

**2019 - IID - MD4043 - eksamen 3**  
**Eksamensdato: 2019-12-16**

**1**

You work as an intern in the countryside far from the nearest hospital. A 27-year old woman attends with sparse vaginal bleeding and slight pelvic discomfort. She has given birth to one child, had one ectopic pregnancy five years ago for which she was treated conservatively, and she has had one legal abortion. Her last period was five weeks ago. Urine HCG is positive. At gynaecological examination you find no signs of vaginal bleeding; there is some motion and palpation tenderness of the uterus. She has no abdominal peritoneal irritation.

What is the most correct next step?

- A** You ask her to come back in a week, or earlier if the pain increases, and to not leave the area
- B** You send her to the Gynaecology Outpatients Clinic as an emergency care, and agree that she organises the transport herself
- C** You send her by helicopter to the nearest hospital with a Gynaecology Department
- D** You measure serum HCG today and in 2 days and recommend that she does not leave the area

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**2**

En 30 år gammel kvinne har tidligere hatt dyp venetrombose i høyre legg. Hun brukte blodfortynnende i en periode, men ikke lenger nå. Hun trenger prevensjon og du vurderer å sette henne på gestagen-p-piller (desogestrel).

Du slår opp i WHO sine guidelines der det fins 4 nivåer av fordeler versus risiko ved bruk av de ulike prevensjonsmidlene.

Hva vil mest riktig vurdering for forskrivning av gestagen-p-piller til denne kvinnen?

- A** Bruk av metoden har flere fordeler enn risiko
- B** Risiko overstiger vanligvis fordelene ved å bruke metoden
- C** Ingen restriksjoner i bruk av metoden
- D** Det er en uakseptabel helserisiko ved bruk av metoden

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**3**

What is the most important reason for the decreasing prevalence of cervical cancer over the last 40 years?

- A** Increasing use of oral contraceptives
- B** Vaccination against human papillomavirus (HPV)
- C** Increasing use of condoms
- D** Cytology screening

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**4**

Human papillomavirus (HPV) is a known cause of the development of cervical cancer. More than 200 different genotypes of the virus have been identified.

Which types are believed to cause most cases of cervical cancer?

- A** HPV types 16 and 18
- B** HPV types 31 and 33
- C** HPV types 6 and 11
- D** HPV types 45 and 52

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**5**

A 29-year-old woman is being investigated for infertility. Her husband's sperm sample is normal. Laparoscopy with blue dye has revealed patent Fallopian tubes. She says she has a 25-day menstrual cycle.

What should she do to ensure she has the greatest likelihood of becoming pregnant?

- A** Have intercourse 3 days in a row after a urine dipstick shows positive for ovulation (ovulation test)
- B** Have intercourse 3 days in a row after a temperature rise of 0.5 degrees (daily temperature measurement)
- C** Have intercourse on days 14 - 18 of her menstrual cycle
- D** Have intercourse on days 9 - 13 of her menstrual cycle

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**6**

A 32-year-old man seeks help for primary infertility. It becomes apparent that he has azoospermia (no sperm in the ejaculate). You measure his testosterone levels to be low. Which other hormone analysis (serum) is the most useful when investigating the cause of azoospermia in this man?

- A** TSH (thyroid stimulating hormone)
  - B** FSH (follicle stimulating hormone)
  - C** AMH (anti-Müllerian hormone)
  - D** Oestradiol
- 

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**7**

You are the GP for a 21-year-old woman who has come to your surgery for help. Her age of menarche was 16 years, and she had periods about once a month for 3-4 years. Since then she has had total amenorrhoea. She is very underweight. What is the most probable cause of this condition?

- A** Hypergonadotropic hypogonadism (i.e. high FSH, high LH and low oestradiol)
  - B** Normogonadotropic condition (i.e. normal FSH and LH)
  - C** Hypogonadotropic hypogonadism (low FSH, low LH and low oestradiol)
  - D** Pregnancy, i.e. positive serum and urinary hCG (human chorionic gonadotropin)
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**8**

A 73-year old woman comes to you in general practice. She complains of frequent urination and a sensation of urinary tract infection.

Urine dip-stix test: Negative.

What is the most correct for you to do next to investigate this patient?

- A** Refer the patient directly to a urologist. In the referral you describe the patient's symptoms and the urine test findings.
  - B** Give the patient local estrogens and give her an appointment for follow-up in 1 month.
  - C** Send the urine for culture and start trial treatment with antibiotics while awaiting the results of culture.
  - D** Perform a gynaecological examination with speculum examination.
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**9**

The patient is a 19-year-old woman in gestational week 27 in her first pregnancy. The pregnancy has until now progressed normally. The patient is admitted to hospital with regular contractions, 4 contractions every 10 minutes, on your shift as the specialist registrar in the Department of Obstetrics and Gynecology.

You measure her cervix and find it is short at 20 mm (normally 40 mm).

What is the recommended treatment in her situation?

- A** Administer betamethasone (Celestone Chronodose®) and oxytocin antagonist atosiban (Tractocile®)
  - B** Administer betamethasone (Celestone Chronodose®) and recommend bed rest
  - C** Administer progesterone and recommend cervical cerclage (cervical ring) on the following day
  - D** Administer progesterone and wait to see if the frequency of contractions increases
- 

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**10**

The patient is a 27-year-old woman who has previously been healthy, and is in week 12 of her second pregnancy. In the first pregnancy she had mild pre-eclampsia. She complains to you, her GP, of a headache that she has had for the last few days.

At examination you find BP 150/93 and urine dipstick shows albumin +1.

What is the best way to clarify the situation?

- A** Blood tests for Hb, thrombocytes, ASAT, ALAT, LD, urate, creatinine
  - B** 24-hour measurement of BP and a new urine sample
  - C** Blood tests for Albumin, INR, fibrinogen, antithrombin, haptoglobin
  - D** New urine sample for microscopy
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**11**

What is the most important reason for screening for HbA1c in the first trimester?

- A** The early identification of pregnant women who have gestational diabetes
  - B** The early identification of pregnant women who have type 2 diabetes
  - C** The early identification of pregnant women who have the highest risk of fetal malformations due to high s-glucose
  - D** The early identification of pregnant women who have the highest risk of having large babies
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**12**

What can we investigate using NIPT (non-invasive prenatal testing)?

- A** We can investigate placental function
  - B** We can perform trisomy diagnostics
  - C** We can investigate the probability of a pre-term birth
  - D** We can investigate whether the fetus is growth restricted
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**13**

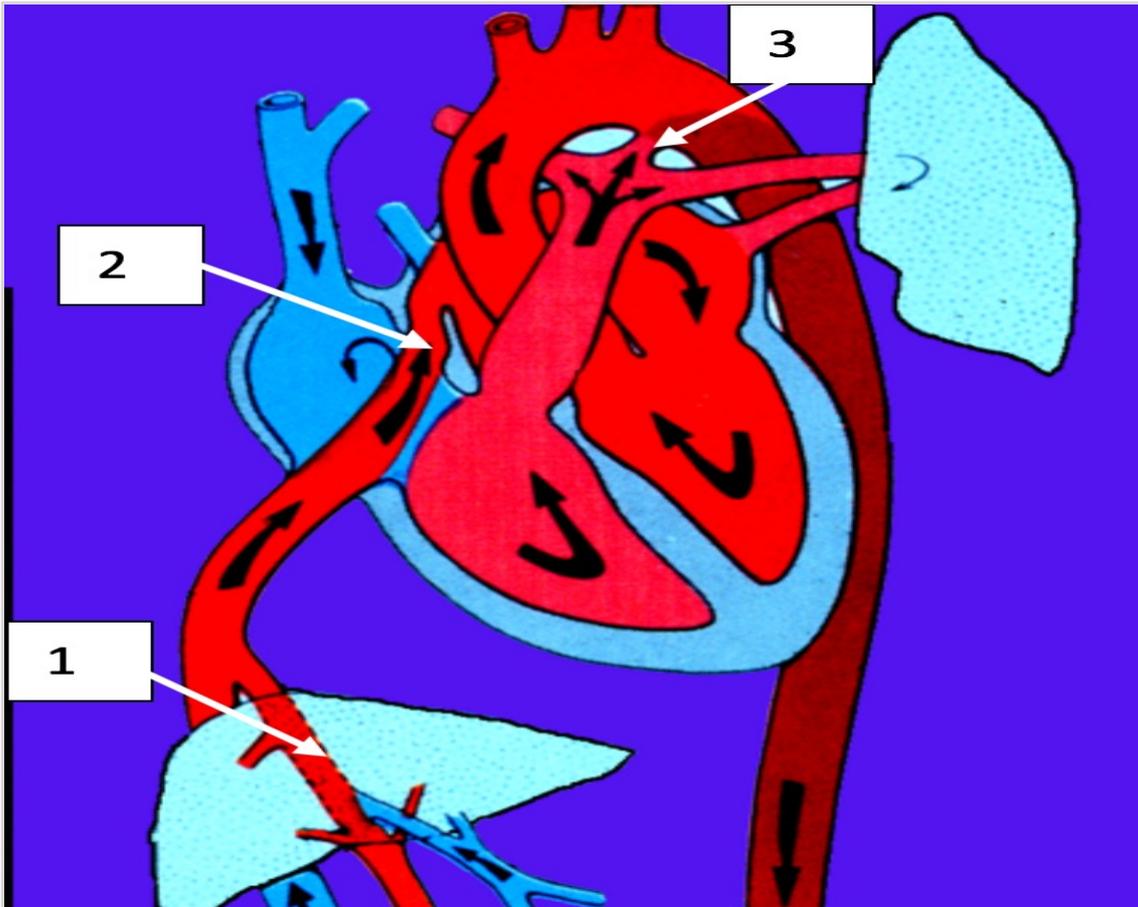
During a delivery, what is the most probable cause of discoloured (green-yellowish) amniotic fluid?

- A** Post-term pregnancy
  - B** Placental abruption
  - C** Threatening fetal asphyxia
  - D** Infection
- 

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**14**

The blood passes three important shunts during the development of the fetus. What are the correct names of the three shunts shown in the image?



- A 1: ductus venosus  
2: foramen ovale  
3: ductus arteriosus
- B 1: ductus venosus  
2: tricuspid valve  
3: ductus arteriosus
- C 1: ductus arteriosus  
2: foramen ovale  
3: ductus venosus
- D 1: splenic vein  
2: foramen ovale  
3: ductus arteriosus

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15

Which of the four Ts is the most common cause of bleeding post-partum?

- A T for tonus - uterine atony
- B T for tissue - placental remains
- C T for tears - injuries/tears in the cervix or vagina
- D T for thrombin - coagulation problems

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**16**

The patient is a 38-year-old woman who gave birth to her third child 5 months ago. Even though she still breastfeeds, her periods have returned. Her periods are heavy.

Hb is 10.4 g/dL (reference: 11.7-15.3 g/dL). You measure her blood pressure which is 140/95.

Which contraceptive method do you most preferably recommend here?

- A** Contraceptive vaginal ring
  - B** Progestogen-only pill
  - C** Copper IUD (intrauterine device)
  - D** Hormonal IUD (intrauterine device)
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**17**

The patient is pregnant in week 33. She is asymptomatic, but has been found to have growth of ca. 10 000 CFU/mL of group B streptococci in her urine.

How would you as her GP best follow this up?

- A** Treat her with oral phenoxymethylpenicillin now
  - B** Do not treat her now, but take a new sample in 2-3 weeks
  - C** Treat her with oral pivmecillinam now
  - D** Do not treat her now, but plan to treat her with benzylpenicillin iv. during the birth
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**18**

A 40-year old woman has contacted you as a GP due to some diffuse complaints in her upper abdomen. You have sent her for a CT scan of the abdomen. According to the CT report, there are multiple round tumours in the uterus compatible with uterine leiomyomas, each of which is between 2 cm and 6 cm in diameter. She has no complaints in the the pelvic area.

How do you best deal with this situation?

- A** You refer her for an MRI of the abdomen/pelvis since MRI is better than CT for assessing the malignancy risk of uterine leiomyomas
  - B** You plan annual follow up of the patient to assess whether the myomas increase in size
  - C** You refer her to a specialist (gynaecologist) to evaluate whether hysterectomy should be performed because you expect the leiomyomas to increase in size until the menopause
  - D** You inform the patient of the findings and tell her to contact a doctor if her periods get heavier or she gets pelvic pressure symptoms
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**19**

A 35-year-old woman attends your GP surgery because of very heavy periods. The woman has given birth to three children and does not want any more. Between the births she has used the contraceptive pill, but is not using any form of hormonal contraception at the moment because she believes she does not tolerate any form of hormones. The woman has a BMI of 29 kg/m<sup>2</sup>.

