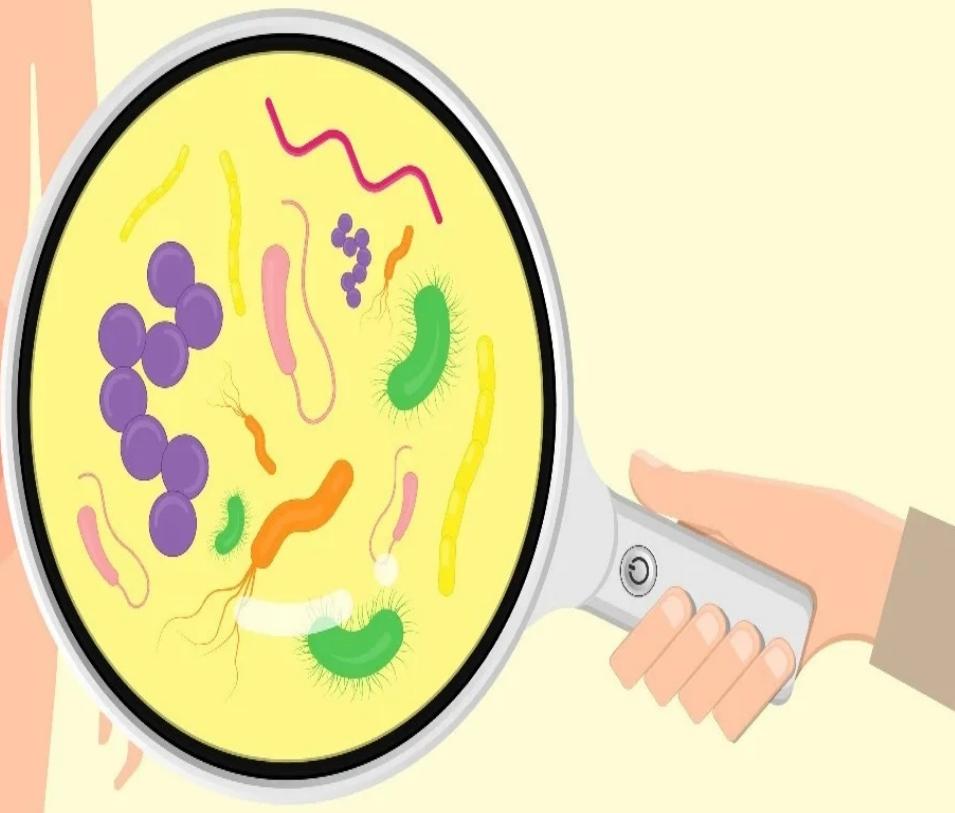
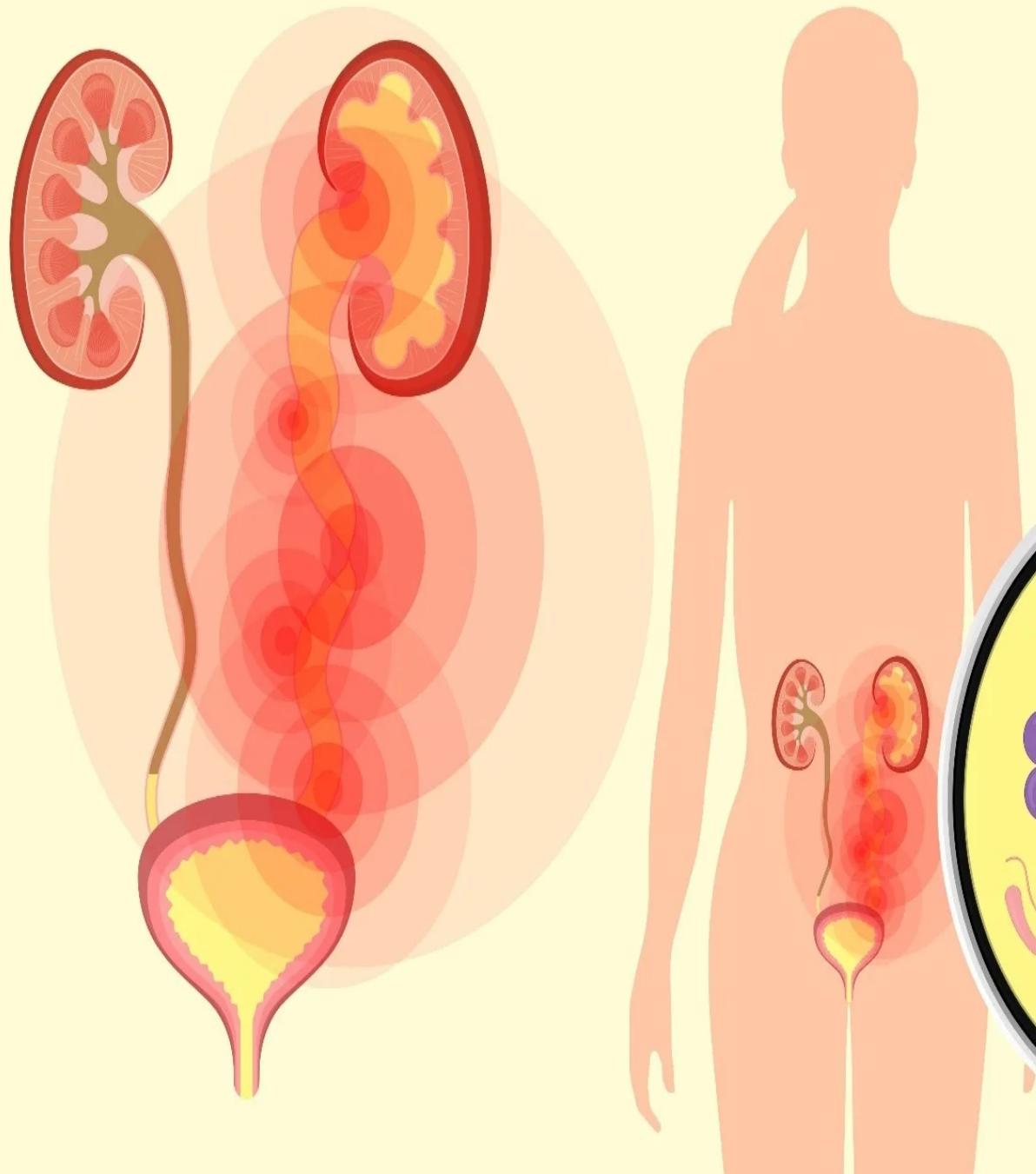


