INFECTION CONTROL GUIDELINES FOR LONG TERM CARE FACILITIES

EMPHASIS ON BODY SUBSTANCE PRECAUTIONS

MISSOURI DEPARTMENT OF HEALTH
AND SENIOR SERVICES
SECTION FOR LONG TERM CARE
AND THE
ADVISORY COMMITTEE ON INFECTION PREVENTION
AND CONTROL

EXTENDS SINCERE APPRECIATION
TO

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AND
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FOR

THE GENEROUS GIFT OF 1500 COPIES OF THIS MANUAL AND 750 NOTEBOOKS TO ALLOW INITIAL, ONE-COPY, FREE-OF-CHARGE DISTRIBUTION TO ALL PAST USERS OF THIS DOCUMENT

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January 2005

To the User:

The Infection Control Guidelines for Long Term Care Facilities, Emphasis on Body Substance Prevention was removed from the Department of Health and Senior Services website in December 2004. Outdated material was removed from the document and then reloaded onto the website. The following materials were removed:

Figure 2.1-2 Disease Case Report Form (CD-1)
Figure 9.1-1 Tuberculin Testing Record
Figure 9.2-1 Disease Case Report Form (CD-1)
Figure 9.2-2 Tuberculosis Drug Monitoring Form (TBC-1)
Appendix J Appendix C – Linelisting
Appendix K Attachment B – Summary of Foodborne Outbreak Investigation
Attachment C – Linelisting
Attachment D – Nosocomial Outbreak Report Form

The Department of Health and Senior Services is responsible for protecting and promoting quality of life and health for all Missourians by developing and implementing programs and systems that provide information and education, effective regulation and oversight, quality services, and surveillance of diseases and conditions.

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Acknowledgments

This document was developed in 1992 as the product of a consensus workgroup formed to develop a plan on the prevention and control of methicillin resistant *Staphylococcus aureus* and other antibiotic resistant organisms in long term care facilities. Consensus was achieved following four meetings held in 1991, with representatives from key health care agencies and organizations geographically distributed throughout Missouri. Representatives brought experience in long term care, infection control, infectious diseases, pharmacy, administration, and public health. The original document was subsequently printed several thousand times, distributed statewide to all long term care facilities and sent by request to over thirty states and Canada.

There has been a continuing need to discuss critical issues related to emerging infectious diseases and infection control in the community and in all types of health care facilities statewide. Because of this need, the 1991 consensus group was recognized in 1995 as the advisory body to the Missouri Department of Health and officially named the Advisory Committee on Infection Prevention and Control. Members of the Revision Committee have contributed time and expertise to the revision of this 1999 edition, which is endorsed by the entire Advisory Committee.

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A special thanks goes to the following: Joyce Muenks and Connie Lepper for forms creation and document development in Microsoft Word; and to Diane Rackers for updating and formatting this revision.

INFECTION CONTROL GUIDELINES
FOR LONG TERM CARE FACILITIES
EMPHASIS ON BODY SUBSTANCE PRECAUTIONS

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INTRODUCTION

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INTRODUCTION

A Guide to Using This Manual

This document contains scientifically based information to improve the assessment of residents. It provides nursing professionals with criteria for identifying specific body-site infections. This enhances the objectivity of reporting signs and symptoms to providers and helps providers make decisions whether or not to culture sites, order other diagnostic tests, and/or prescribe treatment, including antimicrobials.

Health care professionals in long-term care facilities can find detailed guidelines in this document for the care of residents with specific body-site infections, as well as principles and practices for preventing the spread of infectious organisms to other residents and staff. Recommending measures to prevent and control the development or spread of antibiotic resistant organisms remains one of the primary purposes of this document. Infection control practices are effective when they are understood and carried out by the staff, regardless of staff turnover. These practices must be monitored for residents known to be infected with certain organisms and for residents who are unknowingly infected and/or are asymptomatic carriers of the organisms.

The use of this manual should not be limited as a guide for individual resident care, but should be used to establish high quality infection control programs in Missouri long-term care facilities. The manual provides tools for evaluating the incidence of resident or staff infections on specific wards, wings or units in a facility. The epidemiology of evaluating infections by time, place, and person is possible with the use of these tools. Trends can be demonstrated with the use of tables, charts, and graphs in order to illustrate where infection control problems exist and where quality improvement is needed.

In summary, this manual is intended to be a working document for the staff on each unit and for policymakers in a long term care facility. It will not be helpful to physicians, nurses, technicians, certified nurse assistants, orderlies, or administrative personnel if it is not readily available as a resource.

We, the Advisory Committee on Infection Prevention and Control, Missouri Department of Health, encourage users to give us feedback on the benefits and the need for further revisions of this document. With feedback from users, we can all contribute to the assurance that residents in long term care facilities are provided with quality infection control practices.

INTRODUCTION

Updates/Revisions

The "Infection Control Guidelines for Long Term Care Facilities Emphasis on Body Substance Precautions" manual will be made available via the Internet through the Department of Health Home Page at http://www.dhss.mo.gov. The manual can be found under Applications & Forms.

Future updates and/or revisions to this manual will also be made available through the department's web site. Updates and/or revisions will be added to the main manual and will also be available individually to make it easier to identify updates. Updated manual sections can also be identified by checking the page headers.

Written notice of the initial availability of revisions and/or updates on the department's web site will be mailed to recipients who received the manual in paper form. Should access to the department's web site be unavailable to a manual recipient, paper copies of updates and/or revisions may be requested and will be provided at a fee to cover the cost of printing and shipping.

If you have questions about manual updates and/or revisions, please contact the Section for Long Term Care at (573) 526-8524.

SURVEILLANCE

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SURVEILLANCE

Routine Infection Control Surveillance in Long Term Care

The primary purpose of **infection control surveillance** is the collection of **information for action**.[1] It is more than just evaluation of laboratory reports, including cultures. Infection control includes routine surveillance of residents, surveillance of staff, and surveillance of the environment. This may be accomplished using the following guidelines.

Epidemiologic Aspects

1. According to the Missouri Division of Aging rules, all long term care facilities must have infection control policies which are made evident to all new employees at time of orientation.[2] [13 CSR 15-14.042(20) and 13 CSR 15-15.042(18) See Appendix C.] The Occupational Safety and Health Administration (OSHA) mandates policies on surveillance and recordkeeping of exposures to blood and body fluids included under Universal Precautions (see other potentially infectious materials) and infections from bloodborne pathogens.[3] In addition, infection control experts recommend that long term care facilities (LTCF's) have active, effective infection control programs which include weekly surveillance for nosocomial infections and multiply resistant organisms.[1,4] (See "Glossary of Infection Control Terms and Definitions," Appendix B.) Besides identification of such infections, a line listing should be kept which includes pertinent information regarding residents with infections (Figure 2.1-1).

2. A facility's surveillance policies and procedures should be reviewed and updated on a yearly basis to assure appropriateness and effectiveness in reducing specific body site infections or number of infections with specific organisms.

3. A facility's surveillance system must include the reporting of infectious diseases as required by the Missouri Department of Health. (See "Reporting Rule, Appendix I. See Figure 2.1-2 for a sample reporting form.)

4. A facility's surveillance system should include monitoring for appropriate antibiotic use. A positive culture in a person without clinical symptoms rarely requires treatment with antibiotics. (See Figure 2.1-3 for a sample monitoring form.)

5. Long term care facilities should request by contract or policy that their laboratory notify the Director of Nursing (DON) or his/her designee of all positive cultures with a multiply resistant organism or laboratory data indicative of a reportable disease. This will permit the facility to track the residents with certain organisms. Tracking a multiply resistant organism or reportable disease includes keeping records of dates when the resident changes rooms or roommates and also monitoring resident activities or exposures to others.

6. It is important to track and follow trends of infection data related to both residents and staff on a monthly basis. This information should then be presented to the appropriate

committee on at least a quarterly basis.[1] Rates should be calculated by using resident days or average daily census for the surveillance period (such as a month, quarter or year) as the denominator. Examples of tools used in data calculation and presentation are included in Figures 2.1-4, 2.1-5 and 2.1-6.

7. Outbreak investigation should be performed as outlined in Section 7. Infectious Disease Outbreaks.

Resident Aspects

1. Assessment of all residents for any/all changes in symptoms or conditions which may be indicative of an infection should be performed on an ongoing basis; i.e., clinical observation, house reports, chart and/or Kardex review, culture reports.[1] Any change in the resident's condition is to be reported to the private physician.

2. Indications of infection in the elderly may vary from those seen in a younger more healthy population.[5] Elderly persons often have a lower body temperature, so an increase in temperature from that which is normal for the resident may be an indication of infection. Other conditions that may indicate an infection in the elderly are:
   a. Presence of delirium (acute confusional state)
   b. Rapid major change (worsening) in function in activities of daily living (ADL's)
   c. Loss of appetite, new or worsening urinary incontinence, cough, increased respiratory rate, falls, or loose stools
   d. A decline in blood pressure or a rise in pulse rate
   e. A fall with no previous history of falling

3. Routine culturing of any resident or group of residents should not be performed unless one of the following occurs:
   a. Resident has clinical signs or symptoms. A culture done under these circumstances will be useful in treating the resident.[6]
   b. In an outbreak situation, as outlined in Section 7. Infectious Disease Outbreaks.

4. Routine culturing of **asymptomatic** residents at admission or prior to admission is not recommended. Residents who may be either colonized or infected with a disease producing organism(s) can generally be cared for in the long term care setting by using appropriate infection control practices. Request of culture results from the transferring facility is appropriate upon transfer to assist the receiving facility in understanding clinical history and assure appropriate resident room placement.

5. Assessment of the resident at the time of admission to the facility for communicable diseases and a history of immunization. This will assure recognition of communicable diseases that will require special precautions and assure the resident is up-to-date on recommended adult immunizations. (See Section 5. Immunizations.)

6. In accordance with Department of Health rule 19 CSR 20-20.100 (See Appendix E), all residents new to long term care who do not have documentation of a previous skin test

reaction ≥10mm or a history of adequate treatment of tuberculosis infection or disease, should have the initial test of a Mantoux PPD two-step test to rule out tuberculosis within one month prior to or one week after admission. Thereafter, the resident's tuberculin status is retested only following exposure to a person diagnosed with infectious tuberculosis or when clinical symptoms warrant further investigation.

Employee Aspects

1. All new employees should have a baseline health assessment, including a review of their immunization status and history of relevant past or present infectious diseases. The past history of infectious diseases should include chickenpox, measles, hepatitis, skin boils and bacterial diarrhea. Use of screening cultures is rarely indicated.

2. All new employees and volunteers shall have a two-step tuberculin skin test using the Mantoux method unless the employee reports a history of a positive tuberculin skin test. Annual tuberculosis evaluations of employees and volunteers shall be performed. Individuals with a positive tuberculin skin test should be evaluated in accordance with Guidelines for Screening for Tuberculosis in Long Term Care Facilities issued in 1995 by the Missouri Department of Health, Section of Vaccine Preventable and Tuberculosis Disease Elimination. (See Section 9. Tuberculosis Control.)

   Note: A tine test is not an acceptable method of evaluation for tuberculosis in Missouri.

3. Follow-up of an exposure to an infectious disease or substance shall be provided in accordance with current public health guidelines and the OSHA Bloodborne Pathogen Standard of 1991.

4. Each facility should have policies for the ongoing monitoring of employees for infections. Such monitoring should include observation and self-reporting. (See Employee Health in Subsection 3.2 Implementing the Body Substance Precautions System.)

Environmental Surveillance

Walking rounds to observe environmental conditions should be done on a regular basis or at least twice monthly. Observations should be made of equipment decontamination, cleaning procedures in bathroom/tub areas, physical therapy, medication/treatment rooms, kitchen and laundry areas. Observations should be made for handwashing, availability of soaps and paper towels, handling of sharps/infectious waste, care of resident supplies for skin care, catheter care, feeding solutions, etc. A clipboard with defined criteria can be used to check areas where changes need to be made or training needs to be done. (See Figures 2.1-7 and 2.1-8 for sample forms for recording environmental observations.)

References:

1. Smith PW. Consensus conference on nosocomial infections in long-term care facilities. Am J Infect Control 1987;15:97-100.
2. Division of Aging, Missouri Department of Social Services. 13 CSR 15-14.042 Administration and Resident Care Requirements for New and Existing Intermediate Care and Skilled Nursing Facilities and 13 CSR 15-15.042 Administrative, Personnel and Resident Care Requirements for New and Existing Residential Care Facilities I and II. Code of State Regulations, September 30, 1998.
3. Occupational Safety and Health Administration (OSHA). Department of Labor. Occupational exposure to bloodborne pathogens; Final rule. 29 CFR Part 1910.1030. Federal Register, December 6, 1991.
4. Boyce JM. Methicillin-resistant Staphylococcus aureus*:* Detection, epidemiology, and control measures. Infectious Disease Clinics of North America 1989;3:901-913.
5. Morris JN, Lipsitz LA, Murphy K, Belleville-Taylor P. Quality Care In the Nursing Home. CV Mosby 1997.
6. Kauffman CA, Bradley SF, Terpenning MS. Methicillin-resistant Staphylococcus aureus in long-term care facilities. Infect Control Hosp Epidemiol 1992;11:600-603.
7. Smith PW, Rusnak PG. APIC guideline for infection prevention and control in long-term care facilities. Am J Infect Control 1991;19:198-215.

INFECTION CONTROL LINE LISTING

UNIT _____ **MONTH** _____

ID#	RESIDENT NAME	AGE	SEX	ROOM #	INFECTION SITE						DATE*/LAB PATHOGEN	DATE/ SYMPTOMS	PREDISPOSING FACTORS	DATE/ TREATMENT	APPROP**		RESOLVED	
					URI	LRI	UTI	SKIN	GI	OTH					YES	NO	YES	NO
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
TOTALS																		

TOTAL RESIDENT DAYS FOR MONTH _____

*** DATE OF SPECIMEN COLLECTION**

****APPROPRIATE = YES, ORGANISM SENSITIVE TO ANTIBIOTIC**

Figure 2.1-1

Antibiotic Usage Report

Unit/ Hall _____ Month:_____ Year:_____

Room #	Resident	Antibiotic ***	Dose	Start/ Stop dates	Date of culture	Is organism sensitive to antibiotic? ***	Clinical signs of infection present*?	Infection resolved?	Physician	Comments

* See back

*** Chart review of residents in line listing that remained on antibiotic when criteria for infection not met OR culture results evidence antibiotic prescribed not effective against organism.

Figure 2.1-

Upper Respiratory Infection

- **Common Cold**—Resident must have 2 or more of the following sypmptoms: runny nose or sneezing, stuffy nose (i.e., nasal congestion), sore throat or hoarseness or difficulty swallowing, dry cough, swollen or tender glands of the neck (i.e., cervical lymphadenopathy). Symptoms must be acute and not related to allergy (seasonal) or medication. Fever is not required but does not exclude diagnosis.
- **Ear**—Diagnosis by a physician of any ear infection or any new drainage from one or both ears.
- **Mouth**—Diagnosis by physician or dentist of any mouth infection.
- **Sinusitis**—Diagnosis by physician.
- **Influenza-like Illness**—Fever and TWO or more of the following: chills, headache or eye pain, myalgias (muscle aching), malaise or loss of appetite, sore throat, dry cough. Symptoms must be acute, usually during flu season (in Missouri, November through March). When this definition is met it takes precedence over others.

Lower Respiratory Infection

- **Pneumonia**-—Interpretation by a radiologist of a chest x-ray as demonstrating pneumonia, probable pneumonia, or presence of an infiltrate with a compatible clinical syndrome.
- **Other Lower Respiratory**—THREE or more of the following: new or increased cough, new or increased sputum production, fever, pleuritic chest pain, new physical finding on chest exam (i.e., rales, rhonchi, wheezes, bronchial breathing) and one or more of: new shortness of breath, increased respiratory rate >25/per minute, change in mental status, or change in functional status. Symptoms must be acute, either no chest x-ray is done or x-ray does not meet the above criteria for pneumonia.

Urinary Tract Infection

- **Without Catheter**—THREE or more of the following: fever or chills, new burning pain on urination or frequency or urgency, flank or suprapubic pain or tenderness, change in character of urine (visual, or by smell, or by lab testing), change in mental or functional status, including new or worse incontinence. Symptoms must be acute, urine culture must be appropriately collected and processed, and the resident should not be receiving antibiotics at the time the urine culture is taken.
- **With Catheter**—TWO or more of the following: fever or chills, suprapubic pain or tenderness, change in mental or functional status. In the catheterized resident, no other source for the fever should be suspected or identified. Asymtomatic bacteriuria may be recorded separately.

SKIN

Pus is present at a wound, skin or soft tissue site or FOUR or more of the following: fever or worsening mental/functional status (and/or, at the site of infection, new or increasing: heat, redness, tenderness, swelling, or serous drainage). Fungal infection—maculopapular rash (abnormally colored, usually red, flat or slightly raised areas of skin in varying sizes) and physician diagnosis or laboratory confirmation. Herpes simplex (cold sores) or Varicella Zoster (herpes zoster/shingles) vesicular rash (blister like, skin lesions containing watery fluid) and physician diagnosis or laboratory confirmation. The latter are counted as nosocomial in only rare situations, (i.e., where herpes simplex occurs for the first time in a lifetime). Varicella zoster is not considered nosocomial even when subsequent to a first time chickenpox in a long term care resident.

Formula (example) for identifying over prescribing.

residents on antibiotics minus # residents with infections (meet above criteria) equals _____.

Residents not meeting criteria for infection minus residents taken off antibiotics equals_____.

An Example

Incidence Rate and Number ( ) of Body Site Infections per Resident Days by Unit ANY Long Term Care Facility Month, Year

Wing, Ward or Floor	Respiratory	Eye/Ear/ Mouth	Wound/ Skin	Gastrointestinal	Urinary Tract	Bloodstream/ IV's	Total
Residential - average daily census - 20							
Current	8.06* (5/620)	3.2 (2/620)	1.6 (1/620)	0.0 (0/620)	0.0 (0/620)	0.0 (0/620)	12.9 (8/620)
Baseline[§]	1.6 (1/620)	0.0 (0/620)	0.0 (0/620)	0.0 (0/620)	0.0 (0/620)	0.0 (0/620)	1.6 (1/620)
Floor 1 - East Wing average daily census - 40							
Current	12.9 (16/1240)	3.2 (4/1240)	2.4 (3/1240)	0.8 (1/1240)	1.6 (2/1240)	0.8 (1/1240)	8.9 (11/1240)
Baseline	1.6 (2/1240)	0.8 (1/1240)	1.6 (2/1240)	0.8 (1/1240)	1.6 (2/1240)	0.4 (.5/1240)	6.9 (8.5/1240)
Floor 1 - West Wing average daily census - 28							
Current	12.7 (11/868)	3.5 (3/868)	5.8 (5/868)	2.3 (2/868)	4.6 (4/868)	2.3 (2/868)	32.3 (28/868)
Baseline	2.5 (3/1209)	0.76 (.6/868)	3.5 (3/868)	2.3 (2/868)	3.5 (3/868)	0.9 (.8/868)	14.3 (12.4/868)

*Incidence rate = $\frac{\text{\# of new nosocomial infections occurring in one month}}{\text{number of resident days in the month}}$ x 1000

↓

$\frac{\text{5 new respiratory infections}}{\text{20 (average daily census per unit) x 31 (days in month)}}$ x 1000

↓

$\frac{5}{20 \times 31} = \frac{5}{620}$ x 1000 = 8.06 respiratory infection per 1000

[§]Baseline infection rate = the average rate of infections per body site in past 1-5 years.

$\frac{\text{Add the number of new infections for each month in one year}}{\text{Divide by 12}}$ = average monthly infections

$\frac{\text{Add the number of resident days for each month in one year}}{\text{Divide by 12}}$ = average monthly resident days

↘ ↙

$\frac{\text{Average monthly infections}}{\text{Average resident days}}$ x 1000 = Baseline rate

Figure 2.1-4

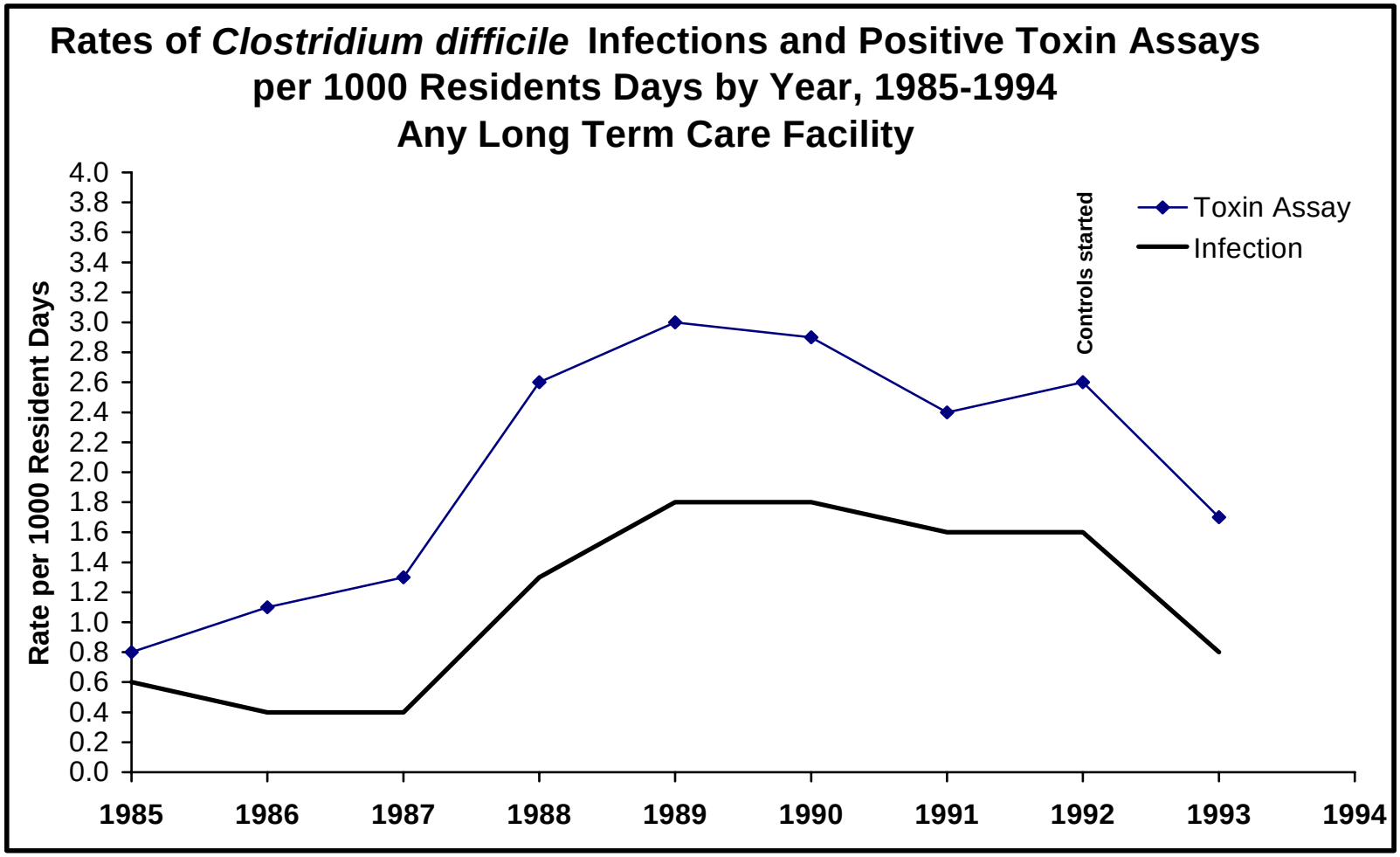
Rates of *Clostridium difficile* Infections and Positive Toxin Assays
per 1000 Residents Days by Year, 1985-1994
Any Long Term Care Facility
Rate per 1000 Resident Days
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
Controls started
Toxin Assay
Infection

Figure 2.1-5

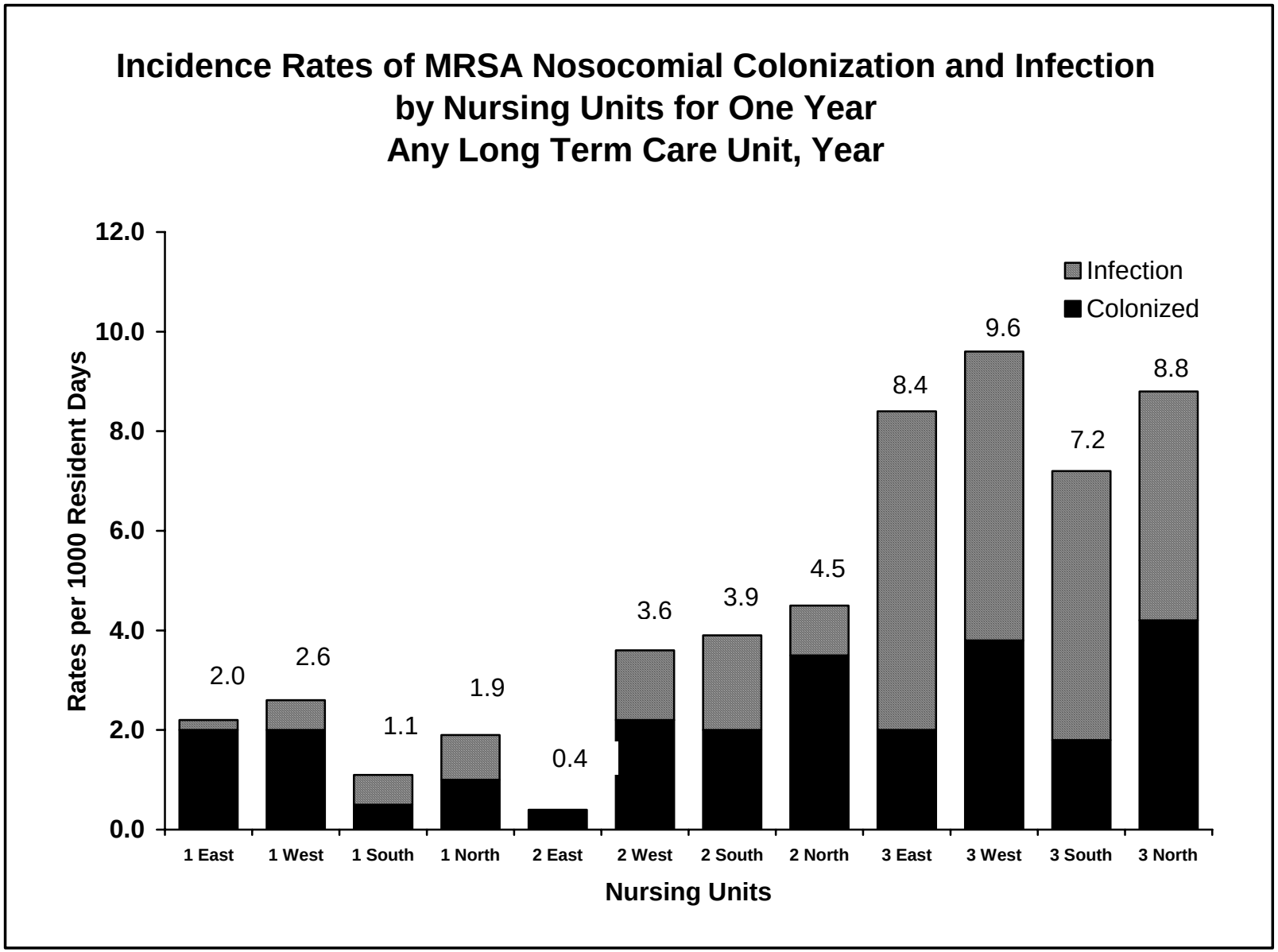
Incidence Rates of MRSA Nosocomial Colonization and Infection
by Nursing Units for One Year
Any Long Term Care Unit, Year
Rates per 1000 Resident Days
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Infection
Colonized
2.0
2.6
1.1
1.9
0.4
3.6
3.9
4.5
8.4
9.6
7.2
8.8
1 East
1 West
1 South
1 North
2 East
2 West
2 South
2 North
3 East
3 West
3 South
3 North
Nursing Units

Figure 2.1-6

Environmental Rounds Surveillance Form

Date	Unit/Wing/Area Inspected	Reviewer Name
_____	_____	_____

Area/Item Inspected	Satisfactory	Unsatisfactory	Comments	Action Required
Patient Care Equipment Clean: I.V. poles Overhead table Telephone Side rails Other				
Floors Clean				
Floors free of debris				
Bathroom clean: Toilet seat Sink and faucet handle(s) Towels				

Figure 2.1-7

Area/Item Inspected	Satisfactory	Unsatisfactory	Comments	Action Required
Use of PPE: Gloves Gowns Masks Eye Goggles/Shields				
Door Closed When Stop Alert Sign Present				
Handwashing: Between patients After glove removal After using bathroom				
Soap & Paper Towels Present				
Sharps/Needle Disposal				
Disposal of Waste				
Management/ Handling of Patient Care Supplies				

Area/Item Inspected	Satisfactory	Unsatisfactory	Comments	Action Required
Other				

Figure 2.1-8

Maintaining Infection Control Practices

A Checklist for Housekeeping Practices

Item	Yes	No	NA	Comments
Does the facility have an outside commercial source that cleans?	[ ]	[ ]	[ ]	_____
Is the resident area cluttered to a point that it interferes with staff function?	[ ]	[ ]	[ ]	_____
Are bed linen clean and in good condition?	[ ]	[ ]	[ ]	_____
Are there individual closet spaces with accessible shelves and are they clean?	[ ]	[ ]	[ ]	_____
Are the resident bathrooms clean and sanitary?	[ ]	[ ]	[ ]	_____
Are the sinks cleaned?	[ ]	[ ]	[ ]	_____
Are there soap dispensers present for staff use in each resident's room?	[ ]	[ ]	[ ]	_____
Are those soap dispensers adequately filled and in working order?	[ ]	[ ]	[ ]	_____
Are there paper towel dispensers present for staff use in each resident's room?	[ ]	[ ]	[ ]	_____
Are those paper towel dispensers adequately filled?	[ ]	[ ]	[ ]	_____
Are the shower areas clean and sanitary?	[ ]	[ ]	[ ]	_____
Are the hallways cluttered?	[ ]	[ ]	[ ]	_____
Are the walls clean and/or spot checked daily?	[ ]	[ ]	[ ]	_____
Is resident trash removed daily?	[ ]	[ ]	[ ]	_____
Is there visible infectious waste stored in the resident's room?	[ ]	[ ]	[ ]	_____

Item	Yes	No	NA	Comments
Are venetian blinds, curtains or drapes clean?	[ ]	[ ]	[ ]	_____
Are there body fluids on the floor?	[ ]	[ ]	[ ]	_____
Are there bed linens on the floors?	[ ]	[ ]	[ ]	_____
Are there written protocols for mopping floors?	[ ]	[ ]	[ ]	_____
How often is the detergent/disinfectant changed in the mop bucket?	[ ]	[ ]	[ ]	_____
Are clean mops used at the beginning of each work day?	[ ]	[ ]	[ ]	_____
Do housekeepers know how to pick up needles or sharps from the floor?	[ ]	[ ]	[ ]	_____
Do housekeepers know the procedure of what to do if they are stuck with a needle or cut with a sharp?	[ ]	[ ]	[ ]	_____
Do housekeepers know the procedure for decontamination of blood on floors or carpets?	[ ]	[ ]	[ ]	_____
Have the housekeepers been offered the hepatitis B vaccine?	[ ]	[ ]	[ ]	_____
What is the percentage of compliance for the hepatitis B vaccine among the housekeeping staff?	_____%			
Are the material safety data sheets (MSDS) available?	[ ]	[ ]	[ ]	_____
Do housekeepers use goggles or face shields when preparing chemicals?	[ ]	[ ]	[ ]	_____
Is there an eye wash station near area (within 100 feet) where chemicals are prepared?	[ ]	[ ]	[ ]	_____

Item	Yes	No	NA	Comments
Are there visible pests present?	[ ]	[ ]	[ ]	_____
Are there appropriate screens for doors?	[ ]	[ ]	[ ]	_____
Are there appropriate screens for windows?	[ ]	[ ]	[ ]	_____
Is there a written infection control procedure manual for housekeeping?	[ ]	[ ]	[ ]	_____
Has this procedure manual been updated in the past 12 months?	[ ]	[ ]	[ ]	_____
Did the infection control person have any input in developing this procedure manual?	[ ]	[ ]	[ ]	_____

Name of pest control company: _____

Type of chemical (formulation) used for general cleaning: _____
EPA#: _____

Type of gloves used by housekeepers: _____

How are mops cleaned: _____

How are mops dried: _____

List the in-service educational seminars that housekeepers have attended in the past year with title and dates:

Title	Dates
_____	_____
_____	_____
_____	_____
_____	_____

Name of infectious waste transporter: _____

Name of director of housekeeping: _____
How long at this position? _____
Formal training? _____ Yes _____ No
If yes, where: _____

Immediate Recommendations:

_____
_____
_____
_____
_____

Infection Control/Quality Assurance Recommendations:

_____
_____
_____
_____
_____

Other Factors:

_____
_____
_____
_____
_____

Person performing audit:

_____ Date: _____

Signature of housekeeper:

_____ Date: _____

Signature of infection control practitioner:

_____ Date: _____

Form provided courtesy of St. Joseph Health Center, Kansas City, MO.

SURVEILLANCE

Definitions of Body Site Infections in Long Term Care Facilities

Site/Infection	Criteria	Comments
Respiratory Tract		
Common Cold	**Two or more** of the following: • Runny nose or sneezing • Stuffy nose, hoarseness or difficulty swallowing • Dry cough • New swollen or tender glands in the neck	Symptoms must be acute and not allergy related. Fever not required, but does not exclude diagnosis.
Sinusitis	Diagnosis by a physician or practitioner.	
Influenza-Like Illness	**Fever and two or more** of the following: • Chills • Headache or eye pain • Myalgias (muscle aches) • Sore Throat • Dry Cough	Symptoms must be acute. Usually during influenza season (in Missouri—generally November to March).
Pneumonia	Interpretation by a radiologist of a chest x-ray as demonstrating pneumonia, probable pneumonia, or the presence of an infiltrate with a compatible clinical syndrome.	
Other Lower Respiratory Tract Infection	**Three or more** of the following: • New or increased cough • New or increased sputum production • Fever • Pleuritic chest pain • New physical findings on chest exam (rales, rhonchi, wheezes, bronchial breathing) **One or more** of the following: • New shortness of breath • Increased respiratory rate (>25/mm) • Change in mental status • Change in functional status	Symptoms must be acute. Either no chest x-ray done, or x-ray does not meet the above criteria for pneumonia.

