



Healthcare Worker Exposure to SARS Suspect Case Patients Line By Line Instructions and Appendices

General Information:

Fill out one Facility Encounter Form for each time a suspected SARS patient enters the facility.

Fill out one HCW Exposure and Outcome Form for each HCW who is enrolled in active surveillance.

The *Hospital Investigation#* is an area for the Infection Control Practitioner or other person completing forms to designate the investigation resulting from the facility encounter with a particular SARS suspect case patient. As some healthcare facilities may encounter more than one SARS suspect case patient, each investigation should be uniquely identified using the initials of the name of the facility, followed by the sequential order of the investigation. For example, the first investigation performed at Anywhere Memorial Hospital would be identified as AMH1. This same identifier should be entered on the **Facility Encounter Form** as well as all pages of all HCW Exposure and Outcome Forms completed for that investigation.

The *Hospital HCW#* is an area found only on the **HCW Exposure and Outcome Form** and is there for the person completing forms to designate the individual HCW in an investigation. As each investigation will involve multiple HCWs, each should be identified with a sequential number. For example, the first HCW enrolled in a given investigation should be identified with the number “1”, the second enrolled as number “2”, and so on. Please be sure to record this same identifier (which will be unique when combined with the *Hospital Investigation#*) on EVERY sheet of the **HCW Exposure and Outcome Form**, as the sheets may become separated from the cover sheet in the future.

SARS State ID# is found on both the **Facility Encounter Form** and the **HCW Exposure and Outcome Form**. This ID number is the number used by the state to track its SARS cases. This number, along with the CDC SARS #, are very important, as they are the only ways to link information about the SARS patient throughout the data collected by the state and CDC.

HCW State ID# is found only on the **HCW Exposure and Outcome Form**. Like the SARS State ID#, this number is designated by the state HD. Also like the SARS State ID#, this number is very important in order to be able to link the HCW’s specimen and clinical information.

Facility Encounter Form

Item no.

1-5. Self-explanatory

6. Please enter the total number of staff and employees of the healthcare facility. This question is intended to obtain the total size of the population under surveillance (to establish denominators).

Potential resources that may assist in obtaining this number are the hospital Human Resources department, or a Medical Staff Office.

7. Please enter the estimated number of HCWs who entered the immediate care area of the SARS suspect case patient. HCWs who entered the contiguous airspace (e.g. in the same ER, hallway, or ward) shared by the patient but did not enter the immediate care area should NOT be included in this number. This number is very important; it will determine the total number of HCWs exposed in the immediate care area (and will provide a denominator for these HCWs). This number will often be the same as the number of forms filled out, but may differ in a few important scenarios: 1) if fewer people agree to take part in the study than were identified as exposed; and 2) if HCWs who did not enter the immediate care area wanted to be part of active surveillance and had a form filled out. It is understood that knowing this number may be extremely difficult, especially in retrospective investigations. In these cases, the investigator should enter a best estimate based on the methods described above to identify exposed HCWs.

8. Enter the date and time the encounter with the SARS patient began, usually the time at which the patient entered the hospital, physician office, or other healthcare facility. Do not use the start time and date of the isolation precaution measures.

9. Enter the date and time when the encounter ended, usually when the patient leaves the facility. This date and time should be the last time the patient is in the facility, regardless of whether the patient is taken out of isolation or is deemed “non-infectious” prior to leaving.

10. Self-explanatory

11. CDC SARS Case Number as given by the State and Domestic Support team.

12. Self-explanatory

13. Self-explanatory

14. Enter the date and time the listed clinical features were present. Enter the date and time the feature was first noted and the date and time it was last noted. If it was never noted, mark the appropriate box. If only the date is available, do not mark a time. Best sources of this information are probably the patient’s medical record, bedside vital signs, or nursing flow sheets. Other possible sources include radiology records and ventilator (respiratory technician) flow sheets.

15. Please note the dates and times that isolation precaution measures were instituted. If available, record the date and time the measures began, not when they were ordered. Record also the date and time the measures were ended.

