의사국가시험과 예방의학 교육

이윤성

서울대학교 의과대학 법의학교실

1. 예방의학 대 의사국가시험

예방의학 (공중보건학); "The art and science of preventing disease, prolonging life and promoting physical and mental efficiency through organized community effort" ? 개인의 개별 질환(또는 건강 관련 문제)에 대한 예방 등

의사국가시험; 일차진료의사로서 필요한 지식(수기, 태도, 가치관)을 검증하는 시험

의학총론에서 다룰 내용; 의료 실천(practice of medicine)에 기본이 되는 중요한 과학적 개념, 특히 건강과 질병과 치료 방법에 관한 원칙과 기전을 이해하고 적용할 수 있는 능력을 평가한다. 그리고 현재의 지식뿐 아니라 평생 학습을 통하여능력을 유지하도록 한다.

예방의학; "예방의학 학회에서 정하여 교육한 내용을 의사국가시험에서 출제한 다."

의사국가시험; 일차진료의사로서 필요한 예방의학 지식(수기, 태도, 가치관)을 검증한다.

과연

- (1) 일차진료의사로서 직무를 수행하기 위한 예방의학 지식(수기, 태도, 가치관)의 내용은?
- (2) 의사국가시험에서 적절한 문항 수는?
 - = 의사국가시험 출제 기준

2. 의사국가시험에서 예방의학 과목

01.11.7.11	시행일 과목 수 전체 문항 (총점)		예방의학 문항	
의사국시	시행일	과목 수	선제 단왕 (5점/	(배점)
제57회	1994. 1. 11.	15	440 (340)	40 (40)
제58회	1995. 1. 10.	15	440 (340)	40 (40)
제59회	1995. 7. 24.	7	340 (330)	40 (40)
제60회	1996. 1. 8.	7	340 (330)	40 (40)
제61회	1997. 1. 10.~11.	7	450 (440)	40 (40)
제62회	1997. 12. 23.~24.	7	450 (440)	40 (40)
제63회	1998. 12. 23.~24.	7	450 (440)	40 (40)
제64회	1999. 12. 28.~29.	7	450 (440)	40 (40)
제65회	2001. 2. 19.~20.	7	450 (440)	40 (40)
제66회	2002. 1. 9.~10.	3	450 (440)	?
제67회	2003. 1. 8.~9.	3	500 (490)	?

3. 의사국가시험 출제기준표에서 예방의학 관련 항목

과목	대항목	중항목 영역
		건강 증진
		역학의 기초와 질병 예방의 역학적 개념
		질병과 사망 및 분포의 측정 자료
		역학적 연구 방법
		보건통계 및 우리 나라의 질병과 사망 양상
	8. 건강 증진·질병 예방	감염성 질환의 역학과 관리
	(28/9)	비전염성 질환의 역학과 관리
		환경보건 서론 및 생활 환경
의학총론		물리적 환경과 건강
의약 공론 (100/31)		자연 환경과 건강
(100/01)		산업보건, 산업재해
		화학적 환경
		보건의료의 개념과 보건의료체계 구성 요소
		건강 관련 행태와 의료 이용
	9. 보건 의료 관리	의료자원과 관리
	9. 보신 의료 관리 (12/3)	보건의료체계 유형과 의료공급조직 관리
	(12)0)	의료보장
		보건의료정책과 보건행정체계
		보건사업 원리와 실체
	보건의료기본법	
	지역보건법	
	국민건강증진법	
	전염법예방법	
보건의약관계	후천성면역결핍증예방법	
법규	검역법	
(20/6)	의료법	
	응급의료에관한법률	
	혈액관리법	
	마약류관리에관한법률	
	국민건강보험법	

