KING FAISAL UNIVERSITY
College of Medicine

Surgery 4.2

Student Manual

2020 Edition

Surgery – Student Manual 2020-2021

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Introduction

Starting points and aim

The competences you were introduced to in the Bachelor's phase remain a guiding principle in the Master's phase. The aim is to achieve an integral application of these competences at level 2 and application of the previously acquired knowledge, skills and professional conduct in a clinical 'surgical' environment. The internships that are part of this junior clerkship will therefore take place in the following disciplines: surgery, plastic surgery, otolaryngology, radiotherapy and anaesthesiology. An important aim of the internships is that you learn through consultations to record perfectly – on paper or digitally – your thoughts on the patients entrusted to you. Since the consultation process is key in this first year of the Master's phase, every period in the clinical training center begins with a week during which the consultation process is taught in increasing complexity.

Like the other 3 blocks in M1, the Surgery block is designed according to the dual principle: 'learning' in the clinical training center is alternated with 'working' in the form of clinical internships. The rhythm of this 'learning' and 'working' consists of five weeks of teaching in the clinical training center and five weeks of clinical internship. We aim to train you to take an integral approach to patients with specific surgical problems.

Junior clerks have the opportunity to return from the clinical internship to the clinical training center to further practise those skills that proved more difficult in the practical situation than anticipated.

To conduct consultations adequately, sufficient content-related knowledge of the relevant disciplines is required. However, content-related knowledge of other disciplines directly involved, for example laboratory medicine, radiology, medical microbiology, health, ethics and society, pathology, etc., are essential. You have to relate the pathophysiological principles learned in the Bachelor's phase to clinical problems and describe these relationships. Furthermore, knowledge of basic concepts such as anatomy and physiology must be repeated and mastered.

Surgery – Student Manual

Academic year 2020-2021

Week 2 head and neck

PS session ENT part I – ear and hearing

PS session ENT part II – nasal cavity, oral cavity and pharynx

CC session
ENT

S session/Interactive tutorial Assignments will be published on Nestor

PS session: ENT part I – ear and hearing

Duration
2 hours

Learning outcome
Students are able to:
1. take a specific medical history with regard to problems with the ear and hearing after finding out about the main health problem
2. conduct an examination of the external ear, the mastoid process, the auditory canal and the tympanic membrane
3. conduct a functional examination of the ear using tuning fork tests
4. interpret results of the tuning fork tests
5. interpret audiograms

Student tasks
Preparation: Read the student manual. Read Chapter 13 (Ear examination) in *Macleod's clinical examination*
Watch the film clip on the examination of the ear and hearing at
www.youtube.com/watch?v=FE0Sot4OoAE
During the session: Actively take part in Socratic questioning, practise examination of the ear and hearing.

Answer the following questions:
1. Which case history questions are important for problems with the ear and hearing?
2. Explain the Eustachian tube: where is it located, what does it do, what are the consequences of its dysfunction for the tympanic membrane?
3. When are the terms conductive hearing loss and sensorineural hearing loss used?
4. Which hearing tests are available?
5. Interpret the following results of the tuning fork tests

- Weber median // Rinne bilateral positive
- Weber lateralizes to the left // Rinne bilateral positive
- Weber median // Rinne bilateral negative
- Weber lateralizes to the right // Rinne bilateral negative

Study material
Study the relevant anatomy . Explore the physiology of the ear. Read the student manual. Read Chapter 13 *Macleod's clinical examination*.

Organization
Ear:
- A diagram of the ear including the vestibular system and mastoid process will be shown and explained using a PowerPoint on blackboard
- Touch on key questions for history-taking
- Watch as a group a film clip on ear examination www.youtube.com/watch?v=FE0Sot4OoAE
- Demonstration of the examination on a test subject
- Carry out the examination on each other under supervision
- Photographs of some common clear pathologies will be shown (otitis externa, retracted and bulging tympanic membrane, serous symptoms, eardrum perforation, grommet in situ, mastoiditis symptoms)
- Preparatory questions will be discussed

Hearing:
- Brief history-taking.
- Whisper test
- Tuning fork tests (watch film on tuning fork tests on Nestor and practise on each other)
- Audiogram. Bone and/or air conduction, loss of high pitches, noise dip
- Preparatory questions will be discussed

Quality/assessment criteria
Checklist ear and hearing

Appendices
1. audiogram
2. checklist ear and hearing

Appendix 1

Audiogram

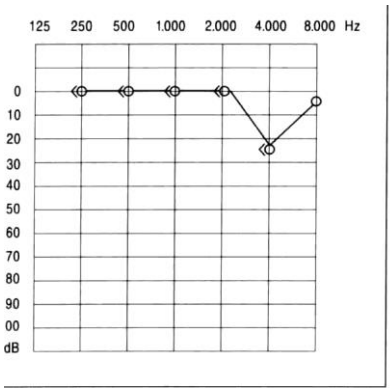
An **audiogram** is a graph or diagram produced using an audiometer which shows an individual's auditory threshold. This is generally represented as the intensity of a tone which the person tested can still just hear, as a function of the frequency. The intensity of the tone is represented on the vertical axis in dB Hearing Level and the pitch on the horizontal axis in Hertz (on a logarithmic scale).

An ENT specialist can use an audiogram to make a statement about the symptoms and sometimes also about the causes of hearing damage.

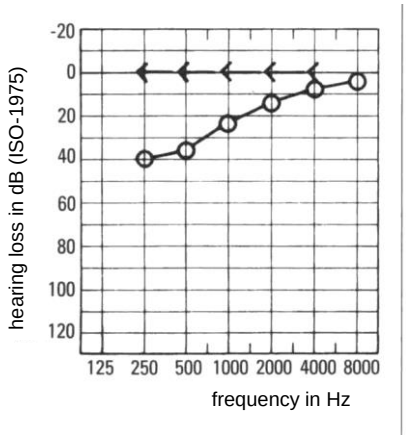
An audiogram is usually recorded by presenting a test subject with tones of different pitch using headphones. The tones start off very quietly so the test subject cannot hear them, but they gradually get louder. The moment the test subject hears the tone, he gives a sign to the person recording the audiogram. This person then puts a mark on the audiogram at the correct pitch and intensity. This is repeated for various pitches. A curve is drawn by connecting the recorded points, completing the audiogram.

Recording an audiogram generally takes place in a soundproof room in order to limit external disturbances as much as possible. The test subject cannot influence either the pitch presented at any time or the intensity of the tone. He can only indicate whether he does or does not hear anything. To exclude guessing or cheating by the test subject as much as possible, the tones to be measured are usually presented more than once – and not in the same order.

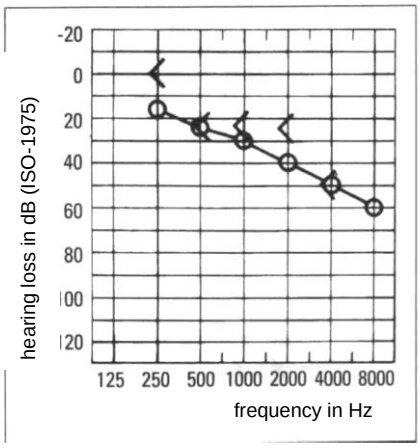
Audiogram examples



Noise-induced hearing loss, noise dip at approximately 4000 Hz



Conductive hearing loss at low frequencies, as in for example serous otitis media



Sensorineural hearing loss, presbyacusis

For more details and background information, see
www.youtube.com/watch?v=A&pPuhRKmIA .

On that website information can be found on multiple topics; the information is presented on different levels ranging from a level aimed at patients to a level aimed at scientists.

Appendix 2:

Ear and hearing checklist

Prior to the examination
greeting
explanation of the examination and why it is taking place
instructions for undressing
remove jewellery, wash hands
put on gloves if necessary

Ear: external
inspection of the auricle
palpation of the auricle
press on the tragus
palpation of the mastoid process
inspection of the external auditory canal

Ear: inspection and assessment of the tympanic membrane
use an otoscope

Hearing: tuning fork tests
Weber test
Rinne test

Hearing: assessment of the audiogram
able to describe and interpret the audiogram
able to explain
able to make a correct diagnosis

After the examination
indicate the end of the examination
instructions for getting dressed
conclusion and presentation of findings
wash hands

General
able to demonstrate knowledge of skills involved

PS session: ENT part II – nasal cavity, oral cavity and pharynx

Duration
2 hours

Learning outcome
Students are able to:
1. take a specific medical history with regard to problems with the nose, nasal cavity and paranasal sinuses after finding out about the main health problem
2. generate hypothesis-testing questions concerning problems in the oral cavity and pharynx
3. conduct an examination of the nose, the nasal cavity and the paranasal sinuses
4. conduct an examination of the oral cavity and the pharynx

Student tasks
Preparation: Read the student manual. Read Chapter 13 on examination of the ear, nose and mouth in *Macleod's clinical examination*.
Watch the accompanying film clips on examination of the ear, nose and oral cavity at www.youtube.com/watch?v=Zvgiw75fUA
Work out preparatory questions.
During the session: Actively take part in Socratic questioning, practise the examination of the nose, nasal cavity and paranasal sinuses, oral cavity and pharynx.

Study material
Study the relevant anatomy. Read the student manual. Read Chapter 13 on examination of the ear, nose and mouth in *Macleod's clinical examination*

Organization
Nose:
- Use the images in the ENT PowerPoint presentation Blackboard to explain the internal and external bone and cartilage structures of the healthy nose
- Function of the nose (olfaction, moistening, filter, heating of air, speech)
- Touch on key questions for history-taking (for example blockage, discharge, sneezing, chronic or acute)
- Demonstrate the examination on a test subject
- Carry out the examination on each other under supervision
- Show and explain some common clear pathologies (septum deviation, swelling, secretion, polyps).

Oral cavity and pharynx:
- Show and explain normal picture using the PowerPoint *ENT* (Blackboard)
- Touch on key questions for history-taking (for example pain, chronic or acute, swallowing problems, voice problems, general symptoms of illness, smoking and alcohol consumption). A case from the skills booklet can be used for this.
- Demonstrate the examination on a test subject
- Carry out the examination on each other under supervision
- Show and explain some common pathologies (see PowerPoint *ENT* on Blackboard)

Preparatory questions
A: What problems could a 31-year-old man with a nasal septum deviation have?

B: Imagine a mother of a 5-year-old child telling you that her son displays ‘open mouth behaviour’. What could she mean by that? What could be the cause of this?

C: Imagine a 55-year-old man presenting to you with the complaint ‘I have a lump in my neck below my ear. What could that be?’ What else would you like to find out from him in order to answer his question?

D: A 22-year-old woman has had a sore throat for the last two days. In which structures could her sore throat originate? What are your hypotheses concerning this symptom?

- Imagine that in case A, this woman has – in addition to the sore throat – pain when swallowing, swollen glands in the neck, fever, malaise and she does not want to eat or drink.

- Imagine that in case B, this woman has – in addition to the sore throat – few other symptoms apart from mild coughing and a slight runny nose.
  What is your differential diagnosis?

Quality/assessment criteria
Nose, mouth and throat checklist

Appendices
1. Nose, mouth and throat checklist

Appendix 1:

Checklist nose, mouth and throat

Prior to the examination
greeting
explanation of the examination and why it is taking place
instructions for undressing
remove jewellery, wash hands
put on gloves if necessary

Nose
Inspection of the nose
colour and flawlessness of the skin
position of the nose
swelling
nasal orifices
columella nasi
front part of the nasal vestibule

Palpation of the nose
bony nose skeleton
tip of the nose
freedom of nasal passages

Palpation and percussion of paranasal sinuses
maxillary sinus
frontal sinus

Anterior rhinoscopy
correct instructions to the patient
use nasal speculum
assessment of nasal mucous membranes
flawlessness, colour and swelling
presence of blood or mucus

Mouth
Inspection of the oral cavity
lips
buccal mucous membrane
gums and teeth
tongue, floor of the mouth
palate

Palpation of the oral cavity
lips
buccal mucous membrane
gums and teeth
tongue, floor of the mouth
(bimanual) and palate

Throat
Inspection of the oropharynx
anterior pharyngeal arches, at rest and when tightened
position of the uvula
tonsils, tonsillar fossas
posterior wall of the oropharynx
palpation of the oropharynx (on indication)

After the examination
indicate the end of the examination
instructions for getting dressed
conclusion and presentation of findings
wash hands

General
able to demonstrate knowledge of skills involved

CC session: ENT

Type
Complete consultation session with simulated patients

Group size
12 students

Duration
3 hours

Learning outcome
Students are able to conduct a full consultation with a simulated patient. All stages of the consultation should be addressed.

Student tasks
Preparation: Study the study material. The knowledge acquired during the Bachelor's phase is presumed to be known. Study the checklists thus far.
Three students conduct a consultation with a simulated patient. Prepare for this. Bring along everything you may need, such as a stethoscope. Dress appropriately. Introduce yourself to the simulated patient. In terms of content, you are expected to prepare by being familiar with the necessary skills, such as history-taking and physical examination; you must also be able to propose treatment and a treatment plan with regard to the weekly theme. In a few of the sessions you will be asked to play the role of the simulated patient as well as the role of a parent/carer or a child.
During the session: Actively take part in the CC session, both in the role of clerk conducting the consultation and as an observer providing feedback.

Study material
Study material from earlier Ci sessions and PS sessions
(Ear, nose and throat surgery and head and neck surgery), Hans Behrbohm 3rd edition.
The skills acquired during the PS sessions ENT I and II, as well as the PS session head and neck are presumed to be known.

Students must bring:
reflex hammer
stethoscope
penlight

Appendices
1. Feedback list for CC session

Appendix 1

Feedback list for CC session

The teacher applies the following steps in the order given to each consultation:

1. The student doctor states how many junior clerkships he has already completed. The teacher informs the simulated patient.
2. The student doctor states the learning points suggested following earlier interviews.
3. The consultation takes place.
4. Comments from the student on his own consultation and indication of the aspects on which feedback is desired.
5. Feedback from the simulated patient.
6. Feedback from student observers. The teacher asks for a reaction from the observing students.
7. If desired: reaction by the student to the feedback from points 5 and 6.
8. Feedback from the teacher.
9. The student suggests his own learning points.

Surgery – Student Manual

Academic year 2020-2021

Week 3 thorax

PS session Breast examination

PS session Suturing course parts I and II incl. anaesthesia techniques

Ci-A session Cardiovascular system and breasts

Ci-session Bad news interviews

CC session
Thorax

S session/Interactive tutorial Assignments will be published on Nestor

PS session: Breast examination

Duration
2 hours

Learning outcome
Students are able to:
- formulate hypothesis-testing questions and establish a differential diagnosis with regard to breast problems
- conduct the standard physical examination of the breast and regional lymph node stations

Student tasks
Preparation: Read the study material and Chapter 12: (Lump in the breast) *Browse's introduction to the symptoms and signs of surgical disease*
Watch the film clip on breast examination available on blackboard.
During the session: Take part in the examination, practise.

Study material
Read theory from the folder and Chapter 12: (Lump in the breast) *Browse's introduction to the symptoms and signs of surgical disease*

Quality/assessment criteria
See checklist breast examination (see appendix)

Appendices
1. Theory of the breast and axillary examination
2. Checklist breast examination

Appendix 1

Theory of the breast and axillary examination

Significance of the breast examination
A breast examination is more emotionally charged for the patient (male or female) than, for example, a shoulder examination. Furthermore, the examination is often carried out because of suspected breast cancer. Fear of having breast cancer also plays a role. One in nine women in the Western world will develop breast cancer, which in and of itself indicates the importance of a well-conducted breast examination.

Indications for the breast examination
1. in an asymptomatic individual, on indication (for example as part of population screening)
2. in a woman with problems
3. in a man with problems

Re. 1: - in an asymptomatic patient in whom suspected abnormalities have been found on the mammogram during population screening.