HCW Exposure and Outcome Form

1-12. Self-explanatory

13. Please indicate the surveillance arm pertaining to this HCW. HCWs included in Active Surveillance are those who are thought to have had unprotected OR protected exposure in the immediate care area of the SARS suspect case patient. HCWs included in Passive Surveillance are all other employees at the hospital.

14. Enter whether the HCW was pregnant. Note: CDC does not recommend routine pregnancy testing for exposed HCWs.

15. Self-explanatory

16. Indicate whether the HCW has significant pulmonary disease, defined as those having disease sufficient to require medical therapy or medical consultation as treatment. Examples of this include Chronic Obstructive Pulmonary Disease (COPD) or asthma requiring bronchodilator therapy.

17. Indicate whether the HCW has significant diabetes mellitus, defined as those having disease sufficient to require medical therapy or medical consultation and treatment. Patients requiring oral or insulin therapy are included; diet-controlled diabetics are excluded and should be marked as no.

18. Indicate whether the HCW has a medical condition that results in immunosuppression. Examples include malignancy (hematologic or solid organ), organ transplantation, or HIV. Mark HCWs as NO if they have a history of malignancy but have not required recent medical consultation (e.g. leukemia as a child).

19. Indicate if the HCW is taking immunosuppressive medications. Examples include medications such as prednisone, decadron, methylprednisolone, hydrocortisone, cyclosporine, tacrolimus, azathioprine, and methotrexate.

20. Enter the first date and time the HCW entered the immediate care area OR the contiguous airspace of the SARS suspect patient.

21. Enter the last date and time the HCW entered the immediate care area OR the contiguous airspace of the SARS suspect patient as described for item number 20.

22. For each healthcare facility location where the HCW had ANY exposure to the SARS suspect case patient please code the locations, dates of exposure, and total duration of all exposure on those dates in that location. Use the location codes listed on the final page of the form.

For questions 23-44: “HCW exposure” refers to an individual patient exposure. For example, each time a nurse enters the patient’s room is counted as a separate “HCW exposure.” Additionally, when determining numbers of HCW exposures at the requested protection levels, it is important to note that certain questions are subsets of others. For example, if a HCW had four exposures WITHOUT surgical mask protection or higher, this HCW must have had AT LEAST four exposures WITHOUT N95 protection. Likewise, the HCW must have had AT LEAST four total exposures. Another way to think of this is:

(total HCW exposures) ≥ (HCW exposures without N95 or higher) ≥ (HCW exposures without surgical mask or higher).

This can serve as an important check of the accuracy of the data.

23. Record whether the HCW had direct contact with the SARS suspect case patient. If direct contact occurred, indicate the total number of HCW exposures and number of unprotected (skin to skin) HCW exposures.
24. Record whether the HCW had indirect contact with the SARS suspect case patient. Indirect contact is defined as contact with an inanimate object that may have come in contact with the patient. Examples of this include bedrails, stethoscopes, and bedding. If direct contact occurred, indicate the total number of HCW exposures and number of unprotected (HCW's skin to inanimate object) HCW exposures.
25. Record whether the HCW ever came within 3 feet of the SARS suspect case patient. Most patient care activities (medication administration, physical exam, IV manipulation, phlebotomy) occur in this space. Mark the total number of HCW exposures and the number of HCW exposures without the various forms of protective equipment listed.
26. Record whether the HCW ever came within the same immediate care area but outside of a 3-foot radius of the SARS suspect case patient. The immediate care area is defined as the same patient room or procedure or radiology suite, or the area defined by a 10-foot radius if the patient is in an open air environment such as an ER or open ICU. Mark the total number of HCW exposures and the number of HCW exposures without the various forms of protective equipment listed.
27. Record whether the HCW ever came within the contiguous airspace but outside the immediate care area of the SARS suspect case patient. Examples of contiguous airspace include a common emergency room or ward (only outside of the immediate care area), the hallway, or the same floor or ward (ONLY if doors are commonly open to allow a free air flow). Mark the total number of HCW exposures and the number of HCW exposures without the various forms of protective equipment listed.