4. 학습목표

「우리 나라에서 일부 의과대학 교수들이 학과목 학습목표에 관심을 갖고 소속 학회를 중심으로 공동 개발하여 사용하기 시작한 것은 1970년대 후반기였습니다. 대한의학회는 6개년 사업으로 대한의사협회의 재정적 지원을 받아 분과학회 중심으로 전국의과대학 교수가 참여하여 개발한 의과대학 39개 학과목 학습목표를 "기초의학편"(1988년 초판, 1994년 개정판), "임상의학편 Ⅰ"(1990년 초판, 1994년 개정판) 및 "임상의학편 Ⅱ"(1992년 초판) 등 세 권의 의과대학 학습목표집에 수록 간행하여 의과대학, 분과학회, 의사국가시험원 및 한국의학교육학회 등 의학교육기관과 단체에보급하였습니다. 한편 대한의학회와 한국의학교육학회가 주관이 되고 한국의과대학장협의회가 후원하는 의과대학학학습목표 활용을 위한 워크숍이 1995년 1월 19일 개최되어, 학생용(기준 A 항목)을 따로 편찬하여 각 의과대학을 통하여 의학과 학생에게 보급하여 사용하게 하여 현재에 이르고 있습니다.」

(서덕준. 대한의학회 의학교육이사. '학습목표 개정판 발간 경과 보고'에서)

예방의학 학습목표 (의과대학 학습목표 기초의학 편, 1999년)

교수 요목		학습목표 수	
m.l. v.d.	Α	В	계
1. 예방의학 서론			
1) 건강의 개념	4	0	4
2) 예방의 개념	3	3	6
소계	7	3	10
2. 역학			
1) 역학의 정의와 영역	5	1	6
2) 질병 발생의 역학적 개념	2	2	4
3) 질병 및 사망의 측정	13	6	19
4) 역학적 연구 방법과 적용	15	4	19
5) 질병의 역학적 특성과 관리	27	9	36
소계	62	22	84
3. 환경 및 산업보건			
1) 서론	2	1	3
2) 물리적 환경	13	17	30
3) 화학적 환경	13	7	20
4) 환경 오염	5	5	10
5) 산업보건	10	12	22
6) 물과 식품 위생	1	2	3
소계	44	44	88
4. 보건관리			
1) 보건의료의 개념	5	2	7
2) 건강 관련 행태 및 환자-의료인 관계	7	4	11
3) 보건의료 서비스의 구성	7	0	7
4) 보건의료 자원과 관리	7	3	10
5) 보건의료 체계와 그 관리	11	8	19
6) 지역사회 보건 관리	3	1	4
소계	40	18	58
총계	153	87	240

예;

제5장 질병의 역학적 특성과 관리

제3절 비감염성 만성질환의 역학적 특성과 관리

- 1. 비감염성 만성질환의 특성을 설명할 수 있어야 한다. (B)
- 2. 비감염성 만성질환의 1,2,3차 예방의 의의를 설명할 수 있어야 한다. (A)
- 3. 비감염성 만성질환의 잠재기(latent period)의 특성을 자연사적 관점에서 예를 들어 설명할 수 있어야 한다. (A)
- 4. 다음 주요 비감염성 만성질환의 역학적 특성을 설명하고 관리원칙을 제시할 수 있어야 한다. (A)
 - (1) 뇌혈관 질환
 - (2) 허혈성 심장 질환
 - (3) 고혈압
 - (4) 당뇨병
 - (5) 위암

- (6) 간암
- (7) 폐암
- (8) 자궁경부암
- (9) 유방암
- 5. 비감염성 만성질환과 다음 위험요인들의 연관성을 설명할 수 있어야 한다. (A)
 - (1) 유전적 요인
 - (2) 짠 음식
 - (3) 동물성 지방
 - (4) 저섬유소 식품
 - (5) 운동부족
 - (6) 비만
 - (7) 음주(술)
 - (8) 흡연(담배)
 - (9) 사회경제적 요인
 - (10) 환경요인

제4절 집단검진

- 1. 집단검진의 정의를 설명할 수 있어야 한다. (A)
- 2. 집단검진의 목적을 설명할 수 있어야 한다. (A)
- 3. 집단검진이 갖추어야 할 조건을 열거할 수 있어야 한다. (A)
- 4. 집단검진의 효과를 평가할 때 문제가 되는 편견의 종류를 들고 설명할 수 있어 야 한다. (A)
- 5. 집단검진과 건강진단의 차이를 지적할 수 있어야 한다. (B)