Definitions of Body Site Infections in Long Term Care Facilities
(continued)

Site/Infection	Criteria	Comments
Urinary Tract **Symptomatic UTI**	Resident **without** catheter **three or more** of the following: • Fever or chills • New burning pain on urinating, or frequency or urgency • Flank or suprapubic pain or tenderness • Change in character of urine (visual, or by smell, or by lab testing) • Change in mental or functional status, including new or worse incontinence Resident **with** catheter **two or more** of the following: • Fever or chills • Flank or suprapubic pain or tenderness • Change in character of urine • Change in mental or functional status	Symptoms must be acute. For the catheterized resident, no other source of fever is present.
Asymptomatic Bacteriuria	Urinalysis showing >100,000 bacterial colonies and resident has no signs or symptoms of UTI	May be recorded separately
GI Tract **Gastroenteritis**	**Two or more** loose or watery stools *above what is normal* for the resident within 24 hour period **OR** **Two or more** episodes of vomiting within a 24 hour period **OR** Stool culture positive for a pathogen (*Salmonella*, *Shigella*, *Campylobacter* species or *Clostridium difficile*) **WITH** A compatible clinical syndrome—one of the following: • Nausea • Vomiting • Abdominal pain/tenderness • Diarrhea	For the first two criteria, there must be no evidence of a non-infectious cause (e.g. for diarrhea: laxative, change in tube feeds or medication; for vomiting: change in medication, peptic ulcer disease)

Definitions of Body Site Infections in Long Term Care Facilities
(continued)

Site/Infection	Criteria	Comments
Skin **Cellulitis/ Soft Tissue/ Wound**	Pus is present at a wound, skin or soft issue site **OR** **Four or more** of the following: • Fever or worsening mental/ functional status (and/or, at the site of infection, new or increasing) • Heat • Redness • Swelling • Tenderness • Serous drainage	
Fungal Skin Infection	Maculopapular rash (abnormally colored, usually red, flat or slightly raised area of skin in varying sizes) **AND** Physician or practitioner diagnosis or laboratory confirmation	• No evidence of a non-infectious cause (e.g. allergy to new medication) • Other diagnoses of skin disease ruled out (i.e. scabies)
Herpes Simplex (Cold Sores) or Varicella Zoster (Herpes Zoster/ Shingles)	Vesicular rash (blister like skin lesions containing watery fluid) **AND** Physician or practitioner diagnosis or laboratory confirmation	Counted as nosocomial in rare situations (i.e., when herpes simplex occurs for the first time in a lifetime). Varicella zoster is not considered nosocomial even when subsequent to a first time chickenpox in a long term care resident.
Scabies	Undiagnosed macular (flat) or papular (slightly raised) rash different in color **or** texture **OR** Dry thickened, scaling skin with documented tracks **OR** Itching rash **AND** Physician or practitioner diagnosis or laboratory confirmation	• One or more residents or staff have laboratory confirmation (mite, egg or fecal pellet) • Several cases occurring within the same time frame and setting can be counted within an outbreak without laboratory confirmation provided

Definitions of Body Site Infections in Long Term Care Facilities
(continued)

Site/Infection	Criteria	Comments
Eye, Ear, Nose and Mouth		
Conjunctivitis	Pus appearing from one or both eyes for >24 hours. "Pink eye" (i.e., conjunctival redness, often with itching or pain), present for >24 hours.	No evidence of trauma (e.g. foreign body) or allergy as a cause.
Ear	Diagnosis by a physician or practitioner of any ear infection **OR** Any new drainage from one or both ears.	
Mouth (Peri-Oral) Includes Oral Candidiasis	Diagnosis by a physician, practitioner or a dentist of any mouth infection.	
Bloodstream		
Bloodstream	**Two or more** blood cultures are documented with the same organism **OR** A single blood culture is documented with an organism thought not to be a contaminant **AND** **One** of the following: • Fever or new hypothermia • Drop in systolic blood pressure of >30mm Hg over baseline • Change in mental or functional status.	If the organism in the blood culture is *not* related to an infection at another site, it is considered a "Primary Bloodstream Infection". If the organism in blood culture is related to an infection at another site, it is considered a "Secondary Bloodstream Infection"
Unexplained Febrile Episode	Documentation in the medical record of fever on 2 or more occasions at least 12 hours apart in any three-day period.	No known infectious or non-infectious cause for the fever (e.g. infection at any site, medication)

References:

McGeer A, Campbell B, Emori TG, et al. Commentary. Definitions of infections for surveillance in long-term care facilities. Am. J Infect Control 1991;19:1-7.

Smith PW, Rusnak PG. Infection Prevention and Control in the Long Term Care Facility. Infection Control and Hospital Epidemiology December 1997;18(12):831-849.

SURVEILLANCE

FREQUENT INDICATORS OF INFECTION IN THE ELDERLY

- ⇒ The presence of delirium (acute confusional state)
- ⇒ A rise in body temperature of at least 2.4°F from the baseline, or a body temperature higher than 100°F
- ⇒ Rapid major change (worsening in functional activities of daily living)
- ⇒ Loss of appetite
- ⇒ A fall in blood pressure or a rise in pulse rate
- ⇒ A fall with no previous history of falling

YES
(to any of the above)
Proceed To More Thorough Assessment

Upper Respiratory Infection

- Runny nose or sneezing
- Nasal congestion
- Sore throat, hoarseness or difficulty swallowing
- Dry cough
- New swollen or tender glands in the neck

Urinary Tract Infection

- New burning on urination, frequency or urgency
- Flank or supra pubic tenderness
- Change in character of urine (cloudy, dark, foul-smelling)

Soft Tissue Infection

- Classify the ulcer based on extent of tissue involvement
- Note the presence of purulence, devitalized tissue and cellulitis
- Measure the size and depth of the lesion(s)

YES
(to any of the above)
Proceed To Action Plan and More Thorough Assessment

Upper Respiratory Infection

- Call physician (per facility protocol)
- Symptomatic relief (i.e., decongestant)
- Monitor hydration status
- Observe for worsening condition

Urinary Tract Infection

- Call the physician for appropriately collected urinalysis
- Monitor hydration status
- Observe for worsening condition

Soft Tissue Infection

- Call the physician for appropriate treatment
- Monitor hydration status
- Observe for worsening condition

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SYMPTOMS OF WORSENING CONDITION

⇒ Unstable vital signs
⇒ Resident appears toxic, diaphoretic, more confused, dyspneic or cyanotic
⇒ Unable to eat or drink

YES
(to any of the above)
Proceed To Action Plan and Continued Assessment

⇒ Call physician. (If unable to access the primary physician, call 911)
⇒ Report all factors of your assessment.

BODY SUBSTANCE PRECAUTIONS

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BODY SUBSTANCE PRECAUTIONS

Body Substance Precautions System

For many years, "isolation" has been viewed as the cornerstone to a health care facility's infection prevention and control program.

Traditional isolation practices that focus on diagnosed cases of infectious diseases provide an incomplete strategy for infection prevention and control. These practices can cause detrimental psychosocial effects in residents and their families and interfere with the home-like atmosphere that nurses try to establish.

For these reasons, a system called Body Substance Precautions (BSP), was developed. It focuses on keeping all moist body substances, (blood, feces, urine, wound drainage, tissues, oral secretions, and other body fluids) from the hands of personnel. This is accomplished primarily through handwashing and increased glove use. The system eliminates many of the ritualistic practices associated with traditional isolation systems while increasing the use of barriers for all contacts with body substances. The BSP system described in this section is a practical, safe approach that fits well with the extended care environment.

Although not identical with Standard Precautions, as recommended by the Centers for Disease Control and Prevention, or Universal Precautions, as recommended by both the American Hospital Association and the Occupational Safety and Health Administration, BSP is consistent with both. BSP goes a step further and considers **ALL** moist body fluids as potentially contagious, regardless of the resident's diagnosis.[1-10] In order to follow these recommendations, the decision to use barrier precautions must focus on the care provider's routine **INTERACTIONS** with the resident. In the past, the resident's **DIAGNOSIS** had been the cornerstone of traditional isolation systems.

The major reason for changing from a traditional "diagnosis-driven" isolation system to the "interaction-driven" BSP is that **clinically diagnosed infectious diseases represent only the tip of the iceberg.** Many infectious organisms are carried without symptoms. This is certainly true for bloodborne pathogens such as human immunodeficiency virus (HIV) infection, hepatitis B virus (HBV) and hepatitis C (HCV) infection. Therefore, focusing isolation precautions only on diagnosed cases of AIDS, hepatitis B and C misses the vast majority of persons who have the infectious agents in their blood. Similarly, virulent or antibiotic resistant strains of bacteria such as methicillin resistant *Staphylococcus aureus* (MRSA), vancomycin resistant enterococci (VRE) or gram-negative bacteria may colonize body orifices or moist body surfaces without symptoms. These organisms can easily be transmitted from resident to resident on the hands of personnel. Because medical history and physical examination cannot reliably identify all persons infected with these or other infectious diseases, it makes far more sense to treat **ALL** moist body substances as potentially infectious rather than to focus precautions only on the residents that are diagnosed with infectious diseases. The BSP system reduces the risks of such transmissions by the consistent use of barriers whenever contacts with any body substances are likely.

BSP provides a consistent approach to managing body substances from **ALL** residents and is essential in preventing transmission of potentially infectious agents.

The appropriate barrier to be used is selected after careful consideration of each specific situation for the overall reasonable exposure risk associated with the task. **Risk factors that should be included in the evaluation include:**

- Type of body fluid with which there is or will be contact.
- Volume of blood/body substances likely to be encountered
- Reasonable anticipation of exposure; e.g., "will my hands touch the resident's secretions?"
- Probable route of exposure; i.e., hand contact, airborne, droplet, splashing
- Microbe concentration in fluid or tissue.

Many resident care procedures dictate the use of specific barriers for the resident's protection (i.e., sterile gloves for dressing changes). However, when personal protective equipment is selected for protection of the caregiver, professional judgment may determine when barriers are needed. These personal standards should be based on the individual employee's skills and likely interactions with the resident's body substances, non-intact skin, and mucous membranes and not conflict with facility policies/procedures. The risk factors outlined above should be used to assist in the decision-making process.

In addition to BSP, residents with suspected or diagnosed diseases that are transmitted through an airborne route are placed on **Stop Sign Alert** in a private room equipped with negative air pressure and 6-12 air exchanges per hour. (When these conditions cannot be met, the resident with a suspected or confirmed airborne disease will be transferred to another institution according to the transfer policy.)

Since traditional garb such as gowns and facemasks were never designed to prevent transmission of viral infections such as chickenpox or measles a STOP sign is placed on the door to alert personnel and visitors to “Check with the nurse before entering.” The nurse can then instruct personnel or visitors as to the precautions required and/or deny entrance to the room due to their susceptibility for acquiring the disease (no immunity). For airborne diseases to which immunity does not develop such as tuberculosis, the nurse will direct those entering the room to don appropriate respiratory protection.

BODY SUBSTANCE PRECAUTIONS

Implementing the Body Substance Precautions System

Implementing the Body Substance Precautions system includes the following elements and should be followed by **ALL** personnel at all times regardless of the resident's diagnosis.

Gloves

Wear gloves when it can be reasonably anticipated that hands will be in contact with mucous membranes, non-intact skin, any moist body substances (blood, urine, feces, wound drainage, oral secretions, sputum, vomitus, or items/surfaces soiled with these substances) and/or persons with a rash. **Federal OSHA laws require that gloves must be worn when performing vascular access procedures.** (Gloves are not required for intramuscular injections or allergy injections unless contact with blood is anticipated.) **Gloves must be changed between residents and between contacts with different body sites of the same resident.** If the glove is torn or a needle stick or other injury occurs, the glove should be removed, discarded in the trash and a new glove used promptly as resident safety permits.

REMEMBER: Gloves are not a cure-all. They should reduce the likelihood of contaminating the hands, but gloves cannot prevent penetrating injuries due to needles or sharp objects. Dirty gloves are worse than dirty hands because microorganisms adhere to the surface of a glove easier than to the skin on your hands. Handling medical equipment and devices with contaminated gloves is not acceptable.

Always select the type of glove that is appropriate for the task being performed. **Non-powdered gloves are preferred as they decrease the risks for acquiring a latex allergy.** The following general guidelines are recommended:

1. Use sterile gloves for procedures involving contact with normally sterile areas of the body.

2. Use examination gloves for procedures involving contact with mucous membranes (unless sterile gloves are indicated) and for other resident care or diagnostic procedures that do not require the use of sterile gloves.

3. Gloves are to be worn for vascular access procedures or drawing blood.

4. Change gloves between contacts (as defined above) with different residents or with different body sites of the same resident.

5. Do not wash or disinfect surgical or examination gloves for reuse. Washing with surfactants may cause "wicking," i.e., the enhanced penetration of liquids through undetected holes in the glove. Disinfecting agents may cause glove deterioration.

6. Use general-purpose utility gloves (e.g., rubber household gloves) for housekeeping or plant engineering chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored; or if they have punctures, tears, or other evidence of deterioration.

7. If two pairs of gloves are worn, one on top of the other, both pairs are considered contaminated after use and **both** pairs must be changed.

8. Medium sized non-powdered gloves should be placed in each resident room. Other sizes should be available in a treatment room or supply closet. If gloves are creating an allergic response, hypoallergenic gloves or glove liners must be made available.

9. Use hand lotions to protect skin; however, petroleum-based hand lotions such as Vaseline will cause latex to deteriorate.

10. Be alert to and report signs and symptoms of latex sensitivity (e.g.: dry, itchy, irritated areas on hands; rash that begins 24-48 hours after contact to latex; immediate skin redness; hives or itching; and/or respiratory symptoms from runny nose to difficulty breathing).

Handwashing

Handwashing remains the single most effective means of preventing disease transmission. Wash hands often and well, paying particular attention to around and under fingernails and between the fingers. **Wash hands whenever they are soiled with body substances, before food preparation, before eating, after using the toilet, before performing invasive procedures and when each resident's care is completed**.

Proper handwashing technique includes these steps:

1. Use a sink with warm running water, soap, and paper towels.
2. Push sleeves up above wrists (some recommend removing jewelry and wristwatch).
3. Apply soap to the hands and wash the hands vigorously using plenty of lather and friction for 10 or more seconds; interlace fingers and rub palms and the back of the hands in a circular motion; clean between fingers and vigorously clean the fingertips and nail beds.
4. Rinse hands and wrists thoroughly, keeping hands down and elbows up.
5. Dry hands thoroughly from the fingers down to the forearms and wrists with a paper towel; if available, use clean paper towel to turn off the water.

The use of antiseptic handwashing soaps are recommended during outbreaks, following gross contamination, prior to performing invasive procedures and prior to caring for high risk

individuals; e.g., immunocompromised. Waterless antiseptic hand cleaners or towelettes may be used if hands cannot be washed right after soiling, but soap and water must be used as soon as feasible. The use of alcohol based rinses or foams with a non-drying emollient are occasionally used as an adjunct to handwashing.

Face and Eye Protection

Wear masks and/or eye protection when it is likely that eyes and/or mucous membranes will be splashed with body substances, (e.g., when suctioning a resident with copious secretions, emptying fluids, irrigating a wound). These items should be available and accessible for personnel when needed. After use, either discard disposable masks/eye shields in the resident's room or place reusable goggles or face shields in a specified container in the utility room until they can be washed with soap and water.

Apron or Gown

Protect clothing with a plastic apron or gown when it is likely that clothing will be soiled with body substances. These items are primarily designed to reduce the soiling of the clothing of personnel with moist body substances. They should be worn any time soiling of clothes is anticipated. They should be removed and discarded after completion of each resident contact task. Lab coats when soiled with blood or body fluids should be removed as soon as feasible and placed in the facility laundry for cleaning.

Sharps Handling and Disposal

1. Contaminated needles must never be recapped by hand. When available, needle recapping, resheathing or removal devices should be used. In their absence, a one-handed "scoop" technique must be used.

2. Contaminated needles must never be removed from syringes by hand. If it is necessary to remove a needle from a syringe, use a hemostat or other device.

3. Needles must never be bent, broken or sheared by hand.

4. Broken glass and sharps (including disposable razors) that are contaminated must never be picked up by hand. Tongs or a brush and dustpan must be utilized for this purpose.

5. All sharps must be disposed of in a closable, puncture-resistant container that is red or labeled with a biohazard symbol. It must be leakproof on the sides and bottom, and kept upright throughout use and disposal. It must be replaced routinely and not be allowed to be overfilled. The container must be easily accessible to staff (ideally at the point of use WITHOUT any manipulation of the syringe) and located as close as feasible to the

immediate area of use. Prior to removing a sharps container, it must be securely closed to prevent spillage or protrusion of contents during handling, storage, transport or shipping.

Employee Health

Health care workers with skin problems such as open lesions or weeping skin rash must refrain from all direct resident care and from handling resident-care equipment until cleared by the facility administrator or his/her designee. These conditions put the employee and the resident at risk of infection.

Division of Aging rules (13 CSR 15-14.042 and 13 CSR 15-15.042) regulate exposure of residents to staff with communicable diseases. (See Appendix C)

Handling Laboratory Specimens

All specimens for the laboratory should be in leakproof containers that are recognizable as holding specimens only. If the outside of the container is contaminated, the specimen and container should be discarded and another sample obtained. When this is not possible, the specimen container should be placed in a leakproof, biohazard labeled or red bag/red container for handling, processing, storage and transport.

If the specimen is leaving the facility for any reason, it must have a biohazard label or be in a red bag/red container.

Consistent with the need to treat all blood and body substances as if they are potentially infectious, **DO NOT** place "MRSA", “VRE”, "blood precautions", "AIDS", or other infection labels on specimens from residents with identified infections. Using 'special precautions' labels on specimen tubes and containers encourages a false sense of security and potentially increases risk to personnel who may handle unlabeled specimens less carefully than they should. However, it is always important to write the resident's diagnosis on laboratory requests, x-ray requests, pathology requests, etc., because the diagnosis has clinical relevance. If trays are used to transport specimens in the facility, they must be labeled with the biohazard symbol. Also, always follow laboratory instructions for complete specimen labeling regarding resident's name, age, room, type specimen, how specimen collected, date of collection, facility and other requested information. This information is extremely important to laboratories as it contributes to the quality of laboratory reports.

For information on specimen collection, see Section 4. Collection and Transport of Laboratory Specimens.

Soiled Linen

Laundry workers, whose job entails sorting or handling contaminated linens, should wear gloves and other protective apparel as appropriate to prevent linens coming into contact with skin and clothes. No special procedures are needed for laundry from persons known to be infected. Therefore, if linen is processed within the facility, it need not be labeled except to identify all used linen as contaminated. If a commercial laundry that does not utilize Universal Precautions processes linen, then the transportable containers must either be red or have a biohazard label.

Guidelines for appropriate management of soiled linen include:

- Place all soiled linens in laundry bags provided at the point of use.
- Avoid contact with your uniform/clothing and surrounding patient care equipment.
- Do not shake or place linen directly on the floor.
- For linens lightly to moderately moist, fold and/or roll in such a way as to contain the moist area in the center of the soiled linen.
- For soiled linens that are **saturated** with moisture, place them in a plastic bag followed by tying or knotting the open end. The plastic bag containing wet linens should then be placed in an approved laundry bag and closed before transporting to the proper designated area.
- **DO NOT OVERFILL BAGS** more than 2/3 of capacity as overfilled bags tend to rupture if they are dropped.

Disposal of Regulated Waste From Resident's Rooms

According to OSHA, regulated waste is defined as:

- Liquid or semi-liquid blood or other potentially infectious materials (OPIM);
- Contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed;
- Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling;
- Contaminated sharps; and
- Pathological and microbiological wastes containing blood or OPIM.

All trash generated from individual resident's rooms, with the exception of fluid-filled containers and regulated waste as above, can be disposed of in regular trash bags as per usual practice.

Fluid-Filled Containers

All fluid-filled containers (e.g. suction canisters and hemovacs) may be emptied directly into a hopper or toilet. Personnel should wear protective attire (gloves, goggles) to protect themselves from splashes unless a protective mechanical barrier (splash shield) is provided.

If fluid-filled containers are disposed of without emptying, follow the regulated waste handling procedures of the facility. These procedures must utilize closable containers that are leak proof and are either red or biohazard labeled. If the outside of the container becomes contaminated, the regulated waste must be placed in a second labeled or red container before being transported by a licensed infectious waste hauler. Alternatively, a facility can decontaminate all regulated waste in accordance with Department of Natural Resources (see Appendix F) and Department of Health (see Appendix G) rules.[11-13]

Wound Dressings

All wound dressings are to be disposed of in a manner so as to "confine and contain" any blood/body fluids that may be present:

1. Small dressings can be enclosed in the disposable glove used to remove the dressing. Pull the glove off inside out containing the dressing inside of it. This dressing and the gloves can then be discarded into the regular trash container in the resident's room.

2. Larger dressings should be removed using gloved hands and placed into a leakproof bag. Small plastic bags are available as a "dressing change bag" that can be used at the bedside. This bag can be used for the old dressing, gloves, and other trash from the dressing change procedure. This bag can generally be deposited into the regular trash container in the resident's room unless saturated with blood or as defined above as a regulated waste.

Environmental Cleaning

Proper cleaning of the environment is an essential component of the entire spectrum for preventing and controlling infections. Detailed procedures, schedules and training must be in place for daily cleaning in all resident areas in order to reduce bacterial load (quantity of bacteria). Routine cleaning should be done with a disinfectant or disinfectant/detergent registered with the Environmental Protection Agency (EPA), the evidence of which is an EPA number on the product label. Cleaning agents and disinfectants must be appropriate for the type of soilage and the surface or equipment to be decontaminated.

All equipment, protective coverings on equipment, environmental surfaces, working surfaces (countertops, etc.), bins, pails, cans and similar receptacles must be regularly observed for contamination with blood or other potentially infectious materials (OPIM). If such contamination is known to have occurred, then prompt cleaning and decontamination must be carried out.

Low level disinfectants with or without combined detergents should remove or kill most bacteria within 10 minutes contact time. Low level disinfectants are appropriate for noncritical items; i.e., those that come into contact with intact skin such as bedpans, crutches, bed rails, bedside tables, floors and furniture. Such disinfectants are iodophors, phenolics,

quaternary ammonium compounds (QUATS) diluted per manufacturer's recommendations and sodium hypochlorite (bleach solution) diluted to 100 ppm (1/4 oz/gallon water).

Good housekeeping practices begin with fresh cleaning cloths, fresh cleaning or mopping solutions, and clean buckets and mop heads on a daily basis. Solution should be changed frequently throughout the day, but particularly if solution becomes gray (possibly every 3 rooms).

Cleaning should always start with the cleanest part of the room (top areas) and proceeds to the dirtiest-bottom, floor areas and then the commode or toilet area. Always clean grossly soiled areas (feces, urine, vomitus, sputum, and drainage) with an organic cleaner/detergent before using the disinfectant. Mop heads should be bagged and laundered at the end of the day or when grossly soiled.

For blood or OPIM spills, first absorb most of the bloody spill using a gel agent or paper towels. Next, clean area with disposable towels while wearing gloves. **(Disinfectants will not work in the presence of organic matter.)** Then apply an EPA-registered disinfectant labeled as effective against HIV and hepatitis B virus (HBV) such as Iodophors, phenolics, "Quats"[14,15], according to the manufacturers recommendations for disinfection or use 500–800 ppm (1:100, 1:65) sodium hypochlorite (1.3 oz. or 2 oz. per gallon of water). If sodium hypochlorite is used for large blood or OPIM spills, use 5000 ppm (1:10; 13 oz./gallon of water) let stand for 10 minutes. (Mixed sodium hypochlorite is only stable for 24 hours.) After cleaning and disinfection, carefully discard rags into a plastic bag.[16]

Cardiopulmonary Resuscitation (CPR)

To minimize the need for mouth-to-mouth resuscitation, resuscitation devices (mouthpieces, pocket masks, and resuscitation bags) should be located in designated areas within the facility. No transmission of hepatitis B virus (HBV) or human immunodeficiency virus (HIV) via mouth-to-mouth resuscitation has been documented. However, because of the risk of salivary transmission of other infectious diseases (e.g., *herpes simplex* and *Neisseria meningitidis*) and the theoretical risk of HIV and HBV transmission during artificial ventilation of residents, resuscitation devices should be used. Disposable resuscitation equipment and devices should be used once and disposed of or, if reusable, thoroughly cleaned and disinfected after each use following manufacturer's guidelines.

Resident Placement, Activity Restriction and the Use of Private Rooms for Infection Prevention and Control

The physician and persons responsible for infection control should assess individual residents as to the potential for transmitting infectious organisms. Room assignments and restriction of activities are determined by this assessment. Although there are many reasons for using private rooms, the major reasons are diseases transmitted in whole or in part by the

airborne route or by the resident who extensively soils the environment with body substances.
Private rooms are generally indicated for residents with uncontrollable excretions (diarrhea), secretions, excessive coughing, heavy wound drainage or widespread skin disease. Residents should be confined to their rooms while the above conditions exist. If no private rooms are available, the resident could be placed in a semi-private room with **a resident considered at low risk for developing an infection**, such as one who is:

- ambulatory
- well-nourished and hydrated
- able to take care of daily needs
- not needing invasive lines or tubes
- not immunocompromised by disease or drugs

Residents considered **at higher risk for colonization** with a specific pathogen (including multiply-resistant organisms) and subsequent infection are those who:

- have had multiple courses of antibiotics or prolonged antibiotic therapy
- are on dialysis (hemo or peritoneal) or have renal failure
- are immunocompromised, on long-term steroids or chemotherapy
- have an open wound, surgical or non-surgical; e.g., pressure ulcers
- have an invasive site; e.g., I.V., gastrostomy, foley, tracheostomy

If a multiply resistant organism has been identified by culture as colonizing or infecting a resident, he/she should share a room with another resident having the same organism, preferably with the same antibiogram. If a resident is not available with the same organism, the roommate should be a resident who is considered at low risk for colonization and subsequent infection with that organism, as mentioned above.

Activities

Coherent residents, **colonized** or **infected** with a specific pathogen, may participate in nursing home activities and may eat in the dining hall. Since there are both recognized and unrecognized pathogen carriers participating in nursing home activities, **all** residents should be considered colonized and should have wounds or invasive sites cleansed, covered, and have hands washed before leaving their rooms. Conversely, residents may have minor or chronic infections, which pose no risk to others within the bounds of ordinary social settings and acceptable behavior. Allowances should be made, where there is no means of transmitting the organism to others, to allow these residents to engage in certain activities; i.e., a resident who is continent or has an indwelling catheter and has a urinary tract infection or a resident who has a scant amount of drainage on a wound that is covered with a clean secure dressing. Each resident should be assessed individually prior to restricting activities.

Physician's Role in Implementing the Body Substance Precautions System

1. It is not necessary to write an order for "isolation precautions" in the resident's chart.

2. If the resident has a disease which is transmitted in whole or in part by the airborne route (See Subsection 3.3 Diseases Transmitted by Airborne Route) this information should be written on the **ORDER SHEET** so the nurse can place a **STOP SIGN ALERT** (See Figure 3.1-1) on the resident's door.

3. Each physician needs to evaluate his/her own interactions with the resident and use barriers as appropriate, based on anticipated contact with body substances, not the resident's diagnosis of infection.

4. All physicians should know their own chickenpox, measles and rubella immune status. Those who perform invasive procedures are advised to know their HIV antibody status and their hepatitis B antigen status as advised by 19 CSR 20-26.050 and 19 CSR 20-26.060 (See Appendix H). Participation in a tuberculosis screening program and vaccination against the current influenza viruses is recommended.

5. All physicians who have frequent contact with blood or body fluids should be immunized against Hepatitis B.

6. The use of private rooms for infection prevention and control.

   There are many reasons for requesting private rooms as a medical necessity. However, the major infection prevention and control reasons for a private room are when the resident has a disease that is transmitted in whole or in part by the airborne route or when the resident extensively soils the environment with body substances. Examples include any resident with uncontrollable excretions, excessive coughing, secretions or heavy wound drainage. This resident should be segregated from other residents and confined to his/her room during the period in which the above condition(s) exist. If no private rooms are available, the resident could be placed in a semi-private room with a low-risk resident. The physician and infection control practitioner should individually assess each resident.

Role of Nurses and Other Health Care Workers in Implementing the Body Substance Precautions System

1. Each health care worker needs to evaluate his/her own interactions with the resident and use barriers as appropriate, based on anticipated contact with body substances, not the resident's diagnosis of infection. Use the guidelines described in BSP to make these judgments.

2. If the resident has a disease which is transmitted in whole or in part by the airborne route, the nurse is responsible for assuring the appropriateness and safety of persons wishing to enter the resident's room. Use the guidelines described in Precautions for Residents with Airborne Diseases in this section to make these judgments.

3. All health care workers should know their own chickenpox, measles, mumps and rubella immune status. Participation in a tuberculosis screening program and vaccination against the current influenza viruses is recommended.

4. All health care workers who are reasonably expected to have contact with blood or body fluids will be offered hepatitis B vaccination.[10,17]

Precautions for Residents With Airborne Diseases

Some diseases are transmitted through an airborne route and require precautions beyond the routine Body Substance Precautions. Airborne diseases are transmitted on tiny particles in the air. Fortunately, there are few airborne diseases seen in the United States (measles, TB, chickenpox and disseminated herpes zoster). There are basically two types of airborne diseases:

1. Those that people develop immunity to after vaccination or exposure and

2. Those to which you do not develop immunity after exposure.

All residents infected with an airborne disease must be placed in a private room that receives 6-12 air exchanges per hour and is under negative air pressure. In the past, masks, gowns and gloves were used to prevent persons from being exposed to residents with chickenpox, measles etc. Unfortunately, these devices do not protect health care workers from these diseases as evidenced by health care workers (HCWs) acquiring infection even when wearing these items. For this reason, the immunological history of the HCW is important. Instead of relying on ineffective barriers to prevent transmission, it makes far more sense to assign only personnel who have documented immunity to measles and chickenpox to care for these residents. For diseases that do not elicit immunity, such as tuberculosis, special respiratory protective masks (N-95 masks) must be worn to provide adequate protection.

When a diagnosis is not definitive, all health care workers should wear masks to prevent inadvertent exposure.

Precautions

- Private room with negative air pressure and 6-12 air exchanges per hour.
- "Stop Sign Alert" on door (See Figure 3.1-1)
- Door closed

Stop Sign Alert

When a patient is suspected of or known to have a disease transmitted in whole or in part by the airborne route, the physician needs to request a private room and write "**STOP SIGN ALERT**" with the diagnosis or "rule out" diagnosis on the order sheet. This will prompt the nurse to place a **"Stop Sign Alert"** (see Figure 3.1-1) on the door to the patient's room. **The Stop Sign Alert instructs anyone about to enter the room to "check with the nurse before entering."**

IMPORTANT: The "Stop Sign Alert" sign is only to be used for residents with airborne diseases as listed in Subsection 3.3 Diseases Transmitted by Airborne Route. The facility should instruct all staff to recognize this sign and to follow the appropriate respiratory precautions.

Nurse Responsibilities

1. **Placing a "Stop Sign" on the patient's door.**
2. **Assigning a patient to a private room equipped with special ventilation (negative air pressure).**

   Since the diseases listed in Subsection 3.3 Diseases Transmitted by Airborne Route are transmitted in whole or in part by the airborne route, the **door should remain closed at all times.** In rooms where special ventilation is not available, fans may be appropriate for placement in the window. Fans must face outward (toward the outside) to create negative air pressure. The facility must evaluate the appropriateness of using a portable fan versus transferring the resident to a higher level of care.

3. **Instructing persons wishing to enter the room to EITHER:**

   a) Wear a mask

      Example: For a patient with active tuberculosis or any of the other airborne diseases listed in Subsection 3.3 Diseases Transmitted by Airborne Route which are marked with an asterisk (*), all persons entering these rooms shall be instructed to wear a mask.

   b) Enter or **not** enter the room based on their immune status

      Some diseases confer lifelong immunity such as measles and chickenpox, (diseases marked with a double asterisk [**] in Subsection 3.3 Diseases Transmitted by Airborne Route). For these cases, the nurse is responsible for determining the immune status of the person who wishes to enter the room.

      Example: If the patient has chickenpox or measles, persons entering the room who have not been vaccinated or do not have a history of having the disease should not enter the room because masks do not guarantee protection against these viral infections. If there is a history of chickenpox and/or measles or documentation of vaccination, the person may enter the room without a mask.

Transportation of the Patient With an Airborne Disease

Residents with diseases transmitted by an airborne route should not be transported unnecessarily to other departments. If these residents must be transported, they should wear a mask, and for diseases marked with a "**" in Subsection 3.3 Diseases Transmitted by Airborne Route, the transporter should be immune to the disease. (The receiving department should be notified in advance so that immune personnel can be assigned to perform the procedure). Although masks are generally not helpful when care givers wear them to protect themselves from airborne viruses, placing surgical masks on the patient with an airborne disease will minimize the droplets that may be shed into the air when coughing, laughing, sneezing, etc. Therefore, masks should be placed on any patient with an airborne disease when transporting to another department within the facility.

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Figure 3.2-1

SEE THE NURSE BEFORE ENTERING

BODY SUBSTANCE PRECAUTIONS

Diseases Transmitted by Airborne Route

The following diseases are transmitted in whole or in part by the airborne route. Residents with these diseases need to be assigned to private rooms equipped with special ventilation, (negative air pressure), and have a "**STOP SIGN ALERT**" posted on the door. The door should remain closed at all times. In rooms where special ventilation is not available, fans can be placed in the window facing out to create negative pressure.