Questions 28-42. Complete table ONLY if the HCW was EVER within 3 feet of the SARS suspect case patient. Indicate which patient or patient care activities were occurring WHILE the HCW was within this area (i.e. within 3 feet of the patient). Record first whether the activity EVER occurred. If the activity did occur, indicate the total number of HCW exposures and the number of HCW exposures that occurred without the precautions listed. *Please make sure to fill out column 2 (EVER occurred, yes, no, or unknown) for ALL the patient/ patient care activities.*

Note: "HCW exposure" refers to a HCW visit, not an occurrence of the activity. For example, if a HCW manipulates an airway twice during one visit to the patient, this is counted as ONE "HCW exposure."

28. Productive or non-productive coughing or spitting.
29. Vomiting or dryheaving are included.
30. Self-explanatory

31. Manipulating upper airway is defined as activities such as suctioning, inducing sputum, performing endotracheal intubation, or nasogastric tube insertion.
32. A “code” refers to activities performed using Advanced Cardiac Life Support (ACLS), Basic Cardiac Life Support (BCLS), and Pediatric Advanced Life Support (PALS) algorithms. Many of these activities are inquired about specifically (e.g. endotracheal intubation), however in “code” situations activities are generally rapid and protective measures may be less efficient.
33. Aerosolized medications include nebulized medications such as albuterol.
34. Self-explanatory
35. Other endoscopy includes EGD or colonoscopy.
36. Manipulating GU/ rectal areas include activities such as urinary or rectal tube insertion, performing rectal exam, or manual disimpaction.
37. Self-explanatory
38. Self-explanatory
39. Contaminated equipment includes any equipment or furniture that requires disinfection or cleaning. Other examples include soiled or old bedding.
40. Self-explanatory
41. Self-explanatory
42. Self-explanatory
43. Mark whether the HCW EVER came within 3 feet of a family member or close household contact of the SARS suspect case patient. If this did occur, mark the number of total HCW exposures, and the number of HCW exposures which occurred with the protection precautions listed.
44. Mark whether the HCW EVER had direct contact with a family member or close household contact of the SARS suspect case patient. If this did occur, mark the number of total HCW exposures, and the number of HCW exposures which occurred with the protection precautions listed.

Questions 45-51. These questions pertain to the outcome of the HCW after exposure to the SARS suspect case patient. The surveillance period is defined from day 0 (first day of HCW exposure) to 10 days after the LAST exposure to the suspect patient. Mark the date of resolution of signs or symptoms, regardless of whether this date falls outside of the surveillance period.

45. Self-explanatory.

46. Enter whether fever developed, and if so, the date of onset and the LAST date it was noted. If the HCW answered “yes” to this question, he/she should be reported to the state HD as a potential SARS suspect case patient.
47. If the HCW answered “yes” to this question, he/she should be reported to the state HD as a potential SARS suspect case patient.
48. If the HCW answered “yes” to this question, he/she should be reported to the state HD as a potential SARS suspect case patient.
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50. If the HCW answered “yes” to this question, he/she should be reported to the state HD as a potential SARS suspect case patient.
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APPENDIX 1. STANDARD OPERATING PROCEDURE



Healthcare Worker Exposures to Suspect SARS Cases: Prevention and Surveillance Standard Operating Procedure for Infection Control Practitioners (ICPs) and Study Investigators

Thank you very much for your assistance. For your convenience, we have created a list of steps to take to get started with the prevention and surveillance project in your healthcare facility.

You are probably aware that a patient suspected of having Severe Acute Respiratory Syndrome (SARS) is, or was recently, in your healthcare facility. The state health department (HD) or CDC has contacted you to ask your assistance in tracking healthcare worker (HCW) exposures to suspected cases of SARS.

A detailed protocol is available from the state health department and from CDC and should be used in conjunction with this summary.

