Qingdao chronic disease management – Comprehensive prevention and treatment integrated care system development

Qingdao HFPC

Renmin Wei

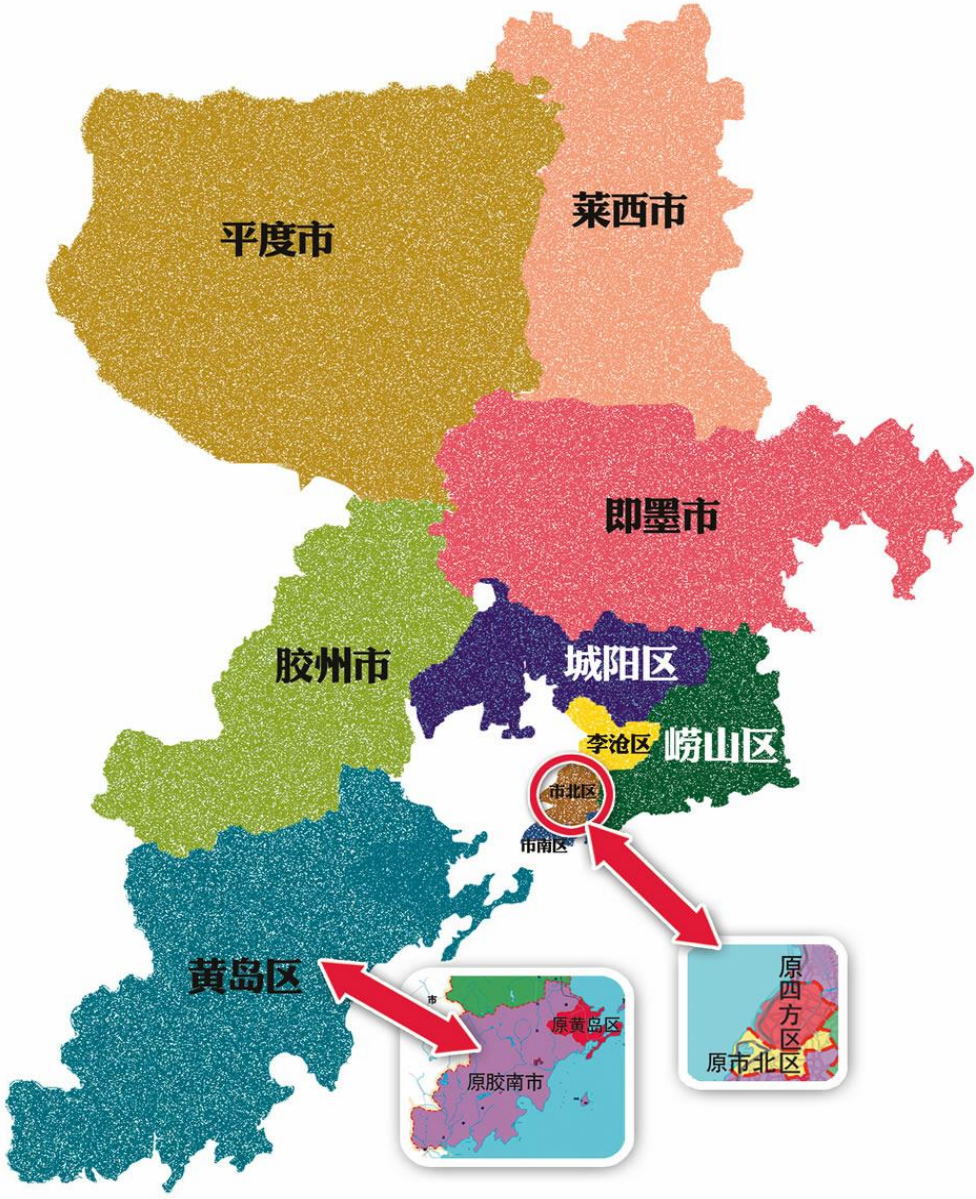
2016-07-28

Qingdao

- China middle east area and south of Shandong
- Important sea-side city
- 6 district, 4 cities
- Area 11282 m2
- 2015 population 9,097,000
- 2015 GDP 960 billion
- Financial income 100.6 billion

Qingdao

- 2015
- 65 and above:1,097,100 (12.06% of total) , increase 1.8% compare to 2010, annually increase by 0.36
- LE 80.76 year-old
- Maternal and child death rate at middle income country level



Hospital beds

- 2015
- Actual number of beds :48601
  - Hospital 37342
  - Township health center 7724
- 5.34 beds /1000population