NOSOCOMIAL URINARY TRACT INFECTIONS

Lek. Joanna Plata-Muża

UTI

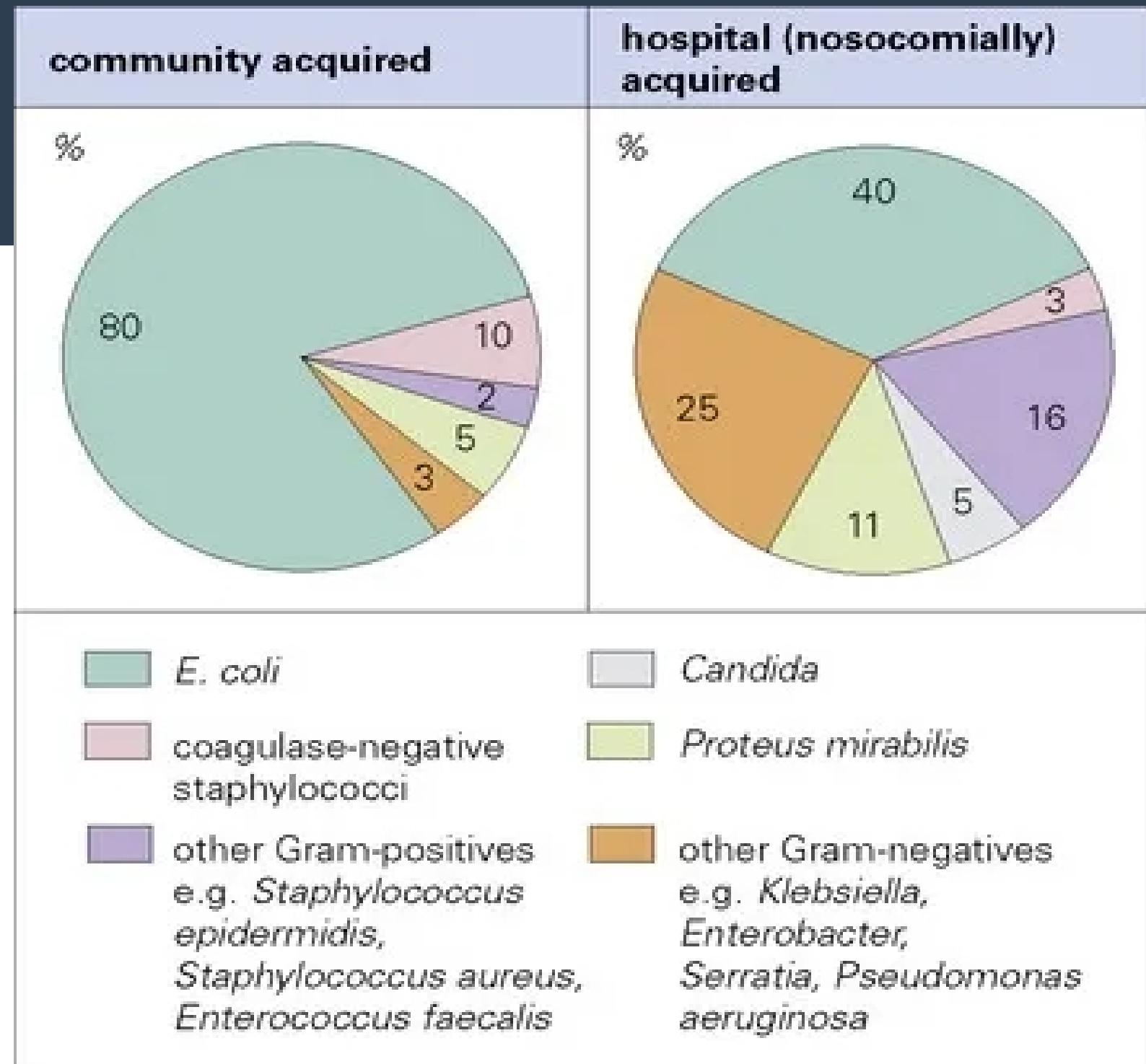
URINARY TRACT INFECTION



Introduction

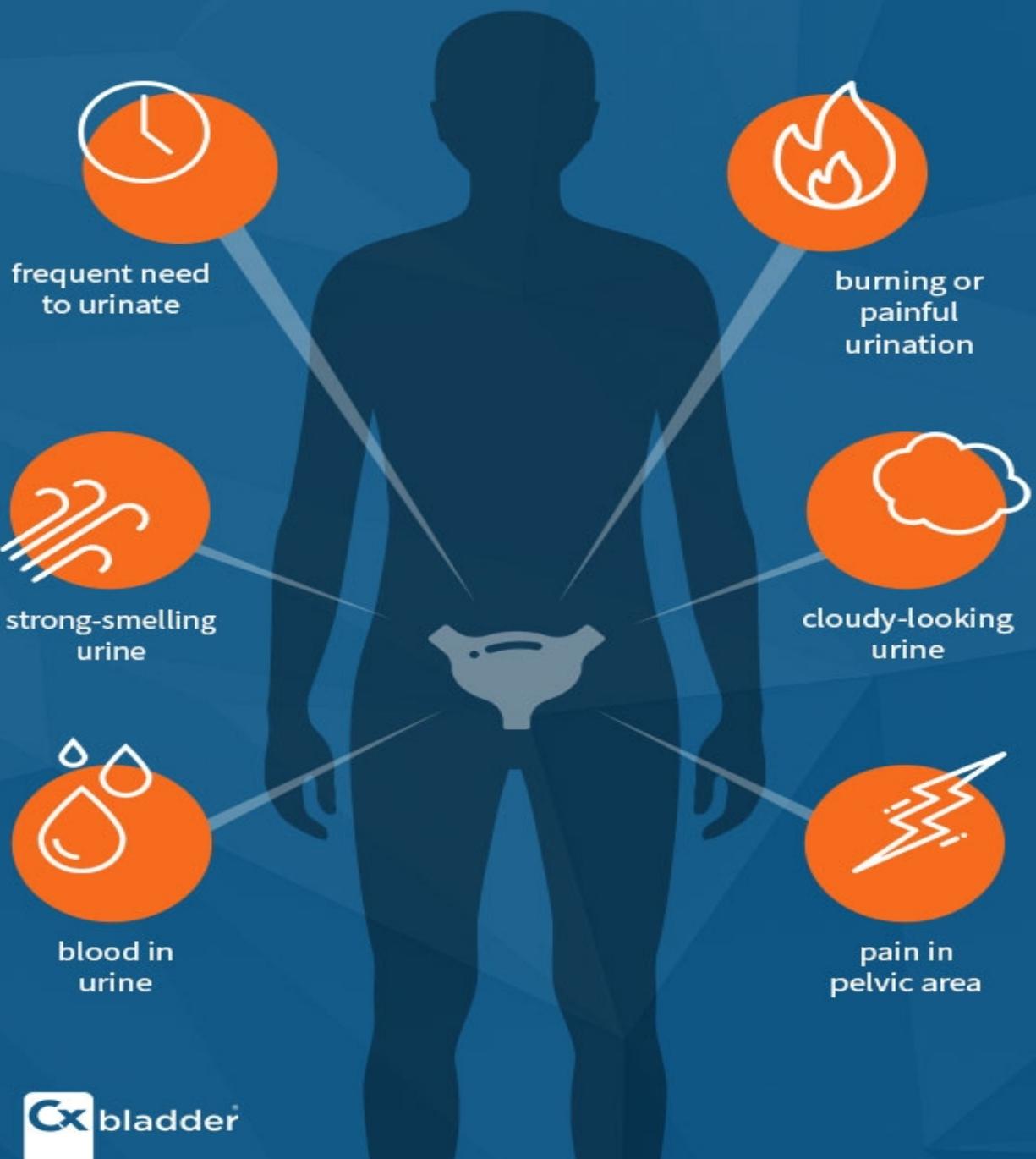
The urinary tract is the commonest site of nosocomial infections, accounting for 40% of infections. 66% to 86% of these infections follow instrumentation of the urinary tract, particularly catheterisation. In the USA, each hospital-acquired urinary tract infection adds approximately \$675 to the costs of hospitalisation. When bacteraemia develops, this additional cost increases to at least \$2800, and patient mortality may be as high as 30%. Decreasing the inappropriate use of indwelling urinary catheters, using a closed drainage system, and ensuring that the catheter is removed as soon as it is no longer necessary, remain the main interventions in reduction of nosocomial urinary tract infections.