You perform a gynaecological examination with normal findings. You have taken blood samples that reveal an Hb of 11.5 (ref. 11.7-15.3 g/dL).

What should you rather try first to help this woman?

- A** Refer her to a specialist for endometrial ablation
  - B** Suggest trying a hormonal IUD (intrauterine device)
  - C** Suggest trying a copper IUD (intrauterine device)
  - D** Prescribe iron tablets/mixture and encourage her to be physically active
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**20**

You have a pregnant woman with PCOS in for check-up in week 24. She has acanthosis nigricans. She is wondering what this is. The best explanation is:

- A** Pigment spots in the face that occur during pregnancy in women with PCOS as a sign of insulin resistance
  - B** Thickening and pigmentation of the skin in the neck area, vulva, and armpits as a sign of insulin resistance
  - C** Dark pigmentation of the skin in the armpits and in the neck area as a sign of increased androgens in women with PCOS
  - D** A dark line in the middle of the tummy that occurs physiologically during pregnancy, particularly in women with a lot of pigment
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**21**

A 5-year-old boy attends the medical centre together with his mother. The mother says that the boy sleeps little and restlessly; he is very active, and strongly resists change; he will only wear one specific pair of trousers, and easily gets into conflict with other children and is clumsy. He has had these problems for many years. Which diagnosis group do you suspect?

- A** Neuropsychiatric disorders
  - B** Behavioural disorders
  - C** Anxiety disorders
  - D** Depressive disorders
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**22**

A 17-year-old girl meets you at your GP office. She is troubled by episodes that occur almost weekly. These episodes can last from 5 to 20 minutes, and are accompanied by loss of memory. During them she is uncontactable, distant, does not fall, but sometimes other people have observed that she has cramps in one arm. From previous contact with the girl you know that she has had a turbulent childhood with an alcoholic mother and violent father. She moved to a foster home when she was 8, was raped by a neighbouring boy when she was 14, and in periods has been badly bullied at school. She now lives in a bedsit, attends upper secondary education and works on Saturdays in a bakery. Most episodes occur when she is at school, e.g. when she is taking tests or making a presentation. You suspect dissociative disorder. What would be the first thing you do to help this patient?

- A** Refer her for MRI of caput, EEG and Child and Adolescent Psychiatry for assessment and treatment of a psychological disorder
  - B** Refer her for MRI of caput, EEG and assessment by a neurologist to exclude somatic disorders
  - C** Take informative blood samples, refer her for EEG, and give her an appointment for follow-up in 2 weeks
  - D** Contact the local authorities/ child welfare system to secure a better place to live and better care
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**23**

According to recent research, what factors are important for intergenerational transmission of attachment patterns?

- A** The parents' attachment pattern is transferred to the children, mediated by the parents' sensitivity and moderated by the parents' stress and the child's vulnerability
  - B** It is more probable that a child will develop insecure attachment to its parents if the parents have a disorganised attachment to their care givers
  - C** Researchers have not found evidence for intergenerational transference of attachment
  - D** The strongest predictor of secure attachment patterns is the parents' attachment to their parents, mediated through the parents' sensitivity
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**24**

8-year-old Siri's mother contacts you with the following concerns: Over the last months, Siri has stopped eating sausages because she is afraid it can get stuck in her throat. She changes her socks several times a day because she is afraid she may have stepped into something nasty on the floor. When she comes home from school, she changes all her clothes because she thinks her room will get dirty if she sits in there with her "school clothes" on. If a friend comes to visit, she does not let them go into her room. Her mother thinks she takes far too long in the shower. She says that it all started after they were given information about swine flu at school. What treatment would you start or how would you advise the mother?

- A** Refer the patient to the Child and Adolescent Psychiatric outpatient clinic (BUP) for investigation and cognitive therapy for obsessive-compulsive disorder.
- B** Reassure the parents and provide psychoeducation that such symptoms are not uncommon in children of this age and they will disappear by themselves.
- C** Refer the patient to the CAP unit as she may be developing psychosis
- D** Start medicinal treatment with SSRI

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**25**

A mother attends your GP surgery with her 5-year-old boy. She is very concerned about her son's situation in nursery school. She experiences him to be a very smart boy; she mentions that he knows more about outer space than she does, and he has already taught himself to read. She says that he functions well at home; he is a very good boy and busy with his things, and requires little activation by his parents. She says that as a family, they like fixed routines and rarely have visitors. She says it can be very difficult when they have to go out; that he only wants to sit in his room and read about outer space. In addition, the nursery school have said they are concerned about him because of a lot of anger and conflicts if he can't do what he wants, that he is not interested in playing with the other children. The boy is reading a book while the mother is talking. He does not take part in the conversation and does not make eye contact. He suddenly recites in a loud and monotone voice about the mini-planet Pluto, but does not appear interested in what you or his mother think about this. How would you help the boy?

- A** Offer medicinal treatment for behavioural problems
- B** Wait and see because the boy is smart and will probably mature socially
- C** Refer to local authority for parenting guidance
- D** Refer to the Child and Adolescents Psychiatry outpatient clinic for investigation and treatment for autism spectrum disorders

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**26**

As a doctor in general practice, a 17-year-old girl has an appointment in your office. She lives alone in a bedsit, has little money and says she has a poor conscience because she eats large amounts of food for some meals. For example, she can eat 5-6 sandwiches, half a chocolate cake (from the oven tray) and quite a bit of ice-cream in one meal. She has no control when she eats so much, and because she doesn't want to put on weight, she vomits after over-eating, perhaps 4-5 times a week. When she is at home at the weekends, she uses laxative pills so that her parents don't notice anything. Examination reveals the following: Weight 60 kg, height 170 cm, BP 100/70, pulse 70, and normal blood tests. Which diagnosis do you consider to be the most correct?

- A** Unspecified eating disorder
- B** Bulimia nervosa
- C** Atypical bulimia nervosa
- D** Anorexia nervosa

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**27**

An 8-year-old boy and his parents attend the GP surgery, saying that the boy has big problems concentrating, particularly in regard to homework. The boy is very restless, he cannot sit still at the table or at his desk at school.

Which diagnostic mapping is important?

- A** ADHD, problems with hearing, epilepsy, thyroid gland, anxiety, mood disorders, behavioural disorder and personality disorder
  - B** ADHD, problems with hearing, epilepsy, thyroid problems, behavioural disorder, neglect, trauma, anxiety and mood disorders
  - C** ADHD, behavioural disorder, autism, tic disorder, attachment disorder, anxiety, obsessive-compulsive disorder and mood disorders
  - D** ADHD, problems with vision, migraine, behavioural disorder, neglect, trauma, anxiety and mood disorders
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**28**

You have a 14-year-old boy in your office who has been investigated and treated at the Child and Adolescent Psychiatry outpatient clinic and diagnosed with autism (high functioning). He has support in school and his parents are in a support group for parents with children with autism. The parents say that the boy is very depressed particularly because he does not have contact with anyone in the free periods at school and feels that he does not have any friends. They have tried to do lots of things themselves, have good contact with the school, and the son is involved in after school activities such as the chess club. But they don't feel it helps his mood. The parents are asking for antidepressant drug treatment. The father was depressed a couple of years ago and felt he benefitted greatly from this.

Which is the best evidence-based type of antidepressant for depression in children (from 8 years of age) and adolescents?

- A** Amitriptylin i.e. Tricyclic antidepressants, e.g. Sarotex®
  - B** Citalopram (Cipramil®)
  - C** Any of the SSRI compounds
  - D** Fluoxetine (Fontex ®)
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**29**

A teenager has made an appointment with you. You last saw him 6 months ago. Then he was depressed about breaking up with his girlfriend. You gave him support and comfort and at follow-up 14 days later he was through the crisis. Now he attends saying that he is still depressed and is moody, irritable, unable to feel happy and worrying about the break-up which he believes was his fault. He has been absent from school a lot and wants help. What is the most important aspect of treating an adolescent who has been depressed for a long time (> 6 months)?

- A** Change the maintaining stressing factors in the family
  - B** Cognitive behavioural therapy or short-term psychodynamic therapy, and perhaps medical treatment if no effect after 4-6 weeks, as well as changing stressing environmental factors.
  - C** Long-term psychoanalytic therapy which focusses on internal psychological conflicts.
  - D** Medical treatment
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30

You are the school doctor for years 1-10 and are wondering whether there is a difference in the incidence of depression for children and adolescents. Sometimes more girls, and at other times more boys, appear to contact the school nurse or you for depressive problems. You are involved in a planning group which is to look at preventive psychosocial measures for the school and you want to be updated.

Is there a gender difference in the incidence of depression in children and adolescents?

- A The incidence of depression for girls is higher in childhood, and for boys is higher in adolescence.
- B The incidence of depression for girls and boys is the same in childhood, and is higher for girls in adolescence.
- C The incidence of depression for girls and boys is the same both in childhood and adolescence.
- D The incidence of depression is higher for girls than boys, during both childhood and adolescence.

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31

What is the best treatment for a 5 cm distal symptomatic ureteral stone in a healthy patient who we know has had this stone for 4 weeks without spontaneous passage?

- A Ureteroscopy with spinal anaesthetic or general anaesthetic.
- B Pharmaceutical treatment with Tamsulosin and wait a further 4 weeks for spontaneous passage.
- C ESWL (Extracorporeal shock wave lithotripsy) under sedation
- D Dilation of the ureteral ostium under local anaesthetic, insertion of a JJ stent, and check-up after 1 week.

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32

Small contrast-enhanced tumours in the kidney (SMR <3 cm) are increasingly found with imaging diagnostics due to the increasing number of procedures (CT). How would you manage the following situation: An 83-year-old woman who lives in a care home because she has become a little forgetful has had a CT because of pain in her stomach which has been shown to be caused by constipation. She takes anticoagulants after a heart attack in 2015, statins and antihypertension medication. You are her GP. The CT report also describes a 2 cm contrast-enhanced tumour in the left kidney. At review it can be seen that it was present 5 years ago and then measured 1.5 cm.

- A Patient and next of kin are informed and she is offered radical nephrectomy under general anesthetic.
- B Patient and next of kin are informed and the patient is followed up with a new CT in 6 months.
- C Patient and next of kin are informed and one recommends no further follow-up.
- D Patient and next of kin are informed; the anticoagulant is discontinued and partial kidney-sparing surgery is recommended.

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33

Kristian (75) is admitted with pain in the left flank of the abdomen, intermittent in character. Chills, temperature 39,9°C, and his general condition is affected. Urine dipstick shows pyuria (3+), nitrite (2+) and hematuria (3+). CT urinar tract without contrast shows severe hydronephrosis on the left side and dilated urether down to a 10 mm concrement at level L5. The right kidney is atrophic.

|           |                |                           |
|-----------|----------------|---------------------------|
| Hgb       | 12,1 g/dl      | Normal: 13,4-17,0 g/dl    |
| CRP       | 260 mg/l       | Normal: <5 mg/l           |
| Kreatinin | 400 mikromol/l | Normal: 60-105 mikromol/l |

Which is the most correct treatment?

- A Solely sepsis treatment (antibiotics)
- B Sepsis treatment and insertion of a JJ stent (ureter stent) on the left side
- C Sepsis treatment and employment of ultrasound guided percutaneous nephrostomy on the left side
- D Sepsis treatment combined with ureteroscopy and removal of the ureteral concrement

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**34**

A 45-year old woman, previously healthy, contacts you because of macrohematuria lasting several days. She has not had a temperature and says her general health is good. Not on any regular medications. She has smoked about 20 cigarettes daily over the last 20 years. Blood tests reveal normal values for haemoglobin, thrombocytes, leukocytes, creatinine and liver enzymes. C-reactive protein (CRP) 52 (<5 mg/L). CT urinary tract reveals a contrast-enhancing tumour that fills the entire lower calyx in the left kidney. Left-sided ureteroscopy with biopsy confirms the suspicion of urothelial cancer in the lower calyx. Normal findings at urethrocytoscopy. Which treatment would you offer this patient?

- A** Left-sided radical nephrectomy
- B** Radical nephroureterectomy on the left side
- C** Robot-assisted resection of lower renal pole, including lower calyx group on the left side
- D** Cisplatin-based chemotherapy (4 cycles)

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**35**

You are the on-duty intern at the emergency ward at a small local hospital in Northern Norway. 15-year-old Eirik comes in on Saturday morning with pain in the right half of his scrotum. He awoke with the pain about 3 hours earlier. Examination reveals that he is quite clearly affected by the pain. The right scrotum is enlarged and the scrotum contents are pulled up towards the outer inguinal opening and very difficult to palpate due to the pain. The on-duty surgeon and radiologist are both on-call at home.