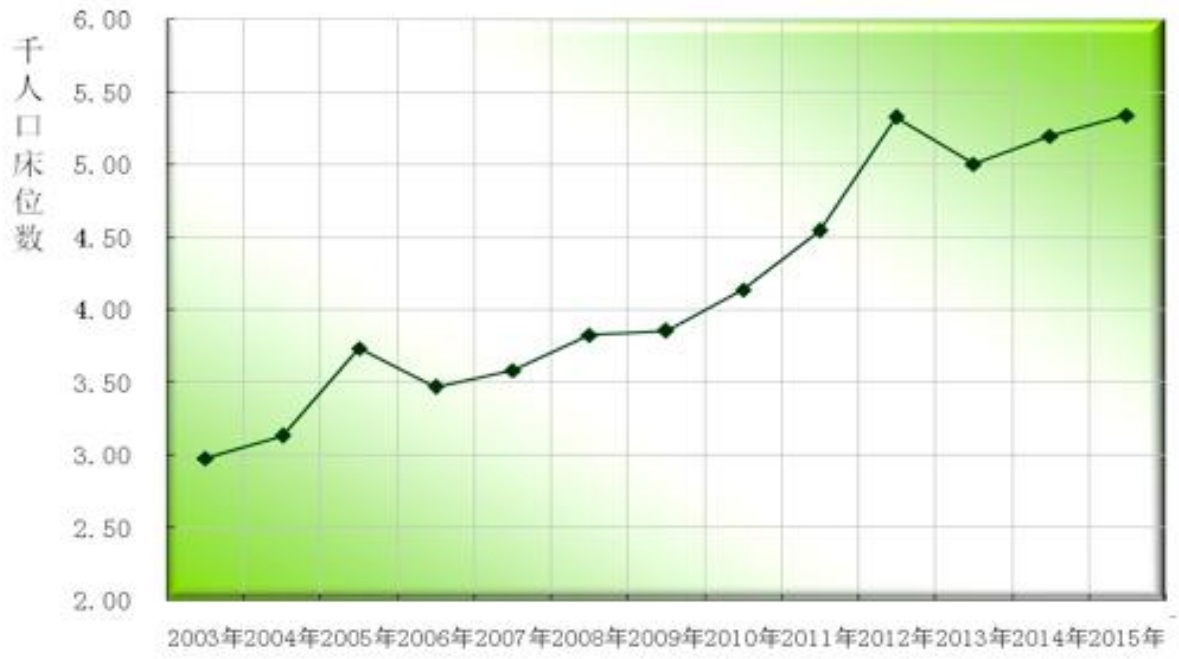


图1-6　2003年-2015年全市千人口床位数（单位：张）

2015 outpatient

2015

- Outpatient volume 52.297 million person times（ include town health center 9.606 million ）
- Hospital: 23.8106 million (45.6% of total)

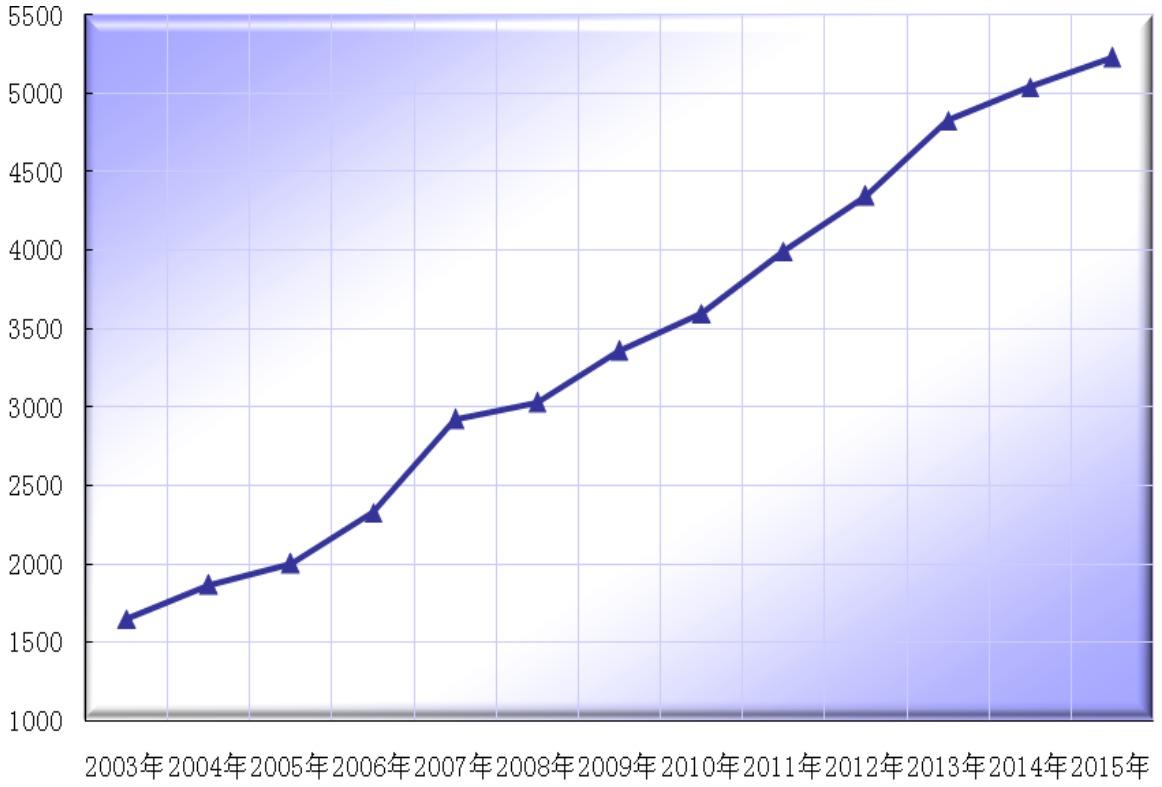


图2-1　2003年-2015年全市医疗机构总诊疗人次（单位：万人次）

2015 inpatient

- Inpatient number 1.326 million
  - Hospital 1.086 million (81.9%)
- Emergency admission 3.88 people/100days
  - Hospital 4.64，township health center 5.07，public health center 1.81