- Infection can occur by the ascending route through the urethra, in which the main source of microorganisms is the endogenous intestinal flora, vagina and perineal skin, and the descending route through the blood and lymph associated with systemic infections.
- It is believed that the most important risk factor for the development of infection urinary tract is prolonged use of a urological catheter. Microorganisms that colonize the urethral outlet can enter the bladder during its insertion, as well as migrate in its lumen and on its external surface. One-time insertion of a catheter is associated with a risk of CA-UTI of 1-3%, and each day the catheter is maintained in the bladder increases it to 3-7%, while after 30 days it reaches almost 100%.
- Other risk factors for CA-UTI include female gender, advanced age and maintenance of an open urinary collection system. Among the risk factors for acquiring a CA-UTI-associated blood infection include. Also: neutropenia, kidney disease and male gender.



Common UTI Symptoms

Urinary Tract Infection



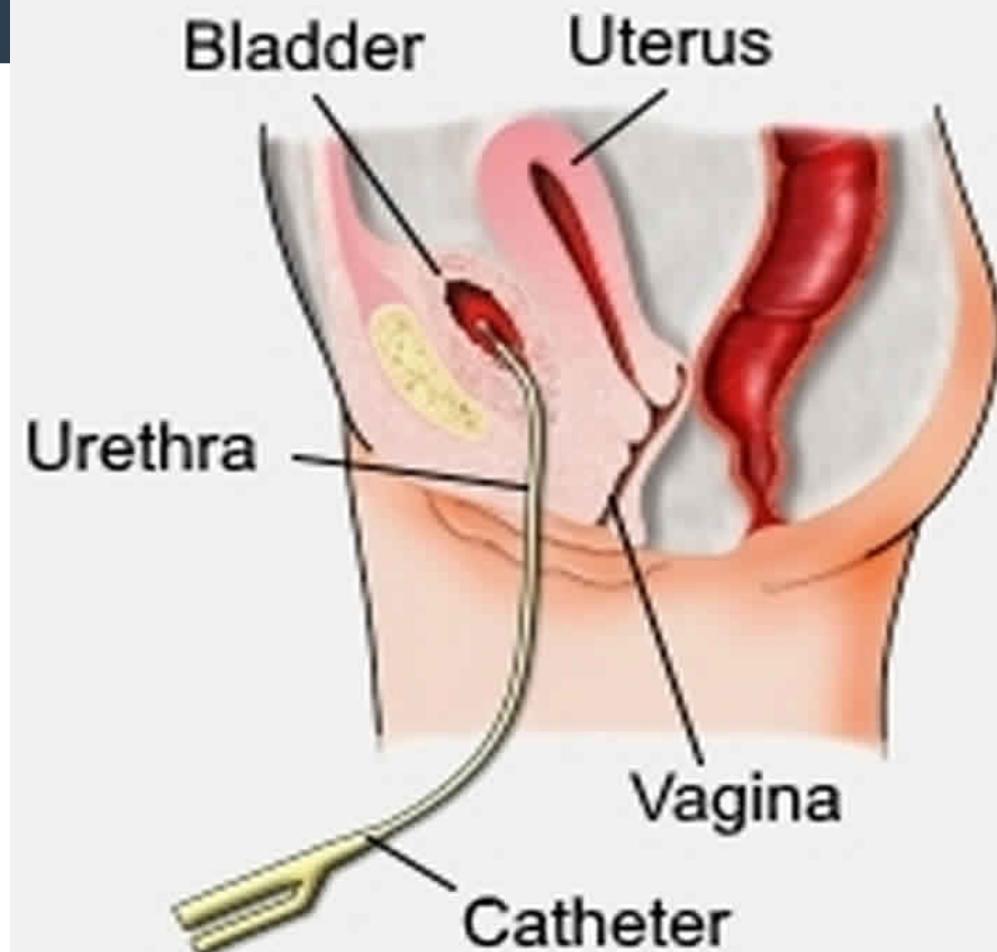
DEFINITION

- The urinary tract is usually sterile except for the distal urethra.
- Colonisation is defined as the presence of micro-organism/s in the urine without clinical manifestations (dysuria, fever, etc).
- Urinary tract infection (UTI) is defined as invasive disease by microorganisms, inducing an inflammatory response and symptoms and signs such as fever > 38 C, urgency, frequency, dysuria without any other cause. Positive urinary culture is expected unless the patient has received antibiotics.
- Nosocomial urinary tract infection (NUTI) refers to a UTI acquired in a hospital setting. In two-thirds of cases the bacteria causing these infections are endogenous.

