**Supplementary material: Multiple choice knowledge test with correct answers underlined**

1. **When a bedridden patient with an indwelling urinary catheter needs to be transported, the collector bag should be …**
   1. placed in the bed to avoid traction.
   2. hung beneath the bladder level to avoid reflux.
   3. clamped in order to avoid reflux.
   4. I do not know.
2. **When neither lipid emulsions, nor blood products are administered through a central venous catheter, it is recommended to replace the administration set ...**
   1. every 24 hours.
   2. every 48 hours.
   3. every 96 hours.
   4. I do not know.
3. **Concerning the use of gloves, which of the following statements is correct?** 
   1. Gloves must be changed in between separated tasks on one patient when going from a dirty/contaminated to a clean body site.
   2. Gloves must be changed in between separated tasks on one patient when going from a clean to a dirty/contaminated body site.
   3. Gloves must not be changed in between separated tasks on one patient.
   4. I do not know.
4. **Following the available evidence on the prevention of surgical site infection, the appropriate time to shower or bathe with an uncovered incision is …**
   1. ≥ 48 hours following surgery.
   2. ≥ 96 hours following surgery.
   3. unresolved by lack of evidence.
   4. I do not know.
5. **Concerning the frequency of ventilator circuits changes in the prevention of ventilator-associated pneumonia …**
   1. it is recommended to change circuits every 48 hours (or when clinically indicated).
   2. it is recommended to change circuits every week (or when clinically indicated).
   3. it is recommended to change circuits for every new patient (or when clinically indicated).
   4. I do not know.
6. **It is recommended to replace central venous catheters routinely.** 
   1. Yes it is, every seven days.
   2. Yes it is, every three weeks.
   3. No it is not, only when indicated.
   4. I do not know.
7. **Adequate handwashing with water and non-medicated soap should take …**
   1. one minute.
   2. 35 seconds.
   3. 20 seconds.
   4. I do not know.
8. **When using a chlorhexidine gluconate impregnated sponge instead of a standard dressing to cover up the insertion site of a central venous catheter, the risk of infection is …**
   1. reduced.
   2. increased.
   3. identical.
   4. I do not know.
9. **In settings with a high rate of catheter-related infection it is recommended to use a central venous catheter coated or impregnated with an antiseptic agent.**
   1. Yes it is, in patients whose catheter is expected to remain in place for more than five days.
   2. No it is not, because the use of such catheters is not cost-effective.
   3. No it is not, because the use of such catheters does not result in a significant decrease in the rate of catheter-related infections.
   4. I do not know.
10. **The need for continuing use of an indwelling urinary catheter must be assessed …**
    1. daily.
    2. every 48 hours.
    3. every 96 hours.
    4. I do not know.
11. **Elective surgery on patients with remote site infections should be postponed until the infection has resolved.**
    1. This is true for all patients.
    2. This is only true for debilitated patients.
    3. This is only true for patients infected with multi-resistant micro-organisms.
    4. I do not know.
12. **Concerning the use of open versus closed suction systems …** 
    1. open suction systems are recommended.
    2. closed suction systems are recommended.
    3. both systems can be recommended.
    4. I do not know.
13. **To prevent central venous catheter-related infection, replacing central venous catheters over a guidewire is recommended.**
    1. Yes it is, every three days.
    2. Yes it is, every seven days.
    3. No it is not, only when indicated.
    4. I do not know.
14. **Hospitalized patients at risk for healthcare-associated infections are ...** 
    1. only those who are immunocompromized.
    2. all patients, there are no prerequisite conditions.
    3. only critically ill patients at the intensive care unit.
    4. I do not know.
15. **To prevent central venous catheter-related infection, it is recommended to cover up the catheter insertion site with ...**
    1. polyurethane dressing (transparent, semipermeable).
    2. gauze dressing.
    3. both are recommended because the type of dressing does not affect the risk of catheter-related infections.
    4. I do not know.
16. **In urinary catheterization, short-term catheterization is usually defined as catheter in place for less than …** 
    1. three days.
    2. seven days.
    3. ten days.
    4. I do not know.
17. **When performing endotracheal suctioning …** 
    1. it is recommended to wear non-sterile gloves.
    2. it is recommended to wear sterile gloves.
    3. it is not recommended to wear gloves.
    4. I do not know.
18. **In order to prevent ventilator-associated pneumonia, it is recommended to elevate the head of the bed in mechanically ventilated patients to …** 
    1. 5° to 15°.