图2-3　2003年-2015年全市医疗机构出院人数（单位：万次）

2015 Qingdao infant mortality2.88‰；Maternal mortality 2.88/100000

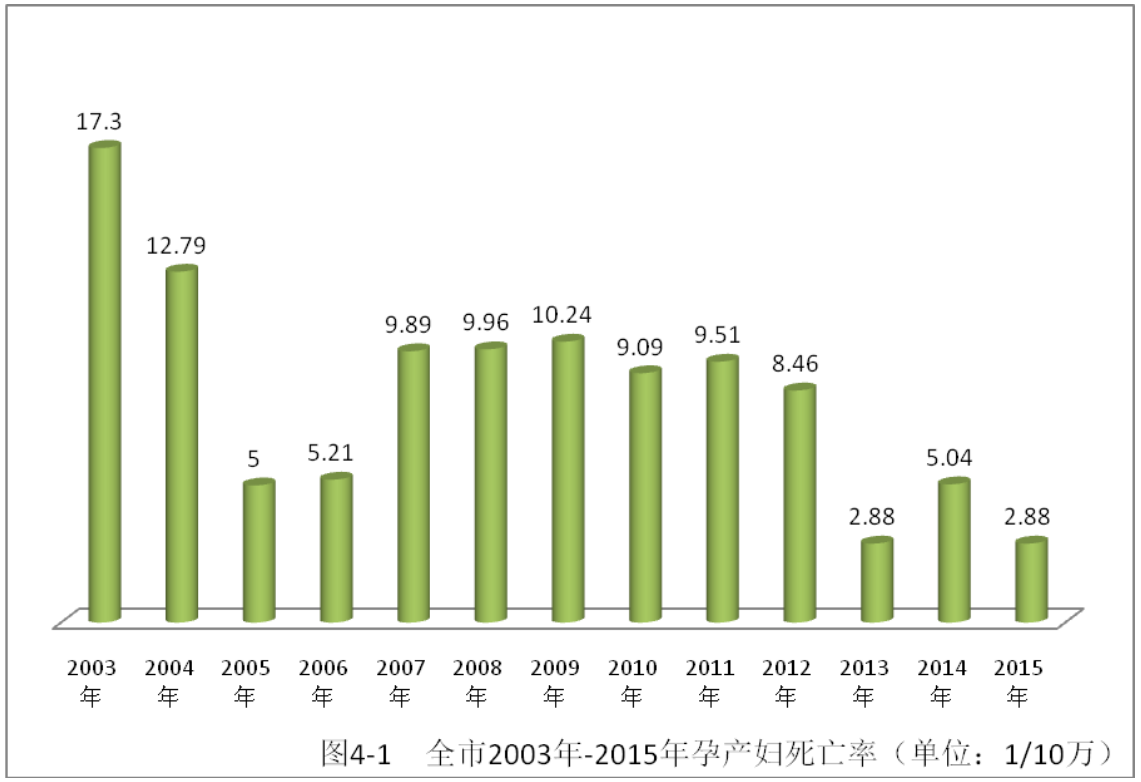


图4-1　全市2003年-2015年孕产妇死亡率（单位：1/10万）

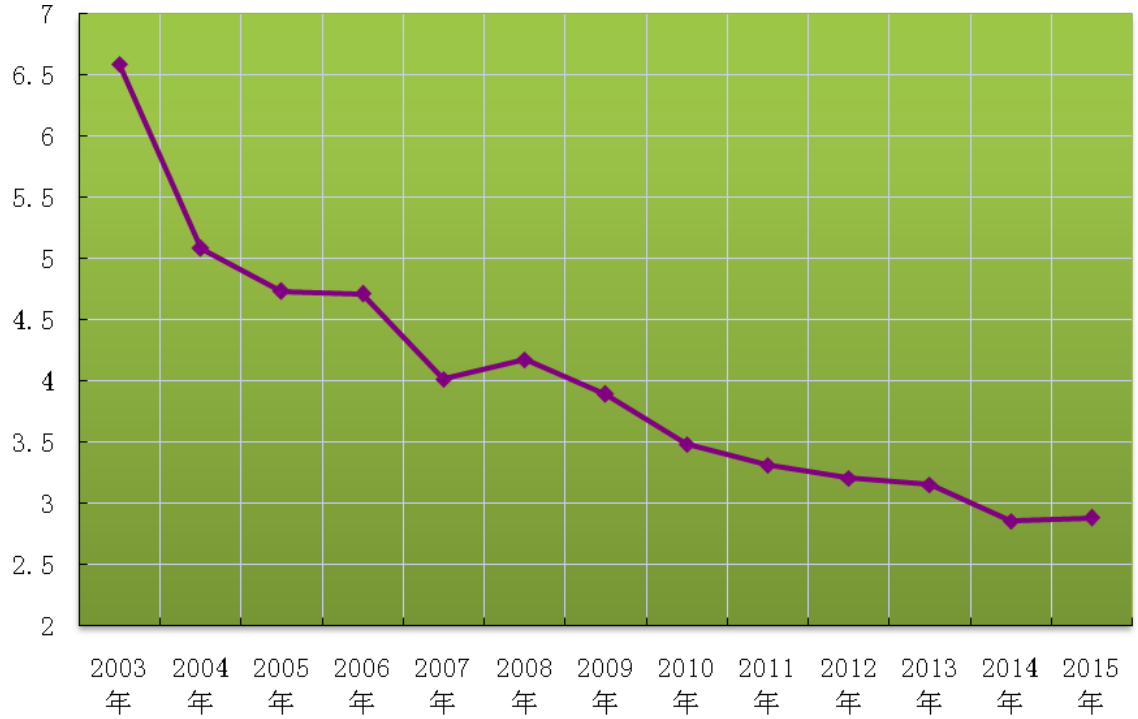


图4-2　2003年-2015年全市婴儿死亡率（单位：‰）

Qingdao healthcare HR

