

APPENDIX A

Guidelines for Hand Hygiene

INTRODUCTION

In 2002, the CDC published the results of extensive handwashing studies, as well as new recommendations for cleansing hands. These recommendations are designed to improve hand hygiene practices of health care workers and to reduce transmission of pathogenic microorganisms to patients and personnel in health care settings. This guideline and its recommendations are not intended for use in food processing or food-service establishments, and are not meant to replace guidance provided by the FDA's Model Food Code.

As in previous CDC/HICPAC guidelines, each recommendation is categorized on the basis of existing scientific data, theoretical rationale, applicability, and economic impact. The CDC system for categorizing recommendations is:

Category IA. Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiologic studies.

Category IB. Strongly recommended for implementation and supported by certain experimental, clinical, or epidemiologic studies and a strong theoretical rationale.

Category IC. Required for implementation, as mandated by federal or state regulation or standard.

Category II. Suggested for implementation and supported by suggestive clinical or epidemiologic studies or a theoretical rationale.

No recommendation. Unresolved issue; practices for which insufficient evidence or no consensus regarding efficacy exist.

Safety ALERT

Avoid alcohol-based hand cleaners if the patient has infectious diarrhea or another condition potentially spread by spores. Wash well with antibacterial soap and water at the sink. ■

RECOMMENDATIONS

1. Indications for handwashing and hand antiseptics
 - When hands are visibly dirty or contaminated with proteinaceous material, or are visibly soiled with blood or other body fluids, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water (IA).
 - If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations described in items (IA).
 - Alternatively, wash hands with an antimicrobial soap and water in all clinical situations (IB).
 - Decontaminate hands before having direct contact with patients (IB).
 - Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter (IB).
 - Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure (IB).
 - Decontaminate hands after contact with a patient's intact skin (e.g., when taking a pulse or blood pressure, and lifting a patient) (IB).
 - Decontaminate hands after contact with body fluids or excretions, mucous membranes, nonintact skin, and wound dressings if hands are not visibly soiled (IA).
 - Decontaminate hands if moving from a contaminated-body site to a clean-body site during patient care (II).
 - Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient (II).
 - Decontaminate hands after removing gloves (IB).
 - Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water (IB).

- Antimicrobial-impregnated wipes (i.e., towelettes) may be considered as an alternative to washing hands with non-antimicrobial soap and water. Because they are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water for reducing bacterial counts on the hands of health care workers, they are not a substitute for using an alcohol-based hand rub or antimicrobial soap (IB).
 - Wash hands with non-antimicrobial soap and water or with antimicrobial soap and water if exposure to *Bacillus anthracis* is suspected or proven. The physical action of washing and rinsing hands under such circumstances is recommended because alcohols, chlorhexidine, iodophors, and other antiseptic agents have poor activity against spores (II).
 - No recommendation can be made regarding the routine use of nonalcohol-based hand rubs for hand hygiene in health-care settings. Unresolved issue.
- 2. Hand-hygiene technique**
- When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry (IB).
 - Follow the manufacturer’s recommendations regarding the volume of product to use.
 - When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet (IB).
 - Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis (IB).
 - Liquid, bar, leaflet, or powdered forms of plain soap are acceptable when washing hands with a non-antimicrobial soap and water. When bar soap is used, soap racks that facilitate drainage and small bars of soap should be used (II).
 - Multiple-use cloth towels of the hanging or roll type are not recommended for use in health-care settings (II).
- 3. Surgical hand antisepsis**
- Remove rings, watches, and bracelets before beginning the surgical hand scrub (II).
 - Remove debris from underneath fingernails using a nail cleaner under running water (II).
 - Surgical hand antisepsis, using either an antimicrobial soap or an alcohol-based hand rub with persistent activity, is recommended before donning sterile gloves when performing surgical procedures (IB).
 - When performing surgical hand antisepsis using an antimicrobial soap, scrub hands and forearms for the length of time recommended by the manufacturer, usually 2–6 minutes. Long scrub times (e.g., 10 minutes) are not necessary (IB).
 - When using an alcohol-based surgical hand-scrub product with persistent activity, follow the manufacturer’s instructions. Before applying the alcohol solution, prewash hands and forearms with a non-antimicrobial soap and dry hands and forearms completely. After application of the alcohol-based product as recommended, allow hands and forearms to dry thoroughly before donning sterile gloves (IB).
- 4. Other recommendations**
- Do not add soap to a partially empty soap dispenser. This practice of “topping off” dispensers can lead to bacterial contamination of soap (IA).
 - Provide workers with hand lotions or creams to minimize the occurrence of irritant contact dermatitis associated with hand antisepsis or handwashing (IA).
 - Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e.g., those in intensive care units or operating rooms) (IA).
 - Keep natural nails tips less than 1/4-inch long (II).
 - Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and nonintact skin could occur (IC).
 - Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients (IB).
 - Change gloves during patient care if moving from a contaminated body site to a clean body site (II).
 - No recommendation can be made regarding wearing rings in health-care settings. Unresolved issue.
 - Monitor workers’ adherence to recommended hand-hygiene practices and provide personnel with information regarding their performance (IA).
 - Encourage patients and their families to remind workers to decontaminate their hands (II).
 - Store supplies of alcohol-based hand rubs in cabinets or areas approved for flammable materials (IC).

APPENDIX **B**

Guidelines for Infection Control in Health Care Personnel

INTRODUCTION

Two agencies are responsible for establishing infection control guidelines and legislating the practices of workers in all health care facilities. The Occupational Safety and Health Administration (OSHA) is a section of the Department of Labor of the federal government. OSHA legislates the practices of employers to protect the well-being of the workers. OSHA oversees the safety and health of all employees, not just those in health care. The Centers for Disease Control and Prevention (CDC) is also a federal government agency. CDC has no power to legislate, but establishes guidelines and makes recommendations for the prevention of disease in health care facilities. These guidelines and recommendations set the standards for practice.

The information presented in Units 12 and 13 is based on the laws and guidelines of these two agencies. This appendix includes additional information on infection control that has been distributed by CDC. These guidelines apply to all settings: hospitals, long-term care facilities, the patient's home, clinics, and physicians' offices.

Responsibilities of the Health Care Employee

Your role as a health care worker requires that you:

- Participate in educational programs about the principles of infection control
- Report any infectious exposure or infectious disease that you may have to the proper person in your facility
- Follow the recommendations of your physician or health care provider and facility policies regarding your treatment for exposure or presence of disease
- Follow the guidelines and procedures established by the employer for the prevention of the spread of disease

PREVENTION OF INFECTIOUS DISEASE: IMMUNIZATIONS

Several immunizations are recommended by the U.S. Public Health Service's Advisory Committee on Immunization Practices. Individual states have regulations on the vaccination of health care workers. Screening tests are available to determine susceptibility to certain diseases (hepatitis B, measles, mumps, rubella, and varicella [chicken pox]). Your employer may require that you be tested. Additional diseases are listed below for which vaccines are available for health care workers in special circumstances.

Name: BCG vaccine (for tuberculosis)

Primary/booster dose schedule: One dose, no booster dose recommended.

Indications: Health care workers in communities where drug-resistant TB is prevalent, a strong likelihood of infection exists, and full implementation of TB infection control precautions has been inadequate in controlling the spread of infection.

Major precautions: Immunocompromised state and pregnancy.

Special considerations: TB control efforts are directed toward early identification and treatment of cases of active TB and toward preventive therapy for converters.

Name: Hepatitis A vaccine

Primary/booster dose schedule: Two doses of vaccine either 6–12 months apart or 6 months apart (depending on type of vaccine).

Indications: Recommended only for employees who work with the virus in a laboratory setting.

Major precautions: Contraindicated if history of allergic reaction to preservatives in vaccine, pregnancy.

Special considerations: Health care workers who travel internationally to certain areas should be evaluated for vaccination.

Name: Meningococcal polysaccharide vaccine

Primary/booster dose schedule: One dose; need for boosters is unknown.

Indications: Not routinely indicated for health care workers in the United States.

Major precautions: Vaccine safety in pregnant women has not been evaluated.

Special considerations: May be useful in certain outbreak situations.

Name: Polio vaccine

Primary/booster dose schedule: Two doses given 4–8 weeks apart followed by third dose 6–12 months after second dose.

Indications: Health care workers in close contact with persons who may be excreting virus and laboratory personnel who may be exposed to the virus.

Major precautions: Allergic reaction after receiving streptomycin or neomycin, pregnancy.

Special considerations: Use only inactivated polio vaccine for immunocompromised persons or workers who care for these patients.

Name: Rabies vaccine

Primary/booster dose schedule: Two different vaccines are given one each on days 0, 7, 21, or 28. Booster doses based on frequency of exposure.

Indications: Workers in contact with rabies virus or with infected animals in diagnostic or research activities.

Major precautions: None.

Special considerations: None.

Name: Tetanus and diphtheria (Td)

Primary/booster dose schedule: Two doses 4 weeks apart, third dose 6–12 months after second dose, booster every 10 years.

Indications: All adults, tetanus prophylaxis in wound management.

Major precautions: First trimester of pregnancy, history of neurological reaction or allergic reaction or severe local reaction.

Special considerations: None.

Name: Typhoid vaccine

Primary/booster dose schedule: One dose; booster doses depend on route of administration and rate of exposure.

Indications: Workers in laboratories who frequently work with *Salmonella typhi*.

Major precautions: History of severe local or systemic reaction; certain types of the vaccine should not be given to immunocompromised persons.

Special considerations: Vaccine should not be considered as an alternative to proper procedures.

Name: Vaccinia vaccine (smallpox)

Primary/booster dose schedule: One dose; boosters every 10 years.

Indications: Laboratory workers who work with animals or cultures with these viruses.

Major precautions: Pregnancy, presence or history of eczema, immunocompromised persons.

Special considerations: Vaccine may be considered for health care workers who have direct contact with contaminated dressings or other infectious material from volunteers in clinical studies involving the virus.