    2. 30° to 45°.
    3. 50° to 60°.
    4. I do not know.
19. **In between fluffing up the pillows on the beds of two different patients, it is recommended to perform …** 
    1. handwashing with water and non-medicated soap only, no need to disinfect with alcoholic hand rub.
    2. handwashing with water and non-medicated soap, followed by hand antisepsis with alcoholic hand rub.
    3. hand antisepsis with alcoholic hand rub only.
    4. I do not know.
20. **To prevent central venous catheter-related infection, it is recommended to replace pressure transducers and tubing routinely.**
    1. Yes it is, every four days.
    2. Yes it is, every eight days.
    3. No it is not, only when indicated.
    4. I do not know.
21. **To prevent surgical site infection, it is recommended to protect a primarily closed incision …**
    1. during the first 12 hours following surgery.
    2. during the first 24-48 hours following surgery.
    3. during the first 5 days following surgery.
    4. I do not know.
22. **Surveillance succeeds in reducing the incidence of surgical site infection.**
    1. Yes it does, and without supplementary preventive measures.
    2. Yes it does, but only when accompanied by supplementary preventive measures.
    3. No it does not, surveillance only helps to gain insight into the prevalence of infection, but has no influence on incidence rates.
    4. I do not know.
23. **In the prevention of healthcare-associated infection, so-called ‘Standard precautions’ apply to ...** 
    1. all healthcare professionals in all healthcare settings when caring for infected patients.
    2. all healthcare professionals in all healthcare settings when caring for colonized patients.
    3. all healthcare professionals in all healthcare settings when caring for all patients.
    4. I do not know.
24. **If in the pre-operative period a surgical patient’s hair at or around the incision site interferes with the operation, it is recommended to remove it by …**
    1. razor shave.
    2. depilatory agents.
    3. electric clippers.
    4. I do not know.
25. **Concerning oral versus nasal endotracheal intubation in the prevention of ventilator-associated pneumonia …**
    1. oral intubation is recommended.
    2. nasal intubation is recommended.
    3. both routes of intubation can be recommended as the route of endotracheal intubation does not affect the risk of VAP.
    4. I do not know.
26. **When wearing non-sterile gloves during direct patient care, contamination of the skin on the healthcare worker’s hands …**
    1. is not possible.
    2. is possible, regardless the profile of the patient cared for.
    3. is possible, but only in case of contact with an infected patient.
    4. I do not know.
27. **When using closed systems for endotracheal suctioning, which of the following statements is correct when aiming to prevent ventilator-associated pneumonia?**
    1. Daily changes are recommended (or when clinically indicated).
    2. Weekly changes are recommended (or when clinically indicated).
    3. It is recommended to change systems for every new patient (or when clinically indicated).
    4. I do not know.
28. **When emptying the drainage bag of a patient with a urinary catheter, …**
    1. it is recommended to wear non-sterile gloves.
    2. it is redommended to wear sterile gloves.
    3. it is not redommended to wear any gloves.
    4. I do not know.
29. **When aiming to prevent ventilator-associated pneumonia, which of the following statements concerning endotracheal tubes with an extra lumen for suctioning subglottic secretions is correct?**
    1. These tubes reduce the risk of ventilator-associated pneumonia.
    2. These tubes increase the risk of ventilator-associated pneumonia.
    3. These tubes do not influence the risk of ventilator-associated pneumonia.
    4. I do not know.
30. **After moving a family picture on the bedside table of the patient, it is recommended to perform …**
    1. handwashing with water and non-medicated soap only, no need to disinfect with alcoholic hand rub.
    2. handwashing with water and non-medicated soap, followed by hand antisepsis with alcoholic hand rub.
    3. hand antisepsis with alcoholic hand rub only.
    4. I do not know.
31. **In patients with an indwelling urinary catheter, it is recommended to …**
    1. disinfect the meatus with an antiseptic solution.
    2. perform routine meatal hygiene only.
    3. disinfect the meatus with an antiseptic solution followed by application of an antibiotic ointment.
    4. I do not know.
32. **To prevent central venous catheter-related infection, it is recommended to change the dressing on the catheter insertion site ...**
    1. on a daily basis.
    2. every three days.
    3. when indicated (soiled, loosened, ...) and at least weekly.
    4. I do not know.
33. **After bathing a patient infected with methicillin-resistant *Staphylococcus aureus*, healthcare workers with non-visibly soiled hands should perform …** 
    1. handwashing with water and non-medicated soap only, no need to disinfect with alcoholic hand rub.