2015

- Healthcare staff 66164，village doctors and healthcare staff 7049
- 7.27 healthcare staff/1000
- 2.97 licensed doctor (incl assistants)/1000
- 3.12 registered nurse/1000

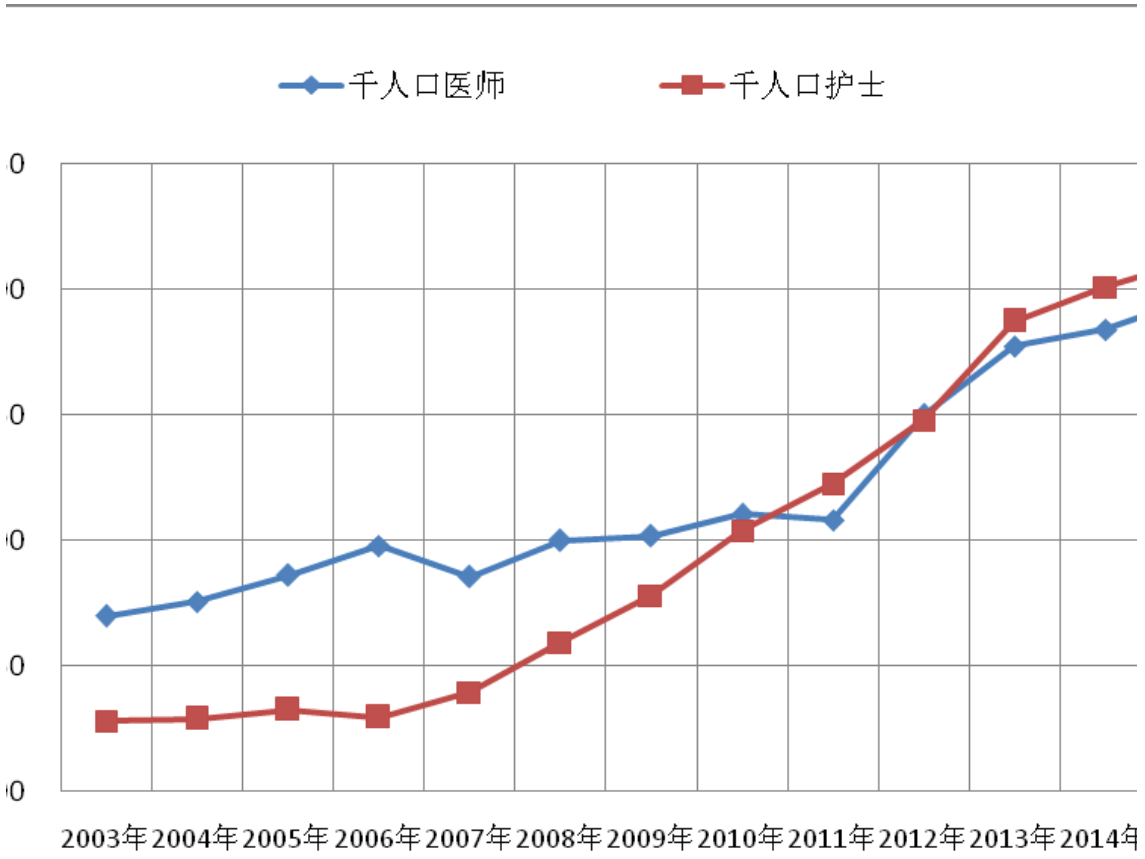
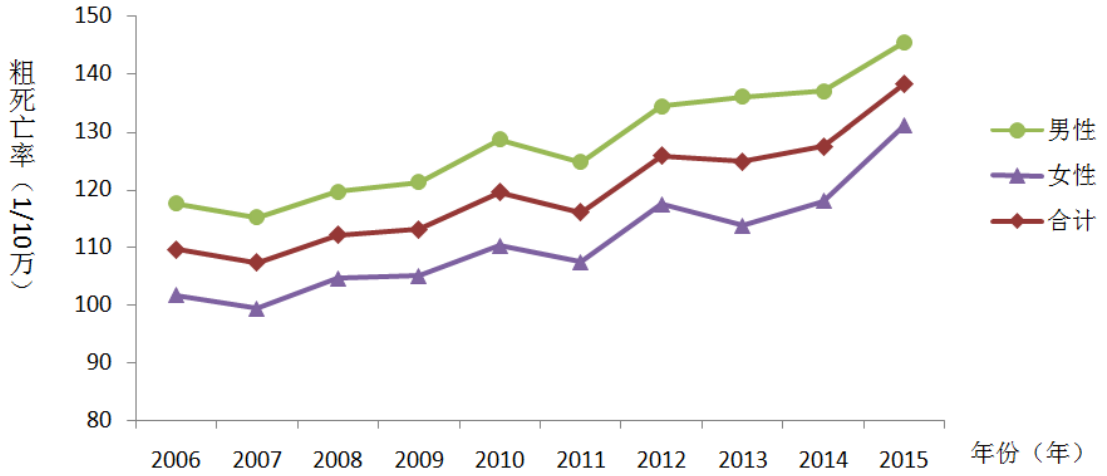


