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АНГЛИЙСКИЙ ЯЗЫК ДЛЯ АСПИРАНТОВ

Учебное пособие

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Учебное пособие предназначено для аспирантов, изучающих профильно-ориентированный английский язык в области фундаментальной медицины, клинической медицины и биологических наук. Целью данного пособия является обучение практическому владению иностранным языком, которое основывается на компетентностно-ориентированном подходе.

Материал пособия включает в себя аутентичные медицинские тексты, комплекс лексико-грамматических упражнений, а также разговорные ситуации, моделирующие диалоги участников научной конференции, пациента и врача, врача – врача, врача – родственника пациента.

Учебное пособие содержит раздел для дополнительного чтения и список слов и словосочетаний, наиболее распространенных в языке медицины и биологических науках.

Учебное пособие используется на аудиторных занятиях и при самостоятельной работе обучающихся.

Данное пособие можно также рекомендовать ординаторам, интернам, экстернам, студентам-медикам и студентам-биологам старших курсов, практикующим врачам, проходящим повышение квалификации.

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MODULE I
COMMUNICATION PRACTICE

U N I T I
MEDICAL ETHICS

CROSS-CULTURAL ISSUES AND DIVERSE BELIEF

Study the words and word combinations:

1. belief - вера, верование
diverse belief - инакомыслие
to believe - 1) верить; 2) считать, полагать
values - *зд.* жизненные ценности
interpretation of doctrine - толкование учения
to share - разделять; *зд.* иметь общие взгляды на что-либо
2. to challenge - бросать вызов; оспаривать
3. therapeutic relationship - взаимоотношения [взаимодействие] врача и больного
principle of respect for autonomy - принцип уважения самостоятельности
decision-making - принятие решения
outcome - результат, последствие
treatment modality(-ies) - методы лечения
to refuse treatment - отказаться от лечения
4. to undermine - подрывать
to trust - доверять
to encourage - *зд.* способствовать
to enlist - *зд.* заручиться поддержкой
5. as long as - пока

Read the article and answer the following questions:

1. What is the important thing for the therapeutic relationship to be established?
2. When may persons avoid seeking medical care?
3. What patient has a moral and legal right to refuse treatments?
4. When does the physician pursue a court order to provide treatment?
5. What kind of treatments shouldn't the physician offer?

Cross-Cultural Issues and Diverse Belief

By Douglas S. Diekema MD, MPH, University of Washington School of Medicine, 2013

Patients may bring cultural, religious and ideological beliefs with them as they enter into a relationship with the physician. Occasionally, these beliefs may challenge or conflict with what the physician believes to be good medical care. Understanding and respecting the beliefs of the patient represents an important part of establishing and maintaining a therapeutic relationship. While the principle of respect for autonomy requires that a physician respect the medical decisions of a competent adult patient; for example, in cases of surrogate decision-making, the physician has an independent duty to guard the interests of the patient.

Why is it important to respect what appear to me to be idiosyncratic beliefs?

Respecting the beliefs and values of your patient is an important part of establishing an effective therapeutic relationship. Failure to take those beliefs seriously can undermine the patient's ability to trust you as your physician. It may also encourage persons with non-mainstream cultural or religious beliefs to avoid seeking medical care when they need it.

What are some ways to discover well known sets of beliefs?

There are many groups that share common sets of beliefs. These belief systems may be based on shared religion, ethnicity, or ideology. Knowledge of these beliefs and the reasonable range of interpretation of doctrine can be very helpful in deciding if unusual beliefs should be respected. Good resources for guidance in this area include patients and family members themselves, staff members with personal knowledge or experience, hospital chaplains, social workers, and interpreters. Unusual beliefs that fall outside known belief systems should prompt more in-depth discussions to insure they are reasonable.

It is important to explore each individual's beliefs, as shared membership in a particular religious or cultural group does not necessarily entail identical belief systems.

What is my responsibility when a patient endangers his/ her health by refusing a treatment?

Adults have a moral and legal right to make decisions about their own health care, including the right to refuse treatments that may be life-saving. The physician has a responsibility to make sure that the patient understands the possible and probable outcomes of refusing the proposed

treatment. The physician should attempt to understand the basis for the patient's refusal and address those concerns and any misperceptions the patient may have. In some cases, enlisting the aid of a leader in the patient's cultural or religious community may be helpful.

Can parents refuse to provide their children with necessary medical treatment on the basis of their beliefs?

Parents have legal and moral authority to make health care decisions for their children, as long as those decisions do not pose a significant risk of serious harm to the child's health. Parents should not be permitted to deny their children medical care when that medical care is likely to prevent substantial harm or suffering. If necessary, the physician may need to pursue a court order or seek the involvement of child protective services in order to provide treatment against the wishes of the parents. Nevertheless, the physician must always take care to show respect for the family's beliefs and a willingness to discuss reasonable alternatives with the family.

What kinds of treatment can parents choose not to provide to their children?

Parents have the right to refuse medical treatments when doing so does not place the child at significant risk of substantial harm or suffering. For example, parents have the right to refuse routine immunizations for their children on religious or cultural grounds.

Can a patient demand that I provide them with a form of treatment that I am uncomfortable providing?

A physician is not morally obligated to provide treatment modalities which do not offer a benefit to the patient or which may harm the patient. Physicians should also not offer treatments that they do not feel competent to provide or prescribe. However, it is important to take the patient's request seriously, consider accommodating requests that will not harm the patient or others, and attempt to formulate a plan that would be acceptable to both the physician and patient.

Reread the text. Give your interpretation of the situations using the following information:

№ 1

- parents' refusal to immunize does not pose a significant likelihood of serious harm to a child,
- a physician should attempt to correct any misconceptions about the degree of risk associated with getting immunized,

- if parents persist, it is necessary to respect their wishes.

Situation: A mother brings her 18-month-old daughter to your office for a routine physical examination. The child has had no immunizations. Her mother says that they believe that vaccines weaken the immune system and have heard that vaccination can cause autism.

№ 2

- an adult patient has the right to make decisions about his medical care,
- respecting the cultural or religious beliefs strengthens patient's trust in a physician and his abilities.

Situation: A 23-year-old Navajo man has injured his leg after a fall. He presents to the emergency room of the reservation hospital where he is complaining of pain. His leg appears to be broken. The man requests that you call a medicine man before doing anything further.

№ 3

- a physician should share parents' view and seek cooperation through respectful discussion (e.g., inviting the family's religious leader to the hospital, etc.),
- failure to diagnose and treat meningitis threatens the health and even life of a patient,
- in most US states a physician is legally authorized to provide emergency treatment to a child without court order when delay would likely result in harm.

Situation: A 3-year-old child is bought to your clinic with a fever and stiff neck. You are quite certain the child has meningitis. When you discuss the need for a spinal tap and antibiotic treatment, the parents refuse permission, saying «We'd prefer to take him home and have our minister pray over him».

THE WORLD MEDICAL ASSOCIATION (WMA)

Study the words and word combinations:

1. the World Medical Association (WMA)	- Международная медицинская ассоциация
an International Code of Medical Ethics	- Международный кодекс медицинской этики
2. to represent	- представлять; быть представителем
to provide a forum	- *зд.* предоставлять площадку
to promote (= to facilitate)	- способствовать, поддерживать; содействовать распространению
to endeavor	- пытаться, стараться
3. funding	- финансирование
annual contribution	- ежегодный взнос
4. humane care	- гуманное отношение
5. partnership	- партнерство; товарищество
alliance	- союз

Read the text and answer the following questions:

1. When was the World Medical Association founded? Who does it represent?
2. How do member associations communicate and cooperate in the WMA forum?
3. How does the WMA serve humanity?
4. In what way does the WMA promote the highest possible standards of medical ethics?
5. What are the WMA's partners and allies?

The World Medical Association (WMA)

It is an international organization representing physicians. It was founded on 17 September 1947, when physicians from 27 different countries met at the First General Assembly of the WMA in Paris. The organization was created to ensure the independence of physicians and to work for the highest possible standards of ethical behaviour and care by physicians, at all times. This was particularly important to physicians after the 2nd World War, and therefore the WMA has always been an independent confederation of free professional associations. Funding has been by the annual contributions of its members, which has now grown to 111 Nation-

al Medical Associations.

The WMA provides a forum for its member associations to communicate freely, to co-operate actively, to achieve consensus on high standards of medical ethics and professional competence, and to promote the professional freedom of physicians worldwide.

This unique partnership facilitates humane care to patients in a healthy environment, enhancing the quality of life for all people in the world.

What is its mission? The purpose of the WMA is to serve humanity by endeavoring to achieve the highest international standards in Medical Education, Medical Science, Medical Art and Medical Ethics, and Health Care for all people in the world.

What we do? As an organization promoting the highest possible standards of medical ethics, the WMA provides ethical guidance to physicians through its Declarations, Resolutions and Statements. These also help to guide National Medical Associations, governments and international organizations throughout the world. The Declarations, Resolutions and Statements cover a wide range of subjects, including an International Code of Medical Ethics, the rights of patients, research on human subjects, care of the sick and wounded in times of armed conflict, torture of prisoners, the use and abuse of drugs, family planning and pollution.

Partnerships and Alliances. The WMA is in official relations with the World Health Organization (WHO). Partnerships and alliances with other health professional associations, governmental and non-governmental agencies and regional medical associations support the work of the WMA to provide the best possible care to the patients of the world. In particular, the World Health Professions Alliance combines the strengths of the international professional associations for physicians, nurses and pharmacists to advocate and work for the highest possible standards of health care for all people.

Read the texts and be ready to compare WMA International Code of Medical Ethics (1) and Physician Oath Adopted in the Russian Federation (2):

(1) WMA International Code of Medical Ethics

adopted by the 3rd General Assembly of the World Medical Association, London, England, October 1949;

and amended by the 22nd World Medical Assembly, Sydney, Austral-

ia, August 1968;

and the 35th World Medical Assembly, Venice, Italy, October 1983;

and the 57th WMA General Assembly, Pilanesberg, South Africa, October 2006.

DUTIES OF PHYSICIANS IN GENERAL

A PHYSICIAN SHALL

always exercise his/ her independent professional judgment and maintain the highest standards of professional conduct;

respect a competent patient's right to accept or refuse treatment;

not allow his/ her judgment to be influenced by personal profit or unfair discrimination;

be dedicated to providing competent medical service in full professional and moral independence, with compassion and respect for human dignity;

deal honestly with patients and colleagues, and report to the appropriate authorities those physicians who practice unethically or incompetently or who engage in fraud or deception;

not receive any financial benefits or other incentives solely for referring patients or prescribing specific products;

respect the rights and preferences of patients, colleagues, and other health professionals;

recognize his/ her important role in educating the public but should use due caution in divulging discoveries or new techniques or treatment through non-professional channels;

certify only that which he/ she has personally verified;

strive to use health care resources in the best way to benefit patients and their community;

seek appropriate care and attention if he/ she suffers from mental or physical illness; respect the local and national codes of ethics.

DUTIES OF PHYSICIANS TO PATIENTS

A PHYSICIAN SHALL

always bear in mind the obligation to respect human life;

act in the patient's best interest when providing medical care;

owe his/ her patients complete loyalty and all the scientific resources available to him/ her. Whenever an examination or treatment is beyond the physician's capacity, he/ she should consult with or refer to another physician who has the necessary ability;

respect a patient's right to confidentiality. It is ethical to disclose confidential information when the patient consents to it or when there is a real and imminent threat of harm to the patient or to others and this threat can be only removed by a breach of confidentiality;

give emergency care as a humanitarian duty unless he/ she is assured that others are willing and able to give such care;

in situations when he/ she is acting for a third party, ensure that the patient has full knowledge of that situation;

not enter into a sexual relationship with his/ her current patient or into any other abusive or exploitative relationship.

DUTIES OF PHYSICIANS TO COLLEAGUES

A PHYSICIAN SHALL

behave towards colleagues as he/she would have them behave towards him/her;

NOT undermine the patient-physician relationship of colleagues in order to attract patients;

when medically necessary, communicate with colleagues who are involved in the care of the same patient. This communication should respect patient confidentiality and be confined to necessary information.

(2) Physician Oath Adopted in the Russian Federation

«Клятва врача» принята в 1999 году Государственной думой, подписана президентом Российской Федерации Б. Н. Ельциным.

Ранее существовавшие клятвы:
«Клятва российского врача» (1994).
«Присяга врача Советского Союза» (1971).
«Факультетское обещание» (в дореволюционной России).

Получая высокое звание врача
и приступая к профессиональной деятельности,
я торжественно клянусь:

- честно исполнять свой врачебный долг, посвятить свои знания и умения предупреждению и лечению заболеваний, сохранению и укреплению здоровья человека;
- быть всегда готовым оказать медицинскую помощь, хранить

врачебную тайну, внимательно и заботливо относиться к больному, действовать исключительно в его интересах независимо от пола, расы, национальности, языка, происхождения, имущественного и должностного положения, места жительства, отношения к религии, убеждений, принадлежности к общественным объединениям, а также других обстоятельств;

- проявлять высочайшее уважение к жизни человека, никогда не прибегать к осуществлению эвтаназии;
- хранить благодарность и уважение к своим учителям, быть требовательным и справедливым к своим ученикам, способствовать их профессиональному росту;
- доброжелательно относиться к коллегам, обращаться к ним за помощью и советом, если этого требуют интересы больного, и самому никогда не отказывать коллегам в помощи и совете;
- постоянно совершенствовать свое профессиональное мастерство, беречь и развивать благородные традиции медицины – КЛЯНУСЬ.

U N I T II
MEDICAL EDUCATION ABROAD

MEDICAL EDUCATION IN THE UNITED KINGDOM

Before you read

Discuss the following stages of medical education in the UK:

Medical education in the United Kingdom includes educational activities involved in the education and training of medical doctors, from entry-level training through to continuing education of qualified specialists.

Thus, medical education in the UK covers:

- **undergraduate education** – four or five years at medical school, the section of a university responsible for medical education;
- a two-year **Foundation Program** which provides training for new doctors after graduation through a series of placements in different specialties;
- **postgraduate training** which doctors take to become general practitioners or consultants – senior specialists – often delivered through colleges for different specialties, for example the Royal College of Physicians;
- **continuing professional development** in the form of courses and seminars, which doctors undertake throughout their working lives to keep up to date.

Vocabulary Exercises

1. Study the terminology table and give the Russian equivalents to the words in bold:

Certificate of Completion of Training (CCT)	is awarded by the Postgraduate Medical Education and Training Board (PMETB) to specialist registrars and GP registrars once they have successfully completed training. The award of the CCT allows doctors entry onto the specialist or GP registers in order for them to apply for consultant or GP principal posts.
Foundation Program	is a competence-based two-year general training program which forms the bridge between medical school and specialist/ general practice training where trainees will have the opportuni-

	ty to gain experience in a series of placements in a variety of specialties and healthcare settings. The first year of the foundation program builds upon the knowledge, skills and competences acquired in undergraduate training. The second year of the foundation program builds on the first year of training with the main focus on training in the assessment and management of the acutely ill patient.
GP principal	After successfully completing a period of training as a GP registrar, doctors can become GP principals. GP principal is defined as a registered, vocationally-trained medical practitioner, who is contracted by the local health authority or health board to take unsupervised responsibility for patients.
GP registrars	Doctors training to be GPs within a general practice setting are called GP registrars. They treat patients in the context of their training under supervision of a trainer. Once the GP registrar has successfully completed this period of training they are awarded the Certificate of Completion of Training (CCT) by the Postgraduate Medical Education and Training Board (PMETB), and are then eligible to become a GP principal.
GP tutors	are appointed by the directors of postgraduate general practice education. They are responsible for coordinating local postgraduate education allowance (PGEA) activity. They accredit educational activity for the PGEA as well as coordinate and provide it as local postgraduate centers.
House officer	is a newly graduated doctor in the first year of postgraduate training. After a year, he or she becomes a registered medical practitioner. In the current system of training, the Foundation Program, the name for these junior doctors is Foundation Year 1 doctor (FY1).

Junior	is used about someone who does not have an important position: e.g., a junior clerk.
MD, DM	Doctor of Medicine.
Placement	is a job that found for someone, especially to give them experience of work.
Senior	is used about someone who has an important position: e.g., a senior executive.
Senior house officer (SHO)	is in the second year of postgraduate training. The title is now Foundation Year 2 doctor (FY2), but the old terms senior house officer and SHO are still used.
Specialist registrar (SpR)	is a doctor who has completed the Foundation Program, and is training in one of the medical specialties.
Vocational training (qualification)	must be undertaken by doctors who wish to work in general practice, and lasts for three years. Doctors can either choose to undertake a specific three-year course arranged in advance by a UK university under the guidance of the director of postgraduate general practice education (DPGPE). On completion of training, GPs receive a Certificate of Completion of Training Board (CCT), and are eligible to apply for GP principal positions.

2. Circle the odd word out:

- tutor, trainer, supervisor, colleague
- hospital, university, unit, ward
- refer, admit, discharge, treat
- ill, unfit, unwell, healthy

3. Match two parts of the sentence. You may consult the terminology tables:

1. A FY is a doctor	**a.** a body of specialists responsible for delivering and assessing training in their specialty
2. A demonstrator is an anatomy teacher	**b.** responsible for the training program of a trainee
3. A clinical trainer is a consultant	**c.** a period spent as a trainee in a hospital or in General Practice

4. A supervisor is a consultant	**d.** in the first year of the Foundation Program
5. A medical school is	**e.** who has reached the highest level in their specialty
6. A placement is	**f.** who provides training during periods of direct clinical care
7. A college is	**g.** part of a university responsible for medical education
8. A fellow is a specialist	**h.** who teaches dissection
9. A medic is a person	**i.** one of periods (usually three) into which the academic year is divided
10. A term is	**j.** who is not a doctor but is trained to give medical care

4. Translate the following word combinations:

Intensive Care Unit, написать диссертацию, inpatients, хирург-интерн/ ординатор, duty doctor, бакалавр медицины, final exams, доктор медицины, студенты старших курсов, занимающиеся на клинических кафедрах, ward round, теоретические дисциплины, обучение у постели больного, demonstration.

VOCATIONAL TRAINING

Before you read

Discuss these questions with your partner or in your group:

- When can a doctor choose a specialization in one of the fields of medicine?
- When can a doctor work independently as a GP?
- Why is it so important to continue medical education?

Read the text:

Vocational Training

Following completion of medical school junior doctors then enter a vocational training phase. In the UK a doctor's training normally follows this path:

Newly qualified doctors enter a Foundation Program. The Foundation Program is a two-year training program which forms the bridge between university-level study at medical school and specialist or general practice training. It consists of a series of placements, each lasting four months,

which allow the junior doctor, known as a trainee, to sample different specialties. These must include training in General Medicine and General Surgery but can also include other fields such as pediatrics, anesthetics or General Practice.

Following completion of the Foundation Program a doctor can choose to specialize in one field. All routes involve further assessment and examinations.

The majority of UK doctors work in the community as General Practitioners (GPs) who are the first port of call for patients. To train as GP after completing the Foundation Program a doctor must complete two years of posts as a Senior House Officer (SHO) in a variety of hospital specialties – often including pediatrics, psychiatry, care of the elderly and obstetrics and gynecology. The trainee then has to spend one year as a General Practice Registrar – a trainee based in a GP practice. After completing this training and the relevant exams the doctor can become a GP Principal – working independently as a GP.

Hospital doctors are promoted after sitting relevant postgraduate exams within their chosen specialty and a competitive interview selection process from SHO to Specialty Registrar (StR) and eventually Consultant on completion of the CCT (Certificate of Completion of Training) which is the highest level in a specialty (with the exception of university-linked professors).

The competition is significant for those who wish to attain consultant level and many now complete higher degrees in research such as a Doctor of Medicine (MD) which is a thesis-based award based on at least two years full-time research; or PhD which involves at least three years of full-time research. The time taken to get from medical school graduation to becoming a consultant varies from specialty to specialty but can be anything from 7 to more than 10 years.

In the United Kingdom doctors' training will rapidly evolve in the next twelve months with the introduction of run-through training. A doctor after completing their two foundation years will apply for a single specialty (including general practice) and be trained solely in that specialty for a fixed period of years (typically seven) before being awarded a CCT. These changes will take place in accordance with the government-instituted plan for Modernizing Medical Careers.

National Health Service medical career grades

<table>
<tr><th></th><th colspan="2">Old System</th><th colspan="2">New System
(Modernizing Medical Careers)</th></tr>
<tr><td>Year 1:</td><td colspan="2">Pre-registration House Officer (PRHO) – one year</td><td colspan="2" rowspan="2">Foundation House Officer
2 years</td></tr>
<tr><td>Year 2:</td><td colspan="2" rowspan="2">Senior House Officer (SHO) – a minimum of two years, although often more</td></tr>
<tr><td>Year 3:</td><td rowspan="3">Specialty Registrar (StR) in a hospital specialty: six years</td><td rowspan="2">Specialty Registrar (StR) in general practice: three years</td></tr>
<tr><td>Year 4:</td><td>Specialist Registrar – four to six years</td><td>GP Registrar – one year</td></tr>
<tr><td>Year 5:</td><td rowspan="3">General Practitioner
total time in training: 4 years</td><td rowspan="2">General Practitioner
total time in training: 5 years</td></tr>
<tr><td>Year 6-8:</td><td rowspan="2"></td></tr>
<tr><td>Year 9:</td><td>Consultant
total time in training: minimum 7-9 years</td><td>Consultant
total time in training: 8 years</td></tr>
<tr><td>Optional</td><td colspan="2">Training may be extended by pursuing medical research (two-three years), usually with clinical duties as well</td><td colspan="2">Training may be extended by obtaining an Academic Clinical Fellowship for research</td></tr>
</table>

Continuing medical education (CME)

CME is now mandatory for all doctors under guidelines from the General Medical Council and Clinical governance. The purpose is to keep doctors up to date with their medical knowledge including new diseases and treatment methods. Through CME doctors are able to attend conferences and courses to update their knowledge and skills throughout all stages of their careers. In recognition of this continuing education doctors are awarded accreditation points towards the continuing professional development (CPD) schemes of Royal Colleges. All doctors who attend CME events are expected to maintain a record of their activities including the accreditation points awarded.

Comprehension

I. Answer the questions:

1. What does the Foundation Program consist of?
2. What is necessary to work as a GP Principal?
3. When hospital doctors are promoted to Specialty Registrar?
4. When hospital doctors are promoted to Consultant?
5. The competition is significant for those who wish to attain consultant level, isn't it?
6. How much time is necessary to fulfill research such as a Doctor of Medicine?
7. Does a PhD involve two or three years of full-time research?
8. Does the time taken to get from medical school graduation to become a consultant vary from specialty to specialty?
9. What are the differences between old and new medical careers systems?
10. What is the purpose of continuing medical education?

II. Agree or disagree with the following statements. If the statement is false, give the correct variant:

- After medical school junior doctors can take up a vocational training.
- Vocational training usually lasts three years.
- Foundation Program is a competence-based four-year general training program which forms the bridge between medical school and specialist/ general practice training where trainees will have the opportunity to gain experience in a series of placements in a variety of specialties and healthcare settings.
- After successfully completing a period of training as a GP registrar, doctors can become GP principals.
- Consultant is a fully qualified specialist.
- It is necessary from 8 to 12 years to become a qualified consultant.
- Continuing medical education is now mandatory for all doctors.
- Through hospitals doctors are able to attend conferences and courses to update their knowledge and skills throughout all stages of their careers.
- Doctors are awarded accreditation points towards the continuing professional development (CPD) schemes of Royal Colleges.
- All doctors who attend CME events are to get a certificate of their activities.

Speaking

Talk about:

- The advantages of the Foundation Program.
- The opportunity of continuing medical education in Great Britain.
- National Health Service medical career grades: compare old and new system (use the table from the text).
- How to become a specialist in your country (list the stages).

Work in pairs

Student A: you are a university lecturer.

Student B: you are a university student.

You want to see your personal tutor (Student A) to discuss your abstract in the BJS next week. Phone her/ him and arrange a one hour appointment.

Over to you

You are going to make a report about the hospital training of doctors in your country at a conference. How would you explain it to colleagues from other countries?

HIGHER EDUCATIONAL INSTITUTIONS IN THE USA

Vocabulary Exercises

1. Match the institution with its definition:

1. open university	**a.** those institutions of higher education initially established for the education and training of African Americans
2. land grant colleges	**b.** a two-year, degree granting public institution of post-secondary education, designed to serve the needs of the local area or community
3. upper division college	**c**. a concept of nontraditional higher education that combines a variety of pedagogical approaches and traditional pedagogy to provide education to adults unable to attend traditional institutions of further education
4. black colleges	**d.** a degree granting institution of higher education limited to the last two years of the traditional four-year program
5. institute	**e.** state-run, public institutions of higher education established and originally financed under provisions of the two Morrill, or Land Grant, Acts passed by Congress in 1862 and 1890
6. community college	**f.** a specialized two- or four-year institution of higher education, usually limited to offering associate or bachelor's degrees in scientific and technical fields

Teachers at American Universities

2. Match the teachers' positions with their definitions:

1. graduate assistants	**a**. instructor
2. teacher	**b**. a member of the school or college faculty assigned as personal counselor to one or more students
3. tutor	**c.** graduate students who are hired and paid for teaching, administration, or research in an institution of higher education
4. faculty advisor	**d.** any advisor specializing in educational matters, but commonly used to refer to an educator with particular skills in school and college placement
5. adjunct	**e.** a teacher, usually private, who instructs students individually or in small groups. At university level, he or she is now often a special-education teacher who works with slower or learning disabled students during free hours at school or after school hours and on weekends
6. professor	**f.** leader of a college or university academic department
7. president of college or university	**g.** a teacher in an American or Canadian university or college
8. department chairperson (department head)	**h**. a representative body of a college, university or school faculty that participates in the institution's policy making and decision-making process
9. educational consultant	**i.** a temporary or part-time instructor at a college or university
10. faculty senate	**j.** the chief executive officer of an institution of higher education

Before you read

Discuss these questions with your partner or in your group:

- Are there any differences in the educational system of the UK and USA?
- Would you like to study in America? Why? or Why not?
- Compare the UK and USA and Russian educational systems. Do you think American students have an easier life than yours? Why? or Why not?

Read the text:

Medical Education in the United States

Medical education in the United States includes educational activities involved in the education and training of medical doctors in the United States from entry-level training through to continuing education of qualified specialists.

A typical outline of the medical education pathway is presented below; however, medicine is a diverse profession with many options available. For example, some doctors work in pharmaceutical research, occupational medicine within a company, public health medicine (working for the general health of a population in an area), or join the armed forces.

The education of physicians in the United States is lengthy and involves undergraduate education, medical school and graduate medical education. The term «graduate medical education» (GME) includes residency and fellowship training; the American Medical Association (AMA) does not use the term «postgraduate education».

Undergraduate education includes four years at a college or university to earn a BS or BA degree usually with a strong emphasis on basic sciences such as biology, chemistry, and physics. Some students may enter medical school with other areas of emphasis.

Medical School (undergraduate education)

In the United States medical school is an institution with the purpose of educating physicians in the field of medicine. Admission into medical school does not technically require completion of a previous degree, however, applicants are usually required to complete at least 2-3 years of «premed» courses at the university level because in the U.S. medical degrees are classified as Second entry degrees. Preparing for medical school often means completing college prerequisites, earning a high grade point average and obtaining good recommendations. In addition to these tasks aspiring physicians must often personally display evidence of their motivation, leadership and communication skills, and sense of service. Once enrolled in a medical school, the course of study is divided into two roughly equal components: pre-clinical (consisting of didactic courses in the basic sciences) and clinical (consisting of rotations through different wards of a teaching hospital). The degree granted at the conclusion of the four years of study is Doctor of Medicine (M.D.) or Doctor of Osteopathic Medicine (D.O.) depending on the medical school; both degrees allow the holder to

practice medicine after completing an accredited residency program.

Preclinical study generally comprises the first two years and consists of classroom and laboratory instruction in core subjects such as anatomy, biochemistry, physiology, pharmacology, histology, embryology, microbiology, pathology, pathophysiology, and neurosciences. Once students successfully complete preclinical training they generally take step one of the medical licensing boards.

Residency program (graduate medical education) is taken up through a national matching program. Newly graduated MDs enter into a residency program that is three to seven years or more of professional training under the supervision of senior physician educators. The length of residency training varies depending on the specialty chosen: family practice, internal medicine, and pediatrics, for example, require 3 years of training; general surgery requires 5 years. Some refer to the first year of residency as an «internship»; the AMA no longer uses this term.

Fellowship is one to three years of additional training in a subspecialty. Many highly specialized fields require formal training beyond residency. Examples of these include cardiology, endocrinology, oncology after internal medicine; cardiothoracic surgery, pediatric surgery, surgical oncology after general surgery; reproductive endocrinology/ infertility, maternal-fetal medicine, gynecologic oncology after obstetrics/ gynecology. There are many others for each field of study. In some specialties such as pathology and radiology, a majority of graduating residents go on to further their training. The training programs for these fields are known as fellowships and their participants are fellows to denote that they already have completed a residency and are board eligible or board certified in their basic specialty. Fellowships range in length from one to three years and are granted by application to the individual program or subspecialty organizing board. Fellowships often contain a research component.

It is an option for some doctors who want to become highly specialized in a particular field, such as gastroenterology, a subspecialty of internal medicine and of pediatrics, or child and adolescent psychiatry, a subspecialty of psychiatry.

After completing undergraduate medical school and graduate medical education a physician still must obtain a license to practice medicine from a state or jurisdiction of the United States in which they are planning to practice. They apply for the permanent license after completing a series of exams and completing a minimum number of years of graduate medical education.

Learning does not end when physicians complete their residency or fellowship training. Doctors continue to receive credits for continuing medical education and some states require a certain number of CME credits per year to ensure the doctor's knowledge and skills remain current. CME requirements vary by state and by professional organizations.

Board certification

The physician or surgeon who has completed his or her residency and possibly fellowship training and is in the practice of their specialty is known as an attending physician. The majority of physicians also choose to become board certified, which is an optional, voluntary process. Certification (written and oral exams) ensures that the doctor has been tested to assess his or her knowledge, skills, and experience in a specialty and is deemed qualified to provide quality patient care in that specialty. There are two levels of certification through 24 specialty medical boards - doctors can be certified in 36 general medical specialties and in an additional 88 subspecialty fields. Each of the 36 medical specialties has different requirements. Most certifications must be renewed after six to 10 years depending on the specialty.

Comprehension

I. Answer the questions:

1. What are the stages of medical education in the USA?
2. How many years does undergraduate education include?
3. What are the requirements of admission into medical school?
4. How is the course of study in the medical school divided?
5. What does the preclinical study consist of?
6. What is the length of residency training?
7. What training programs are known as fellowships?
8. Fellowships range in length from one to three years, don't they?
9. How many levels of certification are there?
10. Does each of the 36 medical specialties have different requirements for practitioners?

II. Agree or disagree with the following statements. If the statement is false, give the correct variant:

- In the United States medical school is an institution with the purpose of educating physicians in the field of medicine.
- Admission into medical school requires completion of a previous degree.
- When entered a medical school the course of study is divided into two roughly equal components: pre-clinical and clinical.
- Preclinical study generally comprises the first three years.
- During the first year of undergraduate medical education students apply for postgraduate residencies in their chosen field of specialization.
- Each of the specialties in medicine has established its own curriculum which defines the length and content of residency training necessary to practice in that specialty.
- Fellowships last from one to five years and are granted by application to the individual program or subspecialty organizing board.
- Fellowships never contain a research component.
- Residents must pass only written exams in their specialty in order to become board certified.
- Continuing medical education activities can be undertaken by residents.

Read the text «Oregon Health and Science University» and decide what kind of text it is:

- Explain the following figures and words: 17,000, 9,000, attendees, hands-on seminars, 39, mini-sabbatical programs, online courses.
- State your arguments in short speech for continuing professional education at Oregon Health and Science University (OHSU).

Where healing, teaching and discovery come together:
continuing professional education
Lifelong learning at OHSU

OHSU offers continuing education programs throughout the state. More than 17,000 practicing professionals take part each year in hundreds of courses and seminars. We broadcast many continuing education programs, enabling us to serve individuals throughout the state.

Continuing dental education

The School of Dentistry has one of the most active continuing dental education programs in the U.S. It offers:

- 78 one- and two-day courses (many of which have a hands-on clinical component);
- Four 50-hour oral radiology certification courses;
- 39 regularly scheduled study clubs throughout the year;
- Nine events co-sponsored with other dental organizations throughout the state.