    2. handwashing with water and non-medicated soap, followed by hand antisepsis with alcoholic hand rub.
    3. hand antisepsis with alcoholic hand rub only.
    4. I do not know.
34. **When lipid emulsions are administered through a central venous catheter, it is recommended to replace the administration set ...**
    1. within 24 hours.
    2. every 72 hours.
    3. every 96 hours.
    4. I do not know.
35. **The prevalence of healthcare-associated infection in developed countries is about ...** 
    1. 1% to 5%.
    2. 5% to 15%.
    3. 15% to 20%.
    4. I do not know.
36. **Hospital-acquired infection is a synonym of …** 
    1. healthcare-associated infection.
    2. nosocomial infection.
    3. community-acquired infection.
    4. I do not know.
37. **The most important risk factor identified in the development of catheter-associated urinary tract infection is …**
    1. colonization of the drainage bag.
    2. diabetes mellitus.
    3. duration of catheterization.
    4. I do not know.
38. **To prevent central venous catheter-related infection, it is recommended to disinfect the catheter insertion site with an antiseptic containing ...**
    1. 2% chlorhexidine.
    2. 0,5 % chlorhexidine.
    3. 10% povidone-iodine.
    4. I do not know
39. **Ventilator-associated pneumonia is defined as pneumonia that develops more than … to … hours after intubation and initiation of mechanical ventilation.** 
    1. 24 to 48.
    2. 48 to 72.
    3. 72 to 96.
    4. I do not know.
40. **The term ‘primary bloodstream infection’ refers to …** 
    1. a bloodstream infection in which there is no obvious source of infection.
    2. a bloodstream infection in which there is an obvious source of infection.
    3. the first episode of a bloodstream infection.
    4. I do not know.
41. **In urinary catheterization, long-term catheterization is usually defined as catheter in place for more than …** 
    1. 15 days.
    2. 20 days.
    3. 28 days.
    4. I do not know.
42. **In the pathogenesis of ventilator-associated pneumonia, the most significant treatment-related factor contributing to impaired host defences is …** 
    1. the use of a ventilator.
    2. the use of an endotracheal tube.
    3. the use of a nasogastric tube.
    4. I do not know.
43. **The pathogens that cause surgical site infection are usually microorganisms that originate from …**
    1. the patient's endogenous flora.
    2. contaminated equipment.
    3. the hands of healthcare workers.
    4. I do not know.
44. **In patients with an indwelling urinary catheter, urinary tract infection is usually …**
    1. non-existing.
    2. asymptomatic.
    3. easily clinically detectable.
    4. I do not know.
45. **In intubated and mechanically ventilated patients, it is recommended to maintain the pressure of the endotracheal tube cuff between …**
    1. 10 – 20 cmH2O.
    2. 20 – 30 cmH2O.
    3. 30 – 40 cmH2O.
    4. I do not know.
46. **After bathing a patient infected with *Clostridium difficile*, healthcare workers’ non-visibly soiled hands should be …** 
    1. washed with water and non-medicated soap only, no need to disinfect with alcoholic hand rub.
    2. washed with water and non-medicated soap, then disinfected with alcoholic hand rub.
    3. disinfected with alcoholic hand rub only.
    4. I do not know.
47. **Nosocomial pneumonia is defined as …** 
    1. pneumonia occurring 48 hours or less after hospital admission
    2. pneumonia occurring 48 hours or more after hospital admission
    3. pneumonia occurring at any time after hospital admission
    4. I do not know
48. **When comparing hand hygiene using alcohol-based hand rubs with handwashing using water and non-medicated soap …** 
    1. hand hygiene using alcohol-based hand rubs requires less time than handwashing with water and non-medicated soap.
    2. hand hygiene using alcohol-based hand rubs requires more time than handwashing with water and non-medicated soap.
    3. hand hygiene using alcohol-based hand rubs and handwashing with water and non-medicated soap require an equal amount of time.
    4. I do not know.
49. **Which of the following precautions is part of the universal transmission-based precautions?** 
    1. contact precautions.
    2. isolation precautions.
    3. colonization precautions.
    4. I do not know.
50. **During insertion of an indwelling urinary catheter, extraluminal contamination occurs …**
    1. by the hands of healthcare professionals.
    2. by microorganisms ascending from the perineum or the urethral meatus.
    3. by microorganisms descending from the bladder.
    4. I do not know.