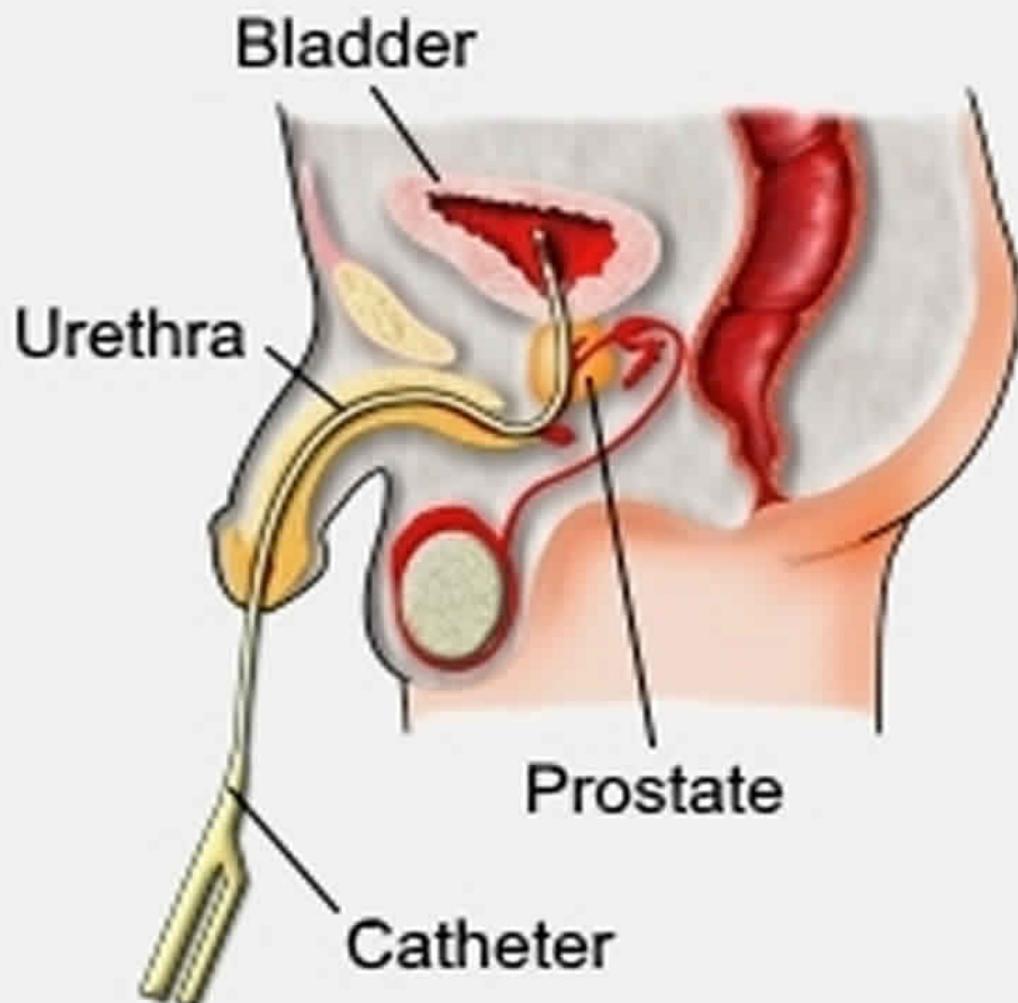
Principles of preventing urinary tract infections associated with catheterization of the urinary bladder

- catheterization only when absolutely necessary and keeping the catheter in the bladder as short as possible,
- selecting an appropriate catheter and using proper technique catheterization,
- skillful nursing management.

Female



Male



- Adherence to aseptic and antiseptic principles during catheter insertion urology can reduce the risk of urinary tract infection. Among the most important preventive measures are: correct performing hygienic hand disinfection immediately prior to insertion of the catheter and before performing any manipulation on the catheter or at its insertion site. In the case of a cooperative and walking person, catheter insertion should be preceded by a bath under running water (shower) with special attention to the patient's perineal area.
- The guiding principle of personnel conduct during bladder catheterization is to adherence to the principles of asepticism and the use of sterile equipment, including: sterile gloves, gauze pads, napkins, proper antiseptic or sterile solution for cleaning mucous membranes and disposable packs with lubricant to facilitate insertion of the catheter.

TYPES OF URINARY CATHETER



IN-DWELLING

- Stays in place for days or weeks
- Attached to a drainage bag or directly to the toilet
- Must be initiated, replaced & removed by a healthcare professional



INTERMITTENT

- Often designed for one-time use and discarded after use
- Used multiple times a day
- A health care professional gives instructions for the patient or caregiver to carry out catheterisation



EXTERNAL

- Only used for male patients
- Used for urinary incontinence not urinary retention
- Can be easily administered by patients or caregivers

Nursing a patient with a catheter in the urinary bladder

- The guiding principle of nursing management in the case of long-term use of a urinary catheter is to maintain the sterility of the closed system: catheter-drain-pouch. In case of leakage, obstruction of the drainage system or infection, it is necessary to aseptically replace the catheter and its accessories. Among the important tasks of the nurse is therefore to monitor the free flow of urine from the bladder into the urinary sac. This can be achieved by eliminating kinks in the drain and keeping the bag below the level of the urinary bladder (the bag should not be rested against the floor).
- The urine bag should be emptied at regular intervals using a clean container dedicated separately to each patient. When performing this activity, it is important to not allowing direct contact between the drainage end of the urine bag with the non-sterile container and the use of protective equipment personal protective equipment in accordance with the principles of standard isolation, with particular attention to hand hygiene. Daily body care procedure of the patient should include the disposable use of hygienic accessories, such as soap, body wash gloves, towel and water containers. The use of antiseptics is not recommended for daily hygiene of the urethral outlet in patients with an inserted catheter: it is advisable to use water and soap.

- <https://www.youtube.com/watch?v=uQbHLq9md8Q>

Nosocomial gastrointestinal infections

Age is particularly conducive to gastrointestinal infections due to disorders of its motility resulting from the aging process and the systemic diseases (diabetes, diseases of the central nervous system or neuropathy), atrophy of the cells lining the stomach, with decreased acidity of gastric juice and the bacterial flora of the gastrointestinal tract.

