Aerosol Generating Medical Procedures (AGMP) – Infection Prevention and Control

Site Applicability

All Providence Health Care (PHC) Sites

Practice Level

- All PHC staff working directly or indirectly with patients or residents

Need to Know

Purpose

To prevent transmission of infection associated by artificial manipulation of patient/resident/client's[1] airway.

Standards

Aerosol generating medical procedures (AGMP) are medical procedures carried out on a patient, which can induce the production of aerosols. List and categories of AGMPs may be acquired from the Provincial Infection Control Network of British Columbia created by the BC AGMP expert working group.

AGMPs present a risk for opportunistic transmission of airborne pathogens, viral hemorrhagic fever (VHF) and viral respiratory illnesses (VRI). Thus, an essential AGMP for a patient presenting with suspected or confirmed airborne pathogen, VHF and/or VRI must include a point-of-care risk assessment (PCRA), use of personal protective equipment (PPE), and environmental evaluation. Use Appendix A to guide assessment. Assessment should be performed prior to initiation of all AGMPs.

Airborne Infection Isolation Room (AIIR) is required for all patients with suspected or confirmed airborne pathogens or VHF. In an emergency situation where, above assessment cannot be completed, healthcare workers (HCWs) should use the highest level of respiratory protection. Furthermore, all essential AGMPs for patients with suspected or confirmed airborne, VHF & VRI pathogens require the HCW to wear an N-95 respirator.

Guideline

All patients requiring an AGMP should be carefully assessed for signs and symptoms of

- known or suspected infection transmitted by the airborne route such as tuberculosis, varicella zoster virus, measles.

[1] Referred to as 'patient' for the remainder of the document.

- known or suspected VHF such as Ebola
- known or suspected VRI such as such as Influenza A or B or other common seasonal respiratory viruses including respiratory syncytial virus, rhinovirus, enterovirus, adenovirus, human metapneumovirus, coronavirus, and parainfluenza virus; novel pathogens such as COVID-19, SARS, MERS-CoV, and/or avian influenza.

When aforementioned pathogens are not suspected or confirmed, deemed in conjunction with the clinical team, AGMP may proceed without additional considerations.

When aforementioned pathogens continue to be suspected or confirmed, deemed in conjunction with the clinical team, only essential AGMPs should be performed. Essential AGMPs are those that are required for the maintenance and care of a patient, when a non-AGMP cannot be used.

PCRA establishes the likelihood of exposure to the HCW, and other patients based on the type of procedure, duration of the procedure and the environment where the procedure will be performed. PPE should then be chosen to minimize the risk of staff exposure to infectious agents. **At minimum, all essential AGMPs for patients with suspected or confirmed aforementioned pathogens require a N-95 respirator**. In addition, eye protection, gown and gloves should be used based on likelihood of exposure to blood, bodily fluids, respiratory droplets, mucous membranes, and non-intact skin or additional precautions.

Environmental factors, such as patient placement and air clearance, should be assessed in conjunction with the clinical and operational team.

1. **AIIR is required for all patients with suspected or confirmed airborne pathogens and VHF.** AIIR are single-patient, private rooms with negative pressure, which also have their own toilet and hand washing sink. AIIR is recommended for suspected or confirmed VRI pathogens. When an AIIR is unavailable for patients with suspected/confirmed VRI only, placement options below should be used, listed in order or priority:
    a. Private or procedure room.
    b. Shared room where patients with same, confirmed VRI pathogens are cohorted.
    c. Shared room where patients do not have the same, confirmed VRI pathogen. For this scenario, ensure privacy curtains are drawn and remove any shared equipment from the patient zone, limit number of HCWs and proceed with the essential AGMP

2. Air Clearance represents the time in minutes necessary by the number of air exchanges

per hour to reduce airborne contaminants by 99% or 99.9%.

a. When specific air exchange rates for the room are known, refer to Appendix B to determine the air clearance rates.
b. When air exchanges are unknown in an acute care setting, all HCWs entering the room within an hour after AGMP must wear an N95 respirator. New patients should not be admitted into these rooms until 1 hour has surpassed.
c. When air exchanges are unknown in long-term care setting, all HCWs entering the room within two hours after AGMP must wear an N95 respirator. New patients should not be admitted into these rooms until two hours have surpassed.

