



Supplement C: Preparedness and Response in Healthcare Facilities

Appendix C1

Matrices for SARS Response in Healthcare Facilities

Framework for Contingency Planning

SARS-CoV transmission risks in healthcare facilities depend not only on the extent of SARS activity in the community and world but also on the level of SARS activity in the facility. Recommended strategies for SARS response are therefore based on the following framework, which provides options for escalating or otherwise modifying control measures based on facility-specific categories of SARS activity and transmission risks.

Categories of SARS Activity and Transmission Risk in a Healthcare Facility

No cases of SARS in the facility – Healthcare facilities in this category are those in which:

- No potential or known SARS patients are being cared for as inpatients or outpatients, AND
- No known transmission of SARS-CoV to patients, visitors, or healthcare workers has occurred.

A few cases in the facility, but all cases are imported (NO nosocomial transmission) – Facilities in this category are those that are providing care to a limited number of potential or known SARS cases as inpatients or outpatients (e.g., in the emergency department) but in which no recognized SARS-CoV transmission to other patients, visitors, or healthcare workers has occurred.

A larger number of SARS cases in the facility OR nosocomial transmission with all cases linked to a clearly identified source – Facilities in this category include those with an elevated risk of transmission due to:

- A large number of SARS patients,
- A significant number of unprotected exposures among patients, visitors, or healthcare workers, OR
- Transmission to other patients or to healthcare workers under circumstances in which the exposures are clearly understood and control measures are in place to prevent further spread.

Cases attributed to nosocomial transmission with NO clearly identified source – Facilities in this category include those with nosocomial transmission of SARS-CoV in which the presence of unlinked cases (i.e., cases in which the exposure risk cannot be clearly identified) makes it difficult to determine which patients and visitors may have been exposed; therefore, all new-onset febrile illnesses in patients and staff may represent SARS-CoV disease.

Matrices for SARS Response in Healthcare Facilities

The matrices on the following pages summarize suggested SARS control measures in healthcare facilities.

- For the **inpatient and emergency department settings** (Matrix 1), control measures depend on both the level of SARS activity in the facility and in the community. If SARS patients are seen in the

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facility's emergency department but no SARS patients are admitted to the facility, the **emergency department** may require more extensive control measures than the inpatient areas.

- In the **outpatient and long-term care settings** (Matrix 2 and Matrix 3), control measures depend on the level of SARS activity in the community.

These matrices are intended to provide guidance on potential control measures. Facilities will need flexibility in implementing control measures because requirements will likely change as an outbreak progresses and more information becomes available.

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Matrix 1: Recommendations for Inpatient Facilities and Emergency Departments

Level of SARS activity	Suggested actions
No cases of SARS in the facility	<p>1) Triage activities/facility access controls</p> <ul style="list-style-type: none"> ● Notify the SARS coordinator or designee of any transfers from facilities that have SARS cases. ● In accordance with recommendations for respiratory hygiene/cough etiquette, instruct all patients with respiratory illnesses to perform hand hygiene and cover the nose/mouth when coughing or sneezing. Manage these patients with Droplet Precautions until determined that they are not needed. ● In the presence of person-to person SARS-CoV transmission in the world but no known transmission in the area around the facility: <ul style="list-style-type: none"> ○ Place signs at all entry points detailing symptoms of and current epidemiologic risk factors for SARS and directing persons meeting these criteria to an appropriate area for evaluation. ○ Initiate screening of patients on entry to the emergency department for symptoms and epidemiologic links suggesting SARS. Patients with fever or lower respiratory symptoms and SARS risk factors should perform hand hygiene, wear a surgical mask (if possible), and be isolated in accordance with the recommendations in Supplement I. If airborne isolation is not possible, consider cohorting, with all patients wearing surgical masks. Evaluate patients according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). ○ If a patient's risk of exposure to SARS-CoV is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include other early symptoms of SARS-CoV disease. ● In the presence of SARS-CoV transmission in the area around the facility: <ul style="list-style-type: none"> ○ All persons should perform hand hygiene on entry. ○ Actively screen all persons entering the facility for fever and lower respiratory symptoms. All patients presenting with fever or lower respiratory symptoms should perform hand hygiene, wear a surgical mask (if possible), and be isolated for SARS in accordance with the recommendations in Supplement I. If airborne isolation is not possible, consider cohorting, with all patients wearing surgical masks. Evaluate patients according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). ○ If a patient's risk of exposure to SARS-CoV is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include other early symptoms of SARS-CoV disease. ○ Intake/triage staff should follow SARS infection control and PPE guidance, as specified in Supplement I. ○ Limit visitors (e.g., one per patient per day). ○ Screen all visitors for SARS risk factors and symptoms. ○ Limit elective admissions and procedures. ○ Consider designating an area as a "SARS evaluation center" and sending all patients presenting with fever or respiratory symptoms to the center for evaluation.

