COMMUNITY MEDICINE

Learning Objectives:

After completion of training, the MBBS student must be:

- 1. Aware of the physical, social, psychological, economic, and environmental health determinants of health and disease.
- 2. Able to think epidemiologically, diagnose totally, treat comprehensively and be able to function as community and first contact physician.
- 3. Able to apply the clinical skills to recognize and manage common health problems including their physical, *emotional* mental and social aspects at the individual, family and community levels and deal with public health emergencies.
- 4. Able to identify, prioritize and manage the health problems of the community after making community diagnosis.
- 5. Able to perform as an effective leader of health team at primary care level, in planning, supervising & monitoring the services of health professionals in health team.

To achieve this, the student should:

- a. Inculcate values like compassion, empathy to poor, rational and ethical practice, to ensure quality professional practice.
- b. Understand the principles of prevention and control of communicable and non-communicable diseases.
- c. Participate actively in epidemiological studies to identify and prioritize health problems of the community. Collect data, analyze, interpret, and apply relevant statistical tests, to make a report.
- d. Participate actively in health care service for special groups like mothers, infants, under five children, school children, adolescents and elderly of rural, tribal and urban slum dwellers.
- e. Participate actively in investigation of outbreaks/epidemics of various diseases and other public health emergencies.
- f. Participate actively in implementation of National Health Programmes.
- g. Learn and practice principles of behavioural change communication, supervision, leadership, resource management, health information management, community participation and coordination, administrative functions etc.
- h. Continuously upgrade his knowledge, attitude and skills in the subject.

These objectives would be with reference to knowledge, attitude and skills.

Course Contents

I. CONCEPTS OF HEALTH AND DISEASE

	Course Contents	Must Know	Desirable to know
1.	Definition, concepts & evolution (history) of Public Health.	✓	
2.	Definition of health, holistic concepts of health including concept of spiritual health, appreciation of	Ø	
	health as a relative concept, dimensions & determinants of health.		
3.	Characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease.	☑	
4.	Understanding the concept of prevention & control of disease.	\square	
5.	Understanding the natural history of disease and application of interventions at various levels of prevention.	Ø	
6.	Introduction to various health indicators.	\checkmark	
7.	Health profile of India- already in chapter XIV.		

II. SOCIAL AND BEHAVIOURAL SCIENCES

 Concept of Sociology & Behavioral Science, Clinico- socio-cultural and demographic evaluation of the 	\checkmark	
individual, family and community.		
2. Assessment of barriers to good health and health	✓	
seeking behaviour.	_	
3. Role of family in health and disease	✓	
4. Socio-cultural factors related to health and disease in	V	
the context of urban and rural societies.		
5. Assessment of Socioeconomic status, effect of health	V	
& illness on socioeconomic status	1	
6. Doctor-patient relationship.	V	
7. Social psychology, Community behaviour and	¥	
community relationship, Hospital Sociology		\checkmark
psychology		V.
8. Social Security		\checkmark
9. Impact of urbanization on health and disease- will be		
covered in chapter XIII.		

III. ENVIRONMENT AND HEALTH

1. Water: Concepts of safe and wholesome water,	√	
sanitary sources of water, waterborne diseases,		
water purification process. water quality standards.		
2. Physical, chemical & bacteriological standards of	\checkmark	shifted
drinking water quality and tests for assessing		
bacteriological quality of water.		
3. Health hazards of air, water, noise, radiation	\checkmark	
pollution.		
4. Concepts of water conservation, rainwater		\checkmark
harvesting & Global warming.		
5. Concepts of solid waste, human excreta and sewage	\checkmark	
disposal.		
6. Awareness of standards of housing and the effect of	\checkmark	
housing on health.		
8. Role of vectors in the causation of diseases.	✓	
9. Identifying features of vectors and their control	\checkmark	
measures.		
10. Life cycles of vectors and advantages and limitations	\checkmark	shifted
of various vector control measures.		
11. Mode of action, application cycle of commonly used		\checkmark
insecticides and rodenticides.		