Getting Started:

1. Once a suspect SARS case is identified, the ICP should institute infection control measures as soon as possible, consisting of standard, airborne, and contact precautions. More information is available on the web at <http://www.cdc.gov/ncidod/sars/infectioncontrol.htm>.
2. All healthcare workers in the facility should be educated to report respiratory symptoms.
3. The Prevention and Surveillance Toolkit, obtained from the state HD or CDC, should be read to orient the ICP to the overall strategy of surveillance and the specifics of the study.
4. The ICP should establish a contact at the state HD, who will be able to answer questions and help coordinate data and specimen collection.
5. The next step is to identify all HCWs who had (in *retrospective* cases) or will have (in *prospective* cases) exposure to the *immediate care area* of the suspect SARS case. The immediate care area is defined as the patient room, or in the case of an open-air environment (like an ER), the 10-foot radius around the patient. Ideas for identifying such HCWs are in the detailed protocol. These HCWs (who had exposure to the immediate care area) should be enrolled in active surveillance. All other HCWs should be enrolled in passive surveillance.

Active Surveillance:

Overview: To be enrolled in active surveillance, each HCW must sign the informed consent form.

Active surveillance consists of: 1) Periodically monitoring the symptoms of those exposed, 2) Completing a HCW Exposure and Outcome form on each HCW, and 3) Obtaining two serum samples on each HCW: the first as soon as is possible and the second 28 days after the end of the exposure.

1. Monitoring symptoms in HCWs.
 - a. HCWs who were exposed in the immediate care area should be sought out periodically and asked if they have any symptoms, until 10 days after their last exposure to the patient. This period, from the first day they were exposed until 10 days after their last exposure, is the active surveillance period and corresponds to the period when they are at risk for getting ill.

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- b. If respiratory symptoms or fever develop in the HCW, he/ she should be excluded from duty and reported to the state HD. More information on excluding HCWs from duty is available at <http://www.cdc.gov/ncidod/sars/exposureguidance.htm>.
2. Completing the HCW Exposure and Outcome form.
 - a. The HCW Exposure and Outcome form takes approximately 15 minutes total to complete. It is recommended that the ICP complete the form in conjunction with the HCW. Questions refer to HCW risk factors, exposures the HCW may have had to the suspect SARS patient, and to the outcome of the HCW. Since some questions are best answered soon after exposure and others are best answered at the end of the active surveillance period, it is recommended to interview the HCWs twice. The first interview should take place soon after HCWs exposure to the patient has ended. The second interview should take place at the end of the active surveillance period, in other words, at least 10 days after the last exposure to the patient.
3. Obtaining Serum Specimens.

Please refer to the protocol for more detailed instructions on collection, labeling, and shipping of specimens.

 - a. The first serum specimen should be obtained as soon as possible after the HCW is identified as having been exposed. This sample should be obtained using standard infection control practices, unless the HCW is symptomatic. For HCWs that are symptomatic, other samples will likely be needed (such as nasopharyngeal swabs). HCWs that are symptomatic should be reported to the state HD as soon as possible, at which time further instructions on specimen collection will be discussed. Please refer to <http://www.cdc.gov/ncidod/sars/specimens.htm> for more information regarding collection of specimens.
 - i. The specimen should be labeled with the Hospital Investigation#, Hospital HCW#, and dated.
 - ii. Please be sure to complete and include a Specimen Submission Form for EACH specimen submitted.
 - iii. Send the specimens to the address included in the protocol.
 - b. The second specimen should be obtained about 28 days after the exposure to the SARS patient has ended and sent using the method described above.

Passive Surveillance:

Overview: Passive surveillance is performed on HCWs who were NOT in the immediate care area of the SARS suspect case. Passive surveillance consists of 1) Monitoring HCWs for illness, and 2) Identifying significant exposures in these symptomatic HCWs.

1. Monitoring HCWs for illness.
 - a. Occupational health and sick leave records should be reviewed periodically to identify HCWs who were ill or absent from work with respiratory symptoms or fever. Passive surveillance should be carried out up until 10 days after the SARS suspect patient has left the healthcare facility.
2. Identifying significant exposures in symptomatic HCWs.
 - a. If any of the above symptomatic HCWs develop respiratory symptoms or fever, the ICP should evaluate if the HCW had any exposure in the immediate care area of the SARS suspect patient.
 - i. If the HCW was not exposed to the immediate care area of the SARS suspect patient, do not exclude the HCW from duty, but continue to monitor HCWs in the facility for clusters and increases of similar illnesses.