Diseases	How Long to Apply Airborne Precautions	Comments
** **Chickenpox (Varicella)**	Until all lesions are crusted.	Persons who are not susceptible do not need to wear a mask. Exposed susceptible residents should be isolated beginning on the 8th day after first exposure until 21 days after the last exposure.
** **Disseminated Shingles (Herpes Zoster or localized Herpes Zoster in immunocompromised resident)**	Duration of illness.	Localized lesions in immunocompromised residents frequently become disseminated. Use the same precautions as for disseminated disease.
* **Tuberculosis (TB)-pulmonary; confirmed or suspected.**	In most instances, duration can be guided by clinical response and a reduction in numbers of TB organisms on sputum smear. Usually this occurs within 2-3 weeks after chemotherapy is begun. When the resident is likely to be infected with INH-resistant organisms, apply precautions until resident is improving and sputum smear is negative for TB organisms.	Prompt use of multiple effective anti-tuberculosis drugs is the most effective means of limiting transmission. Residents should be taught to cover nose and mouth with several layers of tissues when coughing or sneezing. A mask must cover the resident's nose and mouth when out of the room for any reason.
Rubeola (Hard Measles)	Until 4 days after appearance of rash	Communicability is minimal after second day of rash. Vaccine virus is not communicable. Persons not susceptible do not need to wear a mask. Search for and immunize exposed susceptibles (within 72 hours of exposure) or give IG (within 6 days of exposure).

*Wear a mask with a minimal designation as N-95.
**All persons who are not immune to these diseases should not enter the rooms of these residents.

NOTE: Suspected or diagnosed *Mycobacterium tuberculosis* infection is a reportable Category I disease, which must be reported to the Department of Health within 24 hours as required by 19 CSR 20-20.020. See Appendix I for complete copy of 19 CSR 20-20.020 that lists all reportable diseases.

The facility shall also report to the Division of Aging when a resident is diagnosed as having a communicable disease as required by 13 CSR 15-14.042(78) and 13 CSR 15-15.042(34). See Appendix C. for relevant portions of those rules.

BODY SUBSTANCE PRECAUTIONS

Examples of Situations Using the Body Substance Precautions System

Because the BSP system is a judgment and skill-based system, each individual makes his/her own decisions about when to wear gloves and use other barriers based on their own skill and their interaction with the resident's body substances, non-intact skin or mucous membranes. Facilities also establish policies and procedures for when staff must use barrier precautions. Here are some examples of typical situations:

Caring for Incontinent Residents

Gloves should be worn routinely for cleaning incontinent residents and for helping residents with toileting activities. It is difficult to clean an incontinent resident without getting urine and/or stool on the hands. The major risk when performing this task is getting stool underneath the fingernails. Gloves reduce this risk and make handwashing after completing the task easier and more efficient. A plastic apron may be needed for cleaning incontinent residents and changing the bed. Always obtain the plastic apron **BEFORE** the tasks are begun.

Emptying Urinary Catheter Bags

When a care provider is emptying a urinary catheter bag, this should be viewed as a single interaction to a single resident. The task for one resident should be completed before going to the next resident. Gloves should be worn to empty catheter bags as it is difficult not to get urine on the hands. Gloves must be changed and hands washed between residents. It is unacceptable to consider it a single task to empty the catheter bags for several residents in sequence without changing gloves and washing hands between residents. This is because of the real risk of transmitting organisms from the catheter bag drainage spout of one resident to the next resident's drainage spout via the hands of personnel. Each resident should have his/her own labeled individual graduate container for draining the catheter bag. This prevents a resident's catheter bag drainage spout from becoming contaminated with organisms from other residents' urine as when a common graduate or emptying container is used for all persons with indwelling urinary catheters.

When a Resident Has a Rash or Skin Lesions

When a resident has a rash on his/her body or skin lesions, it could be due to any number of causes. A critical index of suspicion is essential to determine whether the rash is varicella (chickenpox or zoster), herpes simplex, scabies, syphilis, impetigo, a drug reaction, or due to any number of other conditions. The most important intervention for rashes or skin lesions is use of appropriate protective barrier precautions (e.g.: gloves and possibly gown) followed by describing the rash to the resident's physician so appropriate testing can be performed and/or a diagnosis be obtained. In many cases, prompt recognition of the rash, identification

of the cause, and prompt appropriate intervention can prevent transmission to the care provider and others. Gloves and gown should be worn when caring for persons with a rash caused by a communicable condition.

Suctioning Residents

With the BSP system, each facility staff member needs to evaluate his/her suctioning practices. Eye protection and masks should be used only if splashing is likely to occur. Most persons who suction residents frequently have learned how to position their heads so that they are not splashed. Suctioning of a resident's airway should **ALWAYS** be done with the care provider wearing gloves on both hands. In addition, if a care provider puts hands into a resident's mouth for **ANY** reason, (e.g., for examination or when doing mouth care), gloves should be worn followed by handwashing after glove removal.

Starting Intravenous Therapy Infusions or Drawing Blood

A person starting intravenous therapy, drawing blood, or performing fingersticks should wear gloves. The major risk in starting IV's and drawing blood is a needle stick injury. When starting and discontinuing IV therapy, it is the discontinuing that is the lesser of the controlled procedures and has the greater potential for blood exposure. Careful needle handling is the most important factor in this interaction. Generally, needles should not be recapped, and never bent, or broken by hand, but should be discarded directly into the needle disposal containers. The "one-handed recapping technique" should be used in situations where recapping is necessary. Needle-recapping devices should be used when recapping is necessary.

Manipulating Stopcocks

A person who manipulates stopcocks on a regular basis often gets blood on his/her hands during such manipulations. If getting blood on the hands is the usual experience for the individual, gloves should be worn for manipulating stopcocks. It is wise to develop a standard practice of wearing gloves to manipulate stopcocks and lines because it is difficult to do so without getting blood on the hands.

COLLECTION AND TRANSPORT OF LABORATORY SPECIMENS

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COLLECTION AND TRANSPORT OF LABORATORY SPECIMENS

Procedures for Specimen Collection and Transport

Laboratory results for your residents are contingent on the quality of the sample taken and proper adherence to transport directions. Poorly collected or transported specimens will lead to improper or delayed treatment for your resident.

It is imperative that your contract laboratory provides your facility with complete guidelines for proper collection and transport of specimens. These guidelines must be available and used by all the professional staff in your facility.

Safety Considerations

- Follow OSHA bloodborne standards. Observe Universal Precautions or BSP guidelines when collecting patient specimens. Treating all specimens as potentially hazardous eliminates the need for special considerations or warning labels.

- Do not contaminate the external surface of the collection/transport device or the accompanying paperwork.

- Minimize direct handling of the specimen from the resident to the laboratory by utilizing transport systems, such as sealable plastic bags, provided by your laboratory.

General Recommendations

- Consult with contract laboratory for specific collection procedures and devices, holding, and transport requirements.

- Obtain cultures prior to initiation of antibiotic therapy OR after residents or personnel have been off antibiotics at least 48 hours, preferably longer.

- **Every specimen submitted to a laboratory must be labeled with at least the patient name, source of specimen (specific site of specimen), date, and time of collection of specimen.** In addition, completely fill out the test request form. The name on the specimen must match the name on the request form. Include any specific requests/organisms the laboratory is to test for.

- Utilize sterile equipment and aseptic technique to minimize contamination with normal flora. When a specimen is to be collected through intact skin, cleanse the skin first. Cleanse the puncture site with alcohol followed by iodine which is allowed to dry and then wiped off with alcohol. Do not palpate this site following antiseptic cleansing.

- Collect adequate amounts of the specimen to eliminate false negative results.

- Select the correct anatomic site from which to obtain the specimen and use the proper supplies and technique to collect the specimen. If in doubt, consult the laboratory or their manual for proper technique, and transport container. The following are some suggested site-specific recommendations. Do not follow them if they are in conflict with your laboratory instructions.

1. Routine Nasal Culture—Culture the anterior nares only. One swab may be used for both nares. If the swab is moistened with sterile nonbacteriostatic saline, gently roll the swab for 2-3 seconds over the area to be cultured. If swab is dry, rub area more vigorously. Place swab in culturette container and crush ampoule of transport media to ensure the swab stays wet. Do not refrigerate swab.

2. Throat Culture—Instruct resident to breathe through his/her mouth as this will lessen gagging. Utilizing a tongue blade and sterile swab, sample the back of the throat between and around the tonsillar area including any white or inflamed areas. Avoid cheeks, teeth, etc. In general, swabs for viral culture should be refrigerated if delay in transport is anticipated.

3. Nasopharyngeal Culture—A nasopharyngeal wire swab should be passed along the floor of the nose posteriorly until it contacts the posterior pharyngeal wall. This should be accomplished with the neck in an extended position. The swab should be rotated several times and removed. **It should be placed in an appropriate transport container/conveyance and delivered, as instructed, to the laboratory.** (Transport media is only appropriate for bacterial cultures.)

4. Skin—Consult your laboratory manual for complete directions when performing skin scrappings to test for scabies. How to perform skin scraping is also outlined in "Guidelines for Scabies Prevention and Control," Appendix J. Specimens of skin, hair or nails for fungal culture can be submitted in a sterile, screw cap container.

5. Sputum—A first morning, deep cough is recommended. Attempt to minimize contamination with saliva. Have resident brush teeth and gargle prior to collection. Remove dentures.

6. Ear—Best results will be obtained if the ear is actually draining. Gently rotate swab in affected ear.

7. Eye—Swabs for culture should be taken prior to application of topical antibiotics. Sample both eyes by rolling separate swabs premoistened with sterile nonbacteriostatic saline over each conjunctiva.

8. Wounds and Abscesses—Tissue or fluid obtained from a site are superior to swab specimens.

   - Surface Wounds: When collecting surface wound cultures, first wipe off superficial drainage with sterile saline moistened gauze then sample the depths or leading edge with a swab. **Avoid** areas where healing has occurred. If necessary, open the lesion and express exudate onto a sterile swab. If a sinus tract is to be cultured, collect specimen as close to the base of the tract as possible. The tract opening should be wiped with a suitable antiseptic such as alcohol and allowed to dry. Remove accumulated purulent drainage from the tract using sterile saline soaked 4 x 4 dressing.

   - Deep Wounds: Deep wounds may contain anaerobic organisms that require special transport conditions. Consult your laboratory manual for appropriate collection of a deep wound sample. Anaerobic organisms will not survive in routine culturettes.

   - Abscesses: Use a needle and syringe to aspirate the fluid. Consult your laboratory manual for special transport conditions. Specimens collected by needle aspirate should be transported to a sterile container or appropriate transport vial and the needle and syringe disposed in compliance with OSHA requirements. When there is little material, a small amount of sterile saline can be drawn into the syringe prior to transferring the specimen to a sterile container. Never transport a specimen in a syringe without removing the needle. If transfer to another container will compromise the specimen, remove and properly dispose of the needle, and cap the syringe with a sterile cap prior to transporting the specimen to the laboratory.

9. Urine—All urine specimens, clean, voided or catheterized must be collected in a sterile container or urine transport tube. Early morning, clean voided specimens are best. When collecting a urine specimen from a catheterized patient, collect the urine from the catheter line. Do not culture Foley catheter tips. If urine cannot be transported to the laboratory immediately, it may be held in the refrigerator for up to four hours or placed in a urine transport tube with preservative. Urine specimens that do not adhere to transport times and conditions will provide compromised results and may be rejected by your laboratory as unsatisfactory for testing. The **date** and **time** of collection are required on urine specimens.

10. Feces—Antibiotics, barium, and mineral oil are toxic to bacteria so stool specimens need to be obtained prior to their administration. Collect liquid or semi-liquid stool whenever possible. Collect in a clean or sanitized bedpan. Do not contaminate the feces with urine. **If infecting organism is unknown (i.e., an outbreak), collect two specimens.** One specimen for bacterial testing, which is placed in transport media, and one for viral testing, **NOT** placed in transport media. Fecal specimens must be placed in different collection vials depending on the suspected infecting organism. Feces for some viruses and bacteria must be collected without transport media. Feces

for most common enteric parasites must be placed in a special transport media. **Transport containers for bacteria and parasites are NOT interchangeable.** Consult your laboratory manual for appropriate transport conditions.

A single negative stool culture or examination for ova and parasites cannot be accepted as sufficient to disregard a particular gastrointestinal pathogen as a potential cause of illness. Most infectious diarrheas will be diagnosed with careful and extensive evaluation of three stool specimens. Demonstrations of toxins: immunologic or cytologic methods are the preferred proof that *Clostridium difficile* is the observed clinical disease. Follow the laboratory's instructions for *C. difficile* toxin specimen collection.

11. Rectal Swabs— Swab should be inserted just inside the anus and rotated with firm pressure. On withdrawal it should be placed in a screw cap tube containing a preservative such as Cary Blair media. Rectal swabs are **not recommended** for detecting asymptomatic carriers of *Salmonella*, *Shigella* or *Campylobacter*. Swabs are **not acceptable** for ova and parasites.

12. Blood—**The laboratory should provide the facility with commercial collection kits and blood culture bottles. Follow collection and transport directions very carefully.** The specimen should be taken when the patient's temperature is on the rise. Blood cultures are to be drawn at least one half hour apart with a total of three cultures in 24 hours. The specimens must be labeled with collection times, date and the patient's name.

Suggested Steps for Obtaining Blood Cultures: (Please consult and follow your own laboratory-specific instructions.) Obtain supplies. Wash hands for one full minute using an antiseptic soap. Wipe hands with alcohol swab.

- Apply tourniquet and select venipuncture site, then release tourniquet.
- Arrange sterile gloves and prep materials on a sterile field.
- Degrease the site using 70% isopropyl alcohol, rubbing in concentric circles starting at the center and moving outward, applying firm but even pressure.
- Prep the venipuncture site with 2% tincture of iodine (preferred) or povidone iodine in concentric circles, allowing the iodine solution to remain for 60 seconds. Prep the tops of the blood culture bottles, also, using fresh iodine preps.
- Use 70% isopropyl alcohol to remove the excess iodine from the venipuncture sites and tops of the bottle(s).
- Allow the alcohol to dry.
- Apply the tourniquet, then don sterile gloves, palpate the vein and draw approximately 10 to 20 ml of blood with a syringe and needle.
- Use alternate arms for more than two blood culture collections.
- Divide 10-20 mls evenly between bottle and unvented thiol bottle.
- Transport to the laboratory immediately. **DO NOT REFRIGERATE.**

13. Intravascular (IV) Catheter Specimens— Intravascular (IV) catheters are an important potential source of bacteremia and fungemia as well as local infectious complications at sites of catheter insertion. Quantitative culturing of catheter tips is useful in assessing the relationship between catheters and sepsis. A positive catheter tip culture alone is not indicative of an IV related infection. Correlation of these results must be made with both blood cultures and the patient's clinical picture.

    Procedure for obtaining a catheter tip culture:

    - Obtain supplies and wash hands.
    - Cleanse skin around catheter site with alcohol.
    - Don sterile gloves and aseptically remove the catheter. With sterile scissors, clip 5 cm of the distal tip of the catheter and put directly into a sterile tube. Do not place in liquid media.
    - Transport to the laboratory immediately.

- If the physician orders anaerobic cultures, consult your laboratory for instructions. **Specimens likely to contain anaerobic bacteria must be collected and placed in an anaerobic device capable of maintaining the viability of anaerobes. DO NOT REFRIGERATE.**

- All specimens must be promptly transported to the laboratory. Consult laboratory for specifics in storage requirements of specimens prior to transport.

REMEMER: Close attention to your laboratory's instructions for collecting and transporting laboratory specimens will insure that your patient receives a rapid and accurate result.

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IMMUNIZATION

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IMMUNIZATIONS

Immunization Recommendations for Residents of Long Term Care Facilities

Timing of Immunizations	
Influenza	Recommended annually for all residents.
Pneumococcal	Recommended for residents 65 years and older. A repeat dose after 6 years may be given to those at highest risk*
Tetanus, Diphtheria (Td)	Nursing home residents should be assessed for the primary Td series. If the primary series are not documented, series should be given. **Primary Series:** Three Doses Dose 1 Dose 2 - 1 month later Dose 3 – 6 months after dose 2 A booster Td should be given every 10 years.

* Consult the resident's physician to determine the level of risk and need for this vaccine.

IMMUNIZATIONS

Employee Immunization Recommendations

Timing of Immunizations	
Hepatitis A	Recommended for **all** food handlers. **Series**: Two doses Dose 1 Dose 2 – 6 months later
Hepatitis B	Recommended for health care professionals who perform tasks involving contact with blood, blood–contaminated body fluids, other body fluids/sharps. **Series**: Three doses Dose 1 Dose 2 – 1 month later Dose 3 – 5 months after dose 2
Influenza	Recommended annually for all staff.
Measles, Mumps, Rubella (MMR)	Recommended. Persons can be considered immune to measles, mumps or rubella if they: 1) were born prior to 1957; 2) have documentation of physician diagnosed measles or mumps disease; 3) laboratory evidence of measles, mumps/rubella immunity; 4) 2 doses of measles, mumps, rubella vaccine administered on or after the 1st birthday. **Note**: Should not be given to pregnant women or those considering pregnancy within 3 months of vaccination.

(continued on next page)

Varicella	Recommended. A reliable history of chickenpox is a valid record of immunity. If no history of disease, varicella vaccine is recommended. **Series**: Two doses Dose 1 Dose 2 – 1-2 months later **Note**: Should not be given to pregnant women or those considering pregnancy or attempting to become pregnant.
Tetanus, Diphtheria (Td)	Health care professionals should be assessed for the primary Td series. **Primary Series:** Three doses Dose 1 Dose 2 – 1 month later Dose 3 – 6 months after dose 2 Employees should receive a booster every 10 years.

TRANSFER OF RESIDENTS

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TRANSFER OF RESIDENTS

Transfer of Residents Between Facilities

Infection and/or colonization of residents with microorganisms, including the multiply resistant category, can be managed in the long term care setting utilizing body substance precautions.[1] Open and honest communication of resident clinical information between the transferring facilities is essential to maintain optimum infection control for residents and employees of both facilities.

Admission to Long Term Care Facility

1. Prior to the nursing home admission, the facility should request clinical information from the transferring facility regarding current culture reports of the resident's body sites that may be infected or colonized with pathogenic organisms, especially multiply resistant organisms. This action will enable the nursing staff to determine the nursing care interventions necessary to meet the resident's needs.(See Figure 6.1-1 for an example of a transfer form.)

2. The facility should also request clinical information from the transferring facility to determine the resident's risk factors for colonization with multiply resistant organisms (i.e. long hospital stay, ICU stay).

3. The facility should review all pertinent clinical information on the transfer form accompanying the resident upon admission to the facility.

4. The facility may not deny admission to a resident based upon the diagnosis of MRSA or any other multiply resistant organism or infectious disease, unless the long term care facility is unequipped to provide appropriate care for the resident.[2]

Transfer to the Hospital or Another Long Term Care Facility

1. When transferring a long term care (LTC) resident to a hospital or another LTC facility, the facility coordinating the discharge should prepare a transfer form and send it with the resident. The transfer form should show pertinent clinical data including the resident's medical history, diagnoses, presenting signs and symptoms, status of infectious disease (particularly multiply resistant organisms), appropriate culture reports/data, and current antibiotic therapy. (See Figure 6.1-1.)

2. The discharging facility should notify the admitting hospital or LTC facility by phone if laboratory data pertinent to the resident's clinical care is received **after** the resident's discharge. Such important information would include:
    - any abnormal blood work;
    - any positive culture report;

- information that the resident had been exposed to an infectious disease outbreak in the LTC prior to transfer.

Communication Between Facilities

There should be open communication between facilities permitting the exchange of information about the patient or resident. The LTC facility should notify the admitting facility when a multiply resistant organism or communicable disease is identified on a resident recently discharged from the facility. The LTC facility should expect and request the same information of the facility from which the resident was transferred. This communication and cooperative action will permit both facilities to track the patients/residents to identify potential communicable disease exposure. All information exchanged must be handled in a manner to maintain the resident's confidentiality of medical care and treatment. **Transfer agreements between facilities provide efficient mechanisms to formalize the appropriate content and methods for patient/resident information exchange.**

References

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2. Division of Aging, Missouri Department of Social Services. 13 CSR 15-14.042 Administration and Resident Care Requirements for New and Existing Intermediate Care and Skilled Nursing Facilities and 13 CSR 15-15.042 Administrative, Personnel and Resident Care Requirements for New and Existing Residential Care Facilities I and II. Code of State Regulations, September 30, 1998.

Figure 6.1-1

(Sample) Long Term Care
Patient Transfer Form

Patient's Last Name	First Name	MI	Sex ☐M ☐F	Health Insurance Claim Number

Patient's Address (Street Number, City, State, Zip Code)	Date of Birth	Religion

Date of This Transfer	Facility Name and Address Transferring to

Dates of Qualifying Stay FROM ____ / ____ / ____ THRU ____ / ____ / ____	Facility Name and Address Transferring from Qualifying and Other Prior Stay Information (Including Medical Record Numbers)

Date of Last Physical Examination	Policy or Medical Assistance No.

Insuring Organization or State Agency Name and Address	Advanced Directive Status:

ATTENDING PHYSICIAN INFORMATION

1. Name and Address of Physician at New Facility

2. Final Diagnosis(es), or Photocopy Attached ☐
   PRIMARY

   ALL OTHER CONDITIONS

3. Surgical Procedure(s) and Date(s) or, Check None ☐

4. Physician Orders on Transer: See Attached

Presenting Signs and Symptoms - Check All That Apply

___ rash	___ fever	___ resistant organism
___ cough:	___ weight loss	___ hospitalization >7 days
___ productive		___ antibiotic therapy

5. Estimated Medically Necessary Stay:
   _____Days _____Weeks or _____Months

6. Drug Sensitivities or, Check None ☐

7. Dietary Regimen:

8. Physician's Signature Date

NURSING EVALUATION

9. Speech	☐ Normal	☐ Impaired	☐ Unable to Speak	
10. Hearing	☐ Normal	☐ Impaired	☐ Deaf	
11. Sight	☐ Normal	☐ Impaired	☐ Blind	
12. Mental Status	☐ Always Alert	☐ Occasionally Confused	☐ Always Confused	
13. Feeding	☐ Independent	☐ Help With Feeding	☐ Cannot Feed Self	
14. Dressing	☐ Independent	☐ Help With Dressing	☐ Cannot Dress Self	
15. Elimination	☐ Independent	☐ Help to Bathroom	☐ Bedpan or Urinal Required	☐ Incontinent
16. Bathing	☐ Independent	☐ Bathing With Help	☐ Bed Bath With Help	☐ Bed Bath
17. Ambulatory Status	☐ Independent	☐ Walks With Assistance	☐ Help From Bed to Chair	☐ Bed Bound

18. Dressings and Bandages: or, Check None ☐

19. Appliances or Supports: or, Check None ☐

20. Infectious Disease or Check None ☐

Positive Cultures at this Time of Transfer or Check None ☐

Summary Attached ☐ Yes ☐ No

21. Signature Title Date

SOCIAL EVALUATION

22. Name and Address of Person to Contact:

Relationship to Patient

Telephone Number

23. Summary Attached Social/Emotional ☐ Yes ☐ No

24. Post Stay Plans:

25. Signature Date Title

Print page at 90%

INFECTIOUS DISEASE OUTBREAKS

TABLE OF CONTENTS

INFECTIOUS DISEASE OUTBREAKS

Infectious Disease Outbreaks

Outbreak Definition

An outbreak is an occurrence of similar illnesses that are in excess of the normal expectancy for a given location and period of time. An outbreak can be one case of a disease of unusual occurrence or public health importance (i.e., tuberculosis, meningococcal disease, measles, streptococcal wound infection). Or an outbreak can be defined as three or more cases related by time, place and in the same population, OR two and one half times above the normal incidence of new cases.

An increase in disease or infection may involve one organism in several different body sites of multiple persons. An example would be the presence of the same antibiotic-resistant organism (MRSA, VRE) in the urine of persons with indwelling urinary catheters.

Reporting Outbreaks

Known or suspected outbreaks should be reported to your local public health agency, Department of Health & Senior Services district health office or the Missouri Department of Health & Senior Services at (573) 751-6113 during working hours. Outbreaks of unusual virulence or of public health importance can also be reported by calling (573) 751-4674 after hours, weekends or holidays.

By reporting an increase in illness or infection early, a facility can receive assistance in

- Identifying the probable mode of transmission
- Reviewing appropriate barrier and isolation precautions for implementation to prevent a large outbreak and/or the occurrence of serious health outcomes.

Outbreak Checklist

1. **Request Help.**
   Call your local public health agency or the state Communicable Disease Control office at (573) 751-6113 for assistance with outbreak investigation as soon as an outbreak is suspected. Specific prevention and/or control strategies are dependent upon the causative organism

2. **Control the Outbreak (Confine and Contain)**
   - Enforce frequent and adequate handwashing.
   - Use gloves and other barrier protections as indicated.
   - Utilize airborne precautions if indicated.
   - Restrict certain activities, depending on the suspected organism

- Keep persons with respiratory illness segregated.
- Consider the placement of similarly infected persons together (same room or wing), if possible. Have specific staff designated to care for infected/colonized residents only and avoid any contact with well residents.
- Confine wound drainage using appropriate dressings.
- Send ill employees home or do not allow them to return to work until asymptomatic, or if required, negative cultures are obtained.

3. Initiate More Thorough Surveillance (Check for Additional Cases)

The first cases of illness in a long-term care facility outbreak may be the most obvious. Many unrecognized cases might be uncovered by:

1. Observation of signs and symptoms
2. Review of chart documentation
3. Creation of a line list of all residents with symptoms possibly associated with the illness and the organism (if known)
4. Identification of other infected cases in the facility beginning with the nursing units where the first cases occurred.

This process involves both clinical observations and chart review. Some of the critical information needed to describe the outbreak and analyze how and when the organism was transmitted are age, sex, time and date of disease onset, duration of and sequence of symptoms, resident room and nursing unit placement, and possible risk/means of exposure (roommate, dining room tablemates, activities, degree of debilitation, treatments, invasive devices, other).

4. Start a Line Listing

At a minimum, identify each case by room number and wing location. The amount and type of detail collected on each affected resident is determined by the severity/extent of the outbreak and the organism suspected to be the cause of the outbreak. Cultures may need to be collected as an integral part of the outbreak surveillance. Request isolates/specimens be saved for possible future testing.

Remember to survey and create a line list of the facility employees as well as the residents.

5. Inform Staff and Residents About Suspected or Known Disease or Organism.

Provide disease/organism fact sheet handouts to all concerned. Provide educational offerings on the organism and control measures to all who need to know, such as facility staff, volunteers and frequent facility visitors.

6. Complete and Send in Report When Outbreak is over

Include the number of symptomatic cases versus total number exposed in both the resident and employee populations. Include copy of line list. Send report to your local public health agency or district health office, Attention: Epi Specialist.

Figure 7.1-1

Investigation of a Potential MRSA Outbreak

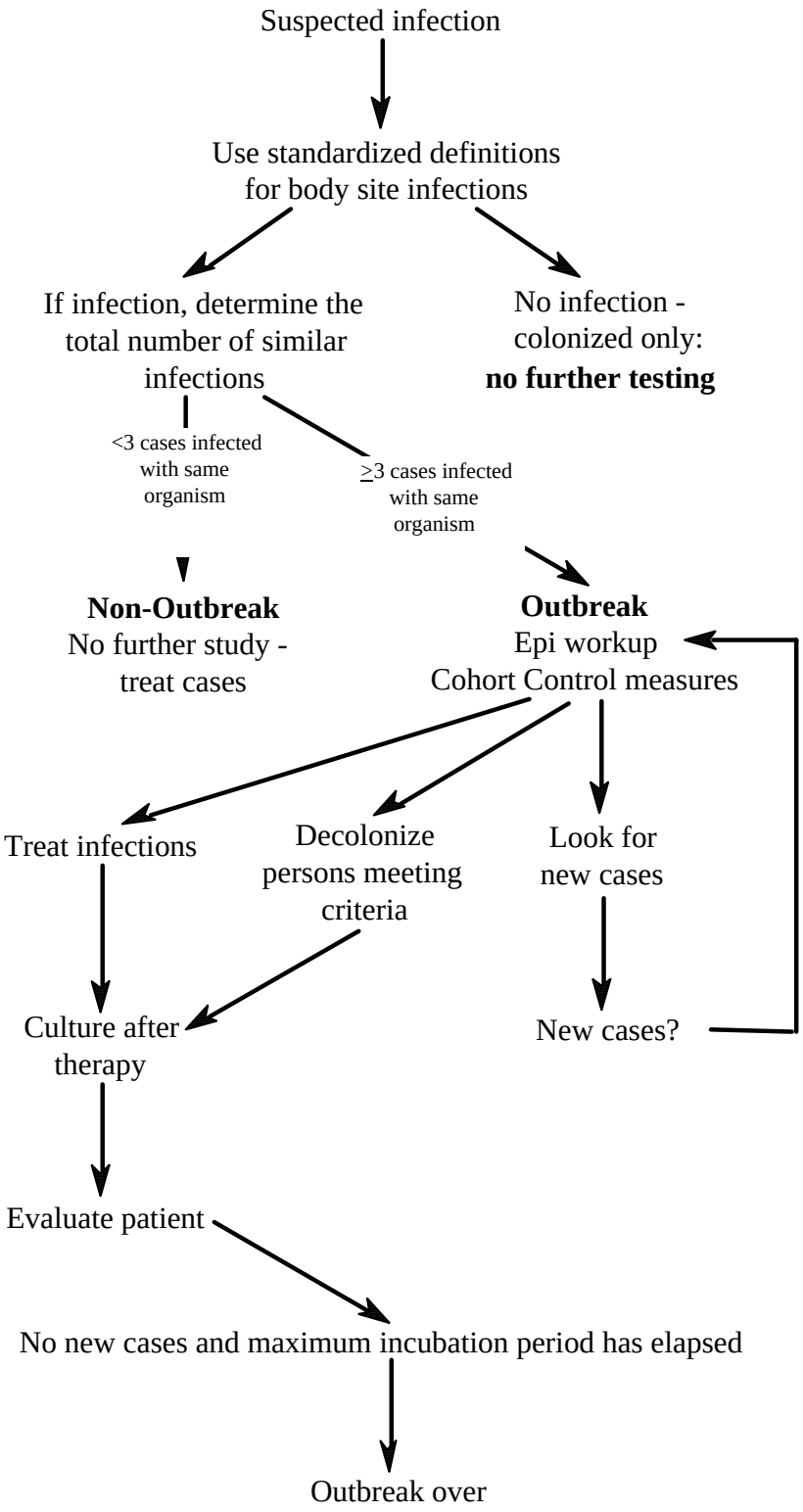

Figure 7.1-2

Patient/Resident Survey Form For Rash Condition

Name _____ Chart Reviewer/Interviewer _____

Record # _____ Age _____ Sex _____ Survey Completion Date _____

Nursing Unit _____ Room # _____ Epi I.D. # _____

Admission Date _____ Name of facility transferred from _____

Current Clinical DX

_____

Description of rash (check or circle all that apply)	Date of onset
Burrows: red, white, gray _____	_____
Papules: red, white, pus-filled _____	_____
large or tiny _____	_____
Hives _____	_____
Bullous lesions _____	_____
Scales _____	_____
Crusts _____	_____
Other _____	_____

Lesions are predominately on _____

Does the patient complain of itching? Yes _____ No _____

Is itching worse during day or night? Yes _____ No _____ Day _____ Night _____

Is the patient scratching? Yes _____ No _____ Is excoriation present? Yes _____ No _____

Does the rash area have pus or yellow-green drainage? Yes _____ No _____

Diagnostic Tests	Dates	Results
Skin scrapings? Yes _____ No _____	_____	_____
Shavings? Yes _____ No _____	_____	_____
Skin biopsy? Yes _____ No _____	_____	_____
Culture of skin lesions? Yes _____ No _____	_____	_____

Other _____

Treatment for Rash (including steroid creams/lotions)

Name of medications	Dates administered
_____	_____
_____	_____
_____	_____

Environmental Factors and Direct Contact Exposures

Has there been a change in laundry soap in the past 2 months? Yes _____ No _____

Is there a different contract laundry in the past 2 months? Yes _____ No _____

Participation in activities and personal habits:

Dancing or games of hand holding? Yes _____ No _____ Crafts? Yes _____ No _____

Frequent touching of others? Yes _____ No _____

Does roommate have a rash? Yes _____ No _____ Name of roommate _____

Does a visiting family member or friend have a rash? Yes _____ No _____

Name(s) _____

Dates(s) of exposure to persons known to have scabies or a rash. _____

_____

Figure 7.1-3

Employee Questionnaire For Rash Condition

Name: _____ Age: _____

Shift hours: _____ Sex: _____

Department: _____

Assigned areas: _____

Duties: _____

Have you had any type of rash recently? Yes _____ No _____

When did it start? _____

Has anyone in your family had a rash? Yes _____ No _____

Who? _____

When did it start? _____

Please describe the rash: _____

_____

Have you or has your family seen a doctor for this rash? Yes _____ No _____

Name of doctor and diagnosis: _____

_____

What type of medication have you used? _____

How did you apply, use the medication? _____

_____

What date or week did you last use the medication? _____

The medication caused the rash to: Improve/get worse (circle correct answer)

Did rash return after medication was discontinued? Yes _____ No _____

Thank you for your time and cooperation in answering these questions.