Additional Considerations:

3. Due to a heightened risk for unplanned AGMPs, IPAC recommends all ventilated patients with VRI to be placed on Airborne, Droplet & Contact Precautions, refer to the Diseases and Conditions Table for duration of precautions
4. AGMP sign should be used for patients not already on Airborne precautions, for temporary AGMPs.
5. AIIR and Negative Pressure rooms at PHC may be found on the IPAC webpage on PHC Connect
6. Visitors/contractors should be instructed to check with the unit staff before entering the room while an AGMP is in progress.
7. Lack of AIIR or private rooms should not delay patient care. It is also acknowledged AGMPs will be performed in open bays or in shared rooms under certain circumstances. Appendix A specifies when this is acceptable.
8. For scenarios that do not meet guidelines or require additional support, contact IPAC for a risk assessment.

Related Documents

1. B-00-07-13081 - Point of Care Risk Assessment – IPAC Best Practice Guideline
2. B-00-07-13088 - Personal Protective Equipment (PPE) - Infection Control
3. B-00-07-13087 - Patient Placement Guideline - Infection Control
4. B-00-07-13028 - Airborne Precautions - Infection Control
5. B-00-07-13014 - Viral Hemorrhagic Fever (VHF)
6. B-00-07-13068 - Influenza and Other Viral Respiratory Infections

References

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Definitions

Aerosol generating medical procedures (AGMP): medical procedures carried out on a patient, which can induce the production of aerosols PPE

Airborne Infection Isolation Rooms (AIIR): single-occupancy, negative pressure rooms specifically designed to safely accommodate patients with active respiratory infections requiring Airborne or Airborne and Contact Precautions

COVID-19: COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus, SARS-CoV-2, and disease were unknown before the outbreak began in Wuhan, China, in December 2019.

Personal Protective Equipment (PPE): specialized clothing/equipment worn alone or in combination for protection against exposure to infectious microorganisms and to materials or

substances that may harbor infectious microorganisms. PPE includes gloves, gowns, eye protection, masks, and N95 respirators.

Point of Care Risk Assessment (PCRA): an assessment that includes the task, the patient and the environment at the start of each health care worker (HCW) and patient interaction