Postexposure Prophylaxis

Postexposure prophylaxis refers to actions that are taken after an employee is exposed to an infectious disease while working in the health care setting. The purpose of these measures is to prevent further transmission of infection. Postexposure prophylaxis through antibiotics or vaccines may be required for these diseases: diphtheria, hepatitis A, hepatitis B, HIV, meningococcal disease, pertussis (whooping cough), rabies, and varicella-zoster virus. Work restrictions may be imposed on an employee after exposure or infection with infectious disease. Decisions on work restrictions are based on how the disease is transmitted and the epidemiology of the disease. Work restrictions may include any or all of these restrictions:

- Patient contact
- Contact with patient's environment
- Food-handling
- Care of high-risk patients
- Care of infants, newborns
- Immunocompromised patients and their environments
- Performance of invasive procedures
- Exclude from duty (exclusion from the health care facility and from any health care activities outside the facility, no contact with susceptible persons in facility or in the community)
- Exposure or infection with any of these diseases may require work restrictions:
 - conjunctivitis (eye infection)
 - hepatitis A
 - hepatitis B
 - hepatitis C
 - herpes simplex
 - human immunodeficiency virus (HIV)
 - measles

- rubella
- streptococcal infection group A
- *Varicella zoster*
- cytomegalovirus infections
- diarrhea
- diphtheria
- enteroviral infections
- meningococcal infections
- mumps
- pediculosis (lice)
- pertussis
- scabies
- tuberculosis
- viral respiratory infections

Health Counseling

Health care workers should receive counseling regarding:

- The risk and prevention of infections acquired while working
- The risk of illness or other problems after exposure to infectious disease
- Actions to take after exposure to infectious disease, including postexposure prophylaxis procedures
- Possible consequences of exposure or diseases for family members, patients, and other workers both inside and outside the health care facility

Records

Employers must maintain records for all employees regarding medical evaluations, immunizations, exposures, postexposure prophylaxis, screening tests, and exposure to bloodborne pathogens. Employees have the right to review these records and to expect that all information in the file will be kept confidential. Information cannot be disclosed or reported without the written consent of the employee to any person within or outside the work place except as required by law.

INFECTIONS/INFECTIOUS DISEASES

Several infectious diseases are described in this section in addition to those included in the text. Remember that standard precautions are followed with *all patients*. Isolation precautions may also be required. Follow your employer's procedures and policies. Anyone exposed to any of these diseases should report this fact to the proper facility authority before going to work. Work restrictions may be imposed, depending on the disease.

Conjunctivitis

Conjunctivitis (pink eye) is an infection of the clear membrane that covers the front of the eye and the inside of the eyelid. It may be caused by either bacteria or a virus. The eye is inflamed and there may be a purulent discharge. Contaminated hands are a major source of transmission. Handwashing, glove use, and disinfection of instruments can prevent transmission.

Cytomegalovirus

Cytomegalovirus (CMV) may be found in health care institutions, in infants and young children infected with the virus, and in immunocompromised patients such as persons with AIDS. The disease is transmitted through close, intimate contact, through contact with secretions or excretions like saliva or urine, or through the hands.

Diphtheria

Diphtheria is currently a rare disease in the United States, because immunizations are given during infancy. It is caused by bacteria, affects the lining of the throat, and is highly contagious. The disease is transmitted by contact with respiratory droplets or contact with skin lesions of infected patients.

Acute Gastrointestinal Infections

Infections of the gastrointestinal tract may be caused by bacteria, virus, or protozoa. Symptoms include vomiting, diarrhea, or both, with or without fever, nausea, and abdominal pain. The microorganisms are transmitted through contact with infected individuals, from consuming contaminated food, water, or other beverages. The most common gastrointestinal infection is that caused by salmonella.

Herpes Simplex

The herpes simplex virus causes infections of the fingers and around the mouth (cold sores). The virus also causes genital herpes. There have been no reports that workers with genital herpes have transmitted the disease to patients. Transmission occurs through contact with lesions or secretions such as saliva, vaginal secretions, or amniotic fluid. Exposed areas of the skin are the most likely sites of infection, especially when cuts, abrasions, or other skin lesions are present.

Measles

Measles is caused by a virus and is characterized by a rash on the body and fever. It is highly contagious. Measles is transmitted by large droplets during close contact with infected persons and by the airborne route. Workers born after 1957 should be considered immune to measles if

they have had physician-diagnosed measles or appropriate vaccine on or after their first birthday, or have been proven immune through testing. Persons born and immunized between 1957 and 1984 were given only one dose of vaccine during infancy and may require a second dose. Persons born before 1957 are generally considered to be immune.

Meningococcal Disease

Transmission of meningococcal disease occurs through droplets during contact with respiratory secretions or through handling laboratory specimens. Transmission in health care settings is uncommon.

Mumps

Mumps (infection of parotid glands) is caused by a virus and is transmitted by droplets through contact with respiratory secretions, including saliva. Vaccination prevents mumps transmission. Workers are considered immune if they have had physician-diagnosed mumps, appropriate vaccination after their first birthday, or have been proven immune through testing. Persons born before 1957 may be considered immune.

Parvovirus

Parvovirus is the cause of erythema infectiosum (Fifth disease), a common rash illness that is usually acquired during childhood. The virus is transmitted through contact with infected persons, fomites, or large droplets. Transmission to workers from infected patients appears to be rare.

Pertussis

Pertussis (whooping cough) is caused by a bacteria and is highly contagious. Symptoms include cough, mild fever, and loss of appetite. Transmission occurs by contact with respiratory secretions or large droplets from the respiratory tracts of infected persons.

Poliomyelitis

The last cases of acquired poliomyelitis were reported in 1979. Poliomyelitis is caused by a virus and is transmitted through contact with feces or urine of infected persons, but can be spread by contact with respiratory secretions and in rare cases, through feces.

Rabies

Human rabies occurs primarily from exposure to rabid animals. Theoretically, rabies may be transmitted to health care workers from exposures to saliva from infected patients, but no cases have been documented to prove this.

Rubella

Rubella (three-day measles) is characterized by a rash and is transmitted by contact with droplets from the nose and throat of infected persons. Rubella is usually a mild disease but can cause congenital defects in the fetus of a pregnant woman. Persons are considered susceptible to rubella if they have not had appropriate immunization or if laboratory tests do not give evidence of immunity.

Scabies and Pediculosis

Scabies is caused by a mite that burrows into the skin, leaving “tracks.” This results in intense itching. Scabies is easily transmitted through skin-to-skin contact. The disease is treated with applications of topical creams or lotions (scabicides).

Pediculosis (lice) may infest the human body, the human head, or the pubic area. Head lice are transmitted by head-to-head contact with infested fomites such as combs or brushes. Body lice are usually associated with poor personal hygiene and unclean environments and are transmitted by contact with the skin or clothing of an infested person. Pubic lice can also be found in the axilla, eyelashes, or eyebrows. Transmission is primarily through intimate or sexual contact.

Staphylococcus aureus

Staphylococcus aureus (staph) is a common bacterium that can cause infections in the skin, the lungs, the blood, and the urinary bladder. Food poisoning is frequently caused by staph. The major sources of staph are infected and colonized patients. A colonized patient is one who harbors the microorganism but has no symptoms. The most common sites are the nose, hands, axilla, perineum, and throat. Transmission of the bacteria usually occurs through the hands of workers, which can become contaminated by contact with colonized or infected body sites of patients. Staph infections are treated with antibiotics. In the last few years staph microorganisms have become resistant to many antibiotics. Methicillin-resistant *Staphylococcus aureus* (MRSA) is an example. Infection with a resistant microorganism can be a dangerous situation for patients who are already at risk for infections. In the past, spread of MRSA was limited to health care facilities. This is no longer true. It can be contracted in the community and is often mistaken for a spider bite. Schools, prisons, and locker rooms of private gyms have experienced outbreaks.

Streptococcus, Group A

Group A *Streptococcus* (GAS) can cause infections in the throat (strep throat), the skin, the blood, and other body organs. GAS can be transmitted from patients to health care workers after contact with infected secretions.

Vaccinia

The World Health Organization (WHO) declared the world free of smallpox in 1980. The smallpox vaccine is still available in the United States. Laboratory workers who are in contact with certain viruses need to be vaccinated every 10 years. Susceptible persons may acquire vaccinia from a recently vaccinated person through contact with the vaccination site for 2–21 days after vaccination. This can be prevented by covering the site and by thorough handwashing after contact with the site.

Varicella

Varicella (chickenpox) is caused by a virus and is characterized by blister-like skin lesions. Herpes zoster (shingles) is caused by the same microorganism. Herpes zoster occurs in persons who have had chickenpox. The virus lies dormant in the body and later erupts in the form of shingles. The virus is transmitted by contact with infected lesions, but in health care facilities, airborne transmission has occurred from patients with chickenpox or shingles to susceptible persons who had no direct contact with the infected patient. Tests are available for determining a person's immunity to varicella. A vaccine was licensed for use in 1995.

Viral Respiratory Infections

Included in this group of infections are influenza and respiratory syncytial virus (RSV). There are several different viruses that can cause respiratory infections. Transmission is by person-to-person contact with an infected individual and by droplet. This may be from patients to workers, from workers to patients, and between workers. Visitors may also be a source of infection. Persons at risk for complications include the elderly, residents of long-term care facilities, persons with chronic lung or heart problems, and persons with diabetes. Influenza vaccine given to health care workers before the beginning of the flu season can help reduce the risk of infection.

PREGNANT HEALTH CARE WORKERS

Pregnant health care workers are generally no more and no less at risk for acquiring work-related infections than are other workers. However, infections are of special concern to female health care workers of childbearing age, for several reasons. Some infections may be more severe during pregnancy and some infections may affect the fetus. Women of childbearing age are strongly encouraged to receive immunizations for vaccine-preventable diseases before they become pregnant.

LATEX HYPERSENSITIVITY

Health care workers are at risk for developing latex allergy because they frequently use latex gloves. Many of the products used in patient care contain latex, as do many household and personal items. Persons who have hay fever, hand dermatitis, and food allergies (to foods such as bananas, avocados, kiwi fruits, and chestnuts) are at increased risk of latex allergy. The amount and type of exposure needed to cause latex sensitivity is not known, although it is believed that wearing latex gloves when a rash is present on the hands increases the risk. A skin rash is often the first sign that a worker is becoming sensitive to latex. Some of the most common items that may contain latex are listed in Table B-1. Table B-2 is a more complete listing of items found in a health care facility that may contain latex.