Figure 7.1-4

Generic Outbreak Medical Record Review Form

Demographic Data

Epi No. _____ Record No. _____ Reviewer _____

Resident Name _____ Review Date _____

Status _____ (1=case 2=uncolonized 3=colonized control 4=matched uncolonized control 5=matched colonized control)

Set number _____ (to correlate case with controls)

Race _____ Age _____ DOB _____ Sex M / F

(1=white, 2=black, 3=Ameriocan Indian/American Native, 4=Asian/Pacific Islander, 9=Not specified)

Facility _____
(H or NH)

Transferred From _____ _____
Name of Facility Date

Transferred To _____ _____
Name of Facility Date

Outcome _____ Date _____

(1-recovered, 2-recovered colonized, 3-recovered decolonized, 4-not recovered, 5-death, 6-discharged unknown)

	Unit	Room	Date
Admission	____	_____	_____
Transfers	____	_____	_____
	____	_____	_____
	____	_____	_____

Infection Type	Onset Date	Infection Type	Onset Date	Infection Type	Onset Date
Abscess site _____	_____	Ear extern/media/intern	_____	Tracheobronchitis	_____
Central venous line (CVL)	_____	Eye infection	_____	Pneumonia/pneumonitis	_____
I.V. site/vein	_____	Colitis, antibiotic associated	_____	Osteomyelitis/joint/bursa	_____
Cellulitis/fasciitis	_____	Enterocolitis, necrotizing	_____	Intraabdominal/peritonitis	_____
Bloodstream, primary	_____	Gastroenteritis	_____	Reproductive tract, _____	_____
Bloodstream, secondary	_____	Hepatitis, type _____	_____	Surgical wound, incisional	_____
Endo/myo/pericarditis	_____	Gastrostomy site	_____	Surgical wound, deep	_____
Encephalitis/sub/epidural	_____	Tracheostomy site	_____	Cystitis	_____
Meningitis/ventriculitis	_____	Mouth/tongue/gums	_____	Pyelonephritis	_____
Sepsis, clinical	_____	Pharyngitis/laryngitis	_____		
Gram negative shock	_____	Sinusitis/nasal/URI	_____		
Gram positive shock	_____	Bronchitis/bronchiolitis	_____		

Clinical Finding	Onset Date	Clinical Finding	Onset Date	Clinical Finding	Onset Date and/or Value
Atonic	_____	Dysphagia/sore throat	_____	Skin warmth	_____
Confusion	_____	Dyspnea	_____	Swelling	_____
Headache	_____	Tachypnea	_____	Macules	_____
Hypertonic	_____	Grunting	_____	Papules	_____
Hypotonic	_____	Lung infiltrate	_____	Petechiae	_____
Irritability	_____	Nasal flaring	_____	Pustules/boils	_____
Lethargy	_____	Rales/rhonchi	_____	Pruritus	_____
Nuchal rigidity	_____	Retractions	_____	Urticaria	_____
Malaise	_____	Sputa purulent	_____	Vesicles	_____
Myalgia	_____	Wheezing	_____	Dysuria	_____
Seizures	_____	Chills/rigors	_____	Frequency/urgency	_____
Syncope	_____	Hyperthermia	_____	Temperature	_____
Abdominal cramping	_____	Hypothermia	_____	Pulse	_____
Abdominal distention	_____	Temp. instability	_____	Respirations	_____
Anorexia/poor feeding	_____	Asystole	_____	B/P	_____
Diarrhea	_____	Bradycardia	_____	O_2 Sat.	_____
Hepatomegaly	_____	Tachycardia	_____	PCO_2	_____
Nausea	_____	Hypertension	_____	Acid/Base	_____
Splenomegaly	_____	Hypotension	_____	pH blood	_____
Vomiting	_____	Drainage, purulent	_____	APGAR (1 & 5 min)	_____
Apnea	_____	Drainage, serous	_____	Meconium stained	_____
Coryza/stuffy nose	_____	Desquamation	_____	FHT's	_____
Coughing	_____	Erythema	_____	Decels	_____
Cyanosis	_____	Pain/tenderness	_____	Full fontanel	_____

Treatments, Date Initiated, Healthcare Worker (HCW)

	Date	HCW	HCW	HCW	HCW	HCW	HCW
Catheter insertion							
Central venous line (CVL)							
Intravenous, peripheral							
Other vascular							
Enteral feeding							
Nasogastric							
Urinary							
Dialysis							
Hydrotherapy/whirlpool							
Physical therapy (specify)							
Respiratory therapy (specify)							
Intubation, endotracheal							
IPPB							
O_2 cannula							
Ventilation, assisted							
Tracheostomy							
Suction							
Bulb, DeLee							
Nasotracheal							
Oropharyngeal							
Tracheostomal							
Other							
Wound manipulation							
Cleansing							
Debridement, manual							
Irrigation							
Suctioning							

Medications

	Drug Name & Dosage	Start Date	Stop Date	# of Days
Analgesia				
Antibiotics				
Chemotherapy				
Corticosteroids				
Immunosuppressants				
Vaccine				
Immunoglobulin				
Amantadine				

Serology
WBC _____ Absolute Neutrophils _____ Segs _____ Bands _____
Hbg. _____ Hct. _____

Chemistry
Serum glucose _____ Serum total protein _____ Bilirubin _____

Urine
Colony count _____ WBC's _____ RBC's _____

Gram Stain _____ or **Other Stain** _____

Feces
Hemoccult _____ WBC's _____
Toxin assay _____ Positive _____ Negative _____

Source and Specimen Collection Dates of Isolates and/or Antigens

Sterile Site	Isolate/Antigen	Date	Sterile Site	Isolate/Antigen	Date
1. Blood			5. Synovial fluid		
2. CSF			6. Tissue		
3. Peritoneal fluid			7. Other		
4. Pleural fluid					

Non-Sterile Site	Isolate/Antigen	Date	Non-Sterile Site	Isolate/Antigen	Date
1. Ear			10. Invasive Site		
2. Eye			11. Skin		
3. Bronchi			12. Surgical wound		
4. Lungs			13. Rectum/feces		
5. Nose			14. Stomach		
6. Throat			15. Urine-bladder		
7. Trachea			16. Umbilical cord		
8. Sputa, expectorated			17. Vagina		
9. Decubitus			18. Other		

Underlying Conditions or Infections Leading to Current Infection

1. Alertness, reduced		13. Dialysis	
2. Anemia or sickle cell		14. Hemorrhage	
3. Alcohol abuse		15. HIV/AIDS	
4. Alzheimers or dementia		16. Incontinent: urine/feces	
5. Burns (severity: _____)		17. I.V. drug abuse	
6. Cerebral vascular accident		18. Malignancy	
7. Chronic heart disease		19. Malnutrition	
8. Chronic lung disease		20. Pelvic inflammatory disease	
9. Chronic renal disease		21. Peripheral vascular disease/ulcer	
10. Cirrhosis/liver disease		22. Pressure sore	
11. Debilitation		23. Splenectomy	
12. Diabetes mellitus		24. Other	

Personal Care
Feeding ___ [E]ats unassisted [F]ed by mouth [T]ube fed
Bathing ___ [B]ed bath [S]hower [T]ub bath
Mobility ___ a[M]bulatory a[S]sisted [B]edfast [W]heelchair
Beauty shop/barber (yes/no) ___

Activities yes/no
Crafts _____ Games _____ Exercises _____ Singing _____ Socializes _____ Other _____

LINE LIST

CASE	I.D.	E/P	AGE	SEX M/F	UNIT & ROOM	SYMPTOMS	EXPOSURE DATE	ONSET DATE	DURATION OF ILLNESS	PATHOGEN	SPEC. DATE	RX	DOCTOR	HOSP. DATES
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														

DEFINE EXPOSURE

I.D. = PATIENT INITIALS E/P = EMPLOYEE/PATIENT SPEC. DATE = SPECIMEN COLLECTION DATE RX = TREATMENT HOSP = HOSPITALIZED

Figure 7.1-5

LINE LIST

CASE	I.D.	E/P	AGE	SEX M/F	UNIT & ROOM	SYMPTOMS	EXPOSURE DATE	ONSET DATE	DURATION OF ILLNESS	PATHOGEN	SPEC. DATE	RX	DOCTOR	HOSP. DATES
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
32														
33														
34														

DEFINE EXPOSURE

I.D. = PATIENT INITIALS E/P = EMPLOYEE/PATIENT SPEC. DATE = SPECIMEN COLLECTION DATE RX = TREATMENT HOSP = HOSPITALIZED

LINE LIST

CASE	I.D.	E/P	AGE	SEX M/F	UNIT & ROOM	SYMPTOMS	EXPOSURE DATE	ONSET DATE	DURATION OF ILLNESS	PATHOGEN	SPEC. DATE	RX	DOCTOR	HOSP. DATES
35														
36														
37														
38														
39														
40														
41														
42														
43														
44														
45														
46														
47														
48														
49														
50														
51														

DEFINE EXPOSURE

I.D. = PATIENT INITIALS E/P = EMPLOYEE/PATIENT SPEC. DATE = SPECIMEN COLLECTION DATE RX = TREATMENT HOSP = HOSPITALIZED

LINE LIST

CASE	I.D.	E/P	AGE	SEX M/F	UNIT & ROOM	SYMPTOMS	EXPOSURE DATE	ONSET DATE	DURATION OF ILLNESS	PATHOGEN	SPEC. DATE	RX	DOCTOR	HOSP. DATES
52														
53														
54														
55														
56														
57														
58														
59														
60														
61														
62														
63														
64														
65														
66														
67														
68														

DEFINE EXPOSURE

I.D. = PATIENT INITIALS E/P = EMPLOYEE/PATIENT SPEC. DATE = SPECIMEN COLLECTION DATE RX = TREATMENT HOSP = HOSPITALIZED

Figure 7.1-6

Employee Questionnaire Related to Outbreak

Name: _____ Age: _____ Sex: _____

Department: _____ Shift hours: _____

Assigned areas: _____ Duties: _____

Personal Care: Yes/No Interviewing: Yes/No Give medications: Yes/No

OR/ER Surgical Asst: Yes/No OR/ER Circulator: Yes/No Provide treatments: Yes/No

Have you had any of the following conditions recently?

	Yes/No	Date Started	Comment
Skin irritation or rash	_____	_____	_____
Skin wound, sore, blisters or pimples	_____	_____	_____
Nasal or sinus drainage	_____	_____	_____
Throat drainage or soreness	_____	_____	_____
Cough	_____	_____	_____
Coughing up drainage from the chest	_____	_____	_____
Eye drainage	_____	_____	_____
Ear drainage or pain	_____	_____	_____
Vaginal drainage	_____	_____	_____
Nausea and/or vomiting	_____	_____	_____
Diarrhea	_____	_____	_____
Frequent urination/pain when urinating	_____	_____	_____

Has anyone in your family had the same conditions as you? _____Yes _____No

Has anyone in your household had an infection in the past month? _____

Have you or has your family seen a doctor for this? _____Yes _____No

Name of doctor and diagnosis: _____

_____

What type of medication have you used? _____

What date or week did you last use the medication? _____

The medication caused the condition to: improve/get worse (circle correct answer)

Did condition return after medication was discontinued? _____Yes _____No

Thank you for your time and cooperation in answering these questions.

Figure 7.1-7

MISSOURI DEPARTMENT OF HEALTH
SECTION OF COMMUNICABLE DISEASE CONTROL AND
VETERINARY PUBLIC HEALTH
NOSOCOMIAL OUTBREAK REPORT FORM

PO BOX 570
JEFFERSON CITY , MO 65102
(800)392-0272 OR
(573/751-6113

REPORTED INITIALLY BY

NAME	TITLE	
ORGANIZATION	DATE/TIME	TELEPHONE NUMBER
TO NAME	TITLE	
ORGANIZATION	DATE/TIME	TELEPHONE NUMBER

REPORTED TO

LOCAL CO/CITY HEALTH DEPT. ☐ Yes ☐ No DATE _____ TIME _____
DISTRICT HEALTH DEPT. ☐ Yes ☐ No DATE _____ TIME _____
COMMUNICABLE DISEASE ☐ Yes ☐ No DATE _____ TIME _____
DIVISION OF AGING ☐ Yes ☐ No DATE _____ TIME _____

DEPT. OF MENTAL HEALTH ☐ Yes ☐ No
DATE _____ TIME _____

1. Name of Facility

Contact Person/Position Title

☐ Hospital ☐ Mental Health
☐ Nursing Home ☐ Rehabilitation

Address (Street or PO Box, City, State, Zip Code)

Telephone Number

2. Number of Cases and Number of Exposed at Each Location, Service, or Nursing Unit

	No. Cases		No. Exposed		No. Cases		No. Exposed		No. Cases		No. Exposed	
	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees
Medical Units	Unit				Unit				Unit			
Surgical Units	Unit				Unit				Unit			
Intensive Care Units	Adult/Type				Pediatric/Type				Newborn/Type			
Obstetrics	L & D				Post Partum				Newborn			
Rehabilitation	Unit				Unit				Unit			
Mental Health	Unit				Unit				Unit			
Long Term Care	Unit				Unit				Unit			

Illness/Disease	Date First Case Starting Outbreak	Date of Case Causing Outbreak to be Reported	Date of Last Case

3. Principal Symptoms/
Onset Dates

4. Microorganisms: A. Specimen Source/ Collection Date	Findings:

B. Laboratory Name
and Address

5. Total Number of Cases ▷	Residents	Employees	As of Date

6. Control Measure(s) Instituted

PARASITE/ORGANISMS OF CONCERN IN LONG TERM CARE

	Scabies	Chickenpox (Varicella)	*Clostridium difficile*	Shingles (Herpes Zoster)
Identification	Parasite, fecal pellets and/or eggs	Virus	Anaerobe	Virus
Reservoir	Humans	Humans	Humans	Humans
Mode of Transmission	Contact	Airborne Contact	Contact	Contact
Incubation Period	First Time: 4-6 weeks Re-infestation: 1-4 days	2-3 weeks	days to weeks	2-3 weeks Chickenpox
Period of Communicability	Until adequately treated	Until lesions are dry	Can be carrier	Until lesions are dry
Susceptibility	Anyone	No history of chickenpox	Prior/Present antibiotics	History of chickenpox
Precautions For Long Term Care	BSP***	Airborne (Mask) Private room	BSP*** Private room (only if diarrhea is not contained)	BSP*** Roommate has history of chickenpox
Can Resident Leave Room?	Following adequate treatment	When lesions are dry	If diarrhea is contained	When lesions are covered

	Influenza	MRSA*	*Staph aureus*	VRE**
Identification	Virus	Gram positive cocci	Gram positive cocci	Gram positive colli
Reservoir	Humans	Humans	Humans	Humans
Mode of Transmission	Droplet	Contact	Contact	Contact
Incubation Period	1-3 days	4-10 days	4-10 days	1-3 days
Period of Communicability	3-5 days in adults	Can be carrier	Can be carrier	Can be carrier
Susceptibility	Anyone/Elderly	Anyone	Anyone	Anyone
Precautions For Long Term Care	Respiratory Precautions Restrict to room until symptoms abade.	BSP*** Private room (only if secretion/ excretions are not contained Patient placement†	BSP*** Private room (only if secretion/ excretions are not contained Patient placement†	BSP*** Private room (only if secretion/ excretions are not contained Patient placement†
Can Resident Leave Room?	When symptoms abade	When secretions are contained	When secretions are contained	When secretions are contained

* Methicillin-Resistant *Staphylococcus aureus*

** Vancomycin-Resistant Enterococcus

*** Body substance precautions

†Patient Placement: Place patient with low risk patient such as one who has no lines (tracheostomy, IV, foley catheter, G tube J tube) and has no open areas (surgical wound or decubitus) and is not receiving steroids or chemotherapy, and is not on dialysis or has renal failure and has not been on multiple courses of antibiotic or prolonged antibiotic therapy.

INFLUENZA OUTBREAKS

TABLE OF CONTENTS

INFLUENZA OUTBREAKS

Influenza Outbreak Control for Long Term Care Facilities

Persons who live in long term care facilities have a higher risk for acquiring influenza and related complications because of their age, health status, and institutional living environment. Therefore, long term care facilities should develop an **influenza outbreak prevention and control plan**. The influenza outbreak control plan should be designed **prior to the influenza season** so that it can be implemented when a **confirmed** or **suspected outbreak** of influenza occurs. The ideal planning team should include the medical director, the director of nursing, the facility administrator, and the facility infection control practitioner or the nursing staff professional responsible for facility infection control. The guidelines should be agreed upon prior to the influenza season.

The following is an outline of the elements of an influenza plan. The planning team can evaluate each of the following elements and design particular strategies to prevent and control influenza for their long term care facility.

PREVENTION

1. Develop an INSERVICE TRAINING program for facility staff on respiratory secretion precaution, handwashing techniques, and review the elements of the influenza control plan. Schedule the inservice training in September.

2. Initiate an **INFLUENZA VACCINE PROGRAM** for facility residents and staff that includes education on the importance of influenza vaccination. The optimal time for influenza vaccination for persons at high risk for influenza-related medical complications is between October to mid-November. The vaccine program should include a method to assess the vaccine status of new residents admitted and staff hired during the influenza season so they can be immunized if needed.

3. To prevent complications and morbidity, **assess** resident **PNEUMOCOCCAL VACCINE STATUS.** Implement a plan to provide pneumococcal vaccine to residents who need it. (See Section 5. Immunizations.)

4. Establish and post at the nursing station the **case definition for influenza-like illness**:
   Fever (>100°F oral or equivalent)
   AND
   at least two of the following:
   - chills
   - headache or eye pain
   - muscle ache
   - malaise or loss of appetite
   - sore throat
   - dry cough
   - change in mental status.

BE ALERT FOR THE FIRST SIGNS AND SYMPTOMS of the illness during the influenza season.

(**Smith's Outbreak definition:** The presence **of more than one case of influenza-like illness** occurring in the **same unit** within **two consecutive days**.)

5. Develop a plan to obtain quick LABORATORY CONFIRMATION to detect influenza type A. One confirmatory laboratory test, such as the Directigen EIA Flu A test, from one of a group of residents experiencing influenza-like illness is enough to determine the presence of influenza A and to initiate the influenza plan.

6. The facility should have a system developed prior to the influenza season to quickly obtain physician orders for antiviral medication when influenza type A is detected. In addition, an agreement should be established with the facility pharmacy to quickly obtain the antiviral medications.

CONTROL

1. Increase attention to respiratory and secretion precautions and always practice good handwashing.

2. Identify the symptomatic residents and begin line-listing cases, including resident identifiers, room, wing, onset date, symptoms, vaccine status, treatment, hospitalizations, and outcome. (See Figure 7.1-5 in Subsection 7.1 Infectious Disease Outbreaks)

3. **Report outbreaks of influenza-like illness to your local public health agency or the Department of Health, ?.** Department of Health staff can advise and assist with the implementation of an influenza control plan. Nosocomial outbreaks are a category I notifiable disease requiring reporting at first knowledge or suspicion.

4. Perform an influenza rapid-test according to an established influenza plan. Report **laboratory-confirmed cases of influenza to the Department of Health.**

5. For influenza type A, consult the facility medical director for a decision regarding use of antiviral medications, especially for the high-risk residents and the staff responsible for their care. Antiviral medications can have side-effects, therefore, each resident's physician should be consulted for the medication order.

   If a decision is made to use antiviral medications for a given resident or staff member ill with influenza type A, begin medication within 48 hours of symptom onset and discontinue after 3-5 days of treatment or within 24-48 hours after disappearance of signs and symptoms.

   For outbreak control, antiviral medications need to be continued for at least 2 weeks or until one week after the end of the outbreak.

6. **Screen staff** for symptoms and **DO NOT permit ill staff** to work. Personnel should notify the facility of the nature of the illness and those with fever, cough or other influenza-like illness symptoms should **remain off work for 3-5 days from** the **onset** of their clinical illness. Personnel with **mild influenza-like illness can work**, especially with residents already ill, but **must wear a mask** with direct resident contact and practice respiratory secretion precautions and vigorous handwashing techniques.

7. Implement symptomatic control therapy: bed rest or frequent naps, as tolerated; increased oral fluids such as sport beverages, antipyretics and analgesics, antihistamines and decongestants, bronchodilator therapy for residents with COPD.

8. Cohort cases to a wing or hall of the facility**.** Direct care nursing staff should be assigned to the cohort unit during the duration of the outbreak. Provide antiviral chemoprophylaxis to consenting personnel staffing the outbreak unit and to all unvaccinated personnel providing direct resident care. **Restrict all but essential personnel** from entering the cohort area. Important support services such as respiratory, physical, and occupational therapy as well as chaplain, social service, and activity visits should be provided to the limit of the resident's tolerance.

9. Post the influenza outbreak control plan at the entrance of the facility and screen visitors and relatives for illness. Limit visitors for ill residents during the acute and communicable stages of illness.

10. Health care facilities receiving discharged or transferred residents should be informed that the resident is coming from a facility with an influenza outbreak. Health care facilities admitting residents to the facility should be notified that the facility has an influenza outbreak. The resident and the resident's family and physician should be given an opportunity to decide if admission to the facility should be delayed or reconsidered.

OTHER OPTIONS

The facility administrator in consultation with the infection control practitioner, the medical director, and the director of nursing may make a decision to close the nursing unit to all new admissions, discharge asymptomatic residents, and to cancel all appointments that are not medically related.

References:

1. Centers for Disease Control and Prevention. Prevention and Control of Influenza Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1998;47(RR-6). *(These recommendations are updated and reprinted in May of each year.)*
2. Missouri Department of Health. Infection control guidelines for long term care facilities Emphasis on body substance precautions. Section 11.0 Infection Control Resources. July 1999.

TUBERCULOSIS CONTROL

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TUBERCULOSIS CONTROL

Guidelines for Screening for Tuberculosis In Long Term Care Facilities

The control and prevention of tuberculosis in the elderly must be accomplished in order to eliminate tuberculosis as a public health problem.

Many of the elderly were infected with tuberculosis years ago, with the tubercle bacilli dormant most of the time. When the initial infection occurs and the bacilli begin to multiply, the normal immune system can quickly overcome the problem. As the body ages, the immune system becomes less active, and other medical problems may develop which further increase the risk of tuberculosis infection becoming active disease. If tuberculosis disease is in the lung, which is the most common site, the person may start coughing and expelling the organisms into the air. This can be especially devastating in a long-term care facility, where many susceptible elderly persons are sharing the same air.

It is therefore important for each facility to have a tuberculosis control program in place. This must include the documentation of the tuberculosis status of each resident, staff member and volunteer of each long-term care facility. This can best be accomplished by screening residents on admission, and pre-employment and annual testing of employees and volunteers as outlined below.

Recommendations for Residents

All residents new to long-term care who do not have documentation of a previous skin test reaction $\geq$10mm or a history of adequate treatment of tuberculosis infection or disease, shall have the initial test of a Mantoux PPD two-step skin test to rule out tuberculosis within one month prior to or one week after admission as required by Department of Health rule 19 CSR 20-20.100 (See Appendix E). If the initial result is 0-9mm, the second test, which can be given after admission, should be given at least one week and no more than three weeks after the first test. **The result of the second test is used as the baseline.** Documentation of a chest x-ray ruling out active pulmonary tuberculosis within one month prior to admission, along with an evaluation to rule out signs and symptoms of tuberculosis, may be acceptable by the facility on an interim basis until the Mantoux PPD two-step test is completed.

The two-step test is recommended due to the "booster phenomenon," which can occur at any age, but is more pronounced with increased age. The body's response to tuberculin, (the antigen in PPD), once that response has been established by infection with tuberculosis (or other mycobacteria), may gradually wane over the years. The initial test of two-step test may result in a falsely negative (0-9mm) reading. However, that initial test stimulates the body to respond normally to a subsequent test. This can cause confusion at a later time if the resident is skin tested either as a result of symptoms of tuberculosis disease or as a contact to a newly diagnosed infectious person. The "boosted" skin test then may appear to be the result of new infection, which puts the individual at much higher risk of progressing to tuberculosis disease. Therefore, it is imperative to purposely elicit this boosted response in all persons in whom it is important to know their tuberculosis status.

Skin test results of ≥10 mm, whether documented in the resident's medical history, obtained by the first test, or obtained by the second of the two-step test applied by the facility, require a chest x-ray to rule out current tuberculosis disease. It is important to also perform an evaluation to determine if signs or symptoms of tuberculosis (unexplained weight loss, fever, persistent cough) are present. Once tuberculosis disease is ruled out, it is important to record the results of the skin test in millimeters (mm), in a prominent place on the resident's medical record. Including the skin test result at the same place and in the same manner as the resident's allergies is appropriate.

Tuberculosis infection may progress to infectious tuberculosis disease and is therefore reportable to the Missouri Department of Health. See Figure 9.1-1 for a copy of the report form for tuberculosis infection. Since residents will be sharing air with others who, because of their age and other medical conditions, may be more susceptible to infection with tuberculosis, consideration of a routine course of infection treatment that kills tubercle bacilli and prevents progression to disease is recommended. This is especially important in infected persons of any age who have an **increased risk** of progressing to tuberculosis disease. Infected persons at increased risk to develop disease are:

a) Persons with skin test reactions ≥5mm with no symptoms of tuberculosis and no documented history of an adequate course of antituberculosis medications but with fibrotic lesions noted on chest x-ray.

b) Persons with skin test reactions ≥5mm with HIV infection and those with risk factors associated with HIV infection whose HIV status is unknown. Preventive therapy may be considered for HIV infected persons who have skin test reactions of <5mm in groups where the prevalence of tuberculosis is high.

c) Close contacts of persons with newly diagnosed infectious tuberculosis who have skin test reactions of ≥5mm.

d) Recent skin test converters (≥10mm increase within a 2 year period.) ALL children ≤4 years with a skin test reaction of ≥10mm are included in this group.

e) Persons with skin test reactions ≥10mm and the following medical conditions:
    1. Diabetes mellitus
    2. Prolonged corticosteroid therapy (>15mg of Prednisone or equivalent daily for 2-3 weeks)
    3. Immunosuppressive therapy
    4. Hematologic and reticuloendothelial diseases (i.e., leukemia or Hodgkin's disease)
    5. IV drug users
    6. End stage renal disease
    7. Chronic undernutrition (i.e., intestinal bypass surgery, gastrectomy, chronic ulcer disease, chronic malabsorption syndrome, chronic alcoholism, cancer of the oropharynx and upper GI tract)

In addition, even in the absence of any of the above risk factors, the following persons with skin test readings ≥10mm are recommended for preventive treatment:

(1) Foreign-born persons from Latin America, Asia, Africa

(2) Medically underserved low income populations, including high-risk racial or ethnic minority populations, especially black, Hispanic, and native Americans

(3) Residents, employees and volunteers of long-term care facilities, other health care facilities, schools and child-care facilities

Annual skin tests for residents with documented results <10mm are not required, nor are annual chest x-rays for residents with documented skin test results ≥10mm. Staff persons must be constantly vigilant for signs and symptoms of tuberculosis in residents, and obtain a chest x-ray and sputum specimens should such signs and symptoms appear. In addition, residents are to be evaluated, at least annually, to assure absence of signs and symptoms for tuberculosis disease. (See Figure 9.1-2.)

Recommendations for Employees

The results of annual tuberculin testing of employees in a long-term care facility are a good indicator of the extent of transmission of tuberculosis within that facility. The following occupationally-exposed persons should be tested at least annually: all employees, attending physicians and dentists, volunteers who spend ≥10 hours weekly in the facility, nursing and allied health personnel, students, instructors and other individuals in regular attendance within long-term care facilities. Every facility should have a tuberculosis surveillance program that includes the following procedures:

1. **Initial Examination**. Provide a tuberculin skin test (Mantoux, 5 tuberculin units (TU) of purified protein derivative (PPD)) to all employees during pre-employment procedures, unless a previous reaction ≥10mm is documented. If the initial skin test result is 0-9 mm, a second test should be given at least one week and no more than three weeks after the first test. The results of the second test should be used as the baseline in determining treatment and follow-up of these employees. The two-step test regimen is optional for employees with a history of negative skin tests within the last two years.

   A history of BCG (bacille Calmette-Guerin) does not preclude an initial screening test, and a reaction of 10 mm or more should be managed as a tuberculosis infection. A chest x-ray examination should be provided for employees who have a skin test reaction ≥10 mm or who have symptoms compatible with pulmonary tuberculosis in order to determine the presence of current disease.

2. **Repeat Tuberculin Skin Tests**. The Department of Health rule states employees will be skin tested on an annual basis as a means of surveillance within a facility. Infection treatment is recommended for all infected employees, unless specifically contraindicated, to prevent them from developing disease and infecting others.

Infected employees who are without disease and who do not complete a course of preventive therapy will need an individualized plan of surveillance. Those who are at high risk of developing disease, i.e. converters, should be assigned where they cannot expose small children, immunocompromised patients, and others for whom the consequences of infection may be especially serious.

3. **Repeat Chest X-Ray**. After the initial evaluation of persons with skin test reactions ≥10 mm, routine repeated chest x-rays are not recommended. They are not a substitute for infection treatment nor vigilance for signs and symptoms of tuberculosis disease. An annual sign and symptom review should be documented in their record. (See Figure 9.1-2.) Employees who have completed an adequate course of disease or infection treatment should be exempt from further chest x-rays unless they become symptomatic.

4. **Reactors with Symptoms of Tuberculosis**. All persons with significant reactions to the tuberculin skin test and symptoms of tuberculosis must seek a medical evaluation and be deemed non-infectious prior to returning to work. Persons with significant reactions and no symptoms of tuberculosis may start work prior to obtaining a chest x-ray as long as one is obtained as soon as possible.

5. **Contact Investigations**. When there is an exposure to a suspected or recently diagnosed case of tuberculosis, a contact investigation should be conducted. Each person exposed who previously had a negative reaction to the skin test should receive a tuberculin test. Those who are still negative should be retested three months after exposure. Preventive therapy should be given to high-risk contacts with negative skin tests since they may be infected even though their skin tests have not yet converted.

   Chest x-rays should be provided for employees whose skin test reactions increase >6 mm from <10 mm to ≥10 mm. Treatment for infection or disease should be provided according to the results of the x-ray.

6. **Evaluation**. The data generated from this testing should be analyzed periodically to determine and revise policies. The best index of the effectiveness of the program will be the absence of new infections in employees.

Figure 9.1-2

DIAGNOSTIC PROCEDURE: THE TUBERCULIN TEST
FOLLOW-UP OF TUBERCULIN TEST REACTIONS
ANNUAL STATEMENT FOR TUBERCULIN REACTORS

NAME: _____
DOB : _____

[ ] I am tuberculin positive. I have had the recommended course of treatment for tuberculosis infection or disease.

[ ] I am tuberculin positive. I have had one negative chest x-ray since becoming tuberculin skin test positive.

This statement is to confirm that I DO NOT have symptoms consistent with pulmonary tuberculosis such as:

Cough lasting longer than three (3) weeks
Unexplained fever
Night sweats
Unexplained weight loss
Coughing up blood
Chest pain

If none of these symptoms are present, a chest x-ray is NOT NECESSARY.

If I develop any of these symptoms, I agree to seek immediate medical attention.

_____ _____
Signature Date

TUBERCULOSIS CONTROL

Guidelines for Tuberculosis Contact Investigation In Long Term Care Facilities

The identification of an active case of tuberculosis in an employee, volunteer or resident of a long-term care facility may present some particularly difficult problems. Residents are usually elderly and therefore may be at greater risk of developing disease due to a recently acquired infection, as well as developing disease from a long-ago infection. This problem is compounded by the congregate living situation that potentially enhances the transmission of any communicable disease. In addition, tuberculosis may go unrecognized in debilitated elderly residents for months, resulting in prolonged exposure of a large number of staff and residents. It is important to "THINK TB".

When a long-term care facility receives information that an employee, volunteer or resident is diagnosed or suspected of tuberculosis, the facility should report to the local health unit. This report (See Figure 9.2-1) is required by Missouri Department of Health rule, 19 CSR 20-20.020. Reporting Communicable Diseases (See Appendix I). In addition to receiving the report, the local health unit will provide assistance in conducting the contact investigation as well as in obtaining antimycobacterial drugs, if desired. (In the absence of a local health unit, the district health office provides these services.)

Generally, the local or district health unit will conduct the investigation according to the following recommended procedures:

1. An estimate of how long the person was symptomatic and infectious will be made according to established criteria. It is important to remember that, because tuberculosis is transmitted by the airborne route, persons who sleep, live, work, or who are otherwise in contact with an infectious person through a common ventilation system for a prolonged time are "close contacts" at risk of acquiring infection.

2. The investigators will immediately arrange for tuberculin skin testing (Mantoux 5TU PPD) of the close contacts, including family members, friends, roommates, residents, and employees in the wing where the resident lived or the employee worked. This should be performed unless contacts have documentation of a prior skin test reaction $\geq$10mm. (If two-step testing was not done at time of admission or employment, it may be done at this time.). If there is no evidence of recent infections (as evidenced by skin test reactions $\geq$5 mm) among these close contacts, it is appropriate to not extend the investigation at this time. If there is evidence of recent infection, the investigation should be broadened to include others who may have been in less close contact.

   A repeat tuberculin test should be performed on contacts with reactions of <5mm three months after exposure has ended. At the time of the repeat testing, if there is evidence of recent infection, it may be appropriate to extend the investigation to those with less close contact to the index case.

Chest x-rays should be performed on all contacts whose skin test reaction is ≥5mm in order to rule out progressive disease. All symptomatic individuals, regardless of skin test results, should have a chest x-ray and sputum specimen submitted for AFB smear and culture.

Skin test, x-ray, and sputum (if done) results should be recorded in each resident's chart or volunteer or employee record with other important medical information. Skin test results should be recorded in millimeters of induration, (e.g., 16mm or 0mm), rather than simply "positive" or "negative."

3. After the initial round of close contact skin testing and chest x-rays have been completed and results recorded in each resident's chart or the volunteer or employee record, staff and residents should be evaluated for the need for isoniazid (INH) infection treatment, following the guidelines of the American Thoracic Society and the Missouri Department of Health. The following persons associated with long-term care facilities are recommended for infection treatment regardless of age:

   a) Persons with skin test reactions ≥5mm with no symptoms of tuberculosis and no documented history of an adequate course of antituberculosis medications but with fibrotic lesions noted on chest x-ray.

   b) Persons with skin test reactions ≥5mm with HIV infection and those with risk factors associated with HIV infection whose HIV status is unknown. Preventive therapy may be considered for HIV infected persons who have skin test reactions of <5mm in groups where the prevalence of tuberculosis is high.

   c) Close contacts of persons with newly diagnosed infectious tuberculosis who have skin test reactions of ≥5mm.

   d) Recent skin test converters (≥10mm increase within a 2 year period.) ALL children ≤4 years with a skin test reaction of ≥10mm are included in this group.

   e) Persons with skin test reactions ≥10mm and the following medical conditions:

      - Diabetes mellitus
      - Prolonged corticosteroid therapy (>15mg of Prednisone or equivalent daily for 2-3 weeks)
      - Immunosuppressive therapy
      - Hematologic and reticuloendothelial diseases (i.e., leukemia or Hodgkin's disease)
      - IV drug users
      - End stage renal disease
      - Chronic undernutrition (i.e., intestinal bypass surgery, gastrectomy, chronic ulcer disease, chronic malabsorption syndrome, chronic alcoholism, cancer of the oropharynx and upper GI tract)

   f) In addition, even in the absence of any of the above risk factors, the following persons with skin test readings ≥ 10mm are recommended for preventive treatment:

- Foreign-born persons from Latin America, Asia, Africa
- Medically underserved low income populations, including high-risk racial or ethnic minority populations, especially black, Hispanic, and native Americans
- Residents, employees and volunteers of long-term care facilities, other health care facilities, schools and child-care facilities

Other Considerations Regarding Tuberculosis Control in Long Term Care Facilities

1. All persons being treated for tuberculosis infection or disease must be monitored monthly for signs and symptoms of adverse reactions. Each person also should be taught the symptoms of an adverse reaction to the medication(s) he is taking, and what to do if such symptoms occur.

