"The Orenburg state medical University"

**METHODICAL DEVELOPMENT**

**FOR THE TEACHER TO CONDUCT PRACTICAL LESSON 7**

Theme " Disinfection. Cleaning and disifection in healthcare setting "

**DISCIPLINE "EPIDEMIOLOGY"**

**WITH STUDENTS OF THE 5TH COURSE   
OF THE FACULTY OF FOREIGN**

Methodical recommendations are developed

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**Module 2. Epidemiological control**

# 1. The competence generated:

|  |  |  |
| --- | --- | --- |
| Cipher  competence | №  competence | Elements of competence |
| Cultural competence | СС-1 | ability for abstract thinking, analysis, synthesis; |
| General professional competence | GPC-1 | willingness to solve standard tasks of professional activity with the use of  information, bibliographic resources, biomedical terminology, information and communication technologies and taking into account the basic requirements of information security; |
| Professional competence | PC-3 | ability and willingness to undertake anti-epidemic measures, organisation of protection  the population in the foci of particularly dangerous infections, the deterioration of the radiation situation, natural disasters and  other emergencies |

## Practical lesson № 7

# 2. Subject:

Disinfection. Cleaning and disifection in healthcare setting

# 3. Objective:

Acquire knowledge of modern disinfection methods.

# 4. Tasks:

***Training:***

* To study the modern precondition of disinfection.

***Educational:***

* To form the ability to carry out disinfection measures against infections in medical institutions.
* Have an idea about disinsection and deratization.

***Raising:***

* Be able to disinfect against infections.

# 5. Questions for consideration:

* Disinfection
* Disinfection methods
* Characteristics of groups of disinfectians
* Types of disinfection
* Management of disinfection
* Cleaning and disinfection in healthcare setting
* Sterilization
* Disinfection
* Diratization

# 6. Basic concepts of the theme

* Disinfection
* Disinfection proper
* Disinsection
* Diratization
* Sterilization
* Aseptic techiques
* Antiseptic techiques

# 7. Recommended reading:

1. Main literature:

* Methodical recommendations «Modern epidemiological methods in medical practice» of the Department of Epidemiology and Infectious Diseases
* Rothman, Kenneth J.; Greenland, Sander; Lash, Timothy L. Modern epidemiological. 3rd edition. 2008 Lippincott Williams & Wilkins. 1581 p.

2. Additional literature:

* O.V. Kovalishena, V.V. Shkarin, N.V. Saperkin, M.M. Khramtsov. Epidemiology of inflectional disease. Учебник. Издательство: «Смоленская городская типография», 2016. 284 с.

# 8. Activity and time of lesson

|  |  |  |  |
| --- | --- | --- | --- |
| № | The stages and content of the classes | The methods used | time |
| 1 | The organizational part.  The announcement of the theme, the objectives of the class.  Readiness assessment of the classroom, equipment and students.  Brief description of the stages and content of work of students in the class. |  | 5 minutes |
| 2 | Incoming control of knowledge, abilities and skills of students.  The terminological dictation | Handout  A written answer to the question | 5 minutes |
| 3 | Updating of theoretical knowledge | Analysis of theme elements and the construction of logical graphs on the board. | 1 hour 15 minutes |
| 4 | The development of practical skills. Case solving. | Cases | 30 minutes |
| 5 | Quality control of the formed competence /elements of competence (knowledge and skills) students on lessons  Output control | Written test | 15 minutes |
| 6 | The final part of the class:  Summarizing, the findings on the topic.  Homework | - | 10 minutes |

# 9. Form of organization class

instructional workshop (workshop)

# 10. Learning tools:

- logistics (multimedia projector)

## Incoming control

|  |  |
| --- | --- |
| **Task** | **Answer** |
| Disinfection is a generalizing term. It includes…. |  |
| List the methods of the disinfection. |  |
| Final disinfection is carried after… |  |
| What is “zona A”? |  |
| Disinsection may be carried on in two form. List them. |  |

## Output control

Choose one correct answer.

