Management and control of COVID-19 outbreaks in healthcare settings

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Introduction:

Transmission of SARS-CoV-2 in healthcare settings has significant implications for patients and healthcare workers (HCWs). It may amplify local outbreaks and place additional burden on already stretched resources. Breaches in infection control measures such as low adherence with hand hygiene, errors in handling or not wearing adequate personnel protective equipment, as well as lack of HCW distancing in offices and commonly used hospital spaces has been related to increased risk of transmission among HCW. Transmission to patients may result from direct contact with other patients, or from infected asymptomatic or pauci-symptomatic HCW and visitors (to a much lesser extent). Given the median incubation period of 5 days and high transmissibility before and at the time of symptom onset, strategies to test and isolate symptomatic cases only may be insufficient to prevent nosocomial transmission, especially during periods with high community transmission. This updated document complements the series of guidance documents already published by Swissnoso (www.swissnoso.ch). It is primarily intended for acute care settings. Recommended measures may need adaption to the local setting (resources, epidemiology etc.).
Consistent with our previous recommendation, we would like to reiterate that infection prevention and control measures do not need to be adjusted even in the event of outbreaks with circulating SARS-CoV-2 variants.

Healthcare associated (HA) COVID-19

No uniform definition exists for determining when a covid-19 infection is considered acquired in healthcare. Other countries and international guideline even apply different categories depending on the time of occurrence of new clinical, laboratory or radiological features after admission, and by considering the likelihood of healthcare transmission. For practical reasons and being in line with the hospital-based surveillance on covid-19 initiated by the BAG, Swissnoso recommends a unified definition for all acute care settings considering the mean incubation time of 5 days.
Please note: When identifying a possible HA COVID-19 case but history, laboratory (PCR or serology) or radiology is suggestive of previous COVID-19 infection on admission, a case-by-case assessment is required considering possible re-infection versus detecting remnant virus. Please see also the accompanying document on covid-19 testing.

HA COVID-19	• New onset of symptoms AND/OR a positive test result AND/OR a CT scan suggestive of COVID-19 five or more days after admission AND a strong suspicion of healthcare transmission
HA COVID-19 outbreak	• Detection of ≥ 3 HA COVID-19 cases (patients, HCW) with a possible temporal (within 72 hours of each other) or local link

KEY TO CONTROL an imminent nosocomial outbreak of COVID-19 is rapid Detection, Isolation, Testing and Contact Tracing.

1. General preventive measures

Universal masking in addition to excellent standard precautions	• Universal masking is strongly recommended as additional element complementing standard precautions, at least if maintaining a minimum distance of 1.5m between people and personnel is not possible
COVID-19 Immunization	• Promote COVID-19 immunization among HCWs and high-risk patients whenever the vaccine supply is locally available
Prevent potential superspreading events	• Optimize patient flow in waiting areas • enhance engineering controls e.g., partitions to protect against respiratory droplets or improve ventilation systems in rooms dedicated for aerosol generating procedures • Social gatherings among HCW (especially in closed poorly ventilated spaces) should be prohibited • COVID-19 suspected cases should not be placed in multi-bedrooms (see also under ward organization)
Syndromic surveillance	• Syndrome-based surveillance in patients and HCWs is strongly recommended to rapidly identify and test suspected COVID-cases following the clinical and epidemiological criteria issued by the Federal Office of Public Health (FOPH)

Universal screening of patients upon hospital admission	• Universal admission screening of patients with PCR or rapid antigen tests can be considered to prevent unnoticed importation of COVID-19 in an institution. As with other screening strategies (e.g. active surveillance in suspected clusters of healthcare-associated transmission), there are important aspects that need to be considered:
	  ○ Detecting positive "cases" by means of PCR will also include people with past infections and those with carriage without symptoms who are identified too late to make much difference to onward transmission. The risk of placing them unnecessarily into isolation therefore needs to be balanced against the potential benefits.
	  ○ When community transmission is low (positivity rate < 5% or fewer than 20 new cases of COVID-19 per 100,000 persons within the last 14 days), the likelihood of false positive test results increases and should be carefully considered in the presence of cases detected either with very low viral load or with a positive rapid antigen test.
	  ○ Screening alone does not replace taking a careful history of the exposure or possible past infection.
	  ○ Repeat testing and/or complementary tests (e.g. serology, determining the presence of a mutation to exclude a true reinfection) may be necessary in case of a doubtful result
	• Regarding testing algorithms please see also our "decision aid regarding covid-19 testing ….)