IV. HEALTH PROMOTION AND EDUCATION / COMMUNICATION FOR BEHAVIOURAL CHANGE

(INFORMATION, EDUCATION, COMMUNICATION)

a.	Understand the concepts of Health promotion and Education, IEC, Behavioural change communication, Counseling.	\square	
b.	Principles & methods of health promotion and education.	\checkmark	
C.	Barriers to effective communication and methods to overcome them.	\checkmark	
d.	Various methods of health education with their advantages and limitations.	\checkmark	
e.	Organizing health promotion and education activities at individual, family and community settings.	V	
f.	Evaluation of health promotion and education programme.		\checkmark

V. NUTRITION

1.	Common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions.	V	
2.	Nutritional assessment of individual, families and the community by using appropriate method such as: anthropometrics, clinical examination etc.	☑	
3.	Plan and recommend a suitable diet for the individuals and families as per local availability of foods and economic status, etc.		
4.	Common nutrition related health disorders (like protein energy malnutrition, obesity, vitamin A deficiency, anemia, iodine deficiency, fluorosis, food toxin diseases) and their control and management.	Ø	
5.	Food fortification, additives and adulteration, food hygiene	\square	
6.	Social and cultural factors in nutrition and health	\checkmark	
7.	Important National Nutritional Programmes.	✓	
8.	National Nutrition policy		\checkmark
9.	Nutritional surveillance, education and rehabilitation.		V

VI. OCCUPATIONAL HEALTH

Relate the history of symptoms with specific occupations including agricultural related	☑		
occupation.			
2. Employees State Insurance Act. scheme.	✓		
3. Specific occupational health hazards, their risk	\checkmark		
factors and its preventive measures.			
4. Concepts of ergonomics	✓		
5. Diagnostic criteria of various occupational related	✓	shifted	
diseases.			
6. Other legislations related to occupational health.		\checkmark	

VII. BIO-STATISTICS

a. Collection, classification, analysis, interpretation and	✓	
presentation of statistical data. b. Application of statistical methods in various study designs.	Ø	

c. Common sampling techniques, simple statistical	V	
methods, frequency distribution, measures of central		
tendency and dispersion.		
d. Applying common tests of significance in various	✓	
study designs		
e. Use of life tables.	shifted	\checkmark

VIII. BASIC EPIDEMIOLOGY

	1.	Epidemiology: definition, concepts, uses and its role in health and disease.	\square	
	2.	Use of basic epidemiological tools to make a community diagnosis of the health situation, in orders to formulate appropriate intervention measures.	☑	
	3.	Definition of the terms used in describing disease transmission and control.	☑	
	4.	Modes of transmission and measures for prevention and control of communicable and non-communicable diseases.	☑	
	5.	General principles of prevention and control of communicable, non communicable diseases and other health conditions of public health importance.	☑	
	6.	Principal sources of epidemiological data.	✓	
	7.	Definition, calculation and interpretation of morbidity and mortality indicators	☑	
	8.	Screening of health related attributes & diseases. Need, uses and evaluation of screening tests.	☑	
	9.	Investigation of an epidemic of communicable disease and to understand the principals of control measures.	☑	
	10	. Epidemiological study designs & Research Methodologies.	☑	
l	11	. Concept of association, causation and biases.	✓	
	12	. Application of computers in epidemiology.	\checkmark	

IX. EPIDEMIOLOGY OF SPECIFIC DISEASES: COMMUNICABLE & NON-COMMUNICABLE

Communicable and non-communicable diseases of public health importance, relevant to the region, for which National Disease Control/ Eradication Programmes have been formulated.

Communicable Diseases:

Intestinal infections: Poliomyelitis,* viral hepatitis,* Diarrhoea,* Cholera,* Helminthiasis,* Typhoid*, Amoebiasis & Giardiasis,* Food Poisoning.*

Respiratory infections: Acute Respiratory infections*, Measles*, Diphtheria*, Whooping cough*, Tuberculosis*, SARS**, Influenza**, Meningococal Meningitis**, Mumps**.

Vector – borne infections: Malaria*, Filaria*, Kala Azar*, Dengue*, Yellow Fever**, Chickengunya fever**.

Surface Infections: Sexually Transmitted Diseases*, HIV & AIDS*, Tetanus*, Leprosy*, Scabies*, Pediculosis*.

Zoonosis: Rabies, Japanese encephalitis*, Plague*, Kyasanur Forest Disease**, Leptospirosis**, Anthrax**.