Which course of investigation and treatment do you believe is the best?

- A** You give the patient analgesics and take blood samples to see whether the patient has an infection.
- B** You give the patient analgesics and call the on-duty radiologist for ultrasound of the testis because you are unsure whether the diagnosis is testicular torsion or epididymitis. Since only 3 hours have passed you have plenty of time to investigate.
- C** You give analgesics and refer the patient for emergency surgery on the scrotum.
- D** You give analgesics and order blood tests. A broad spectrum antibiotic is given immediately because in this age group one would expect epididymitis to be the most probable diagnosis.

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**36**

As a junior doctor at a hospital, you see a young man referred because of a palpable hard and enlarged right testicle. You suspect testicular cancer. Where would you first expect to find metastases?

- A** The lymph nodes in the pelvis are the first site for metastases.
- B** The retroperitoneal lymph nodes are the first site for metastases.
- C** The lungs are the first site for metastases.
- D** The lymph nodes in the groin are the first site for metastases.

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**37**

One of your patients has been treated with radical prostatectomy for prostate cancer. You are now responsible for his follow-up and are to follow the patient with blood tests twice a year. The patient is 60 years old. His PSA was 9.76 prior to surgery. He now attends for one year follow-up and blood tests reveal a PSA of 0.1.

He has recently had a urinary tract infection and was treated effectively with antibiotics. How do you evaluate this PSA value?

- A** The PSA value is as expected after radical prostatectomy and a urinary tract infection
- B** The value is within the normal range for a person in their 60s.
- C** The PSA value is too high.
- D** The PSA value is as expected after radical prostatectomy.

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**38**

When a man has been diagnosed with prostate cancer, the aggressiveness of the prostate cancer is decisive for further treatment. This can be a difficult decision where the purpose is to minimise both under- and overtreatment while including the patient in the decision. What is correct on treatment of prostate cancer:

- A** In cases of demonstrated asymptomatic metastatic disease, the first choice should be immediate bilateral orchidectomy to reduce the testosterone level.
- B** Radical prostatectomy reduces prostate-specific mortality to a greater extent than radical radiotherapy.
- C** In cases of demonstrated low-risk prostate cancer, active surveillance should be offered to the patient.
- D** Radical treatment of prostate cancer, the purpose of which is to cure, includes neoadjuvant chemotherapy with subsequent radical prostatectomy.

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**39**

Per (83 years old) with a history of heart attack undergoes TURP (transurethral resection of the prostate) due to micturition problems (LUTS). Pre-operative PSA (prostate specific antigen) is 5.0 ng/ml (normal range men >69 years: 0-6.5 ng/ml), and at digital rectal examination (DRE) the prostate is firm and elastic. Histology of the TURP resection reveals adenocarcinoma in 5% of the resected prostate tissue, with Gleason 3+3, score 6.

Which treatment plan would you recommend for this patient?

- A** Hormone therapy
- B** No active treatment unless the patient develops symptoms
- C** Robotic-assisted radical prostatectomy
- D** Curative radiotherapy

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**40**

Resistant hypertension is defined as a blood pressure above 140/90 (or other treatment goals) in spite of the patient taking 3 or more antihypertensives.

What is the most common "fault" in the treatment of these patients?

- A** They have an undiagnosed renal artery stenosis
- B** They are being treated with too low doses of the medication
- C** They are lacking an aldosterone receptor blocker (e.g. Spirix)
- D** They are lacking a diuretic

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**41**

Hypertension is an important risk factor for a variety of cardiovascular complications. The strength of the relationship between high blood pressure and the various complications is however somewhat varied.

For which complication does high blood pressure have the highest relative risk?

- A** Severe renal failure
- B** Cardiac infarction
- C** Cerebral stroke (infarction and bleeding)
- D** Peripheral vascular disease

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42

A 25-year-old man contacts you because over the last few days his urine has been dark red when he has urinated. He also describes that at the moment he has a slight fever and a sore throat. He has no pain at micturation or otherwise. Moreover, he says that he notices that his urine is often red when he has a sore throat or mild symptoms of a cold. Two years ago at an incidental urine investigation with his GP, he was shown to have 1+ for blood using a urine dipstick.

You perform a urine dipstick and find the following: Albumin 1+, Glucose negative, Blood 4+, Leukocytes 1+, Nitrite negative.

Which of the following alternatives is the most probable cause of the urine findings.

- A IgA glomerulonephritis
- B Urinary tract infection
- C Minimal change glomerulopathy
- D Post-streptococcal glomerulonephritis

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43

A 48-year-old woman goes to her GP because she feels tired and slightly shortness of breath. Her blood pressure is normal. She does not have diabetes and does not take any medication. Laboratory tests give the following results:

Hb 9.4 g/dl (12.5-15.5), K 4.2 mmol/L (3.5-4.5), creatinine 88 micromol/L (45-90), u-dipstick Albumin +, Blood ++, Leukocytes ++, Nitrite -

What is the most correct alternative for treating this patient?

- A The anaemia is probably secondary to chronic disease, and the patient should therefore be followed up in 6 months to see whether it has improved.
- B The patient has chronic kidney disease and should be referred to a nephrologist for investigation and probably started on erythropoietin injections.
- C The patient only has mildly to moderately reduced kidney function and she should be investigated for other causes of anaemia.
- D The patient probably has renal anaemia, but Hb is >9.0 and it is therefore not necessary to start erythropoietin treatment yet.

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44

A 50-year-old lady who had a kidney transplant 5 years ago. She has had good transplant function. Over the last weeks she has become increasingly tired, can't be bothered to do much.

She is moderately short of breath, has a mild, dry cough, does not have oedema, and is afebrile.

Blood tests show CRP 35, unchanged creatinine levels, leukocytes in the normal range. Blood gasses show pO<sub>2</sub> 8.2kPa, normal pCO<sub>2</sub>.

What is the most probable condition here?

- A Pneumocystis jiroveci
- B Bacterial pneumonia
- C Rejection of the transplant
- D Overhydration

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45

In which one of the following patients would you consider performing a renal biopsy to determine the basis for the patient's renal dysfunction?

(ref. values: eGFR: >90 mL/min/1.73m<sup>2</sup>, u-albumine/creatinine ratio < 2,5 mg/mmol creatinine)

- A A 21-year-old patient with 15 years of type 1 diabetes, evidence of proliferative retinopathy, an eGFR of 81 ml/min/1.73 m<sup>2</sup> and a urinary albumine/creatinine ratio of 230 mg/mmol.
- B A 41-year-old patient with type 2 diabetes with a 6-month history of reduction of eGFR from 67 ml/min/1.73 m<sup>2</sup> to 38 ml/min/1.73 m<sup>2</sup>, urinary albumine/creatinine ratio of 310 mg/mmol (increased from 30 mg/mmol 6 months ago) and hypertension requiring three antihypertensive agents.
- C A 54-year-old patient with type 2 diabetes with proliferative retinopathy, urinary albumine/creatinine ratio of 380 mg/mmol and eGFR of 28ml/min/1.73 m<sup>2</sup>.
- D A 44-year-old patient with type 2 diabetes, with a stable eGFR of 42 ml/min/1.73 m<sup>2</sup> and a urinary albumine/creatinine ratio of 130 mg/mmol and 1+ hematuria on a dipstick test with microscopic confirmation but no dysmorphic red blood cells seen.

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46

Anne (45-years old) has had hypertension grade 1 (BP about 150-155/95) for the last two years. She does not have high cholesterol levels and does not smoke, and has not wanted treatment with drugs. Other diseases she has had include quite severe asthma, but she now functions well. She has switched from her regular GP and now comes to see you. You see that she has an s-creatinine of 85  $\mu\text{mol/L}$  and urine dipstick shows protein 1+. You recommend starting medical treatment. Which medication should you use and why?

- A ACE inhibitors (e.g. lisinopril) at a moderate dose to dilate the efferent arterioles
- B Calcium channel blocker (dihydropyridine, e.g. amlodipine) at a moderate dose to dilate the afferent arterioles
- C Calcium channel blocker (dihydropyridine, e.g. amlodipine) at a moderate dose to contract the afferent arterioles and thus reduce the urinary protein
- D ACE inhibitor (e.g. lisinopril) at a moderate dose to dilate the afferent arterioles

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47

Kristoffer (22 years old) contacts the Emergency Unit because of pain in both upper arms over the last two days. He has previously been completely healthy and takes no medicines. He was doing hard training on Monday and Tuesday (CrossFit), but now feels unwell. He is nauseous and has pain in both upper arms (which are very tender after the training). Blood tests reveal the following: Hb 16.7 g/dL (ref. 13.4-17.0 g/dL), s-creatinine 266  $\mu\text{mol/L}$ , K 4.9 mmol/L, CK 5600, s-Troponin T 88. What is the most probable diagnosis?

- A Acute heart infarction
- B Rhabdomyolysis and acute kidney damage
- C Incidentally discovered renal failure with electrolyte imbalance and effect on neuromuscular function
- D Dehydration after over-exertion with subsequent electrolyte imbalance

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48

A 76-year old man has had type 2 diabetes for more than 15 years. He has had two cardiac infarctions and a stroke. He is taking the following medications: Metformin 500 mg x 3, Lisinopril (ACE inhibitor) 20 mg, Albyl E 75 mg and Simvastatin 20 mg. He comes for routine follow-up with his GP. He is in good general health, but has slight sequelae from the stroke. Blood pressure 160/90, and he has mild leg oedema.

Lab. tests (ref. range in brackets):

Hb 12.6 (13.4 - 17.0 g/dL)

Na 138 (137 - 145 mmol/L)

K 5.8 (3.6 - 4.6 mmol/L)

creatinine 107 (60 - 105  $\mu\text{mol/L}$ ), eGFR 62

fasting glucose 7.6 (4.2-6.3 mmol/L)

HbA1c 6.8 (4.3-6.3%)

urine dipstick: albumin 2+, albumin/creatinine ratio in urine 120 (<3mg/mmol).

Which action is indicated and what is the justification?

- A Add Angiotensin-2-receptor blockers to Lisinopril (which is already at the maximum dose) to reduce the albuminuria further.
- B Increase antihypertensive treatment, initially with supplementation of thiazide. Good blood pressure control is important in preventing further cardiovascular events and delaying progression of renal damage.
- C Add insulin during the daytime and continue Metformin at unchanged dose because good glycaemic control is important to slow the progression of renal damage and the risk of cardiovascular events.
- D Change the diabetes treatment to insulin, because Metformin is contraindicated in impaired renal function.

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49

A 57-year-old woman with known hypertension comes to her GP because she has felt increasingly tired and lacking energy over the last weeks. Blood tests taken the same day at 14.00 give the results presented below:

| Analysis                              | Unit   | Reference range  | Result (Flag) |
|---------------------------------------|--------|--|---------------|
| B-Haemoglobin                         | g/dL   | 11.7-15.3  | 13.9          |
| S-Albumin                             | g/L    | 36-45  | 36            |
| S-Calcium                             | mmol/L | 2.15-2.51  | 2.84 (H)      |
| S-PTH (Parathyroid hormone)           | pmol/L | 1.6-6.9  | 16.1 (H)      |
| S-Phosphate                           | mmol/L | 0.85-1.50  | 0.67 (L)      |
| S-Cortisol                            | nmol/L | Morning: 142 - 651.<br>Evening: about 50% of morning level | 131           |
| S-Thyroid peroxidase (TPO) antibodies | kU/L   | <35  | 8             |
| S-Free T4                             | pmol/L | 12.0-22.0  | 15.1          |
| S-TSH (Thyroid stimulating hormone)   | mIE/L  | 0.27-4.20  | 4.30          |

Which condition is the most compatible with this clinical picture and analysis results?

- A Primary hypoparathyroidism
- B Primary hypothyroidism
- C Primary adrenal failure
- D Primary hyperparathyroidism

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50

The analysis results from venous samples from a number of patients are presented below. Presuming that any control tests will give the same results:

**How many of these samples meet the diagnostic criteria for diabetes mellitus?**

- b-HbA1c: 63 mmol/mol
- fp-glucose: 7.9 mmol/L
- b-HbA1c: 43 mmol/mol
- fp-glucose: 11.9 mmol/L
- p-glucose after glucose load: 8.9 mmol/L
- fp-glucose: 6.4 mmol/L
- p-glucose after glucose load: 11.9 mmol/L
- b-HbA1c: 107 mmol/mol
- p-glucose after glucose load: 11.4 mmol/L

Reference range:

fp-glucose: 4.2-6.3 mmol/L

b-HbA1c: 28-40 mmol/mol

Explanations:

b: blood

p: plasma

fp: plasma, fasting patient

after glucose load: sample taken 2 h after peroral glucose load with 82.5 g glucose monohydrate

- A 6
- B 3
- C 5
- D 4

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51

In type 2 diabetes, which antidiabetic can be given in end-stage renal disease?