Three types of reactions can occur in persons who use latex products:

- Irritant contact dermatitis or contact dermatitis—the development of dry, itchy, irritated areas on the skin, usually the hands. However, this problem may have many other causes as well, so one should not assume that a latex sensitivity is present without further diagnostic testing. *Irritant contact dermatitis is not a true allergy.*
- Allergic contact dermatitis (delayed hypersensitivity)—this is a sensitivity to the chemicals used during the manufacturing process. The reaction is similar to the symptoms of poison ivy.
- Latex allergy is a serious reaction to latex. This type of allergy is diagnosed with a blood or skin test. Even low exposure to latex can cause sensitive individuals to react. Reactions usually begin shortly after exposure to latex, but they can occur hours later. Mild reactions cause hives, itching, and skin redness. More severe reactions include respiratory symptoms, including runny nose, sneezing, itchy eyes, difficulty breathing, and wheezing. Shock is the most severe reaction. This type of shock is similar to that experienced by persons who are allergic to bee stings.

Preventing Latex Allergy

Many health care facilities have latex-free carts. Some facilities are becoming completely latex-free. Health care workers should take the following steps to protect themselves from latex exposure and allergy in the workplace:

1. Use nonlatex gloves for activities that are not likely to involve contact with infectious materials (food preparation, routine housekeeping, maintenance, etc.). If latex gloves are used, avoid powdered gloves, which increase sensitivity through inhalation of latex proteins when gloves are removed.
2. Barrier protection is necessary when handling known or potentially infectious materials. If you use latex

TABLE B-1 COMMON ITEMS THAT MAY CONTAIN LATEX

This list is for example only and is not all-inclusive
(For additional information see <http://www.niosh.gov>)

Emergency Equipment	Hospital Supplies
Blood pressure cuffs	Anesthesia masks
Stethoscopes	Catheters
Disposable gloves	Wound drains
Oral and nasal airways	Injection ports
Endotracheal tubes	Rubber tops of multi-dose vials
Tourniquets	Dental dams
Intravenous tubing	
Syringes	Household Objects
Electrode pads	Automobile tires
	Motorcycle and bicycle handgrips
Personal Protective Equipment	Carpeting
Gloves	Swimming goggles
Surgical masks	Racquet handles
Goggles	Shoe soles
Respirators	Expandable fabric (waistbands)
Rubber aprons	Dishwashing gloves
Office Supplies	Hot water bottles
Rubber bands	Condoms
Erasers	Diaphragms
	Balloons
	Pacifiers
	Baby bottle nipples
	Underwear (elastic in legs and waist)

gloves, use powder-free gloves. Hypoallergenic latex gloves do not reduce the risk of latex allergy. However, they may reduce reactions to chemical additives in the latex (allergic contact dermatitis). Cloth stethoscope covers provide an excellent barrier against latex exposure, but can be a potential source of contamination to patients. Make sure your stethoscope cover is laundered regularly to reduce the potential risk of transmission.

3. Avoid oil-based hand creams or lotions (which can cause glove deterioration) unless they have been shown to reduce latex-related problems and maintain glove barrier protection.
4. After removing latex gloves, wash your hands with a mild soap and dry them thoroughly.

5. Attend educational classes about latex exposure provided by your employer.
6. Become familiar with procedures for preventing latex allergy.
7. Learn to recognize the symptoms of latex allergy: skin rashes; hives; flushing; itching; nasal, eye, or sinus symptoms; asthma; and shock.
8. If you develop symptoms of latex allergy, avoid direct contact with latex gloves and other latex-containing products until you can see a physician experienced in treating latex allergy.
9. If you have latex allergy, consult your physician regarding precautions to use, such as:
 - avoiding contact with latex gloves and other latex-containing products
 - avoiding areas where you might inhale the powder from latex gloves worn by other workers
 - informing your employer and your health care providers (physicians, nurses, dentists, etc.) that you have latex allergy
 - wearing a medical alert bracelet
10. Carefully follow your physician's instructions for dealing with allergic reactions to latex.

AMERICANS WITH DISABILITIES ACT

The Americans with Disabilities Act affects infection control policies for health care workers as well as other disabilities. An employer can evaluate applicants for their qualifications to perform the tasks required of the job for which they are being considered. The applicant may be asked about the ability to perform specific job functions but may not be asked about the existence, nature, or severity of a disability. Applicants with certain communicable diseases who are otherwise qualified for the job may justifiably be denied employment until they are no longer infectious.

INFECTION CONTROL PRACTICES

Unit 13 in the text describes the measures that are used to prevent the spread of infection. Remember that *standard precautions are used for all patients*. Special precautions are implemented when a patient has a known infectious disease. These precautions are based on the means by which the disease is transmitted. In addition to contact transmission, droplet transmission, and airborne transmission, there is common-vehicle transmission (microorganisms transmitted by contaminated items such as food, water, medications, devices, and equipment) and vectorborne transmission (occurs when vectors such as mosquitoes, flies, rats, and other vermin transmit microorganisms).

TABLE B-2 COMMON ITEMS IN THE HEALTH CARE FACILITY THAT CONTAIN LATEX

Note: This list is not all-inclusive.

Adhesives, skin	Dyna-flex, butterfly closures (J&J)	bags, pumps, buretrol ports, PRN adapters, needleless systems
Anesthesia circuits, bags, oxygen masks	Lyoflex (Acme)	IV ports or syringes
Band-Aids	Metallene	Mattresses, therapeutic
Blood pressure cuff, tubing	Montgomery strap (J&J)	Medication vial stoppers
Bulb syringe	Opraflex (Lohmann)	Penrose drains
Catheters:	Opsite	Plastic bandage strips
cardiac	PinCare (Hollister)	Pulse oximeters
condom	Reston foam (3M)	Reflex hammers
coude	Selopor	Respirators
feeding	Spandage (Medi-tech)	Resuscitators, manual
indwelling	Venigard	Shoe covers
pulmonary	Webril (Kendall)	Spacer (for metered dose inhalers)
straight	Xerofoam (Sherwood)	Sphygmomanometer (blood pressure cuff)
systems		Stethoscope tubing
vascular		Storage bags, zippered plastic
CPR manikins and medical training aids		Suction tubing
Crutch tips, axillary pads, hand grips	Elastic on underwear, socks, clothing	Syringes, disposable
Dental braces with rubber bands	Elastic wrap: ACE, Dyna-flex, Elastikon (J&J)	Tapes:
Diapers, rubber pants	Electrode bulbs, pads, grounding	adhesive felt (Acme)
Dressings:	Enemas, ready-to-use (Fleet Pediatric and Mineral Oil have latex valve, but will soon change)	cloth
Action Wrap	Foods handled with latex gloves	moleskin
Airstrips (some)	G-tubes, buttons	pink
BDF Elastoplast	Gloves: clean, orthodontic, sterile, surgical	Waterproof (3M, J&J)
Bioclusive	ID bracelets	Zonas
Centurion brief	Incentive deep breathing exerciser	Tourniquets
Coban (3M)	IV access: injection ports, Y-sites,	Theraband (also strip, tube), other OT supplies
Comfeel (Coloplast)		Thermometer probes
Duoderm (Squibb)		Vascular stockings (Jobst)
		Wheelchair cushions, tires



Note: latex in package only: Active Strips (3M), CURAD, Nu-Derm (J&J), Steri-strip wound closure system, Tegaderm, Tegaserb

The fundamentals of infectious disease prevention include: handwashing, gloving, patient placement, transport of infected patients, use of personal protective equipment, correct handling of equipment, supplies, and linens. These procedures are explained in Unit 13.

MEASURING BLOOD PRESSURE (ONE-STEP PROCEDURE)

Note: The one-step blood pressure procedure is provided here for schools that teach this method. The guidelines and reportable values for this procedure vary slightly from state to state, and from one facility to the next.

Your instructor will inform you if the guidelines or reportable values in your state or facility differ from those listed here. Know and follow the required guidelines for your state.

1. Assemble equipment:
 - Sphygmomanometer (blood pressure cuff)
 - Stethoscope
 - Alcohol sponges
 - Notepad
 - Pen
2. Wipe the earpieces and diaphragm of the stethoscope with alcohol pads.
3. Carry out initial procedure actions. The patient may be lying down or seated in a chair for this procedure.

4. Push the sleeve up at least 5 inches above the elbow.
5. Extend the patient's arm and rest it on the arm of the chair, the bed, or the patient's lap, with the palm upward.
6. Unroll the cuff and open the valve on the bulb. Squeeze the cuff to deflate the cuff completely.
7. Locate the brachial artery, on the thumb side of the inner elbow, by palpating with two or three fingers.
8. Wrap the cuff snugly around the arm, centering the bladder over the brachial artery. The cuff should be 1 inch above the artery in the antecubital space, in front of the elbow.
9. Position the gauge so you can see the numbers clearly.
10. Confirm the location of the brachial artery.
11. Place the earpieces of the stethoscope in your ears. Position the diaphragm of the stethoscope over the brachial artery. The diaphragm should not be touching the blood pressure cuff. Hold the diaphragm in place with the fingers of your nondominant hand.
12. With your dominant hand, tighten the thumbscrew on the valve (turn clockwise) to close it. Do not tighten it so much that you will have difficulty releasing it.
13. Pump the bulb to inflate the cuff until the gauge reaches 160, or according to facility policy.
14. Slowly open the valve by turning the thumbscrew counterclockwise. Allow the air to escape slowly.
15. Listen for the sound of the pulse in the stethoscope. A few seconds will pass without sound. If you hear pulse sounds immediately, deflate the cuff. Wait a minute, then repeat the procedure, this time inflating the cuff to 200.
16. Note the number on the gauge when you hear the first sound. This is the systolic blood pressure.
17. Continue listening as the air escapes slowly from the cuff. You will hear a continuous pulse sound. Note the number on the gauge when the sounds disappear completely. This is the diastolic blood pressure.
18. After the sounds disappear completely, open the thumbscrew completely to deflate the cuff.
19. Remove the stethoscope from your ears.
20. Remove the cuff from the patient's arm.
21. Record the blood pressure on your notepad. Blood pressure is recorded as a fraction, with the systolic reading first, followed by the diastolic reading, such as 120/80.
22. Roll the blood pressure cuff over the gauge and return it to the case.
23. Wipe the earpieces and diaphragm of the stethoscope with an alcohol sponge. If the stethoscope tubing has contacted the bed linen or the patient, wipe it as well.
24. Perform ending procedure actions.
25. Report blood pressures over 140/90 or under 100/60 to the nurse immediately, or according to facility policy.

