



Fibreoptic Bronchoscopy

HKTS and ACCP (HK & Macau Chapter)

General principle & risk stratification

The risks of droplet generation and cross infection with bronchoscopy were well reported in literature. Guidelines on the standard of bronchoscopy and institutional precaution on tuberculosis were both established by international chest societies (BTS, ATS). The indication of bronchoscopy in every patient should be assessed by Respiratory specialist. Alternative investigation should be considered whenever possible. Pre-bronchoscopic risk stratification with respect to respiratory infection and SARS should be done to prevent or minimise cross infection.

Pre-bronchoscopy screening and risk stratification

Pre-bronchoscopic questionnaire, checking of body temperature, routine blood tests, chest XR should be done. Laboratory testing of SARS-CoV is indicated in suspected cases.

Approach to patients with fever

- Should maintain high index of suspicion for respiratory infection / SARS.
- **For patient with no fever and low risk of respiratory infection.** The minimal PPE suggested is N95. Environmental protection of aerosol transmission is optional.
- **For patients with fever but low risk of SARS,** patient has to be treated as airborne infection with full personal protection equipment (PPE) and environmental protection.
- **For patients with fever who are suspected or confirmed to have SARS,** bronchoscopy should be avoided as far as possible.

Bronchoscopic procedure & patient's precautions

Procedure part

- Day procedure should be considered as an option.
- Staff with fever or recent onset of chest symptoms should avoid attending the bronchoscopy session.
- System of closed-suction of bronchoscope should be checked before the procedure

Patient part

- Body temperature should be checked on the day of procedure
- Patient with fever / risk of airborne or droplet transmission should have the bronchoscopy performed as the last case of the list.
- All patients should wear a surgical mask throughout the procedure
- Pre-bronchoscopic sedation should be given to minimise aerosol generation
- Trans-nasal route of bronchoscopy is referred to trans-oral route

- To minimize patient coughing during the procedure: narcotic premedication and extra topical lignocaine can be given. Patient's mouth should be covered by double surgical masks.

Room & environment

- Bronchoscopy should preferably be performed in a room with at least 6 to 12 fresh air-exchanges per hour and negative pressure for patients with high risk of airborne or droplets transmission, droplets generation like coughing, and all patients with fever.
- If patient is already in an air-borne isolation room, to consider performing bronchoscopy in that environment (CDC). If airborne isolation room is not available, bronchoscopy should be performed in a private room away from other patients. If possible, steps should be taken to increase air exchange, create a negative pressure, and avoid recirculation of room air. If recirculation of air is unavoidable, the air must passed through a HEPA filter before re-circulation (CDC)
- Bronchoscopist and assistants should avoid standing within the path of airflow from patient to air-conditioning exhaust ducts.
- Patients with fever are separated from other patients in both the reception and the recovery area.
- Disinfection of fomite should be performed between cases: using by 1 in 49 dilution hypochlorite (for non-metallic items) or 70% alcohol (metallic items) Grossly contaminated items should be discarded and replaced

Personal protection of staff

- The minimal protection for staff who perform or assist bronchoscopy is N-95. For patients with fever or risks of airborne or droplet transmission, staff is advised to wear protective eye wear, cap, single or double gown (the top one disposable and used one for each case), and surgical glove.
- Change glove and gown for each patient
- Change cap/ eye protection wear /mask if spillage occurs
- For patient who has fever or cough, full-face shield is advisable
- Shower and shampoo are advisable after performing bronchoscopy.

Disinfection of equipment

- The procedure of decontamination and disinfection of bronchoscope should adhere strictly to manufacturer's guidelines. To avoid fomite transmission between cases, linen of operative bed, suction and oxygen devices, monitoring probes and devices, etc should be disinfected or changed as appropriate.

Infection precaution of specimen

- Specimen bottle should be well capped and put in plastic bag with 'Infectious' label. The plastic bag with the specimen is put in another plastic bag with the request form.

References

1. Institutional control measures for tuberculosis in the era of multiple drug resistance. ACCP/ATS Consensus Conference. American College of Chest Physicians and the American Thoracic Society. Chest. 1995 Dec;108(6):1690-710
2. Hannan MM, Azadian BS, Gazzard BG, Hawkins DA, Hoffman PN. Hospital infection control in an era of HIV infection and multi-drug resistant tuberculosis. J Hosp Infect. 2000 Jan;44(1):5-11

3. British Thoracic Society Bronchoscopy Guidelines Committee, a Subcommittee of Standards of Care Committee of British Thoracic Society. British Thoracic Society guidelines on diagnostic flexible bronchoscopy. *Thorax*. 2001 Mar;56 Suppl 1:i1-21
4. Center of Disease control. Interim Domestic Infection Control Precautions for Aerosol-Generating Procedures on Patients with Severe Acute Respiratory Syndrome (SARS), accessed 22 December, 2003 at <http://www.cdc.gov/ncidod/sars/aerosolinfectioncontrol.htm>

The information and opinions expressed in these guidelines are provided to the best of our knowledge and understanding at the time of drafting (January 2004), and must be cross-referred to the most updated literature upon application.