Hospital acquired infection**

Non-communicable and lifestyle diseases:

Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancers, Obesity, Diabetes, Blindness, Injury and Accidents.

New emerging diseases:

(* Must Know, **Desirable to Know)

1. Extent of problem, epidemiology and natural history of disease	
2. Public health importance of particular disease in local	
area	
3. Influence of social, cultural and ecological factors on	
the epidemiology of particular disease.	
4. Diagnosing disease by clinical methods, using essential ✓	
laboratory techniques at primary care level.	
5. Treatment of a case, as per National Programme ✓	
guidelines, and also follow up of case.	
6. National Health Programme for particular disease. ✓	
7. Understand the principles of measures to control a	
disease epidemic.	
8. Principles of planning, implementing and evaluating	
control measures for disease at community level	
bearing in mind the public health importance of the	
disease.	
9. Training of health workers in disease surveillance,	
control and treatment, health education	
10. Management information system in particular disease.	

11. Prevention & Control of new emerging diseases and life	\checkmark	shifted
style related health problems		
12. International Classification of Disease (ICD)		✓

X. DEMOGRAPHY AND VITAL STATISTICS

1. Concepts of Demography, Demographic cycle, Vital	
statistics.	
2. Definition, calculation and interpretation of demographic	✓
indices like birth rate, death rate, fertility rates.	
Declining sex ratio and its social implication.	
Population explosion, population dynamics of India.	
5. Population control measures.	✓
6. National Population Policy.	\checkmark
7. Sources of vital statistics like census, SRS, NFHS, NSSO etc.	7

XI. REPRODUCTIVE AND CHILD HEALTH

 Current status of Reproductive and Child Health. 	\checkmark	
2. Screening of high risk groups and common health	\checkmark	
problems.		
3. Local customs and practices during pregnancy, childbirth	\checkmark	
and lactation, child feeding practices.		
4. Organization, implementation and evaluation of	\checkmark	
Reproductive child health (RCH) components, including		
child survival and safe motherhood (CSSM), Universal		
Immunization Programme (UIP), Integrated Child		
Development Services Scheme (ICDS), Integrated		
Management of Neonatal and Childhood Illness (IMNCI),		
Janani Suraksha Yojna (JSY) & Accredited Social Health		
Activist (ASHA) under National Rural Health Mission		
(NRHM) and other existing Programmes.	_	
5. Various family planning methods, their advantages and	\checkmark	
shortcomings.		
6. Medical Termination of Pregnancy and Act (MTP Act) &	\checkmark	
Pre-Natal Diagnostic Test Act (PNDT Act).	_	
7. Adolescent health.	\checkmark	
8. Handicapped child.	\checkmark	
9. Gender issues and Women empowerment		\checkmark
10. Organizations, technical and operational aspects of the		\checkmark
National Family Welfare Programme.		
11. Genetics & Health		\checkmark

XII. SCHOOL HEALTH

Α11. \	JOHOGE HEAETH		
1.	Objectives and components of School Health Programme.	V	
	Activities of the programme :	V	
	Periodic medical examination of the children and the	V	
	teachers.		
b.	Immunization of the children in the school.	\checkmark	
	Health promotion and education.	✓	
d.	Mid-day meals.	✓	
XIII.	URBAN HEALTH		
1.	Common health problems (Medical, Social, Environmental,	V	
	Economical, Psychological) due to urbanization.	•	
	of urban slum dwellers.		
2.	Organization of health services for and in urban slums.	✓	
	National policy on urban health		✓
XIV.	HEALTH CARE SYSTEM IN INDIA		
1	Concepts of Primary Health Care and Comprehensive		
1.	Concepts of Primary Health Care and Comprehensive Health Care.	\checkmark	
2	Health profile of India		
	Health care Delivery System in India and infrastructure	\checkmark	
J.	at peripheral, primary, secondary and tertiary care level	▼ I	
4	Job responsibilities of different category of workers in	\checkmark	Shifted
1.	health system	Y.	Silitod
5.	Voluntary Health agencies working in India		✓
	HEALTH PLANNING, MANAGEMENT AND ADMINISTRA	TION	<u>v</u>
1	Concepts of Planning, Management, Public Health	✓	
	Administration.		
2	Components of planning a health activity.	\checkmark	
3	Classification and understanding of various Qualitative	\checkmark	
	and Quantitative Health Management techniques.		
4	Overview of administration at village, block, district, state	\checkmark	
	and central level in India		
5	Integrated Disease Surveillance Project (IDSP)	\checkmark	
6	Health related Millennium Development Goals	\checkmark	
7	National Health Policy & National Rural Health Mission (NRHM)	\checkmark	
8	Concepts of Health Economics in health planning and		\checkmark
	management.		
9	Concepts, scope and methods of Health Audit.		\checkmark