图1-10　2003年-2015年千人口医师、护士数（单位：人）

2006-2015 Qingdao CVD mortality trend

2006-2015 Qingdao CVD mortality trend
（1/100, 000）

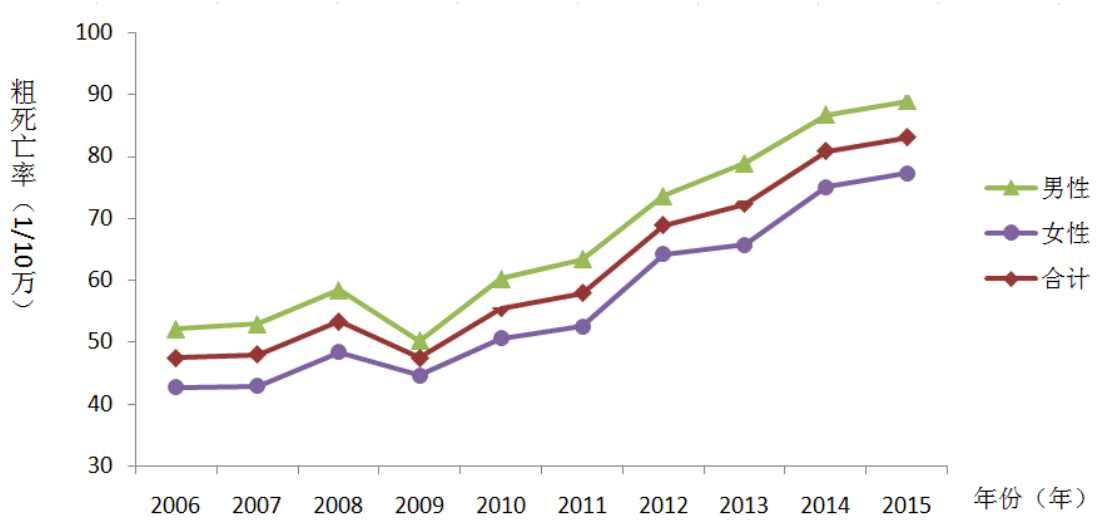
year	M	F	Total
2006	117.52	101.70	109.68
2007	115.13	99.39	107.32
2008	119.61	104.65	112.17
2009	121.22	105.05	113.15
2010	128.66	110.32	119.49
2011	124.71	107.43	116.06
2012	134.39	117.41	125.89
2013	136.11	113.74	124.88
2014	137.05	118.05	127.50
2015	145.57	131.14	138.31



2006-2015 AMI mortality

2006-2015 MI mortality
（1/100,000）

year	M	F	Total
2006	52.12	42.65	47.43
2007	52.93	42.82	47.91
2008	58.35	48.31	53.35
2009	50.19	44.56	47.38
2010	60.20	50.59	55.39
2011	63.30	52.52	57.90
2012	73.59	64.13	68.85
2013	78.84	65.73	72.26
2014	86.64	75.03	80.81
2015	88.91	77.23	83.03



1990~2014 China CVD mortality (1/100000)