1. A prophylactic disinfection is carried out when a source of infection is present
2. a source of infection is absent
3. just after case revealing
4. just after carrier revealing
5. Choose the correct indication for a current disinfection:
6. after hospitalization of a case
7. during a treatment in the sanatorium
8. before hospitalization of a case
9. after patient's recovery
10. Current dlslnfectfon lasts:
11. all the incubation period
12. all the period of communicahility of a patient
13. before confirmation of the diagnosis
14. all the period of disease manifestation
15. Current disinfection in the epidemic focus is usually conducted by:
16. the physician who diagnoses a case
17. the person who takes care of a patient
18. the epidemiologist
19. any medical health provider
20. Final disinfection must be conducted only by professionals (e.g., the disinfection station personnel) in case of:
21. outbreak of typhoid fever
22. outbreak of meningococcal infection
23. epidemic o f influenza
24. outbreak of scarlet fever
25. Give an example of the critical medical item:
26. Bedpans
27. surgical instruments
28. Thermometer
29. anesthesia equipment
30. Give an example of the semicritical medical item:
31. Crutches
32. surgical instruments
33. implants
34. laryngoscope blades
35. Find an example of the noncritical item:
36. Implants
37. esophageal manometry probes
38. blood pressure cuffs
39. syringes
40. The term “critical item” means that:
41. it contacts the intact skin rather than mucous membranes
42. it confers a high risk for infection if it is contaminated with any microbe
43. it contacts mucous membranes and nonintact skin
44. it comes in contact with intact skin and mucous membranes
45. The term “semicritical item” means that:
46. it comes in contact with intact skin but not mucous membranes
47. it confers a high risk for infection if it is contaminated with any microbe
48. it contacts mucous membranes and nonintact skin
49. it comes in contact with intact skin and mucous membranes
50. The term “noncritical item” means that:
51. it comes in contact with intact skin but not mucous membranes
52. it confers a high risk for infection if it is contaminated with any microbe
53. it contacts mucous membranes and nonintact skin
54. it comes in contact with intact skin and mucous membranes
55. High-level disinfection of the medical devices provides:
56. destruction of all microorganisms, with the exception of heavy contamination by bacterial spores
57. destruction of all microorganisms including bacterial spores
58. killing most bacteria except M. tuberculosis
59. inactivation of M. tuberculosis, most viruses and fungi.
60. Intermediate disinfection of the medical devices provides:
61. destruction of all microorganisms, with the exception of heavy contamination by bacterial spores
62. destruction of all microorganisms including bacterial spores
63. killing most bacteria with exception of M. tuberculosis
64. inactivation of M. tuberculosis, most viruses and fungi
65. Low-level disinfection of the medical devices provides:
66. destruction of all microorganisms, with the exception of heavy contamination by bacterial spores
67. destruction of all microorganisms including bacterial spores
68. killing most bacteria with exception of M. tuberculosis
69. inactivation of M. tuberculosis, most viruses and fungi
70. Choose the correct definition of disinfection among listed below:
71. a destruction of all forms of microbial life
72. a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects
73. a destruction or inhibiting growth and replication of microorganisms on the surface and in the body
74. a precautionary method used to prevent introduction of microbe into the patients body
75. Choose the correct definition of sterilization among listed below:
76. a destruction of all forms o f microbial life
77. a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects
78. a destruction or inhibiting growth and replication of microorganisms on the surface and in the body
79. a precautionary method used to prevent introduction of microbe into the patient’s body
80. Choose the correct definition of antiseptic measures among listed below:

1) a destruction of all forms of microbial life

2) a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects

3) a destruction or inhibiting growth and replication of microorganisms on the surface and in the body

4) a precautionary method used to prevent introduction of microbe into the patients body