10 Role of Planning Commission and five year plans in		\checkmark
development of health sector in India		
11 Various health committees of Government of India and		\checkmark
their important recommendations.		
VI. DISASTER MANAGEMENT		1
. Principles of disaster preparedness and application of these	V	
n disaster management		
. Bio-terrorism		✓
VII. PUBLIC HEALTH LEGISLATIONS		
1. Birth and Death registration act, PFA, MTP, CPA, PNDT	V	
Child labor act, Human organ act	_	
2. Other public health legislations		\checkmark
1. Role of various multilateral, bilateral international health	Ø	
organizations like WHO, UNICEF etc.	<u>~</u>	
Organizational structure of these organizations		\checkmark
3. International Health Regulation (IHR)	\checkmark	shifted
IX. BIO-MEDICAL WASTE AND ITS DISPOSAL		
1. Classification/ Category, sources, health hazards and	\checkmark	
treatment of Bio-Medical Waste		
Application of these principles in different setting of health care delivery system		\checkmark
		•
X. HEALTH CARE OF ELDERLY 1. Size of elderly population, their common health problems	☑	
 X. HEALTH CARE OF ELDERLY 1. Size of elderly population, their common health problems and justification of their special care 		shifted
X. HEALTH CARE OF ELDERLY 1. Size of elderly population, their common health problems	Ø	shifted
1. Size of elderly population, their common health problems and justification of their special care 2. Screening procedures for early detection of various		shifted

XXI. MENTAL HEALTH

1.	Importance of	mental	health	care	in	primary	care	V	Shifted
2.	settings. Comprehensive settings.	mental	health	care	at	primary	care	\square	shifted

SKILLS

Skills	Able to do independently	Able to perform under guidance	Assist	Observe
General Skills.				
The student should be able to:				
Elicit Clinico-social history. Describe	+			
agent, host and environmental factors				
determining health and disease.				
2. Identify, prioritize and manage				
common health problems of	+			
community. 3. Apply elementary principles of				
epidemiology in carrying out simple	+			
epidemiological studies.				
4. Work as a team member in rendering	+			
health care.	·			
5. Carry out health promotion and	+			
education effectively in the community.				
Skills in relation to specific topics				
1. Communication:				
 Should be well versed with the art of 	+			
interviewing techniques to elicit the				
desired information & with art of				
counseling to counsel.				
The student should be able to	+			
communicate effectively with family				
members at home, patients at clinics or at home; and community.				
 Individuals, family or a group for 	+			
health promotion and education, and	'			
also with peers.				
2. Team activity:				
 Work as an effective member of the 			+	
team; in planning and carrying out				
field work like school health, conduct				
health camps etc.				
3. Environmental sanitation:				
Able to assess environmental risk	+			
factors and suggest action plan.	1			

Able 1	to collect water and stool samples	+			
for m	icrobiological analysis.				
	to identify insects of public health	+			
	tance, able to use effective				
•	ticides.				
	municable and Non-				
	nunicable disease				
	ng Clinico-social history and	1			
	3	+			
	ining the patient for diagnosis				
	reatment.				
	sing the severity and/or				
	fying dehydration in diarrhea,				
	respiratory tract infection, dog	+			
	leprosy, classify tuberculosis				
(Cate	gorization) and STD.				
• Fixing	g, staining and examining	+			
perip	heral smear for malaria, sputum				
for Al	B, Hemoglobin estimation, urine				
	tool examination.				
	uate and appropriate treatment	+			
	ollow up of public health diseases				
	of locally endemic diseases.				
	e regarding prevention and	+			
	nylaxis against common and	·			
	y endemic diseases.				
	of proper screening methods in	+			
	diagnosis of certain diseases,	т			
	· ·				
	cable at primary care level.				
	to detect outbreak in early stage,			+	
•	mapping, investigation of				
	eak, notification of notifiable				
disea					
	illance skills development,	+			
	ating various health indicators				
	heir interpretations.				
5. Repr	oductive and Child Health:				
	natal- examination of women,	+			
applic	cation of at-risk approach in				
anter	atal care.		+		
• Intra	natal care- conducting a normal				
	ery, referral indications.				
	atal- assessment of newborn and	+			
moth	er, promotion of breast feeding,				
	e on weaning and on family				
plann	-				
	ing. Inization- able to immunize the				
	le using desired routes, for				
	ding vaccines.				
1	•	ا			
	aception- able to advice	+			
1	opriate contraceptive method.		,		
	to insert any Intra Uterine Device		+		
(IUD)					
6. Stati	STICS:				