Continuing medical education

The School of Medicine sponsors or jointly sponsors:

- 80 continuing medical program offerings each year;
- Serves nearly 9,000 attendees annually;
- Departmental grand rounds and longer courses running from a half day to a full week;
- Mini-sabbatical programs of a week or more for community physicians to update knowledge and skills in a clinical department.

Continuing nursing education

Hands-on seminars and workshops focused on multiple nursing programs are provided throughout the year by the School of Nursing. In addition to traditional classes, self-paced, online courses are available. The school sponsors the annual Northwest Nursing Education Institute, an annual event providing the opportunity for nurses from the region to meet together to develop, renew and refine the knowledge and skills needed for the teaching of nursing in educational and clinical settings.

Continuing community healthcare education

OHSU's Child Development and Rehabilitation Center provides continuing education to community healthcare professionals throughout the region. Its programs address the care, education and support services required by children with special needs and their families including technical assistance and specialized training.

Scan the text «Admission requirements in the USA».

- What new information did you get?
- Share your ideas with your partner.

Admission requirements in the USA

Usually there is no admission examination required by a state university for those who have finished high school within the state. Sometimes a certain pattern of high school studies is necessary, however, and some state universities require a certain scholastic average, or average of high school grades. Private colleges and universities, especially the larger, well-known ones such as Harvard, Princeton, and Yale, have rigid scholastic requirements for entrance, including an examination, writing college application essays. Successful applicants are usually chosen on the basis of their high school records; recommendations from their high school teachers; the impression they make during interviews at the university and their scores on the Scholastic Aptitude Tests (SATs).

How to apply to a school if you don't live in the USA?

International students, apart from the usual academic standards, must meet certain financial and legal requirements. Each university has its own policies, but as a rule, the information they will want from you will relate to one of the following items:

Personal application form. Apart from your name, address and citizenship, the Admission Office will want to know something about your background, your character, your goals and academic ambitions. Present yourself in a clearly-written (typewritten is best) manner, stating your background, awards, achievements, interests, sports trophies, hobbies, and life objectives.

Teacher recommendations. A good, strong recommendation will go a long way. It would be wise to get a recommendation from a teacher who knows both you and your work well.

Application fee. This is a fee, payable in U.S. dollars to cover the cost of processing your application. In most cases this fee is not refundable.

Proof of financial ability. U.S. law requires schools to review evidence of your financial ability to live and study in the U.S.

Academic records. All U.S. colleges and universities require official records of your previous study. It is very important to read the requirements sent to you with the school's application for admission and to supply exactly the documents required and in the form required. Most colleges and universities will only accept the post-secondary school transcripts sent directly from university to university without passing through student hands.

After you are accepted. The Admission Office will send you a letter

that you have been accepted. At this time, they will ask you to comply with various requirements. They will ask you to confirm that you accept the offer of admittance.

Waiting list. It is possible that the university you prefer will offer to put you on their waiting list. It is advisable to accept the waiting list status, but go ahead and accept a place at a university which is second or third choice. Should your waiting list status change later on to a definite offer, you can always cancel out of your second choice university. (Be prepared, however, to lose your deposit.)

Speaking

Talk about:

- The course of study in a medical school.
- The postgraduate forms of education.

You may use the information from the text «Medical education in the United States».

Over to you

You want to be a surgeon. Explain to your student mates why you chose your particular branch of medicine. Make a list of qualities you think are needed to be a good surgeon.

Exercises

1. Read the short texts below. Use the word given in bold at the end of each line to form a word that fits in the space in the same line.

A.

The Irish Medical Organization is the _____1_____ body representing doctors in Ireland. It was ____2____ in 1984. It is the sole negotiating body representing the major ___3___ of the medical profession. The mission of the ____4___ is to improve the practice of medicine, the working conditions of doctors and be committed to developing a caring, efficient and ___5____ medical ___6____ in Ireland. Primary medical ___7____ has an impact on all members of the organization. Undergraduate medical education and training is a ___8___	**profession** **form** **divide** **organize** **effect** **educate** **serve**

part of the continuum of education and training which spans a doctor's professional lifetime. Any changes to the structure or curriculum of medical education will produce a ____9____ of impacts including impacts on the recruitment, training, practice within medicine as well as the quality and ___10____ of doctors.	**fund** **vary** **compete**

B.

History of long hours Medical residencies ___1___ require lengthy hours of their trainees. Early residents literally resided at the hospitals often working in ___2___ positions during their ___3___. During this time, a resident might always be 'on call' or share that duty with just one other doctor. More recently, 36-hour shifts were ____4___ by 12 hours of rest, during 100+ hour weeks. The American public and the medical education establishment recognized that such long hours were counter-____5__ since sleep deprivation and error rate in an intensive care unit. In some states of the USA doctors may obtain a general ___6___ license to practice medicine without ___7___ after completing one year of ___8___. Many residents have medical licenses and do ___9___ practice medicine without «moonlight» in settings such as urgent care centers and rural hospitals. However, in most residency-___10___ medical settings, residents are supervised by attending physicians who must approve their decision-making.	**tradition** **pay educate** **separate** **produce** **medicine** **supervise** **intern** **legal** **relate**

2. Complete the text with appropriate verbs in the correct form:

take (2), go (2), do, pass, get (2), pay for, decide

When he was eighteen, my brother's main ambition in life was to __1___ to university. He was very hard-working and fortunately he

__2___ all his exams. In fact, he got such high marks that he managed to ___3__ a place at a very good university, where he __4___ to study biology. The course __5___ three years, and at the end he __6___ a very good degree. As a result, he got the chance to ___7__ on to postgraduate studies, and he is now __8___ research at Bristol University. He was very lucky to receive a grant for the first years which helped to __9___ the cost of university life, but now he's got a loan. It __10___ him a long time to pay it back.

3. Complete the text with words from the box:

patients, its, research, medical, education, was (2), of, on, which, now, spans, introduced, have (2), clinical, PhD, one, Southampton, course, major, alongside, programme, other, professional

- **Give the heading to each paragraph.**
- **Ask questions about the text.**

University of Southampton: School of Medicine

The School of Medicine at Southampton __1___ established in the 1970s. The new ___2__ school took in 40 students and ___3__ renowned for a novel curriculum that ___4__ clinical contact at an early stage. ___5__ has maintained its ethos of innovative ___6__.

Early patient contact continues, but school ___7___ admit 250 new students annually to ___8___ of three Bachelor of Medicine programs, ___9___ include a 4-year graduate entry __10___ and a nationally acclaimed widening access __11___ for students who would not normally __12___ the opportunity to study medicine.

All __13___ programs embrace the concept of inter- __14___ learning, so that you will study __15___ students from nursing, midwifery, physiotherapy and __16___ allied health professions to entrance understanding __17___ the multidisciplinary team approach to modern __18___ practice.

The school also has a __19___ focus on research, with innovations that __20___ included establishment of a 4-year __21___ program and a vibrant Postdoctoral Association. __22___ activity, much of which takes place __23___ the Southampton General Hospital biomedical campus, __24___ basic science through to studies with __25___, and new discoveries are translated into clinical practice in the Wellcome Trust Research Facility.

4. Translate the text from English into Russian. You may consult a dictionary.

Belfast Queen's University

Medicine has been taught in Belfast since 1821 and there has been a Medical School at Queen's University since 1849. Today the University offers a unique Undergraduate Course in Medicine which employs early clinical contact with patients to support the learning of the scientific basis of medicine. In the early years students are based in the Medical Biology Centre on the main campus where there are specific facilities including a dissection suite, lecture theatres, tutorial rooms, laboratories, a state of the art Clinical Skills Education Centre, a medical library.

The School of Medicine and Dentistry is recognized as a centre of excellence for inter-professional learning. The School has a strong research base and students are therefore in a special environment facilitating exposure to expert clinicians. In the later years of the course, clinical experience is spread throughout Northern Ireland and is obtained in partner teaching hospitals in such towns as Londonderry, Craigavon, Coleraine, Antrim, and Enniskillen. Students also gain experience in general practices throughout the same area. The Medical School therefore has a close relationship with all aspects of the National Health Service and this makes for a special relationship between the University and the local community it serves and for whom it trains tomorrow's doctors. Knowledge and exposure to the practice of medicine in other cultures and countries around the world is experienced in an elective period at the start of the final year of study. This final year concentrates on preparation for practice as a junior doctor and concludes with a comprehensive assessment of the appropriate knowledge, clinical and practical skills required. The School of Medicine aims to educate individuals who at all times put consideration of patients as their first priority during their clinical training.

5. Translate the text from Russian into English. You may consult a dictionary.

Англосаксонская система медицинского образования

Медицинское образование в англосаксонских странах состоит из четырех циклов: общего «домедицинского» высшего образования, общего медицинского (undergraduate) образования, затем следует

цикл последипломного образования и цикл дальнейшего образования, т.е. повышения квалификации, специализации и т.п.

Задача первого цикла – дать общую подготовку в области естественных наук. Она обычно решается вне стен медицинской школы и заканчивается получением степени бакалавра (или ее эквивалента).

Программы второго цикла – общего медицинского образования – существенно различаются. Обучение в США продолжается обычно четыре года, в Великобритании – пять. Сначала читаются курсы, связанные со строением человеческого тела: анатомия, гистология и эмбриология. Одновременно после них – курсы, связанные с функциями человеческого тела: физиология, биохимия, фармакология, иногда биофизика. На первых курсах читаются также курсы по психологии, биостатистике, организации здравоохранения, алкоголизму, экстренной медицине и др.

Затем следуют два или более года занятий, в течение которых основной акцент переносится на работу студентов в клинике, а число лекционных занятий сокращается. В этот период студенты все чаще вступают в контакт с пациентами, обследуют их и в небольших группах обсуждают их диагнозы и лечение.

После окончания медицинской школы молодой врач обычно стремится попасть в программу подготовки врачей при каком-нибудь госпитале. В Великобритании работа ординатором в течение года – непременное условие получения разрешения на самостоятельную практику. После завершения данного цикла принимаются различные меры, которые должны стимулировать врача продолжить образование и периодически повышать свою квалификацию (четвертый цикл).

Writing

Writer's Guide

You should remember each piece of writing you do is different.

First of all, you have to know who your reader is. This tells you how formal your writing should be. In general, use formal language with strangers and people who are in authority (teachers, tutors, etc.). Use informal language with people you know personally (family members, friends, pen friends, etc.).

Secondly, you have to know why you are writing. Your purpose affects what you write.

Thirdly, you have to know what type of text you are writing.

A. You are going to take part in an international educational exchange program. The program organizers asked you to fill in the following form.

Personal Profile
Exchange Program Participants

Personal Information

First name (1)	
Surname (2)	
Address (3)	
Date of birth (4)	
Place of birth (5)	
Sex (male/ female) (6)	
Age (7)	
Medical school/ university attended (8)	
Foreign languages (9)	
Favorite subjects (10)	

Требования к заполнению анкеты

№	Что требуется в анкете	Рекомендации	Примеры
1.	Полное имя Full name	Пишется сначала имя, потом фамилия. Отчество можно не указывать, если оно не выделено в специальную графу.	Tamara Alexandrovna Kovalenko
2.	Домашний адрес Home address	1. В принятом в Великобритании порядке: номер квартиры, корпуса, дома; улица, город, (почтовый индекс факультативно), страна. 2. Слова Flat, Block, Street, Avenue, Ulitsa, Prospect пишутся с заглавной буквы. 3. Можно использовать общепринятые сокращения, которые следует пи-	Flat 29 Block 1 20 Sofiskaya St St. Petersburg 197025 Russia Fl, Apt, St, Ave, Ul, Pr

		сать с заглавной буквы.	
3.	Дата Date	1. Может быть написана словами или цифрами. 2. Названия месяцев пишутся с заглавной буквы. 3. В зависимости от задания (адресата) может использоваться британский вариант: дата/ месяц/ год или американский вариант: месяц/ дата/ год.	British: 4 January 2016; 4 Jan 2016; 4th Jan 2016; 4th January 2016 4/1/2016; 04/01/2016; 4-1-2016; 04.01.2016; 04-01-2016 American: January 4, 2016; 4th January, 2016; Jan 4, 2016; Jan 4th 2016 1/4/2016; 01/04/2016; 1-4-2016; 01-04-2016; 01.04.2016
4.	Школа/ Университет School/ University	1. Слова School/ University используются факультативно, пишутся с заглавной буквы. 2. Знак «номер» может быть британским или американским в зависимости от задания.	School/ University # 102;
5.	Предметы Subjects	1. Названия языков всегда пишутся с заглавной буквы. 2. Названия отдельных предметов можно писать, как с заглавной, так и с маленькой буквы.	French, English Anatomy, history
6.	Гражданство Nationality	Английское слово «Nationality» соответствует русскому слову «граждан-	Russian Russia Russian Federation

		ство» и не предполагает указания этнической принадлежности обучаемых.	
7.	Религия Religion	Название религии пишется с заглавной буквы.	Orthodox/ Catholic/ Muslim/ Protestant/ Buddhist/ Jewish/ none/
8.	Место рождения Place of birth	Географические названия пишутся с заглавной буквы. Возможна разная степень детализации, но соблюдается общий принцип в порядке написания от меньшего к большему: город, страна; деревня, область, страна.	St. Petersburg, Russia Utkino Village, Yaroslavl Region Russia
9.	Пол/ Sex		Male/ Female; m/f, M/F
10.	Интересы и увлечения	При ответе используются существительные и герундий.	History, cooking, travelling

B. Study Ann Scott's Curriculum Vitae (CV) carefully to see how she has presented the information about herself. Where do you think each of the following headings should be placed?

References, Activities, Personal Details, Education, Skills, Professional Experience

1._____

Ann Scott
45 Hanover Street
Edinburg EH2 5LM
Scotland
Phone: 0131 669 0537
E-mail: ANN.scott@caledonia.net

2._____

1993-2000 The Royal College of Physicians, Diploma of the Royal College of Obstetrics and Gynaecology, MD
1991-1993 Keele University of Manchester

1986-1991 Glasgow Medical School, MBChB

3._____

2000-present The Royal Infirmary, consultant
Responsible for a specific number of patients in the hospital
1993-2000 Specialty Registrar in a hospital
1991-1993 Foundation House Officer

4._____

IT Office 2000 and Windows NT, Excel, Internet, PowerPoint
Languages Fluent English and proficient in French
Additional Driving license (car)

5._____

Cross-country skiing, swimming
Ski instructor (grade 2)
Member of the local branch of «Action», an association organizing sports activities for disabled children

6._____

Doctor Stanton, MD University of Birmingham Medical School
Brenda Denton, Sports Instructor

C. Draft your own CV and show it to a partner. Ask him/ her to evaluate it using these check points:

- Does it look good?
- Does it list experience starting from the present?
- Is it too long/ too short?
- Is the contact information clear?
- Does it provide a good basis for an interview?

U N I T III
ABOUT MYSELF AND MY SCIENTIFIC RESEARCH

ABOUT MYSELF

Study the words and word combinations:

1. to be born	- родиться
to go to/ to leave school	- ходить/ окончить школу
to get interested in	- интересоваться
2. to enter the academy (university)	- поступить в академию (университет)
to join a students' society	- заниматься в научном студенческом обществе
to graduate from the academy (university)	- окончить академию (университет)
3. to complete an internship (a residency) in…	- окончить интернатуру (ординатуру) по…
to get an appointment as a physician (junior researcher)	- занять должность врача (младшего научного сотрудника)
to join a department (clinic, laboratory)	- поступить на кафедру (в клинику, лабораторию)
4. to pass entrance examinations	- сдать вступительные экзамены
to be a 1st year post graduate student	- быть аспирантом 1-го года обучения
to attend lectures (classes, seminars) in…	- посещать лекции (практические занятия семинары) по…
field in medicine	- отрасль медицины
5. to examine and treat patients	- осматривать и лечить больных
to perform surgical operations	- оперировать
to carry out research (laboratory tests)	- проводить научные исследования (лабораторные исследования)

Read the text and be ready to speak on yourself using the answers to the following questions:

1. When and where were you born?
2. What are your parents?
3. Why did you decide to be a physician?
4. Did anybody influence your choice of the future profession?

5. You attended school in St. Petersburg, didn't you?
6. Are you married?
7. Do you have children?
8. What is your medical education? Where did you receive your education?
9. Did you work anywhere after graduation?
10. Did you do further studies after graduation?
11. What is your field in medicine?
12. What department (clinic) are you a post-graduate student of? And what educational institution?
13. What impressed you most when you joined your department (clinic)?
14. What activities are you engaged in at present?
15. What are your plans for the nearest future?

About Myself

My name is Anna Smirnova. I was born in St. Petersburg on the 10th of April, 1991. I'm the only child in my family. Medicine is our family's field of science. My grandparents and my father are surgeons, my mother is a biologist. I am single and haven't yet thought about children.

I am a 1st year post graduate student of Petrov Research Institute of Oncology, widely known for the quality of its research and teaching. I am lucky to have an opportunity to combine a career of a physician with that of a researcher.

I graduated from the Military Medical Academy (the 1st Medical State University) in 2013. After graduation of the academy (university) I completed an internship in general surgery. After that I've got an appointment as a physician in a surgical department of a municipal hospital and tried to do my best to obtain skills necessary for a general surgeon. I assisted in many elective operations of my department and performed myself minor surgery. There I took interest in oncology.

Nowadays my dream came true. Last July I passed my entrance examinations into the post graduate programme and entered the Department of Head and Neck of Petrov Research Institute of Oncology. I am as busy as a bee. I have post graduate studies, treat patients, and do my research.

MY SPECIALITY

Study the words and word combinations:

1. clinical director of the (*Kent and Medway*) Cancer Network	- заместитель по клинической работе многопрофильного онкологического учреждения, входящего в национальную сеть (*Великобритании*)
2. NHS (*National Health Service*) Trust	- Траст Национальной системы здравоохранения
3. medical house officer	- штатный врач, живущий при больнице
4. sabbatical	- отпуск для научной работы или путешествия (*обычно годичный оплачиваемый отпуск преподавателя университета, предоставляемый один раз в 7 лет*)
5. to apply for job	- подать заявление о приеме на работу
6. SHO (*senior house officer*) post	- должность ординатора (*в Великобритании врач, проходящий подготовку по выбранной специальности в стационаре*)
7. (Human) Genome Project	- проект «Геном человека» (*международный проект по расшифровке полной последовательности генома человека*)
8. sophisticated	- передовой, современный

Read the story and be ready to discuss it:

Inside Medicine – The Oncologist

from BBC News, 2015

In a series focusing on medical specialists Professor Roger James talks about oncology.

Oncology is the area of medicine that deals with the study and treatment of cancer.

What is your job? I am the clinical director of the Kent and Medway Cancer Network and the clinical director of the Cancer Unit at Maidstone and Tunbridge Wells NHS Trust.

What is the most common condition? I specialise in the non-surgical treatment of colorectal cancer. This means I treat patients with radiotherapy and chemotherapy with this condition. Patients receive radiotherapy in the Cancer Centre and chemotherapy in the Cancer Unit.

What is the most common procedure? The most common procedure in my practice is chemotherapy. Patients receive chemotherapy usually by injection. Occasionally patients receive it by tablets. My responsibility is to monitor the side-effects of the chemotherapy, as well as monitoring the cancer.

What is the hardest thing about your job? Breaking bad news to patients with regard to the terminal phase of there is the hardest thing about my job. Everyone likes to feel that they will live forever.

What is your most satisfying case? I think when we can manage this difficult phase of life in a creative way. We can deal with it in such a way that the patient and relatives are satisfied that the death, as and when it comes, is not as frightening as it would have been.

Why did you choose this specialty? My father developed colorectal cancer when he was in his early 50s. My initial degree was, however, in biochemistry and I came to medicine purely by chance. I also came to oncology by chance. My first job as a doctor, following medical school, was in Southend. As a medical house officer, my responsibility was to look after cancer patients for the two radiotherapists who worked there. I eventually went on a three-year sabbatical to Africa and I was applying for jobs in the UK. The radiotherapist who I worked closest with in Southend kindly offered me an SHO.

If you had your time again would you change your specialty? No, I would not.

How do you see the role developing in the future? In my view, there are very exciting developments at the moment in cancer treatment, mainly based on the Genome Project. Chemotherapy and radiotherapy are becoming more sophisticated and patients' lives are becoming more liveable. The United Kingdom is unusual in having a very sophisticated approach to cancer, probably the envy of the world. This is based on a series of thirty four cancer networks (in England).

Work in pairs. Discuss the following questions:

A.

1. What is the subject of your thesis?
2. Have you already published any articles?
3. Where and when did you publish them?
4. What are the titles of your published papers?
5. What problems do you deal with in those papers?
6. What are you going to prove in the course of your research?

7. Is there much or little material published (in English) on the subject of your investigation?
8. What is of particular interest in your thesis?
9. How many parts does your thesis consist of?
10. Are there any shortcomings in your thesis, do you think? What are they?

B.

1. In what field of science do you carry on research?
2. What do you base your experiments on?
3. Do you combine theoretical research with applied studies?
4. How do you plan your experiments?
5. Do you work alone or in collaboration with your fellow workers (colleagues)?
6. Have you already collected and arranged necessary data (observations)?
7. When do you usually consult your scientific adviser?
8. Who is the head of your department (clinic)? Is he your scientific adviser? Who is you adviser (supervisor)?
9. What is he distinguished for?
10. Is he the author of any textbooks or monographs?

C.

1. Do you work at your thesis? Have you started to work at your thesis?
2. What part of your dissertation have you already completed? Is the experimental part of your work completed?
3. Have you any publications on the subject you study?
4. When are you supposed to complete your thesis?
5. What science degree do you expect to get?
6. In what field do you carry on your research?
7. Are you a theoretician or an experimentalist?
8. What problems do you investigate?
9. Do you study a new area of medical science?
10. Do you carry on research individually or in a team?
11. What is the object of your research?
12. What methods do you employ in your work?
13. Do you develop (work out) various methods of treatment?
14. What do you do with the data you obtain?
15. Is it difficult to analyze the results?

PETROV RESEARCH INSTITUTE OF ONCOLOGY

Study the words and word combinations:

1. to be affiliated with	- быть присоединенным к чему-либо
2. to appoint	- назначать
3. research facility	- научно-исследовательский комплекс
research activities	- исследовательская деятельность
4. implementation	- выполнение; *зд.* внедрение
5. state-of-the-art	- современный
6. UICC, an international membership organization «Fighting cancer together»	- Международный союз по борьбе с онкологическими заболеваниями

Read the text and answer the following questions:

1. When was Petrov Research Institute of Oncology founded? Where is it situated?
2. Who was the first director of the institute?
3. What is its main mission?
4. What are the most significant research activities of the institute?
5. When did the institute become an associate member of UICC?

Petrov Research Institute of Oncology

Prof. N.N. Petrov Research Institute of Oncology was founded on the 15th of March, 1927 in Leningrad. It was firstly affiliated with the I.I. Mechnikov Multidisciplinary Hospital. By 1937 the institute had the largest clinic to provide surgical, radiation, and complex treatment of malignant tumours. Professor N.N. Petrov, the founder and initiator of the Russian oncology, was appointed as the first Director of the institute (from 1927 to 1941). In 1966 his name was given to the institute.

Nowadays the institute is situated at 68 Leningradskaya Street, Pesochny settlement, Saint-Petersburg. It consists of a cancer hospital (405 beds) and research facility (8 laboratories).

Petrov Research Institute of Oncology has the State License for performing research, clinical and experimental activities in the field of oncology as well as educational, international and editorial work. The institute has an extensive experience in various aspects of cancer investigation and treatment. It provides surgical, therapeutic and radiological treatment

for all major types of cancer to 8000 patients per year and its main research activities include studies of molecular mechanisms of cancer development, chemical carcinogenesis, age-related and endocrine aspects of cancer formation, as well as implementation of new methods of prevention and detection of cancer, surgery, radiotherapy, chemotherapy and combined treatment of adult and pediatric cancer patients, along with follow-up and rehabilitation.

Clinical trials include the evaluation of efficacy of various screening programmes and state-of-the-art high-technology treatment approaches. Laboratory investigations are related to the analysis of somatic and inherited mutations, single nucleotide polymorphisms, gene expression abnormalities, morphological and immune-histochemical studies, detection of protein cancer markers in various body fluids, animal studies, etc.

The institute possesses large collection of archival tissues (more than a million tumour and normal tissue samples obtained from 270 000 patients since 1926).

Petrov Institute of Oncology employs more than 200 scientists, highly qualified medical and technical staff. It is appropriately equipped to decide multifactorial tasks, contains laboratory rooms, vivarium, facilities for radioactive isotopes, etc.

Since 1992 Petrov Research Institute of Oncology is an associate member of UICC, an international membership organization «Fighting cancer together».

Vocabulary Exercises

1. Translate words and word combinations:

the founder and initiator of the Russian oncology; cancer hospital and research facility; an extensive experience in various aspects of cancer investigation and treatment; to provide surgical, therapeutic and radiological treatment for all major types of cancer; implementation of new methods of prevention and detection of cancer; follow-up and rehabilitation; efficacy of various screening programmes and state-of-the-art high-technology treatment approaches; archival tissues; highly qualified medical and technical staff.

2. Give synonyms to the following verbs. Model: 0 – A

0. to have	*A. to possess*
1. to investigate	**B.** to contain
2. to affiliate (with)	**C.** to perform

3. to consist (of)
4. to implement
5. to relate (to)

D. to associate (with)
E. to research
F. to attach

3. Match the word with its definition. Model: 0 – A

0. organization	*A. a group of people set up for a particular purpose*
1. institute	**B.** a place where sick or injured people are looked after
2. clinic	**C.** an indoor enclosure for keeping and raising living animals and plants and observing them under natural conditions
3. laboratory	**D.** organization for a special (usually a social or educational) purpose
4. hospital	**E.** a small hospital or a department in a large hospital which specializes in the treatment of particular conditions
5. vivarium	**F.** a special room or place where scientists can do specialized work such as research, the testing of chemical substances or the growing of tissues in culture

4. Reread the text. Choose the correct variant.

1. Professor N.N. Petrov was … as the first Director of the institute.
a) admitted, b) attributed, c) appointed

2. The institute was firstly … with the I.I. Mechnikov Multidisciplinary Hospital.
a) affiliated, b) situated, c) related

3. The institute has an extensive … in various aspects of cancer investigation and treatment.
a) experience, b) sphere, c) area

4. Its main … activities include studies of molecular mechanisms of cancer development, chemical carcinogenesis, age-related and endocrine aspects of cancer formation, etc.
a) educational, b) research, c) international

5. Since 1992 Petrov Research Institute of Oncology is an associate member of …, an international membership organization «Fighting cancer together».
a) UN, b) WHO, c) UICC

5. Translate the text from Russian into English using the following word combinations:

1. усовершенствование при кафедре хирургической пропедевтики	- refresher course at the department of surgical propaedeutics
2. защитить докторскую диссертацию	- to prove a doctoral thesis
3. приват-доцент (*устар.*)	- privat-docent (*unestablished university lecturer*)
4. удостоить почетным званием	- to give a honorary title
5. Герой Социалистического Труда	- the Hero of Socialist Labor

Николай Николаевич Петров родился в 1876 году в Петербурге. В 1899 году он окончил Военно-медицинскую академию и был оставлен для усовершенствования при кафедре хирургической пропедевтики проф. М.С. Субботина. В 1902 году защитил докторскую диссертацию, а в 1905 году он был избран приват-доцентом хирургии ВМедА.

В 1921 году Н.Н. Петров был избран профессором кафедры госпитальной хирургии Ленинградского медицинского института, но оставил ее в 1926 году в связи с назначением на пост директора организованного по его инициативе Института онкологии. Эту должность он занимал до 1941 года, а затем был научным руководителем института.

Н.Н. Петровым написано более 300 научных работ. Широкую известность во всем мире он приобрел своими трудами в области онкологии.

Н.Н. Петров является основоположником отечественной онкологии. Многие его ученики возглавляют кафедры хирургии и онкологии. Он удостоен многих почетных званий и наград. В 1957 году ему было присвоено звание Героя Социалистического Труда.

Умер Николай Николаевич Петров в 1964 году.

AT THE SCIENTIFIC CONFERENCE

Study the phrases and be ready to make up a dialogue «At the scientific conference»:

1. What is the subject of the conference? - It is concerned with the present day problems of malignant disease.	Какой проблеме посвящена конференция? - Она связана с современными проблемами онкологии.
2. What is the number of the participants? - We believe about 200 delegates take part in/ attend it.	Каково число участников? - Мы полагаем, на конференции присутствует около 200 делегатов.
3. Are any foreign delegates invited? - Yes, they are.	Приглашены ли иностранные делегаты? - Да, приглашены.
4. In what way are language difficulties dealt with? - The simultaneous translation of all reports into English and German is provided for foreign delegates.	Как решаются языковые проблемы? - Для иностранных участников конференции выполняется синхронный перевод всех докладов на английский и немецкий языки.
5. How many sections are at work? - 7 ones.	Сколько работает секций? - 7.
6. How many sessions are held? - 12 ones.	Сколько будет заседаний? - 12.
7. Are the abstracts published? - Yes, they are. All the abstracts are being published before the conference.	Публикуются ли тезисы докладов? - Да. Тезисы всех докладов публикуются до конференции.
8. Do you deliver a report at the conference? - Yes, I do/ No, I don't.	Вы выступаете с докладом на конференции? - Да/ Нет.
9. What is the theme/ subject of your report? - It is…	Какая тема Вашего доклада? - Тема моего доклада…
……	.....
1. Have you received an invitation to participate in the international (jubilee, research/ scientific) conference? - Yes, I have. I hope to take part in it.	Вы получили приглашение участвовать в международной (юбилейной, научной) конференции? - Да. Я надеюсь принять в ней участие.

2. When and where is the conference to be held? When and where will the conference take place? - (It is to be held) in St. Petersburg in March next year.

Где и когда проводится конференция? - Она будет проходить в С.-Петербурге в марте следующего года.

3. Have I to send my abstracts to the organizing committee? - Yes, it would be better to do it in advance/ beforehand. The abstract should be of 1,5 pages.

Должен ли я представить тезисы в организационный комитет? - Да, лучше Вам сделать это заранее. Тезисы должны содержать не более 1,5 страниц.

4. How much time is given to a speaker for presenting a paper? - No more than 15 minutes.

Сколько времени отводится докладчику для выступления? - Не более 15 минут.

5. How many papers will be presented at the session? - I think 10-12 reports will be.

Сколько докладов будет на каждом заседании? - Я думаю, что 10-12 докладов.

6. What language is the conference held/ conducted/ run? - The working language is English.

На каком языке проводится конференция? - Рабочий язык конференции - английский.

7. Who is the chairman (co-chairman, speaker?) - Professor B. is.

Кто председатель (сопредседатель, докладчик)? - Профессор Б.

8. Who chairs the afternoon (morning, evening, ceremonial/ gala, closing/ final, opening) session? - Academician C. does.

Кто председательствует на дневном (утреннем, вечернем, торжественном, заключительном, открывающем конференцию) заседании? - Академик С.

9. Where is the organizing committee (conference hall, exhibition hall, information desk, interpreter desk)? - Please, go straight (to the right, this way).

Где находится организационный комитет (зал заседания, выставочный зал, стол информации, стол перевода)? - Пройдите, пожалуйста, прямо (направо, сюда).

10. Where is the opening ceremony (general discussion, official banquet) held? - It takes place in the conference/ lecture hall, restaurant.

Где проходит церемония открытия (общая дискуссия, официальный банкет)? - В зале заседаний, в ресторане.

11. What is the agenda? - The agenda is as follows…	Какая повестка дня? - Повестка дня следующая…
12. What is/ are today's social program/ recreational activities? - It includes sightseeing tours and visit to the museum.	Какая сегодня культурная программа? - Она включает экскурсии по городу и посещение музея.