- A Insulin and DPP4 inhibitor
- B Insulin and SGLT2 inhibitor
- C SGLT2 inhibitor and GLP1 analogue
- D SGLT2 inhibitor and DPP4 inhibitor

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**52**

A 35-year old woman visits her GP because of increasing tiredness and loss of weight over the last months. She thinks her skin is darker than normal at this time of year (Nov). Her GP measures her blood pressure.

What sodium and potassium levels would you expect?

- A** high sodium, high potassium
- B** high sodium, low potassium
- C** low sodium, low potassium
- D** low sodium, high potassium

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**53**

A 49-year-old woman has had autoimmune hyperthyroidism (Graves' disease) for 1 year. She is being treated only with thyrostatics (carbimazole). For the last 6 months her free thyroxine (FT4) has been within the reference range (11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) has been around 1.0 mIE/L (ref. 0.24-3.78 mIE/L). This last month she has felt tired and apathic, with weight loss 4-5 kg, slight nausea and dizziness. Blood pressure 90/60. Normal renal function, serum sodium 136 mmol/l (ref. 137-145 mmol/l) and potassium 4.3 mmol/l (ref. 3.6-4.6 mmol/l). Free thyroxine is now 16.6 pmol/L and TSH is 0.97 mIE/L. What would you look for specifically at clinical examination?

- A** Whether she has a buffalo hump
- B** Whether she has particularly coarse facial features
- C** Whether she has endocrine ophthalmopathy
- D** Whether she has hyperpigmentation

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**54**

An 81-year-old woman with dementia has hyperthyroidism with free thyroxine (FT4) 27.2 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIE/L (ref. 0.24-3.78 mIE/L). TSH receptor antibody is 1.0 (ref. <1.5 IU/L) and scintigraphy shows a toxic adenoma in the lower left pole. She has urinary incontinence and lives in a care home. She has few symptoms and no angina pectoris. Which treatment would you recommend?

- A** Surgical treatment
- B** Radioactive iodine treatment
- C** Low dose thyrostatics
- D** Non-selective betablocker

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**55**

A 54-year-old woman with hyperthyroidism with free thyroxine (FT4) 34.2 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIE/L (ref. 0.24-3.78 mIE/L). Thyrotropin receptor antibody (TSH receptor antibody) is 10.9 (ref. <1.5 IU/L). She has exophthalmus and presumed periorbital oedema. She is troubled by palpitations, tremors and sweating. What would be your first choice of treatment?

- A** Thyrostatics and selective betablocker
- B** Thyrostatics and non-selective betablocker
- C** Radioactive iodine and selective betablocker
- D** Radioactive iodine and non-selective betablocker

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**56**

A 53-year-old man has had type 2 diabetes for 5 years; he uses metformin, otherwise no medication. No heart disease, normal kidney function, normal blood pressure, does not smoke. HbA1c 7.0% (53 mmol/mol; ref.: 28-40). Fasting se-cholesterol 5.2 mmol/l (ref.: 3.3-6.9), LDL cholesterol 3.4 mmol/l (ref.: 1.5-5.1) HDL cholesterol 1.23 mmol/l (ref.: 1.00-2.70), triglycerides 1.39 mmol/l (ref.: 0.45-2.60).

- A** He should start on cholesterol-lowering treatment.
- B** He does not need cholesterol-lowering treatment, but it should be started if se-cholesterol >6.9 mmol/l
- C** He does not need cholesterol-lowering treatment now, but it should be started if he develops angina pectoris.
- D** He does not need cholesterol-lowering treatment, but it should be started when HbA1c >8% (64 mmol/mol).

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**57**

You are the GP for a 37-year old man with recently diagnosed type 2 diabetes. He is otherwise healthy and has normal renal function. He uses metformin 500 mg x 2 with no side effects. What is the target HbA1c in this patient?

- A** HbA1c around 53 mmol/mol (7%)
- B** HbA1c around 48 mmol/mol (6.5%)
- C** HbA1c between 53-64 mmol/mol (7.0-8.0%)
- D** HbA1c between 64-75 mmol/mol (8.0-9.0%)

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**58**

A 57-year-old woman has pituitary failure after surgery for a pituitary adenoma. She is substituted with cortisone, growth hormone and thyroxine, and takes Levaxin (levothyroxine) 100 microg daily. Tests taken 3 months after starting Levaxin reveal free thyroxine (FT4) 16.2 pmol/L (reference range: 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) 0.1 mIE/L (ref.: 0.24-3.78 mIE/L). She feels well and has no particular symptoms. Is there any reason to change the substitution dose of thyroid hormone?

- A** No. There is no reason to change the Levaxin dose.
- B** Yes, the Levaxin dose should be reduced.
- C** Yes. The Levaxin dose should be increased.
- D** Yes. She should have triiodothyronine (T3) in addition to Levaxin

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**59**

You are the GP for a woman aged 57 with recently diagnosed type 2 diabetes (T2D). She is otherwise healthy. When should she be examined for diabetic polyneuropathy?

- A** She should be examined for diabetic polyneuropathy 5 years after the diagnosis of T2D and thereafter annually
- B** She should be examined for diabetic polyneuropathy at the time of diagnosis and thereafter annually
- C** She should be examined for diabetic polyneuropathy 2 years after the diagnosis of T2D and thereafter annually
- D** She should be examined for diabetic polyneuropathy 10 years after the diagnosis of T2D and thereafter annually

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**60**

A 66-year-old woman visits her GP because of acute back pain after falling on the ice. 5 years ago she had a low energy fracture in the radius, and she was diagnosed with osteoporosis by bone density measurement. After this she started treatment with Alendronate one per week tablets and Calcigran forte. She has now been referred for X-ray of the spinal column which reveals two new compression fractures. Bone density measurement reveals a T-score of -4.1 SD in the lumbar vertebrae, -3.5 in the femur and -2.5 in the total hip. The bone density has dropped since the last measurement. Blood tests reveal satisfactory values.

Which treatment is now indicated for this patient in combination with Calcigran forte?

- A** intravenous bisphosphonate (Aclasta)
- B** Oestrogen/progestogen
- C** parathyroid analogue (teriparatide, Forsteo)
- D** denosumab (Prolia, antibody against RANKL)

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**61**

A 31-year-old woman has an appointment with you her GP after discovering a lump in her breast. She found it a week ago, and was immediately worried and wants to get it checked. There is no breast cancer in her immediate family. She is otherwise healthy and takes no medicines.

At clinical examination you palpate a well-defined solid, non-tender 2 cm tumour in the right breast in the upper lateral quadrant. It feels freely mobile against the skin and milk glands. You subsequently palpate relevant lymph glands with no findings.

What should you as her GP do and why?

- A** The patient must be referred to a breast cancer diagnostic centre to clarify whether it is benign or malignant.
- B** Make an appointment in 1 month's time. If the tumour is still present, she must be referred to a breast cancer diagnostic centre.
- C** Only reassure the patient because the chances that it is malignant are very low in such a young patient
- D** Refer for MRI mammography, because this is the best diagnostic imaging method in young patients

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**62**

A 38-year-old woman has recently been diagnosed with papillary carcinoma in the thyroid. At ultrasound her lymph nodes did not have a pathological appearance. The patient is scheduled for surgery. She wants to know the prognosis for her disease. She is otherwise healthy and takes no medicines.

Which answer is most correct?

- A** The prognosis is good, because the 5-year survival is statistically above 90%
- B** The prognosis is moderate, because the 5-year survival is statistically about 40-60%
- C** The prognosis is poor, because the 5-year survival is statistically below 10%
- D** It is not possible to speak about the prognosis based on the information provided

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**63**

A 55-year-old woman has an appointment with you her GP because of what she considers to be eczema on her right nipple. She has been bothered by itching and discomfort recently and it has spread slightly from the nipple into the areola. Over the last few days the woman has applied a moisturiser without any definite effect. Apart from this, she hasn't noticed anything in her left breast or right breast. There are no findings at clinical examination of the breasts and axillary lymph nodes apart from the skin changes. The woman otherwise feels well. She has followed the mammography programme and her next check-up is in 6 months.

What should you do for this patient?

- A** Prescribe cortisone ointment and make a new appointment in two weeks.
- B** Wait for the results of the mammography screening she will have in about 6 months.
- C** Refer her to the nearest breast cancer diagnostic centre.
- D** Refer to the nearest Dermatology Dept.

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**64**

You are a doctor in the Breast and Endocrinology Outpatient Clinic. A woman comes in who has had mammography, ultrasound and biopsy of a lump that she discovered in one of her breasts. She is 44 years old. The lump measures 2cm both at clinical examination and at mammography. Otherwise clinical examination reveals completely normal findings, and ultrasound does not reveal any axillary lymph nodes with pathological appearance. Biopsy from the tumour revealed breast cancer. You inform her about the diagnosis and treatment.

What are the surgical options, and what should you recommend?

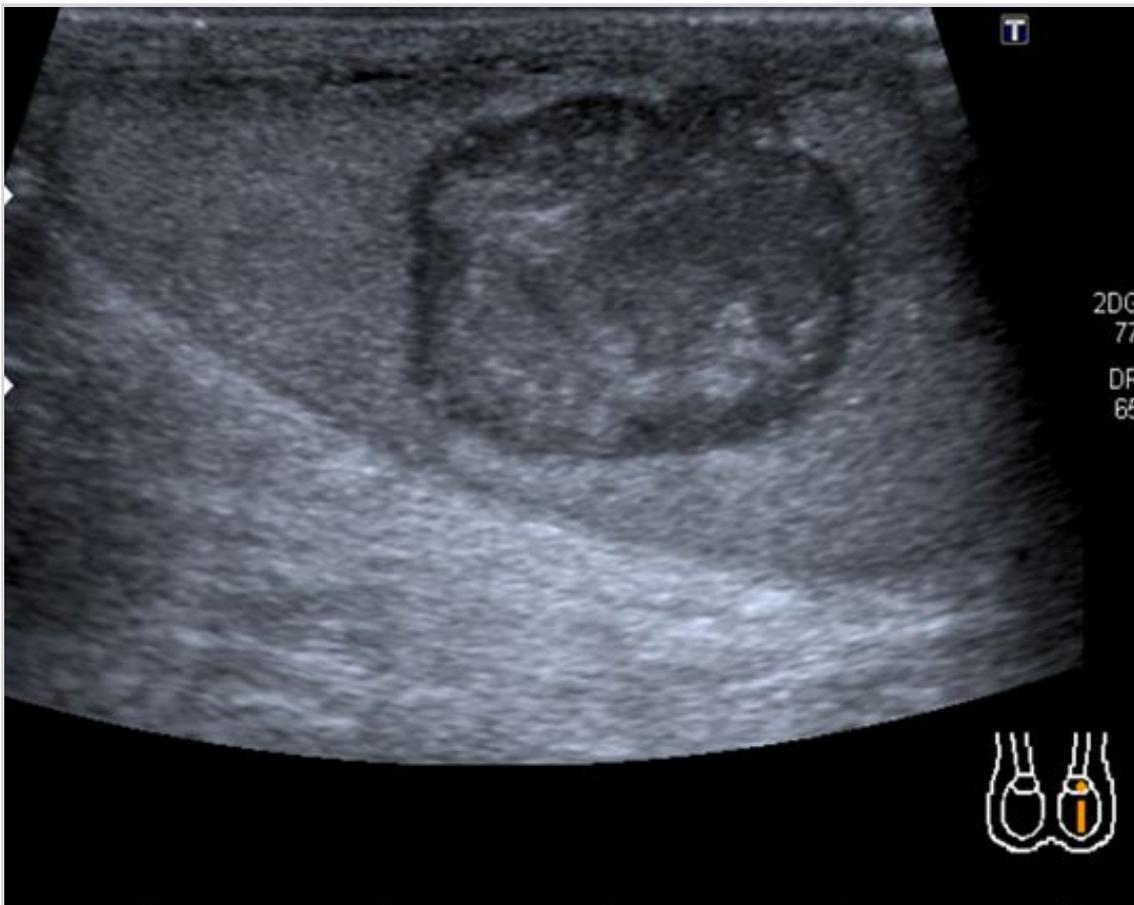
- A** In the breast, the choice is between breast-conserving surgery or mastectomy, but in the axilla only sentinel node diagnostics is relevant. For this patient, the most relevant is breast-conserving surgery in addition to sentinel node diagnostics.
- B** In the breast, the choice is between breast-conserving surgery or mastectomy, and in the axilla a choice can be made between axillary dissection and sentinel node diagnostics. For this patient, the most relevant is breast-conserving surgery and sentinel node diagnostics.
- C** In the breast, the choice is between breast-conserving surgery or mastectomy, but axillary dissection at which all lymph nodes at level 1 and level 2 are removed must be performed in the axilla. For this patient, the most relevant is breast-conserving surgery in addition to axillary dissection.
- D** In the breast, only breast-conserving surgery is appropriate, but in the axilla there is a choice between sentinel node diagnostics or axillary dissection with removal of all lymph nodes at level 1 and level 2. For this patient, the most relevant is sentinel node diagnostics in addition to breast-conserving surgery.