Re. 2: - sensitivity or pain in one or both breasts, which may or may not be related to the menstrual cycle.
- palpable tumour
- recently developed dimpled skin or retracted nipple
- nipple discharge
- eczema of the nipple
- signs of inflammation
- ulcers

Re. 3: - palpable tumour
- recently developed retracted nipple
- eczema of the nipple
- ulceration
- unilateral or bilateral gynaecomastia (always combine examination with examination of the testicles: testicular carcinoma in the man)

COMMUNICATION SURROUNDING THE EXAMINATION

Prior to the examination

Enquire about earlier experiences. Carefully explain what you are going to do and give clear instructions to the patient. Make sure the patient feels reasonably comfortable. Discuss the presence of other people, if appropriate. The instructions for undressing are: remove all upper garments, including bra, so the upper body is completely undressed. Make sure your hands are clean and warm and your nails are short. Ensure privacy is sufficient, so close the curtains between the door and the examination table. Allow for questions.

During the examination

Watch your use of language, make sure you do not use words which have a double meaning, for example 'That is looking good'. During the inspection, talk in non-medical terms about what you are examining and also maintain sufficient eye contact. Also explain why you are carrying out the inspection in different positions. Enquire about possible pain and examine the painful site last.

After the examination

Indicate clearly that you have finished the examination and that the patient can get dressed. Briefly evaluate the examination in the consulting room, for example 'How did you think it went?' or 'Did you think the examination was unpleasant?'

Exercise:
1) Introduce to your fellow student that you want to carry out a breast examination during the training session; explain what the examination entails and discuss possible questions. What words will you use?
2) A 40-year-old patient presents to you with pain in her right breast. The breast examination shows a swelling which you feel is clearly suspect. How do you deal with this during the physical examination?

DESCRIPTION OF THE EXAMINATION

Inspection at rest

The patient stands in front of the examiner with the arms down by her sides. Inspect both breasts according to a set pattern, all the time comparing right and left, first one and then the other breast. Make sure the lighting is good. The breasts must be lit symmetrically so contour differences are clearly visible. Also inspect the breasts from the sides, both from the left and from the right. Maintain contact with the patient during the inspection, for example by talking about what you are examining and by maintaining eye contact.

During the inspection, pay attention to:
- contour differences
- swelling
- dimpling of the skin
- changes to the nipple, for example position, retraction, scratches or abrasions, eczema
- peau d'orange
- ulcers

Inspection when moving

Ask the patient to lift the arms and again systematically compare the left and the right breast. Look for contour differences and skin depressions (dimpling). A previously invisible swelling or dimpling of the skin can manifest itself this way.

Ask the patient to put the hands in the sides and then press firmly. This manoeuvre ensures the pectoral muscles are taut; look for any visible contour differences or dimpling of the skin in this position. A tumour attached to the muscle layer can now become clear.

Palpation

Ask the patient to lie down on the examination table **with the hand at the side of the breast to be examined under the head**. First examine the problem-free breast, then the part of the breast where the patient indicates no problems exist and finally the site where the patient indicates the problems are located. Palpate with the **index finger, middle finger and the ring finger of the extended dominant hand**, whereby the other hand supports the breast on the lateral side, if the breasts are large. With small or normal breasts, you palpate with the extended fingers of two hands, or you support the palpating dominant hand with the other hand. Palpate using the 'spokes of a wheel' system. This means palpating with small circular movements from lateral to central, in the direction of the nipple. Like the spokes in a wheel, all the while moving along a little. Take your time and carry out the palpation carefully and systematically, so you will have palpated the entire breast.
By exerting slight pressure, abnormalities between the palpating fingers and the thoracic wall may be felt. Enquire about possible pain. If the patient feels no pain, palpation can be slightly deeper with more pressure from the palpating fingers and in the same manner as described above.
Examine the entire breast this way, therefore also the part extending into the axillary, the axillary process. When reporting and recording the location of a palpable swelling in the breast, it is useful to refer to an upper and a lower quadrant, both lateral and medial, for example the lateral upper quadrant. Make a drawing of the position and the size of the abnormality detected.

Also palpate the area around and underneath the nipple (the areola), not just to assess the underlying glandular tissue but also to assess whether the nipple is fixed to the underlying structure. Fixation of the nipple to the underlying structure is an indication of pathology.

A dimpling of the skin that was not detected previously can become clear on bimanual examination, whereby the abnormal quadrant is carefully moved; this dimpling can be provoked by bimanually moving areas of the skin towards each other.

The consistency of the breast tissue can vary depending on the amounts of functional glandular tissue, connective tissue and adipose tissue and the point in the menstrual cycle. The palpation can be difficult, especially in young women, because the entire glandular disc – or a large part of it – can feel lumpy. However, this is a normal physiological phenomenon.

Carry out the palpation of the axillary lymph node stations and the lymph node stations in the supraclavicular compartments with the patients sitting down or standing up. When palpating the armpit for the presence of lymph node metastases, it is essential that the muscles are as relaxed as possible. This can be achieved by getting the patient to let the bent arms loosely dangle and rest on the examiner's lower arm. The right lower arm now rests on the examiner's right lower arm and the left lower arm rests on the examiner's left lower arm. Systematically palpate the patient's right armpit with the left hand, using the extended fingers and palpating against the thoracic wall. Palpate the left armpit with the right hand. Palpate the following areas with the fingertips of the extended fingers:

- ventrally, on the rear/lower side of the pectoralis major (do not squeeze the muscle)
- dorsally, at the front of the latissimus dorsi (do not squeeze the muscle)
- high in the tip of the armpit.

In all cases, palpate against the thoracic wall.

Examine the supraclavicular and infraclavicular compartments. Stand behind the patient, who should be sitting down, and compare both compartments individually whilst palpating. The median corners of these compartments are especially important because these are the sites where the first lymph node metastases manifest themselves.

Interpretation of the findings
The most common breast problems in sexually mature young women are problems concerning tight, sometimes painful breasts just before menstruation. Other problems may concern localized abnormalities in a breast; this usually means the woman has detected a lump in the breast. Depending on the clinical characteristics, after the history-taking and the physical examination the lump may or may not raise the suspicion of a malignant tumour.

Benign tumours – think cysts or fibroadenomas – usually feel like clearly circumscribed, round or oval swellings, which are free from the skin and the underlying structure. They can occur prior to the menopause. In the menopause, every breast tumour is a suspected malignancy. Pain in both breasts, such as premenstrual painful and tight breasts, is more likely to indicate a benign process (physiological, mastitis, cyst) than a malignancy. Localized pain in an area that was not previously painful, with or without a palpable swelling, requires further investigation.

With spontaneous nipple discharge, consider pregnancy, use of medication, a pituitary tumour or a papilloma in the lactiferous duct. The nipple discharge may be cloudy, yellow/white or sanguineous fluid. Nipple discharge in neonates is a normal phenomenon: neonatal milk.

Mastopathy is a common disorder. This is sometimes referred to as dysplasia, breast cyst or hyperplasia. Histologically, there appears to be epithelial proliferation, metaplasia, connective tissue growth and coarse microcalcifications. The cause is then probably an abnormality in the hormonal balance. This can be expressed clinically in multiple ways: mastodynia (pain, especially in the premenstrual period), chronic cystic mastitis or cyst formation in the breast (also most problems in the premenstrual period). Single or multiple cysts are easily identifiable as such on palpation: clearly circumscribed, located freely in the breast, fluctuating swellings with a smooth surface.
Malignant processes are often not clearly circumscribed, not painful and feel firm. It is well possible that such a tumour is attached to the skin or the underlying structure. If the skin is dimpled without a scar, there is a carcinoma. With recently developed retraction of the nipple, there is a justified suspicion of carcinoma. If mastitis occurs at times other than after childbirth, malignancy should be considered.

Appendix 2

Checklist breast examination

Prior to the examination
greeting
explanation of the examination and why it is taking place
instructions for undressing
remove jewellery, wash hands

Inspection
standing upright, at rest (from the front and from both left and right side)
asymmetry of the breasts, including the nipples
contour differences
swelling
dimpling of the skin
changes to the nipples
peau d' orange
ulcers

when moving (elevation-abduction with both arms) and when the pectoralis major is taut
asymmetry
swelling
dimpling of the skin

Palpation
breast:
lying down, hand under head
the entire breast per quadrant, including axillary process
(with the pulpa of the extended fingers, palpate spirally using the 'spokes of a wheel' system from lateral to central in the direction of the nipple
areola / behind the nipple (the nipple is moved up / down using the extended fingers of both hands)

lymph node stations
armpit (middle, front, back, top)
supraclavicular and infraclavicular on both sides

During the examination
talk during the inspection about what is being examined
sufficient eye contact
enquire about possible pain

After the examination
indicate the end of the examination
instructions for getting dressed
conclusion and presentation of findings
wash hands

General
able to demonstrate knowledge of skills involved

PS session: Suturing course parts I and II incl. anaesthesia techniques

Group size
20-25 students

Duration
Part I: 3 hours
Part II: 3 hours

Location
Skills center

Learning outcome
Students are introduced to wound suturing and practise this on animal material (pig's leg).
Students are introduced to surgical knots and practise these on a knot tying board.
Students are introduced to anaesthesia techniques.
Students are introduced to minor surgery and practise this on animal material (pig's leg).

Student tasks
Part I:
Preparation: The knot tying technique used in the training session can be found in the PDF file by *Ethicon educatief*. Search for 'dermabond' on Google. The second title given is that of *Ethicon educatief*. This document contains 4 chapters: 1) suture materials 2) suturing needles 3) suturing and knot tying techniques and 4) skin glue. The one-handed knot tying technique, described in Chapter 3, is used in this training session. The other chapters are also very illustrative.
During the session: Watch the PowerPoint Wound suturing, knots and anaesthesia techniques. Actively take part in Socratic questioning. Practise suturing on animal material (pig's leg), and surgical knots on a knot tying board.

Part II:
During the session: Watch the PowerPoint presentation Minor surgery. Actively take part in Socratic questioning. Practise suturing and minor surgery on animal material (pig's leg).

Timetable part I:

30 minutes:	Watch interactively as a group the PowerPoint presentation
30 minutes:	Practise knot tying on knot tying board
10 minutes:	Break
10 minutes:	Demonstration of wound suturing (transcutaneous, continuous and Donati suture techniques)
100 minutes:	Practise transcutaneous, continuous and Donati suture techniques on a pig's leg.
	Feedback by the teachers.

Timetable part II:

30 minutes:	Watch interactively as a group the PowerPoint presentation
10 minutes:	Demonstration of intracutaneous suturing
140 minutes:	Practise transcutaneous, continuous, Donati and intracutaneous suture techniques on a pig's leg.
	Feedback by the teachers.

Teaching aids
Per student: needle threader, suture material (Ethicon), surgical tweezers, scissors, pig's leg. Knot tying board and knot tying thread. Examples of knot tying technique.

Students must bring along to the training session:
A clean white coat!

Ci-A session: Cardiovascular system and breasts

Duration
2 hours

Learning outcome
Consultation: Practise the different phases of the consultation, paying attention to the structure of the consultation, the transitions to the different phases and communication aspects in the different phases.
Medical aspects: Students are able to take a history from a patient with chest problems (cardiovascular, lungs and breasts). This is the part of the consultation from the beginning to the physical examination.

Student tasks
Preparation: Study the consultation phases and communication skills (Folder Consultation process), textbook (Medical Consultation Process).. Study the model file. Reflect on individual learning outcomes which may be addressed in this communication training. Students must have adequate knowledge of the anatomy and physiology of the thorax and the organs in the thoracic cavity. Revise these subjects as preparation if necessary. Students prepare their own patient role, working up both the medical aspects and context factors of the role (Appendix 1: preparation form). They are able if necessary to describe in broad terms what abnormalities might be found in an examination and what the treatment plan would be in that case, although this session is restricted to the first part of the consultation, i.e. taking the history of a patient with a chest problem.
During the session: Take part in role-play, reflect on it and give and receive feedback. Complete a self-assessment in the consultation logbook afterwards.
During the sessions the students will alternate between the roles of patient, doctor and observer.
It is possible that not every student will get to play each role during this session. In that case, any students who have not yet played the role of doctor should be given the opportunity to do so in a future session.

Study material
Folder *Consultation*, Model file
Medical Consultation Process by Veening et al.
Study *Browse's introduction to the symptoms and signs of surgical disease*
Chapter 1 : Acute pain in the chest and back & Dysphagia
Chapter 12: Lump in the breast
NHG standards

Quality/evaluation criteria
SEGUE feedback form

Appendices:
1. Patient role preparation form

Appendix 1

Preparation form

Personal details
Name: m/f
Date of birth:
SES:
Medical history:
Medication:

Working diagnosis
Differential diagnosis:

Main health issue
What do you mention spontaneously?

Exploration of the health issue
Reason for contact
Stimulus
Care request / expectations

Dimensions of the main health issue
Nature
Location
Severity
Chronology
Origin
Influences
Attitude and perception

Supplementary data
Family medical history
Intoxications
Allergies
Psychosocial problems

Hypothesis-testing
Which hypothesis-testing questions can you expect after exploration of the main health issue, based on the possible DD? Describe what your answer to these questions would be.

Finally, formulate briefly what you expect to find in the examination and what the treatment plan would be in this case.

Physical examination

Treatment plan

Ci session: Bad news interviews

Duration
2 hours

Learning outcome
Students learn the basic principles of bad news interviews. Students are able to handle these in an empathic manner and show understanding of patients' and their relatives' emotions. Students have practised conducting a bad news interview.

Student tasks
Preparation: Read student manual on bad news interviews and analyze the three cases described. Refresh module 3 Concluding interview of the Consultation Skills Training in the third year of the Bachelor's phase.
During the session: Actively take part in Socratic questioning, actively take part in role-play.

Study material
Read student manual on bad news interviews. Refresh module 3 concluding interview of the Consultation Skills Training in the third year of the Bachelor's phase.

Learning method

Role-play will start after the Socratic questioning, in which the study material will be discussed and earlier experiences with bad news interviews will be focused on.

The structure of this session is different from the usual Ci sessions. The patient roles will not be assigned. All students will be given the 3 case descriptions beforehand and are expected to prepare these. The roles will not be played in small groups but in the entire group. A total of 4 students are actively involved in each role-play: two students play the role of patient and his/her partner and the other two students together play the role of doctor. The patient / partner roles will be assigned during the session and include extensive instructions. The students not participating in the role-play will be observers. This way, more students will have the opportunity to practise these interviews: for 3 roles 6 students as doctor and 6 students as patient / partner.
The following rules apply:

- One doctor is speaking at any given time, and will therefore conduct the interview in the first person singular despite the fact that the role is being played by two students.
- Either doctor may take over from the other by gently tapping the other on the shoulder. This arrangement enables the students to help and support each other during these difficult interviews.
- The doctors sit with their backs towards the whiteboard; patient / partner and observers face the board. The tutor may write suggestions for the patient / partner on the board during the interview if necessary.
- There will be a postmortem discussion after each interview, when the communicative aspects will be discussed, for example 'Which part of the interview was difficult? What went well? Where is there room for improvement?

Since teachers realize that bad news interviews are very hard and can be confrontational, students are asked to be very careful when giving feedback. Safety in particular is very important! Always state what has gone well too. An hour is planned for each round.

Appendices
1. Introduction to bad news interviews (B.Szabo and A.Postma)
2. Case descriptions 1, 2 and 3

Appendix 1
BAD NEWS INTERVIEWS

Bad news deserves a good interview

Introduction
Bad news interviews are, irrespective of the doctor's experience, one of the most difficult forms of doctor-patient communication. Since bad news interviews are never identical and can often take an unexpected turn, conducting a bad news interview will always remain difficult, even if the doctor has conducted many interviews in the past.
The doctor knows prior to the interview that the announcement will disappoint the patient and/or make the patient anxious. It can even make the patient desperate and/or panic.
Many interviews on diagnosis and treatment, in particular when these have important implications for the patient's future life, are often considered 'bad news' by the patients, even if these treatments are aimed at curing the patient. A pitfall in a bad news interview may be that the doctor and the patient sometimes have different opinions of what constitutes bad news.
The – for the doctor – 'simple' announcement that a planned operation or other treatment which the patient has anticipated has been postponed can be considered bad news by the patient, whilst the doctor only sees this as a logistical problem.
It is also possible for example that a patient, when hearing the diagnosis 'cancer', thinks that the prospects are therefore hopeless, whilst the doctor knows and wants to convey the fact that there are good curative options. This can lead to the doctor being surprised during the course of the interview by unexpected emotional reactions that the announcement has evoked in the patient.
The interview is guided in the first instance by the sentiment the announcement evokes in the patient and the way the patient expresses this sentiment.
The doctor must show empathy in such a situation, even if – in the doctor's opinion – the patient's reaction is different from the medical reality.
Conveying bad news demands careful communication and must not become routine for any doctor.
The patient's initial assessment of the doctor is mainly based on communication skills. A medical procedure or treatment, regardless of how expertly performed, will be perceived by the patient as more unpleasant if the doctor communicated badly with the patient.