SCIENTIFIC CONFERENCE

Study the words and word combinations:

1. sitting	- заседание
to convene	- созывать (*собрание, съезд*); собираться
to cease	- переставать, прекращаться
to commence	начинать(ся)
2. First/ Preliminary Circular/ Announcement	- предварительная информация
Application Form	- бланк заявки на участие в конференции
3. contribution	- *зд.* сотрудничество
4. reservation	- *зд.* предварительный заказ (*в гостинице*)
enrolment fee	- регистрационный взнос
5. Chairman	- председатель
to preside (at)	- председательствовать
6. promoter	- инициатор, организатор
7. to elect	- избирать, выбирать
8. nomination	- выдвижение кандидатур, назначение на должность
9. to put to the vote	- ставить на голосование
vote by show of hands	- открытое голосование
paper vote	- голосование бюллетенями
vote of thanks	- заключительная речь с выражением благодарности
10. to take the floor	- выступить, взять слово
11. minutes of the meeting	- протоколы собрания
12. to thrash out	- тщательно обсуждать, выяснять
13. to draw (drew, drawn) up	- составлять, выбирать (*проект*)
14. to submit	- представлять на рассмотрение

15. Drafting Committee - редакционный комитет по выработке проекта решения

draft resolution - проект резолюции

motion - *зд.* предложение (*на собрании*)

amendment - поправка (*к резолюции*)

Read the text and answer the following questions:

1. Who is a scientific conference or session convened by?
2. What is an Organizing Committee of a conference? When does it cease to exist?
3. What does the First Circular acquaint the participants of the conference with?
4. What is an Application Form? Why is it sent together with the First Circular?
5. What is the Second Circular and what does it contain?
6. The abstracts of the conference are distributed to the participants on the arrival, aren't they?
7. Who is the course of the conference directed by?
8. How is the Chairman elected? Is it customary for the newly elected Chairman to thank the members for placing their confidence in him?
9. What duties have the Chairman?
10. Who presides at the conference in the absence of the Chairman? Has the Vice-Chairman the same rights and duties as the Chairman?
11. Who is the agenda of the conference read by?
12. What do you think an apology letter is?
13. What is the procedure for taking the floor at a conference?
14. How is the person who occupies the Chair addressed? How should a speaker address the audience?
15. Why is it highly advisable to exercise the speech beforehand? Is it the rule to read the report or to deliver it without any notes?
16. What should the Chairman require from every speaker?
17. What does the Secretary of the conference do? What are the minutes of a conference and what must they show?
18. When is a committee or a section at a conference formed?
19. What is a Drafting Committee?
20. How does a conference end?

Scientific Conference

Any scientific conference or session is usually convened by an Organizing Committee of a national or international character. As a rule the Organizing Committee ceases to exist after the first sitting of the conference as it is replaced by an elected group.

Initially an Organizing Committee sends to all the establishments the so-called First Circular or Preliminary/ First Announcement that states general information about the conference/ session. Such an announcement acquaints the participants with the main program of the future conference, order of Plenary Sessions, working languages, rules of scientific contributions, social programs, information about registration, correspondence, hotel reservations, necessary expenditure, etc.

The First Circular usually contains a Preliminary Application Form which gives information on participation. Those who want to attend the conference/ session should complete the form and mail it without delay. This will ensure the applicant to receive further information in the Second Circular. Such an answer will help the organizers to plan better the work of the conference.

Further details are usually stated in the Second Circular, which is distributed to all the applicants who have returned the Preliminary Application Form before the conference starts.

The Second Announcement contains information as to the date of the conference, commissions, participation and registration, premid-, and post-conference tours, scientific visits, and hotels, living accommodations, enrolment fees, Ladies' program, and everything considered necessary for the participants to make maximum use of the occasion.

Any remaining communications (such as abstracts, list of participants, diary of the session, program of recreational activities, etc.) will be distributed on the arrival of the participants.

The course of any conference is directed by a Chairman.

It is the duty of the promoters of the meeting to elect the Chairman. Usually those present are asked for nominations. If a nomination is offered somebody has to second it. After that the name which has been proposed and seconded is put to the vote. This is done either by a show of hands or by a paper vote.

It is customary for the newly elected Chairman, before commencing his duties, to thank the members for placing their confidence in him.

The success of the meeting depends considerably on the capabilities of the Chairman. His words are expected to be literally few. His address

should be much shorter than any of the speeches that follow. It is his duty to introduce each of the speakers on the list, usually with a few personal remarks.

The Chairman directs the debates, maintains order, sees that all the participants have a fair hearing, closes the debates when necessary, puts questions to the vote and announces the results of the vote.

In the absence of the Chairman the duly elected Vice-Chairman presides. He acts like the Chairman and has the same duties.

When the meeting is opened, the first matter for the Chairman is to read the agenda and to explain the work to be done by the conference. Then the Chairman reads the correspondence requiring consideration, including letters of apology for absence.

Anyone who wants to take the floor should ask the Chairman beforehand or by simply raising his hand after the Chairman opens the discussion.

Participants and speakers stand when speaking and must preface their words with the proper formulae: «Mr. Chairman, Ladies and Gentlemen…», «Mr. Chairman, Dear Colleagues…» or «Mr. Chairman, Friends and Comrades…». To address the Chairman is obligatory in British practice of public meetings. When a lady takes the Chair, she should be addressed as Madam Chairman.

Addressing the audience the speakers must begin in moderate tone pronouncing every word slowly and distinctly to attract initial attention. It is highly advisable to exercise the speech beforehand in order to avoid disappointment.

It is very rare that a report is actually read even during scientific conferences. Besides, papers presented at Plenary Sessions are distributed to the delegates in a printed form.

The Chairman may require every speaker to keep to the point at issue, to avoid repetition and to use language of a respectable character.

On some occasions the Chairman has to be repeatedly asking for silence. It is highly important for him to know how to act when disorder does occur.

At each conference a Secretary sits on the platform close to the Chairman and makes notes from which the minutes must be written up. As a rule they show only main ideas of the speakers and the decisions recorded at the meeting.

When a conference cannot devote sufficient time to a specific matter a committee or a section is appointed to thrash out the business. Such a

committee is free to appoint its own Chairman and to meet when it is convenient. Practice shows that a small committee can always get work done quicker than a large one. After all the points for consideration have been thrashed out, the committee draws up its report or its resolution which is submitted to the main body of the conference.

Any scientific conference or session may decide to adopt some resolutions or appeals to finish its work. Very often a Drafting Committee is elected to present a draft resolution. This one is studied thoroughly by delegates and they are free to make any alterations, propose their own version or even prepare a new resolution. All that is done in the form of a motion.

When motions are brought certain alterations may be suggested and they are spoken of as amendments to the original motions. All these amendments are discussed and a final resolution is adopted.

In such a way the meeting is coming towards the end. The final duty of the Chairman is to call upon a member to make a vote of thanks.

In his closing speech the speaker must express gratitude to the Chair, the contributors, the sponsors, the audience and the services. He should also try to mention favorably as many names as possible. The last speech often includes a very general expression of gratitude to local administration for organization of the conference and for hospitality. After that the Chairman declares the conference closed.

Vocabulary Exercises

1. Translate words and word combinations:

as a rule; to mail without delay; to receive further information; the course of the Conference; to proceed to the agenda; to direct the debates; to maintain order; to take the floor; the point at issue; to thrash out the business; to devote sufficient time to a specific matter; a draft resolution; to adopt a resolution; to make alterations; to express gratitude to somebody.

2. Correlate verbs with the right nouns. Model: 0 – A.

0. to put (to)	*A. the vote*
1. to mail	**B.** the Chairman
2. to address	**C.** a nomination
3. to complete	**D.** order
4. to take	**E.** the audience
5. to elect	**F.** a letter

6. to offer	**G.** an application form
7. to maintain	**H.** the floor
8. to avoid	**I.** recommendations
9. to keep (to)	**J.** a resolution
10. to submit	**K.** disappointment
11. to make	**L.** the point
12. to adopt	**M.** a report

3. Paraphrase the following sentences. Remember:

instead of	*we can say*
first circular	preliminary announcement
to complete	to fill in
to receive	to get
to direct	to guide
promoter	initiator
to second	to support
to commence	to begin
matter	thing
to take the floor	to speak
to exercise	to train
to submit	to present for consideration
to appoint	to nominate
points for consideration	items
alteration	change
to come towards the end	to end

or you may suggest your own variant

1. Initially an Organizing Committee sends to all the establishments the so-called First Circular.
2. Those who want to attend the conference should complete the Application Form and mail it without delay.
3. This will ensure the applicant to receive further information.
4. The course of any conference is directed by the Chairman.
5. It is the duty of the promoters of the meeting to elect the Chairman.
6. If a nomination is offered somebody must second it.
7. It is customary for the newly elected Chairman, before commencing his duties, to thank the members for placing their confidence in him.
8. When the meeting is opened, the first matter for the Chairman is

to read the agenda.

9. Anyone who wants to take the floor should ask the Chairman beforehand or by simply raising his hand.

10. It is highly advisable to exercise the speech before the conference.

11. If the reports are submitted to the Secretary it is not necessary to set them out in full; a reference in the minutes by which the report may be identified will usually be enough.

12. Committee is free to appoint its own Chairman and to meet when it is convenient.

13. After the points for consideration have been thrashed out, the committee draws up its report or its resolution which is submitted to the main body.

14. When motions are brought certain alterations may be suggested and these ones are spoken of as amendments to the original motions.

15. In such a way the meeting is coming towards the end.

4. Fill in prepositions if necessary.

1. The Organizing Committee ceases to exist … the first sitting … the conference as it is replaced … an elected group.

2. Further details are usually stated … the Second Circular, which is distributed … all the applicants ... the conference itself.

3. The course … any conference is directed … a Chairman.

4. It is the duty … the promoters … the meeting to elect … the Chairman.

5. The vote is done either … a show … hands or … a paper vote.

6. It is customary … the newly elected Chairman, … commencing his duties, to thank … the members … placing their confidence … him.

7. The success … the meeting depends considerably … the capabilities …, the Chairman.

8. It is the Chairman's duty to introduce … each … the speakers … the list usually … a few personal remarks.

9. ... each conference a Secretary sits … the platform close … the Chairman and makes notes … which the minutes must be written

10. The last speech often includes a very general expression … gratitude … local administration … organization … the conference and … hospitality.

U N I T IV
EXAMINATION OF A PATIENT

Situation № 1

Work in groups. Read the scenario and check if you want to add any steps to the plan below.

Mr. Smith, a 72-year-old patient, has been diagnosed with mesothelioma. He has only got several months left to live. You have to inform his daughter about this and talk about pain management. The father has given consent for his daughter to be informed.

Plan:
Introduction/ Greeting
'Warning shot'
Informing the daughter
Length of time left (be vague)
Sympathizing/ empathizing
Care in the home
Pain management
'Leaving the door open' for the future

- Decide which of these you think the patient's daughter might say and where they fit in the plan.

1. I don't really know what mesothelioma is.
2. Well, I thought it might happen like this.
3. He hates being in a hospital.
4. He'd rather be at home.
5. I'd like to look after him at home.

- Work in pairs. Take turns role playing the doctor and the patient's daughter.

  Useful phases
  It's not easy to…
  It's a matter of …
  Would you like me to stop...
  We all go through a range of emotions…

Situation № 2

You are a therapist. You work at the hospital. After doctor's round you discuss with your colleague the patient's condition. The diagnosis of

the patient is duodenal ulcer.

- Name 10 medical terms which you can use in this situation (e.g. heartburn, nausea, vomiting, distress, exacerbation, faintness, loose tarry stool, hemorrhage, acid gastric juice, epigastrium).
- Make up a short dialogue. Use the following phrases.

to trouble

What troubles you?

- Heartburn troubles me.

to complain of

What do you complain of?

- I complain of nausea and weakness.

the first symptom

What was the first symptom? What was the onset of your disease?

- There was a burning pain at first.

Situation № 3

Your colleague wants to expand some information about the patient admitted to the hospital.

- Answer his questions. Give as full information as possible about the patient's condition.

General and Alternative Questions

Does the patient suffer from recurrent attacks of dyspnea (cough, wheezing)?

- Yes, he does. Dyspnea troubles him.

Is his blood pressure normal or low (increased = high/ decreased = low)?

- It is usually low.

Has he ever been X-rayed?

- Yes, his lungs were X-rayed.

Does epinephrine relieve acute pains?

- Yes, it does.

Special Questions

When did he fall ill?

- He fell ill a year ago.

What was the onset of the disease?

- There was breathlessness at first.

How is the disease developing?

- Pains (attacks, shortness of breath) intensified lately.

Situation № 4

During the doctor's round it is necessary to get closer information about the patient's condition for further prognosis. Your colleague makes up a report about the patient's condition.

- Expand the information using the following phrases.

1. The patient complained of … (true anginal pain).
2. Examination during an attack revealed … (an increased blood pressure, gallop-rhythm).
3. The ECG was/ shows … (normal, abnormal; evidence of coronary disease).
4. Nitroglycerin is … (the drug of choice).
5. The condition of the patient … (got worse/ better).

- Make up a short dialogue. Use the situation given above.

a) Work in pairs. Postgraduate-student A should start.

A: Play the part of a patient. Base your replies on the symptoms of angina:

chest tightness, squeezing sensation, choking, burning; radiation of pain to the arms, neck and jaw.

B: Play the part of a doctor. Find out what the patient is complaining of.

b) Work in pairs. You are a doctor. Decide how you can explain to the patient each stage of the examination and how you would instruct the patient.

c) Work in pairs. Practice preparing a patient for the following investigations. Explain, instruct, reassure and warn where necessary.

A: ECG / man, 68/ ? myocardial infarction.

B: Barium meal / woman, 23/ ? duodenal ulcer.

d) Work in pairs. Try to make a diagnosis on the basis of the information given on each patient.

A: The patient is a 26-year-old woman complaining of rapid pulse, high blood pressure, dropped heart beats.

B: The patient is a 38-year-old man with heartburn, vomiting, deterioration of his appetite.

Situation № 5

You discuss with your colleague an outbreak of the flue this autumn.

- Use the following plan.

Symptoms and signs: fever 1-7 days, nonproductive cough, sore throat, flushed face.

Laboratory findings: leucopenia is common. Proteinuria may be present.

Prevention – vaccination: to have some vaccinations against…

Treatment: bed rest, analgesics, sedative cough mixture, antibiotics.

Complications: acute sinusitis, otitis media, purulent bronchitis and pneumonia.

Prognosis: Duration of the uncomplicated illness is 1-7 days and the prognosis is good. Pneumococcal pneumonia is most common. Purulent bronchitis may result in chronic pulmonary disease and fibrosis that persist throughout life.

- Make up a short dialogue. Use the following phrases.

Doctor:	*Patient*:
1. What seems to be the problem? What troubles you?	- I noticed a rash on my face yesterday.
2. Does fever (cough, vomiting) bother you?	- I've got diarrhea (vomiting). - I've got $t^o = 37.5^oC$.
3. Have you any trouble with your throat (stomach)?	- I've got sore throat. - It hurts me on swallowing.
4. Does anyone else in your family suffer from this problem?	- My wife (son, daughter) suffered from dysentery. I had to look after her (him).
5. What infectious diseases did you have in the past?	- I had rubella (epidemic parotitis, whooping cough) as a child.
6. Have you noticed any change in your weight?	- I lost 2 kg in the past 3 weeks.
7. What's your appetite like?	- I lost it.

Situation № 6

The patient was admitted to the Oncology Department yesterday.

- Examine the patient asking him about his history, the type of his pain. Use the following phrases. The patient may ask you some questions. Be ready to answer them.

to trouble

What troubles you?

- I have a bad pain in my right breast.

to bother

How long have they/ has it been bothering you?

- The pains have been bothering me for a month.

character of pain

What is the pain like? What kind of pain do you feel? Can you describe the pain?

- I feel cutting (cramping, stabbing, dull, severe, mild, lasting) pain.

Did the character of pain change?

- Pains subsided (intensified/ decreased) lately.

Does it hurt you while palpating (while moving, breathing in/ out)?

- Yes, it does.
- No, it doesn't.

When does the pain get worse/ better?

- In the evening/ in the morning *or* by the evening/ by the morning, etc.

Questions to ask your oncologist about your treatment

1. What is your experience in treating this type of cancer?
2. What kinds of treatment do you recommend and why?
3. Are clinical trials or investigational agents an option for me?
4. What are the chances that the treatment(s) you suggest will be successful?
5. How long is treatment, typically?
6. What are the side effects of the treatment?
7. How do you determine if symptoms I am experiencing are normal or adverse responses to the medications or other treatment?
8. What will my quality of life be during and after treatment?

Situation № 7

You are discussing with your colleague-surgeon the post-operative condition of the patient.

- Make up a short dialogue. Use the following words and word combinations:

to be operated on for, to undergo an operation, an urgent (serious, complex) operation, postoperative condition (complication, complaints, care), to take out the stitches, to recover one's consciousness, to discharge from the hospital.

a) Work in pairs.

A: Play the part of a surgeon. You have performed a laparotomy on Mr. Hudson. You find occlusion of the superior mesenteric artery and gangrene of the small bowel. You resect most of the small bowel. Explain to Mr. Hudson's son or daughter what you have done.

B: Play the part of Mr. Hudson's son or daughter. Ask the surgeon about your father's operation. Ask him or her to explain the cause of your father's problem. Also ask him or her what his chances are for the future.

b) Work in pairs.

A: Play the part of a surgeon. Explain to the patient in simple terms

the purpose of appendectomy operation and how you will accomplish it.

B: Play the part of a patient. Ask about any points you don't understand.

Situation № 8

You are a perfusionist. You need to decide if the volunteer can be accepted as a donor.

- Make up a short dialogue. Ask a volunteer much valuable information about his condition and then advise him or her to donate or to postpone donations. Use the following phrases.

Life History

How old are you?
- I am 30.

Are you single (married)?
- I'm married.

What is your occupation?
- I'm an officer (a bus driver).

Is your occupation hazardous?
- No, it isn't.
- Yes, it is.

Have you got any harmful habits?
- Yes, I have. I'm a heavy smoker. (I'm addicted to alcohol.)
- No, I haven't.

Medical History

1. Are you in good health?
2. What troubles you?
3. What do you complain of?
4. Have you consulted a physician recently?
5. What infectious diseases did you suffer from?
6. Have you been in contact with any infectious cases?
7. Have you been operated on before and for what reason?
8. Have you been absent from work recently?
9. Have you ever had hepatitis?
10. Have you been vaccinated recently?
11. Have you taken any medicine recently? – I take minor tranquilizers (vitamin preparations).
12. Do you have any allergies? – I have manifestations of allergic disorders such as asthma (urticaria).
13. What is your blood group? What is your Rhesus factor?

Situation № 9

You and an internist are discussing indications and complications of blood transfusion.

- Make up a short dialogue. Use the following information:

blood transfusions are used

to restore blood volume after hemorrhage;

to improve the oxygen-carrying capacity of the blood in severe anemia;

to combat shock in acute hemolytic anemia;

to perform preoperative preparation.

complications of transfusion therapy

viral hepatitis, malaria, syphilis, allergic reactions;

pyrogenic reactions, bacterial contamination, circulatory overloading, air embolism, thrombophlebitis, electrolyte imbalance.

Situation № 10

You are seriously ill and want to ask questions about your condition, symptoms, diagnosis, treatment options. Study the following questions and make up a dialogue with a partner (doctor).

Potential questions to ask the doctor

Asking your doctor questions is an important part of managing your care. You will choose to ask specific questions based on your unique needs and interests, and those questions may change over time.

- Consider the following questions as you decide what you want to ask your doctor:

General information

1. What type of cancer do I have?
2. Where is it located?
3. What are the risk factors for this disease?
4. Is this type of cancer caused by genetic factors? Are other members of my family at risk?
5. How many people are diagnosed with this type of cancer each year?
6. What lifestyle changes - such as diet, exercise, and rest - do you recommend I make to stay as healthy as possible before, during, and after treatment?
7. Where can I find more information about my type of cancer?

Symptoms

1. What are some common symptoms of this type of cancer?
2. How can I prevent or manage them?

3. What are the treatment options for my symptoms?
4. Will certain activities make my symptoms worse?
5. What should I do if new symptoms arise or existing ones worsen?

Diagnosis

1. What diagnostic tests or procedures will I need? How often?
2. Where will I go to have the tests or procedures?
3. How can I prepare myself for them?
4. What will we learn from the tests or procedures?
5. When will I get the results, and how will I receive them? For example, will I receive them over the phone or at my next appointment?
6. What does my pathology report (laboratory test results) tell us about my cancer?
7. Will I need to repeat any tests or procedures if I seek a second opinion?
8. How and when would you recommend I communicate with loved ones about my diagnosis?

Staging

1. What is the stage of my cancer? What does this mean?
2. Has cancer spread to my lymph nodes or any other parts of my body?
3. How is staging used to help decide the best type of cancer treatment?
4. What is my prognosis, also called chance of recovery?

Treatment

1. What are my treatment options?
2. Which treatments, or combination of treatments, do you recommend? Why?
3. What is the goal of the treatment you are recommending? Is it to eliminate the cancer, help me feel better, or both?
4. What clinical trials (research studies involving volunteers) are open to me? Where are they located, and how do I find out more about them?
5. Who will be part of my cancer care team, and what does each member do?
6. How much experience do you - or other members of the cancer care team - have treating this type of cancer?
7. Will I need to be hospitalized for treatment, or will this treatment happen in an outpatient clinic?

8. What is the expected timeline for my treatment? Do I need treatment immediately?
9. How will this treatment affect my daily life? Will I be able to work, exercise, and perform my usual activities?
10. What are the short- and long-term side effects of this treatment?
11. Will this treatment affect my fertility (ability to become pregnant or father children)?
12. How will you treat side effects that I experience during treatment?
13. How can I keep myself as healthy as possible during treatment?

Clinical trials

1. What are clinical trials?
2. How do clinical trials help people with cancer?
3. Are any clinical trials treatment options for me?
4. What happens during a clinical trial?
5. What are the benefits and risks of participating in a clinical trial?
6. How will I be monitored while participating in a clinical trial?
7. What are my responsibilities during the clinical trial?
8. Are there any costs associated with my participation in a clinical trial?
9. Where can I learn more about clinical trials?

- Find more questions to ask the research team when considering a clinical trial.

Support

1. What support services are available to me? To my family?
2. May I contact you or the nurse if I have additional questions?
3. Whom should I call with questions or concerns during non-business hours?
4. Can you recommend a social worker to help locate support services?
5. Where can I find resources for children? For teenagers? For young adults? For older adults?
6. If I'm worried about managing the costs related to my cancer care, who can help me with these concerns?
7. Who handles health insurance concerns in your office?

Follow-up care

1. What follow-up tests will I need, and how often will I need them?
2. Is there anything else I should be asking?

MODULE II
FUNDAMENTAL AND CLINICAL MEDICINE

U N I T V
MORPHOLOGY AND PHYSIOLOGY

Morphology is the study of the structure and shape of living organisms.

Physiology is concerned with study of the functions, i.e. the living processes of organisms, and of their organs, tissues, and cells, and of the structural elements of cells.

Texts:
Organization of the Cell
Skeleton
Organ Systems
Organ Systems: Processing and Transporting

Grammar:
Predicate: Verb. Tense Forms. Active and Passive Voice
Modal Verbs
Subject: Noun. Pronoun
Plural Form of Nouns-Borrowings with Greek and Latin Origin
Formal Subject

ORGANIZATION OF THE CELL

Study the words and word combinations:

1. to make up (= to compose, = to constitute) - составлять; состоять из
2. to dissolve - растворять(ся)
to suspend - находиться во взвешенном состоянии
3. principal - главный, основной
abundant - многочисленный
prominent - значимый
4. property - свойство
5. quantity - качество

Read the text and answer the following questions:

1. What are different substances that make up the cell? What is their collective name?
2. Water is the principal fluid medium of the cell, isn't it? What is its concentration in the cell?
3. What is the main difference between structural proteins and functional ones?
4. What is the reason for lipids to be grouped together?
5. How do carbohydrates take part in the process of cell's nutrition?

Organization of the Cell

Different substances that make up the cell are collectively called protoplasm. It is composed mainly of five basic substances: water, electrolytes, proteins, lipids, and carbohydrates.

The principal fluid medium of the cell is **water**, which is present in most cells, except for fat cells, in a concentration of 70-85 %. Many cellular chemicals are dissolved in the water. Others are suspended in the water as solid particulates.

Important **ions** in the cell include potassium, magnesium, phosphate, sulfate, bicarbonate, and smaller quantities of sodium, chloride, and calcium. They provide inorganic chemicals for cellular reactions.

After water, the most abundant substances in most cells are **proteins**, which normally constitute 10-20 % of the cell mass. These can be divided into two types: structural proteins and functional ones.

The former are present in the cell mainly in the form of long filaments that are polymers of many individual protein molecules. A prominent use of such intracellular filaments is to form microtubules that provide the «cytoskeletons» of such cellular organelles as cilia and nerve axons. Extracellularly, fibrillar proteins are found especially in the collagen and elastin fibers of connective tissue and in blood vessel walls, tendons, ligaments as well.

The latter are an entirely different type of protein, usually composed of combinations of a few molecules in tubular-globular form. These proteins are mainly the enzymes of the cell and, in contrast to the fibrillar proteins, are often mobile in the cell fluid. Also, many of them are adherent to membranous structures inside the cell. The enzymes come into direct contact with other substances in the cell fluid and thereby catalyze specific intracellular chemical reactions.

Lipids are several types of substances that are grouped together be-

cause of their common property of being soluble in fat solvents. Especially important lipids are phospholipids and cholesterol, which together constitute only about 2 % of the total cell mass. Their significance is that they are mainly insoluble in water and, therefore, are used to form the cell membrane and intracellular membrane barriers that separate the different cell compartments.

Besides, some cells contain large quantities of triglycerides, also called neutral fat. In the fat cells, triglycerides often account for as much as 95 % of the cell mass. The fat stored in these cells represents the body's main storehouse of energy-giving nutrients.

Carbohydrates play a major role in nutrition of the cell. Most human cells do not maintain large stores of carbohydrates; however, carbohydrate in the form of dissolved glucose is always present in the surrounding extracellular fluid so that it is readily available to the cell. Also, a small amount of carbohydrate is stored in the cells in the form of glycogen, which is an insoluble polymer of glucose that can be depolymerized and used rapidly to supply the cells' energy needs.

Vocabulary Exercises

1. Translate words and word combinations:

cell: fat cell; cell mass, cell fluid, cell membrane, cell compartment, enzymes of the cell; cellular chemical, cellular reaction, cellular organelles, extracellular fluid;

substances: water, electrolytes, proteins, lipids, carbohydrates;

ions (in the cell): potassium, magnesium, phosphate, sulfate, bicarbonate, sodium, chloride, calcium;

proteins: protein molecule, structural protein, fibrillar protein, functional protein; long filaments, intracellular filaments, microtubules, cytoskeletons; combinations of a few molecules in tubular-globular form.

2. Give opposites to the following adjectives. Model: 0 – A

0. structural (protein)	*A. functional (protein)*
1. extracellular	**B.** contrast
2. former	**C.** scanty
3. similar	**D.** intracellular
4. abundant	**E.** insoluble
5. soluble	**F.** latter

3. Match the word with its definition. Model: 0 – A

0. cell	*A. a tiny unit of matter which is the base of all plant and animal tissue*
1. filament	**B.** a very small piece of matter
2. membrane	**C.** a substance through which something acts
3. particulate	**D.** a long thin structure like a thread
4. medium	**E.** a chemical material
5. substance	**F.** a thin layer of tissue which lines or covers an organ

4. Reread the text. Choose the correct variant.

1. Protoplasm is … mainly of five basic substances: water, electrolytes, proteins, lipids, and carbohydrates.
   a) provided, b) formed, c) composed
2. Many cellular … are dissolved in the water.
   a) chemicals, b) reactions, c) substances
3. Functional proteins are mainly the … of the cell.
   a) structures, b) enzymes, c) polymers
4. Lipids are several types of substances that are grouped together because of their common property of being … in fat solvents.
   a) insoluble, b) suspended, c) soluble
5. A small amount of … is stored in the cells in the form of glycogen.
   a) fat, b) carbohydrate, c) protein

SKELETON

Study the words and word combinations:

1. framework of bones - костный остов
backbone (= spine) - позвоночник
jawbone - челюсть (нижняя); (-s, *pl*. верхняя)
collar bone - ключица
breastbone (= sternum) - грудина
upper arm bone (= humerus) - плечевая кость
thigh bone - бедренная кость
adjacent - примыкающий, смежный; сопредельный
2. domed vault - куполообразный свод
3. column - столб
4. shoulder girdle - плечевой пояс

shoulder blade	- лопатка
5. movable/ immovable joints	- подвижные/ неподвижные суставы
hinge(d) joint	- блоковидный сустав
ball-and-socket joint	- шаровидный сустав
to joint	- сочленять, соединять (*при помощи составных частей*)
to join	- соединять(ся), присоединять(ся)
6. voluntary/ involuntary muscles	- произвольные/ непроизвольные мышцы
7. to fit into (= to fuse)	- *зд.* сопоставлять
8. to hold (held) away	- *зд.* отделять, разделять
9. to cause	- *зд.* заставлять
10. to operate	- 1) работать; действовать; 2) приводить в движение; управлять

Read the text and answer the following questions:

1. What is the skeleton? What is its main function?
2. How many elements does the skeleton consist of? Name them.
3. What is the skull?
4. How many types of joints do you remember?
5. What are the functions of voluntary and involuntary muscles?

Skeleton

The body is built on a framework of bones – the skeleton – that supports the muscles, blood vessels and nerves of the body, and gives protection to certain organs. Movement is made possible by muscles attached to the bones, and by movable joints where bones meet.

The Skeleton.

Bones of the head. The main bones are the skull, a domed vault that protects the brain, and the hinged jawbone.

Ribcage (thorax). This consists of 12 pairs of curved ribs attached to the spine at the back, of which 10 are attached by cartilage to the breastbone (sternum) at the front. The ribcage protects the heart and major blood vessels, the lungs, liver, and spleen.

Spine. The backbone, or spine, is formed by a column of small bones (vertebrae). It protects the spinal cord.

Upper limb. The shoulder girdle comprises the collar bone and

shoulderblade, attached at the shoulder joint to the upper arm bone (humerus). The collar bone holds the upper limb away from the chest.

Lower limb. The thigh bone joins the pelvis at the hip joint. The leg is jointed at the knee (which is protected in front by the flat kneecap) and at the ankle.

Pelvis. This basin-shaped structure is attached to the lower part of the spine. It protects the lower abdominal organs.

The Joints. Wherever one bone meets another, there is a joint. Joints are of two main types: movable and immovable.

Movable joints allow movement between adjacent bones and are of three types: slightly movable (e.g. the joints between the vertebrae, and those between the ribs and spine), ball-and-socket (e.g. the shoulder and hip), and hinge joints (the elbow and knee).

Immovable joints are those where the bone edges fit firmly into each other, or where the bones are fused together (e.g. the skull), so that no movement can take place.

The Muscles. Muscles cause the various parts of the body to move by the contraction and relaxation of their fibres.

Voluntary muscles are so-called because they are controlled by the will. These muscles are attached to the bones by bands of strong, fibrous tissue (tendons). They operate in groups: as one group of muscles contracts, its paired group relaxes.

Involuntary muscles operate the internal organs and work continuously, even when we are asleep. They are controlled by the autonomic nervous system.

Vocabulary Exercises

1. Translate words and word combinations:

body: head, neck, trunk, limbs (= extremities);

head: skull, jaw, brain, face, eyes, ears, nose, chin, forehead, mouth, lips, tooth (*pl*. teeth), tongue;

trunk: chest (= ribcage, thorax), curved ribs, breastbone (= sternum), abdomen, bowel (= intestine), pelvis;

spine (= backbone): vertebra (*pl*. vertebrae), spinal cord;

upper limb (arm): hand, finger, thumb, wrist, elbow, forearm, upper arm, shoulder, shoulder girdle, shoulderblade, collar bone;

lower limb (leg): foot (*pl*. feet), toe, ankle, shin (= lower leg), knee, flat kneecap, thigh (= hip).

