

Trauma Care System in Mainland China

Qirong Du, MD

Shanghai Xinhua Hospital

Shanghai Jiaotong University, School of Medicine

Cleveland, Ohio

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Disclosures

Qirong Du, M.D., M.S

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- Financial Disclosure:
 - The contents of this presentation are solely the responsibility of the author and have no financial interest with any commercial company

An organized Trauma System links the necessary resources to maximize patient recovery



China - World largest Population



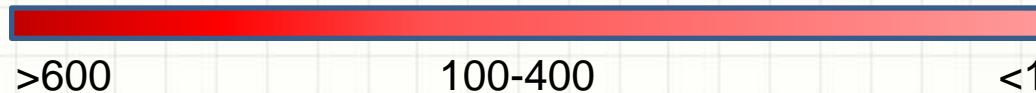
- **1.36 billion** by the end of 2013
- Urban: 731.1 million
- Rural: 629.6 million
- **Licensed doctors: 1.5 million**

<http://data.stats.gov.cn>

Population Density



Person number
per KM²



China - Facts

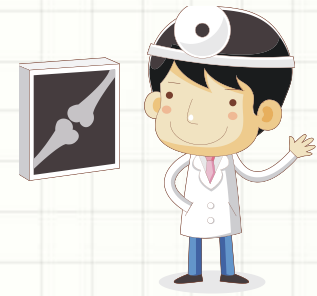
- World largest developing country
- The fourth land mass in the world
- Urbanization and industrialization are accelerated
- Unprecedented increase of vehicles
- Total GDP more than **9 trillion** USD (2013)
- **5.2% of GDP is for health care**

Health expenditure

国家 Country	卫生总费用 占GDP% Total Health Expenditure as % of GDP 2009	卫生总费用构成(%) % of Total Health Expenditure 2009		政府卫生 支出占 财政支出% Government Health Expenditure as % of Government Expenditure 2009	人均卫生 费用(美元) Per Capita Total Health Expenditure (US\$) 2009
		政府卫 生支出 Government Health Expenditure	个人卫 生支出 Private Health Expenditure		
中国China	5.1	52.5	47.5	12.1	191
印度India	4.2	30.3	69.7	3.7	44
俄罗斯Russian	5.6	63.4	36.6	8.5	476
巴西Brazil	8.8	43.6	56.4	5.9	734
南非South Africa	9.2	43.8	56.2	11.4	521
澳大利亚Australia	8.7	68.0	32.0	16.8	3945
加拿大Canada	11.4	70.6	29.4	18.3	4519
埃及Egypt	4.8	39.5	60.5	5.6	114
法国France	11.9	77.9	22.1	16.3	4840
德国Germany	11.7	76.9	23.1	18.7	4723
意大利Italy	9.4	77.9	22.1	14.2	3323
日本Japan	9.5	82.3	17.7	18.4	3754
墨西哥Mexico	6.5	48.3	51.6	11.9	525
尼日利亚Nigeria	6.1	35.1	64.9	5.9	67
波兰Poland	7.4	72.3	27.7	11.9	829
泰国Thailand	4.2	74.6	25.4	13.3	160
土耳其Turkey	6.7	75.1	24.9	12.8	575
英国 UK	9.8	84.1	15.9	16.0	3440
美国 USA	17.6	47.7	52.3	19.6	7960

Source: Chinese Health and Family Planning Statistics Yearbook·2013

China - Physicians



Physicians in Mainland China (in million persons)

Year	Healthcare personnel	Healthcare technician	Licensed assist. physician	Licensed physician
2013	9.79	7.21	2.79	2.28
2012	9.11	6.67	2.61	2.13
2011	8.61	6.20	2.46	2.02

- Licensed physician are graduated from medical schools
- We have **5.08 million** licensed physician in China, the actual number in practice may be **only 1.5 million**, the number of emergency physicians is not available