   It is important that all persons being treated for tuberculosis infection or disease have appropriate baseline liver function tests and other tests which can be compared with subsequent studies should a suspected adverse reaction occur. Abnormal findings on baseline studies must be followed up.

   For persons taking only isoniazid (INH) for infection treatment, it is recommended that they have careful monthly monitoring of signs and symptoms of hepatotoxicity (anorexia, nausea, vomiting, dark urine, icterus, persistent fatigue or weakness). Liver enzymes should be monitored if symptoms develop as well as monthly if person is aged 35 or greater.

2. Residents being treated for tuberculosis infection or disease should have their anti-TB drug regimens incorporated into the facility's routine for medication delivery and should be given by a staff person trained to monitor for signs and symptoms of drug toxicity. If such occur, the anti-tuberculosis medications should be withheld and the physician notified immediately.

3. A resident, employee or volunteer who can not or will not complete a recommended course of INH should be counseled to watch for signs and symptoms of tuberculosis disease (persistent cough, anorexia, fever, weight loss) and counseled to seek medical attention immediately if symptoms occur. A notation should be made on the front of the medical or employee record along with the skin test reading and chest x-ray results if a recommended course of INH was not completed. Those who are at high risk of developing disease should not be where they can expose others for whom the consequences of infection may be especially serious. Repeated chest x-rays are not justified and are ineffective as a means of follow-up for these individuals. These persons should be screened annually for tuberculosis symptoms with screening results documented in their file. However, if the person develops symptoms suggestive of tuberculosis, the person should then be examined by chest x-ray and sputum specimens to rule out disease.

4. Elderly persons who are on numerous medications also need to be monitored for drug interaction with INH. Drug interactions have been reported in patients taking phenytoin (Dilantin); INH potentates phenytoin toxicity; phenytoin dosage should be reduced and

serum levels monitored in patients receiving INH. Interactions with aluminum hydroxide, cycloserine, disulfiram (Antabuse), sodium sulfate, para-aminosalicylic acid (PAS), warfarin, channel blockers, theophylline and levodopa have also been reported.

If the facility has any questions regarding tuberculosis control measures, please contact the local health department or the Section of Vaccine-Preventable and Tuberculosis Disease Elimination at the Missouri Department of Health and Senior Services.

References

1. American Thoracic Society. Treatment of tuberculosis and tuberculosis infection in adults and children. American Journal of Respiratory and Critical Care Medicine 1994;149:1359-1374.

2. Centers for Disease Control and Prevention. Prevention and control of tuberculosis in facilities providing long-term care to the elderly. Recommendations of the Advisory Committee for Elimination of Tuberculosis. MMWR1990;39(RR10).

TUBERCULOSIS CONTROL

Transfer of Residents With Suspected or Confirmed Tuberculosis

Residents with suspected or confirmed active pulmonary tuberculosis will be transferred to a facility with appropriate tuberculosis isolation facilities. All personnel with resident contact will have a single **baseline tuberculosis skin test** (Mantoux) and a **medical history** taken when hired. These personnel should also receive initial **training** about tuberculosis and the facilities policies and procedures. This training should be repeated annually.

In order to deal effectively and efficiently with residents with suspected or confirmed tuberculosis the following procedures should be implemented.

Early Identification of Residents With Suspected or Confirmed Pulmonary Tuberculosis

Residents with signs and symptoms of active pulmonary tuberculosis (i.e., fatigue, night sweats, fever, unexplained weight loss, chronic and productive cough, hemoptysis and/or chest pain) should be cared for as though the resident has tuberculosis until it is ruled out.

Exposure Determination

The resident should be attended to by as small a number of health care providers as possible. All of those providing care to the resident after it is determined that the patient may have infectious pulmonary tuberculosis **MUST BE TRAINED** regarding the proper procedures to follow. (See Subsection 9.4 Instructions for Facilities Equipped to Manage Patients With Suspected or Confirmed Tuberculosis.) All personnel who may have had an exposure to the resident during a time when the patient may have been infectious should notify their supervisor of the possible exposure. This will be helpful later if the resident is found to have pulmonary tuberculosis. A list of those exposed will facilitate appropriate contact investigation.

Masking and Segregation

Tuberculosis is transmitted by the airborne route only. The patient will need respiratory precautions in addition to Body Substance Precautions. When a resident is suspected of having active pulmonary tuberculosis and is not respiratory compromised, it is preferable to place a surgical mask on the resident and to segregate him/her in a **PRIVATE ROOM** until the transfer occurs. As long as the resident is wearing a surgical mask, there is no need for the staff to wear respiratory protection. (REASON: The surgical mask will cause the patients secretions to be expelled onto the surface of the mask. Thus large droplets are trapped on the mask and droplet nuclei are not expelled into the air.).

If the resident cannot tolerate the placement of a surgical mask, a cough suppressant may be considered and/or the resident is to cover his/her mouth with a disposable tissue when needing to cough AND all persons/personnel in the area must wear N-95 or HEPA masks.

Transfer

The facility to which the resident is being transferred should be contacted and advised of the resident's diagnosis. The transfer should take place in an expeditious manner and long delays should be avoided. This will assist in keeping the number of possible exposures to other residents and staff to a minimum. Those providing transportation (e.g. ambulance, police, private vehicle, etc.) should be advised of the resident's status and provided appropriate infection control instructions.

If the transfer is delayed, place resident in a room with plenty of sunshine and where a window can be opened. Place a fan pointing outward in the window to create negative air pressure. The window should not open to another room or be near an intake vent for the facility. An alternative, if feasible, is to place the resident outside on a porch.

Recordkeeping

The facility will maintain records on the results of all baseline skin testing and medical history on personnel with resident contact and will keep records on the results of skin tests performed on exposed employees.

Prophylaxis

All personnel who convert their PPD skin test should be promptly provided a medical evaluation and prophylactic medication, when appropriate, to reduce their risk of acquiring tuberculosis. (See Subsection 9.2 Guidelines for Tuberculosis Contact Investigation in Long Term Care Facilities)

TUBERCULOSIS CONTROL

Instructions for Facilities Equipped to Manage Residents With Suspected or Confirmed Tuberculosis

An effective tuberculosis (TB) control plan requires early identification, isolation and effective treatment of persons who have active tuberculosis.

Early Identification

Physicians and nurses must have a high index of suspicion regarding tuberculosis. Any resident with signs and symptoms of active tuberculosis, such as night sweats, fever, cough, or hemoptysis, should be treated as though they have TB until it is ruled out. In addition, all new residents are to have a two-step PPD skin test performed upon admission to the facility as required by Department of Health rule 19 CSR 20-20.100 (See Appendix E)

Treatment/Discharge

The appropriate treatment of tuberculosis will assist in patient recovery and in decreasing the risk of the development of antibiotic resistant *Mycobacterium tuberculosis*. To assist the physician in assuring patient compliance in taking their medications proper discharge planning from an acute care setting should include collaboration with public health authorities. The Department of Health must be notified of suspected or confirmed cases of tuberculosis prior to discharge from the facility to assure proper coordination of the discharge.

Isolation/Stop Sign Alert

Residents with suspected or confirmed TB should be immediately separated from other residents and placed in a separate area or an isolation room with negative air pressure. Residents should be placed on "Stop Sign Alert" status in a private room equipped with negative air pressure and 6-12 air exchanges per hour. A "Stop Sign Alert" sign is placed on the front of the door. Those caring for the patient and those entering the room of a patient with suspected or confirmed tuberculosis must wear appropriate respiratory protection (N-95 or HEPA mask). The patient should be given a surgical face mask, a box of tissues and instructions regarding the use of these items. A surgical face mask should be placed on the patient for transportation or when they cannot immediately be taken to an appropriate isolation area. (See Precautions for Residents With Airborne Diseases in Subsection 3.2 Implementing the Body Substance Precautions Systems)

Residents placed in Stop Sign Alert with suspected tuberculosis should remain in isolation until TB is ruled out. Stop Sign Alert should be discontinued only when another diagnosis is confirmed or the patient has had:

1. Adequate **chemotherapy** for at least 2-3 weeks

AND

2. **Clinical and bacteriologic** response to therapy, such as:
   - reduction in cough
   - resolution of fever
   - progressively decreasing quantity of bacilli on smear. Most experts agree that the non-infectiousness in pulmonary TB can be established with negative acid-fast bacilli (AFB) smears on **three** consecutive days for a patient on effective therapy. A single negative smear is not adequate. At least **three** negative smears are necessary to achieve 95% sensitivity.

THE INFECTION CONTROL COORDINATOR MUST BE NOTIFIED BEFORE ISOLATION IS DISCONTINUED ON THESE RESIDENTS.

The ventilation systems in rooms for isolating residents with suspected or confirmed pulmonary tuberculosis will be routinely monitored to assure the rooms remain under negative pressure and that there is sufficient air exchanges. When in use, these rooms will be monitored daily to assure the system is functioning properly.

High-Hazard Procedures

Procedures performed on individuals with suspected or confirmed tuberculosis in which the potential for being exposed to *M. tuberculosis* due to the reasonable anticipated generation of aerosolized *M. tuberculosis* are classified as high-hazard procedures. These procedures include but are not limited to:

- sputum induction
- bronchoscopy
- endotracheal intubation or suctioning
- aerosolized administration of pentamidine or other medications
- pulmonary function testing.
- autopsy

All high-hazard procedures performed on individuals with suspected or confirmed tuberculosis shall be conducted in a room, area or environment that has negative air pressure and is either exhausted directly to the outside or recirculated through a HEPA filter. All persons performing high-hazard procedures must wear respiratory protection (N-95s as a minimum) except when procedures are performed in an isolation chamber, which separates the health care worker, form the patient and his/her air.

Health Care Worker Monitoring and Training

All staff who provide care to residents with suspected or confirmed pulmonary tuberculosis must:

1. Receive PPD skin testing at least annually. Skin testing may be done at more frequent intervals if deemed necessary

2. Receive annual training regarding the epidemiology and prevention of tuberculosis.

3. Receive training regarding the appropriate use of respiratory protection.

Exposure Management

Any person who may have had exposure to a patient with confirmed tuberculosis prior to the diagnosis and implementation of proper isolation and respiratory protection should notify their supervisor.

When residents enter the facility and are later diagnosed with infectious pulmonary tuberculosis, the facility will perform an investigation and notify possibly exposed staff. Baseline PPD skin tests will be performed on those who have not had a recent PPD skin test for TB and will then be followed up with a repeat skin test in 3 months. Any staff member who converts their PPD skin test should be managed medically with appropriate treatment, evaluation, care and follow-up. (See Subsection 9.2 Guidelines for Tuberculosis Contact Investigation in Long Term Care Facilities)

INFECTIOUS DISEASE FACT SHEETS

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INFECTIOUS DISEASE FACT SHEETS

Clostridium difficile Diarrheal Disease

What is *Clostridium difficile* (*C. diff.*) diarrheal disease?

Clostridium difficile is a gram-positive spore forming bacterium that produces two exotoxins responsible for the development of gastrointestinal (GI) illness (colitis) generally following administration of antibiotics. Because of the bacterium's ability to form spores, it can persist in the environment for months and is highly resistant to cleaning. It is also called antibiotic associated diarrhea (AAD) and/or pseudomembranous colitis.

Who gets *Clostridium difficile* diarrheal disease?

Clostridium difficile is common in soil, hay, mud, sand, and the stools of multiple animal species and is an opportunistic pathogen in man. Persons at greatest risk for acquiring this disease include those who require the administration of antibiotics (especially I.V., broad-spectrum antibiotics), have their bowel flora disrupted as a result of enemas or gastrointestinal surgery, are hospitalized (especially in intensive care units), are receiving enteral feedings, or are on drugs that affect the motility of the gastrointestinal tract (e.g.: narcotics, antacids, or laxatives). These conditions change the normal bacterial flora of the bowel allowing *Clostridium difficile* to multiply and cause disease.

What are the symptoms?

Symptoms of *Clostridium difficile* diarrheal disease include: diarrhea (more than three loose stools/day for two or more days), abdominal cramps, low grade fever, abdominal tenderness. Diarrhea is initially green or yellow-brown in color, and in prolonged or serious disease diarrhea becomes bloody.

How soon do symptoms appear?

The period of time from exposure to development of symptoms may be a few days to weeks.

How is *Clostridium difficile* spread?

Spores of *Clostridium difficile* can be acquired from the environment or by fecal-oral transmission (unwashed hands) from colonized or infected individuals (cases as well as persons providing medical care).

How can *Clostridium difficile* be prevented?

Handwashing is the single most important means of preventing transmission of this disease. Persons that soil the environment should be placed in a private room. Body Substance Precautions should be used. Single use of patient care items and good housekeeping practices are also important.

Can *Clostridium difficile* be treated?

Yes, the drug of choice is oral metronidazole (flagyl). If flagyl fails, oral vancomycin should be added to the treatment regimen. If flagyl can not be used, then oral vancomycin should be given alone. **Anti-diarrheal medications should NOT be given.**

INFECTIOUS DISEASE FACT SHEET
Conjunctivitis
(Pink Eye, Sticky Eye)

What is conjunctivitis?

Conjunctivitis is an infection in the eye. It can be caused by bacteria or viruses.

Who gets conjunctivitis?

Anyone can get conjunctivitis.

How is it spread?

Conjunctivitis is spread when a person comes in contact with discharges from the eye or upper respiratory tracts of infected people. It can be spread by contaminated fingers and articles (towels, wash cloths, multi-dose medication vials, eye makeup).

What are the symptoms of conjunctivitis?

One or both eyes may be red, itchy, painful, and may have drainage. In severe cases, the eyelid will be swollen. Care should be taken to assess the resident for history of allergies.

How long is the person contagious?

From the time of exposure until symptoms occur, usually 24-72 hours. The person can spread the infection to others as long as symptoms are present.

How is conjunctivitis diagnosed?

First an evaluation is made of the signs and symptoms and history of allergy. A culture may be obtained and sent for both bacterial and/or viral analysis.

How do you treat conjunctivitis?

Usually the physician will prescribe eye drops or ointment.

How can conjunctivitis be prevented?

Teach residents good personal hygiene habits. Care must be taken to assure personal items are not shared among residents. Care must also be taken to prevent multi-dose medication vials from becoming contaminated. Ideally, single dose vials are used. As usual, good handwashing applies. Residents should only be restricted to their room if they have conjunctivitis and poor hygiene habits. If this is the case, the resident should be restricted from participating in activities or going to the dining room only during the course of infection.

For more information about conjunctivitis, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services.

INFECTIOUS DISEASE FACT SHEETS

Head Lice Infestation
(Pediculosis)

What are head lice?

Head lice are blood-sucking insects that are found on people's heads. The head louse is found on the hair near the scalp, especially behind the ears and at the nape of the neck.

Who gets head lice?

Anyone, no matter how clean they are, who comes in close contact with someone whom already has head lice.

How are head lice spread?

Head lice can transfer quickly upon head-to-head contact or by way of bug-ridden clothing or personal care items (e.g.: combs, brushes, headwear).

What are the symptoms?

Itching and scratching of the scalp are seen. Person may complain or notice a tickling feeling of something moving in the hair. Sores on the scalp, caused by scratching, may also occur. These sores can sometimes cause a bacterial infection of the scalp.

How soon do symptoms occur?

It may take two to three weeks or longer before the itching is bothersome enough to cause concern.

What do head lice look like?

There are three forms of head lice: the nit, the immature head louse called the nymph and the adult head louse. Nits are head lice eggs that are firmly attached to the hair shaft. They are not to be confused with dandruff or hair spray droplets that can be removed easily by combing or brushing the hair. Live lice are the size of a sesame seed (smaller for the nymph) and color varies with the color of the person's hair.

How long can a person spread head lice?

Head lice can be spread as long as lice or nits remain alive on the infested person or clothing. Adult lice live up to 30 days on a person's head. Off a person, lice die within 2–3 days. Nits that fall off the hair do not hatch at or below room temperature and therefore do not play a major role in spreading head lice.

How is head lice infestation diagnosed?

By looking closely through the hair and scalp for nits or live lice. If lice are not seen, finding nits close to the scalp confirms the diagnosis of head lice. If you are not sure a person has head lice, consult a health care provider, school nurse or public health nurse.

What is the treatment for head lice?

Only those persons with live lice or nits close to the scalp and aged 2 or greater should be treated with a medicated shampoo or cream rinse. Many of these products may be purchased over the counter while others require a prescription. Package instructions must be carefully followed and all require a second application if all nits are not removed from the hair. Use of lindane products is discouraged due to their potential to be toxic.

Remove all nits from the hair. This can be done by picking the nits from the hair using the index finger and thumbnails or by using a special nit comb. If only a few hair follicles remain with nits present, these may be removed by cutting the hair shaft close to the scalp.

All washable clothing and bed linens used by the infested person during the past 2–3 days require washing and drying on the “hot” cycle for at least 20 minutes. Dry clean clothing that is not washable or place clothing in a plastic bag, seal, and store for 14 days.

Wash combs and brushes with soap and hot (130°F) water.

Vacuum floors and upholstered furniture. Use of sprays is not necessary and may be detrimental to those with allergies or asthma.

INFECTIOUS DISEASE FACT SHEETS

Hepatitis A

What is hepatitis A?

Hepatitis A is a liver disease caused by the hepatitis A virus. It was formerly known as infectious hepatitis. It does not cause long term liver damage and usually does not cause death. With hepatitis A there is no chronic carrier state and people who have the disease will then be protected for life.

Who gets hepatitis A?

Anyone can get hepatitis A. Groups of people who are more susceptible to hepatitis A are children and adults between the ages of 15 to 30 years of age. People in these age groups are more socially active, and participate in activities that may involve sharing of food, beverages or other substances. They are also frequently employed in occupations such as food preparation and service, which could provide the opportunity to expose large numbers of people. In the long-term care setting, the employee in food service with hepatitis A can pose the greatest threat to residents and staff.

How is hepatitis A spread?

Hepatitis A is spread through eating or drinking food or beverages that have been contaminated from hands soiled with stool containing the hepatitis A virus. Since very few viral particles are needed to cause infection, visible soilage with stool is not necessary. Institution of proper handwashing procedures and proper disinfection of articles will prevent the spread of hepatitis A.

What are the symptoms of hepatitis A?

The symptoms of hepatitis A may include: tiredness, poor appetite, fever, vomiting, urine may become dark in color, stool may become clay color or jaundice (yellowing of skin and whites of eyes) may occur. Symptoms may be mild and not everyone who has hepatitis A will have all these symptoms.

How soon do symptoms appear?

They may appear within two to seven weeks after someone has been exposed to hepatitis A, but usually it is within four to five weeks.

How is hepatitis A diagnosed?

There is a blood test specific to hepatitis A that can confirm the diagnosis.

How long can the infected person spread the virus?

A person is contagious about two weeks before symptoms appear until about one week after jaundice occurs. If no jaundice is seen, consider the person contagious for two weeks prior to symptoms and two weeks after symptoms occur (4 weeks). Persons with no symptoms can still spread the virus.

How do you treat hepatitis A?

There are no medications for hepatitis A. The best treatment is rest and good nutrition. Drugs and alcohol should be avoided.

How can hepatitis A be prevented?

The best prevention is good handwashing after using the restroom. Staff caring for residents should use Body Substance Precautions and good handwashing. Equipment taken from resident to resident should be properly disinfected. Utensils used for food preparation should be properly sanitized. Staff working in the food preparation should be evaluated for and symptoms indicative of hepatitis A.

Hepatitis A vaccine is available and should be considered by the facility as part of their employee health policies.

For more information about hepatitis A, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services.

INFECTIOUS DISEASE FACT SHEET

Hepatitis B

What is hepatitis B?

Hepatitis B is a liver disease caused by the hepatitis B virus. It was formerly called serum hepatitis.

Who gets hepatitis B?

Anyone can get hepatitis B, but persons at greatest risk include:

- Babies born to mothers who carry the virus
- Drug users who share needles
- Health care workers who come in contact with infected blood or body fluids which contain the virus
- Persons with multiple sex partners
- Hemodialysis patients
- Persons who receive unscreened blood products
- Household contacts and sexual partners of infected persons or carriers of hepatitis B
- Persons living in areas such as Asia or Africa where hepatitis B is common
- Persons in the U.S. who are Alaskan Natives or Pacific Islanders.

How do people get this virus?

The virus of hepatitis B may be found in blood and in lesser amounts in saliva, semen and other body fluids of people who are infected or carry the virus. It is spread from one person to another by sharing any of these body fluids through sharing of needles, needle stick injury, mucous membrane exposure, human bite or sexual contact. It is not spread by casual contact.

What are the symptoms of hepatitis B?

Like hepatitis A, some people may have no symptoms, a few symptoms or severe symptoms. The symptoms may be loss of appetite, tiredness, fever, vomiting, joint pain, hives or a rash. In more severe cases, the urine will turn a dark color, stool will turn a light (clay) color and the person will become jaundiced (a yellowing of the skin and whites of the eyes).

How soon do symptoms appear?

Symptoms can appear anywhere between 45 and 180 days after exposure, with the average being 60-90 days.

How is hepatitis B diagnosed?

A blood test can be performed which is specific for hepatitis B.

How long is the person contagious?

Hepatitis B virus can be present for several weeks before symptoms appear and several months after symptoms appear. About 10% of people who get hepatitis B will become carriers and will always have the virus in their body fluids and can then transmit it to others in the ways identified above.

What is the treatment for hepatitis B?

There is no specific treatment for hepatitis B. Like hepatitis A, good nutrition and rest are very important. If someone becomes a carrier of hepatitis B, they may benefit from alpha-interferon.

How can hepatitis B be prevented?

Hepatitis B vaccine is available and is a safe vaccine that provides protection to about 90% of those who receive it. It is given in three injections at 0, 1 and 6 months. A special hepatitis B immune globulin (HBIG) is also available for persons who are exposed and have not been vaccinated.

In the long-term care setting as with any health care setting, all staff should practice appropriate precautions while providing care to residents. Care should be taken when handling any sharp object used on the resident. Care should also be taken to assure that personal items (razor, toothbrush) are not shared between residents. The resident who is either infected or is a carrier of hepatitis B may participate in activities and eat in the dining room.

For more information about hepatitis B, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services.

INFECTIOUS DISEASE FACT SHEET

Hepatitis C

What is hepatitis C?

Hepatitis C is an inflammation of the liver that is caused by the hepatitis C virus. This inflammation can result in serious liver damage. Eighty-five percent of hepatitis C-infected individuals develop chronic hepatitis. Hepatitis C is now the major reason for liver transplantation in the United States.

How common is hepatitis C?

Annually, approximately 30,000 Americans will become infected with hepatitis C in the United States. If the body does not clear the virus in six months, the infection is said to be chronic. Currently, an estimated 4 million people have chronic hepatitis C in the United States. Missouri is estimated to have 95,000 persons infected with hepatitis C.

Each year, up to 8,000 Americans die from complications of hepatitis C. The death rate is expected to triple within the next 10 to 20 years, exceeding the death rate associated with AIDS.

Who is at risk for hepatitis C?

Hepatitis C is transmitted primarily by direct puncture of the skin. Injection drug use accounts for greater than 60% of chronic infections.

Other risks include:

- Blood transfusion prior to 1992
- Hemodialysis patients
- Practicing high-risk sexual activity (multiple partners history of STDs, co-infected with HIV)
- Using non-injection illegal drugs (intranasal cocaine)
- Occupational exposure (health care workers)
- Tattooing and body piercing with contaminated equipment

Transmission between mother and baby has been documented, although the risk is low, no more than 6%. Breastfeeding does not appear to transmit hepatitis C.

What are the symptoms?

Some people have loss of appetite, tiredness, nausea and vomiting, vague stomach pain and jaundice (a yellowing of the skin and whites of the eyes). Some people do not have any symptoms.

How soon do symptoms occur?

Symptoms may occur from two weeks to six months after exposure but usually within 6-9 weeks. These symptoms are during the acute phase of the disease. Liver cirrhosis and permanent liver damage from hepatitis C may not be evident for up to 20 years after the initial exposure to the virus.

When and for how long is a person able to spread hepatitis C?

A person with hepatitis C is contagious one or two weeks before symptoms appear and during the entire time the person is ill. About 50% of the people with hepatitis C will go on to become chronic carriers. Until more is learned about this disease, all persons who have been diagnosed as having hepatitis C should be considered infectious (able to pass the hepatitis C virus through their blood and body fluids).

What are the complications of hepatitis C?

Eighty-five percent (85%) of persons infected with hepatitis C develop chronic hepatitis and remain infectious to other people. Cirrhosis (scarring of the liver) occurs within 2 years of the onset of infection in at least 20% of persons with chronic hepatitis C. The risk for chronically infected persons to develop liver cancer is 1-5%. The course of illness is influenced by various factors, especially alcohol consumption.

Can hepatitis C be prevented?

There is no vaccine for hepatitis C. A healthy lifestyle can reduce chances of infection. Avoid illegal injection drug use, intranasal cocaine use and activities that involve contact with other people's blood. Practice safe sex and limit sexual partners (a monogamous relationship has the lowest risk for acquiring hepatitis C). Avoid sharing razors, toothbrushes, pierced earrings, needles and syringes with anyone; and make certain needles for body piercing and tattooing have been properly sterilized.

How is hepatitis C diagnosed?

There are tests that can be performed on blood to identify individuals who have the hepatitis C virus. Your doctor can perform these tests.

Is there a medical treatment for hepatitis C?

Treatment for hepatitis C is recommended only in a selected group of infected persons. Vaccination against hepatitis A and B is recommended, since a liver compromised by hepatitis C is more susceptible to hepatitis A and B.

For more information about hepatitis C, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services

INFECTIOUS DISEASE FACT SHEETS

Influenza

What is influenza?
Influenza is a highly contagious respiratory illness caused by a virus. There are two main types of influenza viruses: type A and type B. Each type has many different subtypes or strains. Influenza, type A, causes moderate to severe illness. Type B causes milder disease and primarily affects children. Influenza can occur throughout the year, but seasonally peaks from December to March.

What are the symptoms?
Symptoms include fever, headache, muscle aches, malaise, sore throat, runny nose, cough and nasal congestion. Occasionally, intestinal symptoms such as nausea, vomiting, diarrhea, and abdominal pain are present, but should not be confused with the "stomach flu."

How is influenza spread?
Influenza is spread from person to person by direct contact with aerosolized particles or large droplets from the respiratory tract of the infected person when coughing, sneezing, or talking. Transmission can also occur through articles recently contaminated by respiratory secretions of the infected person. Frequent handwashing and avoiding or limiting contact with an infected person may reduce the risk of infection.

How soon do symptoms appear?
Symptoms of influenza usually appear 1 to 5 days after exposure.

How long can a person spread influenza?
Persons are most contagious during the 24 hours before symptoms appear and may be contagious for up to 7 days.

How is influenza diagnosed?
The diagnosis of influenza is usually based on the symptoms. For a laboratory-confirmed diagnosis, the virus should be cultured from the throat or nose within three days of onset of symptoms.

What is the treatment?
Basic treatment includes bed rest, fluids, and over-the-counter medications for the relief of symptoms of runny nose, cough, sore throat, fever and discomfort. Aspirin should not be used for infants, children, or teenagers because of the associated risk for contracting Reye Syndrome.

Antiviral medications, such as amantadine and rimantadine, may reduce the severity and shorten the duration of influenza, type A illness in healthy adults when administered with 48 hours of illness onset. These drugs can have side effects and must be ordered by your physician.

How serious is influenza?

Influenza can be very serious, especially during epidemics. Secondary bacterial pneumonia is a serious complication of influenza and can cause death in persons at increased risk for complications, including the elderly and those with chronic diseases.

Can influenza be prevented?

Annual influenza vaccine immunization has been up to 90% effective in preventing influenza in young healthy adults and while only 30% to 40% effective in preventing illness among frail elderly persons, it is 80% effective in preventing influenza-related deaths in the elderly. During community outbreaks of influenza, type A, antiviral medications may be used by persons who are unable to take the influenza vaccine. Antiviral medications are also indicated when outbreaks are caused by a variant strain of influenza, type A, that might not be controlled by the vaccine.

When is the influenza vaccine given?

Influenza vaccine is updated annually to match the circulating strain and provides immunity for approximately one year. The vaccine should be taken each fall, between October and mid-November. It takes about 1 to 2 weeks for the antibody to develop and provide protection. Special split-virus influenza vaccine should be administered to children 6 months to 12 years. Children less than 9 years of age receiving influenza vaccine for the first time should receive two doses administered at least 1 month apart.

How safe is influenza vaccine?

The influenza vaccine does not contain live viruses, so it cannot cause influenza. The most common reaction is soreness where the shot was given. Fever, chills, malaise, and muscle soreness, lasting 1 to 2 days, occurs in less than 1% of vaccine recipients.

Who should get influenza vaccine?

Persons who have a greater risk for developing complications from influenza should be vaccinated, including:

- Persons aged 65 years and older;
- Residents of long term care facilities and other chronic care facilities;
- Adults and children with chronic heart or lung conditions, including children with asthma;
- Adults and children who require regular medical follow-up because of chronic metabolic disease (including diabetes mellitus), kidney disease, blood disorders or immunosuppression;
- Children and teenagers, aged 6 months to 18 years, who are receiving long-term aspirin therapy and might be at risk for developing Reye syndrome after influenza;
- Women who will be in the second or third trimester of pregnancy during the influenza season.

Other persons who should be vaccinated include:

- Persons who live with or care for high-risk individuals;
- Health care workers, physicians, staff and volunteers of health care facilities and home health facilities;
- Persons who work in public-safety occupations, such as, police, firefighter, and emergency medical technicians;
- College and university students and travelers to foreign counties;

- Persons who wish to avoid influenza illness.

Who should NOT get influenza vaccine?

Persons who:

- Have had a severe allergic reaction to a vaccine component or following a prior dose;
- Have severe reactions, such as hives or swelling of the lips or tongue, after eating eggs because the vaccine is prepared from influenza viruses grown in eggs;
- Have a fever;
- Have an active infection.

For more information about influenza, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services.

INFECTIOUS DISEASE FACT SHEETS

Methicillin-Resistant *Staphylococcus aureus* (MRSA)

What is MRSA?

This is the scientific name for a specific type of common bacteria (*Staphylococcus aureus*) that has become "resistant" to or is no longer treatable by a group of commonly used antibiotics (e.g.: methicillin/oxicillin/other penicillin-like drugs).

Why and how do bacteria change so antibiotics no longer work?

Some bacteria already come equipped with the ability to resist the effects of certain antibiotics. Other types of bacteria can acquire the resistant capability from these bacteria. Other types of bacteria get used to living in the presence of antibiotics when antibiotics are taken often, taken when not needed or taken in wrong dosages. The proper use of antibiotics is essential in preventing the emergence and number of resistant organisms.

How harmful is MRSA?

MRSA is not more harmful than methicillin-sensitive *Staphylococcus aureus*. It is more difficult to treat due to usual antibiotics being ineffective. MRSA infections are usually treated with stronger and more expensive antibiotics.

How do you get MRSA?

Many persons already have MRSA due to the previous use of antibiotics. When MRSA is present and causing no harm, a person is "colonized" with the organism. It is when this organism invades the blood, a wound, or other sterile body site, that it causes harm (infection).

It may also be acquired within institutions where antibiotics are either given to the individual or are heavily used by others.

Hands are the most likely means of transmission of MRSA from one person to another. Transmission requires direct contact with a person either colonized or infected with MRSA. Although MRSA has been isolated from environmental items, the environment is NOT an effective mode of transmission.

Should an MRSA colonized or infected person be denied admission to a facility?

There is no reason to deny admission of a person colonized or infected with MRSA since there may be many residents currently in the facility with unknown MRSA colonization of the skin, nares, urine, feces, or sputum.

What can and should be done to limit the spread of MRSA?

HANDWASHING is the single most effective means of preventing MRSA transmission. When appropriate, gloves, gowns, masks, and protective eyewear are used as barriers to prevent acquisition and transmission of the organism.

Persons should only take an antibiotic when a bacterial infection has been diagnosed. In addition, it is important the antibiotic is taken as prescribed with all pills taken. If side effects become a problem, the health care provider should be contacted so the dosage can be changed or an alternate antibiotic prescribed.

What determines whether a resident with MRSA can leave his/her room and participate in social activities?

Each resident should be assessed as to his/her potential for spreading MRSA. A colonized or infected resident, whose wound drainage can be contained in a dressing (if applicable), is not physically ill with fever AND is compliant in following handwashing instructions and instructions not to touch the colonized or infected site, may participate in nursing home activities and eat in the dining hall.

Can a resident use the tub or whirlpool if they have MRSA?

Residents, regardless of colonization or infection with MRSA or any other organism, can take a tub bath or use the whirlpool. Effective cleaning and disinfection of the tub or whirlpool must take place following usage.

INFECTIOUS DISEASE FACT SHEETS

Scabies

What is scabies?

Scabies is a highly communicable skin disease caused by tiny human mites that burrow under the skin to lay eggs. Scabies causes intense itching, and a red, generally raised skin rash. Itching is most intense at night. The rash can start anywhere on the body (generally the face is spared) and continues to spread over the body until appropriately treated.

Who gets scabies?

Anyone can get scabies. Scabies affects all persons regardless of economic status, color of skin, age, or standard of personal hygiene.

How is scabies spread?

Scabies are most commonly passed from one infested person to another through direct skin to skin contact. Occasionally, scabies has been transferred from undergarments, bedclothes, bedding or other articles having skin contact with an infested person.

What are the symptoms?

Itching and scratching, especially at night. The rash can look like many other skin problems (eczema, dermatitis, poison ivy or oak, even chicken pox). Sometimes secondary bacterial infections occur as a result of the constant scratching that leads to bleeding and/or abraded skin that allows entry of disease producing organisms.

How soon do symptoms appear?

For persons getting scabies for the first time, itching and the rash can take up to eight (8) weeks to appear. Normal range is 2–6 weeks.

For a person who gets reinfested with scabies, itching and rash will occur within one to four days.

How long can a person spread scabies?

The scabies mite can be transferred once an infested person has skin-to-skin contact with another person. Therefore, persons who are yet to show symptoms can transfer the mite prior to their knowledge of having scabies. This is why outbreaks of scabies can occur within institutions like long term care facilities.

How is scabies diagnosed?

