Development of Emergency Medicine in the Far East

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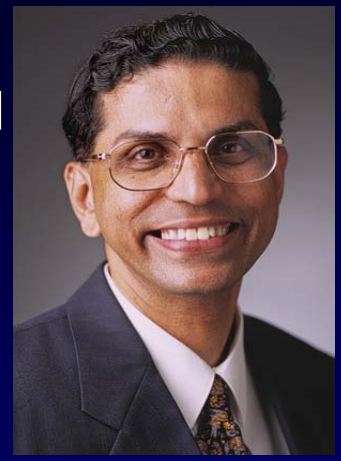


Professor, Emergency Medicine, National University of S'pore

Field Medical Commander, 1989 - 1998

Head, Department of Emergency Medicine, SGH (1994 –2003)

Chairman, Division of Ambulatory & Clinical Support Services, SGH (2003-2006)

Chairman, Emergency Medicine Services Committee, Ministry of Health, Singapore

Chairman, Specialist Training Committee (Emergency Medicine)

President Society for Emergency Medicine, Singapore (1993-2003)

President, Asian Society for Emergency Medicine (1998 – 2001)

Member, Board of Directors, International Federation for Emergency Medicine

Chairman, Medical Advisory Committee, SCDF

Chairman, Toxicology Advisory Team, MOH

Advisor on Education & International Medicine, Singapore Health Services

Objectives

- Problems common to the developing world
- Development of Emergency Medicine in the Far East
- Specific examples
- Issues and future development

Preponderance of trauma in developing world

- 1998: 1,170,700 people killed worldwide owing to trauma
- 141,000 were in so-called industrial societies
- 90 % of the remainder (or > 900,000) in so-called developing countries of Asia, Africa, South & Central America, Caribbean and the Middle East.
- Economic Development $\propto$ Burden of injury mortality
- For similar ISS, probability of survival 6 x worse in some developing countries

(Source: Krug, Sharma, Lozano: Am J Public Health 90:523-6, 2000)

Injury & Illness Outcomes

Income Setting	Mortality Rate
High	35 %
Middle	55 %
Low	63 %

(Source: Mock, Jurkovich, et al: J Trauma 1998; 44:804-14)

Among patients surviving to reach hospital

Moderate Severity Injury (ISS 15 - 24) …. 6 x ↓ mortality

Hospital in High-income country ……. 6 %

Rural area of Low-income country …… 36 %

(Source: Mock, Adzotor, et al: J Trauma 1993;35: 518-23)

The burden of disability

- For extremity injuries … burden very high in low-income countries
- In high-income countries, head and spinal cord injuries contribute a higher % of disability
- It is possible for low-cost improvements to prevent much of such disability