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**65**

A 32-year old man goes to his GP because of a swelling in his testicle that has developed over 6 months. It is not painful, but tender. Clinical examination reveals a definite swelling in the actual testicle. The GP refers to an imaging investigation as shown in the picture.

What is the most probable diagnosis?



- A Spermatocele
  - B Testicular tumour
  - C Testicular torsion
  - D Epididymitis
- 

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**66**

A 57-year-old woman has seen her GP and been diagnosed with high blood pressure. Based on her symptoms and the laboratory results, her GP wonders whether her high blood pressure is associated with chronic renal failure. Which imaging diagnostics is normally the first choice when investigating renal failure?

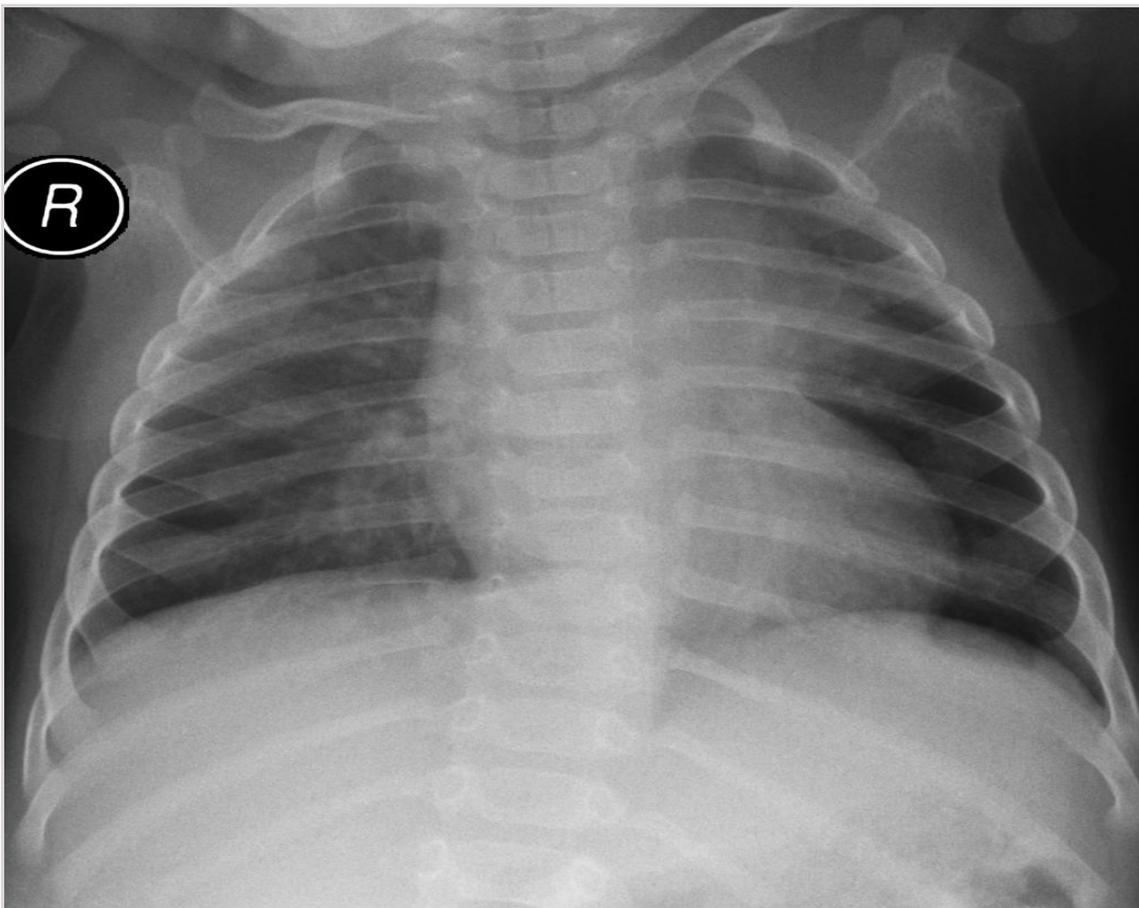
- A CT angiography of the renal arteries.
  - B MRI angiography of the renal arteries.
  - C Ultrasound kidneys.
  - D Renal scintigraphy
- 

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**67**

As the registrar in the Paediatric Clinic you see a 6-month-old boy and his parents. Over the last weeks, he has been bothered by a non-productive cough in the evenings, but otherwise appears to be in fine form. At auscultation mucal sounds can be heard centrally. He is subfebrile; 38.1 degrees Celsius. CRP is slightly elevated at 31 (normal <5). An X-ray of the chest is ordered as part of the investigations.

What does the X-ray show?



- A Round pneumonia infiltrate
  - B Normal thymus
  - C Enlarged aortic arch with tetralogy of Fallot
  - D A mediastinal mass suspected to be malignant
- 

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**68**

A 63-year-old woman with newly diagnosed ovarian cancer of the mucinous type with carcinomatosis in the abdominal cavity is to be assessed for cytoreductive surgery and possibly HIPEC (hyperthermic intraperitoneal chemoperfusion).

**Which imaging diagnostic method is best suited in practice to assess the spread of the carcinomatosis?**

- A Ultrasound
  - B CT
  - C PET
  - D MRI
- 

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**69**

Vesicoureteral reflux (VUR) is a condition in which urine flows back from the bladder and up into the ureters and possibly to the renal pelvis. VUR is estimated to occur in 1-2% of all children.

Which statement about VUR is correct?

- A Reflux has been demonstrated in 90% of children with urinary tract infections.
  - B Only the most severe grades of VUR (grades 4 and 5) are treated endoscopically or surgically, regardless of the presence of infections.
  - C VUR is associated with other congenital urinary tract anomalies (e.g. duplex system and urethral valves).
  - D Ultrasound without contrast reveals almost all cases of VUR and is important in the assessment of renal parenchyma and renal growth.
- 

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**70**

The background radiation in Norway is calculated to be between 4 and 5 mSV per person per year.

**Which of the following imaging examinations gives a radiation dosage of the same magnitude?**

- A X-rays of the ankle
  - B CT Thorax
  - C X-rays of the thorax
  - D Ultrasound of the abdomen
  - E Cerebral MR
- 

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**71**

A 45-year old man comes to your general practice office and says he has an intermittent, intense pain that spreads from the middle of the lower back a little to the right of the waist and down towards the groin. The urine dipstix gives 3+ for blood.

Which imaging investigation is the first choice in further investigations?

- A CT urinary tract low dose
  - B Urography
  - C Ultrasound urinary tract (kidneys/ureters/bladder)
  - D CT Abdomen/Pelvis with intravenous contrast
- 

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72

A 64-year-old man was diagnosed with a 28 mm cystic tumour posteriorly in the lower pole of the right kidney. This was removed 2 days ago, with partial kidney resection. He now has pain in the right side of his abdomen. P-creatinine has increased from 80 to 112 micromol/L and p-CRP has increased to 184 mg/L. An informative ultrasound scan reveals fluid in the right kidney. Using CT you want to investigate whether the fluid accumulation is due to urine. Which contrast phase will be the most useful?

- A Excretory phase, which can reveal contrast leakage from the resection.
- B Precontrast phase, because you must not give intravenous contrast so soon after renal surgery.
- C Parenchymal phase, which gives the best anatomical overview.
- D Arterial phase, will show bleeding which is the the most important differential diagnosis.

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73

In breast cancer, the tumour must be graded by a pathologist and, based on certain criteria, the tumour is given histological grade I, II or III.

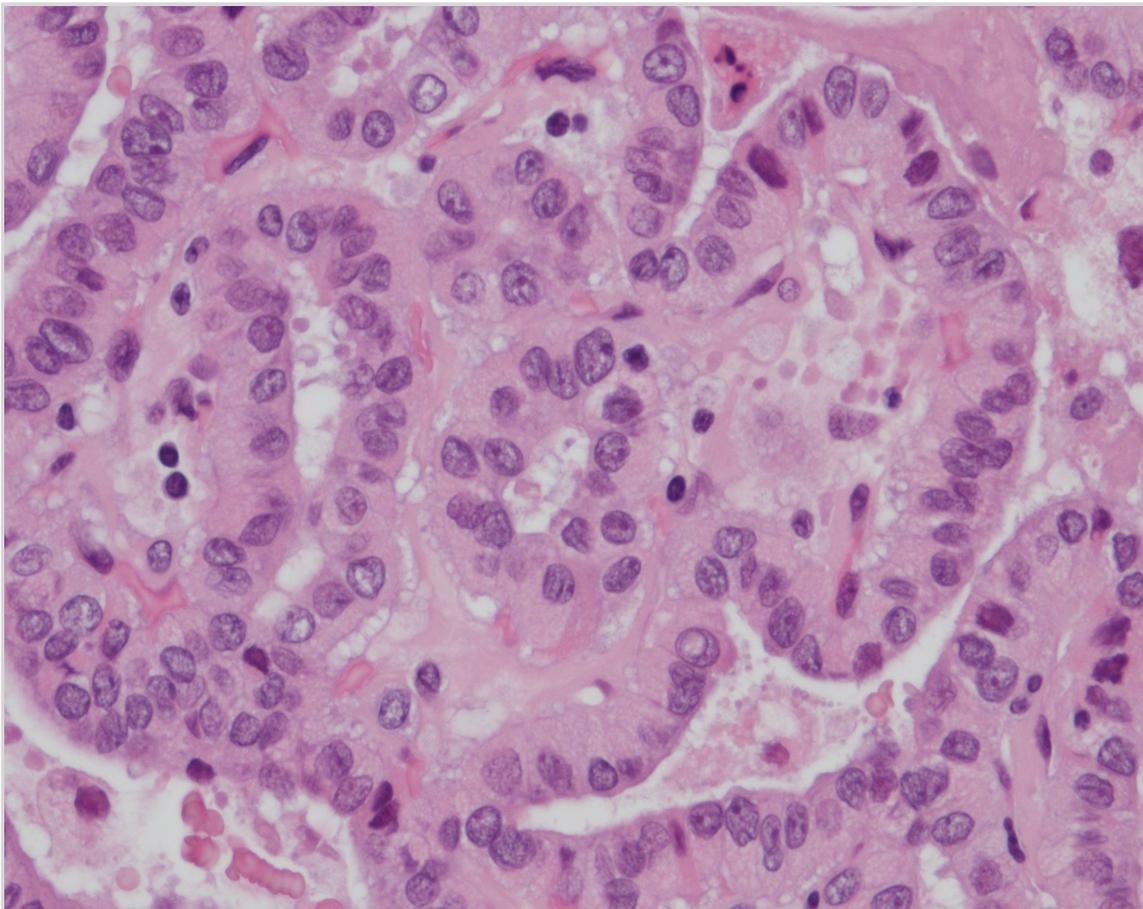
**Which statement on histological grade is correct?**

- A High grade indicates a high five- or ten-year survival rate
- B Little solid tissue, few mitoses and few atypical cells give a low histological grade
- C The percentage of goblet cells is part of the histological grading
- D Various biomarkers are included in the histological grading

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74

A 38-year-old man has noticed a tumour in his left thyroid lobe. Hemithyroidectomy was performed. The image shows a histopathological section from the tumour (HES, 400x). More detailed investigation revealed the presence of the BRAF V600E mutation in the tumour tissue.



**What is the most probable diagnosis?**

- A Autoimmune thyroiditis
  - B Thyroid cyst
  - C Hyperthyroidism
  - D Papillary carcinoma
- 

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**75**

A 28-year-old woman has the following symptoms: Headache, loss of vision, fewer and irregular periods and nausea. She has also noticed secretion from both nipples. It is suspected that her symptoms may be caused by a tumour.

**Which diagnosis is the most probable?**

- A Pituitary adenoma
  - B Pheochromocytoma
  - C Glioblastoma
  - D Meningioma
- 

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**76**

There are several types of ovarian tumours.

