and signs including possible difficulty in breathing (dyspnoea).

In the Isolation/holding area, place the individual in single room with adjoining dedicated toilet. But if single room is unavailable:

- Place/cohort patients in specific confined areas
- Place at 1 meter (3 feet)

C. Notify the authorities at the state or local government area.

In the context of COVID-19 and the heightened sense of fear and trepidation among health workers, the key messages are:

- Don't turn patient away = TRIAGE all
- Symptoms + EXPOSURE = Suspect
- Suspects = keep in holding room and Notify
- Protect yourself = Distance + appropriate PPE

Therefore, the **Risk-based Approach to PPE** as a component of the infection prevention and control intervention is about: Eliminating, Minimizing or Preventing the RISK of acquiring infection during the provision of healthcare services. Thus a point of care risk assessment (POCRA) should be done to ensure the right kind of actions and equipment (including PPE) are used to eliminate, minimize or prevent the risk of pathogen transfer.

12. Donning and Doffing of PPEs

There were practical demonstrations of donning and doffing of PPEs with special emphasis on COVID-19 as well as case scenarios on PPE choice.

13. Establishing IPC Programmes

Infection prevention and control are an integral component of healthcare education and service provision. It envisages the following operative aspects:

- A universal expectation aiming to prevent or control the spread of infections with the health care facility environment
- IPC programme – surveillance and other activities deigned to reduce the spread of infections, usually within the HC facility.
- To keep an eye on the rates of infections transmitted in the healthcare facility
- To investigate and stop transmission of such infections
- Prevent susceptible patients acquiring pathogenic micro-organisms

- To limit the spread of antimicrobial resistant infections

It was advised that an Infection Control Manual should be provided for every new employee which is consistent with the following World Health Organization's 8 components of IPC:

1. IPC programmes
2. IPC guidelines
3. IPC education and training (see WHO website for IPC training)
4. Surveillance
5. Multimodal strategies – entrenching behavioural change
6. Monitoring/audit of IPC practices and feedback
7. Workload, staffing and bed occupancy
8. Built environment, materials and equipment

Conclusion

At the end of the presentations, feedbacks were elicited from participants who attended the ToT via Zoom Meeting platform. They were unanimous in commending the organizers and facilitators of the ToT workshop. They expressed enthusiasm over the capacity strengthening they acquired by participation, and were hopeful that the lessons and skills would be useful and helpful in their work at their respective duty stations in supporting the health facilities they engage with. Even though they experienced some hiccups with the sound quality during some of the sessions, but would make up with the resource materials.

The post-test conducted was less frightening to participants than the pre-test, indicating a positive educational effect. The data is being analyzed by the NCDC team. Also, there was an Evaluation form completed by the participants.

Attendance and Participation

A total of forty-two participants attended the training workshop. Twenty-three persons participated physically, while 19 joined the sessions via Zoom Meeting Platform from their field locations in Enugu, Asaba, Benin, Owerri, and Maiduguri. They were from various organizations, viz:

1. Catholic Secretariat of Nigeria - 6 (2 females, 4 males)
2. Catholic Caritas Foundation of Nigeria – 19 (7 females, 12 males). Thirteen joined via Zoom platform
3. Catholic Relief Services – 3 (1 female, 2 males)
4. National Agency for the Control of AIDS – 4 (3 females, 1 male)
5. Greenview Scientific – 1female
6. Healthcare International (HMO) – 1 male (via Zoom platform)

7. Other organizations – 8 (1 female, 7 males).

There were eighteen medical doctors, 19 other health workers (nurses, pharmacists, and social workers), two reverend sisters, and three hospitality managers from the Catholic Resource Centre who found the sessions relevant for their personal and occupational application.



Group photograph in front of CSN Resource Centre

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