Range of Emergency Medicine Institutional systems

No emergency care

Attendance and basic triage ….. Casualty Rooms

Triage, Evaluation, Initial investigations and initial treatment

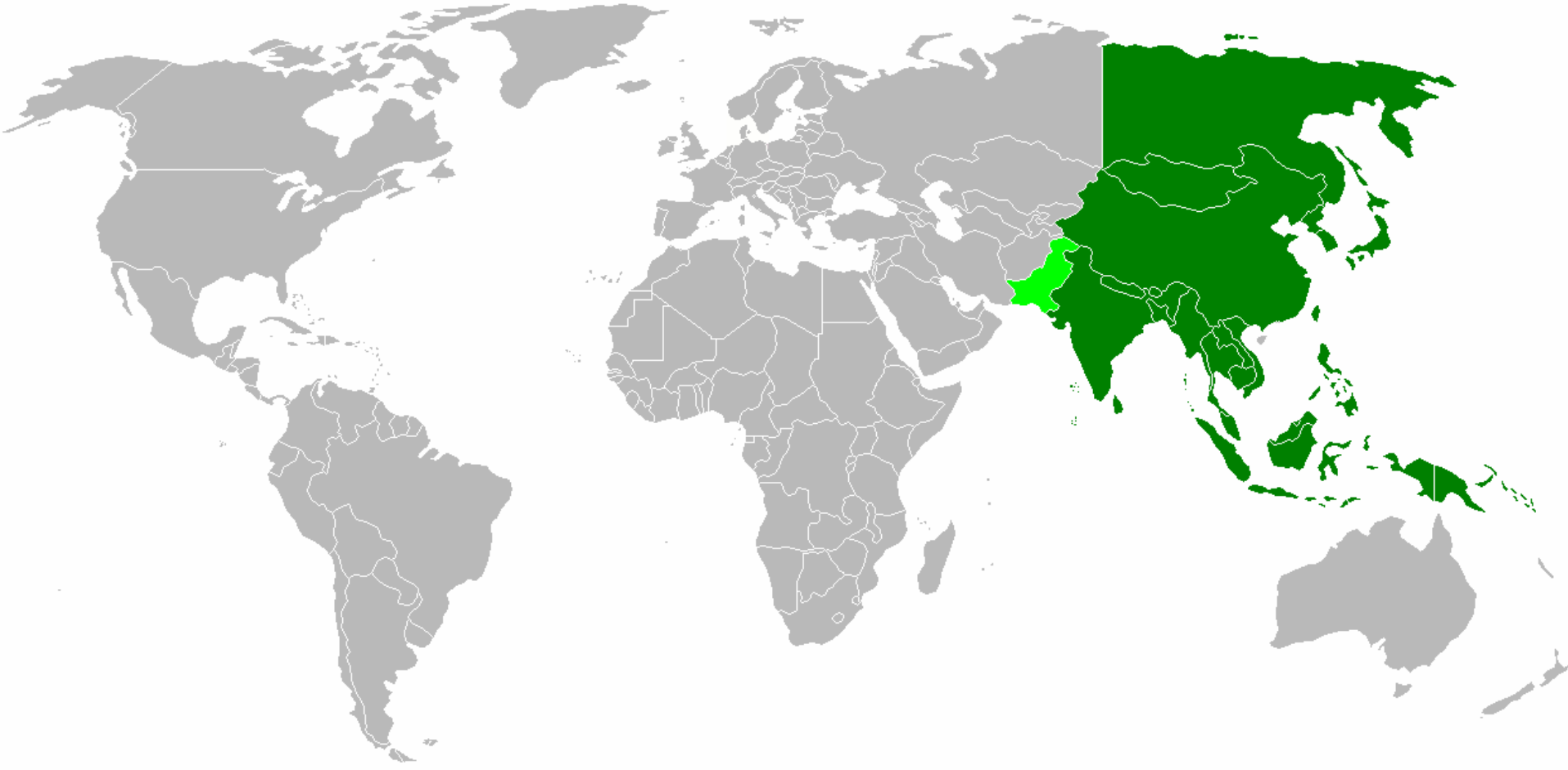
Admission or Discharge

Critical care centres

Objective of Emergency Medical Care

- stabilize patients with life-threatening or limb-threatening injury or illness
- emphasis is on immediate or urgent medical interventions
- time-critical medical decision making

Where is the Far East?