 Able to draw sample using simple 	+			
sampling techniques.		+		
 Apply appropriate test of significance. 				
 Calculation of various health indicators 				
and presentation of data.	+			
7. Nutrition:				
Conduct complete nutritional	+			
assessment of individual using clinical,	•			
anthropometric and diet survey tools.				
·				
Ability to use and interpret road to	+			
health card.				
Advice appropriate balance diet and	+			
suggest any dietary modification				
 Nutritional promotion and education to 	+			
specific groups and related to specific				
nutritional diseases.				
8. Occupation Health:			+	
 Screening of workers fro any 				
occupation related health problem.				
9. Managerial skills:				
Able to make community diagnosis and	+			
take remedial measure for improving	'			
health of community.		+		
Organize antenatal, under five clinics,		·		
health education camps.				
			,	
Ability to manage Health Management Information System, including.			+	
Information System, including				
maintenance of health records at				
primary care level.				
 Able to show effective leadership, 	+			
supervision skill not only at primary				
care level but also in inter-sectoral				
coordination.			+	
 Ability to manage money, material and 	+			
manpower at primary care level.			+	
 Ability to do cost benefit and cost 				
effective analysis as per primary care	+			
needs.				
 Community participation and 	+			
cooperation skills	•			
10. Basic Laboratory investigation at				
primary care level				
Hemoglobin estimation				
Urine examination for normal and	+			
abnormal constituents.	+			
 Thick and thin blood smear for malaria 				
	+			
parasite examination				
Peripheral smear for type of anemia	+			
Acid fast staining				
 Hanging drop examination of stool 	+			
sample.				
 Estimation of Chlorine demand and 	+			
Residual chlorine.				

 Identification of life cycle stages of 	+		
various insects of public health			
importance			
11. Minor surgical procedures at			
primary care level			
 All types of injection techniques 	+		
 Common wound dressings 	+		
 Incision and drainage of abscess under 	+		
local anesthesia			
 Stitching of clean lacerated wounds 	+		
12. First Aid, initiation of emergency	+		
care, Triage and referral			
13. Transportation of injured and	+		
seriously ill patient from site of			
first contact. community.			

Field Visits for Undergraduate medical students:

- 1. Family Health Advisory Services*
- 2. Clinico-Social case review*
- 3. Sub centre, Primary Health Center and Community Health Center/ District Hospital
- 4. Anganwadi Centre
- 5. Water, sewage treatment & waste management plant
- 6. Industry visit
- 7. Infectious Disease Hospital
- 8. DOTS Center
- 9. Malaria Clinic
- 10. School Health.
- 11. Milk/ Dairy board,
- 12. Voluntary Counseling & Testing Center (VCTC)
- 13. Old Age Home,
- 14. Rehabilitation Center

*Both these visits are part of community/family orientation posting, as a compulsory community medicine posting. Family and hospital visits are for development of various skills in community and hospital settings

METHOD OF ASSESSMENT:

- Modified essay question,
- Short answer questions
- MCQs
- Problem solving exercises
- OSCE, OSPE, OSLER
- Epidemiological Exercise,
- Records Review.
- Checklist,
- Research Project reports &
- Oral Viva Voce

TEACHING LEARNING METHODS:

- Structured interactive sessions
- Small group discussion
- Focused group discussion (FGD)

- Participatory learning appraisal (PLA)
- Family and community visits
- Institutional visits
- Practical including demonstrations
- Problem based exercises
- Video clips
- Written case scenario
- Self learning tools
- Interactive learning
- e-modules

TIME OF EVALUATION:

Examination of Community Medicine should be at the end of 7th 9th semester and formative and summative assessment during internship so that we have a basic doctor competent to provide primary care.