2. Give synonymous anatomical terms. Model: 0 – A

0. skeleton	*A. framework of bones*
1. spine	**B.** hip
2. sternum	**C.** chest
3. thigh	**D.** backbone
4. thorax	**E.** extremity
5. limb	**F.** breastbone

3. Match the word with its definition. Model: 0 – A

0. body	*A. the whole physical structure of a man or animal*
1. rib	**B.** bony girdle formed by hip bones and sacrum
2. muscle	**C.** curved bone extending from the spine to enclose the thorax
3. pelvis	**D.** one of two bones forming framework of mouth, in which teeth are set
4. jaw	**E.** structure whereby two bones fit together
5. joint	**F.** tissue consisting of highly contractile cells, through which movement is effected

4. Reread the text. Choose the correct variant.

1. The skeleton … the muscles, blood vessels and nerves of the body.
   a) attaches, b) supports, c) moves
2. The collar bone … the upper limb away from the chest.
   a) holds, b) consists, c) depends
3. Wherever one bone … another, there is a joint.
   a) contracts, b) controls, c) meets
4. Movable joints allow movement between … bones.
   a) various, b) lower, c) adjacent
5. Involuntary muscles operate the internal … and work continuously.
   a) parts, b) organs, c) bands

ORGAN SYSTEMS

Study the words and word combinations:

1. a set of interrelated organs	- *зд.* интеграция органов
accessory	- дополнительный, добавочный
2. to bind	- связывать, (при)соединять
3. to travel away	- *зд.* перемещаться
4. to adjust	- регулировать
5. as well as	- так же как; а также

Read the text and answer the following questions:

1. What are the organs of the integumentary system?
2. What organ system provides support and movement of the body?
3. What is the general function of the nervous and endocrine systems?
4. What is the role of different nerve cells?
5. How many organs does the endocrine system include? Name them.

Organ Systems

The human organism consists of several organ systems. Each system includes a set of interrelated organs that work together to provide specialized functions.

Body Covering. The organs of the integumentary system include the skin and various accessory organs such as the hair, nails, sweat glands, and sebaceous glands. These parts protect underlying tissues, help regulate the body temperature, house a variety of sensory receptors, and synthesize certain products.

Support and Movement. The organs of the skeletal and muscular systems function to support and move body parts.

The skeletal system consists of the bones as well as the ligaments and cartilages that bind the bones together at joints. These parts provide frameworks and protection for softer tissues, serve as attachments for muscles, and act together with muscles when body parts move.

The muscles are the organs of the muscular system. By contracting, they provide the forces that cause body movements. They also function in maintaining posture and are the main source of body heat.

Integration and Coordination. The activity of the body must be controlled and adjusted from time to time so that homeostasis is maintained. This is the general function of the nervous and endocrine systems.

The nervous system consists of the brain, spinal cord, nerves, and sense organs. Nerve cells within these organs use electrochemical signals called nerve impulses to communicate with one another and with muscles and glands. Each impulse produces a relatively short-term effect on the part it influences. Some nerve cells act as specialized sensory receptors that can detect changes occurring inside and outside the body. Other receive the impulses transmitted from these sensory units and interpret and act on the information received. Still others carry impulses from the brain or spinal cord to muscles or glands and stimulate these parts to contract or to secrete various products.

The endocrine system includes all the glands that secrete hormones. The hormones, in turn, travel away from the glands in body fluids such as blood or tissue fluid. Usually a particular group of cells is affected by a particular hormone. Compared to nerve impulses, hormonal effects occur over a relatively long time period.

The organs of the endocrine system include the pituitary, thyroid, parathyroid, and adrenal glands, as well as the pancreas, ovaries, testes, and thymus gland.

Vocabulary Exercises

1. Translate words and word combinations:

integumentary system: skin, hair, nails, sweat glands, sebaceous glands;

musculoskeletal system: bone, ligament, cartilage, muscle (voluntary, involuntary), tendon, joint (movable, immovable, ball-and-socket, hinge);

nervous system: brain, spinal cord, nerves, sense organs;

endocrine system: pituitary, thyroid, parathyroid, and adrenal glands, pancreas, ovaries, testes, pineal gland, thymus gland.

2. Give synonyms to the following verbs. Model: 0 – A

0. receive	*A. get*
1. include	**B.** maintain
2. bind	**C.** cause
3. function	**D.** join
4. produce	**E.** house
5. support	**F.** adjust
6. regulate	**G.** act

3. Match the word with its definition. Model: 0 – A

0. system	*A. group of objects related or interacting so as to form a unity*
1. organ	**B.** natural outer covering of the body
2. tissue	**C.** bundle of fibres transmitting sensory or motor impulses between brain and body
3. nerve	**D.** organ whose main function is to build up secretions and discharge them into or out from the body
4. gland	**E.** part of animal (or plant) forming structural or functional unit
5. skin	**F.** fabric of cells and their products

4. Reread the text. Choose the correct word to the underlined one.

1. Each system of organs <u>includes</u> a set of interrelated ones.
   a) comprises, b) communicates, c) effects
2. A particular group of cells is <u>affected</u> by a particular hormone.
   a) adjusted, b) occurred, c) influenced
3. Specialized sensory receptors can <u>find</u> changes occurring inside and outside the body.
   a) compare, b) detect, c) receive
4. By contracting, muscles provide the forces that <u>cause</u> body movements.
   a) maintain, b) produce, c) travel
5. Nerve cells <u>carry</u> impulses from the brain or spinal cord to muscles or glands.
   a) transmit, b) control, c) protect

ORGAN SYSTEMS: PROCESSING and TRANSPORTING

Study the words and word combinations:

1. nutrient	- питательное вещество
wastes	- отходы, продукты распада
to eliminate (= to remove)	- удалять, устранять
to leave (left)	- *зд.* выводить
to enter	- *зд.* попадать (в)
2. intake and output of air	- *зд.* вдох и выдох
exchange of gases	- газообмен
oxygen	- кислород
carbon dioxide	- углекислый газ
3. to process	- обрабатывать
processing	- обработка
4. to convert	- превращать, изменять
5. to pass	- 1) проходить; пропускать через что-либо (through); 2) поступать, переходить

Read the text and answer the following questions:

1. Are the organs of several systems involved with processing and transporting nutrients, oxygen, and wastes?
2. What is the role of the digestive system in processing and transporting of different substances?

3. What do organs of the respiratory system provide?
4. Why is the lymphatic system considered to be a part of the circulatory one?
5. What different organ systems does thymus gland belong to?
6. What does the urinary system consist of?

Organ Systems: Processing and Transporting

The organs of several systems are involved with processing and transporting nutrients, oxygen, and various wastes. The organs of the digestive system, for example, receive foods from the outside. Then they convert various food molecules into simpler forms that can pass through cell membranes and thus be absorbed. Materials that are not absorbed are eliminated. Certain digestive organs also produce hormones and thus function as parts of the endocrine system.

The digestive system includes the mouth, tongue, teeth, salivary glands, pharynx, esophagus, stomach, liver, gallbladder, pancreas, small intestine, and large intestine.

The organs of the respiratory system provide for the intake and output of air, and for the exchange of gases between the blood and the air. More specifically, oxygen passes from air within the lungs into the blood, and carbon dioxide leaves the blood and enters the air. The nasal cavity, pharynx, larynx, trachea, bronchi, and lungs are parts of this system.

The circulatory system includes the heart, arteries, veins, capillaries, and blood. The heart functions as a muscular pump that helps force blood through the blood vessels. The blood serves as a fluid for transporting gases, nutrients, hormones, and wastes. It carries oxygen from the lungs and nutrients from the digestive organs to all body cells, where these substances are used in metabolic processes.

The lymphatic system is sometimes considered to be a part of the circulatory system. It is composed of the lymphatic vessels, lymph fluid, lymph nodes, thymus gland, and spleen. This system transports some of the fluid from the spaces within tissues back to the bloodstream and carries certain fatty substances away from the digestive organs. Lymphatic organs also aid in defending the body against infections by removing particles, such as microorganisms, from the tissue fluid and by supporting the activities of certain cells (lymphocytes) that produce immunity.

The urinary system consists of the kidneys, ureters, urinary bladder, and urethra. The kidneys remove various wastes from the blood, and assist in maintaining the body’s water and electrolyte balance. The product of

these activities is urine. Other portions of the urinary system function in storing urine and transporting it to the outside of the body.

Sometimes the urinary system is called the excretory system. However, excretion, or waste removal, is also a function of the respiratory, digestive, and integumentary systems.

Vocabulary Exercises

1. Add necessary words.

A.

digestive system: mouth, tooth (*pl*. teeth)…
circulatory system: heart, arteries…
lymphatic system: lymphatic vessels…
urinary system: kidneys, ureters…

B.

head: brain…
thoracic cavity: lungs, heart…
abdominal cavity: stomach, gallbladder…
pelvic cavity: urinary bladder…

2. Give opposites to the following words. Model: 0 – A

0. include	*A. exclude*
1. nutrient	**B.** output
2. leave	**C.** eliminate
3. oxygen	**D.** waste
4. intake	**E.** carbon dioxide
5. absorb	**F.** enter

3. Match the verb with its definition. Model: 0 – A

0. remove	*A. get rid of*
1. process	**B.** move forcefully up and down, or into and from
2. transport	**C.** discharge from the system
3. pump	**D.** treat something in order to preserve
4. absorb	**E.** carry from one place to another
5. excrete	**F.** take in or suck in

4. Reread the text. Choose the correct variant.

1. The organs of the digestive system convert … food molecules into simpler forms.

a) uniform, b) complex, c) various

2. The heart … as a muscular pump that forces blood through the blood vessels.

a) includes, b) functions, c) produces

3. The lymphatic system transports some of the … from the spaces within tissues back to the bloodstream.

a) fluid, b) urine, c) blood

4. The kidneys … various wastes from the blood.

a) absorb, b) necrotize, c) remove

5. Sometimes the urinary system is called the … system.

a) digestive, b) excretory, c) circulatory

U N I T VI
ONCOLOGY

Oncology is the specific study of new growths, especially cancers.

Texts:
Aetiology and Epidemiology of Malignant Diseases
The Biology of Cancer
The Diagnosis of Malignancy
Cancer Treatment
Hematological Malignancies

Grammar:
Attribute. Adverbial Modifier
Adjectives and Adverbs. Degrees of Comparison
-ing-forms. Participial and Gerundial Constructions
Emphatic Means
Imperative Mood

AETIOLOGY AND EPIDEMIOLOGY OF MALIGNANT DISEASES

Study the words and word combinations:

1. malignant disease - злокачественное заболевание
2. curative treatment - радикальное лечение
palliative treatment - паллиативное лечение
3. incidence - частота, встречаемость
incidence of lung cancer - заболеваемость раком легких
4. to be associated with - связывать
(= to be attributed to)
5. to cause - вызывать
a causative mechanism - провоцирующий механизм

Read the text and answer the following questions:

1. What does ‘malignant disease’ mean?
2. Is the cause of cancer multifactorial? And why?
3. What environmental factors influence on the development of malignancy?
4. Is it easy to differentiate dietary factors from other epidemiologi-

cal factors of cancer?
5. What iatrogenic factors of malignant disease do you know?

Aetiology and Epidemiology of Malignant Diseases

The term ‘malignant disease’ encompasses a wide range of illnesses, including common ones such as lung, breast and colorectal cancer, as well as rare ones, like the acute leukaemias. Malignant disease is widely prevalent and, in the West, almost a third of the population will develop cancer at some time during their life. It is second only to cardiovascular disease as the cause of death. Although the mortality of cancer is high, many advances have been made, both in terms of treatment, and in understanding the biology of the disease at the molecular level. Treatment is given with curative and palliative intent, depending upon the evidence from continuing clinical trials. Physicians have an obligation to be honest with their patients, combining realism about the prognosis with compassion and understanding so that patients can take an informed part in treatment decisions.

In most patients the cause of their cancer remains unknown and is probably multifactorial.

Tobacco. The incidence of lung cancer in both men and women has increased dramatically in the last 25 years. The association of smoking with lung cancer is indisputable and causative mechanisms have been identified: cigarette tobacco is responsible for one-third of all deaths from cancer in the UK.

Alcohol is associated with cancers of the upper respiratory and gastrointestinal tracts, and it also interacts with tobacco in the aetiology of these tumours. It may be associated with an increased risk of breast cancer.

Dietary factors have been attributed to account for a third of cancer deaths, although it is often difficult to differentiate these from other epidemiological factors. Many associations have been observed without a causative mechanism being identified between the incidence of cancer and the consumption of dietary fibre, red meat, saturated fats, salted fish, vitamin E, vitamin A and many others.

Environmental/ occupational. *Ultraviolet light* is known to increase the risk of skin cancer (basal cell, squamous cell and melanoma). The incidence of melanoma is therefore particularly high in the white Anglo-Celtic population of Australia, New Zealand and South Africa, where exposure to UV light is combined with a genetically predisposed population.

Occupational factors. The principal causes now are asbestos (lung and mesothelial cancer) and combustion of fossil fuels releasing polycyclic hydrocarbons (skin, lung, bladder cancers). Organic chemicals such as benzene may cause molecular abnormalities associated with the development of myeloid leukaemia.

Infectious agents. The geographical distribution of a rare malignancy may suggest that it might be caused by, or associated with, an infective agent. For example, a specific type of T-cell leukaemia, seen almost exclusively in residents of the southern island of Japan and in the West Indies, is caused by infection with the retrovirus, HTLV-1 (human T-cell leukaemia virus) which is endemic in these areas.

Iatrogenic. *Drugs.* Oestrogens have been implicated in the development of vaginal, endometrial and breast carcinoma. Radiation. The nuclear disasters of Hiroshima, Nagasaki and Chernobyl led to an increased incidence of leukaemia after 5-10 years in the exposed population.

Vocabulary Exercises

1. Translate words and word combinations:

oncology, oncologist; curative/ palliative treatment (= management), administration, medicine, medication, drug, remedy; cancer, tumor;

history, patient, case, case report;

symptom, symptom complex, set of symptoms, sign;

malignant disease: incidence of cancer; causative mechanism; a genetically predisposed population; acute leukaemias; lung, breast and colorectal cancer.

2. Correlate nouns with appropriate attributes. Model: 0 – A

0. tissue	*A. damage*
1. Hodgkin's	**B.** cancer
2. risk	**C.** flow
3. lung	**D.** lymphoma
4. blood	**E.** cell
5. tumor	**F.** factor

3. Match the word with its definition. Model: 0 – A

0. sequence	*A. order in which events or objects follow each other; series*
1. malignancy	**B.** rate of occurrence; number of repetitions (in a given time)

2. symptom	**C.** a form or condition which is not usual
3. frequency	**D.** any change or abnormality in physical or mental condition due to and revealing the presence of a disease or disorder
4. abnormality	**E.** characteristic or striking part
5. feature	**F.** cancerous growth

4. Reread the text. Choose the correct variant.

1. Curative or palliative treatment depends upon the … from continuing clinical trials.

a) reason, b) evidence, c) cause

2. In most patients the cause of their cancer … unknown and is probably multifactorial.

a) remains, b) lasts, c) occurs

3. Alcohol is associated with an … risk of breast cancer.

a) decreased, b) revealed, c) increased

4. The … causes of occupational cancer are asbestos and combustion of fossil fuels.

a) general, b) principal, c) multiple

5. Oestrogens … in the development of vaginal, endometrial and breast carcinoma.

a) are implicated, b) are given, c) are stated

THE BIOLOGY OF CANCER

Study the words and word combinations:

1. neoplasm - опухоль, новообразование
2. to affect - поражать
3. check point - чек-пойнт (*регуляторный ген, мутация которого приводит к неконтролируемому делению клеток и развитию опухоли*)
4. failure - несостоятельность, недостаточность; нарушение; отказ
5. variable - *зд.* непостоянный
6. senescence - старение
7. to be overexpressed - подвергаться гиперэкспрессии
8. constitutive(ly) - существенный; существенно
9. susceptibility - *зд.* предрасположенность

10. trait - признак, характерная черта
genetically determined traits - генетически обусловленные характеристики
11. mismatch - дефект
12. to involve - вовлекать

Read the text and answer the following questions:

1. What is the origin of human neoplasms?
2. What are the characteristics of the most commonly affected genes?
3. When are mutations common?
4. What enzyme prevents the normal shortening of DNA with each cell division?
5. What is the development of cancer associated with?

The Biology of Cancer

Most human neoplasms are monoclonal in origin, i.e. they arise from genetic mutations within a single affected cell. However, over subsequent cell divisions heterogeneity develops with the accumulation of further abnormalities. The genes most commonly affected can be characterized as those controlling cell cycle check points, DNA repair and DNA damage recognition, apoptosis, differentiation, and growth signaling. Proliferation may continue at the expense of differentiation, which together with the failure of apoptosis leads to tumour formation with the accumulation of abnormal cells varying in size, shape and nuclear morphology.

The kinetics of cancer cell growth are exponential; however, the doubling times of human tumours are enormously variable. Mutations are common in the genes controlling a series of intracellular proteins, such as the cyclins and cyclin-dependent kinases, and oncogene products that regulate proliferation. Proliferation may also be abnormal due to defects in the nuclear enzyme telomerase, contact with other cells, nutrient supply or cytokine signaling. Telomerase is an enzyme that prevents the normal shortening of DNA with each cell division that leads to senescence. Persistent telomerase activity helps to maintain the neoplastic state in cancer cells.

Epithelial growth factor and its receptors are overexpressed in many human epithelial tumours, constitutively switching on unrestrained growth of these tumours. Transforming growth factor-ß (TGF-ß), a cytokine which has effects on extracellular matrix proteins, angiogenesis and im-

mune effector cells, is also often overexpressed in tumour cells, and defects in TGF-ß signaling are often found in cancer cells.

Cancer genetics. The development of cancer is associated with a fundamental genetic change within the cell. Evidence for the genetic origin of cancer is based on the following:

- Some cancers show a familial predisposition.
- Most known carcinogens act through induced mutations.
- Susceptibility to some carcinogens depends on the ability of cellular enzymes to convert them to a mutagenic form.
- Genetically determined traits associated with a deficiency in the enzymes required for DNA repair are associated with an increased risk of cancer.
- Some cancers are associated with chromosome 'instability' because of deficiencies in mismatch repair genes.
- Many malignant tumours represent clonal proliferations of neoplastic cells.
- Many tumours contain well-described cytogenetic abnormalities, which involve mutated or abnormally regulated oncogenes and tumour suppressor genes with transforming activity in cell lines.

Vocabulary Exercises

1A. Translate words and word combinations:

neoplasm; cell, cell divisions, cell division heterogeneity; cell cycle check points; immune effector cells; growth signaling, growth factor, unrestrained growth; familial predisposition.

1B. Guess the meaning of the following international words:

monoclonal, origin, mutation, accumulation, abnormality, proliferation, exponential, regulate, contact, persistent, activity, factor, transform, effect, fundamental, familial.

2. Correlate attributes with appropriate nouns. Model: 0 – A

0. malignant	*A. tumour*
1. genetic	**B.** cell
2. unbearable	**C.** diet
3. protein	**D.** unit
4. neoplastic	**E.** pain
5. oncology	**F.** mutation

3. Match the verb with its definition. Model: 0 – A

0. manage	*A. to organize a series of different treatments for a person*
1. mismatch	**B.** to get more and more of something over a period of time
2. suppress	**C.** to produce many similar cells or parts, and so grow
3. predispose	**D.** to make tissues wrongly
4. accumulate	**E.** to reduce the action of something completely
5. proliferate	**F.** to have a tendency or susceptibility to a condition

4. Reread the text. Choose the correct variant.

1. Most human neoplasms arise from genetic … within a single affected cell.

a) deficiencies, b) failures, c) mutations

2. … proliferation may be due to defects in the nuclear enzyme telomerase.

a) abnormal, b) persistent, c) exponential

3. Epithelial growth factor and its receptors … in many human epithelial tumours.

a) are overexposed, b) are overestimated, c) are overexpressed

4. The … of cancer is associated with a fundamental genetic change within the cell.

a) transformation, b) development, c) management

5. Many malignant tumours … clonal proliferations of neoplastic cells.

a) represent, b) take, c) repair

THE DIAGNOSIS OF MALIGNANCY

Study the words and word combinations:

1. once - когда

2. tumour bulk (= mass) - объемное образование, опухоль

3. to target - быть нацеленным, быть направленным

aim (= goal) - цель

4. screening - скрининг (*массовое обследование для выявления больных или лиц с высоким риском заболевания*)

genetic screening	- генетический скрининг (*выявление людей, предрасположенных по генотипу к определенным заболеваниям*)
5. survival	- выживаемость
6. to present	- жаловаться на что-либо; *зд.* проявляться
7. advanced stage of the disease	- поздняя [запущенная] стадия заболевания
8. to manifest	- проявляться
9. reversible	- обратимый (*о болезненном процессе*)
10. cross-reactivity	- перекрестная реактивность

Read the text and answer the following questions:

1. When does the diagnosis of malignancy become possible?
2. Why do researches investigate different screening programmes?
3. What is the target of genetic screening?
4. What are the symptoms to indicate an advanced cancer?
5. What are the indirect effects of cancer?

The Diagnosis of Malignancy

Most common cancers (but not the haematological cancers) start as focal microscopic clones of transformed cells, and diagnosis only becomes likely once sufficient tumour bulk has accumulated to cause symptoms or signs. In order to try to make an earlier diagnosis and increase the curative possibilities, an increasing number of screening programmes are being investigated which target the asymptomatic or preinvasive stages of the cancer.

Screening. Genetic screening is used to target screening to those people at most risk of developing cancer. The aim is to improve individual and/ or population survival. This strategy is dependent upon finding tests that are sufficiently sensitive and specific, using detection methods that identify cancer before it has spread, and having curative treatments that are practical and consistent with maintenance of a normal lifestyle and quality of life.

The ability to detect cancer at its very early stages when the patient is asymptomatic is the goal of every healthcare system.

Symptoms of cancer. Patients present with tumour site-specific

symptoms, e.g. pain, and physical signs, e.g. a mass, which readily identify the primary site of the cancer. On the other hand, many seek medical attention when more systemic and non-specific symptoms occur such as weight loss, fatigue, and anorexia. These usually indicate a more advanced stage of the disease. Other patients are only diagnosed upon the discovery of established metastases such as the back pain of metastatic prostatic cancer or the liver enlargement of metastatic gastrointestinal cancer.

Other indirect effects of the cancer manifest as paraneoplastic syndromes that are often associated with specific types of cancer and are reversible with treatment of the cancer. The effects and mechanisms can be very variable. For example in the Lambert-Eaton syndrome there is cross-reactivity between tumour antigens and the normal tissues, e.g. the acetylcholine release at neuromuscular junctions.

The coagulopathy of cancer may present with thrombophlebitis, deep venous thrombosis and pulmonary emboli, particularly in association with cancers of pancreas, stomach and breast.

Other symptoms are related to peptide or hormone release, e.g. carcinoid or Cushing's syndrome.

Cachexia of advanced cancer is due to release of chemokines such as tumour necrosis factor, as well as fact that patients have a loss of appetite.

Cancer-associated immunosuppression can lead to reactivation of latent infections such as herpes zoster.

Vocabulary Exercises

1. Add necessary words:

aims of screening programmes (genetic screening): to make an earlier diagnosis of malignancy…

symptoms of cancer: pain as a tumour site-specific symptom…

2. Make up appropriate word chains. Check with the text «The Diagnosis of Malignancy». Model: 0 – A

0. most	*A. common*
1. genetic	**B.** bulk
2. deep	**C.** cancer
3. tumour	**D.** system
4. healthcare	**E.** necrosis
5. advanced	**F.** screening

3. Match the word with its definition. Model: 0 – A

0. inflammation	*A. redness and swelling with heat and pain*
1. clone	**B.** the spreading of a malignant disease from one part of the body to another through the bloodstream or the lymph system
2. manifestation	**C.** a state of ill health characterized by wasting and general weakness
3. screening	**D.** act of revealing; display
4. cachexia	**E.** a group of cells derived from a single cell by asexual reproduction and so identical to the 1st cell
5. metastasis	**F.** the process of testing large numbers of people to see if any of them have a particular type of disease

4. Reread the text. Choose the correct variant.

1. The diagnosis of malignancy becomes likely once sufficient … has accumulated to cause symptoms or signs.

a) tumour necrosis, b) tumourlet, c) tumour bulk

2. To detect cancer at its very early stages is the … of screening programmes.

a) strategy, b) function, c) goal

3. Systemic and non-specific symptoms indicate a more … stage of the disease.

a) advanced, b) associated, c) increased

4. In the Lambert-Eaton syndrome there is … between tumour antigens and the normal tissues.

a) cross-tolerance, b) cross-reactivity, c) cross-neutralization

5. The coagulopathy of cancer may … with thrombophlebitis, deep venous thrombosis and pulmonary emboli.

a) present, b) identify, c) depend

CANCER TREATMENT

Study the words and word combinations:

1. treatment (= cure) - лечение
treatment option - метод лечения
delivery of treatment - *зд.* выбор подходящего лечения
2. concern - *зд.* задача
3. to abide - выполнять что-либо
4. outset - начало
5. no longer - больше не

6. life expectancy	- предполагаемая [ожидаемая] продолжительность жизни
7. responsive	- восприимчивый, чувствительный
8. cost/ benefit ratio	- показатель [соотношение] цена/ эффективность
9. assessment	- оценка (состояния)
10. exposure	- воздействие

Read the text and answer the following questions:

1. What does cancer treatment require?
2. What are the methods of treatment of solid tumours?
3. What is the improvement dependent upon?
4. When cure is no longer possible, a relief of tumour symptoms and prolongation of life is possible, isn't it?
5. Does the development of more effective chemotherapeutic drugs and better supportive care such as antiemetics do much to reduce the side-effects of chemotherapy?

Cancer Treatment

Aims of treatment. Cancer treatment requires the cooperation of a multidisciplinary team to coordinate the delivery of the appropriate treatment (surgery, chemotherapy, radiotherapy and biological/ endocrine therapy), supportive and symptomatic care, and psychosocial support. While all members will have the patient's care as their central concern, someone, often the oncologist, has to take responsibility for the coordination of the many professionals involved. Central to this endeavor is the involvement of the patient, through education as to the nature of the disease and the treatment options available. An informed choice can then be made, even if in the end it is simply to abide by the decisions made by the professionals.

Curing cancer. For most solid tumours local control is possible but not sufficient for cure because of the presence of systemic (microscopic) disease, while haematological cancers are usually disseminated from the outset. Improvement in the rate of cure of most cancers is thus dependent upon earlier detection and effective systemic treatment. The likelihood of cure of the systemic disease depends upon the type of cancer, its chemo-/ hormonal sensitivity, and tumour bulk (microscopic or clinically detectable). A few rare cancers are so chemosensitive that even bulky metastases

can be cured, e.g. leukaemia, lymphoma, gonadal germ cell tumours, and choriocarcinoma. For most common solid tumours such as breast and colorectal cancer, there is no current cure of bulky (clinically detectable) metastases, but micrometastatic disease treated by adjuvant chemotherapy after surgery can be cured in 10-20 % of patient.

Palliation. When cure is no longer possible, palliation, i.e. relief of tumour symptoms and prolongation of life, is possible in many cancers in proportion to their chemo- and radiosensitivity. There is on average a 2-18 months prolongation in median life expectancy with treatments for solid tumours and up to 5-8 years for some leukaemias and lymphomas, with those with the most responsive tumours experiencing the greatest benefit. The development of more effective chemotherapeutic drugs and better supportive care such as antiemetics has done much to reduce the side-effects of chemotherapy and to improve the cost/ benefit ratio for the patient receiving palliative treatment. In addition, through early assessment during treatment, it is possible to stop if there is no benefit within 6-8 weeks of starting, so as to minimize exposure to toxic and unsuccessful treatment.

Vocabulary Exercises

1. Translate words and word combinations:

treatment: supportive and symptomatic care; improvement of cure; likelihood of cure; local control; side-effects of chemotherapy.

2. Give opposites to the following words. Model: 0 – A

0. relevant	*A. irrelevant*
1. curable	**B.** increase
2. symptomatic	**C.** curative
3. minimize	**D.** malignant
4. benign	**E.** incurable
5. palliative	**F.** asymptomatic

3. Match the word with its definition. Model: 0 – A

0. drug	*A. substance used for medical purposes, either alone or in a mixture*
1. chemotherapy	**B.** drug which prevents vomiting
2. antiemetic	**C**. a medical treatment for cancer using radiation
3. palliative	**D.** something that adds new difficulties (e.g. of a person who is ill)
4. radiotherapy	**E.** a treatment or drug which relieves symptoms but

	does nothing to cure the disease which causes the symptoms
5. complication	**F.** the use of drugs such as antibiotics, pain killers, or antiseptic lotions to fight a disease, especially using toxic chemicals to destroy rapidly developing cancer cells

4. Reread the text. Choose the correct variant.

1. Cancer … requires the cooperation of a multidisciplinary team.
   a) approach, b) care, c) treatment
2. The … of cure of the systemic disease depends upon the type of cancer.
   a) likelihood, b) presence, c) benefit
3. For most common solid tumours, there is no current cure of bulky…
   a) cancers, b) leukaemias, c) metastases
4. The development of chemotherapeutic drugs has done much to reduce the … of chemotherapy.
   a) side-effects, b) cost-benefits, c) long-stay
5. Haematological cancers are usually disseminated from the…
   a) stop, b) outset, c) stage

HAEMATOLOGICAL MALIGNANCIES

Study the words and word combinations:

1. to implicate - вовлекать
to appraise - оценивать
to assess - оценивать; *зд*. определять
2. abnormality - отклонение от нормы, патология
non-random chromosomal abnormalities - случайные хромосомные аберрации
3. increasingly complex - (*становиться*) все более сложным
universally applied - *зд*. общепринятый
critical - *зд*. крайне важный
4. life-threatening - жизнеугрожающий
5. highly skilled staff - высококвалифицированный персонал

facilities - оборудование
6. to be referred to - направлять
7. morbidity - *зд.* осложнения
mortality - смерть, смертность
failure - неудача

Read the text and answer the following questions:

1. Are the lymphomas an interrelated spectrum of malignancies?
2. Is the aetiology of lymphomas unknown?
3. Patients need to be supported through treatment involving prolonged myelosuppression and immunosuppression, don't they?
4. How can leukaemias be diagnosed?
5. What is the subdivision of leucaemia?

Haematological Malignancies

The leukaemias, the lymphomas and multiple myeloma are an interrelated spectrum of malignancies of the myeloid and lymphoid systems. They are uncommon but not rare, the lymphomas alone being the seventh commonest cancer in the UK. The aetiology of these diseases is unknown, although viruses, irradiation, cytotoxic poisons and immune suppression have been implicated in a small proportion of cases. The pathogenesis involves at least one or usually more molecular abnormalities, and non-random chromosomal abnormalities have been detected in several leukaemias and lymphomas. Classification has become increasingly complex, with the universally applied WHO scheme demanding morphological, cytogenetic and sometimes molecular criteria to be fulfilled. Treatment options are multiple. Patients need to be supported through treatment involving prolonged myelosuppression and immunosuppression. These are potentially life-threatening but can also be curative. This has given rise to the need for highly skilled staff and facilities, and patients should be referred to these centers for treatment.

In the management of these diseases it is critical that patients are appraised of the natural history, its potential modification by treatment and the risks of both severe morbidity and mortality. It must be made clear from the outset whether a curative or palliative strategy is most appropriate and why. If cure is to be pursued, the patient must be appraised of the approximate probability of success and its potential price. The possibility of failure needs to be addressed at the outset and not at the last minute.

The leukaemias: general classification. These are relatively rare dis-

eases with an incidence of about 10 per 100000 per year. Leukaemia can be diagnosed by examination of a stained slide of peripheral blood and bone marrow, with immune phenotyping, cytogenetics and molecular genetics being essential for complete subclassification and prognostication.

The characteristics of leukaemic cells can be assessed by light microscopy, expression of cytosolic enzymes and expression of surface antigens. These will reflect the lineage and degree of maturity of the leucaemic clone. Thus, leucaemia can be divided on the basis of the speed of evolution of the disease into acute or chronic. Each of these is then subdivided into myeloid or lymphoid, according to the cell type involved:

- acute myeloid leukaemia,
- acute lymphoblastic leukaemia,
- chronic myeloid leukaemia,
- chronic lymphocytic leukaemia.

Vocabulary Exercises

1. Translate words and word combinations:

uncommon, commonest; non-random abnormalities; natural history; potential modification; severe morbidity; prolonged myelosuppression; a curative strategy.