Because the rash caused by scabies can look like many other types of rashes, diagnosis is important and easily achieved by performing skin scrapings. A nurse may perform this procedure without a doctor's order, as it is a noninvasive procedure**.** See the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.) for how to perform skin scrapings. Once one resident or employee is found to have scabies, it is important to check all residents who may have had skin-to-skin contact with the infested individual, for skin rashes, and to complete a questionnaire for all employees, again who may have had contact with the affected resident or employee, to learn of possible rashes. For employees, rash will generally be noted on the inner aspects of the arms or on the abdomen. (Due to the lifting and turning of residents)

What is the treatment for scabies?

A medicated lotion or cream, known as a "scabicide," which must be prescribed by a physician, is required to effectively treat a person with scabies. This lotion or cream must cover the entire surface of the skin (generally from the tips of the earlobes to the ends of one's toes). A second, and sometimes a third, application may be necessary to adequately treat a person. Scabicides are pesticides and must be used with caution. Products containing topical five percent permethrin are considered safer than products containing lindane.

When only one resident is found to have a rash caused by scabies, only this person and his/her roommate require treatment. The person and/or persons should be isolated during the treatment period and gowns and gloves should be worn for applying the scabicide and for any skin-to-skin or bedside contact. Environmental cleaning and laundering of bed linens, bed clothes, and clothes worn in the past three days also must occur with clean clothes donned following the post-treatment shower/bath. Refer to the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.).

When more than one resident and/or employee are found to have scabies, than all persons having skin-to-skin contact with either infested person requires treatment. This is called mass treatment and may involve one wing or hall or the entire facility depending on the location of the symptomatic individuals. Mass treatment protocols require planning. Refer to the Department of Health's "Guidelines for Scabies Prevention and Control" (Appendix J.).

Do I need to treat furniture, other household items?

Vacuuming of upholstered furniture and rugs is recommended. It is not necessary to clean walls or curtains.

Laundering of bed linens and bedclothes is very important and must be done following treatment of the infested person and/or prior to reuse by anyone.

For items that cannot be washed, either dry clean, place in a hot dryer for 20 minutes, or place in a plastic bag and seal for 10 days.

Following treatment will itching cease?

Itching may continue for two or more weeks following treatment. Scabicides are very drying to the skin plus the body must absorb eggs and fecal pellets left under the skin by the scabies mites. Application of skin lotions and bath oils aid in minimizing dry skin. What will be noted is improvement of the rash (drying up and going away) and absence of new rash.

Recommendations for long term care facilities:

- Screen all new admissions for skin rashes. If present, isolate individual until rash has been diagnosed, and if communicable, adequately treated.
- When rashes appear, consider scabies. Do a skin scraping to rule out or confirm scabies.
- Read and know the "Guidelines for Scabies Prevention and Control" provided by the ?, Missouri Department of Health and Senior Services.
- Call you local public health agency or the Missouri Department of Health and Senior Services for assistance.
- All outbreaks are reportable. Report to your local public health agency, district office or Missouri Department of Health and Senior Services.

INFECTIOUS DISEASE FACT SHEET

Shingles
(Herpes Zoster)

What are shingles?

Shingles is a viral disease that occurs as a result of having had chickenpox at an earlier age. Following infection with chickenpox, the virus lies dormant in the body, generally along a nerve root, and is reactivated when host defense mechanisms wane either due to age or disease.

What are the symptoms?

Shingles are generally characterized by the appearance of grouped vesicular lesions that appear along one to three nerve paths, usually on one side of the body, with mild to severe pain. The two most common symptoms reported are severe pain and/or itching.

How soon do symptoms occur?

Highly variable, from months to years, after having chickenpox. Shingles is a reactivation of chickenpox.

Can shingles be spread?

No. In order to get shingles, one must have had chickenpox. However, direct contact with lesion secretions, and in rare cases, contact with airborne secretions[1] can result in spread of the disease. Either of these situations by someone who has never been vaccinated for or had chickenpox, can result in virus acquisition and subsequent chickenpox infection. Restriction of contact by caregivers who have not had chickenpox is appropriate in any setting.

Can shingles be treated?

Antiviral medications (Virarabine, acyclovir or famciclovir) are available and effective in treating herpes zoster. Often the duration of symptoms, including pain, are shortened with antiviral therapy.

[1] Weller, Thomas H., "Varicella-Herped Zoster Virus". Viral Infections of Humans, Epidemiology and Control., Ed Alfred S. Evans, 4th Ed. Alfred S Evans and Kaslow, Richard. 879:1997

INFECTIOUS DISEASE FACT SHEET

Tuberculosis

What is tuberculosis?

Tuberculosis is a disease caused by a bacterium called *Mycobacterium tuberculosis*. This bacterium can cause disease anywhere in the body, but is of most concern for transmission when found in the lungs.

Who gets tuberculosis?

Anyone can get tuberculosis if they are exposed to someone who has it in their lungs and is coughing, sneezing or singing. Risk for transmission is greatest in small enclosed areas. Even though persons of any age can get tuberculosis, certain groups of people are considered to be at greater risk. These groups include: babies and very young children, persons who are HIV positive or persons with weak immune systems, especially if they have the following conditions: substance abuse, diabetes mellitus, silicosis, cancer of the head or neck, leukemia or Hodgkin's disease, severe kidney disease, low body weight or certain medical treatments (such as steroid therapy or organ transplants). Other persons who may be at higher risk of developing tuberculosis due to potential exposure include: persons who have spent time with a person who is infectious with tuberculosis, persons who are HIV positive, persons who inject drugs, persons from countries where tuberculosis is commonly seen (Latin America, Caribbean, Africa and Asia, except Japan) and persons who live somewhere in the United States where tuberculosis can be common (e.g.: homeless shelters, migrant farm camps).

What are the symptoms of tuberculosis?

The symptoms which may indicate a person has tuberculosis include: weight loss, fever, night sweats, a bad cough which lasts 2 weeks or longer, coughing up blood, or pain in the chest. If these symptoms are present, the patient should be evaluated for tuberculosis.

How soon do symptoms occur?

The time between exposure and the development of symptoms can be weeks to years. Typically, if one has an exposure and gets the tuberculosis germ in their body, their tuberculin skin test (PPD) will turn positive in 4–12 weeks. Only about 10% of persons who have a positive PPD will ever have symptoms of tuberculosis, and this could be years later.

How is tuberculosis spread?

Tuberculosis is spread via the air. Airborne droplet nuclei are expelled into the air when an infected person coughs, sneezes, sings and talks.

How is tuberculosis diagnosed?

The first step in diagnosis involves a tuberculin skin test using the intradermal PPD (Mantoux Test). A complete history with particular attention to signs and symptoms of tuberculosis is essential. A chest x-ray will help visualize the lungs to look for any active disease. Sputum may be sent to the laboratory for Acid Fast Bacillus (AFB) smear and culture.

What is the treatment for tuberculosis?

If a person is infectious with tuberculosis, they should be initially treated with four anti-tuberculosis drugs. These drugs include: Isoniazid (INH), Pyrazinamide, Etha~~n~~butol, Ethambutol, and Streptomycin or alternates if allergies are present. Continued choice of therapy will be determined based upon resistance of the tuberculosis germ identified from the patient.

What isolation measures are needed for tuberculosis?

In the long term care setting, the patient with active tuberculosis will need to be placed in a negative pressure isolation room on AFB precautions until tuberculosis is either ruled out or the patient is no longer infectious. Since most long term care facilities do not have negative pressure rooms, the patient should be transferred to an acute care hospital for isolation.

What follow-up is needed for someone exposed to a person with tuberculosis?

If someone is exposed to a person with active tuberculosis, they should be evaluated for tuberculosis via a tuberculin skin test (PPD) at the time of exposure and again 10–12 weeks later. If a person has previously tested positive for tuberculosis via the PPD skin-test, review for signs and symptoms of tuberculosis and obtain a chest x-ray. Contact your local public health agency for guidance in tuberculosis follow-up.

INFECTIOUS DISEASE FACT SHEETS

Vancomycin-Resistant Enterococci (VRE)

What are enterococci?

Enterococci are bacteria that are normally found in the bowel and vagina of humans. When these bacteria get outside of these areas, they may cause urinary tract infections, wound infections or bloodstream infections. Enterococci are now the third most common cause of infections in hospitalized patients. These bacteria are often difficult to treat with antibiotics. However, one antibiotic that is normally effective is known as vancomycin.

How dangerous are enterococci?

They are fairly mild bacteria. Usually, they do not make healthy people sick. They can cause disease when people are very ill, like when the walls inside the bowel are damaged or when persons have devices such as catheters placed inside their bladders. Although infections with these bacteria usually clear up on their own without treatment, vancomycin-resistant enterococci cause special concern because the types of antibiotics available for treatment are limited. Many of these infections are often not treatable with the antibiotics that we have.

What are vancomycin-resistant enterococci (VRE)?

Vancomycin-resistant enterococci (VRE) are enterococci that can no longer be treated with vancomycin. This is primarily due to the high use of antibiotics. VRE now join the list of other bacteria that are difficult to treat with antibiotics.

Who gets ill with VRE?

Enterococci normally live in the bowel and genital tract. Therefore, most people have these bacteria inside of them without being ill. Those most likely to become ill with VRE are people who:

- Are older
- Have long hospital stays, especially in an intensive care unit
- Were hospitalized in the past
- Have taken antibiotics in the past
- Had prior surgery
- Have had medical devices such as urinary catheters

How is VRE passed from person to person?

These bacteria go from person to person on unwashed hands or objects. They are not carried in the air.

What can and should be done to limit the spread of VRE?

The most important control measure is good handwashing and personal cleaning habits. All care providers should routinely wash their hands before and after patient care and any time they are soiled.

Since these bacteria live in the bowel, they are found in human feces, but they may be carried in any human body fluid. Handwashing and wearing gloves should be a regular habit any time it is likely that hands will be soiled with these fluids. A gown or apron should be worn when it is likely that clothes will be soiled with another person's body fluids. Because these bacteria can be present in people without signs and symptoms of infection, it makes little sense to take "extra" precautions simply because the organism has been identified. In health care settings, the use of common sense precautions such as good handwashing and the proper use of barriers such as gloves and aprons have been found to work as well as more restrictive isolation systems.

What about cleaning and disinfection of the environment?

Since bacteria such as VRE may be passed on medical devices, methods for cleaning these devices should be in writing and should be followed. These bacteria have been found on surfaces in care areas. Although no special cleaning agents are necessary to remove them, good cleaning of surfaces in all patient care areas is important. Cleaning methods should emphasize "elbow grease".

Why do bacteria change so the antibiotics no longer work?

Some bacteria can naturally resist the effects of antibiotics. Other types of bacteria get used to living in the presence of antibiotics when antibiotics are taken often, taken when not needed or taken in the wrong doses. Later, when antibiotics are needed, the drug no longer kills these bacteria. Proper use can increase the length of time an antibiotic is useful. It is important that the public and the health care community do all they can to assure that antibiotics are ordered and used in a correct manner. Here are a few tips to increase the time that antibiotics remain effective:

- Do not pressure your doctor to prescribe antibiotics.
- Do not give your antibiotics to other people.
- Do not take antibiotics that have been sitting around the house unless prescribed by your doctor for a current illness.

Summary

1. An infection caused by bacteria that is difficult to treat with antibiotics (such as VRE) is no different than an infection caused by other bacteria, except that treatment options are limited.
2. The same infection control measures used to prevent the spread of all bacteria that can cause disease should be used to prevent the spread of bacteria like VRE.
3. The best way to prevent disease transmission is for clients and caregivers to follow good handwashing techniques and to use barriers such as gloves when soiling of the hands is likely. Other barriers such as gowns or aprons should be worn when soiling of clothing is likely.
4. Consistent and proper cleaning of surfaces like tabletops and medical devices is also important in removing these bacteria.

For more information about VRE or use of antibiotics, ask your physician or health care provider, infection control professional, pharmacist or contact Missouri Department of Health and Senior Services.

INFECTION CONTROL RESOURCES

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INFECTION CONTROL RESOURCES

Infection Control Resources

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Missouri Department of Health Home Page at **http://www.dhss.mo.gov**

APPENDICES

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MANUAL ACRONYMS

ADLs - Activities of daily living
AIDS - Acquired immunodeficiency syndrome
BSP - Body substance precautions
CDC - Centers for Disease Control and Prevention
DON - Director of Nursing
EPA - U.S. Environmental Protection Agency
HBV - Hepatitis B virus
HCV - Hepatitis C virus
HIV - Human immunodeficiency virus
ICU - Intensive care unit
INH - Isoniazid
IV - Intravascular
LRI - Lower respiratory infection
LTCFs - Long term care facilities
MRSA - Methicillin resistant *Staphylococcus aureus*
OPIM - Other potentially infected materials
OSHA - Occupational Safety and Health Administration
PPD - Purified protein derivative (tuberculin)
TB - Tuberculosis
URI - Upper respiratory infection
UTI - Urinary tract infection
VRE - Vancomycin resistant enterococci

GLOSSARY OF INFECTION CONTROL TERMS AND DEFINITIONS

The following definitions apply to these terms as used in this document.

Baseline infection rate - The average rate of new infections per body site in the past one to five years.

Body Substance Precautions (BSP) - a practical, safe approach whereby barriers (gloves, gowns, eyewear and masks) are used to prevent contact with all moist body substances (blood, feces, urine, wound drainage, tissues, oral secretions, and other body fluids) as well as non-intact skin.

Carrier - An individual who harbors the specific organisms of a disease without manifesting symptoms and is capable of transmitting the infection. The condition of such an individual is referred to as the carrier state.

Change in character of urine - Any significant change in the gross (e.g., new bloody urine, foul smell, or amount of sediment) or microscopic (new pyuria, or microscopic hematuria) character of the urine. For microscopic changes, this means that the results of a previous urinalysis must be on the chart. There is no time limit on when the previous urinalysis may have been done.

Change in functional status - A change in the resident's ability or willingness to carry out activities of daily living. For instance, new incontinence, new inability to walk to the dining room, or increased difficulty in transferring from bed to wheelchair would all be recorded as change in functional status.

Change in mental status - A change in the resident's cognitive function, such as a change in the ability to make decisions; in orientation to person, place, or time; or level of alertness, mood, and/or behavior.

Cohort - The placement of two or more residents with similar symptoms or diagnosed conditions in the same room or area of a facility, physically separated from other residents, and cared for by staff who do not care for other residents.

Colonization - The condition of a resident where a microorganism is on the skin or has entered a body site, is multiplying but no clinical signs and symptoms or injury to the body are evident. A colonized resident represents a reservoir (conditions providing survival and growth) of an organism in the facility.

Compatible clinical syndrome - An acute illness with symptoms related to a relevant body system (respiratory or gastrointestinal). In general, the symptoms will be some of those included in the definitions for either lower respiratory tract infection or gastroenteritis, but the criteria for the infection need not be met.

Conjunctiva - The delicate membrane that lines the eyelids and covers the exposed surface of the eyeball.

Diagnosis by a physician - Requires one of the following:

- Written note by a physician specifying diagnosis, or
- Nursing note specifying that a diagnosis was made by a physician, or
- Verbal report from either a physician or nurse that a specific diagnosis has been made.

Ear infection - Includes infections of the external ear (otitis externa), middle ear (otitis media), or internal ear (otitis interna, labyrinthitis, vestibular neuronitis).

Endemic - When the number or rate of colonizations and/or infections are relatively constant for a specific time and place in a facility.

Epidemiologically associated - An ill person who has had contact with an infected case, particularly a laboratory-confirmed case, wherein the transmission of the infectious agent is plausible to have occurred from the known infected case.

Fever - A single temperature, taken by any route; of $\geq 38^{o}$ C or 100.4^{o} F.

and/or

When body temperature is 2.4^{o} F above the resident's normal baseline.

(Example: Median oral temperature of elderly persons is 96.8^{o} F. Normal body temperature in the aged may be as low as 95.0^{o} F. A temperature of 98.0^{o} F should be considered fever in a resident who usually carries a temperature of 95.0^{o} F.)

Flank - Side of the body, below the rib cage and above the hip. (The area in which pain is usually felt in upper urinary tract infections is referred to as the "costovertebral angle." It is a relatively posterior area of the flank just below the ribs and extending from the side nearly to the backbone).

Hypothermia - A body temperature which is below 34.5^{o} C or 94.1^{o} F, or which does not register on a thermometer being used.

Incidence rate of infections - Number of residents with **newly** acquired infection divided by the total number of residents at risk for infection multiplied by 100 resident days or preferably 1000 resident care days during a defined period of time.

Infection - The condition of a resident where a microorganism has entered a body site, multiplies, and causes clinical signs and symptoms such as fever, purulent wound drainage, and/or tissue destruction, expectoration of purulent sputum, frequent urination with burning.

Invasive site - Any place on a resident's body where the normal skin or mucous membrane barrier is broken, either by natural or artificial means. Decubitus ulcers, surgical incision sites, intravenous or urinary catheters, and feeding gastrostomy or jejunostomy tubes are common examples.

Investigating the outbreak - A process of systematically gathering information on residents and staff of a facility regarding demographics, illness and exposure factors, and the

tabulation of that information in order to establish associations between illness and any predisposing risk factors for that illness.

Laboratory confirmation - A laboratory test of a clinical specimen that identifies the presence of one or more disease-producing microorganisms.

Low level disinfectant or disinfection - A product or process that destroys most bacteria, some viruses, some fungi, but not *Mycobacterium tuberculosis* or bacterial spores. This EPA registered hospital disinfectant has no label claim for tuberculocidal activity. This agent is an excellent cleaner and can be used for routine housekeeping or removal of soil in the absence of visible blood contamination.

Lymphadenopathy - Enlargement of lymph glands.

Maculopapular - A rash characterized by abnormally colored (usually red) areas of skin, of varying size, which is partially flat and partially somewhat raised.

Malaise - A feeling of generalized body discomfort.

Mantoux test - Intracutaneous tuberculin skin test. The current standard method of tuberculosis testing in which tuberculin is administered intradermally using a needle and syringe.

Multiply resistant organisms - Usually considered bacteria, but can be a virus or fungus which is resistant to two or more unrelated antimicrobials to which the organism is normally considered susceptible **or** is resistant to more than one of the first line or key drugs, especially aminoglycosides (gentamicin, tobramycin, amikacin, netilmicin), third-generation cephalosporins (ceftazidime, ceftriaxone, etc.); beta lactam drugs (methicillin, nafcillin, oxacillin), often fluoroquinolones and occasionally carbapenems.

New physical findings on chest exam - New findings on examination of the chest with a stethoscope which suggest pneumonia (i.e., rales [crackles], rhonchi [wheezes], or bronchial breathing).

Nosocomial infection - An infection that was not present or incubating within the first 72 hours of admission to the facility. A nosocomial infection is considered “facility acquired” or "facility associated."

Organism thought to be a contaminant (in blood culture) - Organisms which are common skin flora that can contaminate blood cultures as a result of improper aseptic technique. A single positive blood culture for one of these may be non-significant.

Other potentially infectious materials (OPIM) -

1. The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.
2. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Outbreak - An occurrence of similar illnesses that are in excess (generally 2 to 2 1/2 times) of the normal expectancy for a given location, and period of time. It can also be one case of an unusually virulent disease, two cases when persons do not share a room, OR two cases where one case is in the resident population and one case is in the employee population.

Pathogen - A microorganism capable of causing disease.

Pleuritic chest pain - Pain caused by inflammation of the pleura (lung lining): a sharp pain felt at any site over the rib-cage, which is brought on or made much worse by deep breathing.

Purulent - Containing the by-products of inflammation (pus).

Serous - With watery consistency (as opposed to purulent).

Suprapubic - Above the pubic arch (i.e., the area of the bladder, in the central lower area of the abdomen).

Tine test - Four tines or prongs 2 mm. long, attached to a plastic handle and coated with dip-dried old tuberculin (O.T.) which are pressed into the skin located on the inner surface of the forearm, where they deposit a dose of the tuberculin in the outer layer. **The tine test is no longer recommended for tuberculosis screening or testing.** The Mantoux test is the appropriate tuberculosis screening test.

Transmission - The spread of a microorganism from a colonized or infected person to a person previously free of the organism.

Universal Precautions (UP) - An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids (see definition of "other potentially infectious materials") are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens. Used as CDC intended, UP is implemented in conjunction with category specific isolation (contact, respiratory, enteric, AFB) or disease specific isolation for infections other than bloodborne.

Vesicular - Applied to a rash characterized by blister-like lesions (i.e., localized areas to elevated skin, usually only a few millimeters in size, containing a watery substance).

DIVISION OF AGING RULES

(only those sections pertaining to infection control in long term care facilities have been reprinted here)

13 CSR 15-14.042 Administration and Resident Care Requirements for New and Existing Intermediate Care and Skilled Nursing Facilities

PURPOSE: *This rule establishes standards for administration and resident care in an intermediate care or skilled nursing facility.*

Editor's Note: All rules relating to long-term care facilities licensed by the Division of Aging are followed by a Roman Numeral notation which refers to the class (either Class I, II or III) of standard as designated in section 198.085.1, RSMo.

(6) The facility shall not knowingly admit or continue to care for residents whose needs cannot be met by the facility directly or in cooperation with outside resources. Facilities which retain residents needing skilled nursing care shall provide licensed nurses for these procedures. I/II

(13) The facility shall develop policies and procedures applicable to its operation to insure the resident's health and safety and to meet the resident's needs. At a minimum, there shall be policies covering personnel practices, admission, discharge, payment, medical emergency, treatment procedures, nursing practices, pharmaceutical services, social services, activities, dietary, housekeeping, infection control, disaster and accident prevention, resident's rights and handling resident's property. II/III

(20) The facility shall develop and offer an in-service orientation and continuing educational program for the development and improvement of skills of all the facility's personnel, appropriate for their job function. Facilities shall begin providing orientation on the first day of employment for all personnel including licensed nurses and other professionals. At a minimum, this shall cover prevention and control of infection, facility policies and procedures including emergency protocol, job responsibilities and lines of authority, confidentiality of resident information and preservation of resident dignity including protection of the resident's privacy and instruction regarding the property rights of residents. Nursing assistants who have not successfully completed the classroom portion of the state-approved training program prior to employment shall not provide direct resident care without at least twelve (12) hours of supervised practical orientation. This shall include, in addition to the topics covered in the general orientation for all personnel, special focus on facility protocols as well as practical instruction on the care of the elderly and disabled. This orientation shall be supervised by a licensed nurse who is on duty in the facility at the time orientation is provided. II/III

(21) Nursing assistants who have not successfully completed the state-approved training program shall complete a comprehensive orientation program within sixty (60) days of employment.

This may be a part of a nursing assistant training program taught by an approved instructor in the facility. It shall include, at a minimum, information on communicable disease, handwashing and infection control procedures, resident rights, emergency protocols, job responsibilities and lines of authority. II/III

(22) The facility must ensure there is a system of in-service training for nursing personnel which identifies training needs related to problems, needs, care of residents and infection control and is sufficient to ensure staff's continuing competency. II/III

(27) The facility must develop and implement policies and procedures which ensure employees are screened to identify communicable diseases and ensure that employees diagnosed with communicable diseases do not expose residents to such diseases. The facility's policies and procedures must comply with the Missouri Department of Health's regulations pertaining to communicable diseases, specifically 19 CSR 20-20.010 through 19 CSR 20-20.100, as amended. II

(78) Residents shall be cared for by using acceptable infection control procedures to prevent the spread of infection. The facility shal1 make a report to the division within seven (7) days if a resident is diagnosed as having a communicable disease, as determined by the Missouri Department of Health and listed in the *Code of State Regulations* pertaining to communicable diseases, specifically 19 CSR 20-20.020, as amended. I/II

AUTHORITY: section 198.079, RSMo 1994. Original rule filed July 13, 1983, effective Oct. 13, 1983. For intervening history, please consult the*

Code of State Regulations. *Amended: Filed Feb. 13, 1998, effective Sept. 30, 1998.*

**Original authority: 1979.*

13 CSR 15-15.042 Administrative, Personnel and Resident Care Requirements for New and Existing Residential Care Facilities I and II

PURPOSE: *This rule establishes standards for administration, personnel and resident care in residential care facilities I and II.*

Editor's Note: All rules relating to long-term care facilities licensed by the Division of Aging are followed by a Roman Numeral notation which refers to the class (either Class I, II or III) of standard as designated in section 198.085.1, RSMo.

(16) Personnel who have been diagnosed with a communicable disease may begin work or return to duty only with written approval by a physician or physician's designee which indicates any limitations. II

(17) The administrator/manager shall be responsible for monitoring the health of the employees. II/III

(18) Prior to or on the first day that a new employee works in the facility s/he shall receive orientation of at least one (1) hour appropriate to his/her job function. This shall include, at a minimum, job responsibilities, how to handle emergency situations, the importance of infection control and handwashing, confidentiality of resident information, preservation of resident dignity, how to report abuse/neglect to the Division of Aging (1-800-392-0210), information regarding the Employee Disqualification List and instruction regarding the rights of residents and protection of property. II/III

(34) If at any time a resident or prospective resident is diagnosed with a communicable disease, the Division of Aging shall be notified within seven (7) days and if the facility can meet the resident's needs, the resident may be admitted or does not need to be transferred. Appropriate infection control procedures shall be followed if the resident remains in or is accepted by the facility. I/II

AUTHORITY: section 198.076, RSMo 1994. Original rule filed July 13, 1983, effective Oct. 13, 1983. For intervening history, please consult the* ***Code of State Regulations***. *Amended: Filed Feb. 13, 1998, effective Sept. 30, 1998.*

**Original authority: 1979, amended 1984.*

HEALTH CARE FINANCING ADMINISTRATION (HCFA) RULES FOR CERTIFIED FACILITES

(only those sections pertaining to infection control in certified long term care facilities have been reprinted here)

Federal Regulation, 441

The facility must establish and maintain an infection control program designed to provide a safe, sanitary, and comfortable environment and to help prevent the development and transmission of disease and infection.

(a) Infection control program.

The facility must establish an infection control program under which it—

(1) Investigates, controls and prevents infection in the facility:

(2) Decides what procedures, such as isolation would be applied to an individual resident: and

(3) Maintains a record of incidents and corrective actions related to infections.

Federal Regulation, 442

(1) When the infection control program determines that a resident needs isolation to prevent the spread of infection, the facility must isolate the resident.

Federal Regulation 443

(2) The facility must prohibit employees with a communicable disease or infected skin lesions from direct contact with residents or their food, if direct contact will transmit the disease.

Federal Regulation, 444

(3) The facility must require staff to wash their hands after each direct resident contact for which handwashing is indicated by accepted professional practice.

DEPARTMENT OF HEALTH
TUBERCULOSIS TESTING RULE

19 CSR 20-20.100 Tuberculosis Testing for Residents and Workers in Long-Term Care Facilities and State Correctional Centers

PURPOSE: This rule establishes tuberculosis testing requirements for residents and workers in long-term care facilities and state correctional centers.

(1)General Requirements. Long-term care facilities and state correctional centers shall screen their residents and staff for tuberculosis using the Mantoux method purified protein derivative (PPD) five tuberculin unit (5 TU) test. Each facility shall be responsible for ensuring that all test results are completed and that documentation is maintained for all residents, employees, and volunteers.

(A) In interpreting this rule, long-term care facilities shall include employees, volunteers, and residents of residential care facilities I, residential care facilities II, intermediate care facilities and skilled nursing facilities as defined in section 198.006, RSMo.

(B) In interpreting this rule, state correctional centers shall include all employees and volunteers of the Missouri Department of Corrections and the residents of all correctional institutions operated by the Missouri Department of Corrections.

(C) Whenever tuberculosis is suspected or confirmed, or tuberculosis infection is diagnosed among residents, employees or volunteers, the Department of Health or local health authority shall be notified as required in 19 CSR 20-20.020(2).

(2)Long-Term Care Residents. Within one (1) month prior to or one (1) week after admission, all residents new to long-term care are required to have the initial test of a Mantoux PPD two (2)-step tuberculin test. If the initial test is negative, zero to nine millimeters (0–9 mm), the second test, which can be given after admission, should be given one to three (1)–(3) weeks later.

Documentation of chest X-ray evidence ruling out tuberculosis disease within one (1) month prior to admission, along with an evaluation to rule out signs and symptoms compatible with infectious tubercu-losis, may be accepted by the facility on an interim basis until the Mantoux PPD two (2)-step test is completed.

(A) All skin test results are to be documented in millimeters (mm) of induration.

(B) Bacillus of Calmette and Guerin (BCG) vaccination shall not prevent residents from receiving a tuberculin test.

(C) A reaction of ten millimeters (10 mm) or more shall be considered as infected with *Mycobac-terium tuberculosis* for an individual with a history of BCG vaccination.

(D) Evidence of tuberculosis infection is consider-ed to be a reaction of five millimeters (5 mm) or more for all contacts to infectious tuberculosis or for an individual who is immunosuppressed or has abnormal chest X-ray findings consistent with old healed tuberculosis disease, and ten millimeters (10 mm) or more for all others.

(E) Residents with a negative, zero to nine millimeters (0–9 mm), Mantoux PPD two (2)-step test need not be routinely retested unless exposed to infectious tuberculosis or they develop signs and symptoms which are compatible with tuberculosis disease.

(F) Residents with a documented history of tuberculosis infection or an adequate course of preventive treatment shall not be required to be retested. Residents with a documented history of tuberculosis disease and adequate chemotherapy shall not be required to be retested. In the absence of documentation, a repeat test shall be required.

(G) All skin test results of five millimeters (5 mm) or more for contacts to infectious tuberculosis or for an individual who is immunocompromised, or ten millimeters (10 mm) or more for all others, shall require a chest X ray within one (1) week, or a review of the results of a chest X ray taken within the month prior to admission along with an evaluation to rule out signs and symptoms compatible with tuberculosis disease to rule out active pulmonary disease.

(H) Individuals with a positive finding presenting evidence of a recent, within one (1)

month of the date of admission, chest X ray need not be given a new X ray. However, the results of the X ray must be reviewed in the light of the additional information of the identification of tuberculosis infection as indicated by the Mantoux PPD skin test.

(I) An individual who is skin-test positive with a normal chest X ray should be considered for preventive medication. Those who complete a recommended course of preventive treatment and those for whom preventive treatment is not medically indicated need have no further testing for tuberculosis unless signs and symptoms which are compatible with tuberculosis disease are present.

(J) All residents of long-term care facilities who are exposed to a case of infectious tuberculosis or who develop signs and symptoms which are compatible with tuberculosis disease shall be medically evaluated. All long-term care facility residents shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(3)Long-Term Care Employees and Volunteers. All new long-term care facility employees and volunteers who work ten (10) or more hours per week are required to obtain a Mantoux PPD two (2)-step tuberculin test within one (1) month prior to starting employment in the facility. If the initial test is zero to nine millimeters (0–9 mm), the second test should be given as soon as possible within three (3) weeks after employment begins, unless documentation is provided indicating a Mantoux PPD test in the past and at least one (1) subsequent annual test within the past two (2) years. It is the responsibility of each facility to maintain a documentation of each employee's and volunteer's tuberculin status.

(A) All skin test results are to be documented in millimeters (mm) of induration.

(B) BCG vaccination shall not prevent employees and volunteers from receiving a tuberculin test.

(C) For an individual with a history of BCG vaccination, a reaction of ten millimeters (10 mm) or more shall be considered as infected with *Mycobacterium tuberculosis*.

(D) Evidence of tuberculosis infection is considered to be a reaction of five millimeters (5 mm) or more for all contacts to infectious tuberculosis or for an individual who is immunosuppressed or has abnormal chest X-ray findings consistent with old healed tuberculosis disease, and ten millimeters (10 mm) or more for all others.

(E) Employees and volunteers with an initial zero to nine millimeters (0–9 mm) Mantoux PPD two (2)-step test shall be one (1)-step tuberculin tested annually and the results recorded in a permanent record.

(F) Employees and volunteers with a documented history of a positive Mantoux PPD test shall not be required to be retested. In the absence of documen-tation, a repeat test shall be required.

(G) All positive findings shall require a chest X ray to rule out active pulmonary disease.

(H) Individuals with a positive finding need not have repeat annual chest X-rays. They shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(I) An individual who is skin-test positive with a normal chest X ray should be considered for preventive medication. Those who complete a recommended course of preventive medication need have no further testing for tuberculosis unless signs and symptoms which are compatible with tuberculosis disease are present.

(J) All employees and volunteers of long-term care facilities who are exposed to a case of infectious tuberculosis or who develop signs and symptoms which are compatible with tuberculosis disease shall be medically evaluated. All employees or volunteers of these facilities shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(4)State Correctional Centers Residents. All residents of state correctional centers are required to obtain a Mantoux PPD two (2)-step tuberculin test upon admission to rule out tuberculosis. If the initial test is negative, zero to nine millimeters (0–9 mm), the second test should be given within ninety (90) days of entrance into the state correctional system.

(A) All skin test results are to be documented in millimeters (mm) of induration.

(B) BCG vaccination shall not prevent residents from receiving a tuberculin test.

(C) For an individual with a history of BCG vaccination, a reaction of ten millimeters (10 mm) or more shall be considered as infected with *Mycobac-terium tuberculosis*.

(D) A positive test is defined as having a reaction of five millimeters (5 mm) or more for all contacts to infectious tuberculosis or for an individual who is immunosuppressed or has abnormal chest X-ray findings consistent with old healed tuberculosis disease, and ten millimeters (10 mm) or more for all others.

(E) Individuals with an initial negative zero to nine millimeters (0–9 mm) Mantoux PPD two (2)-step test shall be one (1)-step tuberculin tested annually and the results recorded in a permanent record.

(F) Individuals with a documented history of a positive Mantoux PPD test shall not be required to be retested. In the absence of documentation, a repeat test shall be required.

(G) All positive findings shall require a chest X ray to rule out active pulmonary disease.

(H) Individuals with a positive finding need not have repeat annual chest X rays. They shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(I) An individual who is skin-test positive with a normal chest X ray should be considered for preventive medication. Those who complete a recommended course of preventive medication need have no further testing for tuberculosis unless signs and symptoms which are compatible with tuberculosis disease are present.

(J) All residents of state correctional centers who are exposed to a case of infectious tuberculosis or who develop signs and symptoms which are compatible with tuberculosis disease shall be medically evaluated. All residents shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(5) Missouri Department of Corrections New Employees and Volunteers. All new employees and volunteers who work ten (10) or more hours per for the Missouri Department of Corrections are required to obtain a Mantoux PPD two (2)-step tuberculin test within three (3) weeks of starting employment. If the initial test is negative, zero to nine millimeters (0–9 mm), the second test should be given one to three (1–3) weeks after the initial test. It is the responsibility of each state correctional center to maintain documentation of each employee's or volunteer's tuberculin status.