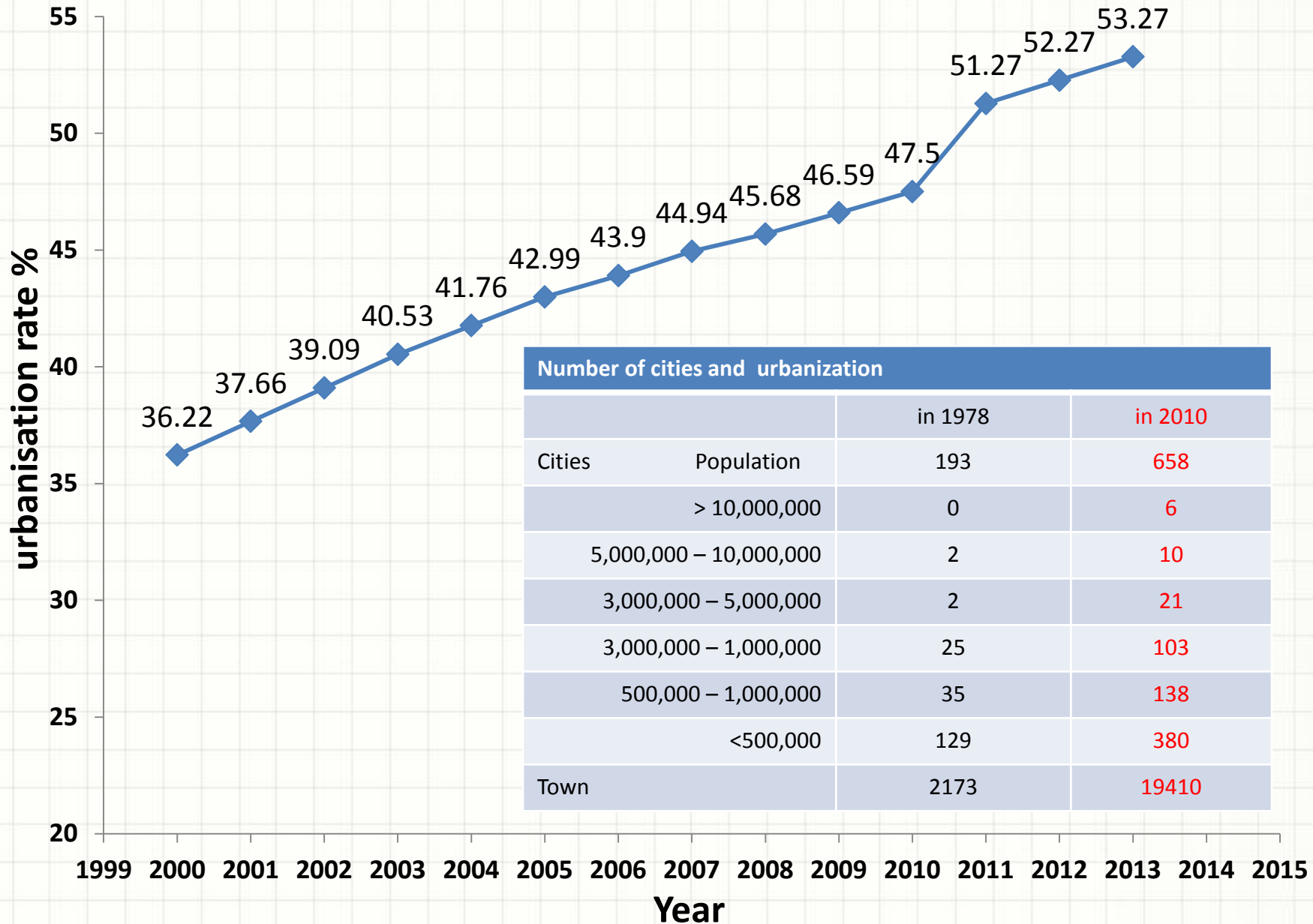
China - Physicians

Number of licensed physicians per 10 thousand persons



■ Licensed (assist.) physicians ■ Licensed (assist.) physicians in cities ■ Licensed (assist.) physicians in rural areas