Preparation
1. Ensure you are familiar with the case prior to starting the interview. Nothing disturbs or damages the patient's trust more than a doctor who is continually looking at the patient's medical file because he is unfamiliar with the patient's medical history.
2. Consider beforehand *what* you would like to discuss with the patient (draw up your own agenda, possibly make a few notes on paper).
3. The Medical Treatment Contracts Act states the obligation of the doctor to inform the patient fully and truthfully. Some more or less experimental treatments even require the patient's signature before treatment can be started. If there are medical reasons for starting treatment quickly, this may result in being pressed for time during such a first interview. A possible solution is to limit yourself to the main aspects and plan a follow-up interview very soon afterwards to discuss further details.
4. The reaction to the announcement of bad news differs per patient. It is useful to estimate this beforehand and to consider this. It is known that some patients, for example those with a psychiatric history, including depression and hypochondria, can sometimes deal poorly with bad news. This can cause reactions with serious consequences for the patient. It is therefore recommended for patients with a psychiatric history to consult the patient's GP beforehand about the strategy to follow.
5. Arrange for a separate room where the interview can take place. A curtain around the bed in a ward is not a good environment for conducting a bad news interview!
6. Make sure tissues are available.
7. Hand over your pager to your secretary and turn off the phones, both landline and mobile phone.
8. Make sure a relative of the patient and possibly a nurse are present at the interview. A nurse will then know exactly what has been said during the interview and afterwards can

help the patient with the coping process and answer the many questions the patient still has following the interview, but has not yet asked.

9. A bad news interview can also evoke visible emotion in the doctor. The doctor should not be ashamed of this. However, the doctor's emotions must not hinder the progress of the interview. Patients do not mind that their doctor has emotions, but they must not hinder good care. In addition to the bad news the doctor must convey, there are many factors when communicating with patients that influence the doctor's emotions and the manner in which his own emotions influence the course of the interview. It is useful to assess this beforehand.

The initial contact

Apologize if the patient has had to wait for a while in the waiting room.
Shake the patient's hand whilst looking at the patient in a friendly manner. Although it is better if the doctor's facial expression does not betray the seriousness of the announcement at that moment, this cannot always be prevented, especially if the doctor and patient have known each other for some time. In such cases, patients are very sensitive to the non-verbal communication of their attending doctor.
Observe the patient well to gain an impression of the level of anxiety (appearance, sweating, clammy hands, tremor, etc.). Ensure there is enough time for the interview. Therefore, do not make the appointment for the interview at the beginning or in the middle of surgery hours, but at the end of them or at the end of the day.

The interview

Actively listening and being attentive are the most important aspects of a bad news interview. This is fundamentally different from listening or looking at a screen whilst talking; in other words communicate **with** the patient and do not talk **at** the patient. A number of general rules may be applied to bad news interviews.
These include:

1. It is advisable to announce the bad news to the patient straight after a brief introduction, for example with the announcement, 'The tests that have been carried out last week for ..., have confirmed a diagnosis of ...'
2. A long introduction only increases the tension and may make the patient think of something worse. Furthermore, the patient's attention may wander.
3. Keep the announcement as brief as possible and in **language understandable** to the patient. The doctor should realize that the average patient is educated to VMBO (pre-vocational education) level. Even higher-educated patients generally do not understand medicine well and do not know many of the terms used. You cannot assume patients will tell you when they do not understand something, because most patients don't.
4. Do not try to moderate the bad news immediately in order to make the situation seem less bad. Comments such as 'Many people have the same as you have,' or 'You have been diagnosed with cancer, but it is not so bad because fortunately!! we caught it early' or 'Unfortunately we have to amputate one of your legs, but fortunately you have another one,' are inappropriate.
5. It is also not advisable to state the reality in a single statement, for example, 'You have a very severe form of cancer. If you do not start treatment immediately, you will soon die.'
6. Show empathy. The comment, 'I can understand that you ...' can sometimes create annoyance in a patient, because the patient can think, whether or not justifiably, that the doctor *cannot* possibly understand because he is not confronted by it himself. It may sometimes be better to say, 'I see that this announcement is hard for you. Could you tell me what you see as most important at this moment?' Or, 'Could you tell me what you are feeling now?'
7. Allow the patient to express emotions, even if this involves silence. In fact, silences in bad news interviews are good.
8. The doctor must make sure that the patient feels understood and supported by, for example:
   - showing understanding if the patient wants a second opinion and guaranteeing the same treatment as without a second opinion
   - saying that the patient can always – therefore also outside office hours – contact you if problems arise. Some doctors give out their private telephone numbers. It appears in practice that patients rarely use them and hardly ever abuse this privilege, whilst it

conveys a very clear and reassuring signal. If the doctor would rather not give his private number to the patient, the patient must receive very clear instructions on who to call first if problems arise.
- indicating that you 'will be there for the patient' and will try your hardest to 'tackle' the disease together with the patient and to fight or relieve the symptoms. This sends out the signal that you will be by the patient's side during the difficult period that lies ahead and will support him/her with everything, which is very reassuring for the patient.

To sum up
Give succinct information, wait for the patient's reaction, reflect on the emotion and allow the patient time to process before giving new information.

Differences in 'setting'
1. If the patient has been referred by the GP or another specialist, try to let the patient tell you the reason for their referral first. For example, 'Doctor Jansen has referred you to me. Could you tell me why that might be?' This information is very important for the continuation of the interview. If the information from Doctor Jansen's referral letter does not correspond with what the patient has told you, this must be discussed during the course of the interview. It should be noted that a possible discrepancy between the referring doctor's information and the patient's perception may be caused by the patient's denial of the bad news.
Treatment of severe disorders, such as cancer, is multidisciplinary these days.
This means that treatment involves several specialists. It is therefore of the utmost importance that the patient receives unambiguous information from all specialists. This requires good communication between colleagues and good reporting, not only about the technical details of the treatment and the results, obtained or expected, but especially what has been shared with the patient.

2. If a patient known to the specialist, for example, returns for the results of an investigation (biopsy, imaging tests, etc.), a possible start to the interview may be, 'You underwent some tests last week (biopsy, X-rays, scans). These tests have shown that you have a type of cancer,' or 'that you have metastases in the ...,' or 'that treatment has not achieved any improvement.'
After such an announcement, patients often immediately want to know their prognosis.
If it concerns the result of a primary tumour biopsy, this information alone will not be sufficient to determine the prognosis because additional tests to establish the extent of the disease elsewhere in the body must be carried out first. Based on the results of a primary tumour biopsy alone, no statement can be made about all the consequences of the newly diagnosed type of cancer for that patient.
A different situation may be, 'You underwent surgery this morning. It proved impossible to remove the entire tumour.' After the patient's initial reaction, the consequences of the incomplete removal of the tumour for the patient's prognosis and the further course of the disease may be discussed in more detail.
If, as in this case, a cure is no longer possible, it is important that, in a possible subsequent interview with the patient, the doctor discusses what the patient considers most important: life span (years of life) or quality of life. This is very important when choosing possible treatments, including follow-up treatments.
Never say to a patient, 'I cannot do anything else for you.' This comment may be considered a medical error. As a doctor, you can always make an impact on the patient's quality of life. Even with 'just' symptom relief, you can mean a lot to a patient. Consulting or referring the patient to a colleague specialized in palliative medicine may also be very meaningful to the patient.

3. It is advisable to visit hospital inpatients at the end of the day or the next day and refer back to the interview. This gives the doctor an opportunity to check whether the patient has understood the content of the interview and whether the patient has additional questions. It is not unusual to have to repeat part of the interview, or even a large part.
Do not have this conversation whilst standing next to the patient's bed, but sit down next to the bed.

Other forms of bad news
Although cancer is the most common cause of death in the Netherlands, there are many situations besides the diagnosis of cancer that may be considered bad news by the patient, such as:

- a certain treatment no longer working
- not or no longer being able to have children
- becoming permanently disabled and/or mutilated
- a planned operation that is cancelled for all kinds of reasons
- the loss of a loved one, whether or not sudden
- etc.

In addition to the general approach to a bad news interview, every situation mentioned above requires specific information for the patient. Generally speaking, every interview about a medical diagnosis that has a large negative impact on the patient's future life can be considered a bad news interview.

The patient's reaction
The patient's reaction to the bad news is determined by multiple factors.
Aspects that play a role include:
- the consequences of the disease for his/her (family, social and/or emotional) life, work and recreation
- the anxieties that the bad news about the disease evokes in the patient. The patient may also be afraid of treatments and side effects these treatments can cause, such as baldness, nausea and vomiting, fatigue, pain, reduced sexual function, mutilation, disability, etc.
- the questions, including existential questions, the patient immediately asks when being diagnosed with cancer. These questions include, 'How long do I have still?', 'How will I die?', 'What can I and those close to me expect?' It is generally difficult to predict how long a patient has to live. The patient usually wants to know immediately.

A prediction of life expectancy is often based on statistical data. These data are usually based on large numbers of patients with an 'apparently' similar disease. If the life expectancy of the patient's disease is for example 80%, based on statistics, it cannot be predicted with certainty whether the patient is in the 80% group or in the 20% group with an unfavourable outcome. It is therefore not recommended to express a prediction of the life span in percentages or in number of weeks, months or years. However, you could say to a patient, 'I think you should no longer think in terms of years, but months.' If the expectation is that the patient will only live for a short length of time, this must be mentioned to the patient. It may be the case that the patient must still take care of business and/or finances or say goodbye to the family and other loved ones in as good a way as possible.
If the 'bad' news is, medically speaking, less bad and the prognosis statistically good, you could say without mentioning exact percentages, 'Based on the results of all the tests, you have a high probability of being fully cured of this disease.'
The patient then wants to know immediately what that probability is. This prediction is also speculative for an individual patient and based on statistics. It is therefore better not to mention an exact percentage but to describe the probability as: very high, high, less high, not very high, low, etc.

The initial reaction to bad news can evoke strong emotions in the patient, which may be expressed in the form of, for example, crying. In such a situation, silence is appropriate. A patient who shows such a strong emotional reaction is, at that moment, not able to take in rational information about everything that still has to be done and to interpret this in the correct manner. Silence is appropriate in this situation. Silences always appear longer than they really are; however, silences are never too long. If silence falls, wait for the patient to start talking again. As a show of empathy, it is certainly permitted in this situation to rest your hand briefly on the patient's arm. It can happen that a strong emotional reaction takes so long that continuation of the interview is no longer useful. In that case, suggest to the patient a continuation of the interview at a later date. Offer the patient a drink in this situation, for example a cup of coffee.

According to Kübler-Ross, a patient can go through a number of distinct, successive reactions after being given bad news, such as a diagnosis of cancer.

1. **the denial stage**
   This stage is often accompanied by thoughts such as, 'It cannot be true', 'I do not feel ill and therefore I cannot have a life-threatening disease'; 'I have always had a healthy lifestyle and therefore this cannot be happening to me.' This stage is often more prominent in patients whose disease has for example been detected after population screening, without the patient displaying any symptoms. In patients who, for example, have been diagnosed with cancer following general symptoms such as general malaise, weight loss, etc., in combination with an alarm signal such as rectal blood loss, the reaction is often, 'I was afraid this would be the case. At least now there is a reason why I feel this bad.'
2. **the anger stage**
   The anger can have very diverse causes. Sometimes the patient directs the anger at himself and sometimes at someone and/or something else. It is not uncommon to direct the anger at the doctor. In that case, it is pointless and even undesirable for the doctor to defend himself. Listening and showing concern is then the best approach. Religious people often direct their anger at God who is then denounced with the comment, 'If God has the best intentions for people, why not for me? I have always been good to everybody. I have done my job well. Why is this happening to me then and why is He doing this to me?'
3. **the bargaining stage**
   In this stage, the patient wants to postpone treatment or further tests and tries to make a 'deal' with the doctor about the future treatment plan with the comment, 'All good and well, but don't think I am going to let myself undergo treatment straight away. I am first going to enjoy travelling with my ... You would do the same if you were in my shoes, wouldn't you?' In this situation also, attentive listening constitutes the correct approach and not immediately pointing out the negative consequences that postponement may have on the patient's health.
4. **the depression stage**
   This stage can give rise to depression. It is important to observe the patient closely in this stage because severe depression can be the result if this stage goes on for too long, especially in patients with a psychiatric history. Some patients tend to play down all their anxiety and grief, and accompanying emotions, with comments such as, 'At least I am still able to do everything, whilst my neighbour is completely paralyzed after a fall,' or 'It could all have been a lot worse.' Since the emotions are also suppressed by playing down the situation, the doctor must be aware that such a reaction can eventually – for that reason – cause depression.
5. **the acceptance stage**
   It is not uncommon for this stage to be accompanied by a switch towards a positive attitude: 'I have now learned what is truly important in life,' or, 'I can enjoy everyday things much more than before and things that used to be normal, which I ignored.'

It is normal for patients to go through all these stages to a greater or lesser extent, with significant individual differences between patients. However, it is possible for a patient to be 'stuck' in a particular stage for too long. The care professional must realize this in good time because not dealing with the consequences of the disease – or dealing with them badly – may have serious consequences for the patient's wellbeing. If the patient 'is stuck' in the denial stage, it can be difficult for those close to the patient because it may block the process of 'saying goodbye.' This may make the grieving process much harder on the next of kin. There is a clear role here for the GP, who can try to initiate the conversation between patient and next of kin.

The conclusion

Bad news interviews also must be concluded sooner or later.
Important aspects in this conclusion are:

- Try to assess how support at home and/or at work has been arranged
- Check whether the information has been understood properly by the patient as well as by the relative present at the interview

- Encourage the patient to write down additional questions which may be discussed in a subsequent interview, for example about alternatives outside regular medicine. It is good to openly communicate about this with the patient and say that you will not 'abandon' the patient.
- Let patients know that you will support them in many ways to get through this difficult phase
- Implement the earlier promise that the patient can always call you if difficulties arise by indicating where and how the patient can get in touch with you or with someone else
- In addition to treatment, offer the patient the complete care 'package', by engaging other medical and paramedical care providers, patient organizations, home care, etc.
- Inform the patient about internet sites that can provide good and reliable information about the disease
- If the bad news concerns cancer, provide good information about its infectivity, hereditability and possibly also information about the origin of the disease. The latter is very important because the cause of many types of cancer is yet unclear. Cancer patients fill this knowledge gap regarding the origin of their disease with thought based on experiences or episodes from their past and can then sometimes have bizarre explanations for their disease, which could even have a negative impact on the patient's wellbeing.
- Try not to make patients feel even more guilty by saying, 'It is a shame you did not come earlier. The disease is now in an advanced stage and therefore more difficult to treat.' You should also avoid expressing the seriousness of the situation non-verbally.

Always contact the patient's GP following a bad news interview and report in broad terms what the bad news was, what was discussed with the patient and the patient's reaction to the bad news.

Take into account that waiting for results of tests, including additional tests, can make patients very uncertain and anxious. Therefore, inform the patient as soon as possible after the results of the tests are available.

If a doctor – based on extensive experience – thinks he can conduct a bad news interview 'squeezed in between other things', his professional attitude has declined to a questionable level.

N.B. After the patient has died, an interview with the next of kin, who often still have many questions, may be very useful and therefore positively contribute to the grieving process. Possible information from an autopsy may also be discussed.

Case 1

Mrs Brouwer
Age: 64, married, 3 children, all left home, first grandchild expected
Occupation: library assistant

Medical history
Laparoscopic cholecystectomy because of cholecystitis, hypertension, for which medication metoprolol (Selokeen) 100 mg once daily

Setting
Breast clinic at UMCG
Husband accompanies the patient.

Reason for attendance
Abnormal right mammogram on population screening

Symptoms
None. Patient has not felt a lump herself.

Diagnosis
Physical examination is carried out at the breast clinic, where no lump is felt in the breast. No enlarged lymph nodes are felt in the armpits. A repeat mammogram confirms the result from the population screening: a suspect abnormality of 0.75 cm is present in the right breast. A puncture is taken from this abnormality, guided by ultrasonography. Examination of a frozen section from this puncture indicates a breast adenocarcinoma.