(A) All skin test results are to be documented in millimeters (mm) of induration.

(B) BCG vaccination shall not prevent new employees and volunteers from receiving a tuberculin test.

(C) For an individual with a history of BCG vaccination, a significant reaction of ten millimeters (10 mm) or more shall be considered as infected with *Mycobacterium tuberculosis.*

(D) A positive test is defined as having a reaction of five millimeters (5 mm) or more for all contacts to infectious tuberculosis or for an individual who is immunosuppressed or has abnormal chest X-ray findings consistent with old healed tuberculosis disease, and ten millimeters (10 mm) or more for all others.

(E) Employees and volunteers with a negative zero to nine millimeters (0–9 mm) Mantoux PPD two (2)-step test shall be one (1)-step tuberculin tested annually and the results recorded in a permanent record.

(F) Employees and volunteers with a documented history of a positive Mantoux PPD test shall not be required to be retested. In the absence of documentation, a repeat test shall be required.

(G) All positive findings shall require a chest X ray to rule out active pulmonary disease.

(H) Individuals with a positive finding need not have repeat annual chest X rays. They shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(I) An individual who is skin test positive with a normal chest X ray should be considered for preventive medication. Those who complete a recommended course of preventive medication need have no further

testing for tuberculosis unless signs and symptoms which are compatible with tuberculosis disease are present.

(J) All employees and volunteers of state correctional centers who are exposed to a case of infectious tuberculosis or who develop signs and symptoms which are compatible with tuberculosis disease shall be medically evaluated. All employees and volunteers shall have a documented annual evaluation to rule out signs and symptoms of tuberculosis disease.

(6) This rule will expire June 30, 2000.

Auth: section 199.350, RSMo (1994). Original rule filed April 17, 1995, effective Nov. 30, 1995.*

**Original authority 1992.*

DEPARTMENT OF NATURAL RESOURCES RULES

(only those sections pertaining to infectious waste in long term care facilities have been reprinted here)

10 CSR 80-7.010 Infectious Waste/Management

PURPOSE: *This rule pertains to the management and treatment of infectious waste.*

PUBLISHER'S NOTE: The publication of the full text of the material that the adopting agency has incorporated by reference in this rule would be unduly cumbersome or expensive. Therefore, the full text of that material will be made available to any interested person at both the Office of the Secretary of State and the office of the adopting agency, pursuant to section 536.031.4, RSMo. Such material will be provided at the cost established by state law.

(1) Applicability.

(A) Definition. Infectious waste means waste capable of producing an infectious disease because it contains pathogens of sufficient virulence and quantity so that exposure to the waste by a susceptible human host could result in an infectious disease. These wastes include isolation wastes, cultures and stocks of etiologic agents, blood and blood products, pathological wastes, other contaminated wastes from surgery and autopsy, contaminated laboratory wastes, sharps, dialysis unit wastes, discarded biological materials known or suspected to be infectious; provided, however, that infectious waste does not mean waste treated to department specifica-tions.

1. For the purposes of this chapter, a generator means any single office (doctor's office, dentist's office, and the like) or facility (hospital, nursing home, mortuary, and the like), whose act or process first causes an infectious waste. For purposes of tracking and fees, a transfer station permitted as an infectious waste processing facility becomes the generator when the infectious waste is transported for further processing.

2. Small quantity generators, i.e., persons generating one hundred kilograms (100 kg) or less per month of infectious waste, shall refer to 19 CSR 20-20.010 for the Department of Health definition of those categories of waste to be managed as an infectious waste.

(B) Disposal of Infectious Waste. All sharps shall be packaged in rigid, leak-resistant and puncture-resistant containers and sealed prior to disposal.

1. Infectious waste treated to render it innocuous may be disposed as a solid waste provided the treater certifies to the transporter, if other than the generator, and certifies to the sanitary landfill operator that the waste has been rendered innocuous as required by section 260.203, RSMo. (Note: Treated infectious waste is not required to be transported in accordance with the requirements of section (4) of this rule.)

2. Certification of treated infectious waste, at a minimum, shall contain the following information: the name, mailing address, location (when different from the mailing address) and phone number of the office/facility treating the infectious waste; the printed name and the signature of the facility/office manager or person responsible for the treatment process; a brief description of the treated waste (sharps in metal containers, sharps in heavy guage plastic containers, incinerator ash, laboratory wastes in autoclave bags); and a brief description of the method(s) of treatment (for example, steam sterilization, incineration, disinfection with bleach solution). In addition to these minimum requirements, the generator need only include a statement that the waste has been managed in accordance with the Missouri Solid Waste Management Law and rules and may legally be placed in a sanitary landfill. The certification shall be revised when changes in the operation of the office/facility result in a change to the information required by this paragraph.

(C) Exemptions

3. A person generating one hundred (100) kg or less per month of infectious waste as defined in 19 CSR 20-20.010 and who transports his/her own infectious waste for processing is exempt from the transportation and fee requirements of this rule, except that the vehicle used for transport of the infectious waste shall be a closed and secured vehicle.

(2) Packaging of Infectious Waste. Prior to transport, all infectious waste shall be placed in rigid or semi-rigid, leak-resistant containers clearly marked with the universal biohazard symbol prominently displayed and labeled Infectious Waste or Biohazard Waste and sealed. All containers shall be closed in such a manner as to completely contain all waste and the outside of the container shall be kept free of contamination. For the purpose of this rule, leak-resistant containers are defined as containers that are closable with a tight fitting lid and are leakproof on the bottom and sides. Containers meeting the requirements of 29 CFR 1910.1030 are acceptable.

(A) Plastic bags. Plastic bags shall be tear resistant and leak resistant. Plastic bags shall not be used as primary containers for transportation of infectious waste. Infectious waste contained in plastic bags shall be placed within rigid or semi-rigid containers prior to transport.

(B) Sharps containers. Sharps shall be packaged in rigid, leak-resistant and puncture-resistant containers and sealed.

(C) Glass Containers. Glass containers shall not be used as primary containers for transportation of infectious waste. Glass containers must be placed into a rigid or semi-rigid leak-resistant container and protected from breakage.

(D) Reusable containers. Reusable containers shall be constructed of either heavy wall plastic or noncorrosive metal. Each container shall be cleaned and sanitized before it is reused.

AUTHORITY: sections 260.203, RSMo (Cum. Supp. 1992) and 260.225, RSMo (Cum. Supp. 1990). Original rule filed Oct. 15, 1987, effective March 25, 1988. Amended: Filed Aug. 15, 1988, effective Dec. 29, 1988. Amended: Filed June 3, 1993, effective Jan. 31, 1994. Amended: Filed Oct. 10, 1996, effective July 30, 1997. Amended: Filed Dec. 15, 1997, effective Aug. 30, 1998.*

**Original authority: 260.203, RSMo (1986), amended 1988, 1992, 1993 and 260.225, RSMo (1972), amended 1975, 1986, 1988, 1990, 1993, 1995.*

DEPARTMENT OF HEALTH INFECTIOUS WASTE DEFINITIONS

(only those definitions pertaining to infectious waste have been reprinted here)

19 CSR 20-20.010 Definitions Relating to Communicable, Environmental and Occupational Diseases

PURPOSE: *This rule defines terminology used throughout this chapter and defines terms related to infectious waste.*

(20) Infectious waste is waste capable of producing an infectious disease. For a waste to be infectious, it must contain pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in an infectious disease. Infectious waste generated by small quantity generators shall include the following categories:

(A) Sharps–all discarded sharps including hypodermic needles, syringes and scalpel blades. Broken glass or other sharp items that have come in contact with material defined as infectious are included;

(B) Cultures and stocks of infectious agents and associated biologicals–included in this category are all cultures and stocks of infectious organisms as well as culture dishes and devices used to transfer, inoculate and mix cultures; and

(C) Other wastes–those wastes designated by the medical authority responsible (physician, podiatrist, dentist, veterinarian) for the care of the patient which may be capable of producing an infectious disease.

(27) Person is any individual, partnership, corporation, association, institution, city, county, other political subdivision authority, state agency or institution or federal agency or institution.

(32) Small quantity generator of infectious waste is any person generating one hundred kilograms (100 kg) or less of infectious waste per month and as regulated in 10 CSR 80.

AUTHORITY: sections 192.006, RSMo (Cum. Supp. 1996), 192.020 and 260.203, RSMo (1994). This rule was previously filed as 13*

CSR 50-101.010. Original rule filed July 15, 1948, effective Sept. 13, 1948. For intervening history, please consult the ***Code of State Regulations****. Amended: Filed Sept. 15, 1995, effective April 30, 1996.*

**Original authority: 192.006, RSMo (1993), amended 1995; 192.020, RSMo (1939), amended 1945, 1951; and 260.203, RSMo (1986), amended 1988, 1992, 1993.*

DEPARTMENT OF HEALTH
HEALTH CARE PROVIDER RULES

19 CSR 20-26.050 Preventing Transmission of Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) from Health Care Workers to Patients

PURPOSE: This rule establishes training requirements relating to the prevention of transmission of human immunodeficiency virus, hepatitis B virus and other bloodborne pathogens from infected health care workers to patients as defined in section 191.694, RSMo.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

(1) The following definitions shall be used in the interpretation of this rule:

(A) Community-based means practice in any clinic, group practice or solo practice not licensed under Chapters 197 and 198, RSMo where health care, including dentistry and podiatry, is provided;

(B) Department means the Missouri Department of Health;

(C) Director means the director of the department or his/her designee;

(D) Employed means to be professionally affiliated with a facility either by contract, direct employment or extension of professional privileges;

(E) HBV means hepatitis B virus;

(F) Health care facilities means those facilities licensed under Chapters 197 and 198, RSMo;

(G) Health care professional means a member of any of the professional groups regulated by Chapters 330, 332 and 335, RSMo, and sections 334.010–334.265, RSMo;

(H) HIV means human immunodeficiency virus; and

(I) Invasive procedures shall be defined as in 191.650(9), RSMo. Phlebotomy and insertion of intravenous lines which do not involve surgical incision are not considered invasive procedures.

(2) Health care professionals in both health care facility-based and community-based practice settings shall adhere to the training requirements contained in section 191.694, RSMo. The department shall investigate complaints of noncompliance in facility-based practice settings. Complaints of noncompliance in community-based practice settings shall be referred to the appropriate licensing authority.

(3) Health care professionals performing invasive procedures who do not receive training in a health care facility regarding infection control procedures, universal precautions and prevention of percutaneous injuries shall obtain that training elsewhere on an annual basis. Training shall be in compliance with Occupational Safety and Health Administration (OSHA) requirements in 29 CFR 1910.1030. Training shall also be in compliance with section 191.694, RSMo and with recommendations published by the Centers for Disease Control and Prevention in the *Morbidity and Mortality Weekly Report*: *Recommendations for Prevention of HIV Transmission in Health-Care Settings*, August 21, 1987; *Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings*, June 24, 1988; and *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers*, June 23, 1989. Documents that validate the completion of that training shall be maintained by the health care professional for a period of three (3) years and shall be made available to the department upon request.

(4) This rule expires on June 30, 2002.

AUTHORITY: section 191.694.4., RSMo (1994). Original rule filed April 17, 1995, effective Nov. 30, 1995.*

**Original authority 1992.*

19 CSR 20-26.060 Voluntary Evaluation for Human Immunodeficiency Virus (HIV)- and Hepatitis B Virus (HBV)-Infected Health Care Professionals Who Perform Invasive Procedures

PURPOSE: This rule establishes procedures for the voluntary evaluation of human immunodeficiency virus- and hepatitis B virus-infected health care professionals who perform invasive procedures in order to determine whether practice restrictions or limitations should be applied, as defined in section 191.700, RSMo.

(1) The definitions in 19 CSR 20-26.050 shall be used in the interpretation of this rule.

(2) Any health care professional who performs invasive procedures is advised to know his/her human immunodeficiency virus (HIV) antibody status and hepatitis B surface antigen (HBsAg) status. If HBsAg is present, the presence or absence of hepatitis B e antigen (HBeAg) shall be determined. If a significant occupational exposure occurs which could place the health care professional at risk of acquiring HIV or hepatitis B virus (HBV) infection, appropriate post-exposure evaluation should be undertaken.

(3) HIV- or HBV-infected health care professionals who perform invasive procedures may be voluntarily evaluated by an expert review panel appointed by the department according to section 191.700, RSMo. This panel shall follow subsections (3)(A)–(P) of this rule.

(A) Health care professionals infected with HIV or HBV who perform invasive procedures and who choose to be evaluated by an expert review panel appointed by the department according to section 191.700, RSMo shall apply for the evaluation in writing to the director. Directors of health care facilities (chief administrative officers or equivalents) allowed by 191.700.2(1), RSMo to seek evaluation of infected health care professionals who perform invasive procedures shall, with the consent of the infected health care professional and after consultation with the professional's private physician, apply in writing to the director of the Department of Health.

(B) Upon receipt of a written request for evaluation, the director shall appoint an expert review panel by utilizing the following criteria:

1. The panel shall include those individuals specified by 191.700.2(2)(a)–(d), RSMo and may include additional individuals if the director determines this is necessary; and

2. The director shall seek input from appropriate professional organizations in making his/her appointments.

(C) The subject of the evaluation shall provide the director with a list of all health care facilities and community-based practices, regardless of location, where the subject performs invasive procedures.

(D) The expert review panel shall utilize the following to evaluate the health care professional's practice:

1. Criteria specified in 191.700.2(3), RSMo;

2. Verification of the health care professional's licensure status;

3. Current, scientific evidence that is available; and

4. Panel members' professional judgments.

(E) Panel members shall be subject to the requirements of section 191.656, RSMo regarding the confidentiality of information on an HIV-infected health care professional's infection status.

(F) The health care professional shall be allowed to appear before the panel and present any information which s/he believes to be pertinent to the panels task. The health care professionals personal physician(s) and any other individual(s) the health care professional believes can provide pertinent input into the process shall be allowed to appear before the panel.

(G) The panel may recommend that restrictions or limitations be placed on the practice of the health care professional.

(H) The panel shall require the health care professional to notify any affected patient in a timely manner whenever a parenteral or mucous membrane exposure to the health care professional's blood occurs.

(I) The panel's findings and recommendations shall be conveyed in writing to the health care professional and to the director.

(J) The director shall disclose to the chief administrative officer or equivalent individual in each health care facility or community-based practice where the health care professional is performing invasive procedures any restrictions or limitations placed on his/her practice by the panel.

(K) If the health care professional seeks to affiliate with an additional health care facility or community-based practice, regardless of its location, where s/he will be performing invasive procedures, s/he shall disclose to the chief administrative officer or equivalent individual in that facility or practice the findings of the review panel, and any restrictions or limitations placed on his/her practice by the panel, prior to the affiliation and the provision of patient care. S/he shall also advise the department of the new practice location.

(L) If the health care professional plans to begin performing invasive procedures at a health care facility or community-based practice where s/he is currently affiliated but not presently performing those procedures, s/he shall disclose to the chief administrative officer or equivalent individual in that facility or practice the findings of the review panel, and any restrictions or limitations placed on his/her practice by the panel, prior to the performance of any invasive procedures, and report his/her intention to begin performing invasive procedures in writing to the director prior to beginning to perform these procedures.

(M) If the review panel places restrictions or limitations on the health care professional's practice, it shall be the responsibility of each health care facility where s/he is employed and performing invasive procedures to monitor him/her for compliance at appropriate intervals, at least annually, based on his/her medical status and the types and frequencies of invasive procedures s/he performs. If a facility finds the health care professional to be noncompliant, it shall report this in writing to the appropriate state board, as provided under Chapters 330, 332, 334 or 335, RSMo, and to the director.

(N) If the review panel places restrictions or limitations on the practice of a health care professional who performs invasive procedures in a community-based setting, it shall be the responsibility of the department to monitor him/her for compliance in this setting at appropriate intervals, at least annually, based on his/her medical status and the types and frequencies of invasive procedures s/he performs. If the department finds the health care professional to be noncompliant, it shall report this in writing to the appropriate state board, as provided under Chapters 330, 332, 334 or 335, RSMo, and to the director.

(O) If the director becomes aware that the infected health care professional is noncompliant with practice restrictions or limitations at any location where s/he is performing invasive procedures, the director shall report this noncompliance to the chief administrative officer or equivalent individual in each health care facility and community-based practice where the health care professional performs invasive procedures.

(P) The panel shall require, as necessary, that the infected health care professional undergo periodic reviews to determine if the decision to place or not to place restrictions or limitations on his/her practice needs to be modified because of changes in his/her medical condition or some other relevant circumstance. If a review results in the panel making such a modification, this modification shall be conveyed in writing to the health care professional and the director. If the modification results in restrictions or limitations, or further restrictions or limitations, being placed on the health care professional, the director shall disclose this modification to the chief administrative officer or equivalent individual in each health care facility or community-based practice where the health care professional is performing invasive procedures.

(Q) If restrictions or limitations have been placed on a health care professional's practice

by the panel and if later there is a change in the individual's medical condition or some other relevant circumstance, and as a result s/he believes that the restrictions or limitations should be modified, s/he may request in writing to the director that the panel consider such a modification. A similar written request may also be made by the director or chief administrative officer of a health care facility with the consent of the infected health care professional and after consultation with his/her private physician. The panel shall review the information and determine whether modification is necessary. If a modification is made, this shall be conveyed in writing to the health care professional and the director. If the modification results in further restrictions or limitations being placed on the health care professional, the director shall disclose this modification to the chief administrative officer or equivalent individual in each health care facility or community-based practice where the health care professional is performing invasive procedures.

(4) As described in 191.700.2(5)(d), RSMo, a health care facility peer review panel may evaluate HIV- or HBV-infected health care professionals who perform invasive procedures. This evaluation process may be accessed directly by an infected health care professional, or by the director of a health care facility with the consent of the infected health care professional and after consultation with his/her private physician. This evaluation shall take place as follows:

(A) If a health care facility regulated under sections 197.010–197.120, RSMo maintains or establishes an internal peer review panel for the evaluation of HIV- or HBV-infected health care professionals who perform invasive procedures, this panel shall–

1. Maintain the confidentiality of the infected health care professional. Panel members shall be subject to the requirements of section 191.656, RSMo regarding the confidentiality of information on an HIV-infected health care professional's infection status;

2. Conduct an evaluation of the infected health care professional and his/her practice. This evaluation and any recommendations shall be based on the premise that HIV or HBV infection alone does not justify limiting the health care professional's duties;

3. Allow the health care professional to appear before the peer review panel and present any information which s/he believes to be pertinent to the panels task. The health care professional’s personal physician(s), as well as any other individual(s) the health care professional believes can provide input into the process, shall be allowed to appear before the panel;

4. Establish, utilizing the criteria specified in subsection (3)(D) of this rule, whether restrictions or limitations shall be placed on the practice of the health care professional. If the panel is uncertain about whether a specific procedure may pose some risk of HIV or HBV transmission, it may recommend that this procedure be performed only after the patient has been informed of the health care professional’s infection status;

5. Require the health care professional to notify any affected patient in a timely manner whenever a parenteral or mucous membrane exposure to the health care professional’s blood occurs;

6. Report its findings and recommendations in writing to the health care professional;

7. Report its findings and recommendations in writing to the director including how the evaluation process was conducted. The department shall review the report to determine concurrence with 191.700.2(5)(d), RSMo and this rule. Results of the department’s review shall be reported back to the facility. In the event the health care professional later seeks an evaluation by a department-appointed panel, the findings and recommendations of the facility’s peer review panel shall be included as part of this evaluation; and

8. Require, as necessary, that the infected health care professional undergo periodic reviews to determine if the decision to place or not to place restrictions or limitations on his/her practice needs to be modified because of changes in his/her medical condition or some other relevant circumstance. If a review results in the panel making such a modification, this modification

shall be conveyed in writing to the health care professional and the director; and

(B) When a facility's internal peer review panel conducts a review in concurrence with 191.700.2(5)(d), RSMo and this rule, the following shall be performed:

1. The infected health care professional shall provide a list to the director of all other health care facilities and community-based practices, regardless of location, where s/he performs invasive procedures. The director shall disclose to the chief administrative officer or equivalent individual in each of these other facilities and practices any restrictions or limitations placed on the health care professional's practice by the panel;

2. If the health care professional seeks to affiliate with an additional health care facility or community-based practice, regardless of its location, where s/he will be performing invasive procedures, s/he shall disclose to the chief administrative officer or equivalent individual in that facility or practice the findings of the peer review panel, and any restrictions or limitations placed on his/her practice by the panel, prior to the affiliation and the provision of patient care, and notify the department of the new practice location;

3. If the health care professional plans to begin performing invasive procedures at a health care facility or community-based practice where s/he is currently affiliated but not presently performing those procedures, s/he shall disclose to the director or chief administrative officer in that facility or practice the findings of the peer review panel, and any restrictions or limitations placed on his/her practice by the panel, prior to the performance of any invasive procedures, and report the change in practice to the department;

4. It shall be the responsibility of each health care facility where the health care professional is employed and performing invasive procedures to monitor him/her for compliance with the practice restrictions or limitations at appropriate intervals, at least annually, based on his/her medical status and the types and frequencies of invasive procedures s/he performs. If a facility finds the health care professional to be noncompliant, it shall report this in writing to the appropriate state board, as provided under Chapters 330, 332, 334 or 335, RSMo, and to the director;

5. If the health care professional also performs invasive procedures in a community-based setting, it shall be the responsibility of the department to monitor him/her for compliance with the restrictions or limitations in this setting at appropriate intervals, at least annually, based on his/her medical status and the types and frequencies of invasive procedures s/he performs. If the department finds the health care professional to be noncompliant, it shall report this in writing to the appropriate state board, as provided under Chapters 330, 332, 334 or 335, RSMo, and to the director;

6. If the director becomes aware that the infected health care professional is noncompliant with practice restrictions or limitations at any location where s/he is performing invasive procedures, the director shall report this noncompliance to the director or chief administrator in each health care facility and community-based practice where the health care professional performs invasive procedures;

7. If the peer review panel, as a result of a periodic review of the infected health care professional's status, makes a modification in its recommendations that results in restrictions or limitations, or further restrictions or limitations, being placed on the health care professional, the director shall disclose this modification to the chief administrative officer or equivalent individual in any other health care facilities or community-based practices where the health care professional is performing invasive procedures; and

8. If restrictions or limitations have been placed on a health care professional's practice by the peer review panel and if later there is a change in the health care professional's medical condition or some other relevant circumstance, and as a result s/he believes that the restrictions or limitations should be modified, s/he may request that the panel consider the modification. The panel shall review the pertinent evidence and determine whether such modification shall be made. If a modification is made, this shall be conveyed in writing to the health care professional and the director. If the modification

results in further restrictions or limitations being placed on the health care professional, the director shall disclose the modification to the chief administrative officer or equivalent individual in any other health care facilities or community-based practices where the health care professional is performing invasive procedures.

(5) This rule expires on June 30, 2002.

AUTHORITY: section 191.700.2., RSMo (1994). Original rule filed April 17, 1995, effective Nov. 30, 1995.*

**Original authority 1992.*

DEPARTMENT OF HEALTH REPORTING RULE

19 CSR 20-20.020 Reporting Communicable, Environmental and Occupational Diseases

PURPOSE: *This rule designates the diseases, disabilities, conditions and findings that must be reported to the local health authority or the Department of Health. It also establishes when they must be reported.*

Editor's Note: The following material is incorporated into this rule by reference:

1) 56 ***Federal Register*** *52166–52175, October 17, 1991 (Washington: U.S. Government Printing Office, 1991).*

In accordance with section 536.031(4), RSMo, the full text of material incorporated by reference will be made available to any interested person at the Office of the Secretary of State and the headquarters of the adopting state agency.

(1) Category I diseases or findings shall be reported to the local health authority or to the Department of Health within twenty-four (24) hours of first knowledge or suspicion by telephone, facsimile or other rapid communication. Category I diseases or findings are–

- Acute chemical poisoning as defined in 56 FR 52166–52175
- Anthrax
- Botulism
- Brucellosis
- Cholera
- Diphtheria
- Group A Streptococcal disease, invasive
- Haemophilus influenzae disease, invasive, including meningitis
- Hantavirus
- Hemolytic Uremic Syndrome, post-diarrheal
- Hepatitis A
- Hyperthermia
- Hypothermia
- Measles
- Meningococcal disease, invasive, including meningitis
- Methemoglobinemia
- Outbreaks or epidemics of any illness, disease or condition that may be of public health concern
- Pesticide poisoning
- Plague
- Poliomyelitis
- Psittacosis
- Rabies
- Rubella
- Syphilis
- Tuberculosis disease
- Typhoid fever

(2) Category II diseases or findings shall be reported to the local health authority or the Department of Health within three (3) days of first knowledge or suspicion. Category II diseases or findings are–

- Acquired immunodeficiency syndrome (AIDS)
- Arsenic poisoning
- Cadmium poisoning
- Campylobacter infections
- Carbon monoxide poisoning
- Chancroid
- Chlamydia trachomatis infections
- Cryptosporidiosis
- *E. coli* O157:H7
- Ehrlichiosis
- Encephalitis, arthropod-borne
- Giardiasis
- Gonorrhea
- Hepatitis B, acute
- Hepatitis B Surface Antigen (prenatal HBsAg) positive screening of pregnant women
- Hepatitis non-A, non-B
- Human immunodeficiency virus (HIV) infection, confirmed
- Influenza
- Kawasaki disease
- Lead exposure greater than or equal to ten micrograms per deciliter (≥10 µg/dl) in persons under age eighteen (<18) or greater than or equal to twenty-five micrograms per deciliter (≥25 µg/dl) in persons age eighteen or greater (≥18)
- Legionellosis

Leptospirosis
Listeria monocytogenes
Lyme disease
Malaria
Meningitis, aseptic
Mercury poisoning
Mumps
Mycobacterial disease other than tuberculosis (MOTT)
Nosocomial outbreaks
Occupational lung diseases including silicosis, asbestosis,byssinosis, farmer's lung and toxic organic dust syndrome
Pertussis
Respiratory diseases triggered by environmental factors including environmentally or occupationally induced asthma and bronchitis
Reye syndrome
Rocky Mountain spotted fever
Salmonella infections
Shigella infections
Tetanus
T-Helper (CD4+) lymphocyte count on any person with HIV infection
Toxic shock syndrome
Trichinosis
Tuberculosis infection
Tularemia
Yersinia enterocolitica

(3) The occurrence of any outbreak or epidemic of any illness or disease which may be of public health concern, including any illness in a food handler that is potentially transmissible through food, shall be reported to the local health authority or the Department of Health by telephone, facsimile, or other rapid communication within twenty-four (24) hours of first knowledge or suspicion.

(4) A physician, physician's assistant, nurse, hospital, clinic, or other private or public institution providing care to any person who is suffering from any disease, condition or finding listed in sections (1)–(3) of this rule, or who is suspected of having any of those diseases, conditions or findings shall make a case report to the local health authority or the Department of Health or cause a case report to be made by their designee within the specified time.

(A) A physician, physician's assistant, or nurse providing care to any patient, with any disease, condition or finding listed in sections (1)–(3) of this rule, in an institution may authorize, in writing, the administrator or designee of the institution to submit case reports on patients attended by the physician, physician's assistant, or nurse at the institution. But under no other circumstances shall the physician, physician's assistant, or nurse be relieved of this reporting responsibility.

(B) Duplicate reporting of the same case by health care providers in the same institution is not required.

(5) A case report as required in section (4) of this rule shall include the patient's name, address, age, sex, race, phone number, name of the disease, condition or finding diagnosed or suspected, the date of onset of the illness, name and address of the treating facility (if any) and the attending physician, any appropriate laboratory results, name and address of the reporter, and the date of report.

(A) A report of an outbreak or epidemic as required in section (3) of this rule shall include the diagnosis or principal symptoms, the approximate number of cases, the local health authority jurisdiction within which the cases occurred, the identity of any cases known to the reporter, and the name and address of the reporter.

(6) Any person in charge of a public or private school, summer camp or day care facility shall report to the local health authority or the Department of Health the presence or suspected presence of any diseases or findings listed in sections (1)–(3) of this rule according to the specified time frames.

(7) All local health authorities shall forward to the Department of Health reports of all diseases or findings listed in sections (1)–(3)

of this rule. All reports shall be forwarded within twenty-four (24) hours after being received, according to procedures established by the Department of Health director. The local health authority shall retain from the original report any information necessary to carry out the required duties in 19 CSR 20-20.040(2) and (3).

(8) Information from patient medical records received by the Department of Health is to be considered confidential records and not public records.

(9) Reporters specified in section (4) of this rule will not be held liable for reports made in good faith in compliance with this rule.

(10) This rule will expire on June 30, 2000.

AUTHORITY: sections 192.006, RSMo (Cum. Supp. 1996) and 192.020, 210.040 and 210.050, RSMo (1994). This rule was previously filed as 13 CSR 50-101.020. Original rule filed July 15, 1948, effective Sept. 13, 1948. For intervening history, please consult the* ***Code of State Regulations****. Amended: Filed Sept. 15, 1995, effective April 30, 1996.*

**Original authority: 192.006, RSMo (1993), amended 1995; 192.020, RSMo (1939), amended 1945, 1951; 210.040, RSMo (1941), amended 1993; and 210.050, RSMo (1941), amended 1993.*

DEPARTMENT OF HEALTH
SECTION OF COMMUNICABLE DISEASE CONTROL AND VETERINARY PUBLIC HEALTH

GUIDELINES FOR SCABIES PREVENTION AND CONTROL

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MISSOURI DEPARTMENT OF HEALTH
SECTION OF COMMUNICABLE DISEASE CONTROL AND VETERINARY PUBLIC HEALTH
GUIDELINES FOR SCABIES PREVENTION AND CONTROL

Introduction

Since 1989, approximately 90 clusters or outbreaks of scabies have been reported to the Bureau of Communicable Disease Control. The majority of these reports have come from long term care facilities (LTCF's), although there are occasional reports from hospitals, day care centers and schools. Requests for assistance in resolving outbreaks in some LTCF's have uncovered probable scabies infestations lasting a year or longer. We have had reports of symptoms developing ten days following exposure; however, most cases have an incubation period of four to six weeks for a primary infestation.

A long incubation period (during which time the mite {sarcoptes scabiei var. hominis} is able to be transmitted to close contacts) and a wide variety of presentations are problematic in getting an accurate diagnosis. Because scabies can present with burrows, papules, scales, vesicles, bullae, crusts, pustules, nodules and excoriation's, it is necessary to do a careful history followed by burrow identification and skin scrapings for the mite, its eggs or fecal pellets. The following are recommendations for prevention and control of institutional scabies.

A. **Scabies Prevention Programs in Health Care Facilities Require That**:[1]

1. Health care workers be suspicious of scabies in person with a rash or pruritus that has gradually gotten worse, particularly during the night time hours;

2. Health care facilities establish a policy of examining newly admitted person for scabies and questioning new employees for either exposure to or symptoms of scabies;

3. The diagnostic skills of a consultant experienced in recognizing scabies be used in evaluating difficult or unusual cases;

4. In-house competence in preparing and examining skin scrapings from suspect person be developed;

5. Protective clothing and gloves be used when providing hands-on care to persons suspected of having scabies;

7. A system for recording edpidemiologic and clinical information on suspect and confirmed person be established.

B. **Equipment Needed for Skin Scraping:**

1. Gloves
2. Magnifying glass
3. Gooseneck lamp
4. Felt tip pen—green or blue washable ink
5. Alcohol swabs
6. #15 scalpel blades, glass slides for scraping or curettes
7. Scalpel holder (optional)
8. Kelly clamp or other forceps (optional)
9. Slides and cover slips
10. Mineral oil or microscope immersion oil
11. Requisitions, if slides are being sent to a public health laboratory
12. Sharps container
13. Clear nail polish or petroleum jelly (to help seal the slide cover to slide)

C. **Procedure for Doing Skin Scrapings:**[1,2]

1. Establish and confirm the diagnosis by skin scrapings and microscopic identification of mites, eggs or scybala (fecal pellets). A nurse from the facility can be taught this procedure by a dermatologist, the consulting physician or a by a nurse or technician who has had professional training in doing the procedure.
   a. Mass treatment (treating all person residing or working on a unit or in an entire facility) should not be initiated unless a definite diagnosis has been made in at least 1 of the symptomatic cases.[1]
   b. Scrape those persons with the most severe rash first. Elderly may present with severe urticaria and bullous lesions.
   c. Shoulders, back and abdomen are choice areas for scrapings in the elderly.[2] Other sites: hands, wrists, elbows, feet, ankles, buttocks, axillae, knees, thighs, and breasts.
   d. Use hand-magnifying lens to identify recent burrows or papules. Look for non-excoriated, non-inflamed areas. A bright light and a magnifying glass may assist in visualizing the mite at the end of the burrow.
   e. Identify theses high yield lesions by applying mineral oil (best used over dry scaly areas) or by applying the burrow ink test to possible burrows. The burrow ink test is done by using a wide felt tip pen (blue or green are best) over burrows and then wiping off with an alcohol swab. The alcohol will remove most surface ink, but will not remove the ink taken up by the burrow, thus leaving a dark irregular line.
   f. Apply mineral oil or preferably microscope immersion oil to lesions or scalpel blade and glass slides.
   g. Vigorously scrape uninfected burrows and papules with a #15 scalpel blade or glass slide held at a 90° angle to the skin and while holding the skin taut until the statum corneum is removed. [2,3,4]Scrapings may also be done without a holder for the #15 scalpel blade. The blade is held y the fingers at an angle that is more like 45° to the skin. (Vigorous scraping appropriately results in a few red blood cells visible under the microscope, but there should not be frank bleeding.) Some practitioners prefer using a small curette. Change blades or curettes between scrapings on different persons. Blades can be placed and removed from the handle with a forceps. Used blades must be placed in a sharps container.
   h. Transfer skin scrapings from 6 different sites to a single slide or to 6 different slides per patient.[2] These scrapings can be pushed onto the slide edge and them moved to the center of the slide.

i. Place a cover slip over the slide.[2]

j. Examine entire slide methodically under low power at 25-50-x magnification for at least 5 minutes.[1] Low power (2.5-4 x) is useful initially. The microscope should be taken to the facility; however, if the practitioner is not trained in reading the slides, the cover slip should be secured to the slide at all edges with clear nail polish or petroleum jelly and transported personally, by courier, or by mail (in a secure mailer) to:

1) Missouri State Public Health Laboratory (MSPHL);
2) A branch of MSPHL
3) A hospital or rural clinic laboratory with pre-arrangements; or
4) A physician's office with pre-arrangements.