China - Urbanization



China - Automobile



Jan – July 2013

- The automobile amount increased by **9.53 million**
- The number of drivers increased by **9.04 million**



Ultra-wide view of the
2nd inner ring in Beijing

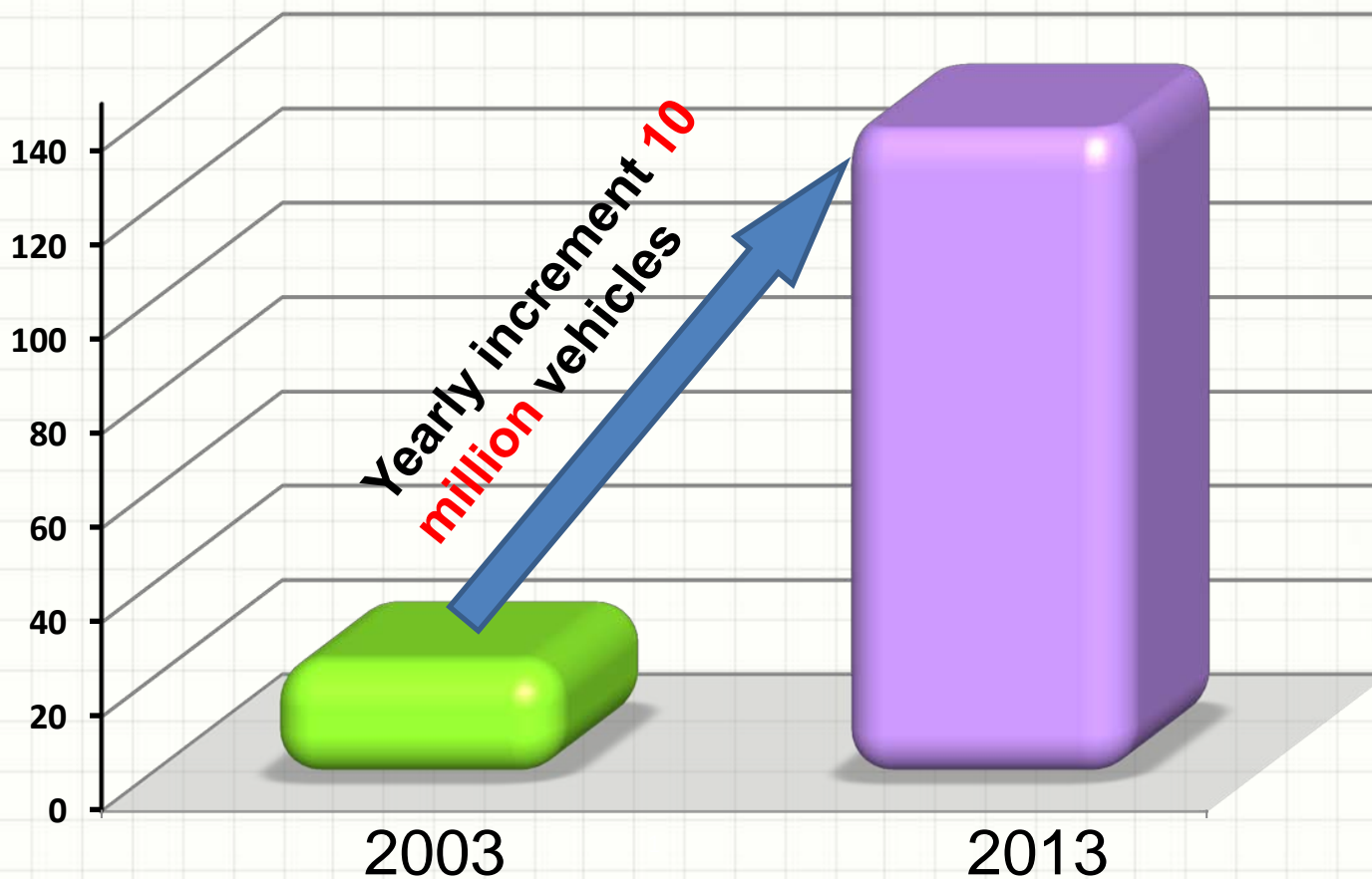
Year	Automobile amount	Drivers	Highway mileage
1986	3.62 million	5.17 million	0.96 million km
2012	120 million	> 200 million	4.24 million km