Which is also affected by repeated antibiotic therapy and drugs that reduce the acidity of gastric juice. In LTCF residents, one-third have at least one episode of diarrhea per year. Half of the deaths associated with related to gastrointestinal infections occur in patients 74 years of age and older.

Criteria

A gastrointestinal infection must meet one of the following criteria:

- the patient has acutely developing diarrhea (loose stools for more than 12 hours) with/without accompanying vomiting or fever ($\geq 38^{\circ}\text{C}$) when excluding non-infectious causes,
- the patient presents with at least two of the following symptoms not due to other causes:
 - nausea,
 - vomiting,
 - abdominal pain,
 - Fever ($\geq 38^{\circ}\text{C}$),
 - headaches.

Gastrointestinal infections are mostly of viral etiology, bacterial or, less commonly, parasitic. Infection caused by strains of *Clostridium difficile* (CD) is among the primary causes of diarrhea associated with health care. With age, the incidence of infection and CD carriage increases. The frequency of asymptomatic CD colonization in LTCF residents is estimated at 10-30%. In addition to age, the risk factors for CD infection include antibiotic therapy, prolonged stay in nursing facilities, severe somatic illnesses, use of drugs that reduce gastric juice acidity

Clostridium difficile

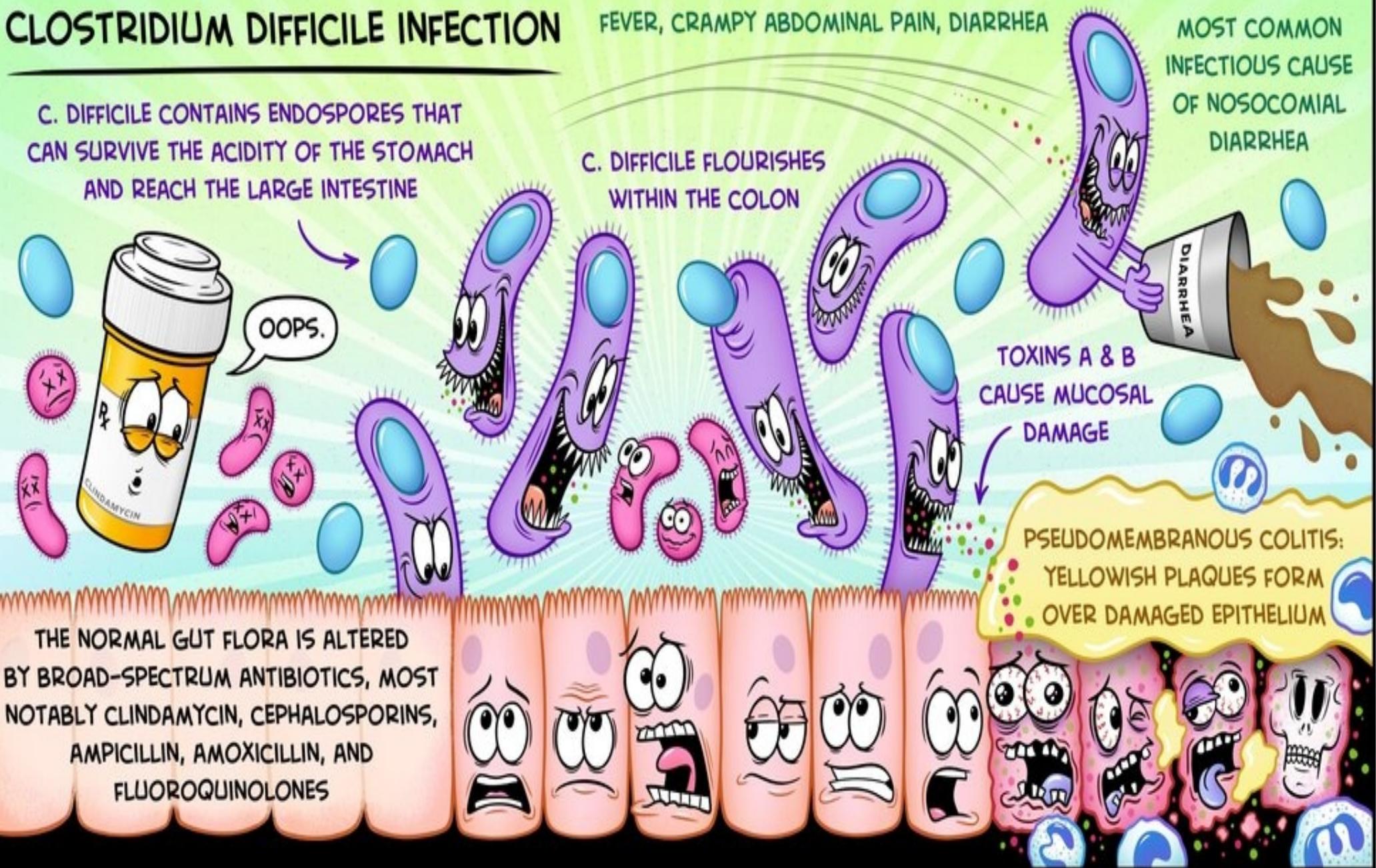
Clostridioides difficile is an anaerobic bacterium that, under favorable conditions, causes inflammation (damage) of the large intestine. The infection is spread through the oral route and primarily affects elderly people in hospitals and nursing homes.