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Matrix 1: Recommendations for Inpatient Facilities and Emergency Departments (continued)

Level of SARS activity	Suggested actions
No cases of SARS in the facility (continued)	<ol style="list-style-type: none"> 2) Patient placement <ul style="list-style-type: none"> • In the presence of person-to-person SARS-CoV transmission in the world but NO known transmission in the area around the facility: <ul style="list-style-type: none"> ○ Patients presenting with fever or lower respiratory symptoms <i>and</i> epidemiologic risk factors for SARS should perform hand hygiene, wear a surgical mask (if possible), and be isolated for SARS in accordance with the recommendations in Supplement I. If airborne precautions are not possible, consider cohorting, with all patients wearing surgical masks. Evaluate patients according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). ○ If a patient's risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or lower respiratory symptoms, the other early symptoms of SARS-CoV disease. • In the presence of person-to-person SARS-CoV transmission in the world but NO known transmission in the area around the facility: <ul style="list-style-type: none"> ○ Patients presenting with fever or lower respiratory symptoms should perform hand hygiene, wear a surgical mask (if possible), and be isolated in accordance with the recommendations in Supplement I. If airborne isolation is not possible, consider cohorting, with all patients wearing surgical masks. Evaluate patients according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). ○ If a patient's risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or lower respiratory symptoms, the other early symptoms of SARS-CoV disease. 3) Designated personnel <ul style="list-style-type: none"> • Assign only selected, trained, and fit-tested emergency department staff to evaluate possible SARS cases. Staff should follow SARS infection control and PPE guidance, as specified in Supplement I. 4) Surveillance <ul style="list-style-type: none"> • Depending on directives from local/state health departments, consider reporting of patients requiring hospitalization for unexplained pneumonia who have risk factors for SARS, as specified in Supplement B. 5) Healthcare worker restrictions <ul style="list-style-type: none"> • Healthcare workers should notify the SARS coordinator at each facility where they work and have at least daily symptom checks if: <ul style="list-style-type: none"> ○ They are caring for a SARS patient in another facility. ○ They are also working in another facility that has reported nosocomial SARS-CoV transmission. ○ They have close contact with SARS patients outside the hospital.

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Matrix 1: Recommendations for Inpatient Facilities and Emergency Departments (continued)

Level of SARS activity	Suggested actions
<p>A few cases in the facility, but all cases are imported (NO nosocomial transmission)</p>	<ol style="list-style-type: none"> 1) Triage activities/facility access controls <ul style="list-style-type: none"> • Same as for “No cases of SARS in the facility.” Add: • No visitors to SARS patients unless necessary (e.g., parents, translators); visitors must receive infection control training. • Designate specific SARS patient-flow routes (e.g., emergency department to designated elevator to AIIR; AIIR to radiology). • Clean rooms housing SARS patients in accordance with current recommendations (see Supplement I). 2) Patient placement <ul style="list-style-type: none"> • Same as for “No cases of SARS in the facility.” Add: • Place admitted known or potential SARS patients in AIIRs if available. • Consider cohorting admitted patients in private rooms on designated SARS units, depending on personnel and availability of AIIRs. Modify designated floors/rooms as possible. 3) Designated personnel <ul style="list-style-type: none"> • Same as for “No cases of SARS in the facility.” Add: • Assign only selected, trained, and fit-tested staff to SARS patient care (includes designated ancillary personnel). • Assign a selected, trained, and fit-tested team with access to appropriate respiratory protection (see Supplement I) for emergency resuscitation or respiratory procedures in known or potential SARS patients. 4) Surveillance <ul style="list-style-type: none"> • Conduct active surveillance targeted to healthcare workers providing care to SARS patients (e.g., symptom monitoring). 5) Healthcare worker restrictions <ul style="list-style-type: none"> • Same as for “No cases of SARS in the facility.” Add: • No eating or drinking in SARS patient-care areas. • Furlough healthcare workers with unprotected exposures to SARS patients during high-risk procedures, and institute checks to evaluate possible symptoms. • Healthcare workers with other (non-high-risk) unprotected exposures to a SARS patient should undergo checks for possible symptoms. Furlough of these workers could be considered.