MONGOLIA
Altai Mountains
Gobi Desert
INNER MONGOLIA
SINKIANG
Tien Shan
Bogda Shan
Qilian Shan
Kunlun Shan
Plateau of Tibet
CHINA
TIBET
Himalaya
NEPAL
KASHMIR
Betpak-Dala
Ozero Balkhash
Taldykorgan
Alma-Ata
Shihezi
Urumqi
Yining
Kyzylorda
Taraz
BISHKEK
Shymkent
KYRGYZSTAN
Ysyk-Köl
Bosten Hu
TASHKENT
Andizan
Osh
UZBEKISTAN
Samarkand
Kashi
Kargar He
TAJIKISTAN
DUSHANBE
Lop Nur
Yumen
Altun
Mazar-e Sharif
KABUL
AFGHANISTAN
Peshawar
Srinagar
ISLAMABAD
Faisalabad
Lahore
Indus
Sutlej
Quetta
Multan
Chandigarh
DELHI
New Delhi
PAKISTAN
KATHMANDU
THIMPHU
BHUTAN
Darjiling
Lhasa
Brahmaputra
Jaisalmer
Agra
Lucknow
Kanpur
Hyderabad
Jodhpur
Jaipur
Varanasi
Ganges
Patna
Guwahati
BANGLADESH
INDIA
Karachi
Gandhinagar
Allahabad
Asansol
Ahmadabad
Bhopal
Rajkot
Vadodara
Narmada
Indore
Calcutta
DACCA
Porbandar
Surat
Nagpur
Durg
Raipur
Mahanadi
Chittagong
Bhubaneshwar
Sittwe
Mumbai (Bombay)
Pune (Poona)
Solapur
Godavari
Hyderabad
Vishakhapatnam
Krishna
Vijayawada
ARABIAN SEA
Bay of Bengal
Panaji
Hubli-Dharwar
Bangalore
Chennai (Madras)
Mangalore
Pondicherry
Lakshadweep Islands INDIA
Cochin
Madurai
Jaffna
Trivandrum
SRI LANKA
COLOMBO
Kandy
Galle
MALE
MALDIVES
Andaman Islands INDIA
ANDAMAN SEA
Nicobar Islands INDIA
MYANMAR -BURMA-
Mandalay
Irrawaddy
Pathein
YANGON (RANGOON)
Dawei
Mekong
Chiang Mai
Louangphrabang
LAOS
VIENTIANE
THAILAND
BANGKOK
Hua Hin
CAMBODIA
PHNOM PENH
Gulf of Thailand
Saigon
Ho Chi Minh City
VIETNAM
HANOI
Haiphong
Haikou
Hainan
Da Nang
Phuket
Hat Yai
Kota Baharu
Bandar Aceh
George Town
KUALA LUMPUR
Kuantan
Medan
Melaka
Johor Baharu
SINGAPORE
MALAYSIA
Simeulue
Sibolga
Nias
Pontianak
Kuching
Sibu
Borneo (Kalimantan)
BANDAR SERI BEGAWAN
BRUNEI
Kota Kinabalu
Sandakan
Tawau
Samarinda
Balikpapan
Banjarmasin
Padang
Siberut
Sumatra
Palembang
Tanjungkarang-Telukbetung
JAKARTA
Bandung
Semarang
Yogyakarta
Surabaya
Java
Java Trench
JAVA SEA
Christmas Island AUST.
Cocos Islands AUST.
Bali
Lombok
Sumbawa
Mataram
Denpasar
Raba
Waingapu
Sumba
Flores
Ende
Timor
Kupang
DILI
EAST TIMOR
TIMOR SEA
INDONESIA
Sulawesi (Celebes)
Ujungpandang
Parepare
Palu
Manado
CELEBES SEA
Kepulauan Sula
Kolaka
Buru
Ambon
Seram
Moluccas
Ternate
BANDA SEA
Tual
Aru
Tanimbar
ARAFURA SEA
Darwin
Arnhem Land
Gulf of Carpentaria
Kimberley Plateau
AUSTRALIA
Cairns
Townsville
Great Barrier Reef
Torres Strait
CORAL SEA
Jayapura
New Guinea
PAPUA NEW GUINEA
Madang
Lae
PORT MORESBY
Bismarck Sea
Rabaul
New Ireland
New Britain
Solomon Islands
HONIARA
SOLOMON ISLANDS
PHILIPPINES
Luzon
Baguio
MANILA
Quezon City
Naga
Mindoro
Samar
Panay
Iloilo
Cebu
Negros
Palawan
Puerto Princesa
SULU SEA
Sulu Arch.
Zamboanga
Cagayan de Oro
Davao
Mindanao
General Santos
Spratly Islands
Paracel Islands
SOUTH CHINA SEA
PHILIPPINE SEA
KOROR
PALAU
Caroline Islands
FEDERATED STATES OF MICRONESIA
PALIKIR
Mariana Islands U.S.A
Guam U.S.A
PACIFIC OCEAN
INDIAN OCEAN
TROPIC OF CANCER
EQUATOR
TAIPEI
TAIWAN
Kaohsiung
Ryukyu Islands JAPAN
EAST CHINA SEA
YELLOW SEA
JAPAN SEA
Harbin
Mudanjiang
Lake Khanka
Jilin
Changchun
Vladivostok
Nakhodka
Yanji
Shenyang
Fuxin
Chongjin
Anshan
NORTH KOREA
Hamhung
PYONGYANG
Dalian
Yantai
Inchon
SEOUL
SOUTH KOREA
Taegu
Pusan
Kwangju
Qingdao
Dongying
Jinan
Boshan
Yellow River
Hohhot
Zhangjiakou
Datong
Baotou
BEIJING (PEKING)
Tangshan
Tientsin
Baoding
Shijiazhuang
Taiyuan
Yinchuan
Yellow River
Qinghai Hu
Xining
Lanzhou
Xianyang
Xi'an
Luoyang
Zhengzhou
Xuzhou
Huainan
Hefei
Nanjing
Shanghai
Suizhou
Mianyang
Chengdu
Wuhan
Chongqing
Hangzhou
Ningbo
Neijiang
Changde
Dongting Hu
Poyang Hu
Jingdezhen
Nanchang
Wenzhou
Yangtze
Zhaotong
Changsha
Fuzhou
Panzhihua
Guiyang
Hengyang
Qujing
Kunming
Shaoguan
Zhangzhou
Xiamen
Guilin
Liuzhou
Guangzhou (Canton)
Shenzhen
Shantou
Nanning
Macau
Hong Kong
Nu Jiang
Sapporo
Hokkaido
Hakodate
Aomori
Honshu
Niigata
Sendai
JAPAN
TOKYO
Yokohama
Nagoya
Kobe
Osaka
Hiroshima
Kitakyushu
Fukuoka
Kochi
Shikoku
Nagasaki
Kagoshima
Kyushu
45°
30°
15°
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15°
75°
90°
105°
120°
135°
150°
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Two main types of EM Systems