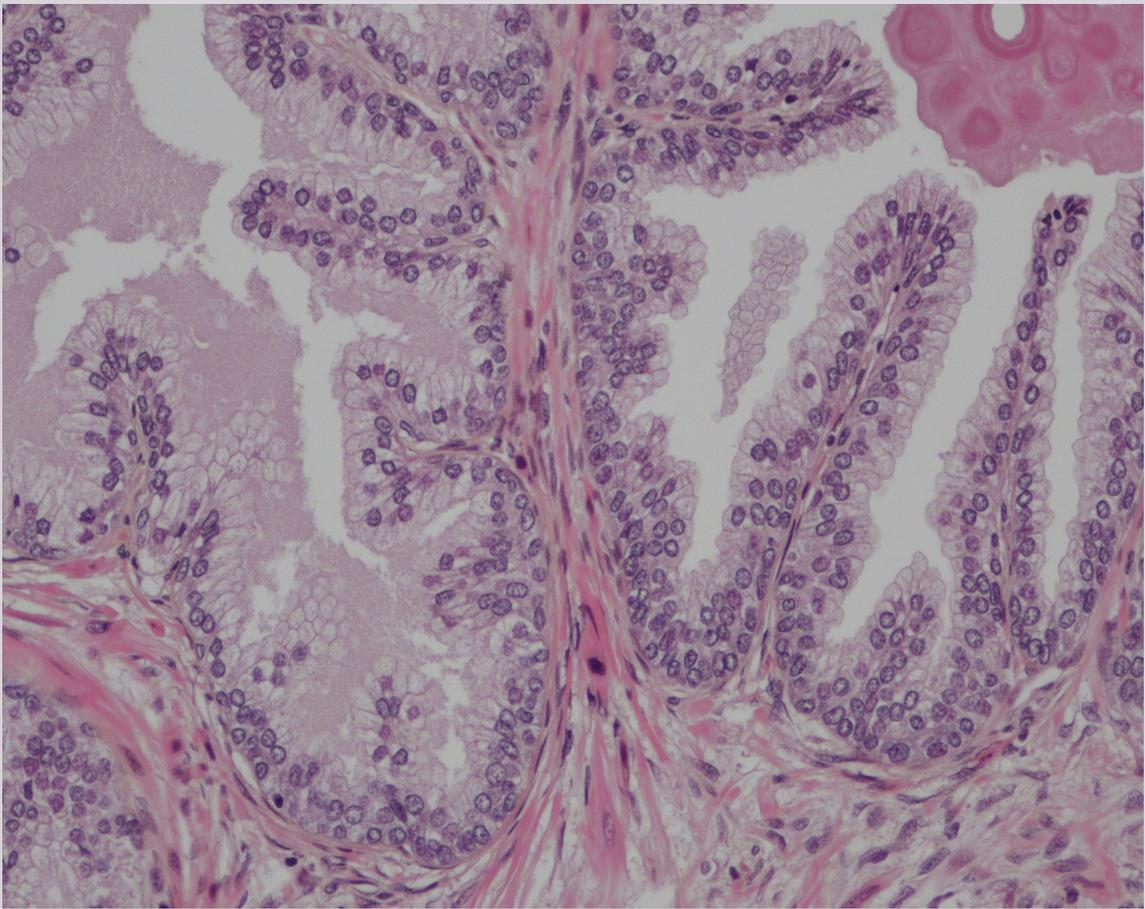
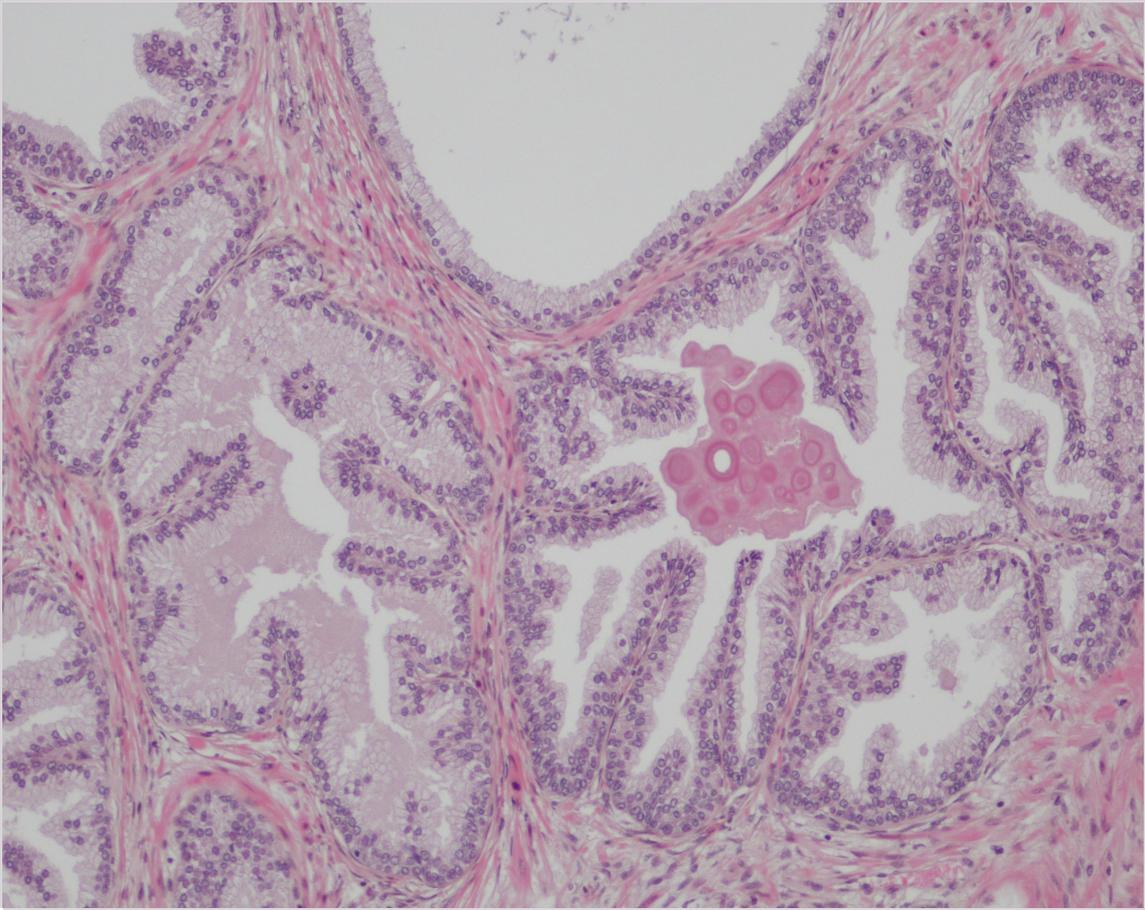
**Which statement on ovarian tumours is correct?**

- A Low grade serous carcinomas develop primarily from the fimbriae of the tubes
  - B High grade serous carcinomas are often associated with mutations in the TP53 gene
  - C Dysgerminomas are sex cord stromal tumours that occur most often in elderly women
  - D High grade serous carcinomas primarily arise in the cells that surround the oocytes
- 

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**77**

A 65-year-old man has increasing problems with urination. At clinical examination, the physician finds an enlarged prostate. The images show histopathological sections from the patient's prostate (HES, 100x og 200x).



**What is the most probable diagnosis?**

- A** Prostatitis
- B** Hyperplasia
- C** Normal prostate
- D** Adenocarcinoma

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**78**

A young woman has been diagnosed with low grade dysplasia (CIN1) in the squamous epithelium in cervical biopsies. In the pathology report you read that human papillomavirus (HPV) is present in the sample.

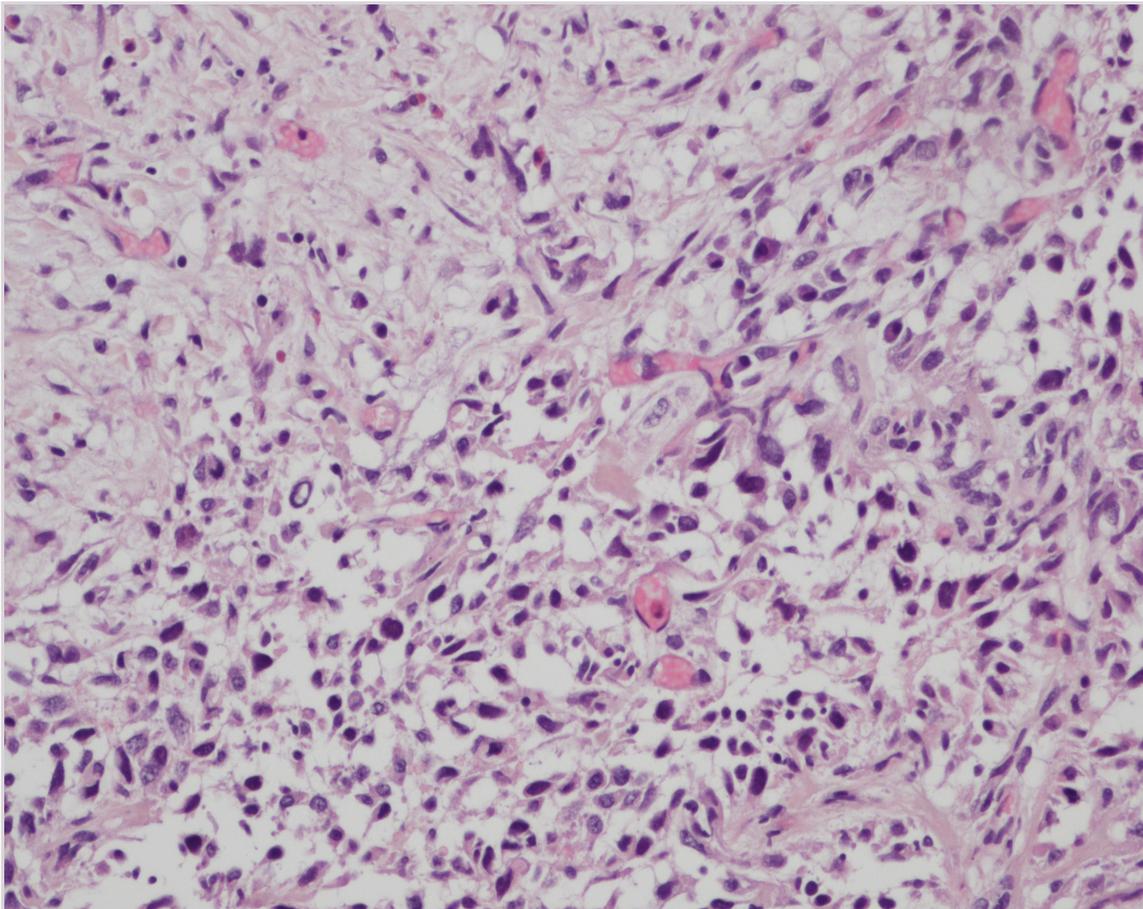
**Which statement is correct?**

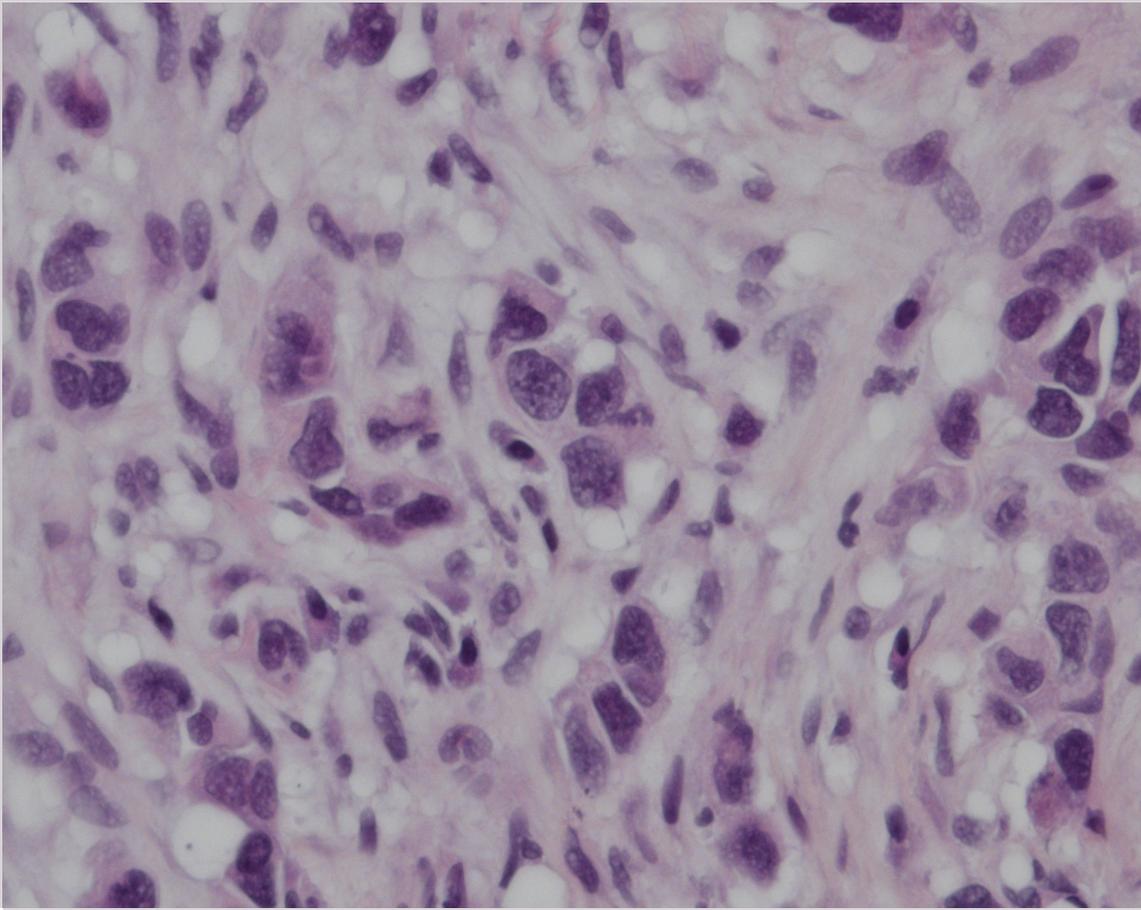
- A** Low grade dysplasia in the squamous epithelium can be transient and should be checked only
- B** Low grade and high grade dysplasia in the squamous epithelium have about the same risk of becoming malignant
- C** In low grade dysplasia in the squamous epithelium, viral changes can be seen in the lower third of the epithelium
- D** HPV 16 and 18 are classic examples of the low risk viruses of the HPV type in the cervix