2. Give synonyms to the following words. Model: 0 – A

0. individual	*A. person*
1. deficiency	**B.** fatality
2. rise	**C.** management
3. mortality	**D.** lack
4. appraisal	**E.** raise
5. therapy	**F.** assessment

3. Match the word with its definition. Model: 0 – A

0. mortality rate	*A. the number of deaths per year, shown per hundred thousand of population*
1. pathogenesis	**B.** relating to or caused by disease
2. morbidity	**C.** a malignant tumor arising from lymphoid tissue
3. anamnesis	**D.** the origin, production and development of a morbid or diseased condition
4. lymphoma	**E.** any of several malignant diseases where an unusual number of leucocytes form in the blood
5. leukaemia	**F.** someone's medical history, especially given in their own words

4. Reread the text. Choose the correct variant.

1. The leukaemias, the lymphomas and multiple myeloma are an … spectrum of malignancies of the myeloid and lymphoid systems.

a) intermediate, b) interrelated, c) interacted

2. The pathogenesis … at least one or usually more molecular abnormalities.

a) involves, b) forms, c) includes

3. It is … that patients are appraised of the natural history.

a) dramatic, b) critical, c) significant

4. Curative or palliative … is most appropriate.

a) state, b) condition, c) strategy

5. The … of leukaemic cells can be assessed by light microscopy, expression of cytosolic enzymes and expression of surface antigens.

a) levels, b) characteristics, c) units

U N I T VII
SURGERY

Surgery is a branch of medicine which treats diseases, injuries and deformities by manual or operative methods.

Texts:
Wounds
Wound Excision: Preoperative and Anaesthetic Considerations
Indications for Operation
Mandible Fracture
The Cardiac Patient and Surgery

Grammar:
Negation
Infinitive
Infinitive Constructions
Complex Sentence

WOUNDS

Study the words and word combinations:

1. wound - рана, ранение
to wound - ранить
the wounded - раненый, пораженный
2. injury - рана, ранение; повреждение
to injure - ранить, повреждать
the injured - раненый, пораженный
3. clinical assessment - клиническая оценка
outcome - результат лечения, исход
disability - инвалидность; небоеспособность
salvage - спасение
4. personnel - личный состав
5. conventional weapons - обычные виды оружия
missile (= shell) - снаряд; ранящий агент
shell fragment (= projectile) - осколок
velocity - скорость
explosion - взрыв
to blast - взрывать(ся)

to strike (struck, stricken) - ударять(ся)
6. to threaten - угрожать
to inflict - наносить (*удар*), причинять (*боль*)
to debilitate - ослаблять
7. to fall (fell, fallen) into - распадаться на, подпадать (*под категорию*)

Read the text and answer the following questions:

1. What points determine the management of any wounded patient?
2. What is the surgeon's role in the management of war wounds?
3. Prevention of infective complications of the wound is the most argued question among surgeons, isn't it? Why?
4. What are the main groups of wounds? Is the subdivision given similar to the traditional home one?
5. What is the difference between primary and secondary missiles?
6. What is the cause of explosion injury?

Wounds

The history of surgery is closely linked with national and international conflicts. Aid agencies and military medical services are increasingly involved with the surgical care of victims of war whether combatant or civilian.

The management of any wounded patient is determined by his general condition and the clinical assessment of his wounds; these should be considered as surgical problems rather than weaponry phenomena. The surgeon should recognize that both management and outcome are determined by the size of the wound and the structures injured.

The surgeon's role in the management of war wounds is to minimize mortality and disability due to blood loss, vital structure injury, infective complications of the wound.

There is no controversy about the surgeon's role in relation to the first of these. The little controversy that exists in relation to the second arises from differences of specialist approach in wounds that have not been immediately fatal.

Prevention of infective complications of the wound is a consideration for all patients; it is not well-understood and has generated much controversy throughout the 20th century. Laboratory wound ballistic studies have done little to help the surgeon; the most important conclusions from them are that small missiles can cause large wounds.

For the infective complications of any wound not affecting vital structures to be dangerous, there must be a culture medium. This is provided by a mixture of dead muscle, haematoma, bone fragments and foreign material. However, wounds do not always contain a significant or dangerous volume of culture medium, nor does infection of it always threaten life or limb. It is important to understand how a culture medium is produced in a wound and what factors determine whether its infection progresses; this influences management.

Wounds from conventional weapons fall into two groups: those from missiles and those from explosions.

Wounding missiles may be classified as primary and secondary. Primary missiles include the projectiles of artillery, mortars, mines, grenades, machineguns, and rifles. A primary projectile may strike or blast apart rocks, trees, buildings, sand, or other materials with force sufficient to create secondary missiles out of them, and they, in turn, may have the velocity necessary to wound personnel. Such wounds (like a face peppered with sand) may be relatively trivial but debilitating enough to keep a soldier out of combat for some time; heavier secondary missiles, such as bricks, may be much more serious. Other secondary missiles are produced by the effects of the original missiles. These secondary missiles, which increase the severity of the original wound, include bone fragments and shell fragments produced by further fragmentation of the primary missiles.

Explosions cause injury by the blast wave (the shock wave) and the blast wind (mass movement of air). Survivors with limb wounds from blast alone are amongst the most severely injured patients. Their limbs are usually traumatically amputated or are beyond salvage. Blast lung, although important, is rare, whilst tympanic membrane perforation is common. However, the majority of injuries from explosions are due to secondary missiles. The most common explosive wounds of limbs in modern conflicts are those inflicted by antipersonnel mines.

Vocabulary Exercises

1. Translate words and word combinations:

missile: wounding missile; primary missile; secondary missile; low velocity missile wound (knife or bayonet wound); high velocity missile wound (contusion, penetrating or perforating wound); penetrating power; kinetic energy; the impact of the missile; missile track;

explosion: blast injury, blast wave, blast wind; short wavelength, long wavelength; types of blast injury – air blast, underwater (immersion)

blast, solid blast; regional injuries – blast injury of ear, rupture of the tympanic membrane, loss of hearing; chest injury, damage to the chest wall with rupture of the pulmonary alveolar network; blast injury of the abdomen, contusions of the parietes and viscera, perforation of the intestine, hemorrhage from the rupture of solid organs.

2. Correlate nouns with appropriate attributes. Model: 0 – A

0. membrane	*A. tympanic*
1. lung	**B.** culture
2. medium	**C.** antipersonnel
3. study	**D.** wounded
4. mine	**E.** blast
5. patient	**F.** ballistic

3. Match the word with its definition. Model: 0 – A

0. injured	*A. a person hurt*
1. wound	**B.** sudden and violent bursting; firing of gunpowder, dynamite, bombs, etc.
2. missile	**C.** body of persons constituting an armed force, manpower
3. war	**D.** anything projected or thrown as a weapon
4. explosion	**E.** a bodily injury caused by physical means, with disruption of the normal continuity of structures
5. personnel	**F.** conflict carried on by physical violence between nations, tribes or other large groups of persons

4. Reread the text. Choose the correct variant.

1. The surgeon's role in the management of war wounds is to minimize … and disability.
   a) mobility, b) morbidity, c) mortality
2. Limb wounds from blast are usually beyond …
   a) threat, b) salvage, c) infection
3. Secondary missiles have the … necessary to wound personnel.
   a) velocity, b) disability, c) condition
4. Wounds from conventional weapons … into two groups.
   a) feel, c) fall, c) fail
5. There must be a culture medium for the infective complications of any wound to be …
   a) original, b) different, c) dangerous

WOUND EXCISION: PREOPERATIVE AND ANAESTHETIC CONSIDERATIONS

Study the words and word combinations:

1. fracture - перелом
2. resuscitation - реанимационные мероприятия
dressing - перевязка
excision - иссечение
closure - закрытие (*раны*)
delayed closure - отсроченный шов
3. volume replacement - замещение объема
whole blood - цельная кровь
4. victim - жертва
5. to shower - обмывать, мыть душем
6. to be aware - знать, сознавать
7. to confer - *зд.* обсуждать

Read the text and answer the following questions:

1. Do first aid measures to the wounded have any differences in the field and at the hospital?
2. What is the routine procedure for the blood replacement?
3. Why is ketamine considered to be a preferable anaesthetic agent in limb wounds?
4. What are advantages and disadvantages of different kinds of anaesthesia mentioned in the text?
5. What aspects do surgeon and anaesthetist confer before surgery?

Wound Excision: Preoperative and Anaesthetic Considerations

The first aid, whether in the field or at the hospital must include haemostasis, adequate dressing, fracture immobilization, intravenous infusion and benzyl penicillin. A patient with limb injuries can lose a large volume of blood without major vessel injury. He should receive a liter or two of intravenous fluid rapidly before going for surgery. Whether colloid or electrolyte solutions are best for this is unclear. Volume replacement is more important than blood transfusion in the preoperative phase. Even when limb injury has been severe, e.g. traumatic amputation, whole blood is rarely required for resuscitation; for such patients, most blood is needed in the immediate postoperative period.

Patients seriously wounded more than 24 h before admission are usu-

ally anemic and dehydrated but haemodynamically stable.

It is wise to shower patients, in particular victims of antipersonnel mines, who are covered with mud or dust before they go to the operating theatre.

The anaesthesia involved in the surgery of war wounds may be complex and demanding, especially with wounds of the head, neck and chest. That the majority are limb wounds makes for extensive use of ketamine. This is associated with few unpleasant side-effects if combined with a benzodiazepine and is a safe anaesthetic agent which can be given to a hypovolaemic patient. The surgeon must be aware that it will make a normovolaemic patient hypertensive and that movement and phonation are not uncommon. Spinal anaesthesia for lower limb injuries is ideal, giving good operative conditions with hypotension; it is contraindicated in the shocked patient and so is not as useful for freshly injured patients. Brachial plexus block may not be effective high enough to apply a pneumatic tourniquet to the upper arm. Local infiltration anaesthesia is both dangerous and inadequate for proper wound excision; it can be used for delayed closure.

The use of regional or local anaesthesia in situations where there is both a language and a culture gap between the patient and the medical staff can distress the former; this may not be understood by the latter.

It is important that the surgeon and anaesthetist confer on the type of anaesthesia to be used, whether a pneumatic tourniquet is to be used, the position of the patient on the table and the order of the operation for multiple wounds. The surgeon must indicate the likelihood of a longer procedure, such as laparotomy or vascular repair.

Vocabulary Exercises

1. Translate words and word combinations:

blood loss, blood replacement, blood transfusion, intravenous blood transfusion; intravenous infusion; volume replacement; blood substitute solution; volume expander; gum saline; colloid and electrolyte solutions; whole blood, albumin, plasma, packed red cells, packed white cells, platelet concentrate;

anaesthesia (= analgesia), general anaesthesia, local anaesthesia, short-term anaesthesia, continuous (prolonged) anaesthesia, infiltration anaesthesia, conductive anaesthesia, regional anaesthesia, spinal anaesthesia; to anaesthetize, to give (= to induce, to introduce, to administer) anaesthesia.

Give opposites to the following words. Model: 0 – A

0. indicate	*A. contraindicate*
1. adequate	**B.** replacement
2. closure	**C.** general
3. loss	**D.** safe
4. local	**E.** inadequate
5. dangerous	**F.** useful
	G. incision

3. Match the word with its definition. Model: 0 – A

0. first aid	*A. the initial emergency care and treatment of an injured or ill person, before definitive medical and surgical management can be secured*
1. surgery	**B.** act of breaking, especially of a bone
2. shock	**C.** state of being unable to feel pain, heat, cold, etc.
3. fracture	**D.** transferring the blood of one person to another
4. anesthesia	**E.** a branch of medicine which treats diseases, injuries and deformities by manual or operative methods
5. transfusion	**F.** a condition of profound hemodynamic and metabolic disturbance characterized by failure of circulatory system to maintain adequate perfusion of vital organs

5. Reread the text. Choose the correct variant.

1. A patient with limb injuries can lose a large … of blood.
   a) fracture, b) volume, c) solution
2. … blood is rarely required for resuscitation.
   a) whole, b) cadaver, c) frozen
3. The anaesthesia involved in the surgery of war wounds may be … and demanding.
   a) useful, b) complex, c) enough
4. Local infiltration anesthesia can be used for delayed ...
   a) excision, b) surgery, c) closure
5. The surgeon and anaesthetist … on the type of anaesthesia to be used.
   a) receive, b) confer, c) injure

INDICATIONS FOR OPERATION

Study the words and word combinations:

1. blunt injury - повреждение, нанесенное тупым предметом, закрытая травма
avulsion injury - скальпированная рана
compound injury - сочетанное ранение
shotgun injury - огнестрельное ранение
high velocity tangential injury - касательное ранение, вызванное высокоскоростным ранящим агентом
penetrating injury - проникающее ранение
underlying injury - *зд.* скрытое повреждение
stab wound - колотая рана
disruption - разрыв
evisceration - выбухание, выпадение внутреннего органа
flail segment - флотирующий сегмент
2. flap - лоскут
elevated flap - *зд.* скальпированный лоскут
graft - трансплантат
full thickness graft - полнослойный кожный трансплантат
3. debridement - хирургическая обработка раны
4. to ventilate - *зд.* дышать
5. to devitalize - лишать жизнеспособности, делать безжизненным
6. to compromise - *зд.* нарушать, угнетать
7. to drain - дренировать
8. to repair - восстанавливать
9. to rule out - исключать
10. alternatively - в другом случае, в ином случае

Read the text and answer the following questions:

1. In what cases is an operation for blunt abdominal wall injuries not required?
2. What type of abdominal injuries should be treated with preoperative antibiotics?
3. How can you remove compromised ventilation in patients with flail chest?
4. What is the way to relieve pain in patients with multiple rib fractures?
5. Describe situations when operative treatment with internal fixa-

tion of rib fractures may be indicated.

6. What are complications of abdominal wall injuries?

Indications for Operation

Operation is not necessarily required for blunt injuries of the abdominal wall unless there is a major devitalizing injury or there is an open wound with major contamination. In addition, surgery may be required to rule out intraabdominal injury, to drain large hematomas, or to repair gross disruption. Avulsion injuries are usually followed by skin necrosis and infection of the elevated flap. If trauma to the subcutaneous tissue is extensive, removal of devitalized fat from the skin flap is often indicated, with the skin reapplied to the abdominal wall as a full thickness graft.

A stab wound in the anterior abdominal wall that is 2 cm or more in transverse diameter, if anterior to the anterior line, should have the fascial and peritoneal defect closed, if only to prevent subsequent evisceration or hernia. Shotgun and high velocity tangential injuries of the abdominal wall require debridement of all dead and devitalized tissue. Penetrating injuries always carry the possibility of hollow viscus injury and should be treated with preoperative antibiotics.

Multiple rib fractures do not, as a rule, require operative treatment; however, if a flail segment is present that results in compromised ventilation, the early institution of endotracheal intubation and mechanical ventilation is appropriate. Pain relief can then be provided by oral or injectable narcotics since the adequacy of ventilation can be ensured, alternatively, in lesser injuries, injection of isolated rib fractures with a long-acting local anesthetic may provide considerable symptomatic relief and permit the patient to cough, deep breathe, and clear secretions. When multiple fractures are present, epidural narcotic administration is appropriate. This has constituted a major advance in pain control and in older patients with isolated fractures can be life-saving. Patients can ventilate normally without discomfort and atelectasis, hypoxemia, and pneumonitis are thereby prevented. Operative treatment with internal fixation of rib fractures may be indicated in isolated instances when there are severe compound injuries, major flail segments, or underlying intrathoracic injury that require thoracotomy.

The complications of abdominal wall injuries may be pulmonary since the patient may have difficulty in deep breathing or coughing as well. Abdominal wall defects with herniation may occur after penetrating injuries if the fascial defect is not repaired. Blunt injuries with musculo-

fascial disruption are also associated with immediate or delayed defects. Septic complications are relatively rare in clean injuries in which abdominal contamination has not occurred but are always a possibility when there has been contamination from within or from without. These can vary from benign abscesses to lethal necrotizing synergistic infections or clostridial infections.

Vocabulary Exercises

1. Translate words and word combinations:

graft: full thickness graft, thick-split graft, accordion graft, bypass graft, cross-over graft, double-end graft, epidermic graft, free graft, allograft coverage;

wound: deep wound, purulent wound, poisoned wound, superficial wound, crushed wound, incised wound, contused wound; wound surface, wound cavity, wound channel;

injury: multiple injury, combined injury, compound injury, blast injury.

2. Correlate verbs with appropriate nouns. Check with the text. Model: 0 – A

0. to repair	*A. disruption*
1. to reapply	**B.** pain
2. to drain	**C.** ventilation
3. to relieve	**D.** graft
4. to compromise	**E.** diameter
5. to require	**F.** hematoma
	G. operation

3. Match the word with its definition. Model: 0 – A

0. flap	*A. broad flexible object partly attached and hanging loose*
1. necrosis	**B.** piece of skin, bone, etc. from a living person or animal, transplanted on another body or another part of the same body
2. avulsion	**C.** protrusion of organ through aperture in its containing wall
3. graft	**D.** restoration to a good condition
4. repair	**E.** death of tissue in living organ
5. hernia	**F.** action of pulling off; forcible separation

4. Reread the text. Choose the correct variant.

1. Surgery may be required to … out intra-abdominal injury.
   a) carry, b) treat, c) rule
2. … injuries are usually followed by infection of the elevated flap.
   a) stab, b) avulsion, c) shotgun
3. Penetrating injuries always carry the possibility of hollow … injury.
   a) viscus, b) hematoma, c) graft
4. With epidural narcotic administration patients can … normally without discomfort.
   a) feel, b) ventilate, c) relieve
5. Septic … are relatively rare in clean injuries.
   a) complications, b) flaps, c) debridements

MANDIBLE FRACTURE

Study the words and word combinations:

1. occlusion	- прикус
malocclusion (= malalignment)	- неправильный прикус
2. abrasion	- ссадина
laceration	- разрыв
3. numbness	- онемение
tenderness	- болезненность
4. technique	- метод, методика; способ
wiring of the jaws	- фиксирование челюстей проволокой
circumferential gauze bandage	- пращевидная окклюзионная повязка
access	- доступ (*хир.*)
5. follow-up treatment	- последующее лечение
to follow	- наблюдать, вести (*больного*)
6. evidence	- *зд.* данные
7. to be unconscious	- быть (находиться) без сознания
8. to initiate	- начинать
9. to obviate	- избегать
10. to confirm	- подтверждать
to suspect	- подозревать

Read the text and answer the following questions:

1. What is the key principle to the treatment of mandible fractures?
2. Are mandible fractures common among young adults? What is the

cause of this?

3. What is the way to making diagnosis of a mandibular fracture? Describe subjective symptoms.
4. X-ray examination confirms a suspected mandible fracture, doesn't it? Is it necessary to perform special studies to get additional information?
5. What is the preferable time interval between trauma accident and treatment of mandibular fractures?

Mandible Fracture

Occlusion is the key to both diagnosis and treatment of mandible fractures. Closed intermaxillary fixation can be used to treat over 90 % of these fractures. However, with the newer techniques of internal rigid fixation, wiring of the jaws together can be obviated. Most mandible fractures are caused by blunt trauma from motor vehicle accidents, fights, sports, and industrial injuries. They often occur in patients between the ages of 16 and 30, with the most common sites for fractures being of the angle, midbody, subcondylar, and symphysis. 25 to 58 % of patients have two or more fractures. 18 % of patients with cervical spine injuries have associated facial fractures. In facial fractures resulting from high-velocity injuries, a cervical spine x-ray must be taken before moving the patient about and initiating definitive treatment. All mandible fractures except for closed condylar fractures, are usually treated with antibiotics during the perioperative period to cover the patients during the bacteremia that occurs with manipulation.

The diagnosis of a mandible fracture is usually made by localizing symptoms and by physical findings and then confirmed by x-ray. Common subjective symptoms include pain, hypermobility of segments of the jaw, numbness of lower lip, excessive salivation, and a feeling of malalignment of the teeth. Local tenderness, malocclusion, and broken or loosened teeth are common findings on physical examination. In the unconscious person, any history of trauma to the lower face, or any contusion or abrasion over the mandible and anterior neck must make the physician suspect mandibular injury.

X-ray examination will confirm a suspected fracture and acts as a baseline for further follow-up treatment. Routine examination of the mandible includes anterior, posterior, lateral, and oblique views. The panorex view gives information not available on routine films and is particularly helpful for diagnosing subcondylar fractures. Special studies may be nec-

essary to get additional information, such as CT scans, and occlusal and intraoral dental films.

A modified Barton type circumferential gauze bandage should support the mandible and prevent movement. This should be instituted initially after trauma to minimize discomfort. The trend today is for early (less than 24 hours) surgical intervention and treatment of mandibular fractures unless there is evidence of central nervous system or spinal injury, or shock. Many times the accompanying laceration can be used for access to the fracture. If there is an unavoidable delay, then antibiotic therapy should be administered along with closure of any open wounds. The advantages of early repair include decreasing pain and less chance for infection.

A treatment plan should be planned with a dentist who will follow the patient.

Vocabulary Exercises

1. Add necessary words to the following scheme:

wounds			
type		**location**	**causative agent**
closed wounds	***open wounds***		
- contusion	- lacerated wound	- head	- bullet
- dislocation	- incised wound	- chest	- shell or bomb
-	-	-	fragments
-	-	-	-
-	-	-	-

2A. Give antonyms to the following words. Mind right negative affixes:

common, conscious, color, available, advantage, comfort, avoidable, occlusion, diagnosis, associate, necessary, pain.

2B. Give opposites to the following words. Model: 0 – A

0. high-velocity	*A. low-velocity*
1. suspect	**B.** malalignment
2. posterior	**C.** maxilla
3. occlusion	**D.** confirm
4. mandible	**E.** special
5. routine	**F.** anterior

3. Match the word with its definition. Model: 0 – A

0. fixation	*A. act of fixing, state of being fixed*
1. accident	**B.** each of the hard, white structures rooted in the gums, used for biting and chewing
2. X-ray	**C.** faulty alignment of teeth and jaws
3. tooth	**D.** tearing, cutting, slashing
4. laceration	**E.** chance occurrence, unforeseen event; mishap
5. malocclusion	**F.** electromagnetic radiation similar to light but of shorter wavelength, which is capable of penetrating matter

4. Reread the text. Choose the correct word to the underlined one.

1. With the newer methods of internal rigid fixation, wiring of the jaws together can be obviated.

a) terms, b) sites, c) techniques

2. A cervical spine X-ray must be taken before a physician will begin treatment.

a) act, b) initiate, c) confirm

3. A treatment plan should be coordinated with the dentist who will follow the patient.

a) manage, b) perform, c) prevent

4. The accompanying laceration can be used for access to the fracture.

a) advantage, b) approach, c) excess

5. The trend today is for early (less than 24 hours) surgical intervention and treatment of mandibular fractures.

a) tenderness, b) time, c) tendency

THE CARDIAC PATIENT AND SURGERY

Study the words and word combinations:

1. major surgery - большая (объемная) операция
2. cardiopulmonary bypass - аппарат искусственного кровообращения
3. induction - 1) анестезия; 2) введение
4. lesion - повреждение
involvement - *зд.* вовлечение; поражение
5. susceptibility - чувствительность, восприимчивость
6. magnitude - важность, величина
7. to divert - отводить

8. to bring into - *зд.* приводить в
9. to be liable to - быть предрасположенным, подверженным чему-либо
10. inevitably - неизбежно, неминуемо

Read the text and answer the following questions:

1. Why is major surgery in the cardiac patient more hazardous than in patients with normal hearts? Name the cardiac lesions to increase the risks of surgery.
2. When is it advisable to delay the surgery in patients with different cardiac abnormalities?
3. What was the reason to make cardiac surgeons develop means of maintaining circulation artificially?
4. The brain is the most sensitive tissue to stopping the circulation, isn't it?
5. What are modern approaches to cardiac operations?

The Cardiac Patient and Surgery

Major surgery in the cardiac patient is inevitably more hazardous than in patients with normal hearts. When shock, hemorrhage, hypoxia, struggling during induction, thromboembolism, and hypoventilation occur in a patient with heart disease the danger of coronary occlusion, myocardial infarction, cardiac failure, and arrhythmias is sure to be increased.

The major cardiac lesions which increase the risks of surgery are rheumatic heart disease (especially aortic stenosis); coronary heart disease, especially if there is involvement of the coronary ostia (as suggested by associated angina). Hypertension without cardiac or renal involvement does not usually add to the surgical risk.

If possible, surgery of important magnitude and duration in patients with recent congestive failure should be delayed 3 weeks after recovery; in patients with recent myocardial infarction a delay of 3-6 months is advisable. The patient should be brought into the best cardiac state possible before surgery with medications, diet, and vitamin supplements. Anemia should be corrected. Presurgical electrolyte management is thought to be very important in the cardiac patient.

In inducing and maintaining anesthesia in a cardiac patient, adequate ventilation, oxygenation, and smooth induction without struggling are important.

During surgery, hypotension should be treated promptly if it occurs,

anemia avoided, and fluid therapy given to maintain optimal cardiac reserve.

Improvements in anesthesia and surgical skill have reduced the risks of major surgery in recent years.

The difficulties and time limitation of performing surgery on the heart by blind methods led to the development of means of maintaining the circulation artificially so that the heart is operated on in a bloodless field. If the circulation is temporarily stopped at normal body temperature the different organs vary in their susceptibility to irreversible damage due to lack of oxygen. The brain is the most sensitive tissue in this respect and is liable to irreversible changes after 3 minutes of ischaemia.

If the metabolic rate of the tissues is lowered by hypothermia, the period of permissible circulatory arrest will be prolonged. Hypothermia can be produced by surface cooling, but profound hypothermia requires circulation of the blood through a heat exchanger.

The second approach to this problem has been the development of cardiopulmonary bypass in which a machine is used to take over the pumping and oxygenation of the blood after full heparinization.

This form of bypass will perfuse the whole body with oxygenated blood at an adequate pressure while diverting it from the heart and lungs.

There have been a large variety of modifications of these methods and a combination of hypothermia and cardiopulmonary bypass may be used.

Vocabulary Exercises

1. Translate words and word combinations:

surgery, operation: major surgery, minor surgery, bloodless/ bloody operation, restorative operation, purulent operation, diagnostic (= explorative) operation, multi-stage operation, one-stage operation, planned operation, elective operation, emergency operation, urgent operation;

cardiac surgery, cardiac failure, cardiac arrest, cardiac output, cardiac pulmonary bypass, cardiology, cardiologist.

2. Correlate words with the similar meanings. Model: 0 – A

0. normal	*A. healthy*
1. sensitive	**B.** dangerous
2. lesion	**C.** anesthetize
3. hazardous	**D.** susceptible
4. induce	**E.** prolongation
5. duration	**F.** damage

3. Match the word with its definition. Model: 0 – A

0. oxygenate	*A. mix with oxygen, especially the blood in respiration; cause oxygen to combine with substance*
1. anemia	**B.** harmful change in the tissues of a bodily organ, caused by injury or disease
2. lesion	**C.** something added to fill a need
3. hypothermia	**D.** deficiency or poor quality of red corpuscles in blood
4. supplement	**E.** made by human skill, not natural
5. artificial	**F.** condition of very low bodily temperature

4. Reread the text. Choose the correct variant.

1. Major surgery in the cardiac patient is more … than in patients with normal hearts.

a) recent, b) metabolic, c) hazardous

2. The patient should be … into the best cardiac state before surgery.

a) bring, b) brought, c) broken

3. The difficulties of performing surgery on the heart by … methods led to the development of means of maintaining the circulation artificially.

a) blind, b) coronary, c) prompt

4. Smooth … without struggling is important in cardiac surgery.

a) improvement, b) induction, c) exchange

5. In cardiopulmonary … a machine is used to take over the pumping and oxygenation of the blood.

a) arrest, b) failure, c) bypass

U N I T VIII
GRAMMAR EXERCISES (Unit V)

1. Form the words according to the model:

admission – to admit, staff – to staff, circulation – to circulate

1. contraction
2. relaxation
3. pump
4. stimulation
5. action
6. cause
7. reaction
8. production
9. obliteration
10. digestion

2. Translate the following sentences. Pay special attention to the underlined words.

1. Back pain is one of the main causes of disability.
2. The excessive breathing causes chemical changes in the blood that produce the symptoms and signs of hyperventilation.
3. Varicose veins develop predominantly in the lower extremities.
4. The oral diuretics often lower the blood pressure to desired limits.
5. Common injuries to the face include a broken nose, cheekbone, or jaw.
6. The superior surface of the liver lies close to the diaphragm and inferior surface faces the stomach and duodenum.

3A. Form the Plural Form of the following nouns.

1. bronchus
2. tooth
3. analysis
4. pleura
5. septum
6. phenomenon
7. man
8. atrium
9. vertebra
10. foot

3B. Form the Singular Form of the following nouns.

1. aortae
2. ganglia
3. alveoli
4. data
5. stimuli
6. sera
7. bacteria
8. thrombi
9. series
10. crises

4. Give synonyms to the following words. Model: 0 – A

0. limb	*A. extremity*
1. chest	B. intestine
2. thigh	C. spine
3. throat	D. sternum
4. bowel	E. hip
5. gullet	F. larynx
6. breastbone	G. thorax
7. voice box	H. esophagus
8. windpipe	I. pharynx
9. backbone	J. wrist
10. shin	K. lower leg
	L. trachea

5. Correlate nouns with appropriate adjectives. Model: 0 - A

0. lung	*A. pulmonary*
1. nose	B. posterior
2. hip	C. cervical
3. bowel	D. cutaneous
4. neck	E. alveolar
5. skin	F. thoracic
6. kidney	G. vertebral
7. heart	H. abdominal
8. backbone	I. cardiac
9. chest	J. nasal
10. back	K. renal
	L. femoral

6A. Translate the following sentences. Pay special attention to the forms of nouns-borrowings from Greek and Latin.

1. The dark spots in the area surrounding the neuron are *nuclei* of neuroglial cells.

2. Muscles that are forcefully exercised tend to enlarge; this *phenomenon* is called muscular hypertrophy.

3. Irregular bones include the *vertebrae* that comprise the backbone and many of the facial bones.

4. Ammonia formed by *bacteria* in the intestine is normally removed from the blood by liver cells and changed into urea.

5. As a person ages, the nasal *septum* tends to bend toward one side

or the other.

6. Each lung occupies most of the thoracic space on its side and is suspended in the cavity by its attachments, which include a *bronchus* and some large blood vessels.

7. The pressures on the inside of the lungs and *alveoli* and on the outside of the thoracic wall are about the same.

8. Patients were randomly allocated, according to published *criteria.*

9. There are few published *data* on the cardiac pathology in this group of patients.

10. *Vertebrae* are destroyed and collapsed, producing a malformation of the spine such as a humpback.

6B. Change the underlined words into the plural form. Make other changes, if necessary.

1. The bronchus branches from the windpipe.
2. The atrium is separated from the ventricle by the valve.
3. Oxygen passes into the blood from the alveolus.
4. The pneumococcus accounts for most of primary bacterial pneumonias.
5. The spine is actually made up of a column of small bones, each of which is called a vertebra.
6. The prognosis in angina pectoris is extremely variable but any patient may die suddenly.
7. Each case of communicable disease potentially represents steps in a series of events which may lead to new cases of disease.
8. In the early stages of frostbite the foot is white, cold, and numb; later it becomes red, hot, and very painful, and blisters may form.
9. The symptoms of alcoholic hallucinosis are primarily those of psychosis.
10. Reflex actions include withdrawal from the painful stimulus, and such reflex as coughing.

7. Translate the following sentences. Mind different functions of «to be», «to have».

A.

1. The kidneys are the part of the urinary system.
2. The function of the nervous system is to carry signals to and from all parts of the body, registering and acting on stimuli, regulating bodily functions, and controlling all movement.

3. Since insulin is a protein and is broken down by digestive enzymes, it is to be administered parenterally – usually by injection.

4. The liver is completely enveloped by the peritoneum, except for its posterior margin which is fused with the diaphragm.

5. Emphysema is becoming one of the more common respiratory disorders among older persons, although it is not limited to this age group.

B.

1. Nearly all the tissues of the body have lymphatic channels that drain excess fluid from the interstitial spaces.

2. Effective methods of treatment of many diseases of the endocrine glands have been elaborated on the basis of physiological data.

3. The current advances of physics, radio engineering, electronics, and cybernetics, have been of great help to doctors in the study of functions of both the healthy and sick human organism.

4. The possibilities of autoimmunity reactions involving the lymphoid system have to be considered.

5. Although the various bones of the skeletal system differ in size and shape, they have similarity in their structure, development and functions.

8. Discriminate between Verb Forms in Active and Passive.

has become, are specialized, has increased, is formed, is coming, have been found, lies, were connected, are distinguished, will be growing, have contributed, determined, have been, obtain, was limited, led, began, has occurred, will take, contract, was moving, had had, extended, will have taken, are supported, gave, supplied, was being inspired, contained, is increased.

9. Translate the following sentences. Mind Tense Forms and Voice.

A.

1. The heart *serves* as a pump to force blood from the veins into the arteries.

2. The kidney *is covered* by membrane.

3. All cells *show* some electrical activity, but the cells of nerve tissue *are specialized* for the conduction of electrochemical impulses.