Anglo-American model

- with trained Emergency Physicians after at least 3-year programs
- initial care up to 24 hours
- medical oversight over EMS

Continental European (Franco-German) model

- Anaesthetists as “Emergency Physicians
- Care mainly by doctor-based EMS systems
- Practice mainly confined to CPR / ALS

Anglo-American model

- Emergency Medicine recognised as a distinct medical discipline
- Structured 3-year training programs, at least
- International Federation for Emergency Medicine
- Hong Kong, China, Korea, Singapore, Taiwan, Thailand
- Malaysia, India, Indonesia, Philippines, Nepal
- Japan

ASIA - Problems in provision of Emergency Care

- Lack of responsive and time-sensitive pre-hospital care systems
- Lack of categorization of hospitals
- Minimal care provided by EDs
- Emergency Medicine -- not yet a specialised medical discipline

Why?

- Lack of infrastructure for injury and disease control
- poor enforcement of safety regulations
- low level of access to emergency medical care
- inadequate emphasis on training in core-skills for first responders
- great belief in need for hi-tech medicine as the answer

Answer: A strong foundation in basic emergency care

Sources of emergency care in developing countries

- Nepal: primary health clinics
- Sri Lanka: primary care system
- India: anyone who can do it, private / public sectors

Concern: High cost of hospital-based care vs primary health clinic care

Community standard of emergency care

- reflected as standard of First-aid, CPR, PAD, etc
- Coverage is low in most communities, but more so in the developing world.
- Easier to implement low-cost solutions, such as school education in community FA and CPR
- Public health education to also address issues about need to access emergency services early, especially for chest pain, breathlessness, injury and bleeding situations.
- Need for strong medical leadership for successful emergency health education efforts

EMS systems

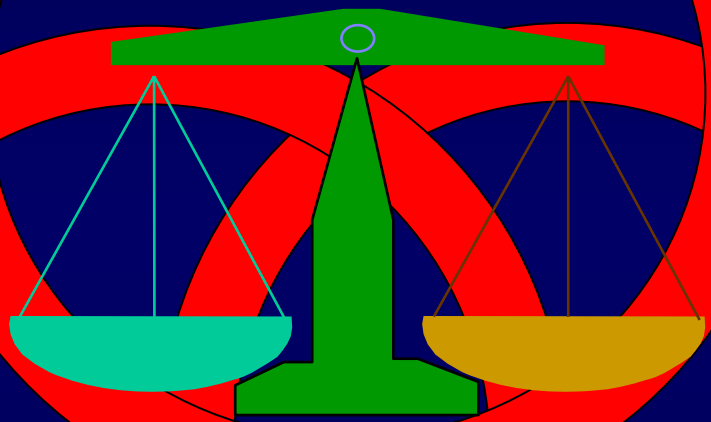
- often no major pre-hospital emergency ambulance service provider
- no single universal access number, e.g. 118, 222, 999, 911, 995
- usage of ambulance services by public is low
- each hospital using own service with separate number -- confusing to the public
- lack of phone and data networks for effective communications across the community
- cost of ambulances and equipment prohibitive -- what are the low-cost solutions?
- Ill-equipped and large variety of transportation vehicles without co-ordinated development.
- Developed countries applying unfair pressure on developing countries to closely follow, purchase and subscribe to their own very costly systems, without due concern for adaptation.