Body Mass Index Table

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Height (in inches)																						Weight (in pounds)
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198
60	87	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240
66	118	124	130	135	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255
68	125	131	138	144	151	158	164	171	177	184	190	197	204	210	216	223	230	236	243	249	256	262
69	128	135	142	149	155	162	169	176	182	189	196	203	210	216	223	230	236	243	250	257	263	270
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328

Body Mass Index Table

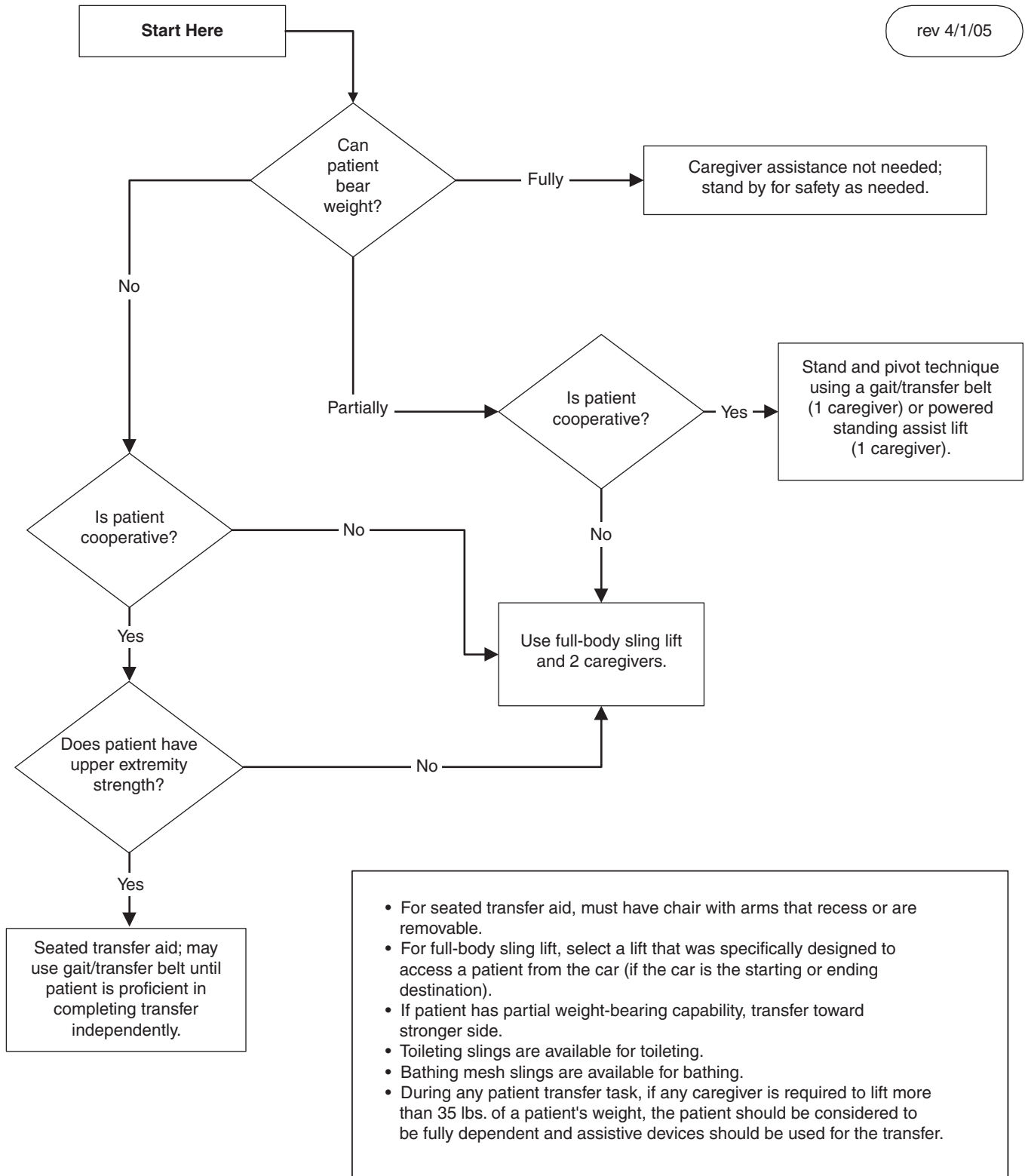
BMI	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Height (in inches)													Weight (in pounds)	
58	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	336	344	353	361	369	377	385	394	402	410	418	426	435	443

APPENDIX **C**

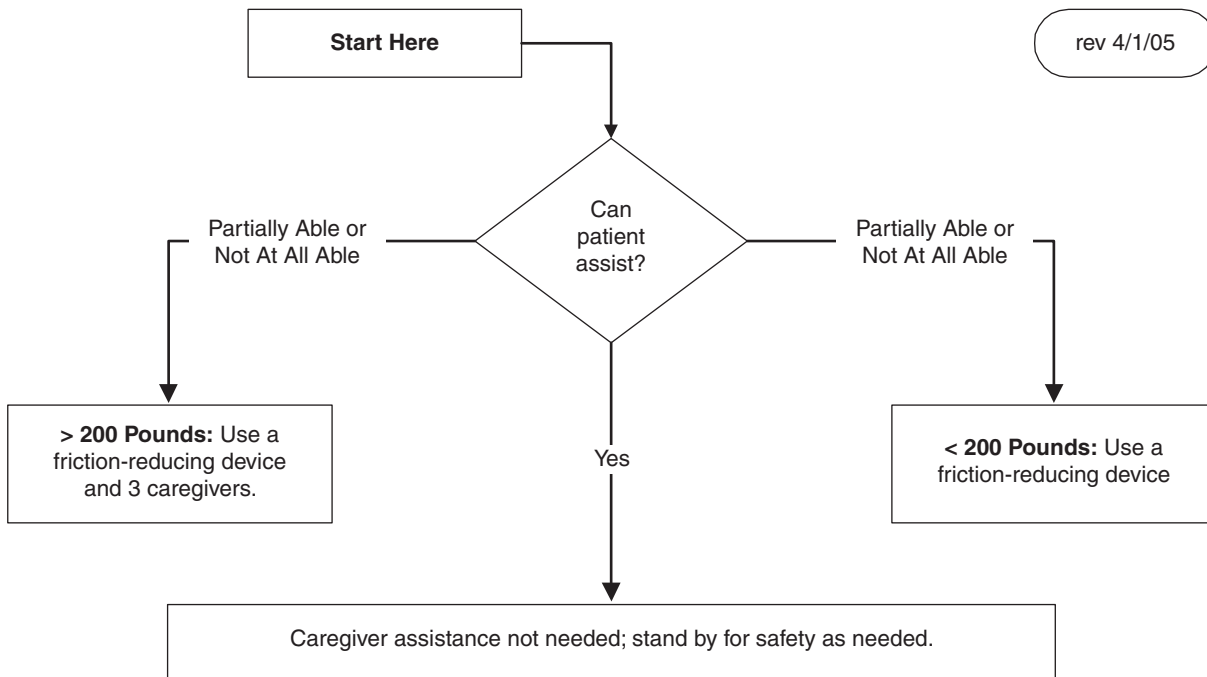
OSHA Algorithms for Safe Patient Handling and Movement for Patients of Normal Weight

Source: Courtesy of Occupational Safety and Health Administration (OSHA) and VISN 8 Patient Safety Center, Tampa, FL Created by: Audrey Nelson, PhD, RN, FAAN

Algorithm 1: Transfer to and from: Bed to Chair, Chair to Toilet, Chair to Chair, or Car to Chair



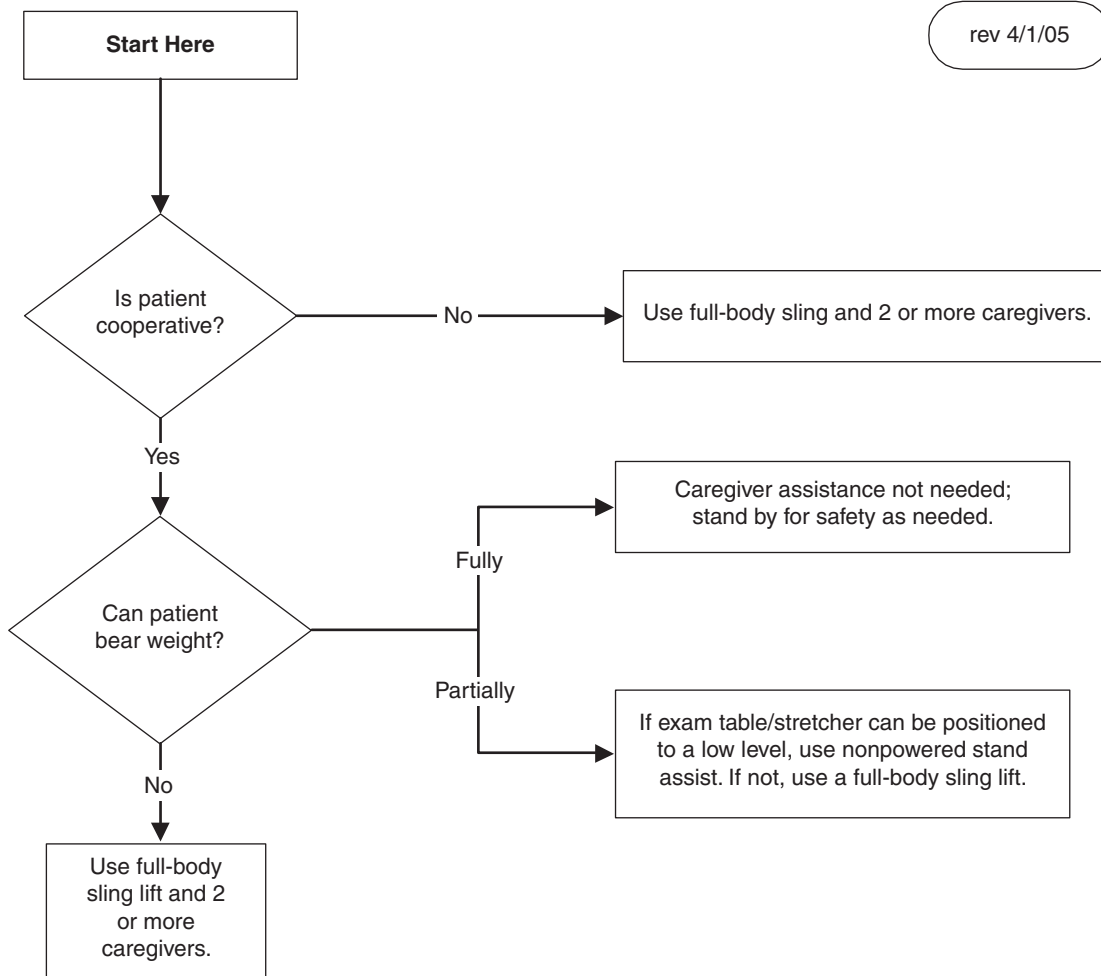
Algorithm 2: Lateral Transfer to and from: Bed to Stretcher, Trolley