Background information
For this patient, the only thing that is certain at this stage is that she has a c(clinical)T1N0M0 breast carcinoma, whilst decision-making about the definitive treatment plan, additional treatments and in principle also life-expectancy can only be given once the staging has been completed and the p(pathologic)TNM stage has been established.
At this stage, the patient can already choose between breast-conserving treatment and breast amputation, with or without reconstruction during this operation. In both cases, a sentinel node procedure will be carried out during surgery.
Tumour size and presence of lymph node or other metastases are important for staging. Investigation of haematogenic metastases can include blood tests, chest X-ray, ultrasound scan of the liver, bone scintigraphy if necessary, and possibly biopsies from suspect abnormalities. This type of investigation is only carried out with clinical suspicion of metastases or with a clear risk of metastases, such as a high T (tumour) and/or high N (lymph node) stage.
Based on tumour characteristics (tumour markers, such as hormone receptors, HER2 expression), tumour stage, age, menopausal status, the following treatment options are available:

- Curative treatment
  - Breast-conserving surgery + local radiotherapy always
  - Breast amputation, with or without subsequent local radiotherapy (depending on whether the surgical margin is free of tumour)
  - With or without neoadjuvant or adjuvant chemotherapy
  - With or without hormone treatment (if hormone receptors are present)

- Non-curative (palliative) treatment
  - Hormone treatment / chemotherapy
  - Palliative radiotherapy (pain management)

This patient
In this case, there are no clinical reasons to suspect metastases. The treatment is designed to be curative. The next step is surgery; breast-conserving or breast ablation / amputation. Both options have their pros and cons. Breast-conserving surgery yields better cosmetic results, but is always followed by radiotherapy. After breast amputation, radiotherapy is only necessary when indicated (for example, the surgical margin is not tumour-free, multiple positive lymph nodes). The choice between breast conservation and amputation is mainly decided by the patient's preference. In addition to the removal of the tumour (lumpectomy), axillary node staging will also take place during surgery by means of a sentinel lymph node biopsy; if necessary, an axillary node dissection will also take place.
The additional treatments of radiotherapy and/or chemotherapy / hormone treatment depend on various prognostic favourable / unfavourable factors:

- whether or not surgical margins are tumour-free
- lymph node metastases (number, growth outside the capsule, etc.)
- HER2 expression
- presence/absence of hormone receptors
- morphological characteristics of the tumour (Elston staging)

Assignment
The patient and her partner had to wait for a long time in the waiting room before the results from the frozen section were known and they were called back in to be informed of the results. By now they are very nervous and tense.
Discuss the biopsy results.
It is almost impossible at this stage to answer all the patient's questions, such as, 'Will I die now?', 'How much longer have I got?', 'What will happen to me now?', 'Will I lose my hair?', etc.

The doctor can explain that cancer is a disease that, from the tumour in the breast, can spread throughout the body. This will in the first instance be to the lymph nodes in the armpit. The first treatment step is therefore removal of the tumour (breast conservation or amputation) and tissue examination to establish possible metastases in the axillary lymph nodes.
Discuss both options for surgery. Discuss the options for follow-up treatment.
Answer possible questions the patient and her partner have and state that, based on the currently available information (cT1N0M0), the probability of being cured is very high, but also state that at this moment, little can be said about possible follow-up treatments.

Case 2

Mr G. Kraster
Age: 71, married, 3 children who have left home, 8 grandchildren
Occupation: postman, retired

Medical history
Several operations on his hand because of Dupuytren's contracture

Setting
Urology outpatient clinic

Symptoms / additional tests
Has to urinate often. Symptoms started approximately 4 months ago and are getting worse. The GP felt a slightly enlarged prostate without further abnormalities. To be sure, he had the PSA level tested; this appeared slightly increased (11 nanogram/ml). Therefore, the patient was referred to the urology outpatient clinic.

Care request
Reduce micturition frequency

Diagnosis
Based on rectal examination, ultrasound scan and prostate biopsy result, the diagnosis prostate cancer (Gleason score 6 = well-differentiated) is established, stage 1c.

Background information.
Prostate cancer (almost always adenocarcinoma) is common, the incidence is 99/100,000 men per year. In the Netherlands, this diagnosis is established in 8800 men each year. A clinical, a subclinical and a latent type can be distinguished.
Clinical type: detected because the patient has problems involving the urethra, leading to strangury, weak urinary stream, dribbling, frequent urination and urine retention. Sometimes bone metastases cause the first problems, for example lower back pain.
Subclinical type: coincidental finding after rectal examination for a different reason, or detected as a result of increased PSA, established without micturition or other problems.
Latent type: coincidental finding upon autopsy in a patient who died from other causes; present in 70% of men above the age of 80.

Metastases can be lymphogenic (pelvic glands) or haematogenic (especially the central skeleton).
Treatment:

- Curative
  - Surgery (only if no metastases) to remove prostate and seminal vesicles, possibly preceded by regional lymph node dissection. N.B. in addition to risks associated with surgery, there are also possible side effects such as incontinence, impotence (erectile dysfunction)
  - Radiotherapy. External irradiation (high dose, 70 Gy=7 weeks daily radiation) or interstitial radiotherapy. N.B. possible further abnormalities: problems in tissues / organs that were part of the radiation field, for example rectum, bladder. Also erectile dysfunction.

- Non-curative
  - Systemic hormone therapy: inhibit testosterone production with LHRH analogues or anti-androgens. N.B. side effects: androgen suppression, loss of libido, erectile dysfunction, hot flushes.
  - Palliative treatment = symptom relief (radiotherapy, analgesics, bisphosphonates, clear urethra obstruction with resection or nephrostomy).

- Watchful waiting: with old age and a life expectancy of 10 years or less (> 75 years), comorbidity and small tumour with a low Gleason score (=high differentiation grade) without metastases, the risk of the patient dying from something else before the prostate cancer

leads to problems is high. Disadvantage: sometimes psychological burden, because the patient knows he has cancer, but does not receive any specific treatment for it.

This patient

This patient – who is in fact not aware of anything!!! – has been diagnosed with an early stage (stage 1c) prostate cancer.
With this stage, there is a choice between surgical treatment (prostatectomy) and curative radiotherapy. Watchful waiting would also be an option, were it not that this otherwise healthy 71-year-old man's life expectancy is more than 10 years, and for that reason curative tumour-targeted treatment is the preferred option.
The oncological result from surgery and radiotherapy are equal for this stage.
The choice is therefore determined by the mortality and the late effects of surgery (incontinence, erectile dysfunction) and those of radiotherapy (no mortality, possible bowel problems due to the rectum being in the irradiated area and erectile dysfunction, although less often than with surgery).

Assignment

First explain to the patient that, based on the slightly raised PSA level and the slightly enlarged prostate, a biopsy has also been taken. This has shown that he has stage 1c prostate cancer, meaning localized low-risk prostate cancer.
Curative treatment has been decided on, i.e. surgery, or external irradiation or interstitial radiotherapy. The patient is slightly too young for watchful waiting, but this could possibly be discussed.
Do not forget that he has micturition problems and that these were the reason for seeing a doctor!!!
If the patient opts for a prostatectomy, the micturition problems will also have been treated.
If the patient opts for radiotherapy or watchful waiting, it is a good idea to first treat the micturition problems with a TURP (transurethral resection of prostate).

Case 3

Erik Boersma
Age: 32, married, 2-year-old son
Occupation: manager at a supermarket

Setting
Internal Medicine outpatient clinic
First visit two weeks ago. With reference to the problem described below, various tests were arranged. The patient now visits together with his wife to get the results.

Medical history
Clean medical history until 3 months ago

Current problems
A painless swelling on the left side of the lower neck for 3 months, gradually increasing in size. Very itchy lately. No excessive perspiration or night sweats and no weight loss either. Referred by the GP to the Internal Medicine outpatient clinic.

Results from physical examination and additional tests
General physical examination: firm elastic swelling with a diameter of 5 cm low left jugular, small lymphomas in the groin. Various effects of scratching.
Blood tests: ESR 50 mm, blood picture no abnormalities, LDH 530 U/L
Imaging tests (X-ray, CT, MRI): substantial mediastinal widening and mass in the anterior mediastinum. No abnormalities under the diaphragm.
Histological examination: a biopsy is taken from the neck tumour, resulting in the diagnosis Hodgkin's disease.

Diagnosis stage 2A Hodgkin's disease

Background information
The prognosis for Hodgkin's disease is excellent; more than 90-95% of patients with an early stage ((I or IIA) survive. Hodgkin's disease is treated with radiotherapy aimed at the pathological lymph node stations, in combination with chemotherapy. The advantage of this combination is that the dose of both radiation and chemotherapy can be lower than with radiotherapy or chemotherapy alone, resulting in lower acute toxicity of these treatments. Nevertheless, late toxicity of this combined treatment is still considerable: risk of fertility problems (especially in men; consider cryopreservation), risk of secondary tumours (especially secondary breast carcinoma in women), risk of cardiac damage (coronary pathology resulting from irradiation, cardiomyopathy if anthracyclines are administered), risk of hypothyroidism and/or secondary thyroid carcinoma if the thyroid was located in the radiation field.
See also N Engl J Med 2010;363:653-62.

Assignment
Inform the patient of the diagnosis and what treatment will consist of: irradiation of the neck and mediastinum, 6 courses of chemotherapy (every course takes 10 days, frequency every 4 weeks, can in principle be performed in the outpatient clinic provided there are no complications). State that the prognosis for surviving the disease is good. **If asked**, provide information about possible long-term complications.

CC session: Thorax

Type
Complete consultation session with simulated patients

Duration
3 hours

Learning outcome
Students are able to conduct a full consultation with a simulated patient. All stages of the consultation should be addressed.

Student tasks
Preparation: Study the study material. The knowledge acquired during the Bachelor's phase is presumed to be known. Study the check lists thus far.
Three students conduct a consultation with a simulated patient. Prepare for this. Bring along everything you may need, such as a stethoscope. Dress appropriately. Introduce yourself to the simulated patient. In terms of content, you are expected to prepare by being familiar with the necessary skills, such as history-taking and physical examination; you must also be able to propose treatment and a treatment plan with regard to the weekly theme.
During the session: Actively take part in the CC session, both in the role of the clerk conducting the consultation and as an observer providing feedback.

Study material
Study material from earlier Ci sessions and PS sessions
Books: : *Browse's introduction to the symptoms and signs of surgical disease*
Chapter 2 : blunt chest and abdominal injury and Chest examination with film clips at blackboard
Read the model file again, paying special attention to the review of systems, and the PS session on investigation of the lungs and breasts.

Students must bring along:
reflex hammer
stethoscope
penlight

Appendices
1. Feedback list for CC session

Appendix 1

Feedback list for CC session

The teacher applies the following steps in the order given to each consultation:

1. The student doctor states how many junior clerkships he has already completed. The teacher informs the simulated patient.
2. The student doctor states the learning points suggested following earlier interviews.
3. The consultation takes place.
4. Comments from the student on his own consultation and indication of the aspects on which feedback is desired.
5. Feedback from the simulated patient.
6. Feedback from student observers. The teacher asks for a reaction from the observing students.
7. If desired: reaction by the student to the feedback from points 5 and 6.
8. Feedback from the teacher.
9. The student suggests his own learning points.

Surgery – Student Manual

Academic year 2020-2021

Week 4 abdomen

Practical	Anatomy of the abdominal wall / groin2
PS session	1) Abdominal examination on indication
	2) Groin examination
PS session	Suturing course parts I and II incl. anaesthesia techniques (see week 2)
Ci-A session	Abdominal problems
Ci-B session	Surgical complications
CC session	Abdominal problems
S session/Interactive tutorial	Assignments will be published on Nestor
Other	Photo-consultation on anal problems and male genitalia (inspection) (see also on Nestor)
Other	Wounds, wound healing and wound care

Practical: Anatomy of the abdominal wall / groin

Type
A type of super anatomy practical where theory and observation of the anatomy of the abdominal wall / groin region are demonstrated alternately.

Group size
40 students

Duration
3 hours

Location
Anatomy Lab

Learning outcome
After this practical and studying the relevant literature, students understand the anatomy and embryology of the abdominal wall and groin region, the descent of the testes and Fruchaud's theorem.

Learning method
The practical will be interactive, alternating theory, observation and assignments based on anatomical specimens with the aim of developing functional knowledge of the anatomy.

Student tasks
Preparation: Anatomy of the abdominal wall and groin from the Bachelor's phase study material, (General Anatomy and musculoskeletal system).
During the session: Actively take part in the anatomy teaching and carry out assignments on anatomical specimens.

Preparation of the assignments that need to be carried out during the practical is important.

PS session: 1) Abdominal examination on indication
2) Groin examination

Group size
12 students

Duration
2 hours

Organization
30 min Socratic questioning and questions about the assignments. Brief demonstration of standard abdominal examination and abdominal examination on indication
30 min Socratic questioning and brief demonstration of groin examination by the teacher using an instructional film
60 min practise abdominal examination on indication

Learning outcomes
Students are able to:
- carry out the relevant abdominal examination – both standard and on indication – for various abdominal problems
- carry out the relevant groin examination for various groin problems
- give reasons for the examination choices
- name other relevant supplementary physical examinations

Student tasks
Preparation: Study the study material. The knowledge acquired during the Bachelor's phase is presumed to be known. Work out the assignments from Appendix 1.
During the session: Take part in Socratic questioning. Practise abdominal examination on indication. Watch the instructional film on groin examination.

Study material
Abdominal examination on indication
Study the student manual Consultation process (C1a and C1b), Abdominal examination in *Browse's introduction to the symptoms and signs of surgical disease* Chapter 14 and 15

Groin examination
Study the student manual *Consultation* (C1a and C1b), Chapter 14 Swelling in the groin in *Browse's introduction to the symptoms and signs of surgical disease* (optional, not compulsory)

Learning method
Socratic questioning and demonstration of physical examination

Appendices

PS session: Abdominal examination on indication
1. Socratic questioning and assignment
2. Checklist standard abdominal examination
3. Checklist abdominal examination on indication (6-10)

PS session: Groin examination
4. Socratic questioning
5. Update on the anatomy of the inguinal canal
6. Observation checklist groin examination

PS session: Abdominal examination on indication

Appendix 1

The standard abdominal examination was discussed during the *Consultation* (C1a and C1b) weeks. The standard abdominal examination is considered a screening examination.
If you expect acute abdominal pathology, the standard abdominal examination is no longer adequate and an abdominal examination on indication acute abdomen is carried out. It should be clear that the abdominal examination on indication is part of the junior clerkship in Medicine, but also of the junior clerkship in Surgery.
The problems surrounding abdominal examination on indication are focused on acute surgical abdominal problems during this PS session. This examination **is not a standard abdominal examination and extra, but more a standard abdominal examination minus irrelevant procedures.** There is no clear distinction based on discipline and this is not seen in the daily practice either.

Overview of abdominal problems

1 swollen abdomen based on
   - 1.1 ascites
   - 1.2 AAA
   - 1.3 ileus (paralytic and obstruction)

2 swelling in the abdomen (as problem or finding)
   - 2.1 swelling in the upper abdomen
   - 2.2 swelling in the left / right abdomen (pathology of the colon, ovary and kidney)
   - 2.3 swelling in the lower abdomen (pregnancy, pathology of the bladder and colon, and gynaecological pathology)

3 swelling in the groin
   - 3.1 inguinal or femoral hernia
   - 3.2 lymph node pathology
   - 3.3 aneurysm

4 acute abdominal pain
   - 4.1 acute appendicitis
   - 4.2 acute cholecystitis
   - 4.3 diverticulitis

5 problems with defecation
   - 5.1 colon cancer
   - 5.2 obstipation

Assignment
Answer the questions and explain your choice

1. Which abdominal examination will you carry out on a patient with a suspected diverticulitis? Which findings do you expect in a patient with diverticulitis?
2. A 67-year-old patient presents at your surgery with a progressive icterus, which has gradually developed over the last week. Which particular examination will you carry out? What is an important differentiating finding in this case?
3. A 34-year-old man with a history of severe alcohol abuse presents to you because he has had terrible abdominal pain around the navel since yesterday. Which examinations on indication would you carry out? Based on your DD, you extend your examination with several other examinations on indication. Which examinations?
4. An 85-year-old woman presents to you because she has had cramping abdominal pain accompanied by vomiting for the last two days. Which examinations on indication would you carry out? What must you absolutely not forget in this case?
5. A 25-year-old student presents to you with abdominal pain which started last night. At first, the pain was around the navel and now it is in the right lower abdomen. Which examination on indication will you carry out?
6. A 6-year-old boy has had abdominal pain for the last four days. It started in the lower right but is now in the entire abdomen. He has been vomiting since this morning and now also has a high fever. Which examination on indication will you carry out?
7. A 9-year-old girl presents to you because she has had abdominal pain, fever and frequent watery diarrhoea for the last four days. Which examination on indication will you carry out?
8. Which regions do you distinguish in the abdomen?
9. Which organs are located in each of these regions?