Number of serious traffic accident: 80 happened in 1996, while 25 in 2012

China - Automobile



Automobile amount (in million)



Trauma in China

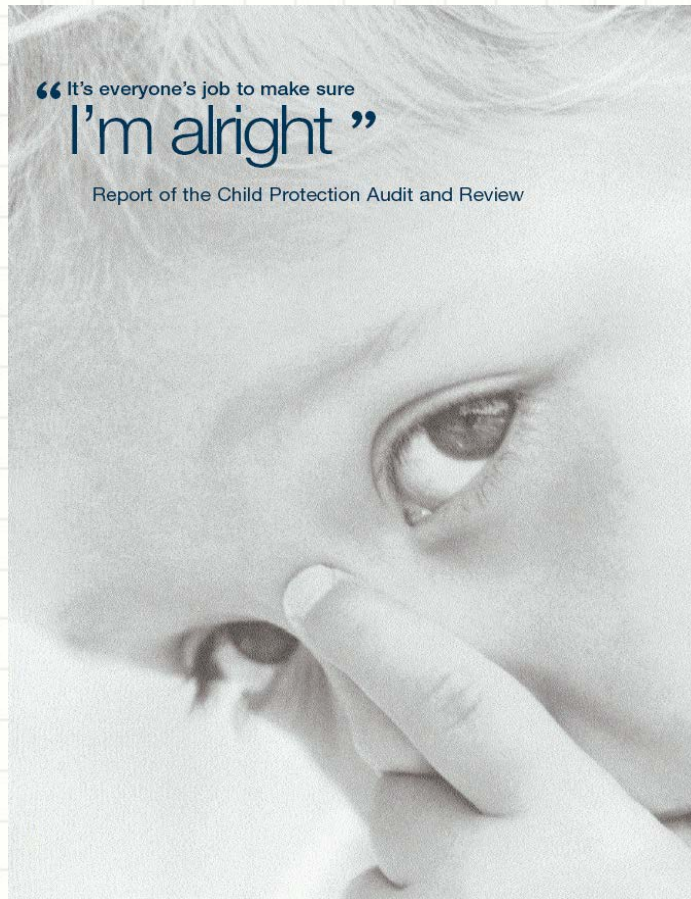
- Traumatic injury is the leading cause of death for persons age 1 to 44 years old
- In 2010 alone, traffic injuries were responsible for **over 100,000 deaths**, among them 18,500 are children
- The annual accidental injuries were responsible for **700,000 deaths** and more than 62 million emergency department visits nationwide
- Injury is one of China's most expensive disease process, costing over **\$10 billion/year**

Trauma in China

- Trauma causes more than **5 million** permanent disabilities annually
- An estimated **50,000** accidental injuries and deaths are children annually
- The death rate from unintentional injury is **more than 50% higher** in rural areas than in urban areas

Child Protection

'It's Everyone's job'



“We all need to work together to ensure children are protected”

Audit Report 2002

Developing a Child Protection System

- Government recommendation
 - Education
 - Support: Promote extended hours childcare services
 - Pilot of Neighbourhood mutual help childcare
 - Legislation
- Law of the People's Republic of China on the Protection of Minors (1992)
- Women and children's rights and interests protection law of the people's Republic of China (1992)
- Shanghai child safety seat of local legislation (2014)