rev 4/1/05

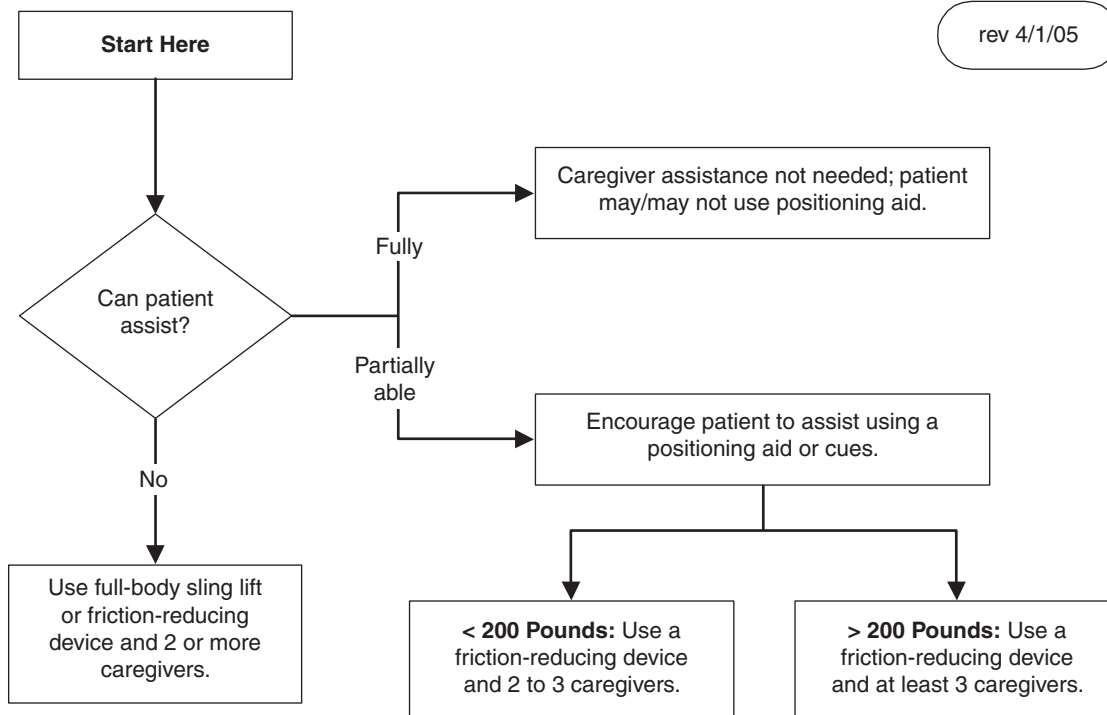
- Destination surface should be 1/2 inch lower for all lateral patient moves.
- For patients with stage 3 or 4 pressure ulcers, care must be taken to avoid shearing force.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Algorithm 3: Transfer to and from: Chair to Stretcher, Chair to Exam Table



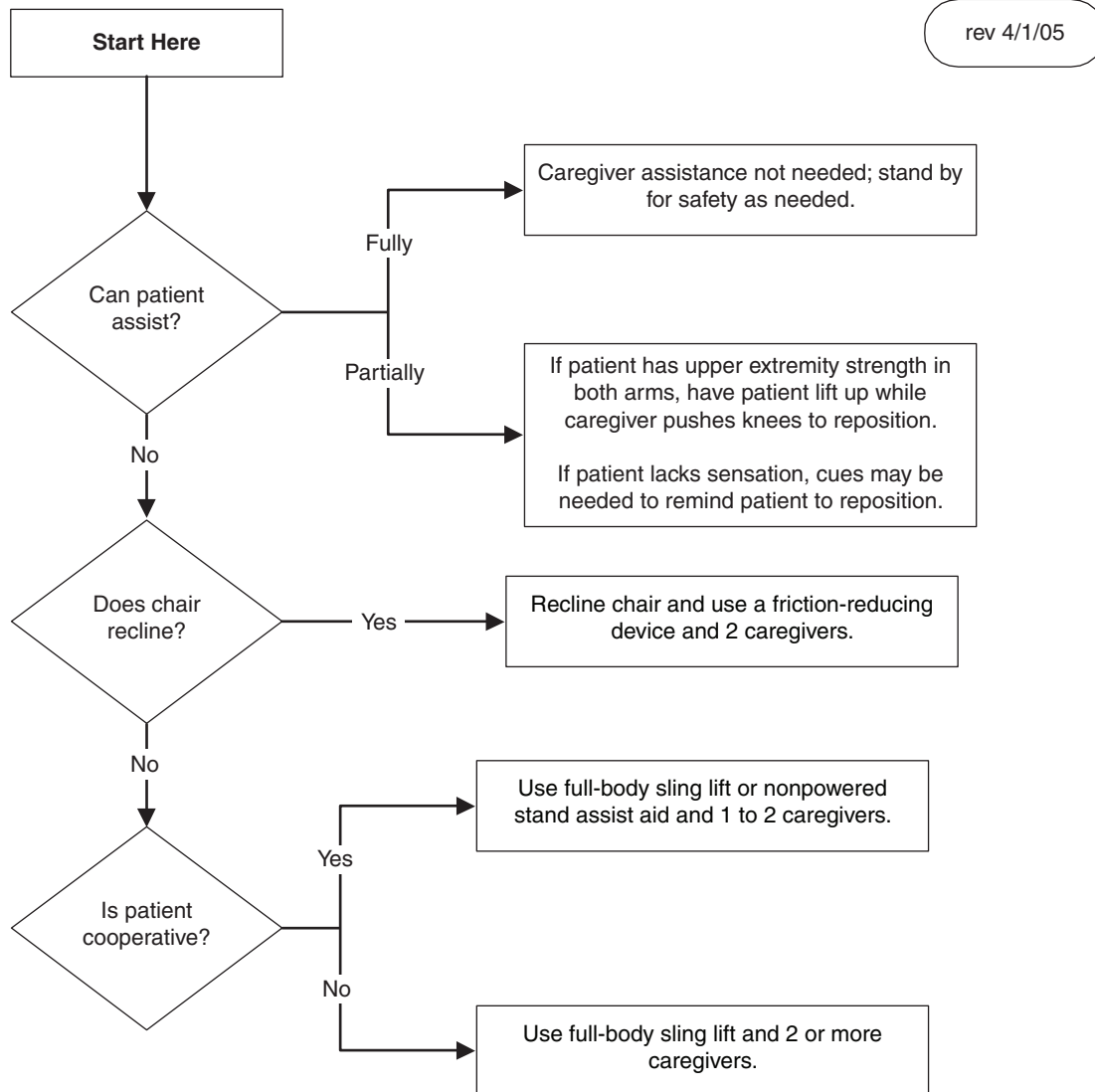
- High/low exam tables and stretches would be ideal.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Algorithm 4: Reposition in Bed: Side-to-Side, Up in Bed



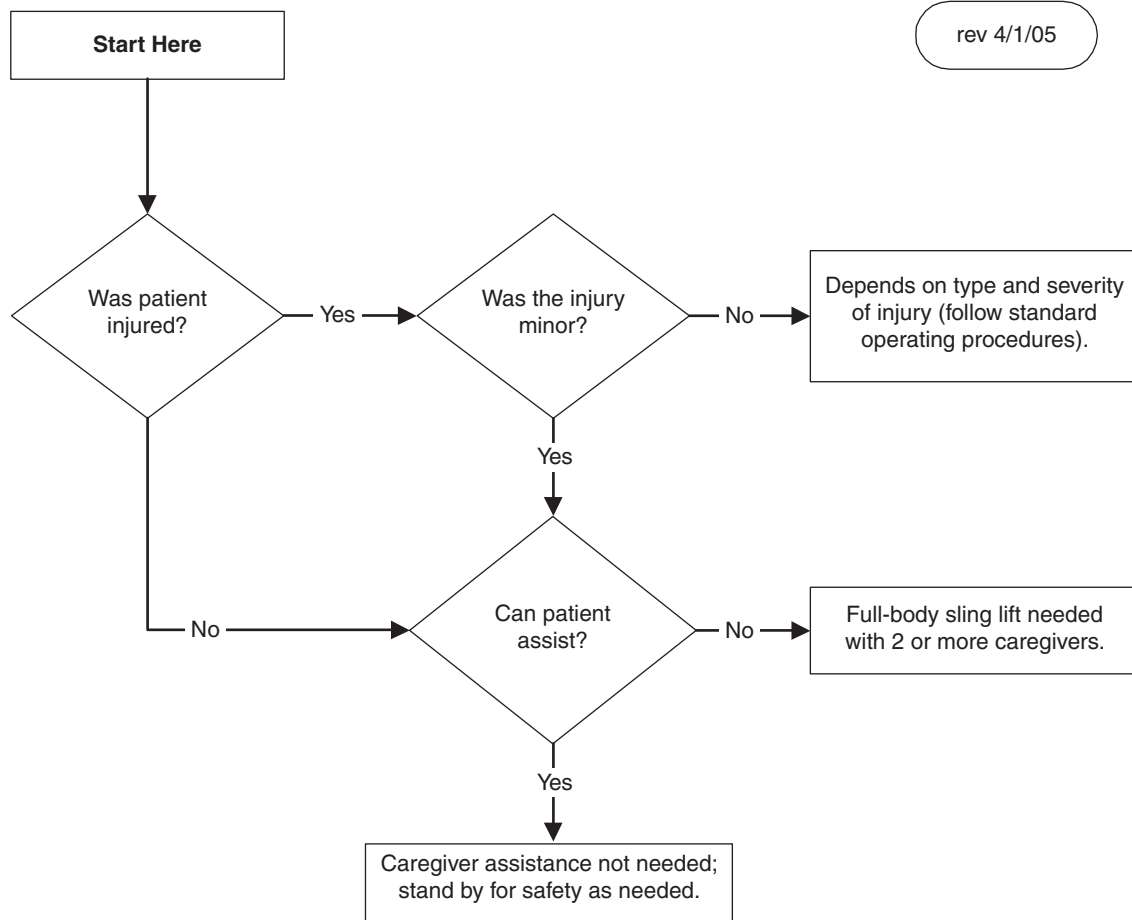
- This is not a one-person task: DO NOT PULL FROM HEAD OF BED.
- When pulling a patient up in bed, the bed should be flat or in a Trendelenburg position to aid with gravity, with the side rail down.
- For patients with stage 3 or 4 pressure ulcers, care should be taken to avoid shearing force.
- The height of the bed should be appropriate for staff safety (at the elbows).
- If patient can assist when repositioning "up in bed," ask patient to flex the knees and push on the count of three.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Algorithm 5: Reposition in Chair: Wheelchair and Dependency Chair