Appendix 2

Checklist standard abdominal examination

Prior to the examination
greeting
explain the examination and why it is taking place
instructions for undressing / patient position / privacy
remove jewellery, wash hands

Inspection
general appearance: distended, hollow
local appearance of the navel: flat, protruding

swelling
groin: swelling, skin abnormalities
skin: scars, striae, effects of scratching, colour

abdominal movements
- breathing, does the abdomen move with breathing? Visible peristalsis?
- pulsations: abdominal aorta, pulsating swelling?

Auscultation
peristalsis: just below the navel, listen for a long time
- quality: absence or presence of sounds, bowel sounds
- quantity: absent, moderate, lively, very lively (= hyperperistalsis)

vascular sounds: abdominal aorta (above the navel in the midline)

Percussion
general: systematic, painful sites last
- variable tympany: physiological or abnormal
- pain on percussion: present?

specific:
- liver: determine lower boundary in midclavicular line and in midline
- spleen: size (determined from right lower abdomen)

Palpation
superficial: systematic, extended hand, painful sites last
- abdominal muscle tone: relaxed, active / passive muscle resistance
- pain: present?

deep: systematic, painful sites last, two hands
- liver: midclavicular line and midline, breathing instruction
- spleen: from navel towards costal margin, patient possibly lying on side
- groin: pulsations, swellings
- resistance: physiological, abnormal, location, size, painful

During the examination
explanation during the examination
instructions for posture and breathing
specific observation
eye contact and communication with the patient
communicate well and use the correct techniques

After the examination
indicate the end of the examination
instructions for getting dressed
conclusion and presentation of findings
wash hands

General
able to demonstrate knowledge of skills involved

Appendix 3

Checklist abdominal examination on indication acute abdomen

For the abdominal examination in a patient with symptoms of an acute abdomen. Your starting point is the standard abdominal examination. Furthermore, you will only carry out the parts of the abdominal examination on indication that are <u>indicated</u> for this patient (<u>in italics</u>).
<u>You should also realize that just a single percussion can confirm or exclude peritoneal irritation; this also applies to abdominal tenderness and rebound tenderness.</u>
<u>Repeating percussion and palpation unnecessarily is very unpleasant for a patient with an acute abdomen.</u>

Prior to the examination
greeting
explain the examination and why it is taking place
instructions for undressing / patient posture or position / privacy
remove jewellery, wash hands

Inspection
Ask the patient to indicate where he thinks the pain is located
general impression: patient appears ill, ***vital functions****, dehydration, tachypnoea*
general appearance: *swollen*, distended, hollow
swelling: *swelling in the groin, pulsating swelling above the navel*
abdominal movements: *- absent diaphragmatic breathing*
- pain when coughing
- 1 leg (right in appendicitis) (psoas sign) or 2 legs flexed

Auscultation
Peristalsis: just caudal to the navel, listen for long enough
- quality: absence or presence of sound, bowel sounds
- quantity: absent, moderate, lively, very lively (= hyperperistalsis)
- vascular sounds above the abdominal aorta and the iliac blood vessels

Percussion
specific: local - McBurney in appendicitis
- upper right in cholecystitis
- lower left in diverticulitis
- at the navel and left of the navel in pancreatitis

On specific percussion, first check the unaffected side and subsequently compare to the affected side.

Palpation
Superficial: - painful regions on light palpation with extended hand
- increased abdominal muscle tone, active / passive muscle resistance
- pain; slight, moderate, severe
- diffuse in general peritonitis

Deep: specific - abdominal tenderness?
- at McBurney point in appendicitis
- upper right in acute cholecystitis
- lower left in diverticulitis
- at the navel and left of the navel in pancreatitis

On specific palpation, first check the unaffected side (diffuse peritonitis) and subsequently compare to the affected side.

Rebound tenderness: specific following a painful slow deep palpation, sudden release of the abdominal wall whereby specific attention is paid to the patient's grimace and the reaction expressed

- *at McBurney point in appendicitis*
- *upper right in acute cholecystitis*
- *lower left in diverticulitis*
- *at the navel and left of the navel in pancreatitis*
- *diffuse in general peritonitis*

Further examination
Groin examination, rectal and/or pelvic examination (must be mentioned!!!)

During the examination
explanation during the examination
instructions for posture and breathing
specific observation
eye contact and communication with the patient

After the examination
indicate the end of the examination
instructions for getting dressed
conclusion and presentation of findings
wash hands

General
able to demonstrate knowledge of skills involved

PS session: Groin examination

Appendix 4

Socratic questioning

In the groin region, various types of inguinal hernias can be distinguished in both men and women.

- Lateral inguinal hernia (indirect inguinal hernia). In this type, the hernial sac is formed by the peritoneum that protrudes into the inguinal canal. This is in fact a remnant of a non-obliterated vaginal process, which is the part of the peritoneum with which the testis descends into the scrotum during the foetal period. After descent of the testis, the vaginal process disappears at birth through obliteration. If this does not happen, children and young adults are at risk of developing an inguinal hernia (by definition lateral).
  A hernia that continues into the scrotum is referred to as a scrotal hernia. There is usually a sausage-shaped swelling. This can often be pushed back through careful pressure on the hernia in the direction of the hernial orifice. The swelling can slip back into the groin or the scrotum spontaneously or by getting the patient to push.
- Medial inguinal hernia (direct inguinal hernia). This forms because of a weak spot in the abdominal wall. It generally develops just above or next to the external inguinal opening. There is a round spherical swelling that does not descend into the inguinal canal and can be pushed straight towards the back. A notable characteristic is that the protrusion cannot be prevented by closing off the external inguinal opening. This inguinal hernia occurs in adult men and more often in elderly men.
- Femoral hernia. This is located just below the Poupart's inguinal ligament and is in fact a protrusion through the femoral canal, a short canal medial to the femoral artery and vein. The hernial sac is usually located just medial to the palpable femoral artery. Repositioning the hernia is often impossible or very difficult. The hernia occurs most often in women and can cause a mechanical ileus or be incarcerated.

Other swellings that may occur in the groin region include:

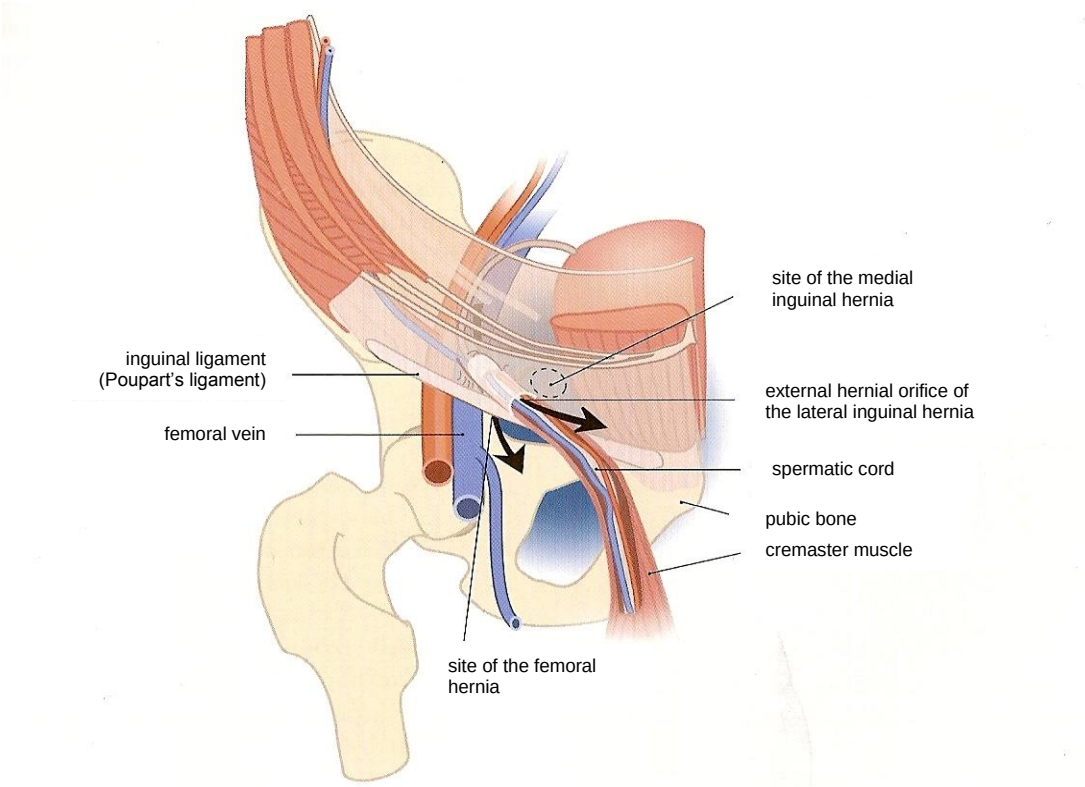
Lymph nodes
- reactive due to general or locoregional inflammations
    - metastasis of a locoregional malignant process
    - primary lymphogenic malignancy

Vascular
    - femoral aneurysm
    - varices due to insufficiency of the great saphenous vein

Other
    - inguinally retained testicle
- psoas abscess

Appendix 5

Update on the anatomy of the inguinal canal



The groin forms the transition from the abdomen to the legs. The inguinal region is located roughly between the pelvic anterior superior iliac spine (ASIS) and the pubic tubercle of the pubic bone. The inguinal canal is the diagonal trajectory through the abdominal wall where the spermatic cord exits the abdomen. It is a type of flattened cylinder, the base of which is formed lengthways by the inguinal ligament (Poupart's ligament).
The inguinal ligament (Poupart's ligament) determines the location of a lateral inguinal hernia relative to a femoral hernia. The external opening of the inguinal canal (external inguinal ring) determines the exit site of the lateral and generally also the medial inguinal hernia. The internal inguinal opening (internal inguinal ring) is the site where the spermatic cord passes through the abdominal wall. The vaginal process (obliterated or not) runs alongside the spermatic cord here. The ventral boundary of the inguinal canal consists of the aponeurosis of the abdominal external oblique muscle. The dorsal posterior wall consists of the internal oblique muscle and the transversalis fascia. In women, the round ligament passes through the inguinal canal. In this case too, a possible persistent vaginal process can occur as a hernial sac.
The medial part of the inguinal canal is a weak part of the abdominal wall which could result in a medial inguinal hernia. In this type of hernia, the abdominal content protrudes through the abdominal wall. If the content can be pushed back (repositioned) easily, it is referred to as a reducible hernia. If the content cannot be pushed back due to a very narrow external inguinal opening, it is referred to as a non-reducible hernia. If the narrowing causes venous congestion, and ultimately obstruction of arterial blood supply, incarceration develops with necrosis and possibly perforation.
Definition of a hernia: a protrusion of the peritoneum through a natural or acquired opening in the abdominal wall, which could contain abdominal organs – temporarily or permanently.
The content can consist of intestine, greater omentum, bladder wall or ovaries.

Appendix 6

Observation checklist groin examination

Prior to the examination
greeting
explain the examination and why it is taking place
instructions for undressing
remove jewellery, wash hands

Inspection
Standing upright, at rest (anterior)
Swelling
Standing upright whilst blowing onto the hand (Valsalva manoeuvre)
Look out for the development of swelling

Auscultation
Standing upright, at rest (anterior, sitting on a stool)
If swellings are present in the groin or scrotum, listen for peristalsis sounds

Palpation
Standing upright, at rest (anterior, sitting on a stool)
If swelling is present, carefully feel whether this can be pushed back (with suspected lateral inguinal hernia in the direction of the inguinal canal, with suspected medial inguinal hernia straight towards the back)
Close off the internal inguinal opening (deep or internal inguinal ring) externally, 1 cm above and halfway down the Poupart's ligament

Supine, at rest
Check once more whether the hernia can easily be pushed back. If not, whether there is a lymph node or a lymph node packet or a pulsating swelling (femoral aneurysm).
Check whether the man's testis at the affected side is located in the scrotum and not retained higher up in the inguinal canal.
When unclear about the aetiology, it is possible to carefully enter with the little finger from below near the scrotum to palpate and close off the external inguinal opening (superficial or external inguinal ring). In this case, the lateral inguinal hernia does not appear with the Valsalva manoeuvre, but it can be felt against the palpating finger and with the medial inguinal hernia it can be felt directly against the palpating finger.
With a swelling in the scrotum, palpate whether the swelling can be limited to the inguinal canal (swelling of the scrotum) or not (lateral or scrotal inguinal hernia if continuing towards the groin).
If (particularly in women) the swelling is located caudally to the Poupart's ligament, it is usually a femoral hernia. These are often difficult to feel and push back.

Further investigation
rectal examination

Communication surrounding the examination

Prior to the examination
Enquire about earlier experiences. Carefully explain what you are going to do and provide clear instructions for the patient. Make sure the patient feels reasonably comfortable. Discuss the presence of other people, if appropriate. The instructions for undressing are to remove all lower garments, including underwear, so the lower body is completely undressed. Make sure your hands are clean and warm and your nails are short. Ensure privacy is sufficient, so close the curtains between the door and the examination table. Allow for questions.

During the examination
Watch your use of language, make sure you do not use words which have a double meaning, for example ‘That is looking good’. During the inspection, talk in non-medical terms about what you are examining and also maintain sufficient eye contact. Also explain why you are carrying out the inspection in different positions. Enquire about possible pain and examine the painful site last.

After the examination
Indicate clearly that you have finished the examination and that the patient can get dressed. Wash your hands. Briefly evaluate the examination in the consulting room, for example ‘Did you think the examination was unpleasant?’

General
able to demonstrate knowledge of skills involved

Ci-A session: Abdominal problems

Group size
12 students

Duration
2 hours

Learning outcome
Consultation: Practise the different phases of the consultation, paying attention to the structure of the consultation, the transitions to the different phases and the communicative aspects in the different phases.
Medical aspects: Students are able to take a history from a patient with abdominal problems, wounds, anal problems and fatigue. This is the part of the consultation from the beginning to the physical examination.

Student tasks
Preparation: Study the consultation phases and communication skills (Folder *Consultation*, textbook Medical consultation process. Study the model file. Reflect on the individual learning outcomes that may be addressed in this communication training session.
Students must have adequate knowledge of the anatomy and physiology of the abdomen and the abdominal organs. Revise these subjects as well as the various types of pain as preparation if necessary. Students prepare their own patient role, working up both the medical aspects and context factors of the role (Appendix 1: Preparation form). They are able to describe in broad terms, if necessary, which abnormalities would be found in an examination and what the treatment plan would be in that case, although this session is restricted to the first part of the consultation, i.e. taking the history of a patient with an abdominal problem.
During the session: Take part in role-play, reflect on it and give and receive feedback. Complete a self-assessment in the consultation logbook afterwards.
During the sessions, the students will alternate between the roles of patient, doctor and observer.
It is possible that not every student will get to play each role during this session. In that case, any students who have not yet played the role of doctor should be given the opportunity to do so in a future session.

Study material
Folder *Consultation*, model file
Medical consultation process by Veening
Browse's introduction to the symptoms and signs of surgical disease Chapter 15: the abdomen with accompanying film clips at blackboard

Browse's introduction to the symptoms and signs of surgical disease
Chapter 15 the abdomen
Chapter 17 the rectum and anal canal

Quality/evaluation criteria
SEGUE feedback form

Appendices
1. Patient role preparation form

Appendix 1

Preparation form

Personal details
Name: m/f
Date of birth:
SES:
Medical history:
Medication:

Working diagnosis
Differential diagnosis:

Main health issue
What do you mention spontaneously?