4. In the course of evolutionary development, differentiation of cells *has occurred* in multicellular organisms.

5. In the 20^{th} century physiologists *began* employing the theories

and methods of physical chemistry developed at the end of the previous century.

6. Vitamins *were discovered* in 1880 by Lunin, but their thorough study *was* only *begun* between 1910 and 1912.

7. Processes of intermediate metabolism, i.e. processes associated with the successive conversion of different chemical compounds in cells, tissues and organs, *have been studied* in detail in the 20th century.

8. Insulin *has been identified* in the fetus at the age of 11 weeks.

9. In the middle ear conductive deafness, the vibrating fork *can* no longer *be heard*, but a normal ear *will continue* to hear its tone.

10. In experimental study of any process in the organism the physiologist *is trying* to establish the conditions, which, when reproduced, *will give* rise to the given process or *will intensify* or *weaken* it.

11. The nervous tissue of the brain and spinal cord *consists* of masses of nerve cells, or neurons, that *are* the structural and functional units of the nervous system.

12. If the portion of the temporal lobe that *functions* in processing recent memory *is lost*, the person *will not acquire* new recent memory or subsequently *store* it as long-term memory.

B.

1. The organs of the human body *are made up* of various tissues.

2. Depression, irritability, tiredness *are reported* in this condition.

3. Physiology *deals with* the functions of the living organism and its parts.

4. Bronchial adenomas must *be dealt with* as potentially malignant.

5. Endocrinology *is concerned with* the physiology, biochemistry, and pathology of the endocrine glands, which produce and secrete hormones into the blood.

6. Modern studies of the pathological anatomy of gastric disease *are based on* the examination of surgical material, gastric biopsy, and exfoliative cytology.

7. The consequences of paralysis of breathing muscles *depend on* which muscles *are affected*.

8. Smooth muscles *are affected* by a number of hormones that stimulate contraction in some cases and alter the amount of response to neurotransmitters in others.

9. Memory *refers to* the storage of information and the ability to recall this information when it is needed.

10. An apparently insignificant blow to any part of the head may

be followed by vomiting, pallor, and convulsions.

11. Cessation of attacks of vertigo may *follow* complete loss of hearing.

10. Translate the following sentences. Mind Modal Verbs.

1. If a person needs to take a deeper than normal breath, the diaphragm and external intercostal muscles may be contracted to an even greater extent.

2. If the attack of asthma is mild and easy, the casualty should not need immediate medical attention.

3. In the liver the excess of protein may be transformed into carbohydrates.

4. The varied tissues of the body can be classified in the following major categories: epithelial, connective, muscle, and nerve tissues.

5. If the blood loss is prolonged, the person may not be able to obtain enough iron from food to replace the lost hemoglobin.

6. If affected muscles are unable to ventilate the lungs adequately, a person must be provided with some type of mechanical breathing device in order to survive.

7. Many examples could be given to illustrate the use of the advances of physiology in medical practice.

8. Research has to be conducted in the direction of what Pavlov called «synthetic physiology» as opposed to «analytical physiology» which studies separate organs, tissues, and cells.

9. Since the force of surface tension may differ in various alveoli, it might seem that some of them collapse and adhere in expiration while others remain distended.

10. Further antibiotic treatment may have to be modified depending on the results of cultures and sensitivity tests.

11. The diet should be as nourishing as possible.

12. Abnormalities in the lumbar spine are common and degenerative changes are to be found in virtually all older people.

13. Some general malaise may have been present for as long as two weeks.

14. The evolution of complicated multicellular organisms must have entailed the development of mechanisms for the organization and control of tissue size, shape and growth rate.

15. The incidence of some complications may have been too low to allow them to attain statistical significance in the multivariate analysis.

11. Translate the following sentences. Mind the functions of «it», «one-ones», «that-those».

A.

1. The left kidney is slightly longer and narrower, and lies a trifle higher in the abdomen than the right *one*.
2. The architecture of the venous system resembles *that* of the arterial tree.
3. *One* of the branches of general physiology is cell physiology.
4. The most vital liver functions are probably *those* related to protein metabolism.
5. Most experiments are very similar to *those* performed as early as half a century ago.
6. New methods of functional study have been elaborated, and old *ones* modified and it has become possible to study many phenomena without inflicting any harm to the subject.
7. The nervous system is the most important *one* for the organism, uniting and regulating the condition and activity of all the other systems and determining the organism's behavior in its environment.
8. Purulent drainage from *one* or both nasal airways suggests sinus infection.
9. Inspection of the mucosal surface of the normal stomach reveals *that* the mucous membrane of the pyloric antrum is flatter than *that* of the fundus and body.
10. Chest pain has been well described in patients with acute myocardial infarction and in *those* with acute pulmonary embolism.

B.

1. The arterial blood changes to venous blood while *it* is flowing through the capillaries.
2. The defensive function of the liver consists in the fact *that* some toxic substances are detoxified in *it*.
3. *It* is often possible to deduce the location and extent of a brain injury by determining what abilities the patient is missing.
4. Deoxygenated blood is pumped by the heart into the lungs, where *it* releases the waste gas, carbon dioxide, and takes up fresh oxygen.
5. *It* has been shown *that* certain diseases occur as the result of deficient production of hormones by one gland or another, and others as the result of their excess.
6. *One* must avoid trauma to the ear canal, the eardrum, or the ossicles.

7. The bronchi branch from the windpipe, then divide and subdivide to form tiny air passages (bronchioles) *that* terminate in the alveoli.

8. *One* must remember *that* the human body is designed to work best at, or close to, a temperature of 37°C.

9. Congenital absence of the esophagus has been described: *it* is incompatible with life.

10. The pain of acute pericarditis is often identified as *that* of angina pectoris or myocardial infarction, but *it* has some distinguishing features.

12. Revision: Translate the following sentences from Russian into English.

1. Нормальная анатомия – это наука о строении человеческого организма. 2. Система органов – это интеграция различных органов, объединенных тесной анатомической связью друг с другом и выполнением общих функций. 3. Скелет головы (череп) выполняет в организме две основные функции. Он является вместилищем и одновременно защитой для головного мозга и органов чувств. 4. Поперечнополосатые скелетные мышцы являются произвольными, т.е. их сокращения осуществляются сознательно и зависят от нашего желания. 5. Правую подреберную область и частично эпигастральную область занимает печень. 6. Сердце является центральным органом сердечно-сосудистой системы. Посредством ритмических сокращений оно осуществляет движение крови по сосудам. 7. Щеки, так же, как и губы, снаружи покрыты кожей. 8. Желудок выполняет важнейшие функции: накопление пищи, поступающей из пищевода; расщепление белков и жиров, створаживание молока; перемещение и продвижение пищевой кашицы в кишечник. 9. Железами внутренней секреции, или эндокринными железами, являются органы, вырабатывающие биологически активные вещества – гормоны. 10. Щитовидная железа по форме напоминает подкову, однако ее форма и размеры подвержены вариациям в зависимости от кровенаполнения и функционального состояния.

GRAMMAR EXERCISES (Unit VI)

1A. Form the adjectives using the given suffixes.

- **able:** favour, control, vary, depend, value, consider, change, restore
- **ful:** use, hope, pain, harm, rest, thank, help
- **ish:** thin, fat, long, yellow, thick, red

- **al:** structure, culture, biologic, bronchus, duodenum, clinic, nose, abdomen
- **ar** (-ular): alveolus, particle, muscle, cell
- **ic:** base, pelvis, alcohol, calorie
- **ous:** danger, mucosa, injury, number
- **ible:** reverse, response
- **ive:** response, relate, prevent, indicate, sensate, occlusion
- **less:** colour, brain, home, taste, rest, use

1B. Define the adjectives from the following list of words.

useless, normal, painful, injury, pelvic, careless, channel, shortly, poisonous, abdominal, principal, definitive, spinal, vitality, causative, treatment, principle, microscopic, muscular, pressure, available, significant, rare, easy, well

2. Form the comparative and superlative degrees of the following adjectives.

1. great	-	-
2. low	-	-
3. regular	-	-
4. easy	-	-
5. little	-	-
6. good	-	-
7. much	-	-
8. severe	-	-
9. bad	-	-
10. high	-	-

3A. Translate the following sentences. Mind degrees of comparison of adjectives and adverbs.

1. An asthmatic person usually finds it harder to force air out of the lungs than to bring it in.
2. The alveolar wall tend to lose their elasticity, and the capillary networks associated with the alveoli become less abundant.
3. Primary pulmonary cancer, which begins in the lungs, is the most common form of cancer in males today.
4. More recent studies suggest that approximately one quarter to one half of patients with noncardiac chest pain have gastroesophageal reflux as a cause of their symptoms.

5. The process progresses most rapidly in the descending branch of the left coronary artery.

6. Chest pain is frequently worse after meals, awakens the patient from sleep, and may worsen during periods of emotional stress.

7. An older individual with an embolus to the superior mesenteric artery that requires emergency surgery may have only mild pain and a relatively soft, nontender abdomen, especially within the first 24 h.

8. Ice is lighter than cold water, and so it floats.

9. Food processing makes food safer and gives it a longer usable lifetime than fresh food.

10. The salicylates are the most commonly used analgesics and are available in numerous formulations.

11. In patients with spinal cord injury the prevalence of the pressure sores is much higher.

12. Fewer than 1 per cent of cases of narcotic addiction begin with physicians' prescriptions, and in general narcotics are underused for acute pain and overused for chronic pain.

3B. Translate the following sentences. Pay special attention to the underlined words.

1. The patient should be cured in a short period.

2. Shortly after the introduction of antibiotics there were reports of post-operative severe diarrhea due to extensive enterocolitis.

3. Cholera patients should be given large amounts of water.

4. Our understanding of the pathophysiology of myocarditis comes largely from studies in animals.

5. When injury occurs the blood vessels dilate, thus increasing the supply of blood to the injured area.

6. A person with emphysema finds it increasingly difficult to force air out of the lungs.

4A. Translate the following sentences. Pay special attention to the underlined words.

1. The surgical approach to carcinoma of the stomach in Japan is far more aggressive than that currently practiced in the United States.

2. Hypokalemia and alkalosis often occur and should be aggressively treated with parenteral potassium-chloride supplementation.

3. In all patients a dramatic improvement of clinical symptoms was observed after percutaneous cholecystostomy.

4. Sometimes cures can be dramatically achieved by stopping «treatment».

5. It is critical that definitive treatment be instituted as quickly as possible, because just a few hours delay can change the prognosis from good to poor.

6. Disturbances of oxygen supply or cellular oxygen metabolism are common in critically ill patients.

7. Accurate and rapid etiological diagnosis is required for adequate handling and evaluation of therapeutic strategies.

4B. Translate the following sentences. Pay special attention to the meanings of the words «ill» and «poor».

1. Illness and death may be caused by medical treatment, *ill*-considered investigation or even simply by bad advice.

2. Congenital infection, the severe form of which frequently carries a *poor* prognosis, is encountered mainly in new born and young children.

3. The appetite is often *poor* with resulting loss of weight.

4. The symptoms and signs can be *ill*-defined.

5. *Ill* effects of heat are seen in tropical conditions either among the natives or the new entrants.

5. Translate the following sentences. Mind different meanings of «some», «any», «most».

1. *Some* residual increase in cells and protein may persist in *some* cases for several months.

2. *Most* patients with upper respiratory tract infections will do very well without *any* specific intervention from the clinician.

3. Although treatment are available to rehabilitate stroke victims and to prevent further occurrences, the hemiparetic patient cannot be given back prior function with *any* therapy currently available.

4. Pain is the *most* common complaint of patients and should be considered a symptom of anatomic or physiologic derangement.

5. Bronchial asthma is a condition *most* commonly caused by an allergic reaction to foreign substances in the respiratory tract.

6. Has the patient *any* pain in the epigastrium?

7. There is no evidence that *any* drug is more effective for a specific psychotic syndrome.

8. *Any* infections, particularly of the upper respiratory tract, may cause ulcer recurrence.

9. *Most* ischemic episodes in *most* patients with coronary artery disease are asymptomatic.

10. *Some* patients with hypoxia, sleep apnea, and interstitial lung disease will benefit from chronic oxygen use.

6A. Translate the following sentences. Mind – ing-forms.

1. Eating a large meal makes you sleepy.
2. Prophylactic treatment of nausea should be considered in patients undergoing chemotherapy.
3. Chest pain is usually described as squeezing or burning, substernal in location, and radiating to the back, neck, jaw, or arms.
4. The person with type II diabetes tends to become obese, storing more fat than normal and being constantly hungry.
5. Several environmental factors have been identified as being associated with the development of malignancy.
6. Smoking not only causes lung cancer, it is also associated with cancer of the mouth, larynx, oesophagus and bladder.
7. Patients with hypoalbuminemia, fecal incontinence, and fractures are at greatest risk of developing pressure sores.
8. Healing is promoted by keeping the wound clean and free of necrotic debris and by instituting preventive measures.
9. When observing a patient in shock the pulse rate must be monitored over a long period of time.
10. Having X-rayed the patient's chest again, the doctor revealed no evidence of a lung trouble.
11. Having been found at the laparotomy a rather large abscess was opened and pus evacuated.
12. One must be very careful when examining a patient with head injuries.
13. Having been transfused 200 cc of blood the patient regained his consciousness.
14. The first objective in relieving dyspnea is to treat the underlying disease.
15. The cancer cells cause the death of normal cells by crowding them out.

6B. Translate the following sentences. Mind – ed-forms.

1. The number of patients with noncardiac chest pain diagnosed yearly probably exceeds 250,000.

2. Unexplained fever, or extreme fatigability, may or may not be due to a hematological disorder.

3. Radiotherapy given, for example, for Hodgkin's lymphoma is itself associated with an increased incidence of secondary acute myelogenous leukaemia, bladder and lung cancer.

4. The drug used healed the wounds in a short time.

5. The risk factors analyzed were smoking, hypertension, family history, obesity, diabetes mellitus.

6. You began life as a single cell bathed in a nourishing fluid.

7. When questioned carefully, patients with different cardiorespiratory disorders frequently describe distinct qualities of breathing difficulty.

8. The first symptom is an uncomfortable sensation of coldness, followed by numbness.

9. When taken in tablets or injected the antibiotics may relieve the patient's condition greatly.

10. Malignant tumors are best treated when diagnosed in the early stages.

11. Having been properly treated water could be safely consumed.

12. The main characteristic of shock is a reduction in the volume of the circulating blood, accompanied by vasoconstriction, followed by vasodilatation, hypotension, tachycardia, and prostration.

13. The type of immunization administered depends on the patient's history.

14. Patients will die unless treated by dialysis or transplantation.

15. If any abnormality is found in the above mentioned examinations and tests, additional studies may be indicated.

6C. Fill in the correct word – noun, verb or its derivatives.

TO FOLLOW FOLLOW-UP FOLLOWING

1. Obstruction is_____ by infection, edema, and frequently infarction of the appendiceal wall.

2. Septal hematoma occurs_____ trauma to the nose.

3. Atrophic scars may _____healing.

4. Careful_____ X-ray examinations should be continued for at least 2 years.

5. Although the subject is controversial, the_____ diagnostic approach seems reasonable.

6. In severe cases coma and death may _____ rapidly.

7. Chest pain occurs in the _____cardiovascular disorders: angi-

na pectoris, myocardial infarction, myopericarditis, aortic dissection.

8. _____ shows that patients in whom infarction was not demonstrated have a higher death rate over a 1-2-year period than ordinary angina pectoris patients.

9. _____ recovery from an acute myocardial infarction, 30-40 % of patients demonstrate advanced degrees of ventricular arrhythmia on monitoring and exercise stress tests.

10. Cytological examination of urine should be _____ by ultrasonographic examination of the kidneys and bladder.

7. Translate the following sentences. Mind the attributive word chains.

1. The terms «acute abdomen» and «surgical abdomen» create problems because they conjure up a patient with extremely severe pain and a rigid, board-like tender abdomen.

2. The decision making regarding diagnostic maneuvers, especially therapy ultimately rests in the hands of the physician.

3. The water's special feature is its heat-holding capacity.

4. Respiratory muscle weakness may develop as a part of the general deconditioning process that occurs with reduced physical activities in many patients with a chronic respiratory disease.

5. In general, frozen foods' nutrient content is similar to that of fresh foods; losses are minimal.

6. One evaluation approach to the patients with dyspnea is to measure the intensity of dyspnea during submaximal treadmill walking while breathing supplemental oxygen and again while breathing room air.

7. In some instances, patients with a moderate degree of renal dysfunction may have salt-losing nephropathy.

8. The diagnosis of chronic pancreatitis implies end-stage organ failure with endocrine insufficiency (diabetes mellitus) or exocrine insufficiency with streatorrhea.

9. The underlying precipitating hyperosmolar coma factor must be aggressively sought and corrected.

10. The most serious side effect is a life-threatening hypersensitivity reaction characterized by fever, rash, and hepatocellular injury.

8. Translate the following sentences. Mind Participial and Gerundial Constructions.

1. For the time being coronary arteriography remains the only really

reliable way of demonstrating coronary disease.

2. The onset of fevers may be abrupt or gradual, fever of sudden onset being characterized by chills, headache and sometimes accompanied by vomiting.

3. Shock being developed slowly, its signs were evident some hours later.

4. Anesthesia having produced vasodilatation and sudden collapse, additional intravenous therapy was required immediately.

5. There certainly is the potential dangers of this phenomenon occurring.

6. The majority of the disorders were either peripheral neuropathies or myopathies, the central nervous system complications being relatively rare.

7. The management of established pressure sores is similar to that of ulcerative lesions in general, with debridement of necrotic tissue accomplished by mechanical methods or topical means.

8. The antituberculous drugs selected, their dosage and the duration of therapy depend on the extent of the patient disease.

9. His being very ill was obvious to everybody.

10. The chances of such a disaster occurring are increasing.

11. Susceptible persons are protected by their being kept from contact with the source of infection or the transmitting agents or by their being immunized.

12. The patient's not following a bed regime worsened his condition.

9. Translate the following sentences. Mind Emphatic Constructions.

1. Recently, technological advances have not only facilitated diagnosis but also offer the possibility of treatment in some instances; it is these newer modalities that receive a major portion of our attention in this chapter.

2. It is in this group of patients that there may be delay in making the diagnosis.

3. Gentle percussion is not only more human but also more definitive in precisely locating the area of maximal tenderness.

4. Only with a meticulous history and physical examination can the responsible physician choose the appropriate diagnostic tool.

5. Not only does spontaneous hypoglycemia have many possible

causes, some of which are serious, but the same symptoms can arise from a multitude of other causes.

6. Neither has anything to do with hypoglycemia.

7. It is carbohydrates that are the sources of energy or heat.

8. As a rule, pain receptors are the only receptors in visceral organs whose stimulation produces sensations.

9. It was not until the later part of the 19th century that the localization of the primary pacemaker region in the right atrium was definitely established.

10. It was only in 1971 that Nobel Prize Winner Andrew V. Schally and co-workers elucidated the structure of decapeptide hormone.

11. Because of the unavoidable problems of infection, it was not until the late 1940s that the open technique of burn-wound treatment was reintroduced, and today is used by many centers.

12. Rarely, will the chest discomfort due to myocardial ischemia be described as sharp or achy.

10. Translate the following sentences. Mind Imperative Mood.

General Measures for a First-Aider

Asthma

1. Reassure and calm the casualty.

2. Help him to sit down, leaning slightly forward and resting on a support. Ensure a good supply of fresh air.

3. If the casualty has medication, let him use it.

Angina Pectoris

1. Help the casualty to sit down. Reassure him, and make him comfortable.

2. If the casualty has medicine for angina, help him to take it.

3. Let the casualty rest. The attack should settle within a few minutes, or in response to the drug.

Heart Attack

1. Make the casualty comfortable. A half-sitting position, with head and shoulders supported and knees bent, is often best.

2. Dial 999 for an ambulance and say that you suspect a heart attack. If the casualty asks you to do so, call his own doctor also. Keep a constant check on pulse and breathing and be ready to resuscitate if necessary.

3. If you have ordinary aspirin and the casualty is conscious, give him one tablet and tell him to chew it slowly. This may help to limit the damage to the heart.

Fever

1. Make the casualty comfortable in surroundings that are evenly warm, preferably in bed, and let him rest.

2. Give the casualty plenty of bland fluids to drink. A small «hot toddy» may comfort an adult and may induce restful sleep. Give no more than one double measure of spirits.

3. An adult may take two paracetamol tablets. A child may be given the recommended dose of paracetamol syrup (not aspirin), and should be sponged with tepid water to lower the temperature.

11. Revision: Translate the following sentences from Russian into English.

1. Артериальные гипертонии, возникающие в результате различных патологических процессов как симптом других заболеваний, называются вторичными, или симптоматическими. 2. Инфекционные перикардиты, связанные с острой или хронической пневмонией, все чаще встречаются в последние годы. 3. Острый бронхит является наиболее частым заболеванием органов дыхания. 4. Клиническая картина пептической язвы анастомоза сходна с таковой при язвенной болезни, однако симптомы заболевания обычно более интенсивны, периоды обострения более длительны, чем при язве, по поводу которой была произведена операция. 5. Основным и нередко единственным симптомом гипертонической болезни является повышение давления. 6. Следующим фактором, определяющим развитие отека легких, является уменьшение осмотического давления крови. 7. В настоящее время число больных хроническими неспецифическими заболеваниями легких в несколько раз превышает число больных туберкулезом и опухолями органов дыхания. 8. Хронический гастрит является весьма распространенным заболеванием. 9. Аортальный стеноз – наиболее хорошо компенсируемый порок сердца и у большинства больных протекает без каких-либо функциональных нарушений. 10. В связи с прогрессированием недостаточности кровообращения и нарушением синтеза белков-носителей гормонов происходит накопление в крови активных кортикостероидов, что приводит к атрофии надпочечников, преимущественно пучковой и сетчатой зон.

GRAMMAR EXERCISES (Unit VII)

1. Translate the following sentences. Mind the means of negation.

1. An abscess is a localized collection of pus, usually, but not invariably, produced by pyogenic organisms.
2. Multiple infected foci in the axillae or groins due to infection of the apocrine sweat glands of these regions are usually misdiagnosed as boils.
3. Treatment of shock: oxygen is seldom required since the blood is usually fully oxygenated unless there is an associated chest injury or respiratory depression due to a head injury.
4. It is undesirable to move a patient until the shock has passed.
5. No matter which methods of treatment are used burns of 50% skin surface usually result in a 50 % overall mortality, principally due to uncontrollable and overwhelming infection.
6. Dyspnea was experienced more frequently during inspiration rather than during expiration.
7. Wounds of limbs should never be closed primarily neither in part no completely.
8. No neurovascular structures were injured.
9. Useful hand or digit function may be retrieved with no other means of immobilization than a plaster of Paris splint in a functional position.
10. Tetanus is more commonly seen in the wounded of African conflicts rather than in other parts of the world.
11. A combination of wounds to a muscle and its tendon is not uncommon.
12. A surgeon who is unfamiliar with the technique of external fixation is advised to begin by applying it for tibial fractures only.
13. Injecting a local anesthetic through the wound rather than the skin is less painful.
14. No age group is immune to infections, usually caused by pharyngitis or tonsillitis.
15. In these later cases the examination usually reveals that the patient is neither acutely ill nor suffering intensely.

2. Translate the following sentences. Pay special attention to the meanings of «to fail», «failure». Mind «to fail to do» means «not to do».

1. The oxygen lack affects all the vital organs; there may be tubular necrosis of the kidney resulting in renal failure, the adrenals may lose their normal reaction to stress, the heart may fail due to inadequate coro-

nary perfusion.

2. Operative factors of wound infection are lapses in theatre technique, failure of adequate sterilization of instruments, the surgeon's hands or dressings.

3. The patient is dyspnoeic; he attempts to cough but this is painful and unless he is encouraged, he may fail to expectorate.

4. Failure to recognize the existence of major arterial injury increased the timelag between injury and definitive surgery.

5. In inadequately treated cases toxemia is profound and the circulatory failure is common.

6. When adequate resuscitative measures fail to revive a patient suffering from wound shock, repeated clinical assessments are necessary to analyze the causes of failure.

7. Hypoxic liver fails to metabolize amino acids.

8. High morbidity and mortality may be associated with failure to initiate correct antimicrobial therapy promptly.

9. The error to avoid is to fail to entertain the possibility of acute appendicitis in the presence of acute respiratory infection.

10. Operative removal of the prolapsed disc is indicated if conservative measures fail, if repeated attacks occur, if there are severe neurological disturbances and particularly if a large central protrusion is diagnosed.

3. Translate the following sentences. Mind the functions of Infinitives.

A.

1. To obtain skin cover is the best protection against infection of the extensive burns.

2. The surgeon's role is not only to save lives but also to reduce disability to a minimum.

3. To differentiate orbital haematoma from a «black eye» which is a superficial haematoma of the eyelid and surrounding soft tissues produced by direct injury may be difficult.

4. To prevent disease is far more important than to treat it.

5. The purpose of forward medical care is to acquire wounded soldiers and take them to an aid station within 30 minutes.

B.

1. If there is a room, the surgeon's finger can be used to explore the abscess cavity and break down undrained loculi.

2. The principles of the treatment of burns are: first, the management

of the local condition to prevent infection and to promote healing, and second, the general treatment to alleviate the more widespread effects of burns.

3. Small repeated doses of opiates diminish the pain of coughing but are insufficient to dull the cough reflex.

4. To save lives and relieve suffering of the wounded, the surgeon must concentrate his energy on the individual's surgical care.

5. Systemic chemotherapy is given in many burn centers in order to reduce the risk of infection.

C.

1. Toxaemia is a combination of factors to include biochemical disturbances, plasma loss and infection.

2. Shock is the term to describe a clinical state comprising pallor, sweating, coldness and peripheral cyanosis.

3. It is obviously futile to transplant necrotic organs; the cells of the tissue to be grafted must be alive.

4. Ketamine to produce dissociate anesthesia is not a sedative.

5. G.F. Hildanus, the father of German surgery, was the first to classify burns on the basis of their appearence.

D.

1. The risk of tetanus can be reduced almost to zero if penetrating and contaminated wounds are adequately excised to remove all dead tissue and a course of prophylactic penicillin is given.

2. The amount of plasma to be given depends on careful clinical assessment of the patient, including urinary output, general condition of shock, presence of neck vein congestion, or preferably central venous pressure monitoring.

3. In order to survive, wounded soldiers need to get an aid station within one hour after being injured.

4. The complexity of energy transfer, the involvement of bone in a wound, and the presence of reversibly ischaemic tissue explain the failure of a single model to provide rules for wound surgery.

5. Local infiltration to relieve muscle spasm has been tried.

6. The combat lifesaver can apply measures to stop bleeding, restore breathing, and treat for shock.

7. Blalock was the first to perform an extra-cardiac operation and anastomose the left subclavian artery to the pulmonary artery.

8. To excise the wounds adequately is the prophylaxis of gas gangrene.

9. Severe pain following a dental visit to be increasing and throbbing may indicate devitalization of pulpal tissue, which would require root canal therapy.

10. X-ray examination is often required to evaluate the status of the bone as well as to rule out the presence of a foreign body.

11. During combat, the combat medics' mission is to triage, treat and evacuate casualties.

12. Baron Dupuytren was the first physician to describe the importance of fluid therapy in burns, and made the first statistical study of burn patients in 1828.

4. Translate the following sentences. Mind the Infinitive Constructions.

A. Complex Object.

1. The precise diagnosis of a given tachyarrhythmia enables one to employ the proper drug therapy.

2. Tension in the ventricular muscle continues to fall, but no change in ventricular volume occurs until the pressure has fallen below that in the atrium, which causes the mitral valve to open.

3. A fairly detailed anatomical discussion is included in the chapter on inguinal hernia because many find the surgery of this area to be confusing.

4. During endoscopic transnasal pituitary surgery, the surgeon may occasionally notice pituitary tumor fragments to obscure his endoscope lens.

5. In World War II surgeons established antibiotics, particularly penicillin, to have a major role in the management of war wounds.

6. The stimulation of pain receptors associated with injuries to bones, tendons, or ligaments may also cause nearby skeletal muscles to undergo contraction.

7. In the past most physicians consider shock and hypotension to be synonymous.

8. Heat is sometimes applied to reduce muscle soreness; it makes blood vessels dilate and thus promotes blood flow, which helps reduce the concentration of the pain-stimulating substances.

9. We can expect a majority of wounded soldiers to die if no trained personnel is available to stop the bleeding, restore breathing, and control shock.

10. The poor condition of the patient does not permit the clinical assessment to be made immediately.

B. For + Noun + Infinitive Construction.

1. The trismus of the facial spasm may be so severe that it becomes impossible for the patient to open his mouth.
2. For the body to act as a unit, its parts must be integrated and co-ordinated.
3. The basic principles of war wound management, when well-applied, provide an efficient system of patient treatment which is essential for the smooth running of the hospital to be accomplished.
4. It is important for the physician to identify the patients who may develop complications of V.H.
5. Experience has shown that it is better for the patient to arrive at a special unit up to 48 hours after being wounded.
6. It is fairly common for the block to travel distally in the course of the first few hours, due to the embolus being dislodged or fragmented.
7. Angiogenesis, the development of new blood vessels, is required for tumors to grow larger than 2-3 mm^3 in size, and provides both nutrients and access to the systemic circulation with possible subsequent metastasis.
8. Anesthetic drugs and equipment must be available for advanced techniques to be performed, depending on the experience of the anesthesiologist or anesthetist.

C. Complex Predicate.

1. Antibiotic associated enterocolitis is particularly likely to occur after large bowel surgery.
2. Heavy smokers are certain to be at risk and every effort must be made to dissuade patients from smoking for as long a period as possible before elective surgery.
3. The haemorrhage was supposed to be the cause of shock.
4. Stomach cancer is particularly prevalent in Japan and is thought to be due to dietary factors.
5. All traumatic wounds are considered to be contaminated to some degree.
6. A horizontal incision is said to produce better cosmetic results, than a vertical incision, but either one leaves a fairly ugly scar.
7. More invasive and more expensive tests do not appear to improve the success of diagnostics.
8. Atropine has long been known to be an effective bronchodilator but to have uncomfortable side effects.

9. A bullet is not only retarded but also destabilized by contact with bone and is more likely to disrupt.

10. Clostridium welchii and Clostridium oedematiens are said to be species most frequently causing gas gangrene.

11. It is wise to give a preoperative dose of antibiotics to patients with blunt abdominal injury in case the bowel is found to be perforated or a bowel resection is necessary.

12. A combination of surgical drainage of abscesses, excision of sinus tracts, and intense and prolonged antibiotic administration is thought to be the keystone to therapy.

13. There appear to be etiologic factors that can cause clinical symptoms which are amenable to simple therapeutic techniques for alleviation and control of pain.

14. Wound surgery has been heard to focus on 2 elements: first, decompression by incision, as described by Ambroise Pare early in the 17th century, later to be called debridement; second, wound excision as popularized in World War I.

15. Etoposide has been shown to be associated with the development of secondary AML.

5. Translate the following sentences. Mind the meanings of the underlined words.

1. In high radiation areas every worker wears a pocket dosimeter which is read by radiological control personnel when the worker leaves the area.

2. While some of the more developed nations, particularly in South America, have relatively well-structured military medical departments, most suffer from severe limitations in equipment, trained personnel and organization.

3. A soldier who has had signs of severe nerve agent exposure, with loss of consciousness, apnea, and convulsions, may have milder CNS effects for many weeks after recovery from the acute phase of intoxication.

4. The decision to return the wounded soldier to duty includes the following considerations: How well can the soldier function? What is the military need for this soldier?

5. What is unique is the tremendous number of casualties generated by modern warfare.

6. What has to be measured is the frequency of an infection and its severity.

7. Submarine bases and shipyards limit to the minimum the number of places where radioactive material is allowed.

8. It is mandatory that medical officers make ward rounds and present medical papers.

9. We can't overlook the deep psychological effect that an increased mortality can have on the entire unit.

10. It is the human element that ultimately fights the battles.

11. That humanitarian and civic assistance is a valid mission for US military medical units is well understood by the medical authorities.

12. It was that the World War I was the first to see the use of blood transfusions.

13. The submarine environment poses additional problems in the case of serious injury because medical capabilities aboard are limited and medical evacuation is difficult.

14. In order to find out the consequences on the health of the Afghan war veterans we compared the data of clinical and biochemical investigations of 215 helicopter flyers actively participated in combat operations.