- Take full advantage of chair functions (e.g., chair that reclines), or use arm rest of chair to facilitate repositioning.
- Make sure the chair wheels are locked.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Algorithm 6: Transfer Patient up from the Floor



rev 4/1/05

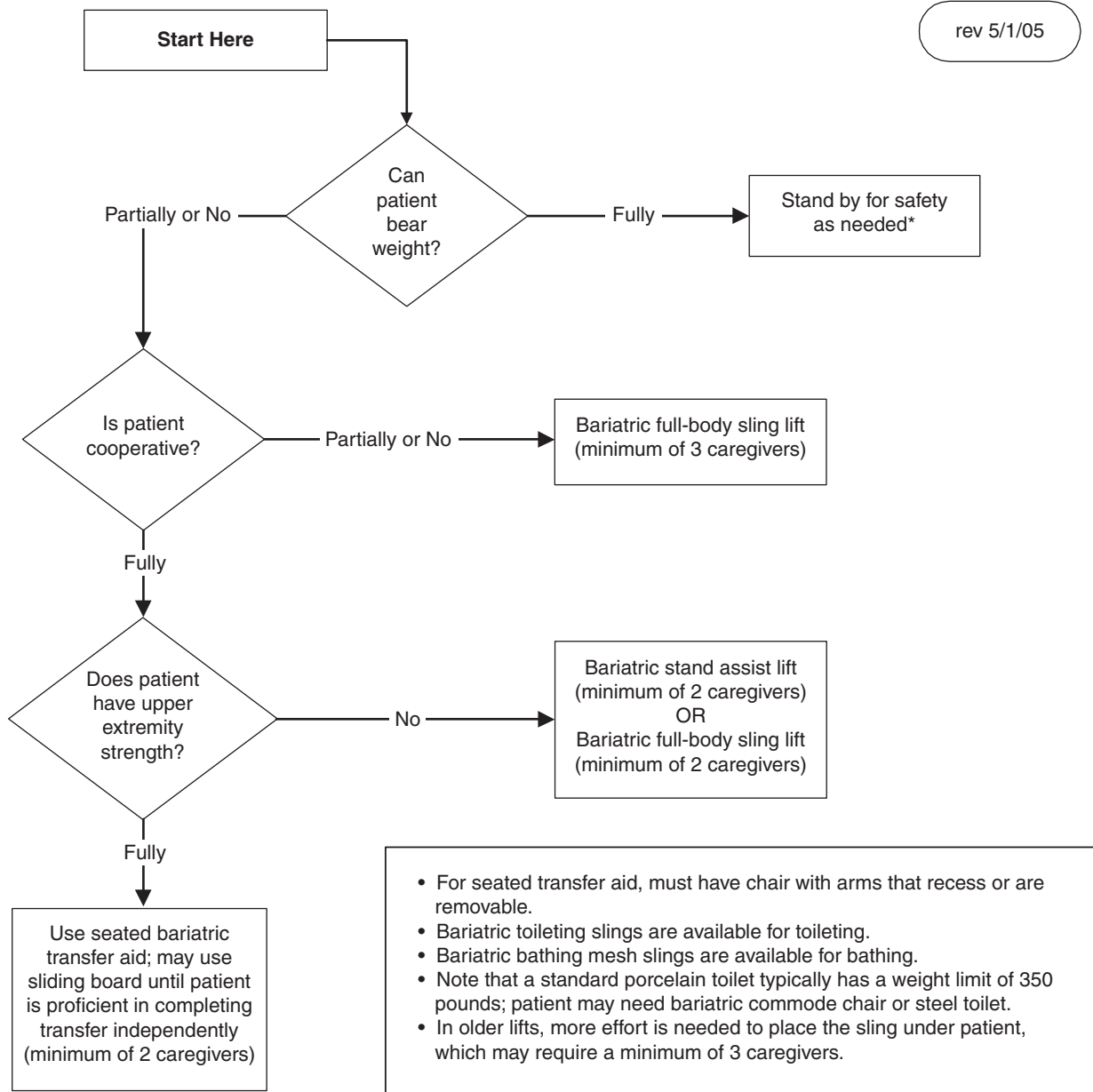
- Use full-body sling that goes all the way down to the floor (most newer models are capable of this).
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

APPENDIX **D**

OSHA Algorithms for Safe Patient Handling and Movement for Bariatric Patients

Source: Courtesy of Occupational Safety and Health Administration (OSHA) and VISN 8 Patient Safety Center, Tampa, FL Created by: Audrey Nelson, PhD, RN, FAAN

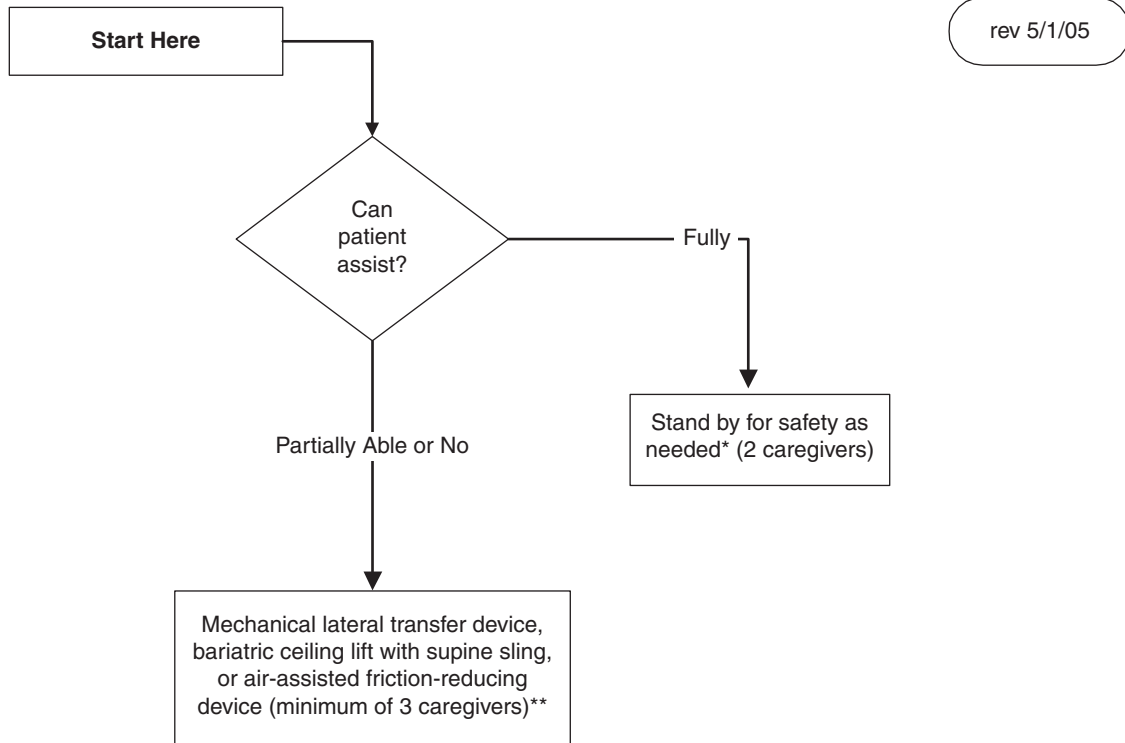
Bariatric Algorithm 1: Bariatric Transfer to and from: Bed/Chair, Chair/Toilet, or Chair/Chair



* "Stand by for safety." In most cases, if a bariatric patient is about to fall, there is very little the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor, and seek assistance as needed once the person has fallen.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if patient's abdomen impairs a patient-handling task.
- Ensure that equipment used meets weight requirements. Standard equipment is generally limited to 250–350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capacity) and a space for the manufacturer's rated weight capacity for that particular equipment model.
- Identify a leader when performing tasks with multiple caregivers. This will ensure that the task is synchronized for increased safety of care providers and patient.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