Exploration of the health issue
Reason for contact
Stimulus
Care request / expectations

Dimensions of the main health issue
Nature
Location
Severity
Chronology
Origin
Influences
Attitude and perception

Supplementary data
Family medical history
Intoxications
Allergies
Psychosocial problems

Hypothesis-testing
Which hypothesis-testing questions can you expect after exploration of the main health issue, based on the possible DD? Describe what your answer to these questions would be.

Finally, formulate briefly what you expect to find in the examination and what the treatment plan would be in this case.

Physical examination

Treatment plan

Ci-B session: Surgical complications

Group size
12 students

Duration
2 hours

Learning outcome
Students are able to:
- provide pharmaceutical treatment for the most common postoperative complications
- briefly discuss the pharmaceutical treatment plan with a patient who is feeling ill
- consult the nurse on the treatment plan

Student tasks
Preparation: Study the material in the student manual. You must prepare for this session by using the **e-learning program Pscribe**, which includes the four cases and any relevant background information. Use **Pscribe** to complete a treatment plant for every case and bring along a printout (shortened version) to the session. The necessary information (NHG standards, lecture material, British National Formulary, background information, etc.) is linked in the program to the case.
Please note: If this is the first time you use this program in the Master's phase, you must register using a **Pcode**: see login procedure for **Pscribe**.
During the session: In the round robin, every student plays the role of ward doctor, patient and nurse / observer once. The patient and the nurse play this role as naturally as possible and prepare both the medical aspects for the role and the communicative aspects within the patient group.
The observer has an important task. He is responsible for good oral feedback on the medical aspects, the communication during the interview and the prescription.

Study material
NHG standards

Teaching aids:
Didactic learning method:
- Round robin in four groups of three with alternating roles for the students: patient, nurse / observer and ward doctor.
- Based on the division into groups and prior to the round robin, 'patients' get the opportunity to familiarize themselves in 'patient groups' with the case they have to play and to reach a consensus about the treatment plan, which they will display on the whiteboard.
- Clear presentation of the case by one of the students.
- Plenary postmortem discussion about the treatment plan, which is corrected and supplemented if necessary. The whiteboard acts as a crib sheet for the ward doctor.
- When all the results are written on the board, the roles will be allocated. All examination tables are labelled with the letter of the case; patients lie down on these. There are 4 doctors doing the rounds; the remaining students act as nurses / observers. They need to ask lots of questions, which should make the ward doctor's treatment plan concrete and clear (how much medication, when to administer, etc.).
- Round 1: the student ward doctor has 3 minutes (teacher watches the time) to explain the treatment plan to the patient and the nurse. Time then stops for the doctor, and patient and nurse get the opportunity to give feedback.
- After receiving feedback, the ward doctor goes to the next bed and the time for the treatment discussion starts again after a sign from the teacher.
- When the round robin has been completed, conduct a plenary discussion; what are the experiences of the ward doctor / patient / nurses?
- Round 2: if there is time left, set up another round robin whereby everyone takes on a different role from Round 1.

discussion
Then evaluate playing the ward doctor in this didactic learning method.

Appendix 1

Assignment
Work up the doctor's role for cases A to D. Every student plays the role of doctor, patient and observer once. Remember to communicate well when conducting the interview. As a doctor, remember that this is the final phase of the consultation. An extensive history-taking has already taken place at this stage of the consultation. Start with a brief summary of the medical history (see case) and use the given diagnosis as a starting point. Follow the 6-Step model during your treatment interview.
Prepare what treatment advice you would give based on the available data. You will also write a prescription if applicable. Consult the *Farmacotherapeutisch Kompas* as well.

Case A

Setting
Surgery nursing ward

Patient details
Name: Mr J. van Hasselt, age 63, married, 4 children, primary school headteacher
Weight 80 kg. Height 1.94 m.

Medical history
Glaucoma.
Underwent surgery yesterday: thoracotomy because of lung tumour (pulmonary lobe resection). Curative.

Medication
Betaxolol eye drops
Morphine 10 mg every 12 hours s.c.

Reason for contact
Severe pain from thoracotomy wound.

Recent history
The patient underwent surgery yesterday and is aware that it proved possible to remove the entire tumour. He has rather a lot of pain in the chest now, especially at the site of the wound. He is not short of breath and has no fever. He cannot cough because of the severe pain.

Physical examination and supplementary laboratory tests
RR 160/85, heart rate 84
Thoracotomy wound: no indications of inflammation nor haematomas
kidney and liver function not abnormal

Diagnosis
Postoperative pain

PATIENT ROLE A
Context factors
Cooperative patient in a lot of pain. The patient lets the nurse do the talking.

NURSE'S ROLE A
Context factors
You think it is ridiculous that the patient is receiving so little morphine. Can this not be increased soon?

Case B

Setting
Surgery nursing ward, during the late afternoon ward round

Patient details
Name: Mrs van Zomeren, age 76, widow, 5 children, retired hotel owner
Weight 76 kg. Height 1.84 m.

Medical history
Bilateral cataract extraction
Atrial fibrillation
Underwent surgery yesterday: right hip replacement because of severe coxarthrosis

Medication
Digoxin 0.125 mg once daily
Ibuprofen 400 mg three times daily
Nadroparin (Fraxiparine) 0.3 ml once daily
Omeprazole 40 mg i.v. once daily

Reason for contact
Nausea and vomiting

Recent history
The patient underwent surgery yesterday. The pain is not too bad, but the patient feels rather nauseous and has vomited small amounts a few times already. She has only drunk some water.

Physical examination and supplementary laboratory tests
RR 110/75, heart rate 78
abdomen: infrequent peristalsis, variable tympany, no tenderness
kidney and liver function not abnormal

Diagnosis
Postoperative nausea

PATIENT ROLE B
Context factors
Cooperative patient, rather nauseous

Case C

Setting
Surgery nursing ward, morning rounds

Patient details
Name: Mrs De Winter, age 53, divorced, 2 children, Dutch teacher at a pre-university college. Weight 80 kg. Height 1.75 m.

Medical history
Appendectomy at age 20
Right breast amputation two days ago because of breast carcinoma
Diabetes mellitus

Medication
Paracetamol 500 mg 4 times daily
Tolbutamide 500 mg twice daily
Nadroparin (Fraxiparine) 2850 IE anti-Xa (=0,3 ml) . once daily

Reason for contact
Fever and coughing

Recent history
The patient had a right breast amputation two days ago; things are reasonably well at present. The surgical wound is calm. However, she has had a fever of 38.9ºC since last night and coughed the whole night, greenish sputum. She is also slightly short of breath. She has never had lung problems in the past and is not allergic to penicillines.

Physical examination
RR 120/80, heart rate 92, respiratory rate 20/min
Surgical wound: no indications of inflammation
Lungs:
inspection: respiratory lag in the right hemithorax
auscultation: bronchial breath sounds in the lower right lung, inspiratory rhonchi
percussion: percussion sound shortened in lower right

Diagnosis
Bronchopneumonia

PATIENT ROLE C
Context factors
Cooperative, ill patient

Case D

Setting
Surgery nursing ward, morning rounds

Patient details
Name: Mrs Glastra, age 63, married, 3 children, owns a plant nursery together with her husband
Weight 75 kg. Height 1.65 m.

Medical history
Hypertension
Superficial subtotal right parotidectomy two days ago because of pleomorphic adenoma of the parotid gland.

Medication
Metoprolol (Selokeen zoc) 95 mg once daily.
Paracetamol 500 mg four times daily
Temazepam (Normison) 20 mg at night

Reason for contact
Pain on urination

Recent history
The patient had a right parotidectomy two days ago; things are reasonably well at present. She has hardly any pain There is no loss of facial nerve function. The surgical wound is calm. However, she has had a fever of 38.7°C since yesterday afternoon and had to urinate frequently last night, small amounts. The patient has a constant urge to urinate and urination is also painful. She thinks it is a bladder infection; she has had them many times in the past, but not in the last few years. She is not allergic to antibiotics. The patient has had a bladder catheter, which was removed the day after the operation. She is due to be discharged and go home tomorrow.

Physical examination and supplementary laboratory tests
RR 115/75, heart rate 76
surgical wound: no indications of inflammation
abdomen: lively peristalsis, variable tympany, no tenderness, no indications of urine retention no costovertebral tenderness
normal liver and kidney function, temperature 38,3, positive nitrite urine test.

Diagnosis
Urinary tract infection without complications

PATIENT ROLE D
Context factors
Nervous patient, who is rather worried about whether she can go home tomorrow. Has trouble swallowing capsules. Always and especially now after the operation. She finds it difficult to swallow the Normison capsules. She must take nitrofurantoin for 5 days and twice a day at that? In that case, rather tablets for 5 days, one before bedtime!

CC session: Abdominal problems

Type
Complete consultation session with simulated patients

Group size
12 students

Duration
3 hours

Learning outcome
Students are able to conduct a full consultation with a simulated patient. All stages of the consultation should be addressed.

Student tasks
Preparation: Study the study material. The knowledge acquired during the Bachelor's phase is presumed to be known. Study the checklists thus far.
Three students conduct a consultation with a simulated patient. Prepare for this. Bring along everything you may need, such as a stethoscope. Dress appropriately. Introduce yourself to the simulated patient. In terms of content, you are expected to prepare by being familiar with the necessary skills, such as history-taking and physical examination; you must also be able to propose treatment and a treatment plan with regard to the weekly theme.
During the session: Actively take part in the CC session: both in the role of clerk conducting the consultation and as an observer providing feedback.
Conditions for this training session include:
Students must have adequate knowledge of surgical pathologies that lead to abdominal problems. Students are able to take a medical history from a patient with abdominal problems. Students are able to carry out the abdominal examination, both the general abdominal examination and the abdominal examination on indication. Students know when to carry out the abdominal examination on indication. An indication for a rectal examination or gynaecological examination does not have to be followed up; these examinations do not have to be carried out. Students are able to draw up a treatment plan and discuss this with the patient.

Study material
Study material from earlier Ci sessions and PS sessions
Book: *Browse's introduction to the symptoms and signs of surgical disease*

Read the model file again, paying special attention to the review of systems, and the PS session on abdominal examination (consultation aspects).

Students must bring along:
reflex hammer
stethoscope
penlight

Appendices
1. Feedback list for CC session

Appendix 1

Feedback list for CC session

The teacher applies the following steps in the order given to each consultation:

1. The student doctor states how many junior clerkships he has already completed. The teacher informs the simulated patient.
2. The student doctor states the learning points suggested following earlier interviews.
3. The consultation takes place.
4. Comments from the student on his own consultation and indication of the aspects on which feedback is desired.
5. Feedback from the simulated patient.
6. Feedback from student observers. The teacher asks for a reaction from the observing students.
7. If desired: reaction by the student to the feedback from points 5 and 6.
8. Feedback from the teacher.
9. The student suggests his own learning points.

Photo-consultation on anal problems and male genitalia (inspection)

Group size
Of your choice: individually or in groups (rooms have been booked)

Duration
Approximately 1 hour

Learning outcome
Students are able to:
- recognize and describe the most common anal abnormalities and abnormalities in the groin region and male genitalia, and know the general treatment plan for these
- carry out inspection of the male genitalia

Student tasks
Preparation: Read the theory on inspection of the male genitalia and instructions for the photo-consultation (student manual). Use the textbook by *Browse's introduction to the symptoms and signs of surgical disease* during the interactive computer program Photo-consultation on anal problems and male genitalia.
During the session: Go through the interactive computer programme Surgery block. On completion, the answer book may be collected to check your answers.

Organization
The photo-consultation consists of 9 cases. Going through these cases and answering the questions will take approximately one hour.

Teaching aids
Computer with access to Nestor. The interactive computer-based programme is followed in the Clinical Training Center.

Learning methods
Go through the interactive computer-based programme

Quality/evaluation criteria
See assessment form inspection of male genitalia

Appendices
1) Theory on inspection of male genitalia and instructions for photo-consultation
2) Checklist inspection of male genitalia

Appendix 1

Theory on inspection of male genitalia

Inspection
In the examination of the male genitalia, you assess the following aspects on inspection:
- the pubic region
- the groin
- the penis
- the scrotum.

Pubic region
Hair growth pattern: the amount of hair can vary greatly. However, an abnormal hair growth pattern may indicate an endocrinological abnormality. For example, reduced body hair could be a sign of hypogonadism.
Skin: an inflammation of the skin may be present if the skin is visibly red. This may be accompanied by pain or itching. If itching is present, the severity of it may be assessed by looking at the effects of scratching. Possible causes include crab louse, eczema, psoriasis and mycosis (fungal infection).
Swelling: in this area may be caused by, for example, a hidradenitis (inflammation of a sweat gland).

Groin
Skin: see above.
Swelling: in this area swellings may occur that have a skin-based cause, but other causes could be an enlarged lymph node or an inguinal hernia.

Penis
Skin: with skin abnormalities of the penis, sexually transmitted diseases such as herpes must be considered. In a lesion that does not heal, the presence of a carcinoma should also be considered.
Prepuce (foreskin): if circumcision has taken place, the foreskin cannot be assessed. A normal foreskin must be able to slide back over the glans penis. If this is impossible, the foreskin is too narrow. In young children, the foreskin cannot be slid back yet and this must not be tried either.
Frenulum: a frenulum (small fold of mucous membrane between the underside of the penis and the glans) that is too short can cause pain when sliding back the prepuce, which can cause problems with intercourse.
Glans: redness of the glans can indicate an inflammation (balanitis) due to, for example, a *Candida* infection. A clear accumulation of smegma is sometimes visible (sebaceous matter mixed with shed epithelial cells). This could indicate poor personal hygiene.
Corona: swellings on the corona (transition between the glans and the shaft of the penis) may be caused by an innocent physiological phenomenon (pearly penile papules), but could also be caused by the sexually transmitted disease condylomata acuminata.
Urethral orifice: you take note of the location of the urethral orifice because this can deviate from the normal location in some congenital abnormalities. The location of the urethral orifice can for example be too far in a ventral direction (hypospadias) or too far in a dorsal direction (epispadias). If discharge from the urethral orifice is visible (urethral discharge), this is usually due to a urethritis. The discharge can vary from a large quantity of yellow purulent discharge to a small quantity of clear grey/white discharge. The quantity and colour of the discharge can be an indication of the possible cause (urethritis resulting from gonorrhoea and chlamydia or non-specific urethritis respectively).

Scrotum
Skin: see above. The most common abnormalities in the scrotal skin are sebaceous cysts.
Content: inspection may show that one half of the scrotum is filled less than the other half; this may indicate the absence of a testis on one side, for example in cryptorchidism, or swelling on the other side, for example with a testicular tumour.
Palpation often gives additional information in such cases. The left testicle is lower than the right testicle in the majority of men.

Instructions for photo-consultation

Systematically look at the male external genitalia. When doing so, use the part of the checklist relating to the inspection. Look at these aspects in the following order:

- a. pubic region
- b. groin
- c. penis
- d. scrotum.

Describe possible swellings carefully. You describe, where possible, the location, size, shape, surface, colour and circumscription.

A. Pubic region
Hair growth pattern: check for a normal male hair growth pattern (a diamond-shaped pattern of pubic hair). Also check axillary hair and possibly chest hair. Much variation is possible within the category 'normal'.
Skin: assess the presence of skin abnormalities; look for signs of inflammation in particular. Problems with itching can lead to the presence of red, parallel lines or lines of small scabs that indicate scratching. Also check for the presence of, for example, nits or crab louse.
Swelling: describe swellings according to the points mentioned above: location, size, shape, surface, colour and circumscription.

B. Groin
Skin: check for redness in particular here as well and possible other signs of infections or inflammations.
Swelling: check for the presence of swelling by checking for asymmetry between the left and the right groin, among other symptoms. In practice, you first check with the patient at rest and you subsequently get the standing patient to blow onto the back of the hand. This increases the intra-abdominal pressure, making possible hernias more visible.