CLOSTRIDIUM DIFFICILE INFECTION

FEVER, CRAMPY ABDOMINAL PAIN, DIARRHEA

MOST COMMON
INFECTIOUS CAUSE
OF NOSOCOMIAL
DIARRHEA

C. DIFFICILE CONTAINS ENDOSPORES THAT
CAN SURVIVE THE ACIDITY OF THE STOMACH
AND REACH THE LARGE INTESTINE



THE NORMAL GUT FLORA IS ALTERED
BY BROAD-SPECTRUM ANTIBIOTICS, MOST
NOTABLY CLINDAMYCIN, CEPHALOSPORINS,
AMPICILLIN, AMOXICILLIN, AND
FLUOROQUINOLONES

C. diff risk factors



recent stay at
a hospital or
nursing home



antibiotic
exposure



weakened
immune system

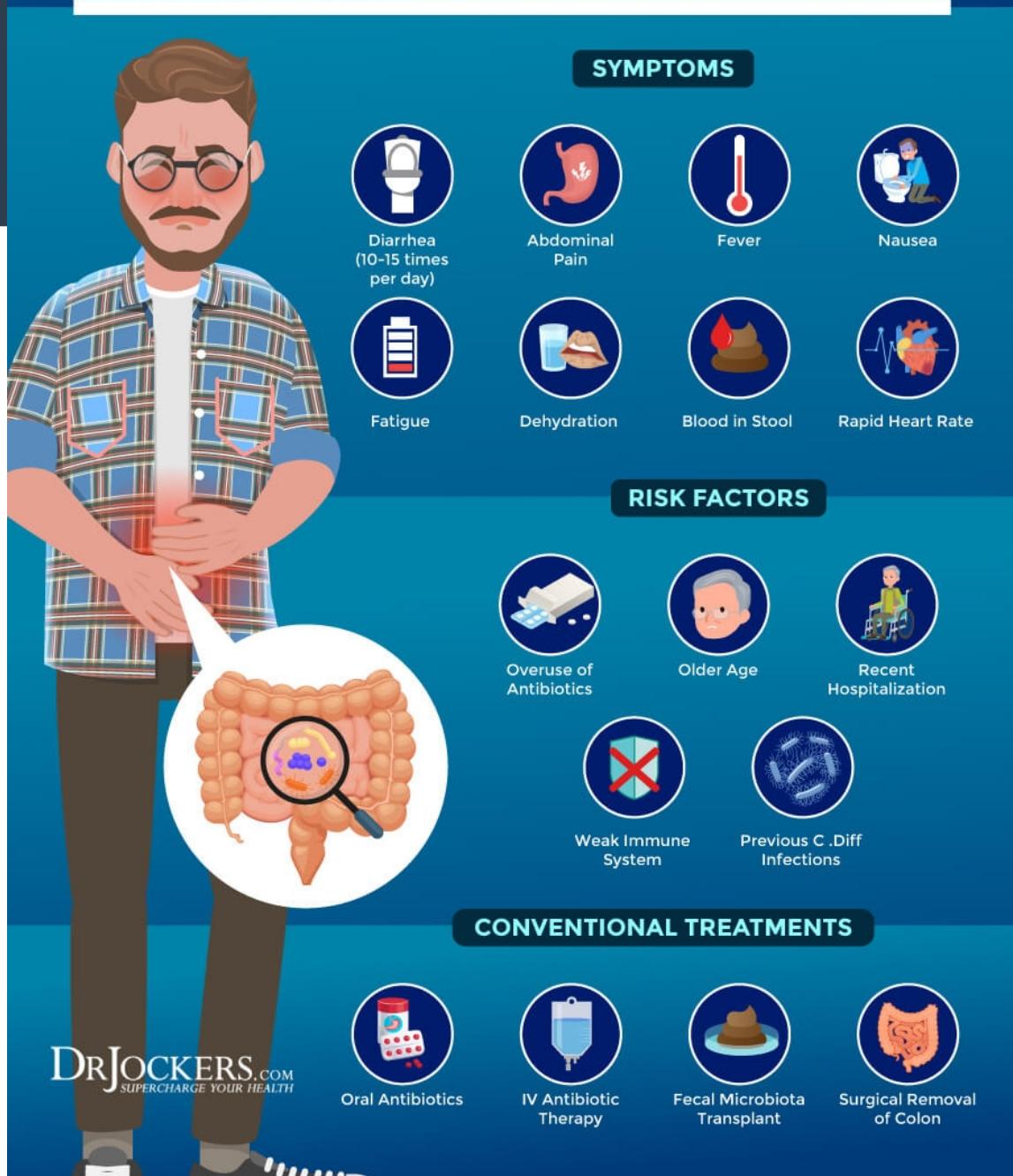


older age
(65 and older)