1. Choose the correct definition of aseptic techniques among listed below:

1) a destruction of all forms of microbial life

2) a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects

3) a destruction or inhibiting growth and replication of microorganisms on the surface and in the body

4) a precautionary method used to prevent introduction of microbe into the patient’s body

1. Disinfection is directed to the following link of epidemical process:

1) a source of infection

2) a mechanism of transmission

3) a susceptible host

1. Diratisation is directed to the following link of epidemical process:

1) a source of infection

2) a mechanism of transmission

3) a susceptible host

1. Disinsectation is directed to the following link of epidemical process:
2. a source of infection
3. a mechanism of transmission
4. a susceptible host
5. all answers are correct
6. Final disinfection is necessary:
7. after hospitalization of a case
8. after recovery
9. in case of death
10. all answers are correct
11. Choose an appropriate measure to prevent the infection transmission in healthcare settings among listed below:
12. prophylactic disinfection
13. antiseptic measures
14. cleaning
15. all answers are correct
16. A prophylactic disinfection should be conducted:
17. in healthcare settings
18. in hotel and hostels
19. in airports
20. all answers are correct
21. The efficacy of disinfection depends on the following factors:
22. a type of transmission mechanism
23. microbiological properties of pathogens
24. concentration and potency of disinfectants
25. all answers are correct
26. The final disinfection should be conducted by professionals only (e.g., the disinfection station personnel), if there is:
27. epidemic focus of plague
28. epidemic focus of anthrax
29. epidemic focus of cholera
30. all answers are correct
31. The processing of medical and patientcare items consist of the following stages:
32. Sterilization
33. pre-sterilization cleaning
34. disinfection
35. all answers are correct
36. A wide range of antimicrobial activity includes

1) fungicidal effect

2) sporicidal effect

3) virulicidal effect

4) destruction of helminthes

1. Features of chlorine-containing compounds, which are considered to be their good points:

1) a wide spectrum of microbicidal action

2) surface disinfection

3) no interference with protein load

4) a good solubility in water

1. Choose all disadvantages of organic chlorine-containing disinfectants among listed below:

1) damage to the medical equipment

2) good stability in concentration

3) can cause local skin allergic reactions

4) restricted spectrum of biocidal activity

1. Choose all advantages of organic chlorine-containing disinfectants among listed below:

1) good solubility in water

2) low cost

3) possibility of the surface disinfection

4) no damage to the equipment

1. Choose all disadvantages of aldehydes among listed below:
2. carcinogenic to humans
3. irritating odor
4. dangerous for life
5. all answers are correct
6. Choose all disadvantages of oxygencontained disinfectants among listed below:
7. Expensive
8. corrosive action to copper, brass
9. damage eyes and skin when contacted
10. all answers are correct
11. Good points of quaternary axmmonium compounds are the following:
12. low toxicity levels
13. lack of odor
14. good cleaners
15. all answers are correct
16. Chemical disinsectants are divided into the following groups on the basis of the pathway of penetration into arthropods:
17. contact disinsectants
18. enteric disinsectants
19. respiratory disinsectants
20. all answers are correct
21. Destructive diratisation is conducted by the following methods:
22. mechanical method
23. biological method
24. chemical method
25. all answers are correct
26. Disinsectation is conducted against the following infections:
27. Malaria
28. louse-borne typhus
29. tick-borne encephalitis
30. all answers are correct
31. Diratisation is conducted for prophylaxis of such infections as:
32. Plague
33. Tularemia
34. hemorrhagic fever with renal syndrome
35. all answers are correct
36. Match hospital zone A with the appropriate disinfection requirements:
37. use of the detergent solutions
38. use of detergent/disinfectant solutions, withseparate cleaning of equipment
39. normal domestic cleaning
40. cleaning in intensive care units, delivery rooms
41. Match hospital zone B with the appropriate disinfection requirements:
42. use of the detergent solutions
43. use of detergent/disinfectant solutions, withseparate cleaning of equipment
44. normal domestic cleaning
45. cleaning in intensive care units, delivery rooms
46. Match hospital zone C with the appropriate disinfection requirements:
47. use of the detergent solutions
48. use of detergent/disinfectant solutions, withseparate cleaning of equipment
49. normal domestic cleaning
50. cleaning in intensive care units, delivery rooms
51. Match hospital zone D with the appropriate disinfection requirements:
52. use of the detergent solutions
53. use of detergent/disinfectant solutions, withseparate cleaning of equipment
54. normal domestic cleaning
55. cleaning in intensive care units, delivery rooms
56. Compare the disinfection measures with the listed functions:
57. maintain the asepsis stage
58. destroy bacterial spores
59. inhibit the growth of microorganisms
60. cover inanimate objects
61. Compare the sterilization measures with the listed functions:
62. maintain the asepsis stage
63. destroy bacterial spores
64. inhibit the growth of microorganisms
65. cover inanimate objects
66. Compare the antiseptic measures with the listed functions:
67. maintain the asepsis stage
68. destroy bacterial spores
69. inhibit the growth of microorganisms
70. cover inanimate objects
71. Compare the aseptic techniques with the listed functions:
72. maintain the asepsis stage
73. destroy bacterial spores
74. inhibit the growth of microorganisms
75. cover inanimate objects