Public health laboratory requisitions must accompany slides if readings are to be done at public health laboratory.

D. **Surveillance and Collation of Edpidemiologic Variables for Scabies:**[1,2]

1. Surveillance by chart review, interview and direct observation should be done, using a form such as in Appendix A to identify all patients/residents who are likely to have been exposed to scabies.
2. Surveillance should be done by interview, completion of a self-administered questionnaire such as in Appendix B and /or direct observation in order to identify all employees, including laundry personnel, who are likely to have been exposed to scabies.
3. Make a line list (see Appendix C for sample line list form) of room number, age, sex, symptoms, date of onset for:

   a. **Symptomatic persons with positive scrapings;** differentiate between conventional and Norwegian (keratotic or crusted) scabies.[1,2,5] (See Appendix D for "Definitions of Scabies Infestations").
   b. **Symptomatic person with negative scrapings.**
   c. **Asymptomatic contacts** of a symptomatic case. These contacts should be on a totally separate line list. Close contacts are person who have skin to skin contact, sleep in the same bed or handle infested clothes and bed linens. Contact of crusted scabies should be designated High Risk, Low Risk and No Risk per definitions on page 10.
   d. Contract tracing should go back 2 months.

4. Ascertain the epidemic level: proportion of affected person (positive scrapings or symptomatic).[1] This information will determine whether person in the whole facility or just one section are treated.

   a. Determine percentage of affected person (patients or residents) within the entire facility's population of patients or residents.
   b. Determine percentage of affected employees within the entire facility's employee population.
   c. Determine percentage of affected person within each subgroup of a population; i.e., nursing home wing, hospital department.

5. Look for similarities or groupings in age and sex among affected persons.[1]

6. Ascertain type and frequency of secondary bacterial infections.[1,5]

7. Determine the mode of transmission; i.e., employees having close personal contact like bathing, bedmaking, applying skin lotions, frequent lifting/repositioning of patients[1,2]

Or

exchanging clothing, sleeping on same linens, playing games involving close hand or skin contact[1,2]

Or

sexual contact. [1,2]

E. **General Recommendations**

1. Report outbreak to the local health department using an outbreak report form, Appendix E. Do not use separate CD – 1 cards for every case in an outbreak.

2. Notify facilities to which potentially infested patients or employees have transferred.[1,8]

3. Intensive educational programs should be given to all employees.[1] They should be given a Fact Sheet on Scabies.

4. Scrapings need not be done on every symptomatic person in a large outbreak, but an effort should be made to scrape all persons having numerous lesions and symptoms of long duration.

5. Allocate sufficient personnel and funding to initiate and manage follow-up treatments. Facility should purchase enough medication to treat symptomatic persons (patients/residents, employees, volunteers and family members) and their close contacts.[1,2]

F. **Selective Treatment Protocol**[1]

1. A conventional scabies treatment regimen can be selective when only 1 person has a positive scraping and 1 –2 others on the same unit are symptomatic but have either not been scraped or have negative scrapings. Selective treatment protocol can be used.[1] If a scraping is positive for a person who is severely immunocompromised or for a person who has crusted scabies, then the potential for spread is greatly increased and selective treatment protocol will probably not prevent further cases. (See G-3 and Appendix D, "Definitions of Scabies Infestations").
2. The diagnosed and probable infested cases and symptomatic contacts should receive treatment with subsequent monitoring for effectiveness of treatment. A skin scraping should be done on the symptomatic cases 1 month after treatment,[2] particularly if rash and symptoms persist. (See section H)
3. All "hands-on" contacts during preceding 2 months (employees, relatives and other patients) of any patient/resident with a positive scraping should be treated. Patients or residents having received "hands on" personal care from a positively diagnosed or symptomatic employee should receive treatment, as should the employee's household.[1,2,9]

G. **Mass Treatment Protocol**[1,2,9]

1. Definition: A mass treatment protocol uses the same drug regimens as in selective treatment except that all persons residing or working on a unit or in an entire facility are treated.

2. One physician should be designated as the outbreak control officer and be given authority to manage the treatment regimen of all residents in a long term care facility. At the least, all attending physicians should agree to a cooperative schedule for conventional or Norwegian scabies.[9]
3. Mass treatment should be administered within a 24-48 hour period to all persons (residing and working) in a defined area of the facility if:[2,9]

- Two (2) or more symptomatic patients/residents or employees have positive scrapings

Or

- One (1) asymptomatic patient/resident has a positive scraping and many patients/residents have exhibited symptoms of infestation for months (2—10% rate of symptomatic infestation).

Or

- Norwegian scabies is diagnosed in one (1) patient/resident and at least one (1) employee is symptomatic.[1]

4. Mass treatment of everyone in the facility (all residents and at risk employees) should be administered within a few successive days if positive scrapings are found in 2 or more separate areas of the facility.
5. Employee cross-over should not be allowed until the specified population has been treated.
6. Household members, sexual contacts and roommates of symptomatic employees should be treated the same day as the employees. [1]
7. Write a detailed schedule of:

    a. Who will be treated and who will do the treating;
    b. What will be used for treatment, including specific instructions on how to apply lotions;
    c. Where treatments will be done; i.e., a treatment room, individual beds, at home;
    d. When treatments will be done (date and time);
    e. State when the person will be considered non-infested, can be removed from isolation and can return to work. (See Section I)

8. Write a second schedule for:

    a. Reassessment of all treated person at 14 days.
    b. Persons needing a second treatment 3—7 days later. (See section H 8-9).
    c. Persons with crusted or infected lesions needing routine daily monitoring, monthly scrapings for a few months or a maintenance monthly treatment regimen.[2]

9. Notify all families and frequent visitors about problems and need for their cooperation.[1,2]

H. <u>Application of Scabicides and Steroid Creams</u>

1. Treatment failures may occur for several reasons, the most common being inadequate application of scabicide.[1,2,5,8,9,10] Other reasons for treatment failure include:

    a. Infected or crusted lesions.

1) Keratolytic agents (20—40% urea and 6% salicylic acid) may be necessary to soften scaliness and permit penetration of scabicide.[2,5,11]

2) Concomitant bacterial infection should be treated with appropriate antibiotics and retreated for scabies a week or 10 days later.[11]

b. Reinfestation from untreated contacts[9]

c. Cell-mediated immounodeficiency[1,12]

d. Resistance of mites to the scabicide[8,13,14]

NOTE: Pruritus and rash can continue for 1-4 weeks after treatment. Pruritus and residual rash should not be considered treatment failure until 1 month after last treatment. To ameliorate these signs and symptoms, some dermatologists use 1% hydrocortisone cream or triamcinolone cream (0.1%-0.025%) applied to the most intense rash and a lubricating agent or emollient to the lesser rash for children;[15,16] 1% hydrocortisone cream or triamcinolone cream 0.1% can be used for adults as well.[15] Antihistamines are also used to alleviate the hypersensitivity response.

e. Steroid creams should not be applied until after first scabicide treatment. Topical and systemic steroids cause depression of delayed hypersensitivity and pruritus, thus allowing scabies to go undetected and transmission unimpeded.

2. Gloves and gown are worn to apply scabicides.

3. Bathe as usual and change bed linens.

4. Apply scabicide to every square inch of skin, from the posterior ear folds down over entire body, including all non-affected areas. Include intergluteal cleft, navel, crevices of contractured extremities, and webs between fingers and toes.[11] If scabicide is washed off during handwashing or perineal care, it must be reapplied.,

5. In infants, toddlers under 3 years of age, the elderly and the immunocompromised, the head (face and scalp) requires application of scabicide. Pay close attention to the area behind the ears. Do not get the scabicide near the eyes or mouth. Prior treatment failure may be an indication to include the head in other persons.[2,11,16]

   Lindane shampoo, used as directed on the label, can be used for certain persons (elderly) to treat the scalp.

6. Fingernails and toenails should be clipped and scabicide applied under nails. A small soft brush is helpful for this.[2,17,18]

7. Scabicides
   a. 5% permethrin cream (a synthetic pyrethroid)[19] Elimite is a trade name for this product. *
      - Considered drug of choice by several authorities including the 1994 American Academy of Pediatrics “Red Book” and the Medical Letter, March 23, 1990, p. 29

- Cure rate in one study was 91%.[10,14]
- 1 application is considered curative, although 2 applications are frequently recommended by experts for symptomatic persons.

The usual adult dose is 30 grams. A 60-gram tube should treat 2 adults. For adults, it should be massaged into skin covering the entire body (except the head) from the soles of the feet to the neck. For infants, young toddlers, and geriatric patients, it should be applied to the entire body including the scalp, neck temples and forehead because of the mite often infests these areas in those age groups. The patient should be instructed to remove the medication by thoroughly bathing 8-14 hours after application. Contact with the eyes and mouth should be voided. If contact occurs, the eyes should be immediately flushed with water. Note: Studies have not demonstrated plasma levels. The drug is rapidly broken down and is excreted in urine as inactive metabolites.[6,19]

Permethrin is safe for children 2 months of age and older. No instance of accidental ingestion has been reported. The most commonly reported side effects are pruritus, edema and erythema, which may continue for up to 2 weeks after treatment. Patients should be told that the itching or stinging of scabies infestation may continue after treatment, and should be advised to avoid repeated application of the scabicide.

Although animal studies showed no adverse effects to reproductive function or damage to fetus, no adequate studies have been done on pregnant women. Therefore, permethrin should be used during pregnancy only when clearly necessary. If treatment is necessary for lactating mothers, breast-feeding should be discontinued during the treatment period.

b. 1% lindane lotion (comes in 2 oz. bottle) is effective when applied properly.[9,11,20] The usual amount of lindane lotion required to treat one adult once is 30 grams (1 oz.).[6] Lotion bottle must be **shaken well.**
   - Bathe with tepid water, not hot water, if a bath is taken prior to application of scabicide.
   - Leave on for 8 hours or overnight; some physicians prefer a 12-24 hour application.[5] Most absorption of lindane occurs in the first 6 hours after application.[20]
   - Avoid contact with eyes and mucous membranes.
   - Not to be used for small infants, pregnant women or nursing mothers.[10,20] Use of lindane for any reason in small children is seriously questioned by the National Pediculosis Association. Lindane should be avoided in anyone with seizure disorders and in anyone with severe skin disruption (excoriated or denuded). If lindane is used for lactating mother, discontinue breast-feeding for 2 days.[6]

c. 6% precipitated sulfur in petrolatum prepared by pharmacy.[15]
   - Cure rate is unknown—has not been studied, but used for centuries.
   - Product is messy, malodorous and somewhat irritating.

- Apply nightly for 3 nights (wash off previous application before reapplying a new application). [15]
- Recommended in infants younger than 2 months of age and in pregnant or lactating women. [15]

d. 10% crotamiton cream or lotion (Eurax* Cream or Lotion) has an approximate 50% cure rate when applied less than 5 days,[10,20,21,22] 60% effective for full treatment.
- Cream must be thoroughly massaged into skin.
- Apply twice a day for 5 days.[10]
- Avoid contact with eyes and mucous membranes.
- Can be used on youngsters and elderly with dry sensitive skin,[5] but not denuded skin.[20]

8. Conventional scabies regimen

a. A single application of 5% permethrin cream or 1% lindane is recommended in facilities provided that application of scabicide is supervised by a professional health care worker who is knowledgeable about scabicide treatments. Several authorities claim that a single adequate application of 5% permethrin cream or 1% lindane is sufficient to eradicate conventional scabies, whether a diagnosed case, symptomatic case, or asymptomatic contact.[9,11] This has been effective in the clinical practice of treating individual families.

b. Institutional scabies has a high propensity for transmission. If supervised application of scabicide by trained employees is not possible, the following regimen is recommended:

Persons who are positively diagnosed by skin scrapings—
- 3 treatments spaced 3-7 days apart, utilizing 2 different agents[2]
- Reevaluate at 14 and 28 days.

Symptomatic cases who's skin was not scraped or scraping was negative—
- 2 treatments, 3-7 days a part.[2,5,11]
- reevaluate at 14 and 28 days

Asymptomatic contacts, include household and sexual contacts, of diagnosed or symptomatic cases—
- 1 treatment, evaluate in 14 days[2]

c. It should be acknowledged that some clinicians prefer to treat symptomatic individuals with two applications on two consecutive days.

9. Norwegian Scabies (atypical, crusted) regimen

a. Aggressive treatment over entire body.[1] (See H # 1-6)

b. 5% permethrin cream for 1 day, followed by 10% crotamiton lotion for 5 days, followed by a second 5% permethrin cream for 1 day.[2,5,8]

c. Reasses on days 7 through 14 with follow-up scrapings in one month.[2] If scrapings are positive or if symptoms unabated, treat again.

d. If treatment failure occurs several times, monthly maintenance treatments should be given for an extended period of time; (e.g., applications of 10% crotamiton lotion for 2 days each month.[2,8])

e. Protective gown and gloves are necessary until scrapings are negative on 3 separate occasions.

f. Categorize contacts by risk of mite transmission[1]

1) High risk: prolonged or recurrent hands-on contact before initiation of patient treatment,
   - 2 treatments, 3-7 days apart.
2) Low risk: persons having had indirect contact (touching patient's clothing or linens); a simple, brief period of direct skin to skin contact (obtaining a blood specimen, positioning a patient for radiography); or a patient who was cared for by an employee who also cared for the scabetic patient.
   - 1 treatment
3) No risk: person having had neither direct nor indirect contact require no treatment.

10. Cleansing bath is taken when product is to be removed. Some experts do not believe it is necessary to bathe residents at designated times in order to remove scabicide. Estes and Estes suggest that an extended interval before bathing or repeated applications be considered to offset reinfestation.[6]

11. Fresh clean linens and clothes are put on after the cleansing bath.

I. <u>Isolation and Environmental Control for conventional Scabies</u>

1. Environmental reservoirs were considered to play little or no role in scabies transmission until late 1988. Since then, Arlian and colleagues have demonstrated that *S. scabiei* can remain alive for 3 days on stuffed chairs, sofas and tiled floors. He found that nymphs could survive 2—5 days at 25°C and 45-75% relative humidity. Outbreak reports implicate bed linens and clothes as probable sources of transmission.[23]
2. Isolate affected patients/residents during the treatment period or for 24 hours after initiation of scabicide such as 5% permethrin cream or 1% lindane lotion; 24 hours after last application of other scabicides; restriction of contact with other persons—restrict to room or home.[5]
3. Wear gown and gloves for skin to skin contact. Wash hands after removal of gloves.[1]
4. Bed linens, towels and clothes used by the affected persons within 72 hours prior to treatment should be placed in plastic bags inside the patient's room, handled by glove and gowned laundry workers and laundered at 50°C (122°F).[1,23,24] Hot cycle of dryer should be used for at least 10—20 minutes. Nonwashable blankets and articles can be placed in a plastic bag for 7 days or dry cleaned or tumbled in a hot dryer for 20 minutes.[26]
5. All bed linens, towels and clothes should be changed daily.
6. Multiple-use walking belts, skin creams and ointments can serve as potential reservoirs for mites. Disinfect the walking belt and discard all creams, lotions or ointments used prior to effective treatment.[25,26]
7. Mattresses, upholstered furniture and carpeting should be vacuumed.

8. Routine disinfection procedures are adequate on a daily basis.[1]
9. Symptomatic employees should be allowed back to work the morning following overnight treatment with 5% permethrin cream or 1% lindane. Disposable gloves should be worn for 2—3 days by symptomatic staff who must provide extensive hands-on care to their patients. [1]

J. **Isolation and Environmental Control for Norwegian Scabies-**

Measures remain in place until skin scrapings are negative on 3 consecutive occasions.

1. Assign patient/resident to a private room. [1]
2. Restrict contact with visitors until treatment regimen completed and scrapings are negative for live mites. Alternatively, visitors must take the same precautions (wearing a gown and gloves) as employees.[1,2,27]
3. Cohort employees to care this patient/resident only (no other direct care responsibilities) until effective treatment is completed. Other duties for these employees can include record keeping and filing. [1]
4. Wear gown and gloves to attend to patient needs, for housekeeping duties and handling of laundry.[28]
5. Spray insect repellent (pyrethins) to wrist (edge of the glove and ribbing of sleeve area), arms and front of gown. Remove before leaving the room. Wash hands.
6. Upholstered furniture covered with cloth fabric should be removed from the room or replaced with furniture covered in plastic or vinyl. Mattresses must be covered with plastic or vinyl. [1]
7. The patient's room should be vacuumed daily with a vacuum cleaner designated for this room alone. [1]
8. Routine disinfection procedures should follow thorough vacuuming on a daily basis and upon discharge of the patient from the room.
9. Utilize any other appropriate protocols such as given in subsections 4—6 under Enviornmental Control for Conventional Scabies.

*The identification of trade names does not imply endorsement by the Missouri Department of Health.

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Appendix A

Patient/Resident Survey Form For Rash Condition

Name _____ Chart Reviewer/Interviewer _____

Record # _____ Age _____ Sex _____ Survey Completion Date _____

Nursing Unit _____ Room # _____ Epi I.D. # _____

Admission Date _____ Name of facility transferred from _____

Current Clinical DX _____

Description of rash (check or circle all that apply)	Date of onset
Burrows: red, white, gray _____	_____
Papules: red, white, pus-filled _____	_____
large or tiny _____	_____
Hives _____	_____
Bullous lesions _____	_____
Scales _____	_____
Crusts _____	_____
Other _____	_____

Lesions are predominately on _____
Does the patient complain of itching? Yes _____ No _____
Is itching worse during day or night? Yes _____ No _____ Day _____ Night _____
Is the patient scratching? Yes _____ No _____ Is excoriation present? Yes _____ No _____
Does the rash area have pus or yellow-green drainage? Yes _____ No _____

Diagnostic Tests	Dates	Results
Skin scrapings? Yes _____ No _____	_____	_____
Shavings? Yes _____ No _____	_____	_____
Skin biopsy? Yes _____ No _____	_____	_____
Culture of skin lesions? Yes _____ No _____	_____	_____

Other _____

Treatment for Rash (including steroid creams/lotions)

Name of medications	Dates administered
_____	_____
_____	_____
_____	_____

Environmental Factors and Direct Contact Exposures
Has there been a change in laundry soap in the past 2 months? Yes _____ No _____
Is there a different contract laundry in the past 2 months? Yes _____ No _____
Participation in activities and personal habits:
Dancing or games of hand holding? Yes _____ No _____ Crafts? Yes _____ No _____
Frequent touching of others? Yes _____ No _____
Does roommate have a rash? Yes _____ No _____ Name of roommate _____
Does a visiting family member or friend have a rash? Yes _____ No _____
Name(s) _____
Dates(s) of exposure to persons known to have scabies or a rash. _____
_____

Appendix B

Employee Questionnaire For Rash Condition

Name: _____ Age: _____

Shift hours: _____ Sex: _____

Department: _____

Assigned areas: _____

Duties: _____

Have you had any type of rash recently? Yes _____ No _____

When did it start? _____

Has anyone in your family had a rash? Yes _____ No _____

Who? _____

When did it start? _____

Please describe the rash: _____

_____

Have you or has your family seen a doctor for this rash? Yes _____ No _____

Name of doctor and diagnosis: _____

_____

What type of medication have you used? _____

How did you apply, use the medication? _____

_____

What date or week did you last use the medication? _____

The medication caused the rash to: Improve/get worse (circle correct answer)

Did rash return after medication was discontinued? Yes _____ No _____

Thank you for your time and cooperation in answering these questions.

Appendix D

Definitions of Scabies Infestations

Conventional scabies: average 10-15 mites at any given time, although only 1—2 mites may be recovered in scrapings, (frequently none are observed); occurs in physically healthy persons.[1,2]

Severe scabies: A typical crusted scabies: usually a total of 3—6 mites and 8—12 eggs observed on 5—7 slides; do not exhibit hyperkeratotic cutaneous response because of decreased cell mediated immunity; some lack pruritus; occurs in nursing home residents and elderly with coexistent chronic diesease; moderate to high risk of transmission.[6]

Norwegian scabies: Typical crusted or keratotic: thousands of mites at any given time; multiple live mites, eggs, and scybala (fecal pellets) observed on almost every slide; have hyperkeratotic skin; occurs in debilitated, immunosupressed, advanced chronic disease and mentally handicapped. High risk of transmission is high from skin and formite contact. (Exfoliating skin scales harbor enormous numbers of mites which are shed onto linens, furniture, and carpeting). [1,2,5,7]

Nodular scabies: pruritic nodules, apparently due to hypersensitivity persisting for weeks to a year or longer, despite scabicidal therapy, but eventually clear spontaneously: may regress with the use of corticosteroids; surgical excision sometimes indicated if patient concerned and intralesional cortisosteroids ineffective.[5]

Pseudoscabies: scrapings always negative; fostered by residual pruitus in effectively treated cases and by conversations between misinformed persons.[1-5]

Canine-transmitted scabies: caused by the *Sarcoptes scabiei var canis* species of mite from dogs; the mite does not reproduce or complete its life cycle on humans and thus burrows are not created; not usually transmitted person to person.

Appendix E

MISSOURI DEPARTMENT OF HEALTH
SECTION OF COMMUNICABLE DISEASE CONTROL AND
VETERINARY PUBLIC HEALTH

NOSOCOMIAL OUTBREAK REPORT FORM

PO BOX 570
JEFFERSON CITY , MO 65102
(800)392-0272 OR
(573/751-6113

REPORTED INITIALLY BY

NAME	TITLE	
ORGANIZATION	DATE/TIME	TELEPHONE NUMBER
TO NAME	TITLE	
ORGANIZATION	DATE/TIME	TELEPHONE NUMBER

REPORTED TO

LOCAL CO/CITY HEALTH DEPT. ☐ Yes ☐ No DATE _____ TIME _____
DISTRICT HEALTH DEPT. ☐ Yes ☐ No DATE _____ TIME _____
COMMUNICABLE DISEASE ☐ Yes ☐ No DATE _____ TIME _____
DIVISION OF AGING ☐ Yes ☐ No DATE _____ TIME _____

DEPT. OF MENTAL HEALTH ☐ Yes ☐ No
DATE _____ TIME _____

1. Name of Facility

Contact Person/Position Title — ☐ Hospital ☐ Mental Health ☐ Nursing Home ☐ Rehabilitation

Address (Street or PO Box, City, State, Zip Code) — Telephone Number

2. Number of Cases and Number of Exposed at Each Location, Service, or Nursing Unit

	No. Cases		No. Exposed		No. Cases		No. Exposed		No. Cases		No. Exposed	
	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees	Residents	Employees
Medical Units	Unit				Unit				Unit			
Surgical Units	Unit				Unit				Unit			
Intensive Care Units	Adult/Type				Pediatric/Type				Newborn/Type			
Obstetrics	L & D				Post Partum				Newborn			
Rehabilitation	Unit				Unit				Unit			
Mental Health	Unit				Unit				Unit			
Long Term Care	Unit				Unit				Unit			

Illness/Disease	Date First Case Starting Outbreak	Date of Case Causing Outbreak to be Reported	Date of Last Case

3. Principal Symptoms/ Onset Dates

4. Microorganisms:
A. Specimen Source/ Collection Date — Findings:

B. Laboratory Name and Address

5. Total Number of Cases >	Residents	Employees	As of Date

6. Control Measure(s) Instituted

MO 580-1598 (2-99) AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER - Services provided on a nondiscriminatory basis

INFECTION CONTROL GUIDELINES FOR LONG TERM CARE FACILITIES

DEPARTMENT OF HEALTH
SECTION OF COMMUNICABLE DISEASE CONTROL AND VETERINARY PUBLIC HEALTH

GUIDELINES FOR INVESTIGATION OF GASTROINTESTINAL ILLNESS OF UNDETERMINED ORIGIN IN LONG TERM CARE FACILITIES

Guidelines for Investigation of Gastrointestinal Illness Of Undetermined Origin in Long Term Care Facilities

This is a guideline for initiating the very first steps of an outbreak investigation of gastrointestinal illness in a long-term care facility. The following sequence of action steps should facilitate a prompt and effective investigation.

I. Use the attached investigation form (Attachment A) to answer the most basic, preliminary questions related to an outbreak of a gastrointestinal illness.

II. Consult with the Section of Communicable Disease Control and Veterinary Public Health (district coordinator or central office), sharing as much of the information from the above mentioned form as possible.

III. Arrange for stool (and possibly blood) specimen collection using the procedures outlined below.

IV. Develop a hypothesis utilizing the following general principles:
   1. If symptoms develop on one floor and move to other floors in a rapid progressive fashion, suspect person-to-person transmission.
   2. If there are symptomatic cases distributed on multiple units within a 12 hour period, suspect a common food source. Request the facility distribute the employee questionnaire to foodhandlers and proceed with a foodborne investigation.

V. Proceed with a foodborne outbreak investigation (Attachment B) if suspected.

VI. Obtain information on control measures to prevent further cases.

VII. Share control measures with persons who need to know and implement them.

VIII. Create outbreak line-listing (Attachment C).

IX. When outbreak controlled, complete and submit the nosocomial outbreak report from (Attachment D).

General Guidelines for Specimen Collection and Testing

- Request that the facility's medical director or his/her designee be responsible for coordinating the ordering of diagnostic tests.

- Be sure that each specimen container is labeled with the person's name and the date specimen was collected. They will be thrown away if there is no label.

- Whenever the causative organism is unknown during initial investigation, **two** specimens should be collected from <u>each</u> symptomatic person, one for potential viral testing at the Missouri State Public Health Laboratory (MSPHL) and/or Centers for Disease Control and Prevention (CDC) and one for bacteriology testing at the MSPHL.

- The laboratory will set up an outbreak kit that will include the following per patient:

1. One set of collection vials (one with and one without transport media).
2. Two patient forms (one for viral testing and one for bacterial testing).
3. One specimen outbreak bag (with side pocket for both forms).
4. Patient instructions/institutional instructions.
5. Individual/multi mailer with cold packs and labels.

- All specimens should be transported cold to MSPHL by quickest possible means.

Stool Specimens and Blood Specimens for Viral Testing

1. Stool Specimens – collect from 10 or more persons

   Liquid stool specimens should be collected within 72 hours of symptom onset. Utilize plastic wrap over the back portion of the toilet seat/commode or a freshly sanitized bedpan in order to collect the specimens. Collect at least 10cc of liquid stool. **Stool for viral testing must be placed in the vial or container that does not contain transport media.** (Alternatively, in an emergency, dump out media in some enteric vials or use a urine specimen cup. The specimen container must be labeled, "For viral testing.") **The patient's name and collection date must also be on the container.**

   a. If symptoms and epidemiologic data indicate an illness of viral origin, all stools will be tested for rotavirus and adenovirus #1 – 41 at the Missouri State Public Health Laboratory. Concurrently, a minimum of 10% of the bacteriology specimens in transport media will be screened for bacterial organisms (*Salmonella, Shigella, Campylobacter, Yersinia, E. coli O157:H7* or others as requested).
   b. **Stools from a minimum of 10, persons along with paired serum specimens on the same persons submitting stools,** are necessary for electron microscope testing for Norwalk-like viruses, calicivirus, astrovirus, etc., at CDC. The stool specimens should be stored in the refrigerator at $+4^0$C or 39^0F. **They must not be frozen** because freezing destroys the characteristic viral morphology that permits a diagnosis by electron microscopy.
   c. Because of the low probability that enteroviruses are causative, enterovirus testing of stool specimens should not be requested in long term care outbreaks of gastroenteritis.

2. Blood Specimens – collect from 10 persons

   If both viral and bacterial tests on stools done at MSPHL are negative, the contact persons from the Section of Communicable Disease Control and Veterinary Public Health will call the CDC to see if they will run specimens for Norwalk-like viruses. If the answer is 'yes' then collect 10 acute bloods from the same persons that contributed stool specimens for viral testing. Obtain 10cc of blood in red top (no anticoagulant) tube within 5 days of onset to accompany stool for electron microscope testing. The state lab will centrifuge the blood. Obtain a convalescent blood specimen from the same persons 3-6 weeks after the first blood specimen. Acute and convalescent bloods should be at least 3 weeks apart.

Stool Specimens for Bacterial Testing

Collect stool specimens from 10 or more persons for bacteriology tests. Transfer at least 10cc of stool from the collection site (plastic wrap over the back portion of the toilet seat or a freshly sanitized bedpan) into the vial with Cary-Blair transport media**. This vial for bacteriology testing must be labeled, "Bacti" along with the patient's name and date collected.**

When symptoms and epidemiological data indicate illness of bacterial origin, all specimens in transport media will be tested for *Salmonella, Shigella, Campylobacter, Yersinia,* and *E. coli O157:H7*. Concurrently, a minimum of 10% of the viral specimens will be screened for rotavirus and adenovirus.

Note: If the suspect organism is either *Clostridium* or *Bacillus* species, the stool specimen in the vial without transport media will be used for testing.

Further Processing of Stool Specimens

If either of the 10% screenings (bacterial or viral) turn up positive, the rest of the patient samples will be tested for that specific organism.

If the field person is unable to determine whether the suspected causative agent is bacterial or viral, the laboratory will run the specimens for both viral and bacterial agents in consultation with the Section of Communicable Disease Control and Veterinary Public Health. (If the number of specimens is very large, the Section of Communicable Disease Control and Veterinary Public Health and the laboratory may decide on a certain percentage to be screened initially.)

Additional information on specific organisms can be found in the Communicable Disease Policy and Procedure Manual – Foodborne Section, Subsection 3.0.

Request forms

The requesting forms should state 'outbreak.' They should state name of the ill person, date, and to whom the results are to be reported.

- If the Section of Communicable Disease Control and Veterinary Public Health (CDCVPH) communicable disease coordinator or the county health department is to receive the reports, their name should be listed on each form. No letter of justification is needed form the CDCVPH for testing outbreak specimens without a charge.
- If the facility is to receive the reports, list its name on each form. **A letter is needed from the CDCVPH to justify having outbreak specimens tested at no charge to the facility.**
- If the ill person's private physician receives the report, each test will be charged to the physician.

Attachment A

Initial Investigation Parameters in Gastroenteritis Outbreaks within Long Term Care Facilities

Please answer the following questions and fax to the District Health Office.
The District Health Office will fax to the Section of Communicable Disease Control Veterinary Public Health.

A. Basic information required

1. Date outbreak reported_____
2. Person reporting outbreak (name, telephone number)_____ _____
3. Person to contact for more information (name, position, telephone number and address)_____ _____
4. Where outbreak occurred – facility's name address and wings or units____ _____
5. Date of onset of first case (case which probably started the outbreak)____ _____
6. Date of onset of the case that brought outbreak to one's attention_____
7. Suspected / Diagnosed illness or principal symptoms
   a. Use the following case definition initially:

Place a check mark in front of the statements appropriate to this outbreak.

Criteria	**Conditions**
_____ TWO or more loose or watery stools above what is normal or the resident within a 24 hour period	For the first two criteria, there must be no evidence of a noninfectious cause; e.g., for diarrhea: laxative, change in tube feeds or medication; for vomiting: change in medication, peptic ulcer disease
-or-	
_____ TWO or more episodes of vomiting within a 24 hour period	
-or-	
_____ Stool Culture positive for a pathogen(*Salmonella, Shigella, Campylobacter Species, Yersinia, Clostridium difficile, E. coli 057:H7*, _____)	←Circle or fill in name of an organism if identified in one or more residents.

Please circle 'yes' or 'no' to answer the following questions:

b. Is the stool watery? **Yes No**
   Is there mucous in the stool? **Yes No**
   Is there obvious blood in the stool? **Yes No**
c. Inquire as to whether cases generally had:
   c1. Nausea? **Yes No**
   c2. Abdominal cramping or tenderness? **Yes no**
   c3. Fever? **Yes No** How high?_____
   c4. Chills? **Yes No**

c5. Malaise? **Yes No**
c6. Muscle aches? **Yes No**
c7. Headache? **Yes No**
c8. Upper or lower respiratory tract infection symptoms; e.g., runny nose, nasal or sinus congestion, sneezing, sore throat, coughing? **Yes No**

If the answer is yes, request that these symptoms be included in the line list.

8. Number of cases suspected: #residents_____ #employees_____
   #of total cases _____
9. Number of residents in-house_____ # of employees on staff_____
10. Duration of illness in most cases_____
11. Control measure(s) instituted_____
    _____

Request the facility to generate a line list of the cases using the line list form (attached). Age and gender could be eliminated, but do include:

- Some identification for each case (a number or initials),
- A check as to whether 'employee' or 'patient'
- Room number and unit
- Symptoms, (add lines within this column for each symptom; e.g. **N** for nausea, **V** for vomiting, **D** for diarrhea, **C** for abdominal cramping, **F** for fever, **A** for aching, **H** for headache, etc.)
- Date of onset or date and hour of onset,
- Duration of illness,
- Hospitalization.

Document the type of population affected; e.g., skilled unit, Alzheimer's unit, residential care. A legend as to what population equals what unit should be placed at top or bottom of line list.

B. Are all or most of the sick residents:
1. Fed by health care workers? **Yes No**
2. Fed by tube feedings? **Yes No**
3. Sitting at the same table? **Yes No** If yes, identify the table by letter or number _____

If the answer is yes to any of these questions, use these variables in the line list.

C. Do employees eat the same food as the residents? **Yes No**
If yes, do they eat before the residents? **Yes No**
Do they eat after the residents? **Yes No**

D. Have any employees been ill with similar symptoms? **Yes No**
If yes, do any of the sick employees include:
1. Food handlers? **Yes No**
2. Nurses? **Yes No**
   If yes did they have direct contact with any of the sick residents? **Yes No**
   What kind of direct contact?_____
3. Nurse Assistants? **Yes No**
   If yes, did they have direct contact with any of the sick residents? **Yes No** What kind of direct contact? _____

4. Laundry workers? **Yes No**
   If yes, what do they routinely wear as far as personal protective equipment?
   Gloves? **Yes No** Gown? **Yes No** Mask? **Yes No**

Distribute the employee questionnaire to all employees that would logically be related to the outbreak.

E. Do employees crossover from floor to floor for work assignments? **Yes No**

F. Is an ice machine being used that has a scoop? **Yes No**
Is the scoop kept in the ice? **Yes No**
Is a glove or plastic bag used to touch the scoop? **Yes No**