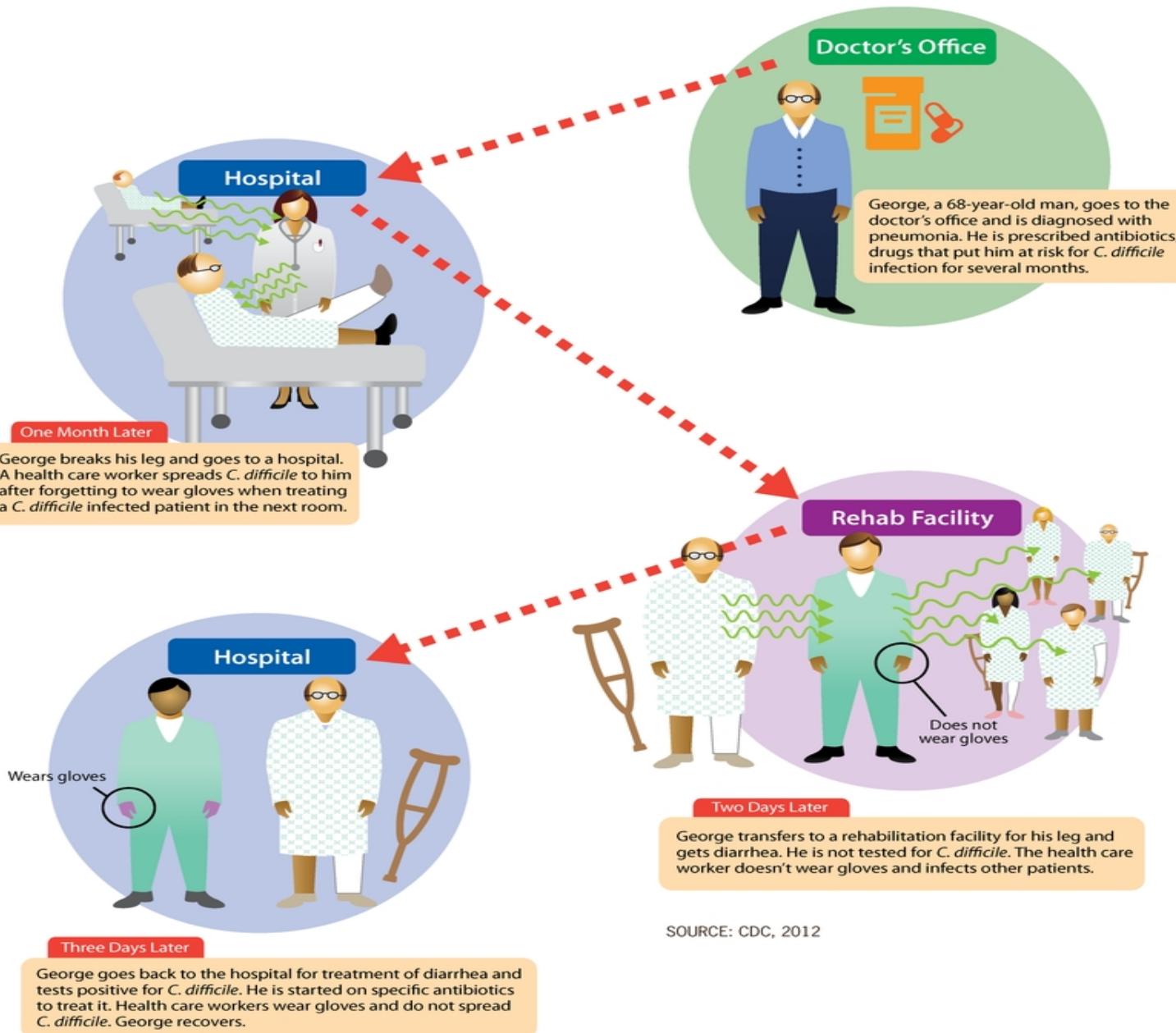
previous history
of *C. diff*

SYMPTOMS, RISK FACTORS AND TREATMENTS



<https://drjockers.com/wp-content/uploads/2021/04/C-Diff-Infection.jpg>

How *C. difficile* Spreads.



https://upload.wikimedia.org/wikipedia/commons/thumb/e/e4/How_C._difficile_spreads.png/800px-How_C._difficile_spreads.png

Symptoms

The main symptom is diarrhea of varying severity, from a few loose stools to 30 watery bowel movements per day. Rarely, there is an admixture of blood in the stool.

In addition, abdominal pain and fever are present. In more severe cases, dehydration, shock and edema may occur.

In many patients, however, the course of post-antibiotic enteritis is mild, with spontaneous resolution of diarrhea within 5-10 days after discontinuation of the antibiotic therapy responsible for the development of the infection. Recurrent inflammation occurs in 20-25% of patients.

In the most severe cases, there may be a fulminant course with shock, intestinal obstruction and colonic distension. This can be indicated by a decreasing number of bowel movements with increasing bloating and abdominal pain. Such symptoms even indicate life-threatening.

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- 8321 – missing work card 14.01
- 8322 – missing 19.01
- 8360 – missing 21.01
- 8354 – missing 19.01, 21.01, 26.01
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- 8281 – missing 19.01
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