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- ii. If the HCW was exposed to the immediate care area of the SARS suspect patient, the HCW should be excluded from duty and reported to the state HD. More information is available at <http://www.cdc.gov/ncidod/sars/exposureguidance.htm>.

Thank you very much for your assistance in this important project. Questions or concerns can be directed to your local or state HD, or you can contact CDC directly at:

Benjamin Park, MD
Centers for Disease Control and Prevention
Epidemic Intelligence Service
National Center for Infectious Diseases
1600 Clifton Rd, MS C-09
Atlanta, GA 30333

Office: 404-639-1619
Email: bip5@cdc.gov

APPENDIX 2. EDUCATIONAL CARDS FOR HCWs.

Important Tips for Preventing the Severe Acute Respiratory Syndrome (SARS) in Healthcare Facilities

SARS is an unexplained pneumonia that has affected many people in Asia and is increasing in North America. There have been several outbreaks of this illness due to spread from sick patients to persons working in or around healthcare settings. However, such spread has decreased with increased attention to good infection control practices.

All persons who work in or around healthcare settings should remember the importance of infection control practices including good hand hygiene and compliance with all isolation precautions instituted for the care of certain patients. In addition, during this time of heightened alert and until further notice, any staff should notify employee health immediately if they develop fever or respiratory symptoms.



APPENDIX 3. SUGGESTED CARD TO IDENTIFY EXPOSED HCWS.



IMPORTANT NOTICE TO HEALTHCARE WORKERS

A patient suspected of having Severe Acute Respiratory Syndrome (SARS) has been identified in this facility. Healthcare workers who have been in the patient's room or within 10 feet of the patient may have been exposed. Proper infection control can limit the risk to healthcare workers.

This hospital, in conjunction with the state health department and the Centers for Disease Control and Prevention, is monitoring the health of all healthcare workers who may have been exposed to this patient.

The patient was cared for in these areas, at these times:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If you think you may have been in one of these areas at the same time as the patient, please contact the person listed below for further guidance.

Thank you.

APPENDIX 5. SPECIMEN COLLECTION, LABELING, AND SHIPPING INSTRUCTIONS

Specimen collection

Serum: Whole blood will be collected in a 10 ml-20 ml serum separator tube. From adults, 5-10 ml (at least 1 ml) of blood should be obtained. If venipuncture is not feasible, the minimum required amount of blood can be obtained by finger stick. Allow blood to clot, centrifuge and aliquot resulting serum. If serum is frozen, it should be at -70°C and shipped on dry ice. If serum is not frozen, it may be stored and shipped on wet ice (4°C).

Specimen labeling and documentation

All specimens will be labeled with the Hospital Investigation# and Hospital HCW#. The date collected will also be on the label. The shipment package should include specimen a specimen submission form for each specimen. A specimen submission form is provided below.

Specimen shipping

Specimens will be stored and shipped at the temperatures indicated above. Specimens will be packed according to IATA Regulations as described in the Consignment of Diagnostic Specimens 2003 available at <http://www.iata.org/dangerousgoods/index>. For domestic U.S. shipments, FedEx may be used for next day delivery (1-800-463-3339). All packages must be labelled: **“Diagnostic Specimens. UN 3373. Packed in compliance with IATA packing instructions 650”**.

All packages should be sent with specimen submission forms to:

ATTN: STAT
Centers for Disease Control and Prevention
DASH 1600 Clifton Road NE (MS G-12)
Bldg. 4, B35 Atlanta GA 30333
770-488-7100

**Healthcare Worker Exposures to Suspect SARS Cases:
APPENDIX 6: Consent Form**

**SEVERE ACUTE RESPIRATORY SYNDROME: INVESTIGATION OF TRANSMISSION
AMONG HEALTHCARE WORKERS**

(For participants aged ≥ 18 years)

The World Health Organization, the US Centers for Disease Control and Prevention (CDC) and state and local health departments are responding to a public health emergency called Severe Acute Respiratory Syndrome or SARS. We are contacting you because a patient at your healthcare facility is or has been recently ill with SARS. SARS is a respiratory illness of unknown cause that has recently been reported in a number of countries, including the United States. Researchers at the Centers for Disease Control and Prevention (CDC) and around the world are working on finding out the organism that causes SARS and are developing laboratory tests that can help diagnose it. We need to learn more about SARS to help us understand how it spreads, and how to diagnose and prevent it. We also need to know if some people who are infected have no symptoms or only get mild disease. You may be able to help us and be our partners in this effort.