부록 1) 일본 의사국가시험 출제 기준(平成13年版)에서 예방의학 관련 대항목

과목	영역	대항목	%
		1. 환자의 인권, 의료 윤리	4
		2. 사회와 의료	3
		3. 의료정보와 여러 증명서	2
		4. 인체의 구조와 기능	. 2
		5. 의료 면접	6
		6. 주요 징후	15
		7. 일반적인 신체 진찰	13
필수		8. 검사의 기본	4
기본적		9. 임상 판단의 기본	4
사항		10. 초기 응급조치	9
		11. 주요 질환, 증후군	10
		12. 치료의 기초와 기본 수기	8
		13. 팀 의료	3
		14. 생활습관과 위험요인(risk)	7
		15. 심리-사회적 측면에 관한 배려	. 7
		16. 일반 교양적 사항	3
		합계	100
		17. 건강, 질병, 장애의 개념과 사회 환경	20
		18. 보건, 의료, 복지, 개호의 구조	15
	1.	19. 지역보건, 지역의료	15
	י. 보건의료론	20. 보건, 의료, 복지, 개호의 자원	15
	(약10%)	21. 사회보장제도와 의료경제	10
	(710%)	22. 국제 보건	10
		23. 보건, 의료, 복지, 개호 관계 법규	15
		합계	100
		24. 예방의학과 건강 유지-증진	13
의학 총론		25. 인구통계와 보건통계	7
		26. 역학과 그 응용	10
	u.	27. 모자보건	10
	#. 예방과	28. 성인 보건과 고령자 보건	10
	건강 관리·증진	29. 정신보건복지	7
	(약15%)	30. 감염증 대책	13
	(-710/0)	31. 국민 영양과 식품보건, 학교보건	7
		32. 산업보건	10
		33. 환경보건	13
		합계	100

부록 2) USMLE의 예방의학 관련 항목

CONTENT DESCRIPTION AND SAMPLE TEST MATERIALS 2003 Step 1 Content Outline

1. General Principles

- 1-1 Biochemistry and Molecular Biology
- 1-2 Biology of Cells
- 1-3 Human Development and Genetics
- 1-4 Biology of Tissue Response to Disease
- 1-5 Gender, ethnic, and behavioral considerations affecting disease treatment and prevention (including psychosocial, cultural, occupational, and environmental)
 - # progression through the life cycle (birth through senescence)
 - cognitive, language, motor skills, and social and interpersonal development
 - sexual development (eg, puberty, menopause)
 - influence of developmental stage on physician/patient interview
 - # psychologic and social factors influencing patient behavior
 - personality traits or coping style (coping mechanisms)
 - psychodynamic and behavioral factors, related past experience
 - family and cultural factors, including socioeconomic status, ethnicity, and gender
 - adaptive and maladaptive behavioral responses to stress and illness (eg, drug-seeking behavior, sleep deprivation)
 - interactions between the patient and the physician or the health care system (eg, transference)
 - patient adherence (general and adolescent)
 - # patient interviewing, consultation, and interactions with the family
 - establishing and maintaining rapport
 - data gathering
 - approaches to patient education
 - enticing patients to make life style changes
 - communicating bad news
 - "difficult" interviews (eg, anxious or angry patients)
 - multicultural ethnic characteristics
 - # medical ethics, jurisprudence, and professional behavior
 - consent and informed consent to treatment
 - physician-patient relationships (eg, ethical conduct, confidentiality)
 - death and dying
 - birth-related issues
 - issues related to patient participation in research

- interactions with other health professionals (eg, referral)
- sexuality and the profession, other "boundary" issues
- ethics of managed care
- organization and cost of health-care delivery

1-6 Multisystem processes

nutrition

- generation, expenditure, and storage of energy at the whole-body level
- assessment of nutritional status across the life span (eg, calories, protein, essential nutrients, hypoalimentation
- functions of nutrients (essential, transfatty acids, cholesterol)
- protein-calorie malnutrition
- vitamin deficiencies and/or toxicities
- mineral deficiencies and toxicities
- eating disorders (eg, obesity, anorexia, bulimia)

temperature regulation

- # adaptation to environmental extremes (including occupational exposures)
 - physical and associated disorders (eg, temperature; radiation; burns; decreased atmospheric pressure; high altitude sickness; increased water pressure)
 - chemical (eg, gases, vapors; smoke inhalation; agricultural hazards, volatile organic solvents, heavy metals; principles of poisoning and therapy)
- # fluid, electrolyte, and acid-base balance and disorders (eg, dehydration, acidosis, alkalosis)
- 1-7 Pharmacodynamic and Pharmacokinetic Processes
- 1-8 Microbial Biology and Infection
- 1-9 Immune Responses