Trauma Care System in China

- Administrative Components
 - The Ministry of Health does not have a designated unit to deal with issues related to trauma
 - No central government agency to integrate policy-making, planning, financing, establishment of minimum standard for the performance of a trauma care system

Trauma Care System in China

- Elementary in nature, predominantly restricted to cities and semi-urban areas
- Health care is a provincial responsibility
- Each province funds and administers its own health services
- Nation-wide trauma care system are in various stages of development, implementation, and evaluation
- No integration of nation-wide system

Trauma Prevention

- China is a disaster-prone country with frequent floods, cyclones, landslides and earth quakes
- Traffic accidents and industrial mishaps are not uncommon



Trauma Prevention



- 14:28, 12/May/2008
Wenchuan China,
an earthquake of 8
magnitude attacked
- **69197 people dead**
- **374,176 people injured**
- **18,377 people missing**
- **90,000 people
hospitalized**

Trauma Prevention



Trauma Prevention

Several efforts are required for China

- Resource creation
- Education
- Legislation
- Upgrading pre-hospital and hospital-based care
- Public awareness

Pre-hospital Trauma Care in China



- In the absence of guidelines, the pre-hospital services across China vary enormously
- None-existent in most rural and semi-urban areas, particularly in west China
- Gross discrepancy exist between urban and rural settings
- ATLS paramedics concentrated in big cities
- Many cities have hybrid ATLS/BTLS services

Pre-hospital Trauma Care in China

- No national guidelines exist for triage, patient-delivery decision, pre-hospital management, and transfer protocols
- Decisions about evacuation and choice of the destination hospital are made on an individual basis
- Absence of minimal education and training standards for paramedics brings in unskilled labor to handle the most delicate of task

Pre-hospital Trauma Care in China



Education

1. The national medical and nursing councils control educational and licensing requirements for physicians and nurses
2. Formal education and specialty training are not mandatory for personnel involved in trauma care
3. No minimum stipulated educational standards for paramedic and ambulance personnel
4. ITLS training is introduced to Shanghai in 2011 and is widely accepted now

Introduction of ITLS in China (2011)



What We Learn from ITLS?

- Having a well organized trauma system
- Establishing trauma care standards
- Training components of EMS system
- Promoting professional education for pre-hospital trauma care
- Improving communications throughout the network

Trauma registry in China



- Manual and rudimentary in most places
- Have reliable data on trauma admission, few have data on the clinical outcome
- Lead to a negative impact to an effective public policy on trauma care

In-hospital Trauma Care in China

- 5-10% of all trauma patients require trauma center facility
- Less than 1% of the 19,712 hospitals have established department of trauma surgery
- No western-style trauma centers exist
- No database for trauma care at pre-hospital, hospital, provincial and national level

In-hospital Trauma Care in China

- Three types of emergencies available
 1. Primary or community hospitals: treat only minor injury
 2. Secondary hospitals: maybe able to treat single-system injuries and fulfill resuscitation requirements prior to referral to a tertiary hospital
 3. Tertiary hospitals: play the leading role for treating severely injured patients mostly located in big cities
- Emergency physicians are at high risk to face violence, disputes and heavy workloads
- Heavy workloads and low salaries make medical students refuse to become doctors

Rehabilitation

- Little attention is paid to rehabilitation for injured patients in China
- Now rehabilitation units were established for injured patients in some hospitals
- No strong links and transfer agreement between acute facilities and rehabilitation units



Trauma Research in China

- Studies of trauma epidemiology initiated in some universities
- No national trauma database available for the development and improvement of trauma-care system



Future - Improvement

- Monitor the national population-based occurrence of injury
- Assure integration and coordination of trauma system through effective partnerships
- Assure secure and adequate financing
- Monitor and track patient outcomes including death and disability as well as system performance
- Coordinate emergency and disaster preparedness with responsible state agencies



ITLS
International
Trauma Life Support



Thank You for Your Attention