C. Penis
Skin: check the skin, note any swellings and describe them. Also check for ulceration and other skin abnormalities.
Prepuce: always record whether the patient has been circumcised. In some cultures, a circumcision is carried out as a normal ritual. The majority of the patient's foreskin is then removed, exposing the glans. When inspecting the prepuce, check for signs of inflammation such as chaps and redness. Subsequently, get the patient himself to slide back the prepuce; note pain reactions (facial expression!).
Frenulum: check whether the frenulum (small fold of mucous membrane between the underside of the penis and the glans) is scarred or otherwise shortened. If the frenulum is too short, the foreskin cannot completely slide back. If you try this anyway, the top of the penis is pulled in a dorsal direction by the too short frenulum.
Glans: check for signs of inflammation and note the amount of smegma (white substance that often accumulates, especially around the corona).
Corona: inspect the site where the broad glans changes to the narrower shaft of the penis: this transition normally has a virtually smooth aspect.
Urethral orifice: check where the urethra exits and check for urethral discharge. Visible discharge usually indicates a sexually transmitted disease and you must take a urethra culture.

D. Scrotum

Skin: assess the skin. It is important that the aspect of that skin is dependent on the 'relaxation state' of the skin. The extent to which the scrotal skin contracts is, among other factors, dependent on temperature: the skin contracts with cold or tension and relaxes with heat. Only a relaxed skin can be inspected for swellings in the scrotal skin. In that case, describe them as indicated above. The scrotal skin is hairy and has rugae (wrinkles) under normal circumstances.

Content: the content of the scrotum is also best assessed when the scrotal skin is relaxed. You assess the scrotal content by checking the symmetry between left and right and by checking the rugae of the scrotal skin. Presence of a large swelling can make the rugae disappear.

Appendix 2

Checklist inspection of male genitalia

Inspection

Comments	
pubic region	- hair growth pattern
	(diamond-shaped, possibly axillary hair and chest hair)
	- skin
	(indications of inflammation, effects of scratching)
	- swelling
	(see below)
groin	- skin
penis	- skin
	(swelling and skin abnormalities)
	- prepuce
	(circumcision, signs of inflammation)
	- frenulum
	(shortened)
	- glans
	(signs of inflammation, smegma)
	- corona
	- urethral orifice
	(location, discharge)
scrotum- skin	
	(contraction, swelling)
	- content
	(position and size of testicles, symmetry)

Swelling

If swelling is present, describe:
- location
- size
- shape
- surface
- colour
- circumscription

Wounds, wound healing and wound care

Duration
2 hours

Learning outcome
Students are able to:
1. describe the various phases of wound healing
2. establish a wound treatment plan
3. know about the various wound dressings and their applicability
4. prevent the spread of hospital-based infections
5. request a wound culture

Student tasks
Preparation: Master the study material as addressed in the Bachelor's phase B.3.1 and B.2.3.
During the session: Actively take part in discussion and practical assignments.

Study material
Appendices 1 and 2 Wound treatment

Learning methods
Socratic questioning, discussion of case studies

Appendices
1. Introduction to wounds, wound healing and wound treatment
2. Wound treatment from a nurse's perspective (as reference material)

Introduction to wounds, wound healing and wound care

In the PS session Wounds, wound healing and wound care, the theoretical basis of wound healing remains very important to the students.
They must always be able to rely on this knowledge when assessing a wound.
We have tried to place even more emphasis on situations encountered in practice by using a lot of photographic material, including a lot of new material, so that students get more support when being introduced to wounds during their clerkships in the clinic.
Students must always remember that a certain wound belongs to a specific patient; the aetiology must be thought about and consideration must also be made as to why certain wounds do not heal or heal with severe delay.
A good physician will try to discover this so that treatment can be initiated.
An overview of wound treatment from a nurse's perspective is also supplied as reference material.

Groningen, April 2011

J.J.A.M. van den Dungen
J.A.G. de Groot
A.U.C.C. Nooteboom

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Wounds, wound healing and wound care

Definition: What is a wound?

A wound is a disturbance in the natural coherence of a tissue.

Causes of wounds and injuries

1. Mechanical force, sharp:
stab wounds
cuts
bite wounds
bullet wounds
shrapnel wounds

2. Mechanical force, blunt:
contusion, also of parenchymal organs such as the kidney, cerebrum, lung
rupture, likewise
vascular injury
fracture, luxation
deceleration injury

3. Thermal injury: burning, freezing

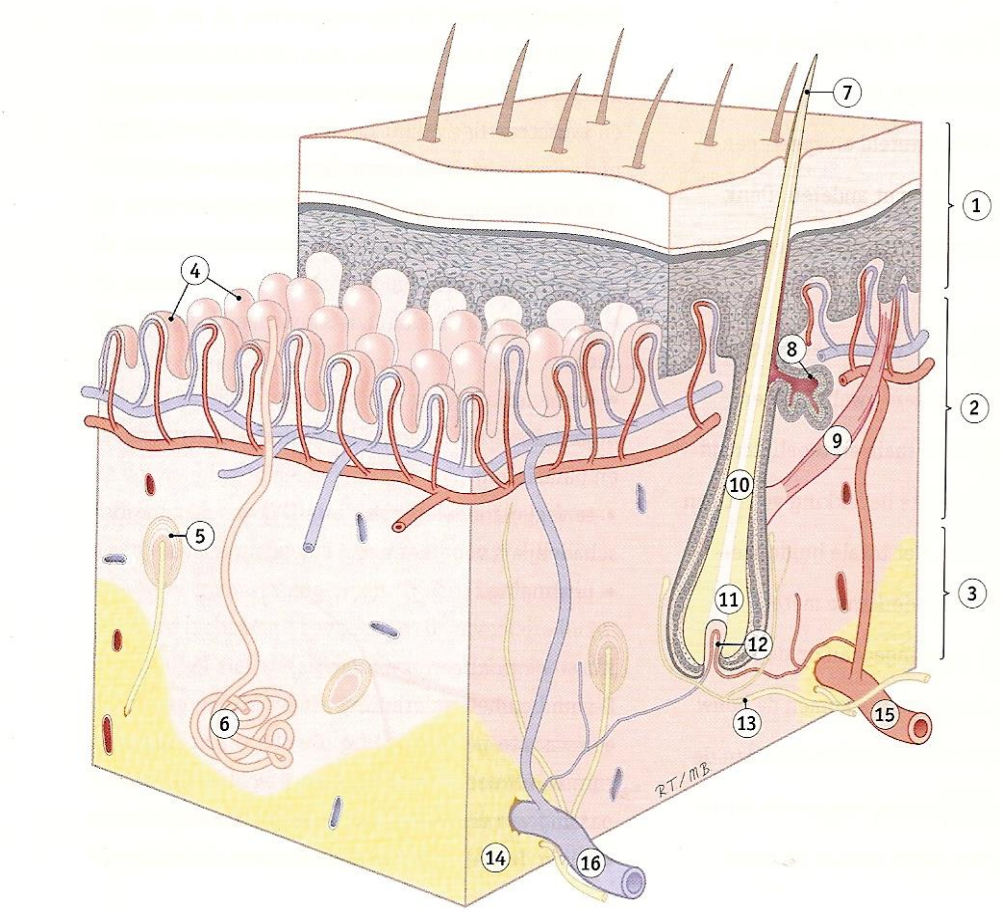
4. Chemical injury: from acids or alkali, poison gases

5. Electrical injury: cardiac arrhythmias in addition to thermal injury

6. Radiation injury: infrared, UV light, X-ray, radioactive isotopes
Effect mainly on bone marrow, testis and ovary, and neoplasms.

From here, the topic will be restricted to wounds of the skin and subcutaneous layer.

Structure of normal skin:



10.1 Structure of the skin

1. epidermis
2. dermis
3. hypodermis
4. dermal papillae
5. sense organ
6. sweat gland
7. hair shaft
8. sebaceous gland
9. arrector pili muscle
10. hair root
11. hair bulb
12. hair follicle
13. nerve
14. subcutaneous adipose tissue
15. arteriole
16. venule

From: Gregoire et al., *Anatomie en fysiologie van de mens*, ThiemeMeulenhoff, Utrecht/Zutphen 2007

Wound healing

First the secondary (natural) wound healing, whereby 3 phases can be distinguished.

The three phases are:

1. the **inflammatory phase**, debridement phase or inflammatory response phase
2. the **proliferative phase**, granulation phase or regeneration phase
3. the **remodelling phase**, epithelialization phase or scarring phase.

Sometimes a further phase is distinguished that takes place immediately before the inflammatory phase, the coagulation phase.

During the **inflammatory phase**, biological processes are active and these deal with dead tissue and infection. It is therefore useful to mention some characteristics of the **inflammatory process** for a good understanding of these processes.

a. **Vasodilation** causes increased perfusion

b. **Changes in permeability** of the capillary wall, whereupon inflammatory exudate, consisting of serum, plasma proteins (fibrinogen, albumin, globulins) and inflammatory cells, can enter the extracellular space. The inflammatory exudate dilutes the bacterial toxins and irrigates the area involved in the inflammation to the lymph capillaries present at that site. This process is initiated by the kinin cascade and the complement cascade. The effect is oedema (tumor) and also pain due to the bradykinin formed.

c. **Chemotaxis** leads to mobilization and attraction of inflammatory cells: macrophages arise from monocytes and can clear up the microorganisms present through phagocytosis.
For the sake of completeness, it must be mentioned that this entire process is far more complex than described here. Not much attention is paid to the role of inflammatory mediators and the role of cellular and humoural immunity in order to keep the overview simple. As already mentioned, the inflammatory process described above plays a role mainly in the inflammatory phase of the secondary healing of a wound.

Primary wound healing (*sanatio per primam intentionem*; sppi)

Ideal wound:
No dead tissue
Optimal perfusion of the wound edges
No tissue defect
No tension on the wound edges
Minimal 'exertion' is required by the healing process in restoring the continuity of the tissue
No debridement in the inflammatory phase
Minimal proliferative phase
Minimal scar formation (little collagen formation)

Golden period: 0-6 hours after trauma. After 6 hours the bacterial growth increases exponentially. The length of this period is currently the subject of debate.

Chronic wounds have existed for longer and have a poor healing potential.

What are the causes of poor wound healing?

Arterial or venous insufficiency
Diabetes mellitus
Decubitus ulcers
Postoperative wound infection
Malignancy
Jaundice
Presence of foreign bodies
Virulence of microorganisms that may be present
Nature of the wound (cause) and nature of the tissue
Smoking or irradiation
Malnutrition or medication
Vasculitis
Trauma with soft tissue injury

Adverse general factors:
Age, immune status, nutritional status, deficiencies, mobility, intoxications, comorbidity, medication and psychosocial factors.

Learning to describe the wound is also very important (wound assessment):
location
size, depth
surface: colour, necrosis, exudate
exposed structures
signs of infection in the area surrounding the wound
aspect of the surrounding skin
pain
smell

A good **medical history** must be taken from every patient with a chronic wound to find out the aetiology; this is followed by a **specific physical examination**. Supplementary tests are carried out after that: **blood lab (arterial and venous duplex), laboratory tests including glucose levels, cholesterol levels, deep wound culture and X-ray of underlying bone if necessary.**

If the tests show arterial or venous vascular disease, these factors must be improved first through, for example, vascular surgery, compression technique (in venous vascular disease) and/or pharmaceutical secondary prevention (statins, carbasalate calcium (Ascal), antihypertensives).

When determining the phase the wound is in, students **use the 3 phases of wound healing** and the corresponding development of an inflammatory response (see the beginning of this chapter).

3 PHASES: 1. the inflammatory phase, debridement phase or inflammatory response phase
2. the proliferative phase, granulation phase or regeneration phase
3. the remodelling phase, epithelialization phase or scarring phase

- In the **debridement phase**, various factors may be helpful in the clearance:

*autolysis using own enzymes and wound fluid
*biological through using maggots
The maggots' excretions have no direct antibacterial activity.
Effective against biofilm formation (on prostheses) and debris.
*surgical using scissors, knife, curette
*enzymatic for example streptokinase or collagenase (Novuxol®)
*mechanical rinsing with syringe or showerhead
*chemical for example Eusol (calcium hypochlorite), Furacin, Ag (silver sulfadiazine)
Bear in mind the importance of protecting the wound edge when using these agents.

A frequently promoted treatment in this phase is **VAC therapy (VAC(R), Vista(R))**, negative-pressure wound therapy.
Ubbink et al. in NTVG 2009;109:A365:
*Cochrane studies only demonstrated it to be effective in the treatment of venous and diabetic ulcers.
*Restraint is called for, first apply in trials.
Negative-pressure wound therapy must not replace good and regular debridement, revascularization in the case of arterial insufficiency and treatment of any infection of the wound.

- In the **granulation phase**, dressing materials can be used that do not disturb the wound bed, so granulation tissue and young epithelium can freely proliferate.

Dressing materials that are currently in use can be easily classified:

	Type	Brand name
DEBRIDEMENT PHASE and GRANULATION PHASE	SILICONES POLYURETHANE	MEPITEL TEGADERM
MOISTURE +	HYDROGEL	DUODERM HYDROGEL
MOISTURE ++ + NECROSIS	HYDROCOLLOID HYDROFIBER	DUODERM AQUACEL
MOISTURE +++ + NECROSIS	ALGINATE	KALTOSTAT
MOISTURE ++++	FOAM	BIATAIN

It is possible in the **granulation phase** to apply skin surgery (synonyms: free skin transplant, split-thickness skin graft), provided the wound is not too moist.
Useful terms related to this include dermatome, skin expansion device and donor site. In the Dermatology Department, students also come into contact with the application of the Reverdin technique.

- In the **epithelialization phase**, it is important not to damage the wound epithelium when changing dressings.
  The use of silicone dressings or polyurethane dressings (greasy dressings) is recommended. It is possible to let the wound epithelialize from the wound edges, which may take some time depending on the wound, or to apply skin surgery.

As we have read before, it is important to establish the presence of a clinical wound infection in addition to the ischaemia.

Characteristics of a clinical wound infection:
- redness
- odour
- pus
- a large quantity of exudate
- necrosis
- pain
- oedema

When treating a wound infection it is good to point out to students the importance of a representative **deep** culture before starting antibiotic treatment, which is usually parenteral. Not all redness surrounding a wound indicates a wound infection; it can also be a sign of cellulitis, allergy, eczema or weakening of the surrounding skin.

Sometimes a wound is colonized by different types of microorganisms. Then there are usually no clinical signs of infection. Local measures against the microorganisms are sufficient in such situations.

Finally, attention is being paid to a number of bacteria that are frequently responsible for wound infections or clinical problems in patients.

- *Staphylococcus aureus* localized problem, remains in the wound
patient not very ill

- MRSA dangerous in patients with reduced immune system

- *Streptococcus* spreads through tissue gaps
no pus, more skin necrosis, blisters, lymphangitis
for example necrotizing fasciitis

- *Pseudomonas aeruginosa* aerobic, gram-negative, rod-shaped
notorious as a superinfectant in burns

- *E.Coli* especially in diabetic wounds and ulcers

- **mixed flora** gram-negative and gram-positive bacteria occur together
usually colonization

- anaerobes malodorous

Appendix 2

Wound care from a nurse's perspective

Contents:

1. Basic principles.

Courtesy of Elma Dijkstra, nurse / wound care, Surgery, UMCG.