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**79**

A 56-year-old man has noticed macroscopic haematuria and increasing back pain. He is referred for cystoscopy and several biopsies are taken from a tumour in the bladder. The images show histopathological sections from the tumor (HES, 200x og 400x).





**What is the most probable diagnosis?**

- A** High grade malignant urothelial carcinoma
- B** Bladder wall mucous membrane with squamous metaplasia
- C** Chronic cystitis
- D** Papillary urothelial neoplasm of low malignant potential (PUNLMP)

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**80**

When describing histopathological changes in the kidney, terms such as segmental affection of renal tissue are used.

**What does such an affection imply?**

- A** Description of pathology in a glomerulus and associated proximal tubule
- B** Description of pathology of glomeruli in a lobule
- C** Description of pathology of only a certain percentage of glomeruli
- D** Description of pathology in a part of a glomerulus

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**81**

Which bacterial species is always considered to be the cause of disease when found in a clinical sample?

- A** *Neisseria gonorrhoea*
- B** *Escherichia coli*
- C** *Haemophilus influenzae*
- D** *Neisseria meningitidis*

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82

When culturing urine samples, contamination at sampling is a frequent problem. Which sampling method gives the least contamination?

- A Single-use catheter
- B Bag sample
- C Mid-stream sample
- D Bladder puncture

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83

Another doctor at the medical centre has requisitioned urine culture for a pregnant woman who has no symptoms of urinary tract infection and without a prior urine dipstick test. The culture results reveal growth of *E.coli*  $10^9$  CFU/ml, with the following resistance profile:

ampicillin I  
nitrofurantoin S  
mecillinam S  
trimetoprim S

What action do you take in the best response to this result?

- A Start antibiotic treatment with high-dose amoxicillin
- B Order a new urine sample for culture to see whether the finding can be replicated
- C Order a new sample to check the urine for leukocytes using a urine dipstick
- D File the results without taking any further actions

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84

A 30-year old male asylum seeker from Bangladesh says during his medical examination that he has had a cough for several weeks, has seen blood in his sputum, and that he lacks energy. At examination he appears emaciated. The doctor considers that he needs to be admitted to hospital for further diagnosis and treatment.

At admission, an X-ray is taken, which reveals an infiltrate apically in the right upper lobe. The on-duty doctor suspects a certain infection for which there is mandatory notification.

How should the suspected disease be notified?

- A The disease is notified anonymised to the Norwegian Institute of Public Health, without a copy to the District Medical Officer
- B The disease must be notified with full patient identity to the Norwegian Institute of Public Health, with a copy to the District Medical Officer
- C The disease is notified without the patient's name and date of birth to the Norwegian Institute of Public Health, with a copy to the District Medical Officer

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85

On duty in the Medical Department, you see a young man who has been a backpacker in rural India. He has a fever, headache and stomach ache. There is no evidence of malaria, and your specialist asks you to investigate and treat the patient as though he has typhoid fever.

Which investigation and treatment are the most correct for you to choose for this patient?

- A Take a stool sample for culture of pathogenic intestinal bacteria and wait with antibiotics
- B Take a bone marrow aspirate sample for culture, and wait for the results before starting antibiotics
- C Take a blood sample for culture and start treatment with antibiotics
- D Take a blood sample for the Widal test, and start treatment with antibiotics

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86

A young man has been traveling abroad and had unprotected sex with a prostitute four weeks ago. He wants an HIV test and also wants to know how long he has to wait before this would possibly be positive.

What information do you give the patient about the HIV test (Combo test)?

- A It is positive within 1 week and almost always within 3 weeks
- B It is usually positive within 3-4 weeks and almost always within 6 weeks
- C It is positive only after 3 months
- D It is always positive within the first 2 weeks

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87

At your office in general practice, you get the results of urine culture for a patient with pyelonephritis. A pure culture of *E. coli* with  $10^5$  CFU/ml and the following sensitivity profile was found: ampicillin R, nitrofurantoin S, mecillinam S, trimetoprim S, imipenem S.

Which of the following medicines is best-suited to treat this patient in general practice?

- A Nitrofurantoin
- B Mecillinam
- C Ampicillin
- D Cefotaxime
- E Trimethoprim

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88

You are the GP for a 28-year-old man who over the last few days has lacked energy and has diffuse general muscular pain and headache. He also has a back ache and severe pain in his face, and complains of severe pain behind his eyes and a blood taste in his mouth. Rectal temperature the same morning was 38.9 degrees. The patient takes no medication, and has no allergies. Last week he came back from a two-week holiday in North Africa. He visited several cities, and only stayed in urban areas. At clinical examination you find several small bleedings in the oral cavity mucous membranes. Examination of the heart, lungs and abdomen are unremarkable. No rash or other fluorescences. At the Family Centre you quickly get the results of the following blood tests:

| Analysis     | Value                | Reference range            |
|--------------|----------------------|----------------------------|
| Hb           | 13 g/dL              | 13.4 - 17.0 g/dL           |
| CRP          | 23                   | <5                         |
| Leukocytes   | $3.1 \times 10^9 /L$ | $4.0 - 11 \times 10^9 /L$  |
| Thrombocytes | $450 \times 10^9 /L$ | $145 - 390 \times 10^9 /L$ |

Which tropical infection is indicated by the patient's medical history and the present findings?

- A Rickettsiosis
- B Hepatitis A
- C Schistosomiasis
- D Dengue fever

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89

A 25-year old woman is admitted to hospital with fever and suspected malaria after a tour of East Africa. When she arrived at the hospital she developed renal and respiratory failure. Blood film (thin drop) reveals 10% parasitaemia with *Plasmodium falciparum*.

Which antimalarial drug should you rather use to treat this patient?

- A Quinine
- B Lariam (mefloquine)
- C Artemisinin
- D Malarone (atovaquone + proguanil)

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90

What effects can you expect if you give a medicine that stimulates beta-2 adrenergic receptors?

- A Bronchial dilation, reduced tremors
- B Bronchial dilation, tremors
- C Bronchial constriction, reduced tremors
- D Bronchial constriction, tremors

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91

You are the GP for an overweight 63-year old woman who is a smoker and who was recently investigated for high blood pressure. You have diagnosed moderate essential hypertension and decided there is indication for antihypertensive treatment based on her total cardiovascular risk profile. She is otherwise quite healthy, but has gout with very occasional, but very painful attacks, and uses allopurinol for this. Now the time has come to choose a blood-pressure lowering drug.

**Of the different classes of blood-pressure lowering drugs there is one type that you should avoid. Which one is it?**

- A Thiazide diuretics
- B Calcium antagonists
- C ACE inhibitors
- D Betablockers

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92

Calcium blockers are classified based on myocardial/vascular selectivity.

**Which drug in this class is most cardio-selective?**

- A Amlodipine
- B Diltiazem
- C Nifedipine
- D Verapamil

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93

Contraceptive pills increase the risk of venous thromboembolic disease.

**What is the reason for this increased risk?**

- A This is primarily an effect of progestogen
- B This is not a hormone-dependent effect
- C This is an effect mediated by both oestrogen and progestogen
- D This is primarily an effect of oestrogen

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94

A patient is being treated with alendronate as indicated for osteoporosis.

**What is important to remember with oral administration of bisphosphonates?**

- A The patient must lie down when taking the tablet
- B The tablet is to be taken just after a meal
- C The patient must sit or stand when taking the tablet
- D The tablet is to be taken just before a meal

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95

Propylthiouracil is used in the treatment of hyperthyroidism.

**What is the most important mechanism of action of this drug?**

- A Inhibits the synthesis of thyroid hormones and conversion of  $T_4$  to  $T_3$  in peripheral tissue
- B Inhibits the synthesis of  $T_4$  via inhibited release of thyroid stimulating hormone (TSH)
- C Eliminates the effect of  $T_4$  and  $T_3$  by blocking the thyroid hormone receptor in peripheral tissue
- D Inhibits the uptake of iodine in the intestine and increases elimination of iodine in the kidneys

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96

To varying degrees, peroral antidiabetic drugs can result in hypoglycaemia.

**For which drug group is the risk greatest?**

- A Sulfonylurea preparations such as glimepiride
- B Biguanide derivatives such as metformin
- C Dipeptidyl peptidase-4-inhibitors (DPP-4 inhibitor) such as sitagliptin
- D Sodium-glucose cotransporter 2-inhibitors (SGLT2 inhibitors) such as empagliflozin

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97

A mother is solely breastfeeding her five-month-old baby. She must take a single dose of a medication to which the child should not be exposed. The medication is lipid soluble and has a half-life of 3 hours.

**What is the most correct way to manage this?**

- A She should stop breastfeeding temporarily, and pump her milk and discard it for 6 hours after taking the medication; after this she can start breastfeeding again.
- B She should stop breastfeeding temporarily, and pump her milk and discard it for 15 hours after taking the medication; after this she can start breastfeeding again.
- C She should discontinue breastfeeding altogether and give the child a breastmilk substitute.
- D She does not need to take this into consideration, because the medication is fat soluble it will not pass into breastmilk

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98

A woman is being treated for urinary incontinence with darifenacin (an anticholinergic drug).

**What is this drug's mechanism of action?**

- A It blocks the peripheral muscarinic receptors which relaxes bladder smooth muscle
- B It blocks the peripheral beta-3 adrenergic receptors which relaxes bladder smooth muscle
- C It stimulates the peripheral muscarinic receptors which relaxes bladder smooth muscle
- D It stimulates the peripheral beta-3 adrenergic receptors which relaxes bladder smooth muscle

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99

Neuropathic pain is generally difficult to treat, and the pharmacotherapeutic strategies that we use for normal nociceptive pain are often inadequate. Instead, drugs such as tricyclic antidepressants (TCA), older antiepileptic drugs such as carbamazepine and valproate and newer antiepileptic agents such as pregabalin are being tried in neuropathies.

**Which of these drugs or groups of drugs must be dosed based on renal function?**

- A Pregabalin
- B Valproate
- C Carbamazepine
- D Tricyclic antidepressants

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**100**

You are working as a foundation doctor at a family medical centre where the first patient of the day is a boy aged 5. The boy's father says that over the last months the boy has had a lot of infections. He now has a fever again, and the nursery school has noticed that he is paler than normal. You examine the boy and find that his general health is poor, he has multiple small glands in the neck and his tonsils are enlarged. Auscultation of his heart and lungs is normal. At examination of his abdomen you find hepatosplenomegaly. What would be the most correct action?

| Test:            | Result:                   | Reference range:              |
|------------------|---------------------------|-------------------------------|
| CRP              | 45 mg/l                   | <5 mg/L                       |
| Hb               | 7.9 g/dl                  | 10.5-13.1 g/dl                |
| Thrombocytes     | 122 x 10 <sup>9</sup> /l  | 228-435 x 10 <sup>9</sup> /l  |
| Leukocytes       | 12.9 x 10 <sup>9</sup> /l | 3.7-14.7 x 10 <sup>9</sup> /L |
| Pulse            | 90/min                    | 70-110/min                    |
| Temperature      | 38.1°C                    | <37.5°C                       |
| Saturation       | 99%                       | >95 %                         |
| Respiratory rate | 25/min                    | 20-30/min                     |

- A** You suspect an underlying immune system failure and decide to refer the patient to Outpatients at the nearest Paediatric Dept for further investigations
- B** You suspect leukaemia and decide to admit the patient to the nearest Paediatric Dept. as emergency help.
- C** You suspect a bacterial throat infection (streptococci) and decide to prescribe phenoxymethylpenicillin mixture and a new appointment in 2 days
- D** You suspect a viral infection (Epstein-Barr virus) and decide to send the patient home with information to observe him closely and give a new appointment in 2 days.