Choose some correct answers.

1. A prophylactic disinfection is usually carried out when:

1) a source of infection is present

2) a source of infection is absent

3) a source of infection is unknown

4) during an outbreak

1. The main tasks of prophylactic disinfection are the following:

1) to prevent spread of a pathogen out of the epidemic focus

2) to prevent infecting the contacts

3) to prevent occurrence of infectious diseases

4) to interrupt transmission in case of an unknown source of infection

1. The main tasks of disinfection in epidemic focus are the following:

1) to interrupt transmission within the epidemic focus

2) to prevent occurrence of infections

3) to prevent spread of a causative agent out of an epidemic focus

4) to interrupt transmission if a source of infection exists but is unknown.

1. Current disinfection is necessary:

1) in household isolation

2) after discharging of the carrier from the hospital

3) after deathof the case

4) if a patient was hospitalized

1. Final disinfection is necessary:

1) after hospitalization of a case

2) after recovery

3) in case of death

4) in household isolation

1. Choose an appropriate measure to prevent the infection transmission in healthcare settings among listed below:

1) prophylactic disinfection

2) antiseptic measures

3) cleaning

4) postexposure prophylaxis

1. A prophylactic disinfection should be conducted:

1) in healthcare settings

2) in hotel and hostels

3) in airports

4) in epidemic focus

1. A current disinfection should be conducted:

1) in healthcare settings during the outbreak of infection

2) in hotel and hostels

3) in airports

4) in epidemic focus

1. The efficacy of disinfection depends on the following factors:

1) a type of transmission mechanism

2) a herd immunity

3) microbiological properties of pathogens

4) concentration and potency of disinfectants

1. The final disinfection should be conducted by professionals only (e.g., the disinfection station personnel), if there is:

1) epidemic focus of plague

2) epidemic focus of anthrax

3) epidemic focus of cholera

4) epidemic focus of pertussis

1. The processing of medical and patientcare items consist of the following stages:

1) sterilization

2) drying up

3) pre-sterilization cleaning

4) disinfection

1. Choose the correct examples of the mechanic disinfection among listed below:

1) cleaning

2) steam exposure

3) dusting

4) flash sterilization

1. Choose the correct examples of the physical method of disinfection among listed below:

1) shaking out

2) disinfection by heat

3) ionizing radiation

4) filtration

1. Choose the correct examples of the physical method of disinfection among listed below:

1) shaking out

2) ventilation

3) boiling

4) disinfection by fire

1. Choose the correct examples of the mechanical method of disinfection among listed below:

1) disinfection by oxidizers

2) aeration

3) dusting

4) biothermal punching of waste products

1. Choose all disadvantages of aldehydes among listed below:

1) carcinogenic to humans

2) irritating odor

3) dangerous for life

4) restricted spectrum of boicidal activity

1. Choose all good points of aldehydes among listed below:

1) relatively cheap

2) can be both disinfectant and sterilant

3) noncorrosive to rubber and plastics

4) absence of significant odor

1. Choose all advantages of oxygen-contained disinfectants among listed below:

1) wide germicidal activity

2) can be a sterilant

3) noncorrosive to metals

4) low cost

1. Choose all disadvantages of oxygencontained disinfectants among listed below:

1) expensive

2) corrosive action to copper, brass

3) their by-products are not environment-friendly

4) damage eyes and skin when cintacted

1. Good points of quaternary axmmonium compounds are the following:

1) low toxicity levels

2) lack of odor

3) good cleaners

4) sporicidal action

1. Disadvantages of quaternary ammonium compounds are the following:

1) a wide spectrum of bactericidal activity

2) a restricted spectrum of biocidal activity

3) resistance of pathogens

4) expensive

1. Disinsectation xmay be carried on in the following forms:

1) prophylactic disinsectation

2) destructive disinsectation

3) antiepidemic disinsectation

4) routine disinsectation

1. Chemical disinsectants are divided into the following groups on the basis of the pathway of penetration into arthropods:

1) contact disinsectants

2) attractants

3) enteric disinsectants

4) respiratory disinsectants

1. Destructive diratisation is conducted by the following methods:

1) radiation method

2) mechanical method

3) biological method

4) chemical method

1. Disinsectation is conducted against the following infections:

1) malaria

2) louse-borne typhus

3) leptospirosis

4) tick-borne encephalitis

1. Diratisation is conducted for prophylaxis of such infections as:

1) plague

2) tularemia

3) hemorrhagic fever with renal syndrome

4) malaria

Pick a word.

1. To expunge any hint of visible soil and dust in hospital environment (walls, windows, beds etc) is the objective of … (cleaning).
2. Any procedure that reduces to a significant degree the microflora of skin or mucous membrane is called … (antiseptsis).
3. The exclusion of all microorganisms before they can contaminate a sterile field during surgery is the aim of … (aseptic technique.)
4. A chemical that can be applied to inanimate objects to eliminate causative agents with the exception of spores is called …
5. A substance that tends to inhibit the growth and reproduction of microorganisms when applied to living tissue is called ...
6. Measures that prevent the penetration of rodents in the house are named … (rodent control).
7. Measures of killing rodents by various methods are named ...

**Answers**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1.a | 11.a | 21.b | 31.e | 41.b | 51.1,2,3 | 61.2,3 | 71.1,2,4 |
| 2.b | 12.a | 22.d | 32.d | 42.d | 52.1,2,3 | 62.1,2,3 | 72.1,2,3 |
| 3.a | 13.d | 23.d | 33.d | 43.d | 53.1,2,3 | 63.2,3 |  |
| 4.a | 14.c | 24.d | 34.d | 44.b | 54.1,4 | 64.1,2 |  |
| 5.a | 15.b | 25.d | 35.d | 45.c | 55.1,3,4 | 65.1,2,4 |  |
| 6.b | 16.a | 26.d | 36.d | 46.a | 56.1,2,3 | 66.1,2,3 |  |
| 7.d | 17.e | 27.d | 37.d | 47.1,2 | 57.1,3,4 | 67.2,3 |  |
| 8.c | 18.e | 28.e | 38.d | 48.3,4 | 58.1,3 | 68.1,2 |  |
| 9.b | 19.e | 29.e | 39.c | 49.1,3 | 59.2,3 | 69.1,3,4 |  |
| 10.c | 20.b | 30.e | 40.a | 50.1,2 | 60.3,4 | 70.2,3,4 |  |