1-10 Quantitative Methods

- # fundamental concepts of measurement
 - scales of measurement
 - distribution, central tendency, variability, probability
 - disease prevalence and incidence
 - disease outcomes (eg, fatality rates)
 - associations (correlation or covariance)
 - health impact (eg, risk differences and ratios)
 - sensitivity, specificity, predictive values
- # fundamental concepts of study design
 - types of experimental studies (eg, clinical trials, community intervention trials)
 - types of observational studies (eg, cohort, case-control, cross-sectional, case-series, community surveys)
 - sampling and sample size
 - subject selection and exposure allocation (eg, randomization, stratification, self-selection, systematic assignment)

- outcome assessment
- internal and external validity
- # fundamental concepts of hypothesis testing and statistical inference
 - confidence intervals
 - statistical significance and type I error
 - statistical power and type II error
- 2. Hematopoietic and Lymphoreticular System
- 3. Central and Peripheral Nervous System
- 4. Skin and Related Connective Tissue
- 5. Musculoskeletal System
- 6. Respiratory System
- 7. Cardiovascular System
 - 7-1 Normal processes
 - 7-2 Abnormal processes
 - 7-3 Principles of therapeutics
 - 7-4 Gender, ethnic, and behavioral considerations affecting treatment and prevention (including psychosocial, cultural, occupational, and environmental)
 - # emotional and behavioral factors (eg, smoking, alcohol, ischemic heart disease, obesity, excercise, diet)
 - # influence on person, family, and society (eg, altered lifestyle)
 - # occupational and other environmental risk factors (eg, stress)
 - # gender and ethnic factors (eg, hypertension)
- 8. Gastrointestinal System
- 9. Renal/Urinary System
- 10. Reproductive System
- 11. Endocrine System

CONTENT DESCRIPTION AND SAMPLE TEST MATERIALS 2003 Step 2 Content Outline

- 1. General Principles
 - 1-1 Infancy and Childhood
 - 1-2 Adolescence
 - 1-3 Senescence
 - 1-4 Medical Ethics and Jurisprudence
 - 1-5 Applied Biostatistics and Clinical Epidemiology
- 2. Infectious and Parasitic Diseases
- 3. Neoplasms
- 4. Immunologic Disorders
- 5. Diseases of the Blood and Blood-forming Organs
- 6. Mental Disorders
- 7. Diseases of the Nervous System and Special Senses
- 8. Cardiovascular Disorders
 - 8-1 Health and Health Maintenance
 - Arterial hypertension
 - Atherosclerosis and coronary artery disease; hyperlipidemia
 - Prevention of rheumatic herat disease, thromboembolic disease, pulmonary emboli, bacterial endocarditis
 - 8-2 Mechanisms of Disease
 - 8-3 Diagnosis
 - 8-4 Principles of Management (with emphasis on topics covered in Diagnosis)
- 9. Diseases of the Respiratory System
- 10. Nutritional and Digestive Disorders
- Gynecologic Disorders
- 12. Renal, Urinary, and Male Reproductive Systems
- 13. Disorders of Pregnancy, Childbirth, and the Puerperium
- 14. Disorders of the Skin and Subcutaneous Tissues
- 15. Diseases of the Musculoskeletal System and Connective Tissue
- 16. Endocrine and Metabolic Disorders
- 17. Congenital Anomaies
- 18. Conditions Originating in the Perinatal Period
- 19. Symptoms, Signs, and Ill-defined Conditions
- 20. Injury and Poisoning