LEARNING RESOURCE MATERIALS

- Text books
- Reference books
- Practical note books
- Internet resources
- Video films etc.

SUGGESTED TOPICS FOR LEARNING THROUGH e-MODULES

- 1. History of Medicine and Public Health
- 2. Environmental health
- 3. Nutrition (Except public health nutritional program)
- 4. Epidemiological methods
- 5. Screening
- 6. Planning cycle
- 7. Health Management techniques
- 8. Entomology
- 9. Biostatistics
- 10. Demography
- 11. Disaster management
- 12. Bio-medic al waste management
- 13. International health
- 14. National health organizations

TOPICS FOR INTEGRATED TEACHING WITH DEPARTMENT OF COMMUNITY MEDICINE AS PARTICIPANT

- 1. Nutrition
- 2. Iron deficiency anemia
- 3. Communicable diseases with National Health programme like
- a. HIV/AIDS
- b. Tuberculosis
- c. Malaria

- d. Polio
- e. Diarrhoeal diseases
- f. Leprosy
- g. Zoonotic diseases
- 4. Lifestyle related diseases with preventive aspects like
- a. Diabetes
- b. Hypertension
- c. Stroked. Obesity
- e. Cancers
- 5. Jaundice
- 6. Alcoholism
- 7. Death and Dying
- 8. Geriatric medicine
- 9. Adolescent Health
- 10. Rational drug use
- 11. Contraception
- 12. Industrial health
- 13. Ethical issues

TOPICWISE MARKS DISTRIBUTION IN COMMUNITY MEDICINE

PAPER-I

TOPIC	MARKS ALLOTED
Concept of Community Medicine Sociology	5 5
Environment including entomology Biomedical waste Occupational Health	10
Nutrition	10
Basic Epidemiology	10
Health Promotion and Education	10
Demography and Biostatistics	10
TOTAL	60
PAPER-II	
Communicable and non communicable disease epidemiology	25
RCH & NRHM	10
Health planning, Management, Financing	5
Health care delivery system, Urban Health	10

Disaster management Health legislation Care of elderly Mental Health International Health

TOTAL 60

EACH PAPER SHOULD HAVE:

A. Structured essay one question 10 marks

- B. Remaining structured short essay question 50 divided marks
- C. Around 50% problem based competency testing (cognitive domain) in theory question paper

10

D. Each paper shall be of 90 minutes duration

DISTRIBUTION OF MARKS TOTAL MARKS: 300

	150			
30	120			
PRACTICAL				
30	20			
50 10	25 15			
	30 50	120 30 150 30 20 50 25 15		

Recommended Books In Community Medicine:

- 1. Textbook of Preventive and Social Medicine by K Park 19th edition
- 2. Textbook of Preventive and Social Medicine by Gupta & Ghai
- 3. Textbook of Preventive and Social Medicine by Gupta & Mahajan
- 4. Essentials of Community Medicine by Suresh Chandra
- 5. Introduction to Biostatistics by Sathya Swaroop
- 6. National Health Programme by Jugal Kishore
- 7. National Health Programme by D K Taneja
- 8. Textbook of Preventive & Social Medicine by Sunder Lal, Adarsh, Pankaj.
- 9. Textbook of Preventive & Social Medicine by T. Bhaskar Rao.
- 10. Public Health & Preventive Medicine By J. M. Last.
- 11. Biostatics by A. Indrayan
- 12. Methods in Biostatics by B.K.Mahajan

EVALUATION:

1. MANY COLLEGES SUGGESTED EVALUATION IN COMMUNITY MEDICINE TO BE DONE AT THE END OF 9^{TH} SEMESTER, WITH OTHER MAJOR CLINICAL SUBJECTS.

- 2. **SUGGESTION RECEIVED FOR TWO PAPERS, AS WAS EARLIER**, KEEPING IN MIND VASTENESS & NEED OF THIS SUBJECT.
- 3. TOTAL MARKS SUGGESTED VARIED FROM 200 TO 400, WITH ALMOST EQUAL DISTRIBUTION OF THEORY & PRACTICAL.