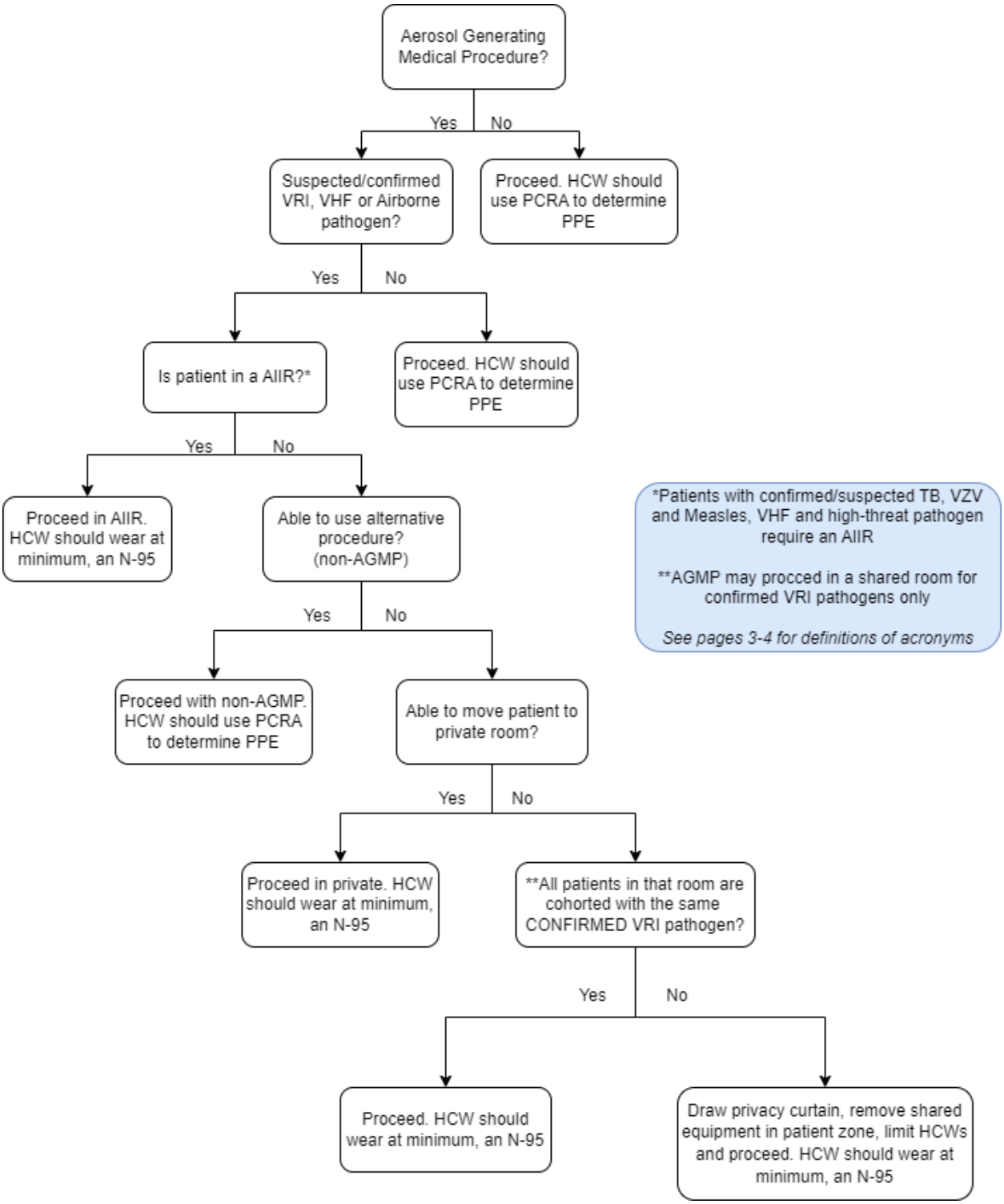
Viral Hemorrhagic Fever (VHF): severe multisystem syndromes characterized by fever, malaise, myalgia, and coagulation problems often accompanied by bleeding mainly caused by families of RNA viruses, such as arenaviruses (e.g. Lassa fever, LCMV), filoviruses (e.g. Ebola, Marburg), bunyaviruses (e.g. Hantavirus, Crimean-Congo hemorrhagic fever), and flaviviruses (e.g. Yellow Fever, Kyasanur Forrest disease); as well as other viruses (e.g. Rift Valley fever, Hendra Virus disease, Nipah Virus encephalitis).

Viral Respiratory Illness (VRI): encompasses respiratory illness caused by viral pathogens such as Influenza A or B or other common seasonal respiratory viruses including respiratory syncytial virus, rhinovirus, enterovirus, adenovirus, human metapneumovirus, coronavirus, and parainfluenza virus; novel pathogens such as COVID-19, SARS, MERS-CoV, and/or avian influenza.

Appendices

- Appendix A: Assessment Flow Chart
- Appendix B: Clearance Times

Appendix A: Assessment Flow Chart



Appendix B: Air Settle/Clearance Times

Table 1*: Time in Minutes needed (by number of air exchanges per hour) to Reduce Airborne Contaminants by 99% or 99.9%.

Air exchanges per hour	**99%**	**99.9%**
2	138	207
4	69	104
6	46	69
12	23	35
15	18	28
20	14	21

In general, 99% removal is considered adequate for a procedure room prior to allowing another patient to enter or staff to enter without an N95 respirator.

This table was adapted from CDC recommendations

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