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**101**

A 2-year old boy was admitted to the local Paediatric Dept with a 4-day history of diarrhoea. In the last 24 hours, there was blood in his stool and he had stomach pain. He has previously been healthy and does not take any medicines. At clinical examination, his general health is poor and he is pale. Intestinal sounds are normal and his abdomen is soft. Blood tests taken at admission are presented in the table below. You decide to take a peripheral blood smear. What do you expect to find based on his current medical history?

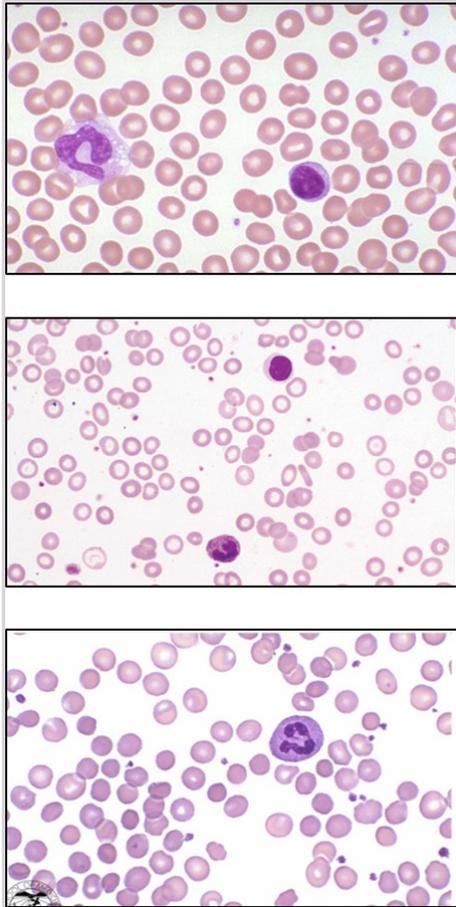
| Test:        | Result:                   | Reference range:              |
|--------------|---------------------------|-------------------------------|
| CRP          | 32 mg/L                   | <5 mg/L                       |
| Hb           | 7.3 g/dl                  | 10.5-13.1 g/dl                |
| Thrombocytes | 58 x 10 <sup>9</sup> /L   | 228-435 x 10 <sup>9</sup> /L  |
| Leukocytes   | 13.1 x 10 <sup>9</sup> /L | 3.7-14.7 x 10 <sup>9</sup> /L |
| Creatinine   | 45 mmol/L                 | 15-31 mmol/L                  |

- A** Microcytic and hypochromic erythrocytes
- B** Macrocytic and hyperchromic erythrocytes
- C** Fragmented erythrocytes
- D** Normal erythrocytes

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**102**

Here you can see an image from a peripheral blood smear from three different people (children). Which combination of conditions/disease is most correct?



- A Normal blood smear, iron deficiency anaemia, hereditary spherocytosis.
- B Normal blood smear, sickle cell anaemia, hereditary spherocytosis.
- C Normal blood smear, hemolytic uremic syndrome, hereditary spherocytosis.
- D Iron deficiency anaemia, thalassaemia, sickle cell anaemia

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**103**

You are the doctor present at a high risk birth. When the baby is born it has a low pulse and is not breathing properly in spite of open airways and attempted stimulation. You start newborn resuscitation and after ventilating for 60 seconds, the pulse is still low at 63; after a further 60 seconds of effective ventilation you check the pulse and it is now at 72/min. What is the most correct next step?

- A Continue mask ventilation
- B Intubate
- C Start HLR 3:1
- D Emergency administration of adrenaline

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**104**

Karoline (7 months old) has previously been healthy and not predisposed to atopy. She has a fever, nasal congestion and heavy breathing, and the last 24 hours she has been listless and will not breastfeed. When examined at the hospital she is pale, has a respiration rate 65/minute with subcostal and intercostal retractions. Capillary refill time <2 seconds and pulse 140/minute. Oxygen saturation 90%. Crepitations can be heard over both lungs on both sides with prolonged expiration. Blood tests reveal:

| Blood test       | Result                | Ref. range                    |
|------------------|-----------------------|-------------------------------|
| CRP              | 43 mg/L               | <5 mg/L                       |
| Hb               | 10.8 g/dL             | 10.8–13.5 g/dL                |
| Leukocytes       | 7.8 x 10 <sup>9</sup> | 4.0–20.0 x 10 <sup>9</sup> /L |
| pH               | 7.30                  | 7.35–7.45                     |
| pCO <sub>2</sub> | 7.35–7.45             | 4.5–6.0                       |
| BE               | -6                    | -3 - +3                       |

She is given fluids and oxygen.  
Which other treatment should she have?

- A** Saline nasal drops, saline or racemic adrenaline inhalation
- B** Saline nasal drops, saline or beta-2 agonist inhalation
- C** Penicillin, saline or racemic adrenaline inhalation
- D** Steroids, penicillin, saline or racemic adrenaline inhalation

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### 105

Erlend, 7 years old, comes to an emergency appointment at your general practitioner office after it felt as though a piece of bread got stuck in his chest at breakfast and his mother had to hit him on his back until it felt as though it had moved. His parents have recently divorced, and he has previously been healthy apart from mild atopic eczema and allergy to fur and birch pollen. At examination he is now in good general condition with no symptoms. His mother says that Erlend always eats slowly, chews properly and drinks a lot of water with his meals, and previously food has got stuck but never with such severe symptoms as this time. What do you do?

- A** Start him on PPI or H2 blocker for suspected gastroesophageal reflux disease (GERD).
- B** Refer to the Paediatric Dept for investigation of suspected eosinophilic oesophagitis.
- C** Refer for X-ray of oesophagus/stomach/duodenum with contrast for suspected anatomical anomaly.
- D** Give advice and emotional support for suspected psychosomatic condition.

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### 106

At the general practice medical centre. Adrian is a 10-year-old boy with ADHD who is receiving treatment with a CNS stimulant. He is otherwise healthy, but has an appointment with you because he has had problems with bowel incontinence for a long time. There are "skid marks" in his pants every day, and sometimes considerable soiling with stools. He also has diurnal enuresis and nocturnal bedwetting. He seldom has an urge for a bowel movement and does not always feel when he has a bowel movement or that he soils his pants. His friends at school are beginning to make comments and his parents are very frustrated and want further investigations. What is the most probable correct thing to do next?

- A** Reassure the parents and child saying that temporary bowel incontinence/encopresis and enuresis is common in children with ADHD.
- B** Perform a rectal exploration and a neurological status for probable underlying neurological disease and consider referral to the Paediatric Dept
- C** Requisition blood tests for coeliac disease, IBD and foodstuff allergies, and a gene test for lactose intolerance.
- D** Take the medical history and investigate for probable chronic constipation and start treatment for this as necessary.

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**107**

A previously healthy 5-year-old boy comes to the emergency room at your GP office with a 3-day history of fever. You hear a grade II early systolic low frequency murmur in the mid and lower left sternal border with no radiation. This has not been heard previously at the regular check-ups at the mother and child healthcare clinics. Clinical examination indicates an upper respiratory track infection. *What do you do next in regard to the murmur?*

- A** Admit the child for investigation for endocarditis
  - B** Refer to a Paediatric Cardiologist
  - C** Ask the GP to check the murmur when the child is well again
  - D** Admit the child for investigation for Kawasaki disease
- 

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**108**

A 7-day-old baby is brought to the emergency reception with acute-onset of breathing problems. At clinical examination the baby is pale and cold sweating. Tachypnoea with subcostal and suprasternal retractions. No audible murmurs. No foreign sounds over the lungs. The inguinal pulse is not palpable. *Which medical treatment would you consider to begin with?*

- A** intravenous prostaglandin
  - B** beta-agonist inhalation
  - C** intravenous antibiotics
  - D** racemic adrenaline inhalation
- 

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**109**

A 26-month-old boy with known egg allergy. Fully vaccinated. Admitted with RSV bronchiolitis at 6 months of age. Cold and fever initially for 1 week, which has persisted with night cough and mucous retching the last 2 months. Is in nursery school where he is continually a little behind the other children during physical activity. You suspect asthma. What is the most appropriate action to take to clarify this?

- A** Nasopharynx aspirate for viral infection
  - B** Clinical examination and medical history
  - C** NO test
  - D** Spirometry
- 

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**110**

A 4-month-old boy. His father has allergy and eczema. Is fully breastfed. Dry and itchy rash, increasing over the last month, loose stools. You consider this to be atopic eczema. What do you do next?

- A** Can be allergy induced eczema. Refer to a specialist for investigation.
  - B** Await further investigations and recommend that the mother stops using milk products and give an appointment for follow up.
  - C** Await further investigations, is probably lactose intolerance. Recommend that the mother stops using milk products and give an appointment for follow up.
  - D** Investigate using a food panel (IgE panel in serum).
- 

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**111**

Mother-child infection during pregnancy, birth and/or neonatally can be prevented through various measures, such as vaccination of the woman, vaccination of the newborn, administration of specific immunoglobulin to the newborn, antiviral treatment of the pregnant woman, antiviral treatment of the newborn, caesarian section, and avoidance of breastfeeding.

**For which of the microbes mentioned below is there no such preventive measure?**

- A** Rubella virus
  - B** Hepatitis B virus
  - C** Hepatitis C virus
  - D** Human immunodeficiency virus (HIV)
- 

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**112**

You are the GP for Ola, 5 years old, who attends with his father for a consultation. His father is worried about Ola's foreskin. He thinks it is tight and it is not possible to retract the foreskin to wash the glans. Ola does not have problems urinating and has not had any problems or complications with his tight foreskin. At examination you find a tight foreskin that appears physiological. What is the correct course of action?

- A** Ola has a tight foreskin which will result in poor hygiene. You prescribe treatment with topical Dermovat to soften the foreskin and make it easier to retract
- B** Ola has a tight foreskin which will result in poor hygiene and you refer him to a Paediatric Surgeon/Urologist for surgery
- C** Ola has physiologically tight foreskin (phimosis). As he does not have any problems one can await spontaneous improvement in puberty

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**113**

You are the doctor at the Mother and Child clinic. You examine a boy at his 6-month check-up. Examining the scrotum, you find a testicle in the scrotum on the left side. On the right side you cannot find a testicle in the scrotum or groin. What do you do next?

- A** Conclude that boy is lacking the left testicle and take no further action.
- B** Refer to a Paediatric Surgeon/Urologist
- C** Wait for it to descend and give the boy an appointment for follow-up when he is 1-year-old

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**114**

Which of the following agents is the most probable cause of bloody diarrhoea?

- A** Giardia Lamblia
- B** Staphylococcus aureus
- C** Rotavirus
- D** Campylobakter

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**115**

You are working in the public Walk-In Clinic. A 3-year-old child comes in who has had clonic convulsions in his body. The child has a high fever and has previously been healthy. Which of the following supplementary information indicates that this should be treated as a complicated febrile seizure.

- A** The episode lasted 5 minutes
- B** There was a new seizure after 4 hours.
- C** None of these
- D** The clonic convulsions were bilateral

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**116**

At what age in Norway is the vaccine for the first childhood disease (morbilli) given?

- A** 15 months and 15 years
- B** 12 months and 12 years
- C** 15 months and 8 years
- D** 15 months and 12 years

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**117**

You are the GP for a 13-year-old girl and get a telephone call from her mother. The mother says that, that morning, her daughter told her that two days earlier she had unprotected vaginal sex with a 17-year-old boy whom she knows. According to the mother, the girl had been a little in love with the boy, but she says she said no when he suggested sex. The mother is very worried and wonders what she should do.

- A** You say you will call a Paediatric Dept with an Assault Centre so that she can have an emergency examination the same day.
  - B** You prescribe emergency contraception for the girl and give her a follow-up appointment in 2 weeks.
  - C** You tell the mother that she must report her concern to the Child Welfare Services.
  - D** You give the mother and daughter an appointment with you for the next day.
- 

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