15. During President G. Ford's administration Congress has failed to authorize $1,7 billion requested for new ship programs in order to strengthen US maritime capabilities and assure freedom of the seas.

16. Special hermetically sealed containers are manufactured from steel, with wall thickness of 3 mm, in order to solve the problem of radioecological monitoring.

17. Facial nerve function must be evaluated before the wound is anesthetized.

18. The combat casualty who was in good health before wounding seldom demonstrates an electrolyte abnormality during the first 24 hours after injury.

19. After the combat medic triages and treats his patients, he proceeds to fill the medical field cards.

20. After exposure to liquid agent, the most important aspect of care is to decontaminate (i.e., remove the agent) as quickly as possible.

21. Which nutrients are affected by canning, and how are they affected? Minerals are unaffected by heat processing, because they cannot be destroyed, as vitamins can be.

22. During the battle getting to the casualties in time to save life or limb might not be as easy as it appears.

23. In burns it is very important to cover raw skin to keep germs out,

as the protective layer is gone damaged.

24. The exact configuration of the patient treatment areas can be changed depending on the tactical situation and patient flow; as well as the equipment contained in them are surely to change as technological advancements are made.

25. Cases of intestinal diseases should be reported to the unit medical officer as soon as they have been detected.

26. After a limb has been amputated, the patient sometimes feels as if it were still present.

27. It is wise to treat all cases of crushed chest as though there were internal hemorrhage.

28. As the extent of injuries had been determined the wounded was carried to the preoperative ward.

29. As soon as oxygen is given to the patient with blast injury of the lungs there will be the relief of cyanosis and dyspnea.

30. Triage categories is an important concept since much of the evacuation effort rests on its proper application.

31. The increased uses of flight simulators cannot solve the problem of experience lack since these devices cannot fully duplicate the conditions in actual flight.

32. Taking into account underdiagnosis and delays in reporting, World Health Organization estimates that more than one million adult AIDS cases may have occurred worldwide since the beginning of the pandemic.

33. The use of serotherapy in the treatment of established gas gangrene is less popular since penicillin and tetracycline antibiotics have become available.

34. The necessity in the Navy Medical Reserve is evident, for 60 % of all the physicians on active duty in the Navy are reservists.

35. For the US medical personnel, the training opportunity in a foreign country is to deploy overseas, employ and operate in an austere environment, work with foreign medical personnel, and see and treat diseases that are not common in the United States.

36. Unnecessary dressings and unnecessary movements of the limb are hazardous, for they may worsen the condition.

37. Changes in war-fighting doctrine, changes in the nature and sophistication of threat forces, and the increasing requirement for Army Medical Department to be involved in peacetime missions will necessitate constant changes and modifications in the medico-military system.

38. Once admitted to the admission section, the patients are under close supervision of the medical officer.

39. Thermoluminescent dosimeters are checked when new, and once every 6 months for accurate response to a known radiation exposure.

40. Once the decision to treat has been made, it should be carried out systematically to provide continuous relief of symptoms.

41. Even though the wound is small, the same principles described above should be applied.

42. During recent wars, through improvements in our medical evacuation system we managed to save the lives of many wounded soldiers.

43. The key to diagnosis often lies in thorough daily physical examination of the patient, and repeated review of the medical history.

44. Though the response in white blood cells is rapid the red cell count shows little or no change for several days.

45. When the wound is through and through or involves a muscle layer it should be closed in layers.

46. For many people, the word 'cancer' implies certain death, although this is clearly not always the case.

47. The stabilization of a seriously injured casualty in anticipation of more definitive care would be pointless if evacuation could not be accomplished within the needed time.

48. The field medic first decides if anything can be done for the soldier to save life or limb.

49. If the soldier is unable to apply self-aid, a fellow soldier, probably a combat lifesaver, provides the necessary aid.

50. If the data in the «black box» of the crashed airliner TU-154 in Krasnoyarsk had been available to the civilian aviation community, it would have been possible to prevent an analogous aviation accident in Irkutsk.

51. If intestinal disease control measures are properly enforced the epidemic of cholera will never occur.

52. It is difficult for the untrained personnel to determine if the cause is a diabetic coma or insulin shock.

53. The question arises whether possibilities exist to insure the medical care technically and materially.

54. In a mass casualty situation, whether in peacetime or on a battlefield, triage is carried out to provide immediate and appropriate care for casualties with treatable injuries.

55. Whether a pulp has a reversible or irreversible pulpitis is based

on multiple tests, clinical symptoms, and clinical judgment.

56. The need for dispersion of medical stocks is pointed out lest most or all of them be destroyed by an explosion.

57. Unless they are sharp or irregular, amazingly large foreign bodies will pass into the stomach.

58. Unless the bleeding is stopped it will bring on shock.

59. Until 1994 the radiation exposure limits used in the U.S. for whole body radiation exposure were 5 rem accumulated dose for each year beyond age eighteen.

60. No attempt is made to clean the wound until the patient reaches the operating room.

7. Translate the following sentences. Mind the Contact Clauses.

A. of comparison

1. The more highly a food is processed, the more sodium chloride and the less potassium it is likely to contain.

2. The smaller the radius and the greater the length of the vessel, the higher the resistance to flow.

3. The larger the area burnt, the more likely is the appearance of the symptoms involving the whole body.

4. The more rapid the blood loss, the sooner will shock occur.

5. The sooner the treatment was attempted, the better.

6. The more complicated the skill (e.g. spatial orientation), the longer to acquire it, and the quicker to lose it.

7. The higher the risk of developing disease, the more significant are the effects of one single preventive measure.

8. The broader the range of medical and surgical capabilities, the better acute medical requirements are satisfied.

9. The measures of infective complications prevention are more effective the earlier they are instituted after injury.

10. The larger the wound, the more difficult the surgery and the worse the general condition of the patient.

B. of condition

1. Should variceal bleeding be the etiology, the quicker the bleeding is stopped, the better the outcome.

2. Should major pulmonary collapse occur, this should be treated with tracheobronchial aspiration or bronchoscopy as necessary to remove mucous plugs.

3. Had a whole body dose of radiation exposure been in the range of

100 to 200 rems, it would have resulted in a certain amount of illness.

4. Should infection develop, antibiotics should be administered early and in full dosage.

5. Were the cause of allergic reaction determined that allergen would be avoided.

6. Medical personnel should be prepared for emergencies should military missions be in close proximity to industrial chemical and pharmaceutical plants.

7. Had the drug been available for open use in 1986, it would likely have been discarded as toxic and ineffective.

8. Were it necessary, any available medical officer might be called in consultation.

9. Should the evacuation system fail to move the patients to the secure base for reparative surgery, more evacuation type hospitals would be required to provide the sophisticated trauma care.

10. Should X-ray be required, the patient will be carried to the X-ray room.

C. of attribute

1. While many of the skin injuries treated in the emergency room are considered minor wounds, we must give them the same care one would take when treating more extensive soft tissue injuries.

2. The capillary channels are in close contact with the cells they serve, although extracellular fluid always intervenes between the capillary wall and the cell membrane.

3. A deficiency of red blood cells or a reduction in the quantity of the hemoglobin they contain result in a condition called anemia.

4. A combat medic aid is the first level casualties receive care and treatment from school-training medical personnel.

5. The possibility of minimization of stocks of medicaments and medical equipment depends on the mission the Medical Service of the Federal Armed Forces has.

6. The goal in treatment of asthma is to manage acute exacerbations aggressively, minimize the number of exacerbations, and medications the patient must take to achieve these ends.

7. The clinical laboratory MUST hospital is equipped with is also housed in an expandable shelter.

8. According to the standard methods for estimating risk, the risk to the personnel occupationally exposed to radiation is less than the risk these same personnel have from exposure to natural background radiation.

9. Practice a civilian surgeon has trains him well for his professional duties as a doctor if recalled for service.

10. This hospital ship is one of the largest trauma facilities the United States have at their disposal.

7. Translate the following sentences. Mind the Conditional Clauses.

1. Even waiting a day or two before definitive treatment will not endanger the final result provided the maxillofacial wounds are kept moist by dressings impregnated with saline solution.

2. In case his wounds require extensive treatment, or convalescence, casualty goes to a hospital in the American mainland.

3. About 7 to 15 % of the major aviation accidents could be prevented, if information were available about earlier aviation accidents.

4. If hospital-based medical personnel in critical specialties become chemical casualties themselves, the health care system will be significantly compromised.

5. If there were no scientifically-based theory of disaster medicine, no effective practice could exist.

6. The wounds will heal within one to two weeks unless they are complicated by infection.

7. The majority of wounded soldiers on today's battlefield will die if their wounds are not properly treated within an hour.

8. Aspirin is effective in relieving the pain providing that the headache has a low intensity.

9. The blast effect may involve nerves and tendons, even though they are not directly hit.

10. Should pharmacotreatment be successful, the patient should be maintained from two to four years free of attacks.

8. Translate the following sentences. Mind the Subjunctive Mood.

1. Full details of the crush injury and the renal status accompany the patient, so that the gravity of his state be fully appreciated.

2. If ice were to sink, instead of float, ponds and lakes would freeze from the bottom up, they would become solid and colder than freezing temperature, and all living things in them would die.

3. Hypotension occurred as though the casualty had lost a large amount of blood.

4. The wound was lacerated and irregular as if it were made by shell

fragment.

5. In 1971, the National Council on Radiation Protection and Measurements recommended that 5 rem be adopted as the annual limit under most conditions.

6. All sick individuals are isolated lest the epidemic might occur.

7. Should intravascular fluid volume and oxygen carrying capacity be required simultaneous augmentation, the whole blood would be transfused.

8. It is very important that an appropriate and prompt follow-up visit (within 3 days) in a stable patient-physician relationship be arranged at the time of the patient's discharge from the emergency department.

9. The preliminary study indicated that ultrasound would be effective for gallstone fragmentation, regardless of the cholesterol composition of the stones.

10. Provided you carried out a subperichondrial dissection throughout the procedure, damage to the pleura would have been avoided.

9. Revision: Translate the following complex sentences.

1. Freshly drawn blood should be avoided for transfusion whenever possible because of the hazard of cytomegalovirus infection and syphilis.

2. It has been shown that air transportation when used for the emergency hospital transfer of the major trauma patient improves outcome as compared to when these patients are transferred by road.

3. The wound remains open for complications to be recognized quickly.

4. Probably tens of thousands of lives could be saved each year if everyone had his or her blood pressure checked annually.

5. The captain said that the medical evacuation flight was the most exciting he had seen since he arrived in Syria.

6. The obtained data indicate that within the area of the reactor compartment of the submarine no changes of radiation situation were observed.

7. When gunpowder was introduced to warfare, the incidence of burn wounds sustained during conflict greatly increased.

8. The policy of the U.S. Naval Nuclear Program is to reduce, as low as reasonably achievable, exposure to personnel from ionizing radiation.

9. For frozen foods, the lower the temperature, the longer the storage life and the greater the nutrient retention.

10. By the 1970s, military thinkers had returned to the idea that war-

fare was likely to be as frequent an occurrence in the future as it had been in the past.

10. Revision: Translate the following sentences from Russian into English.

1. Оперативное лечение состоит в иссечении аневризмы, укреплении стенки аневризмы различными тканями и ушивании аневризмы. 2. При наличии раны в области левой передней поверхности грудной клетки всегда необходимо помнить о возможности ранения сердца. 3. Раны грудной стенки хорошо заживают под струпом, и хирургическую обработку следует применять только в случаях наличия ран с большой зоной повреждения тканей. 4. При условиях своевременной диагностики и адекватной компенсации обменных нарушений сахарный диабет не может рассматриваться как противопоказание к хирургической операции. 5. Цель хирургической дезинфекции рук заключается в надежном освобождении их от микроорганизмов на длительный срок. 6. Необходимо, чтобы стенки сосуда были хорошо соединены, интима с интимой с помощью беспрерывного или узлового шва. 7. Дренирующие операции (пилоропластика и др.) с ваготомией (стволовой, селективной) целесообразно рекомендовать при перфорации дуоденальной язвы, кровотечении, декомпенсированном стенозе. 8. Из операций на эндокринной системе в последнее время широко применяют одно- или двустороннюю субтотальную резекцию надпочечников. 9. К сожалению, не всем больным раком легкого операция показана. 10. Тщательный контроль больного в послеоперационном периоде, лабораторная информация об уровне глюкозы в крови, моче и щелочных резервах дают возможность правильно оценить состояние больного и проводить оптимальное лечение.

EXTRA READING

TO MODULE I

***1) Get acquainted with the following text. Be ready to speak about the behavior of a participant at an international meeting*:**

At an international meeting you do not only represent yourself, your own aspirations or even your own professional organization. You are also representing your country and should endeavor to do so with appropriate dignity.

The only way of participating in an international congress is to do so whole-heartedly and intelligently. It is the behavior and active participation of the congress-goers which all ensures the success of a congress. Don't be the type of participant who cannot adapt himself.

Think about what you hope from the meeting. Remember that its duration is limited to a few days and the other participants expect you to contribute something too.

Be active, ready to listen to the ideas of others. Don't be self-centered or quick-tempered. Familiarize yourself with the rules of the congress, but with a view to respecting them, not to causing difficulties.

Do not stay in an ivory tower, but do not take part in discussions just for the pleasure of hearing your own voice or of having your name written down in the minutes.

Make sure that by your own behavior you are helping the chairman and other organizers in their difficult task of guiding the proceedings successfully to concrete conclusions in an atmosphere of cooperation and friendship between the participants of each country. Contact with the other participants.

If you wish to draw the greatest benefit from an international congress, make contact with persons whom you have already known, but also make a point of meeting as large a number of unfamiliar faces as possible.

Take advantage of meals, receptions and excursions, change to another group instead of staying with your compatriots, or at the same table, or in the same coach.

Discretion is all very well, but timidity is useless and annoying. Remember that others are in the same position as you, and many may be even more isolated. Introduce yourself to other people and make as many introductions as possible between other participants.

Taking part in a discussion, be clear and brief. Don't overstep your allotted time. This may annoy the chairman and other participants.

Make use of your notes but don't simply read them out. A well-

prepared impromptu speech would interest far more than one read from notes.

Speak in the official congress language you know best and don't try to display your multilingual talents. It should never be necessary for you to be translated into your mother tongue.

Don't change your mind without good reason.

***2) Get acquainted with the following text. Speak about the necessity for a public speaker to train his memory*:**

A retentive memory is not a gift but a habit; and it is acquired as all good habits are by constant training and careful application. The earlier the cultivation of any habit begins the sooner and the more firmly will it be established. While there is no denying that some memorize more easily than others, it will generally be found that where there is interest the memory is keen. Attention is the mother of memory, and interest is the mother of attention.

There are numerous advertised «systems» of memorizing, but they can all be reduced to a few simple principles, and these principles are the fundamentals which apply to all study.

Memorizing is simply a systematic association of ideas. In memorizing either prose or verses it is wise first to decide the important points in interpretation.

While memorizing let the meaning have the first place, not merely the words. Get the ideas fixed in the mind before you try to clothe them in words.

In memorizing your own words for speech or lecture the same principles apply. Here a word of caution may not be amiss. Because you intend to memorize your speech, do not be tempted to make it an extempore address - unless you have had much practice and are an experienced speaker. The really good speaker is the one who prepares most carefully. He knows the exact word he means to use, and exactly how he intends to say it. Every detail or result will sound extempore if there is freedom and spontaneity in delivery, and if speech is the direct result of a thought in the mind, and not merely an endeavor to remember words.

The practice of speaking from memory cannot be too strongly commended. A good memory means a disciplined mind, and a disciplined mind thinks clearly. Further, to read closely is to lose direct contact with one's audience and to reduce personal appeal to a minimum.

***3) Get acquainted with the following text. Express your own point of view about the use of slides*:**

Even nowadays many people fail to realize what a slide in their presentation should do. Some, the lazy ones, appear to think that it is only necessary to photograph a few tables (usually very extensive ones) and sections of the text and give a talk round them. Slides can be used for an excellent talk if the speaker is experienced and know how to select the material and how to design it on his slide. Unfortunately, what happens all too often is that a slide containing a vast amount of information in tabular or graphical form is projected on the screen and when the audience has understood about half of it the lecturer moves on to the next.

We expect not only scientific knowledge from a lecturer but also intelligence which is often sadly lacking. A slide should never attempt to make more than one point, the number of figures or statements should be strictly limited, and the matter should be clearly seen at the back of the theatre.

TO MODULE II

Translate the following texts from English into Russian. You may consult a dictionary.

CARDIOVASCULAR SYSTEM

The heart and blood vessels form a transportation system that delivers to all cells of the body the materials needed for their proper function and carries away the waste products of their metabolism. By bringing oxygen and nutritive materials to the cells and relieving them of carbon dioxide and other metabolites, the circulation provides a means of communication between the cells and the external environment. In the higher reaches of the evolutionary scale the circulation acquires additional functions, e.g., the dissemination of *hormones*, which are important to many cells of the body but manufactured only by specialized tissues or organs, and the distribution of fats and carbohydrates from storage depots to regions where they are utilized. A number of mechanisms for the defense of the organism are also transported by the vascular system and can be delivered by way of the bloodstream to regions of injury or invasion. These include leukocytes, certain proteins concerned with immunity (immune antibodies), and materials involved in blood coagulation, which not only guard the integrity of the vascular system but also provide in damaged areas a framework of fibrin on which new tissue can be built. Circulation

also contributes to the control of body temperature by carrying heat generated by the processes of metabolism to areas where it can be dissipated.

The cardiovascular system includes the heart, arteries, capillaries, and veins, all differing in function as well as structure. The heart provides the motive force to pump blood through the system, the arteries carry blood away from the heart to the tissues of the body, and the veins return blood to the heart again. The arteries are a branching system of vessels that subdivide into increasingly numerous branches of diminishing caliber and eventually lead into the capillaries. Capillaries are thin-walled vessels extending from the smallest terminal branches of the arterial tree to the equally small branches that form the beginning of the venous system. They anastomose freely with their neighbors in a diffuse network quite different from the relatively systematic branching of the arterial and venous vessels.

The circulating blood traverses two such systems in succession: the *systemic circulation*, which supplies the tissues of the body, and the *pulmonary circulation*, which carries blood through the lungs. Blood is pumped into the systemic circulation by the left ventricle, returns to the right atrium, is pumped into the pulmonary circulation by the right ventricle, then flows back from the lungs to the left side of the heart where it begins its journey again. This continuous circulation of the blood out to the most distal parts of the body and back to the heart was first clearly described by William Harvey (1578-1656).

The vascular system properly includes not only the arteries, capillaries, and veins of the systemic and pulmonary circulations but another network called *lymphatic vessels*. These begin in extracellular spaces as small, thin-walled vessels resembling the blood capillaries in size and permeability but closed at one end. The lymph capillaries lead into larger lymphatics, which converge into progressively wider channels until they drain into large veins near the heart. The fluid *lymph* contained in these channels carries solutes that diffuse into it from the extracellular fluid and returns them to the circulating blood. Many of the larger lymph channels are supplied with valves that direct the flow toward the veins and pass through one or more lymph glands.

The heart. In some biologic forms the heart – or at least the organ that moves blood – is a simple muscular tube. The evolutionary development of this uncomplicated structure into a heart with four chambers, valves, and independent outflows to the pulmonary and systemic circulation is retraced in the growth of the mammalian embryo.

As we ascend the evolutionary scale, this tube gradually becomes divided into specialized regions, so that the blood first enters a relatively thin-walled muscular sac (atrium) and then passes through a valve into a thick-walled muscular chamber (ventricle) that propels the blood onward by its contractions. Septa appear in the atrium and ventricle, and in birds and mammals these partitions become complete, producing two conjoined pumps, each with two chambers. The right atrium and ventricle receive blood from the systemic veins and send blood to the lungs, while the left atrium and ventricle receive blood from the pulmonic veins and eject it into the systemic arteries. This complete separation into «right heart» and «left heart» ensures that blood leaving the lungs, which is relatively rich in oxygen and poor in carbon dioxide, does not mix with blood returning from the body tissues through the systemic veins. The progress of blood through the heart is controlled at the entrance and exit of each ventricle by one-way valves that prevent retrograde flow from the outflow vessels (pulmonary artery or aorta) to the ventricles and from the ventricles to the atria. Atrial and ventricular contractions follow an orderly sequence determined by the pacemaker of the heart and by the conduction paths through myocardium and specialized tissues. The strength of these contractions and the volume of blood ejected by the ventricles are controlled by the autonomic nervous system, by substances carried in the blood, and by physicochemical characteristics of the myocardial fibers and their contractile proteins.

Arteries. As the arterial tree divides into successive branches, the individual vessels change gradually in physical dimensions and in the structure of their arterial wall, with important functional consequences.

Except for the major branches leaving the aortic arch and the bifurcation of the main pulmonary artery into right and left trunks, the total cross section of the arterial bed increases with each branching toward the periphery. In the simplest form of branching, where a single vessel divides in two, the ratio of the total cross section of the two branches beyond the bifurcation to that of the parent vessel usually ranges from 1,2 to 1,7. Subdivisions do not occur with perfect geometric regularity, of course, and multiple branching at some sites yields a more rapid increase in total cross section, while at others a single small lateral branch may issue from a much larger parent vessel. The net effect is a rapid increase of total cross section in the periphery of the arterial bed, so that total cross-sectional area increases more than 100-fold between aorta and terminal systemic arterioles and is still greater in the systemic capillary bed. Since the same

average volume of blood passes through each cross section of the circulation per unit time, this overall widening of the bed results in a decrease in the velocity of blood flow as it moves through the arterial tree. Blood moves through the ascending aorta at an average velocity of about 20 cm/sec but slows with progressive branching of the arterial tree until its velocity in the capillaries is probably less than 0,2 cm/sec. Beyond the capillaries the process is reversed, and the flow of blood accelerates as the total cross-sectional area of the veins decreases.

The proximal and distal parts of the arterial tree differ not only in the dimensions of individual vessels but also in the structure of the vascular wall. The walls of virtually all blood vessels, with the exception of capillaries, contain varying amounts of smooth muscle, elastin, and collagen. The aorta and pulmonary artery, together with their initial branches, contain relatively large amounts of elastin and are sometimes called *elastic arteries*, while the more distal branches with their higher concentration of smooth muscle are termed *muscular arteries*. No sharp boundary marks the end of one type and the beginning of the other, but the distinction serves to emphasize a difference in function. The elastic arteries, by reason of their distensibility and proximity to the ventricles, are distended by each volume of blood discharged from the ventricles in systole. The energy thus stored in the arterial wall is returned to the bloodstream at the end of each ventricular contraction, after the aortic and pulmonic valves close, as the elastic recoil of the wall maintains a flow of blood from the large arteries into the peripheral bed throughout diastole. The increase in diameter of the aorta with ventricular systole is not very large – about 6 % in the ascending aorta and 2 % in the abdominal aorta – but it is sufficient to transform the discontinuous ejections of blood from the heart into a pulsatile but continuous flow. The pulmonary artery is more distensible than the aorta, and its diameter normally increases about 10 % with each stroke ejected by the ventricle.

As the branches of the arterial tree extend peripherally, they contain increasing amounts of smooth muscle and the ratio of wall thickness to lumen increases. The small arteries and arterioles are richly supplied with smooth muscle, and the contraction or relaxation of this muscle can produce significant alterations in the diameter of the lumen. Since resistance to blood flow depends in part on this diameter, the activity of smooth muscle in the peripheral arteries is one of the factors controlling blood flow. Smooth muscle contraction in the arterioles and small arteries of any organ will tend to reduce the cross section of these vessels, raising their

resistance to flow so that less of the total cardiac output flows through that organ. Contraction of smooth muscle in the larger arteries changes the elastic properties of the vascular wall, but it has little effect on their diameter.

Thus the arteries are not simply passive conduits but a system in which structure and function change gradually from the origin at the heart to the periphery. The large proximal vessels act as a reservoir to maintain flow during diastole of the heart, while the smaller peripheral vessels control the pressure and distribution of flow in the capillary beds of various organs.

Veins. The architecture of the venous system resembles that of the arterial tree; however, compared with arteries veins have more numerous branches, thinner walls, larger lumens, less smooth muscle, less elastin, and greater distensibility.

Smooth muscle is much less abundant in the walls of the *venules*, or tiny veins leading away from the capillary bed, than in the arterioles, but it is still sufficient to change the caliber of these vessels significantly in response to neural or chemical stimuli. The venules control postcapillary resistance in the same way that the arterioles control precapillary resistance, though the arteriolar resistance is greater in magnitude. This dual control, at each end of the capillaries, provides a mechanism for adjusting capillary pressure as well as controlling the flow through the vascular bed.

The size and number of venous branches is reflected in the large volume of blood contained in the systemic veins, which is more than half the volume of the entire cardiovascular system. Relatively small changes in the diameter of the venous channels can therefore alter the volume, or capacity, of the venous system by several hundred milliliters. Since the total blood volume does not change rapidly under normal conditions, the blood vessels are in effect a closed system, and any change in the capacity of the veins must induce a redistribution of blood within the circulation. In this way the venous capacity, controlled by the smooth muscle in the walls of the veins, influences blood pressure, blood flow, and regional blood volumes throughout the cardiovascular system. The marked distensibility of veins is an additional factor in determining the volume distribution of blood, allowing large changes in venous volume with only small alterations in venous pressure. Because of this ability to increase or diminish in volume to accommodate the needs of the circulation, the venous system is sometimes described as a blood reservoir.

One further characteristic is the presence of valves at more or less

regular intervals along the larger veins of the extremities, preventing retrograde flow of blood. These valves play a large role in returning blood to the heart from the extremities when the body is in the erect position, for the compression of deeper veins by contractions of the skeletal muscle through which they pass helps move the blood toward the venae cavae. This «muscle pumping» may contribute a significant amount of energy toward circulating the blood during running or other muscular exercise, although quantitative experimental evidence on this point is not available at present.

Blood. The volume and physical properties of the fluid that fills the blood's vascular system are as important as the characteristics of the heart and blood vessels. In man the total blood volume ranges from 60 to 80 ml/kg of body weight, or about 5L in an average adult male. The cardiovascular system is a closed, elastic container, and the normal blood volume not only fills the system but distends it slightly. The blood vascular system is filled under pressure and the dynamic pressures generated in the system by the heart are superimposed on a static pressure determined by the total blood volume and the capacity of the system, which Guyton has termed the *mean circulatory filling pressure*. This static filling pressure can be determined experimentally by measuring the uniform pressure found in both arteries and veins after a short period of cardiac arrest. When the heart stops, arterial pressure falls, venous pressure rises, and a static equilibrium is reached throughout the system at a pressure of about 6 mm Hg. As would be expected, the equilibrium pressure is higher when the total blood volume has been artificially increased or when vascular capacity has been diminished by widespread contraction of vascular smooth muscle. The relation between vascular capacity and total blood volume is therefore one of the critical variables in circulatory function. When the heart is functioning and blood is circulating in the normal way, the blood volume of each part of the circulation depends on the vascular pressures and distensibility in that particular region, and a kind of dynamic equilibrium is maintained. It is evident that a large part of the blood volume is accommodated in the most distensible vessels, the veins.

The physical property of blood that is of greatest interest to the circulatory physiologist is its viscosity. It is intimately involved in the principles of hemodynamics, since the energy required to move a liquid through a tube increases with the viscosity of the liquid. Blood is a suspension of cells rather than a simple fluid, and its viscosity varies directly with the concentration of red blood cells, though the relationship is not linear.

The *hematocrit*, or ratio of red cell volume to blood volume, normally averages about 0,4 for the total cells and plasma of the body, but the hematocrit of blood in the vascular beds of different organs varies considerably. In the spleen and vascular spaces of the bone marrow the hematocrit may be as high as 0,82, while the circulation of the kidney tissues, excluding large vessels, is relatively poor in red cells, with a hematocrit in the region of 0,15. These rather surprising variations arise from differences in the velocity and vascular distribution of cells and plasma. The mechanism for this nonuniform velocity is still not entirely clear, but the structure of parts of the microcirculation may play a part, some channels diverting the flow of plasma and others of red cells. The size and shape of the erythrocytes obviously influence their motion through the smallest capillaries, some of which are considerably narrower than the diameter of the red cell. The hemodynamic consequences of this disparity as well as the deformation of erythrocytes in passing through small vessels have not yet been completely evaluated.

In large vessels the erythrocytes are not evenly distributed across the lumen of the vessel but tend to travel with the axial portion of the stream more rapidly than the average velocity of the plasma. Even in the large peripheral veins, from which blood samples are usually drawn, the hematocrit is not identical with that of the body as a whole, the average venous hematocrit being about 0,45, while the ratio of total red cell volume to total blood volume is about 91 % of that value.

WHY IS CANCER SO COMMON?

BBC Science, 22 April 2013

Hundreds of thousands of people are diagnosed with cancer every year in the UK. It is not one disease; there are over 200 different types, each with its own symptoms, methods of diagnosis and treatment.

What is cancer? Cancer starts when cells in our bodies start to reproduce out of control, forming new, abnormal cells. These abnormal cells form lumps, known as tumours.

If the cells from tumours cannot spread, then the tumours are benign. They are not cancerous and can usually be removed.

If the cells are able to invade nearby healthy tissue and organs, or spread around the body through the blood or lymphatic system causing further tumours to grow, then the tumours are malignant or cancerous. These cancer cells are likely to spread if the tumour is not treated.

What causes cancer? Every cell in our body contains DNA. It carries our genetic code and contains the instructions for all the cell's actions.

If the DNA inside cells is damaged, these instructions go wrong. In fact damage to the DNA or «mutations» as they are known, constantly occur in our cells as they divide and reproduce. Most of the time, the cells recognize that a mutation has occurred and repair the DNA, or self-destruct and die.

When a number of mutations have occurred in the DNA of a cell, control of cell growth may be lost and the cells do not die. Instead they start to follow abnormal instructions that make them reproduce and grow, producing more and more of these mutated cells - this is the start of a cancer.

Many factors such as smoking or too much exposure to the sun can also trigger DNA damage - leading to a faster accumulation of the mutations which lead to cancer.

A family history of cancer can also increase chances of getting the disease, because it usually means that persons start their life already having inherited some of the DNA mutations that take them down the path to cancer.

A recent study has found that there are more than 80 genetic markers (i.e. mutated genes) that can increase the risk of developing breast, prostate or ovarian cancer, for example. Scientists believe the results could soon lead to widespread use of DNA profiling for these cancers, though individual genetic testing for those likely to be at increased risk - such as when there is a strong family history of a type of cancer - is already in use.

Why is it so deadly? Cancer cells are able to invade other parts of the body, where they settle and grow to form new tumours known as secondary deposits - the original site is known as the primary tumour. The cells spread by getting into the blood or lymph vessels and traveling around the body.

For example, if bowel cancer has spread through the wall of the bowel itself, it can start growing on the bladder. If cells enter the bloodstream they can travel to distant organs, such as the lungs or brain. Over time, the tumours will then replace normal tissue.

The process of cancer cells spreading is called metastasis. Once a cancer has started to spread, the chances of a cure often begin to fall, as it becomes more difficult to treat for a variety of reasons.

Cancer harms the body in a number of ways. The size of the tumour

can interfere with nearby organs or ducts that carry important chemicals. For example, a tumour on the pancreas can grow to block the bile duct, leading to the patient developing obstructive jaundice. A brain tumour can push on important parts of the brain, causing blackouts, fits and other serious health problems. There may also be more widespread problems such as loss of appetite and increased energy use with loss of weight, or changes in the body's clotting system leading to deep vein thrombosis.

Why is it so hard to stop? Cancer is an extremely complex condition. Each type of cancer is biologically different from any other type. For example, skin cancer is biologically different from the blood cancer called lymphoma, of which there are then many different types.

That is then coupled with genetic differences between individuals and the often random nature of the DNA mutations that cause cancer.

All this makes it difficult to identify the way the particular cancer cells are behaving and how they are likely to spread or damage the body. Without a full understanding of the physiology of the cancer, effective treatments are hard to develop.

Early surgery to remove tumours can work. But the cancer can return if any cells are left behind. It can also return if cells have broken away from the primary tumour and formed microscopic secondary tumours elsewhere in the body before an operation to remove the primary.

And because cancer cells are our own body's cells, many treatments to destroy them also risk destroying our healthy cells.

One controversial theory of why cancer is so hard to stop is that it is rooted in the ancient traits of our genes.