Ward organization	• Create cohorts for COVID-positive cases and, if feasible, cohort them in a separate floor or building with dedicated staff • Whenever possible, assign COVID suspected cases to single or double bedrooms with strict isolation "at the bedside" • presumed COVID-cases should be separated from non-Covid cases whenever possible • Generally, avoid placing unvaccinated/patients at high risk in multi-bedrooms (>2 beds) • assure excellent adherence to standard, contact and droplet precautions, respiratory hygiene, and social distancing

2. Recommended measures in case of suspected COVID-19 transmission

First measures upon detection of an incidental HA COVID-19 case	• Rule out false-positive cases and false alerts (see above): in selected cases, consider repeat PCR testing and serology before taking excessive action (e.g. patient transfer to COVID-19 cohorting unit) • Discuss tricky cases with ID specialists (e.g. possible reinfection vs false positive results in vaccinated patients or in patients with documented CoVID-19 during the 1st wave of the pandemic) Thereafter: • Inform affected ward(s) and audit infection control measures • Identify unprotected COVID-19 contacts (patients and HCW) using a standardized case report form for all contacts during the last 2 days (if possible go back to 1-2 days before symptom onset in the index case) • Report all unprotected COVID-19 contacts to occupational health • Implement quarantine measures for close (unprotected) contacts according to local standards • Perform active surveillance of close (unprotected) contacts (screening on day 0 and 5) in order to promptly identify and isolate positive cases[1] • If healthcare-associated infection is likely but no epidemiological link can be identified, consider ward wide screening of staff (and patients) in order to promptly identify and isolate asymptomatic infectious cases If resources are limited, consider such an approach in wards with patients at high risk for a severe course of the disease (e.g. geriatric wards, oncology, etc.)
Enhance compliance with extended standard precaution measures	• Identify potential barriers for optimal adherence, e.g. through on-site visits, provision of observation, feedback and education • Assure adequate stocks and availability of PPE (regular written updates on stock required) • Offer teaching and training of HCW in optimal implementation of standard precautions, proper use of PPE, and environmental decontamination
Re-emphasize social distancing measures	• Regularly remind HCW and patients through various channels (posters, public screens etc.) to keep a distance of ≥ 1.5 m whenever possible (with a special focus on multi-bedrooms, shared areas such as nurse/doctor offices or recreational rooms) and to wear a face mask if social distancing is not possible

[1] With increasing numbers of contacts and/or limited resources cohorting and passive surveillance may be more sustainable and equally effective

3. Difficult to contain COVID-19 outbreak – overview of additional possible containment measures

Enhance systematic case finding	• Enhance systematic case finding among hospitalized patients and HCWs
	• If numbers of contacts are becoming high, contact tracing and follow-up can be prioritized to the highest-risk exposure contacts (e.g., patients with longer exposure) or those with higher impact in case of transmission (e.g., those HCW involved in direct patient care or working with most vulnerable patients)
	• In addition:
	  ○ Consider introducing periodical testing of hospitalized patients (incl. asymptomatic or pre-symptomatic patients), e.g. weekly screening surveys in affected wards
	  ○ Consider introducing periodical testing of HCW, e.g. weekly screening of HCWs working in high-risk areas (intensive care units)
	  ○ If transmission is ongoing, consider point-prevalence screening in other non-affected wards

Ward organization	• If transmission is ongoing, relocate all COVID-19 contacts to a designated quarantine area • Consider ward closure for new admissions if more than 5 nosocomial cases or transmission is ongoing despite taking adequate measures
General considerations in case of high community transmission	• Prohibit visitors (if a visitor ban is not already in place) with very few exceptions for special circumstances (e.g. dying patient, during delivery, children) and ask for a negative test within the last 48 hours • Suspend outpatient clinics • Restrict hospital admissions for non-urgent interventions • Declare the outbreak to the local public health authorities

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