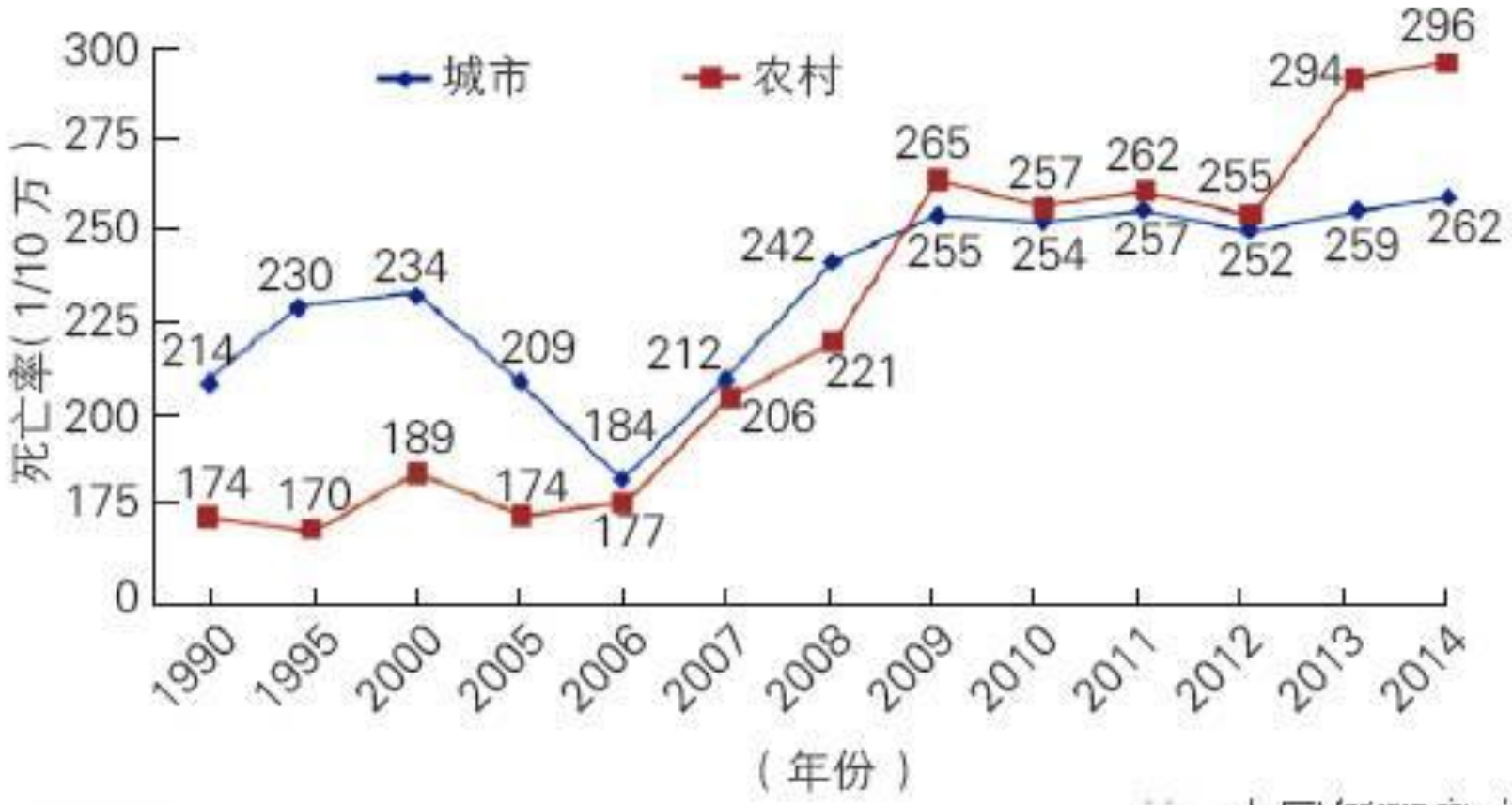
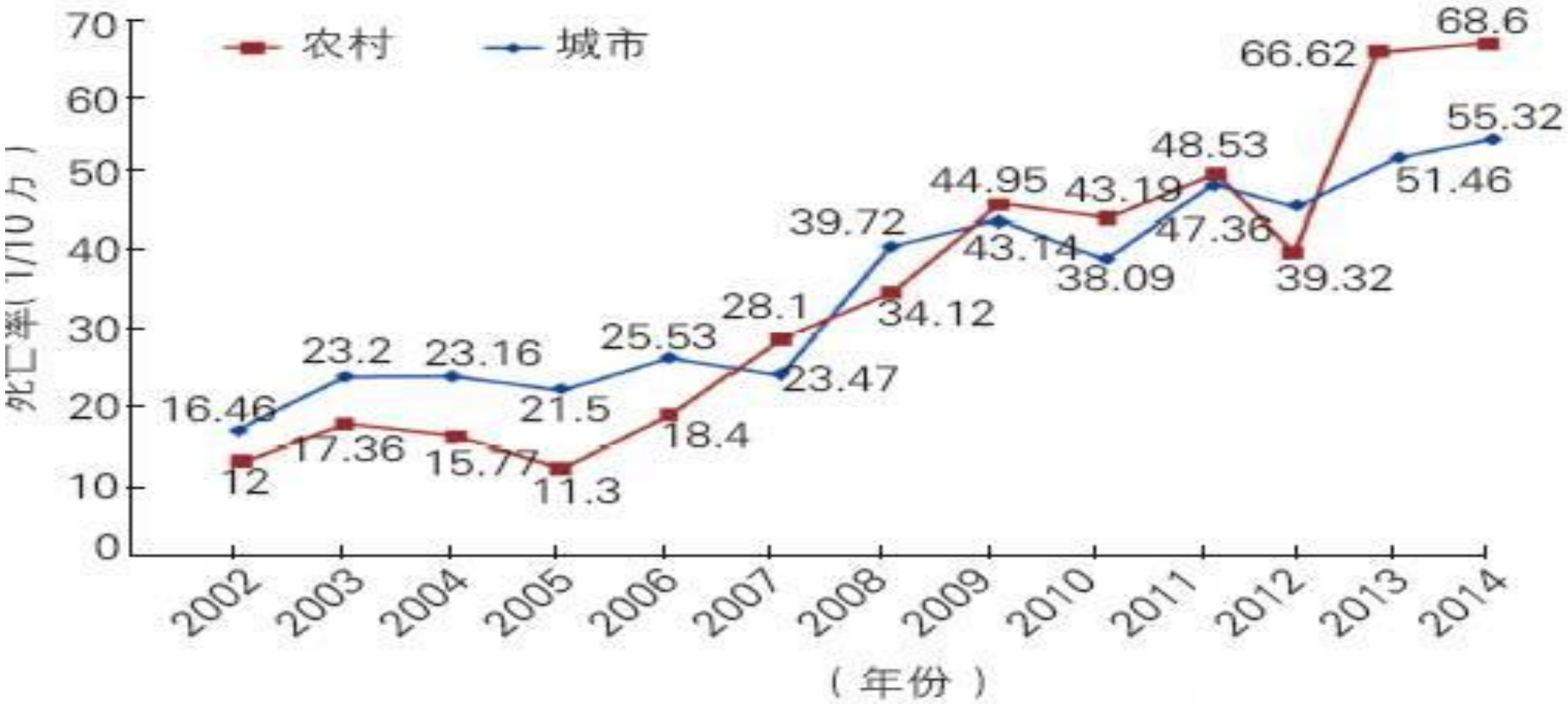