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Matrix 1: Recommendations for Inpatient Facilities and Emergency Departments (continued)

Level of SARS activity	Suggested actions
<p>A larger number of SARS cases in the facility OR nosocomial transmission with all cases linked to a clearly identified source</p>	<ol style="list-style-type: none"> 1) Triage activities/access controls <ul style="list-style-type: none"> • Same as for “A few cases in the facility but all cases are imported.” Add: • Regardless of the level of SARS activity in the community around the facility: <ul style="list-style-type: none"> o Limit visitors (e.g., one per patient per day). o Maintain a log of all visitors to SARS patients to aid in contact tracing. o Limit elective admissions/procedures. o All healthcare workers and visitors should have a fever check and perform hand hygiene on entry. 2) Patient placement <ul style="list-style-type: none"> • Same as for “A few cases in the facility but all cases are imported.” Add: 3) Designated personnel <ul style="list-style-type: none"> • Same as for “A few cases in the facility but all cases are imported.” 4) Surveillance <ul style="list-style-type: none"> • Implement active healthcare worker surveillance (symptom monitoring) throughout the facility. • Monitor all healthcare worker absenteeism and illnesses (e.g., through the occupational medicine clinic); evaluate for links to known SARS cases. • Monitor for and evaluate all new fevers and lower respiratory illnesses among patients. Place any patient with unexplained fever or lower respiratory symptoms on SARS precautions, and evaluate in accordance with the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). • If a patient's risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or lower respiratory symptoms, the other early symptoms of SARS-CoV disease. 5) Healthcare worker restrictions <ul style="list-style-type: none"> • Same as for “A few cases in the facility but all cases are imported.”

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Matrix 1: Recommendations for Inpatient Facilities and Emergency Departments (continued)

Level of SARS activity	Suggested actions
Cases attributed to nosocomial transmission with NO clearly identified source	<ol style="list-style-type: none"> 1) Triage activities/access controls <ul style="list-style-type: none"> • Same as for "A larger number of cases or linked transmission." Add: • No visitors allowed in hospital unless necessary (e.g., parents, translators); visitors must receive infection control training. • Close emergency department and facility to admissions and transfers. 2) Patient placement <ul style="list-style-type: none"> • Same as for "A larger number of cases or linked transmission." Add: • Consider cohorting patients and staff to care for patients in the following categories: <ul style="list-style-type: none"> o Afebrile patients with no close SARS contact -- discharge as soon as medically indicated o Afebrile patients with close SARS contact -- discharge as soon as medically indicated, with contact restrictions and health department follow-up per recommendations in Supplement D o Febrile or symptomatic patients not meeting case definition o Patients meeting case definition 3) Designated personnel <ul style="list-style-type: none"> • Same as for "A larger number of cases or linked transmission." Add: • All persons in the facility should wear a surgical mask when not providing patient care (this is not meant to serve as SARS PPE but to limit potential SARS-CoV transmission from someone who develops SARS). When in contact with SARS patients, all persons should continue to follow SARS infection control guidance and PPE as specified in Supplement I. 4) Surveillance <ul style="list-style-type: none"> • Same as for "A larger number of cases or linked transmission." Add: • Place any patient with new fever or lower respiratory illness (not just unexplained) on SARS precautions and evaluate in accordance with the SARS clinical algorithm. • If a patient's risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or lower respiratory symptoms, the other early symptoms of SARS-CoV disease. 5) Healthcare worker restrictions <ul style="list-style-type: none"> • Same as for "A larger number of cases or linked transmission." Add: • Depending on staffing issues, either: <ul style="list-style-type: none"> o Implement home/work restrictions for all healthcare workers in the facility, or o Restrict movement to work and home for all healthcare workers who worked in an area of the facility where nosocomial transmission may have occurred.

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Matrix 2: Recommendations for Outpatient Facilities/Areas

Level of SARS activity	Suggested actions
<p>No person-to-person SARS transmission reported anywhere in the world</p>	<ol style="list-style-type: none"> 1) Patient screening and precautions <ul style="list-style-type: none"> • In accordance with recommendations for respiratory hygiene/cough etiquette, instruct all patients with symptoms of a respiratory infection to perform hand hygiene and cover the nose/mouth. Manage these patients with Droplet Precautions until it is determined that they are not needed. If there are likely to be delays in moving patients out of the waiting area, consider dividing the area so that patients with respiratory illnesses do not sit near others. 2) Healthcare worker precautions <ul style="list-style-type: none"> • Healthcare workers seeing patients with respiratory illness should use Droplet Precautions. • During respiratory illness season, intake/triage staff should practice frequent hand hygiene and could be given the option of wearing surgical masks. 3) Infrastructure issues <ul style="list-style-type: none"> • The facility will need a supply of waterless hand-hygiene products, surgical masks, and other applicable PPE and will need to consider the logistics of implementing a respiratory hygiene/cough etiquette strategy.