As part of the public health response to the SARS outbreak, _____ State Health Department and CDC are investigating how the germ causing SARS is spread from patients to healthcare workers, how many infected healthcare workers become ill, and what range of illnesses that they get. We are also trying to find out how long an infected person may infect others. We would like you to be part of this investigation. You are free to decide whether you want to join the investigation or not.

If you agree to be a part of this effort, we will take a small amount of your blood now (no more than 2 tablespoons) in two test tubes. We will also ask you a few questions about your medical history and your work. Submitting samples and answering questions will take about 45 minutes. Your specimens will be tested to see if you were infected with the germ that causes SARS and what type of response your body has had to this infection. They will be initially tested for an agent currently suspected to cause SARS.

To see if you were infected and find out how long it takes for your body to make antibodies against the virus, we need to check your blood now and again around day 28 (4 weeks) after possible exposure. If you are signing this consent more than 28 days after possible exposure, we will only obtain one set of specimens from you. During the course of the study, we may also ask you how you are feeling and if you have any symptoms.

Blood drawing is very safe, but the needle may cause pain or some bleeding or bruising. If drawing blood from your veins is not feasible, we may obtain blood by finger stick, which may cause slight pain.

We may contact you some time in the future to offer you an opportunity to participate in possible future SARS studies. You do not have to decide now whether or not you would take part in these future studies.

Only the persons conducting this investigation at your state health department and CDC will know about your personal information or the results of your testing. Beyond this, your name will be kept private to the extent allowed by law. Your name will never be used in any speech or paper. If you would like to know the results of testing, we will provide them to you through your state health department when they become available, but this may take several months. Also, because the tests we will be using are new and not approved for clinical use, these results should not be used by your doctor for making decisions about your medical care.

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Whether or not you will agree to be part of this investigation and have your specimens taken is entirely up to you. You are free to join the investigation or not. It is also your decision which samples we can collect from you. You may also change your mind and withdraw at any time. Agreeing to be in only one part of this investigation, withdrawal from it or refusal to allow us to store specimens will not affect the health care that you receive or employment at the healthcare facility where you work. Feel free to ask any questions you might have.

If you need additional information or have any questions in future, please contact _____ (contact name) at _____ (phone number).

If you agree to be part of this investigation, please sign the statement below:

STATEMENT AGREEING TO PARTICIPATE IN THE INVESTIGATION

I have read and understand this consent form, all my questions were answered and I agree to be part of the investigation of SARS.

I agree to have my blood taken up to 2 times over the 4- 5 week period (at the beginning and on day 28 since my last contact with the SARS suspect case patient) and to answer some questions about my health and household at each visit.

Yes [] No []

Participant Name Signature of participant Date

Name of person obtaining consent Signature of person obtaining consent Date

I would like the results of my tests to be sent to me when they become available.

Yes [] No []

Address for sending the results:

Address City State Zip code

Specimen storage

We would like to store the unused portions of your specimens. Your samples would be stored linked to your name. These stored specimens may be later used in future evaluations of future SARS-related diseases. If we find any results from future testing that could affect your health, we will report these back to you through your state health department. If we want to do HIV testing or genetic testing with your

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stored samples, we will come back to you for your consent for those tests. If, at any time, you want to have your stored samples destroyed, please call Dr. L. Clifford McDonad at CDC (404-639-3833).

I agree to have my left-over specimens stored for possible future evaluations related to SARS.

Yes [] No []

Participant Name

Signature of participant

Date