부록 3) Swiss Catalogue of Learning Objectives for Undergraduate Medical Training

	JBL	IC HEALTH, INSURANCE- & OCCUPATIONAL MEDICINE						
		Health Insurance Law (KVG): aspects of prevention	1	-	_	-	_	-
Sk	ills	<u></u>						
		laws and ordinances concerning epidemics, radiation protection, labor	1	-	_	_	_	-
	co	mmunity-oriented prevention						
		responsibilities of organized home care (Spitex)	1	\exists	-	-	_	C
		formulation of medical input in a multidisciplinary team	2					
		substances falling under the Narcotics Law	1	-	_	-	_	-
		recognition of hazardous behavior and lifestyle in a community	2					(
		main functions and competencies of the national, cantonal and municipal governments	2	_	_	-	_	-
		performance of several interventions in the domain of primary, secondary and/or tertiary prevention, e.g. immunization, periodical medical examinations, social medical support and management, prevention of accidents and setting-up of a program or plan	2					
		structural characteristics and history of the Swiss health care system	1	-	_	-	_	-
		role of non-governmental-organizations in health care (e.g. Swiss Red Cross, Cancer League)	1	_	-	-	_	-
		active approach to health problems / designing a program for intervention	2					
		tasks of Health Leagues	1	_	_	-	_	-
		giving health advice to groups and communities	2					
	hu	man nutrition						
	ері	idemiology and demography	-					
		epidemiology and prevention of nutritional problems in the developed and developing countries	2	_	-	-	_	-
		assessment of the degree to which a study meets the requirement of causation	3					
		recommendations for prevention of osteoporosis	1	-	-	-	_	-
		recognition of threats and severity of threats to the health of individuals and groups	3					
		malnutrition in the elderly as a health risk	1	-	_	-	_	· -
		benefits of breast-feeding	1	-	_	_	_	_
	ind	ividual prevention						
		composition of a healthy diet	2	-	-	-[-	(
		identification of hazardous behavior and of a dangerous lifestyle in an individual	3					(
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for "Clinical Picture" and "Further Knowledge"

Level 1; be able to recognize or place:

In Clinical pictures; the doctor does not have to be able to deal with this clinical picture, but he is supposed to have heard of it. This means that, when confronted with it in the literature or in correspondence, he can place this clinical picture and knows how to acquire more information.

In Further knowledge; this level indicates an overview level. The doctor must be able to roughly define the concept and to recognize it as a relevant clinical item or health matter. He knows the epidemiology and how to acquire more information.

Level 2; be able to cope with in practice:

In Clinical pictures; the doctor must be able to cope with this clinical picture in practice. This means, that inan actual situation he must be able to consider this clinical picture as a diagnosis. This assumes knowledge of the clinical picture. The extent of this knowledge varies according to the clinical picture, but contains a least knowledge of the presentations and complaints, and knowledge of diagnositic and therapeutic possibilities. It includes knowledge of the relevant pathology, histology and epidemiology, as well as of the pathophysiology (or psychodynamics for certain psychiatric items). In Further knowledge; this level indicates a level of insight at a professional level. It includes the ability to describe the notion and its epidemiology, interpret findings and drawing a rough plan of intervention or protection if relevant.

	The Diagnosis must be used a supply III.
D	The Diagnosis must be made personally by means of physical examination, simple aids or additional investigation requested and interpreted by the doctor himself (e.g. chest radiograph, electrocardiogram) For example the letter D does not apply for breast cancer, since its diagnosis requires taking and interpreting a biopsy, knowledge beyond a graduate in medicine. Attribution of this letter requires level 2 of competence.
	The Therapy must be carried out by the doctor personally, referring to the most common therapy for an uncomplicated illness. Attribution of this letter requires level 2 of competence.
1	The Case management must be carried out by the doctor personally, referring to the most common case management for a case. Attribution of this letter requires level 2 of competence.
Е	The doctor has to be able to perform primary and secondary assessment of patients and initiates emergency measures. The letter E may be attributed even in absence of the letter D. The doctor in this case is not required to establish a firm diagnosis; he may act on a well founded suspicion. Example: Referral to hospital in case of suspicion of bacterial meningitis.
L	The doctor must have knowledge of legal aspects: - at level 1: knowledge that a law exists at level 2: knowledge of law
Р	The doctor must be able to indentify and initiate appropriate preventive measures.
G	The letter G defines a particularly relevant problem for General Practice and Outpatient Medicine.

for "Skills"

Level 1	only theory
Level 2	seen or have had demonstrated
Level 3	apply / perform
Level 4	routine