Prof Paul Davies from Arizona State University believes cancer may use tried-and-tested genetic pathways going back a billion years to the dawn of multicellular life, when unregulated cell growth would have been an advantage.

He argues that this tendency was suppressed by later, more sophisticated genes, but lies dormant in all living organisms. Cancer occurs when something unlocks these ancient pathways.

Other scientists disagree, saying that these pathways would not have survived millions of years of evolution.

One thing is for sure - our genes hold the key to understanding cancer and how to treat it.

The future of cancer research: the field of cancer research is moving away from defining a cancer by where it is in the body, as one type of breast cancer can have more in common with an ovarian cancer than an-

other cancer in the breast.

Instead scientists are looking deeper at what is going wrong inside cancerous cells - a tumour can have 100,000 genetic mutations and these alter over time.

By pinpointing the mutations that can cause certain cancers, doctors hope to personalize treatment - choosing the drug most likely to work on a particular type of tumour.

Scientists are creating targeted cancer therapies using their latest insights into cancer at a molecular level. These treatments block the growth of cancer by interfering with genetic switches and molecules specifically involved in tumour growth and progression.

Clinical trials using gene therapy are also underway. This experimental treatment involves adding genetic material into a person's cells to fight or prevent disease.

ONCOLOGICAL EMERGENCIES

Superior vena caval obstruction can arise from any upper mediastinal mass but is most commonly associated with lung cancer and lymphoma. The patient presents with difficulty breathing and/ or swallowing, with stridor, swollen, oedematous facies and venous congestion. Treatment is with immediate steroids, vascular stents, anticoagulation and mediastinal radiotherapy or chemotherapy. Some tumours, e.g. lymphomas and germ cell tumours, are so sensitive to chemotherapy that this is preferred to radiotherapy, as the masses are large and associated with more disseminated disease elsewhere. An early decision is necessary on the patient's likely prognosis, as ventilator support may be required until treatment has had time to relieve the obstruction.

Spinal cord compression needs to be rapidly diagnosed and urgent treatment arranged to salvage as much functional capacity as possible. Early neurological clinical features may be incomplete, more subjective than objective and gradual in onset. MR scanning is the investigation of choice. Treatment should begin with high-dose steroids followed by surgical decompression and radiotherapy to the affected vertebrae to achieve the best disease control and palliation.

Acute lysis syndrome. This occurs if treatment produces a massive breakdown of tumour cells, leading to increased serum levels of urate, potassium and phosphate. Urate deposition in the renal tubules can cause renal failure (hyperuricaemic nephropathy) requiring dialysis. The xanthene oxidase inhibitor (allopurinol) is given before treatment is started.

Intravenous rasburicase, a recombinant urate oxidase, is occasionally used for prophylaxis and treatment but is very expensive.

Acute hypercalcaemia presents with vomiting, confusion, constipation and oliguria. Treatment is by resuscitation with intravenous fluids until a saline diuresis is established, followed by i.v. pamidronate.

Raised intracranial pressure due to intracerebral metastases presents classically with headache, nausea and vomiting. However, for many there is a slower onset with non-specific symptoms such as drowsiness or mental deterioration. Treatment is by high-dose steroids and investigation by MRI as to whether surgery is appropriate or chemotherapy and radiotherapy are required.

Hyperviscosity affects those with a very high haematocrit (> 50), white cell count (> 100×10^9/L) or platelet cell count (> 1000×10^9/L) from untreated acute leukaemia, or polycythaemia. Treatment is by leucopheresis and plasmapheresis followed by chemotherapy treatment for the underlying malignancy.

CHRONIC LYMPHOCYTIC LEUKAEMIA (CLL)

This is the commonest leukaemia, occurring predominantly in later life and increasing in frequency with advancing years. It is almost invariably B lymphocytic in origin. In many patients it is a chance finding with no symptoms, while others present with the features of marrow failure or immunosuppression. The median survival may be 10 years, and may be found to correlate with various presentation features.

Clinical features. Common symptoms are recurrent infection because of (functional) leucopenia and immune failure (reduced immunoglobulins); anaemia due to haemolysis or marrow infiltration; painless lymphadenopathy; splenic discomfort. The commonest findings on examination are anaemia; fever (due to infection); generalized lymphadenopathy; hepatosplenomegaly, sometimes massive. However, none of these may be present.

Management. In CLL, the major consideration is when to treat. Treatment depends on the 'stage' of the disease, although the cytogenic markers are being increasingly used. In particular, low levels of ZAP-70 indicate a good prognosis with no treatment necessary. Conversely unmutated IgVH (high levels of ZAP-70) indicate a poor prognosis.

Early-stage disease is usually managed expectantly, advanced-stage disease is always treated immediately and the approach to the intermediate stage is variable. The absolute indication for treatments are anaemia (espe-

cially due to haemolysis); recurrent infection; splenic discomfort; progressive disease manifest by doubling of the lymphocyte count in 6 months.

General/ supportive treatment. Anaemia due to haemolysis is treated with steroids. If it is refractory or recurrent, or if splenic discomfort is a problem, a splenectomy is performed. Anaemia due to marrow infiltration is treated with chemotherapy and, when necessary, blood transfusion. Erythropoietin may avoid the need for transfusions, particularly in patients receiving chemotherapy.

Infection is treated with antibiotics, with prophylactic therapy being given during periods of chemotherapy. Immunoglobulin replacement may be helpful.

Allopurinol is given to prevent hyperuricaemia.

Specific treatment. Chlorambucil, given in modest doses, usually reduces the blood count and decreases lymphadenopathy and splenomegaly, and successfully palliates the disease. The bone marrow rarely returns to normal. Treatment is usually limited to a few months' duration and then withheld until progression.

Since the introduction of the purine analogues, fludarabine alone or in combination with cyclophosphamide or mitoxantrone (with or without steroids), treatment has had a much greater impact on the bone marrow and can induce complete or molecular complete remission. More recently, the addition of rituximab (relatively ineffective alone) in combination therapy has been reported to result in a dramatic improvement in the response rate. Myeloblative chemotherapy with autologous stem cell rescue and allogenetic stem cell transplantation with myeloablative or non-myeloablative condition regimens are currently undergoing trials.

Outcome. Survival correlates closely with cytogenetic findings and Rai or Binet stage at any time. The median survival from diagnosis is very variable with normal life expectancy in some groups and rapid progression in others. Poor prognostic factors include a high Rai and Binet stage, a short lymphocyte doubling time (< 12 months), diffuse bone marrow infiltration, cytogenetic abnormalities, male gender and developing the disease over 60 years of age. Intervention, when indicated, usually causes improvement in symptoms and in the blood count. The effect on survival is unclear. More aggressive treatments, particularly combinations of cytotoxic chemotherapy with antibody therapy, result in better quality remission of longer duration. These improvements may translate into a survival advantage, to accompany the improvement in quality of life afforded by good supportive care.

HEAD INJURIES

Management of the Unconscious Head Injury

This should be considered under three heading:

1) Observation.

2) Nursing the unconscious patient.

3) Indications for surgery.

The first two apply to every case. Operative intervention is indicated in only some 10 % of head injuries. Although considered under separate headings, all three lines of management may be required at one and the same time.

Observation.

Three things can happen to patients while under observation:

1. The great majority become progressively lighter and recover.

2. A small proportion remain in relatively deep coma as a result of severe cerebral trauma, often with brain-stem damage.

3. A small proportion pass into progressively deeper coma due either to intracranial bleeding, cerebral edema, or, at a later stage, intracranial infection. The last is now fortunately rare except in some penetrating injuries.

Since it is extremely difficult to differentiate between the progressive coma of intracranial hemorrhage (which requires most urgent surgical intervention) and cerebral edema, for practical purposes one may state that a patient with a closed head injury who becomes more deeply unconscious after the accident requires immediate exploration. The exception to this rule is in those centers which have immediate facilities for CT scanning which will delineate intracranial hemorrhage and differentiate accurately between these two conditions.

The whole purpose of careful observation in a head injury is centred on the need to detect that minority of patients who are developing features of cerebral compression. In order of importance these features are: 1) The conscious level. 2) The reaction of the pupils. 3) The pulse, respiration and blood pressure. 4) CNS signs.

Conscious level. Vague terms such as comatose, semi-comatose, unconscious, stuporose, etc., should be avoided; they may be of value to a psychiatrist but not to a surgeon. Instead the conscious level is charted according to the patient's response to stimuli; these are very much the reactions of a patient recovering from deep anesthesia: 1) No response to pain. 2) Uncoordinated response to painful stimuli (e.g. the patient moves all four limbs). 3) Coordinated response to pain (e.g. the patient pushes

away the examiner's hand). 4) Response to simple commands. 5) Talking but disorientated.

Any shift from a higher to a lower level in this scheme is highly significant of deepening coma.

Pupils. If a cerebral hemisphere is pressed upon by an enlarging blood clot, the third cranial nerve on that side becomes stretched by descent of the hippocampal gyrus over the edge of the tentorium of cerebellum. Paralysis of III results in dilation of the corresponding pupil (due to the intact sympathetic supply) and failure of the pupil to respond to light. An important sign of cerebral compression is therefore dilation and loss of light reaction of the pupil on the affected side. Since the optic nerve pathway is intact, a light shone into this unreacting pupil produces constriction in the opposite pupil. As compression continues, the contralateral third nerve becomes compressed, and the opposite pupil in turn dilates and becomes fixed to light. Bilateral fixed dilated pupils in a patient with head injury indicate very great cerebral compression from which the patient rarely recovers.

Pulse, respiration and blood pressure. With increasing cerebral compression the pulse slows, the respirations become stertorous and the blood pressure rises.

CNS examination. Often the CNS signs in an unconscious patient following head injury are variable and difficult to interpret. Progressive unilateral weakness or Jacksonian epilepsy are, however, useful localizing signs. Note that the clinical picture of decerebrate rigidity with small pupils and hyperpyrexia suggests severe brain stem damage, although it may be secondary to cerebral compression.

Special investigations. Comprehensive high quality skull and cervical spine X-rays should be obtained in all cases, supplemented by a CT scan if this facility is available. If the patient shows progressive deterioration in the first few hours after head injury, as stated above, the clinical diagnosis lies between intracranial bleeding and cerebral edema. It is here that computerized tomography is invaluable in differentiating between the two. In hospitals without such facilities the only safe procedure is rapid burr-hole exploration of the skull over the suspected site of the clot collection. Negative findings should be followed by burr-holes on the opposite side. If no clot is discovered but an edematous brain alone revealed, then a diagnosis of cerebral edema is made. Intravenous urea or mannitol are given to reduce edema; for severe cases hypothermia by ice packs and controlled respiration are employed.

Lumbar puncture should never be performed in an attempt to confirm the raised intracranial pressure; if the spinal CSF pressure is reduced by removing fluid from the spinal theca, the high intracranial pressure may force the brain stem downwards through the foramen magnum with fatal consequences.

The nursing care of the unconscious patient. The most important single factor in the care of the deeply unconscious patient, whatever the cause, who has lost his cough reflex, is the maintenance of his airway. He is transported and nursed in the tonsil position, i.e. on one side with the body tilted head downwards, which allows the tongue to fall forward and bronchial secretions or vomit to drain from the mouth rather than be inhaled. Suction may be required to remove excessive secretions or vomit from the pharynx. An endotracheal tube may be necessary if the airway is not satisfactory and if after some days it is still difficult to maintain an adequate airway tracheostomy may be required.

Morphia is contraindicated since this will depress respiration, disguise the unconscious level and will also produce constricted pupils which may mask a valuable physical sign. Phenobarbitone or paraldehyde may be required for severe restlessness or epileptic fits but often all that is required is to protect the patient from injuring himself by judicious restraint and padding. A cause of restlessness may be a distended bladder; often if the retention is relieved the patient will then calm down considerably.

Naso-gastric feeding is instituted if the patient remains unable to swallow after 12 hours. A deeply unconscious patient is liable to bed sores; careful nursing care is required for their prevention.

Indications for surgery in head injuries.

Early: the excision and suture of scalp lacerations; surgical toilet of a compound fracture; burr-hole exploration for suspected intracranial bleeding.

Delayed: repair of a dural tear with CSF rhinorrhoea; late repair of skull defects; late plastic surgery for deforming facial injuries.

Fractures of the Skull.

These are classified into 1) closed; 2) compound: external, via the nasal or aural cavities.

The fracture itself may be: a) fissured, b) comminuted, c) depressed.

Depressed fractures in adults are nearly always compound; if the blow is severe enough to drive a fragment of the skull below its surrounds it is severe enough to tear the overlying scalp. In children, with their softer bones, ‘pond’ fractures may occur, over which the skin remains intact. In adults a common diagnostic trap is a large haematoma of the scalp which

feels surprisingly like a closed-depressed fracture. The palpating fingers feel first the indurated edge of the haematoma and then drop into its soft center, giving the sensation of a depression. No student really believes this; but he does later when he makes this mistake as a Casualty Officer.

A compound fracture to the exterior is treated like any other compound fracture; the wound edges are narrowly excised, dead tissue, bone deprived of periosteum and pulped brain removed, the dura repaired if possible and the skin then sutured. The patient is placed on sulphadimidine, since the sulphonamides readily pass across the blood-brain barrier.

External CSF Leakage.

A special variety of compound fracture is where continuity to the exterior is demonstrated by CSF rhinorrhoea or, less commonly, otorrhea. Occasionally air may enter the skull to produce an intracranial aerocele. In these instances a dural tear associated with a fracture of the base of the skull allows a ready pathway of infection to the meninges and brain. In such cases the patient is barrier nursed and placed on sulphadimidine. After recovery from the immediate effects of head injury the leak is sealed in cases of persistent CSF rhinorrhoea by repairing the torn dura mater, using a fascia lata graft when required.

CSF dripping from the nose is to be differentiated from nasal secretion, although this in practice is very difficult; the CSF discharge is increased by jugular compression, and CSF contains sugar and no mucin, unlike nasal discharge which contains little sugar and is rich in mucin.

The accompanying physical signs of fractures of the cranial fossae.

Anterior Fossa: nasal bleeding, orbital haematoma, CSF rhinorrhoea, cranial nerve injuries I to VI.

Middle Fossa: orbital haematoma, bleeding from the ear, CSF otorrhoea (rare), cranial nerve injuries VII to VIII.

Posterior Fossa: bruising over the suboccipital region which develops after a day or two, cranial nerve injuries IX, X, and XI (rare).

Differential diagnosis between an orbital haematoma and a black eye.

Fractures of the anterior and middle cranial fossae are very frequently associated with orbital haematoma; blood tracks forward into the orbital tissues, into the eyelids and behind the conjunctiva. It may be difficult to differentiate this from a ‘black eye’ which is a superficial haematoma of the eyelid and surrounding soft tissues produced by direct injury.

An orbital haematoma is suggested by the following features: 1) Absence of grazing of the surrounding skin. 2) The haematoma is confined to the margin of the orbit (due to its fascial attachments) whereas a black eye

frequently extends onto the surrounding cheek. 3) There is an associated subconjunctival hemorrhage. 4) There is usually an associated mild exophthalmos and a degree of ophthalmoplegia. 5) The orbital haematoma is usually bilateral.

Intracranial Bleeding.

Classification.

Haemorrhage within the skull following injury may be classified as follows: 1) extradural; 2) subdural: acute, chronic; 3) subarachnoid; 4) intracerebral; 5) intraventricular.

Extradural Hemorrhage.

This is sometimes badly named 'middle meningeal hemorrhage'. It may indeed arise from a tear of the middle meningeal artery or vein, but an extradural collection of blood may also develop from a laceration of one of the other meningeal vessels, from the torn sagittal sinus or oozing from the diploe, bone and stripped dura mater on each side of any associated fracture.

Clinical features. The classic story is of a relatively minor head injury producing temporary concussion, recovery then, some hours later, the development of headache and progressively deeper coma due to cerebral compression by the extradural clot. However, this classic picture is noted to account for about half the cases. Often there is no lucid period; the patient progressively passes into deeper coma from the time of the initial injury.

The physical signs are those of rapidly increasing intracerebral pressure. In addition there are certain localizing signs which may help the surgeon decide on which side to explore the skull.

1. The pupils: a good neurosurgical aphorism is 'explore the side of the dilated pupil'.

2. Hemiparesis or hemiplegia (common) or Jacksonian fits (uncommon) indicate contralateral compression.

3. A boggy haematoma of the scalp usually overlies the extradural clot; this is because some of the extradural blood escapes through the fracture line into the subcutaneous tissues.

4. Skull X-rays are useful. The clot tends to be on the side of the fracture if one is present, a calcified pineal may be seen to be pushed over from the midline in a good anteroposterior film and, in special neurosurgical centers, computerized axial tomography or a cerebral angiogram may accurately localize the position of the clot.

5. Echo-encephalography can demonstrate shift of mid-line struc-

tures.

Treatment. An extradural haemorrhage is one of the few surgical emergencies where minutes really do matter. A burr-hole is made over the suspected site of the clot, the opening enlarged with nibbling forceps and the clot evacuated. The major bleeding point on the dura is controlled either with silver clips, diathermy or by undersewing. Bleeding from the bone edges is plugged by means of Horsley's wax. Only rarely, if ever, is the operation which every student seems to know, that of plugging the foramen spinosum with a sharpened and boiled matchstick, actually required.

Subdural Haematoma.

Acute. This results from bleeding into the subdural space from lacerated and pulped brain; it is usually part of an overwhelming head injury. The patient is frequently in deep coma from the moment of injury but his condition deteriorates still further.

Treatment. Release of the subdural clot through burr-holes or a bone flap may give some light temporary improvement in the neurological state, but the condition is often fatal because of the severity of the underlying brain trauma.

Chronic subdural haematoma or hygroma. This follows a trivial (often forgotten) injury sustained weeks or months before. There is a small tear in a cerebral vein as it traverses the subdural space. Whenever the patient coughs, strains or bends over a little blood extravasates. The resulting haematoma becomes encapsulated; as the clot breaks down, smaller molecules are formed with a rise in the osmotic pressure within the haematoma. Consequent absorption of tissue fluid produces gradual enlargement of the local collection which may comprise liquid blood, clot or clear yellow fluid (hygroma).

Clinical features. Those of a rapidly developing intracerebral 'tumor'. There is mental deterioration, headaches, vomiting and drowsiness which progresses to coma. Moderate papilloedema is seen in about half the cases. The condition is indeed often confused with an intracerebral tumor but cerebral angiography and, particularly, CT scanning demonstrate the outline of the clot.

Treatment comprises the evacuation of the clot through burr-holes. Since 50 % are bilateral, both sides of the skull are explored unless the CT scan positively excludes a contralateral collection.

Subarachnoid Hemorrhage.

Clinical features. Blood in the CSF after head injury is incidental, not surprisingly, to most severe head injuries and gives the clinical picture of

meningeal irritability with headache, neck stiffness and a positive Kerning's sign. There may be a mild pyrexia. If there is any doubt about the diagnosis it can be confirmed by lumbar puncture which will reveal bloodstained or later yellow fluid.

Treatment. Analgesics and bed rest until the severe headache has subsided, followed by rapid rehabilitation.

Intracerebral Hemorrhage.

Scattered small hemorrhages throughout the brain substance are a common post-mortem finding in severe head injuries and may be demonstrated at CT scanning in extensive cerebral injury. Occasionally a local clot may develop within the brain substance; sometimes it is possible to evacuate this successfully through a burr-hole by means of a brain needle, but usually it is best to leave the damaged brain undisturbed.

Intraventricular Hemorrhage

Hemorrhage into a ventricle may occur from tearing of the choroid plexus at the time of injury or rupture of an intracerebral clot into the ventricle. It occurs particularly in childhood and is usually part of an overwhelming head injury.

WORD LIST

Specialists	**Врачи-специалисты**
an(a)esthesiologist	анестезиолог
cardiologist	кардиолог
dentist, stomatologist	дантист, стоматолог
dermatologist	дерматолог
endocrinologist	эндокринолог
family doctor	семейный врач
general practitioner (GP)	врач общей практики
neuropathologist	невропатолог
obstetrician-gynecologist	акушер-гинеколог
oncologist	онколог
ophtalmologist	офтальмолог, окулист
orthopedist	ортопед
otorhinolaryngologist	оториноларинголог (ЛОР)
pediatrician	педиатр
perfusionist	врач-трансфузиолог
physiatrist	физиотерапевт
psychiatrist	психиатр
surgeon	хирург
TB doctor	фтизиатр
therapist	терапевт
traumatologist	травматолог
urologist	уролог

Disease, Illness, Sickness, Disorder, Disturbance, Condition	**Болезнь, заболевание**
I. acquired disease	**I.** приобретенное заболевание
acute disease	острое заболевание
associated (= concomitant) disease	сопутствующее заболевание
basic disease	основное заболевание
burn disease	ожоговая болезнь
chronic disease	хроническое заболевание
competitive disease	конкурирующее заболевание
coronary disease, ischemic heart disease	ишемическая болезнь сердца
curable (in~) disease	излечимая (неизлечимая) болезнь

drug-induced disease — лекарственная болезнь
familial disease — семейное заболевание
grave (= serious) disease — серьезное заболевание
hereditary disease — наследственное заболевание
iatrogenic disease, iatrogeny — ятрогенное заболевание, ятрогения

infectious (= contagious) disease — инфекционная болезнь
intestinal disease (= disturbance) — кишечное заболевание
occupational (= industrial) disease — профессиональное заболевание
peptic ulcer (= ulcerative) disease — язвенная болезнь
progressive disorder — прогрессирующее заболевание
radial sickness (= illness) — лучевая болезнь
recognized (un~) disease (= condition) — распознаваемое (нераспознанное) заболевание
recurrent disease — повторное заболевание
systemic disease — системное заболевание

II. self-limited disease — **II.** болезнь, которая проходит без лечения

advanced (early) case — заболевание в запущенной (начальной) стадии

after-effects of a disease — последствия болезни
attack (= episode) of a disease — приступ болезни
clinical characteristics of a disease — клиническая картина болезни
disease of unknown etiology — заболевание неизвестной этиологии

duration of a disease — длительность заболевания
exacerbation (= acute condition) — обострение (*болезни)*
manifestation of a disease — проявление болезни
morbidity (= sick rate) — заболеваемость
onset of a disease — начало болезни
  acute onset of a disease — острое начало болезни
  vague (= indefinite) onset of a disease — неясное начало болезни

outcome of a disease — исход болезни
precursors of a disease — предвестники болезни
prognosis for a disease — прогноз болезни
  favourable (unfavourable, doubtful, fatal) prognosis for a disease — благоприятный (неблагоприятный, сомнительный, смертель-

	ный)
prophylaxis/ prevention of a disease	профилактика/ предупреждение болезни
recognition (= identification) of a disease and its definition	распознавание болезни и ее определение
recurrence (= relapse) of a disease	возврат, рецидив болезни
signs/ symptoms of a disease	признаки/ симптомы болезни
susceptibility to a disease	подверженность заболеванию
temporary remission of a disease	временное ослабление болезни
turning point in the course of a disease	кризис болезни
III. to affect, to afflict (of a disease)	**III.** поражать (*о болезни*)
to be ill (= sick)	болеть
to fall (= to become) ill, to develop a disease, to take sick	заболеть
to catch a disease	заразиться болезнью
to check a disease	приостановить развитие болезни
to control (= to check, to arrest, to stop) an attack of a disease	купировать приступ болезни
to have an illness	переносить болезнь
to identify a disease, to diagnose a case	определять, диагностировать болезнь
to inherit a disease	унаследовать болезнь
to prevent a disease	предупреждать болезнь
to progress (of a disease)	развиваться, прогрессировать (*о болезни*)
to recur, to reappear (of a disease)	проявляться вновь, рецидивировать (*о болезни*)
to treat somebody for a disease	лечить кого-либо по поводу болезни
Diagnosis	**Диагноз**
I. basic ~	**I.** основной ~
clinical ~	клинический ~
differential ~	дифференциальный ~
disputable ~	спорный ~

doubtful ~	сомнительный ~
etiologic ~	этиологический ~
final ~	окончательный ~
functional ~	функциональный ~
histologic(al) ~	гистологический ~
initial ~	первоначальный ~
misdiagnosis	неправильный, ошибочный диагноз
nosologic(al) ~	нозологический ~
pathogenic ~	патогенетический ~
pathologic/ postmortem ~	патологоанатомический/ посмертный ~
postoperative ~	послеоперационный ~
precise (= accurate, exact) ~	точный ~
provisional/ suggested/ working/ hypothetical ~	предварительный/ предположительный/ рабочий/ гипотетический ~
right (= correct) ~	правильный ~
symptomatic ~	симптоматический ~
uncertain ~	неопределенный, неясный ~

II. to confirm a diagnosis	**II.** подтвердить диагноз
to make a diagnosis, to diagnose	поставить диагноз
to misdiagnose (= to overlook a diagnosis)	допустить ошибку в диагнозе

Advanced Methods of Diagnostics	**Современные методы диагностики**
angiography	ангиография
aortography	аортография
cholangiography	холангиография
computerized tomography (CT)	компьютерная томография
coronary arteriography	коронарография
duodenal intubation (= duodenography)	дуоденография
magnetic resonance imaging (MRI)	ядерно-магнитный резонанс
needle biopsy of the organs	пункционная биопсия органов
radioisotopic studies	радиоизотопные исследования

roentgenography	рентгенография
ultrasound examination	ультразвуковое исследование
urography	урография

Symptom(s) of a Disease

Симптом(ы) болезни

I. alarming ~	**I.** настораживающий ~
clinical ~	клинический ~
focal ~	очаговый ~
generalized ~	общий ~
pathognomonic ~	патогномоничный ~
predominating (= prevailing) ~	превалирующий ~
II. augmentation of symptoms of a disease	**II.** нарастание симптомов болезни
symptom-complex (= symptom-group, set of symptoms), syndrome	симптомокомплекс болезни, синдром

Pain(s)

Боль(и)

I. aching ~	**I.** ноющая ~
acute ~	острая ~
anginal ~	ангинозная ~
burning ~	жгучая ~
constant (= persistent, continuous)	постоянная, непрерывная ~
cramping (= cramp-like, spasmodic) ~	схваткообразная, спазматическая
cutting ~	режущая ~
dull ~	тупая ~
generalized ~	генерализованная ~
girdle ~	опоясывающая ~
gnawing ~	грызущая ~
knife-like ~	кинжальная ~
long-standing (= prolonged) ~	продолжительная ~
marked (= pronounced) ~	выраженная ~
muscle (= muscular) ~	мышечная ~
neuralgic ~	невралгическая ~
radiating ~	иррадиирущая ~
retrosternal ~	загрудинная ~

sharp ~	резкая ~
shooting ~	стреляющая ~
severe (= intense, violent, bad) ~	сильная ~
slight (= mild) ~	слабая ~
stabbing ~	колющая ~
steady (= lasting) ~	стойкая ~
sudden ~	внезапная ~
throbbing ~	пульсирующая ~
tightening (= pressing, squeezing)	сжимающая ~
transient ~	проходящая ~
unbearable ~	невыносимая ~
II. headache	**II.** головная боль
heartache	боль в сердце
stomachache	боль в желудке
toothache	зубная боль
abdominal pain	боль в животе
back pain (= backache)	боль в пояснице
chest pain	боль в груди
joint pain, arthralgia	боль в суставах
painful breathing	боль во время дыхания
rest pain	боль в состоянии покоя
at the height of the pains	на высоте приступа боли
character of pain	характер боли
episode (= attack) of pain, occurrence of pain	приступ боли
exacerbation of pain, increased pain	обострение, усиление боли
onset of pain	начало боли
sudden/ gradual onset of pain	внезапное/ постепенное начало боли
pains of unknown origin	боли неясного происхождения
pain with extension to (= radiation into)…	боли с иррадиацией в…
sensitivity to pain	чувствительность к боли
tenderness (= painfulness)	болезненность
III. to bear (= to stand, to tolerate) pain	**III.** переносить боль
to be related to (= to be associated	быть связанным с… (*о боли*)

with) (of pain)	
to cease (= to pass) (of pain)	прекращаться, проходить (*о боли*)
to deaden (to dull) the pain	приглушить, притупить боль
to eliminate (= to kill, to control, to relieve) pain	снять боль
to feel (= to have, to experience) pain	чувствовать боль
to hurt (= to have pain, to be painful)	болеть, иметь боль
to increase (= to intensify, to worsen, to precipitate) (of pain)	усиливаться (*о боли*)
to induce (= to cause, to bring on) pain	вызывать боль
to locate in (= to settle in, to be limited to) (of pain)	локализоваться (*о боли*)
to radiate (= to extend) to/ into (of pain)	отдавать, распространяться, иррадиировать (*о боли*)
to relieve (= to alleviate, to mitigate) pain	облегчать боль
to start (= to occur, to come on) (of pain)	начинаться (*о боли*)
to subside (= to decrease, to remit) (of pain)	стихать, уменьшаться (*о боли*)
to suffer from pain	мучиться, страдать от боли

Treatment	**Лечение**
aggressive ~	инвазивный метод
drug ~	фармакотерапия
emergency ~	неотложная помощь
in-patient ~	стационарное лечение
out-patient ~	амбулаторное лечение
laser ~	лазеротерапия
medical ~	консервативное лечение
preventive (= prophylactic) ~	превентивное лечение
self-medication	самолечение
surgical ~	хирургическое лечение
ultrasound ~	ультразвуковое лечение

X-ray ~	рентгенотерапия

Operation, Surgery, Operative Treatment (= Intervention)	**Операция, оперативное вмешательство**
I. bloodless ~	**I.** бескровная ~
bloody ~	кровавая ~
cosmetic ~	косметическая ~
definitive ~	окончательная ~
diagnostic, explorative ~	диагностическая, эксплоративная
difficult ~	сложная ~
drainage ~	дренирующая ~
emergency ~	срочная, неотложная ~
major ~	большая ~
minor ~	малая ~
one- (double-, multi-) stage ~	одномоментная ~, двухмоментная ~, многомоментная ~
open ~	открытая ~
original ~	основная ~
outpatient ~	амбулаторная ~
palliative ~	паллиативная ~
planned ~	плановая, несрочная ~
plastic ~	пластическая ~
purulent ~	гнойная ~
radical ~	радикальная ~
reconstructive ~	реконструктивная ~
restorative ~	восстановительная ~
test ~	пробная ~
urgent ~ (non- ~)	экстренная ~ (несрочная~)
II. nonoperative	**II.** не поддающийся операции
perioperative	во время операции
postoperative	послеоперационный, после операции
preoperative	дооперационный, до операции
indications for operation	показания к операции
contraindications for operation	противопоказания для операции
life-saving operation	операция по жизненным показаниям

operation for…	операция по поводу…
operation of choice	операция выбора
operation technique (= procedure)	методика операции
operative access (= approach)	оперативный доступ
patient's consent to the operation	согласие больного на операцию
refusal of operation	отказ от операции
results of operation	результаты операции
immediate/ late results of the operation	ближайшие/ отдаленные результаты операции
III. to be operated on/ upon	**III.** оперироваться
to cancel an operation	отменить операцию
to delay (= to postpone) an operation	перенести, отложить операцию
to get the patient fit for the operation	подготовить больного к операции
to perform (= to do, to make, to carry out) an operation, to operate	делать операцию, оперировать
to time operative intervention	определить срок оперативного вмешательства
to undergo an operation	перенести операцию
Original Methods of Treatment	**Оригинальные (нестандартные) методы лечения**
acupuncture	иглоукалывание, акупунктура
extracorporal methods of detoxication	экстракорпоральные методы детоксикации
phytotherapy	фитотерапия
reflexotherapy	рефлексотерапия
Analysis, Study, Test, Examination, Laboratory Investigations	**Анализ, лабораторные исследования**
I. (clinical) laboratory analyses	**I.** (клинические) лабораторные анализы
routine laboratory studies	общеклинические лабораторные анализы
gastric juice analysis	анализ желудочного сока

general blood test	общий анализ крови
sputum analysis	анализ мокроты
urinalysis	анализ мочи
feces test	анализ кала
allergic test	тест на аллергические реакции
blood clothing test	тест на свертываемость крови
bacteriologic test	бактериологический анализ
biochemical test	биохимический анализ
histological examination	гистологическое исследование
serological study	серологическое исследование
immunologic study	иммунологическое исследование
X-ray examination	рентгенологическое исследование

II. to carry out an investigation (= research), to investigate, to do research	**II.** проводить исследование
to fill in an analysis form	заполнять направление на анализ
to make (= to do, to perform) an analysis, to have an analysis made	делать анализ

CONTENT

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