图 3 1990 年 ~2014 年中国城市居民心血管病死亡率变化

2002~2014 China AMI mortality



中国循环杂志

图 7 2002 年 ~2014 年城乡地区 AMI 死亡率变化趋势

1980~2014 China CVD discharged patient number

2014

China CVD discharged patient 1793.86 person-times (12.75% of total discharge)

- Coronary artery disease 6.63% of total discharged
- Cerebrovascular disease 6.12% of total discharged
- Ischemic heart disease 36.53% of CVD patients
- cerebral infarction 29.66% of CVD patients

2013 diabetes discharged patient 3.2044 million person times

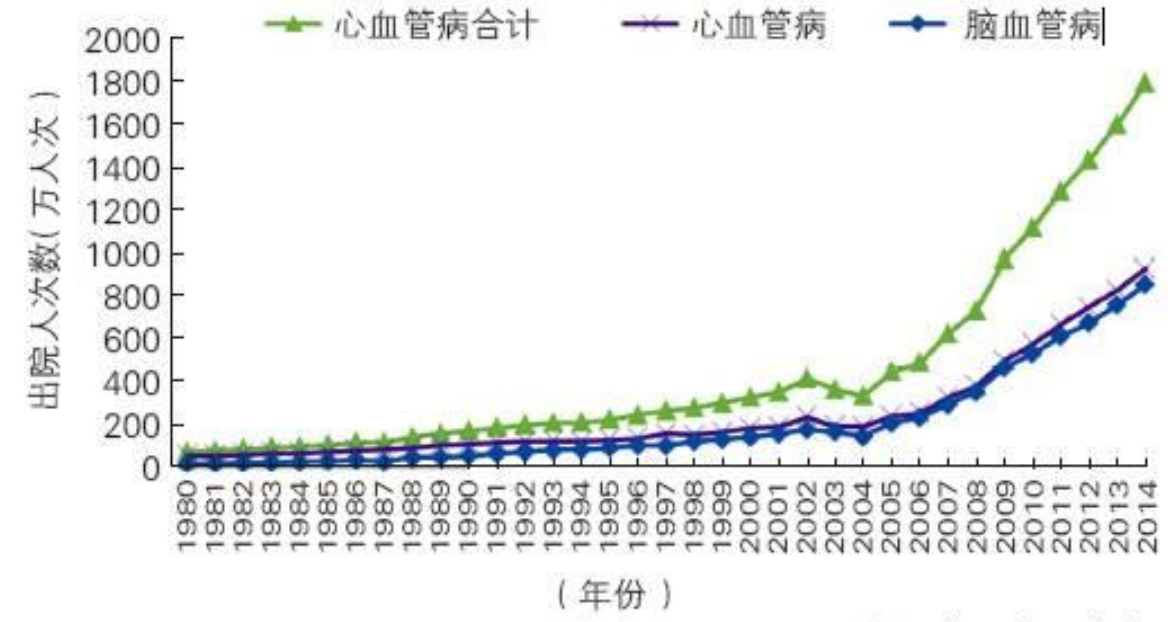


图 9 1980 年~2014 年中国心脑血管病患者出院人次数变化趋势

1980~2014 China CVD and diabetes discharged patient number

1980～2014 China CVD discharged patient annual growth: 10.10% , faster than total discharged patients (6.33%)

Annual growth ranking

Infarction (12.30%) , ischemic heart disease (11.74%) , intracranial hemorrhage (9.76%), AMI (8.12%), hypertension (8.06%) , hypertensive heart disease and kidney disease (5.82%)