2. Types of dressing materials
   - non-adherent absorbent dressings
   - moisturizing dressings and materials
   - non-adherent dressings
   - alginates
   - antibacterial products
   - fixation materials
   - film suction system (VAC therapy)
   - odour-absorbing dressings
   - hydroactive dressings
   - secondary dressings
   - silicone dressings
   - transparent wound films
   - greasy gauzes
   - wound edge protectors
   - maggots

3. Treatment principles: see intranet umcg /Qualinet/ zoeken/ wond
   - the yellow wound
   - the red wound
   - the dry black wound
   - the wet black wound

4. Standard wound treatment products

5. Websites

1. Basic principles of wound treatment

** Options schedule for wound treatment:*

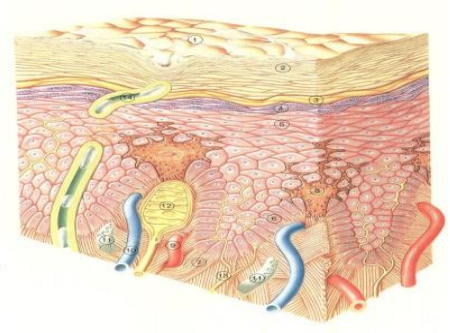
	WOUND TREATMENT PROCEDURE				
	Wound colour ↓	**Goal** ↓	**Treatment advice Wet** Wet wounds, fluid-absorbing treatment	**Treatment advice Moist** Moist wounds, fluid-regulating treatment	**Treatment advice Dry** Dry wounds, moisturizing treatment
Black wound Remove necrosis	• Necrosis without signs of inflammation • Necrosis with signs of inflammation	• Keep necrosis intact • Healing underneath the scab • Remove necrosis	• Carry out necrosectomy (physician) • Weaken necrosis	• Carry out necrosectomy (physician) • Weaken necrosis	• Keep necrosis intact by taking protective measures
Yellow wound Clean	• Deep • Superficial	• Clean • Fill in the wound • Clean	• Alginate • Antiseptic fluids • Alginate • Antiseptic fluids	• Alginate • Antiseptic fluids • Alginate • Antiseptic fluids	• Moisturize alginate with NaCl 0.9% • Hydrogel • Moisturize alginate with NaCl 0.9% • Hydrogel
Red wound Protect	• Deep • Superficial	• Protect granulation tissue • Fill in the wound • Protect granulation tissue	• Hydrofiber® • Non-adherent dressing • Hydrofiber® • Non-adherent dressing	• Hydrofiber® • Non-adherent dressing • Hydrofiber® • Non-adherent dressing	• Moisturize Hydrofiber® with NaCl 0.9% • Hydrogel • Moisturize Hydrofiber® with NaCl 0.9% • Thin hydrocolloid • Wound film

General advice:

- Treatment advice does not apply to burns and oncological wounds.
- Removing necrosis is not a procedure to be carried out by nurses.
- Deep wounds must always be filled in.
- Do not close off infected wounds with occlusive (sealing) dressing.
- Use wound edge protector for moist and wet wounds.
- Try to keep an intact blister intact.
- A sealing wound treatment is desirable for dry wounds without signs of inflammation.
- Remove wound covering if leakage occurs.
- The *Revalidatie* centre can work with other brand names; these are discussed in more detail in the reference material.
- If there are multiple colours in the wound, follow treatment advice in the order black, yellow, red.
- Aim for wet wound treatment
- ***Huid, wond en Decubitusteam***, (Skin, wound and Decubitus team) **55300**

- What caused the wound?

- How would you describe the wound?
  - Colour of the wound?
  - Degree of moisture of the wound?
  - Size of the wound?
  - Depth of the wound?
- What is the treatment goal?
- Product choice!



** Create a moist wound environment! The wound will then heal quickest from the wound bed.*

** Choose a wound covering according to the colour of the wound.*

** When examining a wound, consider:*
- *What is the cause of this wound?*
- *Why might a wound not heal?*
  - *diet*
  - *DM*
  - *vascular disease*
  - *oedema*

2. Types of dressing materials

Non-adherent absorbent dressings

Non-adherent absorbent dressings are made up of multiple layers with different characteristics such as:
- a wound contact layer that does not adhere to the wound bed in moist wounds. It allows unlimited passage of wound fluid to the next layer
- an absorbent core layer that is sometimes alternated with fluid-distributing layers
- a top layer made of fluid-repellent material that prevents leakage of wound fluid.

The quantity of exudate that a wound produces also plays a role in determining the choice of wound covering.
- For a wound producing large quantities of exudate, a wound covering must be chosen that can absorb a lot of exudate.
- For a wound producing small quantities of exudate, a moisturizing wound covering must be chosen; occlusive (sealing) treatment of the wound can also be chosen so the fluid from the wound does not immediately evaporate but stays in the wound.

Absorbent wound covering:
- alginate
- hydrofiber
- foam dressings
- Melolin
- Metaline
- hydrogel

Moisturizing dressings and materials

Hydrogels are gels that consist for a large part of water to which a hydrocolloid, and in some cases an alginate, has been added.

Indication:
- dry, deep wounds
- yellow wounds
- necrotic wounds (to dissolve necrosis)

Characteristics:
- do not adhere to the wound
- create a moist wound environment
- weaken fibrin coating and necrosis

Non-adherent wound dressings

These products can be subdivided into two groups:
- silocone dressings
- greasy gauzes

Alginates

An alginate is a natural product harvested from brown seaweed. It forms a gel that keeps its shape when in contact with wound fluid and that remains intact on removal.

Indication:
- yellow exudative wounds

Characteristics:
- absorb wound fluid
- suitable for deep wounds
- promote coagulation
- form a gel
- create a moist wound environment
- biodegradable

Antibacterial products

Antibacterial ointment gauzes

These are gauzes impregnated with an active antibacterial substance. The gauzes can be cut to size or folded into the wound. A disadvantage of these gauzes is that the active substance has a limited effect. The gauzes can also easily adhere to the wound bed. Covering with a secondary dressing is required. Beware of hypersensitivity reactions.

Examples of antibacterial ointment gauzes include:
- Betadine-ointment gauzes
- Fucidin Intertulle

Antiseptic fluids

These fluids are used to clean a wound. The fluids are usually soaked into the gauzes. These are often aggressive fluids that not only clear up the waste substances in the wound, but can also be harmful to newly formed tissue. It is important to protect the wound edges well when applying these fluids.
Examples of cleansing fluids include:
- acetic acid
- Eusol
- Furacin solutions

- Acetic acid

  This is generally used as solutions between 0.5% and 2%. This solution ensures a low pH value in the wound, which is an unfavourable environment for bacteria. *Pseudomonas* bacteria in particular are very sensitive to this.

- Eusol

  Eusol is an abbreviation of Edinburgh University Solution of Lime (calcium hypochlorite solution). This solution has a very broad spectrum of activity that comprises almost all microorganisms. In addition to neutralizing microorganisms, it can also be used for debridement (cleaning) of the wound. Since Eusol is an aggressive fluid, it may be painful upon application and the wound edges must be protected.

- Furacin solutions

  This is an antibacterial solution effective against gram-positive and gram-negative microorganisms.

Antibacterial silver dressings

These are wound dressings to which silver ions have been added. Silver has an antibacterial effect. This is because silver ions destroy the bacterial cell walls, leaving the bacteria harmless.

Characteristics of silver dressings include:
- suitable for infected wounds
- wounds must be moist
- can stay in the wound for a longer period of time
- also limit odour since the bacteria have been neutralized

Fixation materials

Since not all wound coverings have an adhesive border, a choice of fixation material is often necessary. This is sometimes difficult because patients can develop an allergic reaction to certain substances that are being used in the product's adhesive layer. Since most fixation materials adhere to the skin rather aggressively, their removal is sometimes problematic. Damage to the epidermis can easily occur when the material is removed too vigorously. This can be prevented by removing the fixation material carefully and applying a fluid skin protector before applying the plaster to the skin.

Film suction system (VAC therapy)

Film suction has recently become available for chronic and difficult-to-treat open wounds. VAC therapy is a suitable alternative especially when the wound is too large to apply a ready-to-use dressing.
VAC is an abbreviation of Vacuum Assisted Closure. It involves closing the wound using underpressure. A sponge is cut to size, placed in the wound and sealed airtight using a film. A small hole is made in the film through which a tube is inserted. This is connected to a pump that ensures a continuous underpressure. This draws off the exudate and other substances that have a negative effect on wound healing and collects these in a container. By applying this vacuum (periodically if necessary) the wound is stimulated to form granulation tissue. It also helps to prevent and combat infections through removal of tissue fluid and bacteria.

Characteristics of VAC therapy include:
- wide applicability
- patient is attached to a pump
- expensive

Odour-absorbing dressings

If a wound is odorous, an odour-absorbing dressing can be chosen. This has an integrated carbon filter that absorbs all odours. Local antibiotics can also be used in addition to carbon dressings. However, remember that an odorous wound may indicate infection.

Characteristics of odour-absorbing dressings include:
- suitable for odorous wounds
- must not be cut to size
- can also be used as a secondary dressing

Hydroactive dressings

These dressings share the following characteristics:
- they create a moist environment that promotes wound healing
- they promote self-cleaning of the wound
- their shape adapts to the shape of the wound due to their flexible composition

The following dressings are hydroactive:
- wound films
- hydrocolloids
- hydrofibers
- foam dressings
- greasy gauze as a secondary dressing. The grease in the gauze ensures the fluid does not immediately evaporate.

Hydrocolloids

Hydrocolloids consist of fluid-absorbing polysaccharides. Hydrocolloids could be called the precursors of modern wound-healing products. Hydrocolloids are indicated for red, moderately exudative to dry wounds.

Characteristics of hydrocolloids include:
- cannot absorb a lot of fluid
- provide an occlusive (sealing) wound treatment
- skin-friendly adhesive layer
- most hydrocolloids can be cut to size
- not indicated for infected wounds

-

Hydrofibers

These are hydroactive dressings made of hydrocolloid fibres. The dressings ensure vertical absorption of the wound fluid. They can absorb large quantities of fluid and are especially suitable for moderately yellow and red exudative wounds.

Characteristics of hydrofibers include:
- create a moist wound environment
- clean the wound
- do not adhere to the wound bed
- no softening of the wound edges

Foam dressings

These dressings consist of foam that is able to absorb large quantities of fluid. These dressings are mainly used for red, exudative wounds.

Characteristics of foam dressings include:
- do not adhere to the wound bed
- do not constitute occlusive (sealing) treatment
- can be cut to size
- high absorption capacity

Secondary dressings

A secondary dressing is the dressing that is not in direct contact with the wound but can be used on top of the wound covering.

Examples include:
- sterile gauzes
- greasy gauzes
- dressings that are able to absorb large quantities of fluid are often used as a secondary dressing and are indicated for wet and moist wounds.

Absorbent wound cushions with a thin non-adherent layer on the wound contact layer include:
- silicone gauze
- silicone foam dressing
- silicone foam dressing with additional adhesive border

Silicone dressings

These are dressings that contain a silicone layer. Silicone does not adhere to the wound so no damage occurs when removing the dressing. These dressings are indicated for red, superficial, moderately exudative wounds.

Examples include:
- silicone gauze
- silicone foam dressing
- silicone foam dressing with additional adhesive border

Transparent wound films

This is a polyurethane film that is often used for the fixation of infusion catheters and tubes, but that can also be used as wound dressing in wounds producing small quantities of exudate. The film is also suitable as a secondary dressing and in occlusive (sealing) wound treatment. It is important to take care when removing the film. To avoid damage to the epidermis, the skin must be supported when removing the film.

Characteristics of wound films include:
- Transparent, enabling observation of the wound
- occlusive (sealing) dressing
- create a moist wound environment

Greasy gauzes

These gauzes consist of open, woven cotton fibres that are impregnated with grease, usually paraffin. The gauzes protect the wound but adhere to the wound bed if not removed in good time. The size of the meshes in the gauze determines to a large extent for how long the wound dressing can remain on the wound.

Characteristics of greasy gauzes include:
- do not absorb fluid
- protect the wound bed
- semi-occlusive (half-sealing) dressing

Wound edge protectors

In addition to choosing the correct wound covering, it is also important to keep an eye on the wound edges. It is highly probable that the wound edges will macerate (soften) in wet wounds. On the other hand, it is highly probable that the wound edges dry out if the wound is dry. To protect the wound edges against softening or drying out, it is important to use wound edge protectors.

Various types of wound edge protectors are available:
- ointments
- fluid skin protectors
- thin hydrocolloids

Ointments
Examples include zinc ointment and zinc oil. Both provide good skin protection. The products must always be thoroughly removed before applying new ointment. This can be easily done using sweet oil. If this is not done, crusts of old ointment remnants can develop, which also hinders observation of the area surrounding the wound. In addition to counteracting the effect of wound fluid, an ointment can also be used when an aggressive cleansing fluid is used, such as Eusol-paraffin or Furacin gauzes.

Zinc ointment
Zinc ointment is used when the area surrounding the wound is dry, e.g. if there is flaking skin surrounding the wound.

Zinc oil
Zinc oil is used when the area surrounding the wound is moist, e.g. if there is softened (macerated) skin.

Fluid skin protectors
These are products that provide skin protection by leaving behind a thin film that counteracts the effect of the exudate. These products sometimes contain alcohol and it is painful when this enters the wound. An advantage of fluid skin films is that the wound edges can be observed well. This can also be a disadvantage as regards the indication as to when to apply a new skin film.

Application of new skin film
Draw a line with a pen before applying the skin film. Apply the skin film over the line; when the line has disappeared, the film must be renewed.

Thin hydrocolloids
To protect the wound edges, thin hydrocolloids can also be used. These are applied in strips alongside the wound edges. It is also possible to cut the surface of the wound from the material. Make sure the exudate does not accumulate underneath the hydrocolloid. The border of the hydrocolloid may also be used for fixation of plasters if a wide hydrocolloid border was used. It is important when using these materials to make sure no pressure spots develop as a result of the patient lying on them.

3. Treatment principles
See Qualinet for the treatment protocols for red, yellow and black wounds.

4. Standard wound treatment products

Primary = what you apply to the wound first
Secondary = what you cover it with
Exudate = wound fluid

Kaltostat (= alginate)

- yellow exudative wounds
    - cut to size!
    - secondary dressing: - Mepilex border
      - Mepilex + fixate
      - Mepitel + sterile gauze + fixate

Aquacel (= hydrofiber)

- moderately yellow and red exudative wounds
- for dry or wet wounds (additional absorption)
    - it becomes a hydrogel with water
    - apply generously over the wound edges (it shrinks)
    - secondary dressing: - Mepilex border
      - Mepilex + fixate
      - Mepitel + sterile gauze + fixate

Mepitel (silicone gauze)

- red, superficial, moderately exudative wounds
    - does not adhere to the wound
    - does not adhere to the glove provided the glove is made wet!
    - overlap generously, no softening of wound edges due to vertical absorption
    - secondary dressing: - sterile gauze + fixate

Mepilex (silicone foam dressing)

- *red wounds*
    - does not adhere to the wound
    - absorbs fluid
    - semi-occlusive (film layer)
    - use with sensitive skin
    - primary on all, wet or dry, red superficial wounds + fixate
    - secondary stick on top of alginate or Aquacel + fixate
        - fixate (**for sensitive skin use a bandage or stocking!**)

Mepilex border (silicone foam dressing with additional adhesive border)

- *red wounds*
    - does not adhere to the wound
    - absorbs fluid
    - is first choice above Mepilex (without border)
    - primary on all, wet or dry, red superficial wounds
    - secondary stick on top of alginate or Aquacel

Aquacel Ag (silver)

- *suitable for infected exudative wounds*
    - use for a maximum of 5 days or intermittently
    - secondary dressing: - Mepilex border
      - Mepilex + fixate
      - sterile gauze + fixate

Fluids that can be used for infected wounds include:

- Eusol (based on chlorine): not on red tissue, kills everything, use Eusol only to dissolve necrosis. Silver dressings are preferred for infected wounds or possibly an antibiotic if the pathogens are known.
- Acetic acid: is now only used for persistent *Pseudomonas* infections.
    - Instructions for use:
        - soak sterile gauze in the fluid and then apply to the wound. Do not cover the wound edges!!!
        - protect wound edges carefully against these aggressive

fluids.
  - apply Eusol to the wound several times a day.
- Furacin: yellow fluid that catalyses incipient granulation.

Wound edge protector:

Coloplast
Skin protector, can also be used as fixation material in combination with Fixomull.

Cavilon spray
Wound edge protector and skin protector for red, intact skin. Allow to dry sufficiently!!!

Zinc oil
Has dehydrating effect and can therefore be used efficiently in the groin and other such areas, see guideline *Smetten* (Intertrigo).
Wound edge protector and skin protector for open and wet skin wounds.

Zinc ointment
Zinc ointment is used when the area surrounding the wound is dry, for example if there is flaking skin surrounding the wound.
Wound edge protector and skin protector for open and flaking wounds.

Other ointments:

Lanette ointment
Skin protector for dry to very dry skin.

Vaseline Carbomer Cream
Skin protector for normal to dry skin.

Zinc oxide 10% in Pevaryl cream
For fungal infections in moist environment.

Flammazine (= with silver)
To treat a wound infection (cream). Use for a maximum of 5 days or intermittently.

UMCG bath oil
To prevent dry, flaking, cracked skin.

Sweet oil (arachid oil) or rapeseed oil
Cleansing products for zinc products, for example.