Step 2.12 Infection Prevention and Control in a health care setting

© Photo by Matt-B on Flickr

In this article, Emilio Hornsey, Senior Infection Prevention and Control Nurse for the UK Public Health Rapid Support Team writes about Infection Prevention and Control for COVID-19 in a health care setting. As you read it, consider how these measures are or could be implemented in your setting.

The aims of Infection Prevention Control in the context of an outbreak of a novel acute respiratory infection such as SARS-CoV-2 causing COVID-19, are to promptly identify and treat any suspect or confirmed cases in such a way as protects the staff and patients in the rest of the health facility[1]. If health facilities become compromised during an outbreak this can both fuel the wider outbreak and impact broader health services to the detriment of the population.

Measures should be planned proactively and involve systemic preparation from the facility as a whole, as well as health care workers' individual actions. Preparation for outbreaks involves a mix of activities in health care facilities, from sensitisation of staff and visitors, to supply of consumables and managing the infrastructure and layout of the facility. A useful first step is to undertake a thorough assessment of

preparedness; there are some tools openly available to do this which will help highlight gaps and prioritise actions[2, 3, 4].

A key intervention is heightened surveillance within the facility. Early detection and isolation of cases will minimise risk of transmission. Screening on admission is commonly employed; for this to be effective staff need to be trained to observe for symptoms and there needs to be a controlled entrance for admissions to the hospital. It is also important to maintain heightened surveillance in wards and other departments as patients may only start to show symptoms further into their hospital admission. To do this all clinical staff should have awareness of the case definition for suspect cases and know how to identify and report cases.

Once suspected cases are identified the facility needs a designated area for treatment, which minimises risk of transmission to others. Some health facilities will have isolation rooms, others will have a ward where patients with COVID-19 are brought (cohorted) together. Individual isolation rooms are gold standard for suspected cases. Cohorting patients together risks transmission of disease between patients where some are and some are not infected.

The flow and transfer of patients should be planned, including location of isolation rooms and wards – where do patients have to travel from and to in the hospital to reach them? How is the room linked to other departments, sanitary and ventilation systems? Consider the need for intensive care level treatment, and how and where that will be delivered.

There are many different possible hospital layouts, and they all have different considerations in outbreaks. Even if national guidance documents are available (examples in references 5-10) they will have to be interpreted according to local circumstances. Local standard operating procedures, algorithms or policies should be developed and disseminated where required.

Transmission based precautions

The World Health Organization currently recommends standard droplet and contact precautions are employed for all suspected and confirmed COVID-19 cases[8]. Patients should be isolated and wear a mask if they have to transit through shared areas. Staff should wear gloves, gown, eye protection and a medical mask within 1m of the patient as a minimum. More extensive environmental cleaning should be conducted using any of the readily available detergents or disinfectants[11]and airborne precautions implemented during aerosol generating procedures.

Airborne precautions include isolating the patient in a naturally well ventilated room or with negative pressure ventilation. Health care workers should wear a fit tested respirator such as an N95, see guidance from the United States Centres for Disease Control[9], or FFP3 see UK guidance[12]when treating the patient. Specific Personal Protective Equipment guidance for COVID-19 has been published[12, 13, 14, 15]each with subtle differences specific to each health system.

Challenges in implementation

Challenges in implementation exist at all levels of the health system. In countries without a comprehensive national programme for infection prevention and control, specialist training programmes and dedicated staff to implement national guidance, it is more challenging to implement infection prevention and control as part of outbreak preparedness or response.

Surveillance and triage is challenging as the symptoms of COVID-19 are similar to many other acute respiratory viral infections. Case definitions may change as epidemiological situation evolves and this will put pressure on health services as the number of suspect cases increases.

It is difficult to prioritise which infection control measures to focus on, especially in areas with limited resources. In overcrowded health facilities it is often particularly challenging to maintain social distancing in shared waiting areas and find a suitable space to dedicate for isolation of suspect and confirmed cases.

Consumables such as expensive imported and bulky Personal Protective Equipment can put a huge additional strain on finance and logistic chains in an outbreak. Guidelines such as the World Health Organization rational use guidelines may help minimise wastage.[15]

In such a rapidly evolving outbreak it is important to keep up to date with national and international recommendations.

International and regional guidance can be found at dedicated COVID-19 websites hosted by World Health Organization, European Centres for Communicable Disease Control and Africa Centre for Disease Control.

Many national Public Health agencies are also synthesising the evidence for their own circumstances and have published specific national guidance. Some examples of these are from the UK, Nigeria and United States as in the See Also section.

See Also

WHO Country & Technical Guidance - Coronavirus disease (COVID-19)

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance-publications

European Centre for Disease Prevention and Control Guidance

https://www.ecdc.europa.eu/en/coronavirus

Africa CDC Guidance

https://africacdc.org/

LSHTM Viral podcast – Prevention, protection, and paediatrics during COVID-19

https://anchor.fm/lshtm/episodes/S1E9-Prevention--protection--and-paediatrics-during-COVID-19-eauem1/a-a1hoai1

Environmental Cleaning in Resource-Limited Settings

https://www.cdc.gov/hai/prevent/resource-limited/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhai%2Fprevent%2Fresource-limited%2Fenvironmental-cleaning.html

TEACH CLEAN

https://www.lshtm.ac.uk/research/centres/march-centre/soapbox-collaborative/teach-clean

COVID-19: protecting health-care workers

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30644-9/fulltext