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Matrix 2: Recommendations for Outpatient Facilities/Areas (continued)

Level of SARS activity	Suggested actions
<p>Presence of person-to-person SARS transmission worldwide but no known transmission in the area around the facility</p>	<ol style="list-style-type: none"> 1) Patient screening and precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission in the world.” Add: • Screen all patients and visitors with fever or lower respiratory symptoms for SARS epidemiologic links (e.g., travel to endemic areas or contact with known cases). • Instruct anyone with fever or lower respiratory symptoms and epidemiologic risks for SARS to wear a surgical mask (if tolerated) and to perform hand hygiene. Place these patients immediately in a private room. Transfer these patients as soon as possible to a facility where they can be isolated appropriately during the evaluation. Notify receiving facilities that the patient is being sent for evaluation of SARS. • If a patient’s risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or lower respiratory symptoms, the other early symptoms of SARS-CoV disease. • Manage outpatients in accordance with <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). 2) Healthcare worker precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission in the world.” Add: • Healthcare workers who are in direct contact with patients who might have SARS should wear full SARS PPE (see Supplement I). 3) Infrastructure issues <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission in the world.” Add: • The facility will need a supply of PPE (e.g., gowns, gloves, eye protection, respirators [N-95 or higher level]).
<p>Known transmission in the area around the facility</p>	<ol style="list-style-type: none"> 1) Patient screening and precautions <ul style="list-style-type: none"> • Screen all patients and visitors for fever and lower respiratory symptoms both when appointments are made and when they arrive at the clinic. Refer persons with these symptoms to a facility where they can be isolated appropriately during evaluation. Warn receiving facilities that the patient is being sent for evaluation of SARS. • If a patient’s risk of exposure is high (e.g., close contact with a laboratory-confirmed case of SARS-CoV disease), the clinical criteria should be expanded to include, in addition to fever or respiratory symptoms, the other early symptoms of SARS-CoV disease. 2) Healthcare worker precautions <ul style="list-style-type: none"> • Same as for “Person-to-person SARS transmission worldwide but no known transmission in the area around the facility.” 3) Infrastructure issues <ul style="list-style-type: none"> • Same as for “Person-to-person SARS transmission worldwide but no known transmission in the area around the facility.”

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Matrix 3: Recommendations for Long-Term Care Facilities

Level of SARS activity	Suggested actions
No person-to-person SARS transmission reported anywhere in the world	<ol style="list-style-type: none"> 1) Patient precautions <ul style="list-style-type: none"> • In accordance with recommendations for respiratory hygiene/cough etiquette, patients who develop symptoms of a respiratory infection should be placed on Droplet Precautions until determined that they are not needed. 2) Healthcare worker precautions <ul style="list-style-type: none"> • Healthcare workers seeing patients with respiratory illness should use Droplet Precautions and practice frequent hand hygiene. 3) Infrastructure issues <ul style="list-style-type: none"> • The facility will need supplies for Droplet Precautions (masks, gloves and gowns) and hand hygiene.
Presence of person-to-person SARS transmission worldwide, but no known transmission in the area around the facility	<ol style="list-style-type: none"> 1) Patient precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.” Add: • Screen all potential admissions for symptoms and epidemiologic links to SARS. 2) Healthcare worker precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.” 3) Infrastructure issues <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.” 4) Access controls <ul style="list-style-type: none"> • Visitors should be screened for symptoms and epidemiologic links to SARS cases. Visitors with symptoms and epidemiologic links should not be allowed into the facility.
Known transmission in the area around the facility	<ol style="list-style-type: none"> 1) Patient precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.” • All new admissions should be evaluated at an acute-care facility (no direct admissions). Patients with fever or lower respiratory symptoms should be evaluated according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm) before being admitted. Patients who are asymptomatic but had exposures should be observed for 10 days for the development of symptoms before they are admitted. • If there is significant transmission in the community around the facility, initiate surveillance for nosocomial lower respiratory illness, and transfer all patients who develop such illness to an acute-care facility for evaluation. Acute-care facilities should be notified that the patients are being transferred for evaluation of SARS. 2) Healthcare worker precautions <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.” • Healthcare workers should undergo symptom monitoring. Symptomatic healthcare workers should be furloughed and evaluated according to the algorithm (Figure 2) in <i>Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease among Persons Presenting with Community-Acquired Illness</i> (www.cdc.gov/ncidod/sars/clinicalguidance.htm). 3) Infrastructure issues <ul style="list-style-type: none"> • Same as for “No person-to-person SARS transmission reported anywhere in the world.”

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	<p>4) Access controls</p> <ul style="list-style-type: none">• Visitors should be actively screened for symptoms.• Visitors with symptoms should not be allowed into the facility.
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For more information, visit www.cdc.gov/ncidod/sars or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)