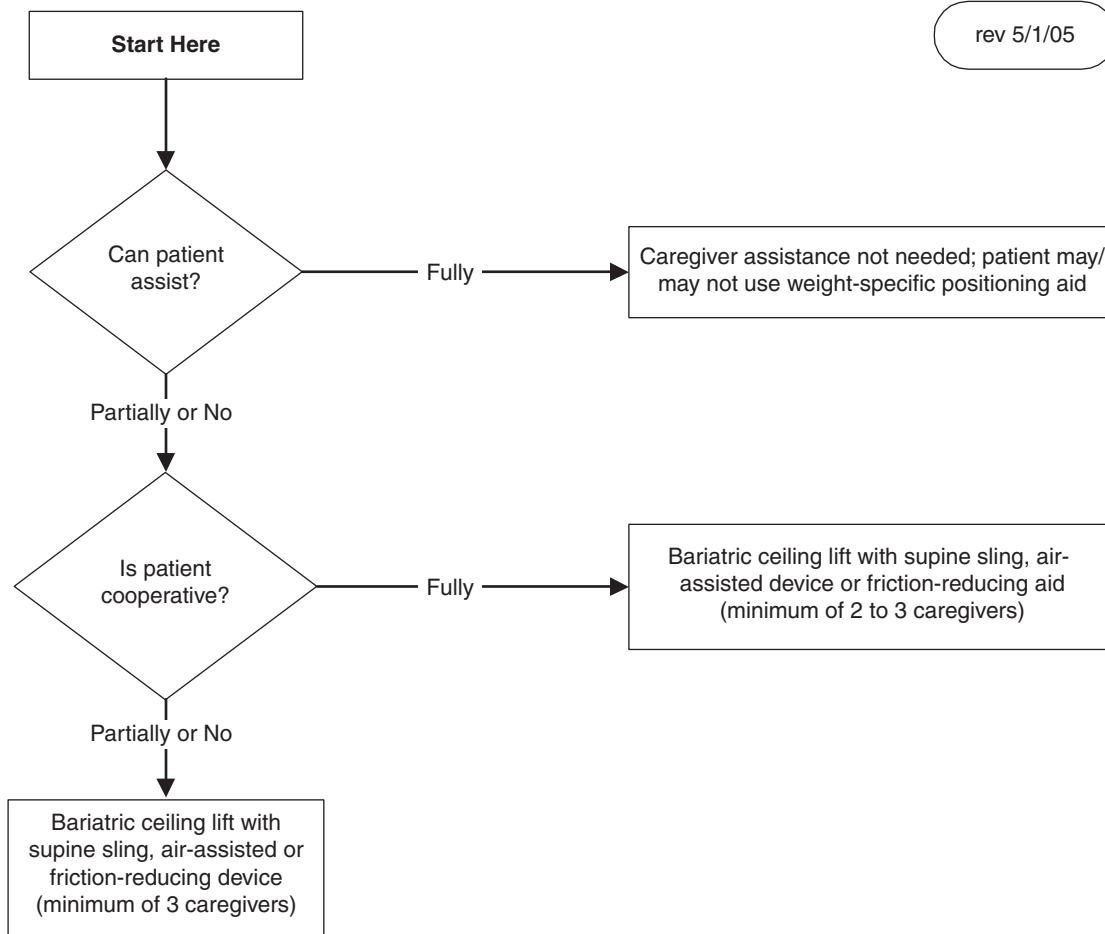
Bariatric Algorithm 2: Bariatric Lateral Transfer to and from: Bed/Stretcher, Trolley



- The destination surface should be about 1/2" lower for all lateral patient moves.
 - Avoid shearing force.
 - Make sure bed is the right width, so excessive reaching by caregiver is not required.
 - Lateral transfers should not be used with specialty beds that interfere with the transfer. In this case, use a bariatric ceiling lift with supine sling.
 - Ensure that bed or stretcher does not move with weight of patient transferring.
- **Use a bariatric stretcher or trolley if patient exceeds weight capacity of traditional equipment.

- * "Stand by for safety." In most cases, if a bariatric patient is about to fall, there is very little the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor, and seek assistance as needed once the person has fallen.
- Ensure that equipment used meets weight requirements. Standard equipment is generally limited to 250–350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capacity) and a space for the manufacturer's rated weight capacity for that particular equipment model.
 - If patient has partial weight-bearing capability, transfer toward stronger side.
 - Consider using an abdominal binder if patient's abdomen impairs a patient-handling task.
 - Identify a leader when performing tasks with multiple caregivers. This will ensure that the task is synchronized for increased safety of care providers and patient.
 - During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

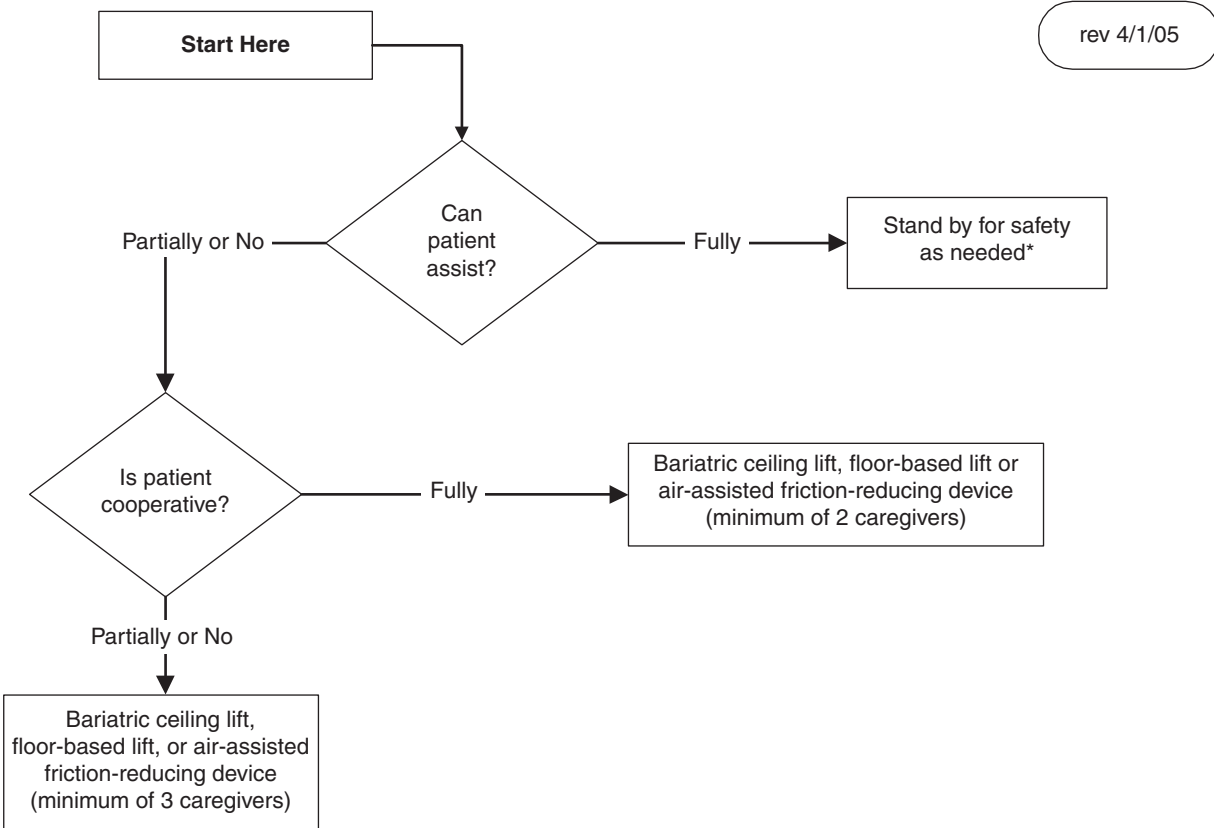
Bariatric Algorithm 3: Bariatric Reposition in Bed: Side-to-Side, Up in Bed



- When pulling a patient up in bed, place the bed flat or in a Trendelenburg position (if tolerated and not medically contraindicated) to aid with gravity; the side rail should be down.
- Avoid shearing force.
- Adjust the height of the bed to elbow height.
- Mobilize the patient as early as possible to avoid weakness resulting from bedrest. This will promote patient independence and reduce the number of high-risk tasks caregivers will provide.
- Consider leaving a friction-reducing device, covered with drawsheet, under patient at all times to minimize risk to staff during transfers, as long as it does not negate the pressure-relief qualities of the mattress/overlay.
- Use a sealed, high-density, foam wedge to firmly reposition patient on the side. Skid-resistant texture materials vary and come in set shapes and cut-your-own rolls. Examples include:
 - Dycem
 - Scoot-Guard: antimicrobial; clean with soap and water, air-dry.
 - Posey-Grip: Does not hold when wet; washable, reusable, air-dry.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if patient's abdomen impairs a patient-handling task.
- Ensure that equipment used meets weight requirements. Standard equipment is generally limited to 250–350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capacity) and a space for the manufacturer's rated weight capacity for that particular equipment model.
- Identify a leader when performing tasks with multiple caregivers. This will ensure that the task is synchronized for increased safety of care providers and patient.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

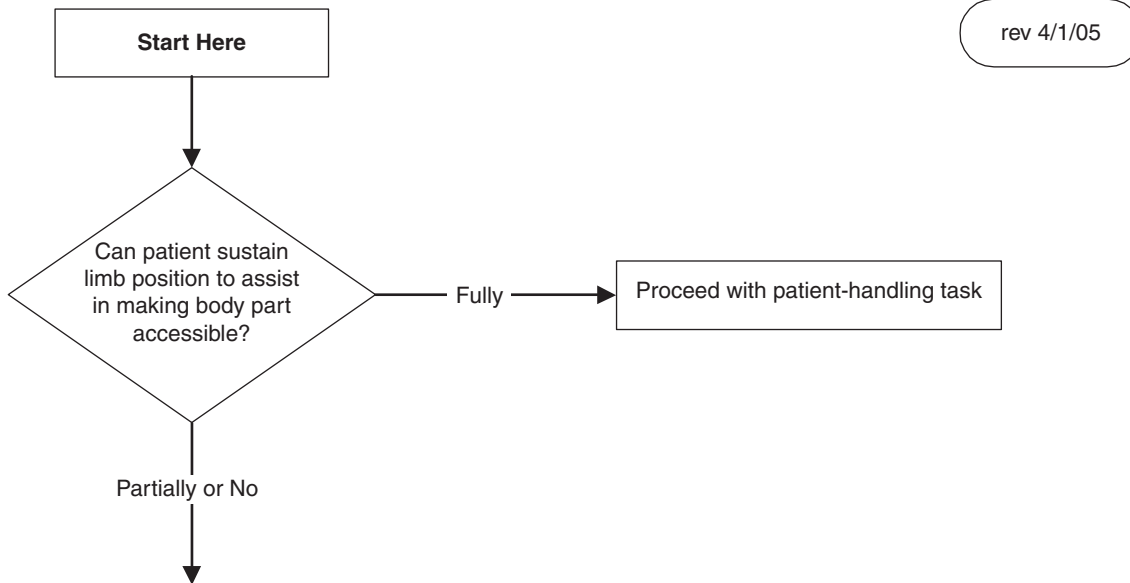
Bariatric Algorithm 4: Bariatric Reposition in Chair: Wheelchair, Chair, or Dependency Chair



- Take full advantage of chair functions (e.g., chair that reclines), or use arm rest of chair to facilitate repositioning.
- Make sure the chair wheels are locked.
- Consider leaving the sling under the patient at all times to minimize risk to staff during transfers, after carefully considering skin risk to patient and risk of removing/replacing sling for subsequent moves.