Development of trained emergency staff / systems at the various levels of care

- primary care centres
- paramedic and other ambulance staff
- emergency medicine as a specialty
- emergency nursing
- quality management of in-hospital emergency care processes

- Busy patient loads
- Limited staffing

Availability



Aspirations

- Triage correctly
- Correct assessment
- X-Ray & review
- Correct Treatment

Expectations

- Immediacy
- High level of professionalism

Asian Society for Emergency Medicine

- 1993 1st South & East Asian Conference on Emergency Medical Care -- Singapore
- 1995 2nd South & East Asian Conference on Emergency Medical Care -- Singapore
- 1998 1st Asian Conference on Emergency Medicine – Singapore
- 2001 2nd Asian Conference on Emergency Medicine -- Taiwan
- 2004 3rd Asian Conference on Emergency Medicine – Hong Kong
- 2007 4th Asian Conference on Emergency Medicine -- Malaysia

Asian Society for Emergency Medicine

Objectives:

1. To assist in training and establishment of guidelines in Emergency Medical Care
2. To represent the views of the members of the Society and to acquaint the Asian, international community and other bodies of such views whenever necessary and appropriate
3. To encourage and assist in co-ordination of activities of Emergency Medicine in Asia
4. To promote the science and art of Emergency Medicine in Asia
5. To promote, study, research and engage in discussion in all areas of Emergency Medicine

Asian Society activities

- Web page at www.asiansem.org
- Singapore, Taiwan, HK,China, Malaysia, Korea, Japan, Indonesia, Brunei, Philippines, Saudi Arabia, United Arab Emirates
- ACEM: 1st SINGAPORE (1998), 2nd TAIPEI (2001),

  3rd HONG KONG (2004), 4th KUALA LUMPUR (2007)
- New EM countries in Asia: Thailand, India, Pakistan, Nepal
- 2001: Pan Asian Resuscitation Council, now called "Resuscitation Council of Asia" (RCA)
- Soon: Asian Chapter of Emergency Nursing
- Directory of Emergency Medicine Training Programs
- Directory of Asian EMS systems
- ? Asian Journal of Emergency Medicine

Within the Far East we have:

- Korean Society for Emergency Medicine
- Society for Emergency Medicine, Singapore
- Malaysian Association for Trauma & Emergency Medicine
- Hong Kong Society for Emergency Medicine
- Chinese Association for Emergency Medicine
- Japanese Association for Emergency Medicine
- Indian Society for Emergency Medicine
- Nepal Society for Emergency Medicine
- Taiwan Society for Emergency Medicine
- Thailand Association for Emergency Medicine
- ……. and others

Singapore EM International

- 1993 – 1st South & East Asian Conf on EM + launch of SEMS
- 1995 -- MASTEM
- 1995 – 2nd South & East Asian Conf on EM and agreement to start Asian Society
- 1998 – 1st Asian Conf on EM and launch of Asian Society for Emergency Medicine
- 1997 -- initiated project with East Java, Indonesia to begin a Trauma Care system
- 2000 -- launch of first EM post-grad program in Indonesia and also EM undergrad education there
- 1999 -- helped launch Indian Society for Emergency Medicine
- 2000 -- joined as full member of IFEM
- 2001 -- helped initiate formation of Pan Asian Resuscitation Council (PARC)
- 2000 onwards -- provide external examiners to post-graduate exams in Malaysia and Indonesia
- from 1990 onwards -- sent Disaster Medical Action teams to Philippines, Malaysia, Taiwan, Mongolia, India, Afghanistan, Vietnam

Academic Emergency Medicine

- EM as a distinct medical specialty
- Undergraduate training
- Post-graduate training -- 3 to 4 years
- State / National EM training committee
- Problems of protectionism in the west

Advanced Post-graduate training

- Concept of advanced training
- Sub-specialty areas in EM
  - Emergency Cardiac Care
  - Emergency Trauma Care
  - Emergency Toxicology
  - Emergency Paediatrics
  - Emergency Pre-hospital care
  - Disaster Medicine
  - Emergency Observation Medicine

Emergency Nursing

- equally important members of the emergency care team
- Advanced Diploma program in EN
- In house EN training programs
- ? Asian Society for Emergency Nursing

Emergency Medicine -- the future in the Far East

- consultant-based EM practice
- local and regional training centre for basic, advanced and fellowship training in EM and sub-specialty areas
- establishing stronger academic links within the Region and also with Australia and the United States
- working towards cross-recognition of training programmes with international sister societies and colleges
- performance of more outcomes studies in various areas of Emergency Medicine
- keen to see active sub-specialty development in EM
- greater co-operation in a rapidly shrinking world.

International Conferences on Emergency Medicine (ICEM)

- 1986 – Britain
- 1988 – Australia
- 1990 – Canada
- 1992 -- USA
- 1994 – Britain
- 1996 – Australia
- 1998 – Canada
- 2000 -- USA
- 2002 – Britain
- 2004 – Australia
- 2006 – Canada
- 2008 -- USA

- 2010 – Singapore

Thank you