- * "Stand by for safety." In most cases, if a bariatric patient is about to fall, there is very little the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor, and seek assistance as needed once the person has fallen.
- If patient has partial weight-bearing capability, transfer toward stronger side.
 - Consider using an abdominal binder if patient's abdomen impairs a patient-handling task.
 - Ensure that equipment used meets weight requirements. Standard equipment is generally limited to 250–350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capacity) and a space for the manufacturer's rated weight capacity for that particular equipment model.
 - Identify a leader when performing tasks with multiple caregivers. This will ensure that the task is synchronized for increased safety of care providers and patient.
 - During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

**Bariatric Algorithm 5: Patient Handling Tasks Requiring Access to Body Parts
(Limb, Abdominal Mass, Gluteal Area)**



rev 4/1/05

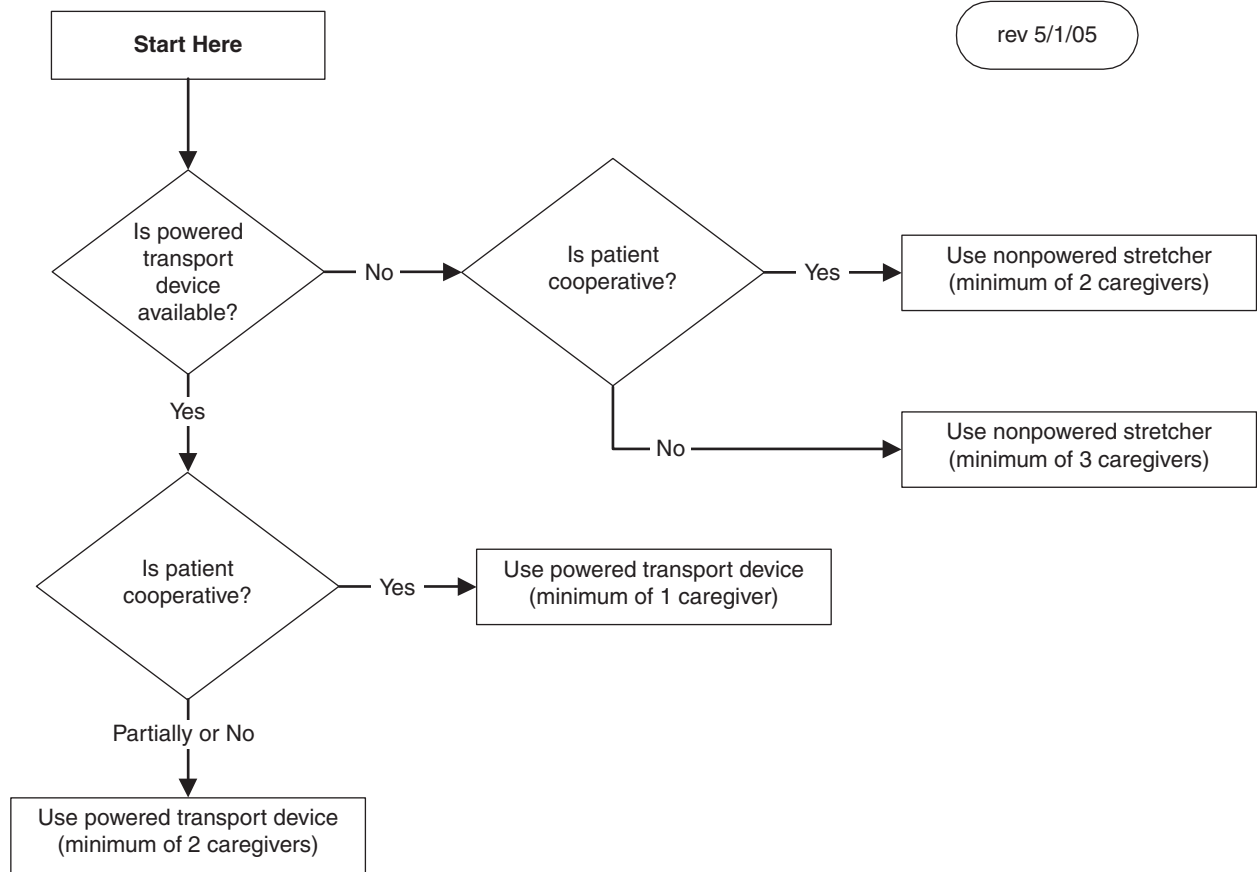
Assemble multidisciplinary team to develop creative solutions that are safe for patient and caregiver.

Examples:

- Modify use of a full-body sling lift to elevate limbs for bathing or wound care (i.e., bariatric limb sling).
- Use draw sheet with handles for 2 caregivers (one per side) to elevate abdominal mass to access the perineal area (e.g., catheterization, wound care).
- To facilitate drying a patient between skin folds, use the air-assisted lateral transfer aid to blow air, or use a hair dryer on a cool setting.
- Use a sealed high-density foam wedge to firmly reposition patient on the side. Skid-resistant texture materials vary and come in set shapes and cut-your-own rolls. Examples include:
 - Dycem
 - Scoot-Guard: antimicrobial; clean with soap and water, air-dry.
 - Posey-Grip: Does not hold when wet; washable, reusable, air-dry.

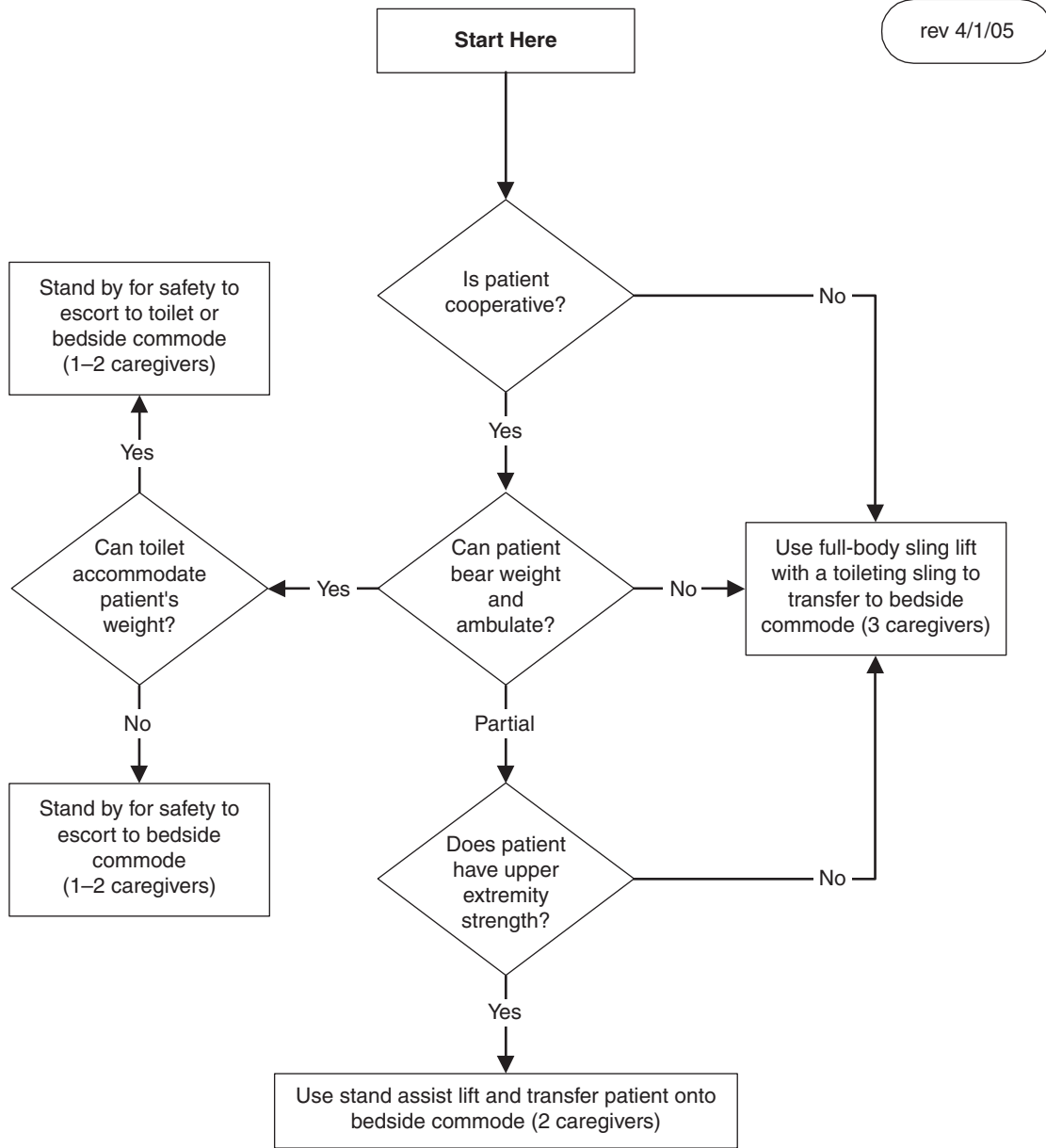
- A multidisciplinary team needs to problem solve these tasks, communicate to all caregivers, refine as needed, and perform consistently.
- Consider using an abdominal binder if patient's abdomen impairs a patient-handling task.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 6: Bariatric Transporting (stretcher)



- If patient has respiratory distress, stretcher must have the capability of maintaining a high Fowler's position.
- Newer equipment often is easier to propel.
- If patient is uncooperative, secure patient in stretcher.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 7: Toileting Tasks for the Bariatric Patient



Considerations:

- Is bathroom doorway wide enough to accommodate entry of mechanical lift device and patient?
- Ensure that equipment used meets weight requirements and is appropriately sized for patient.
- Typically, standard toilets are rated to 350 lbs. maximum capacity.
- During any patient transfer task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