1980-2014 diabetes annual growth 14.18%

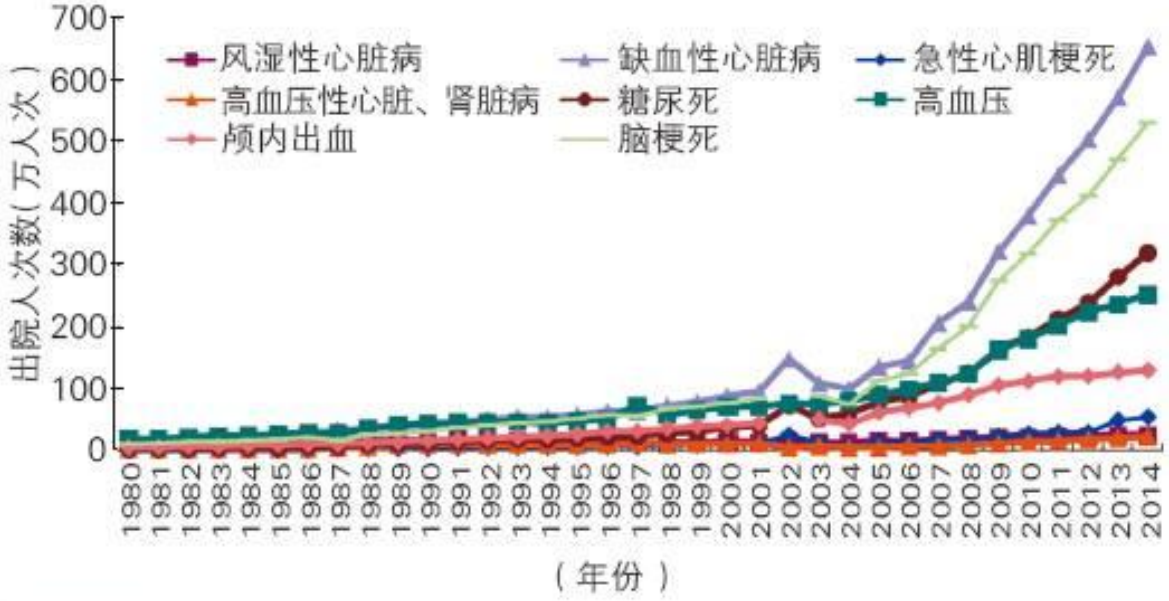


图 10 1980 年~2014 年中国各类主要心脑血管病和糖尿病患者出院人次数变化趋势

2004~2014 CVD inpatient total cost

2014 total cost

- AMI为13.375 billion
- Intracranial hemorrhage 20.707 billion
- Infarction 470.35 billion

Since 2004，annual growth 32.02%、18.90%、24.96%（respectively）

2014 average inpatient cost

- AMI ￥24706.0
- Intracranial hemorrhage ￥ 15929.7
- Infarction ￥ 8841.4

Since 2004，annual growth 8.72%、6.63%、2.81%（respectively）

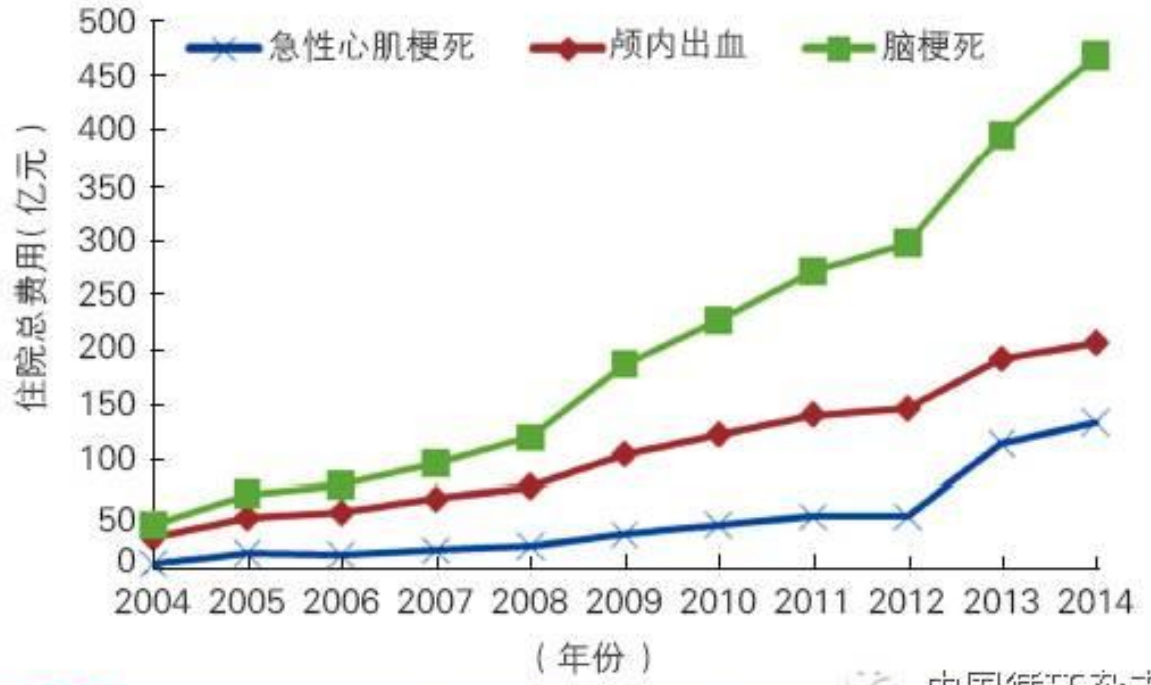


图 11 2004 年 ~2014 年三种心脑血管病住院总费用变化趋势（当年价格）

2009~2014 China coronary intervention : number of cases and an annual growth rate

32%

AMI annual average inpatient cost growth

AMI patient number annual growth 8.7%
Stroke 8.7%
.
Only 4.3% patients in Beijing big hospitals received thrombolysis treatment, only 5% of STEMI patients received early reperfusion therapy.

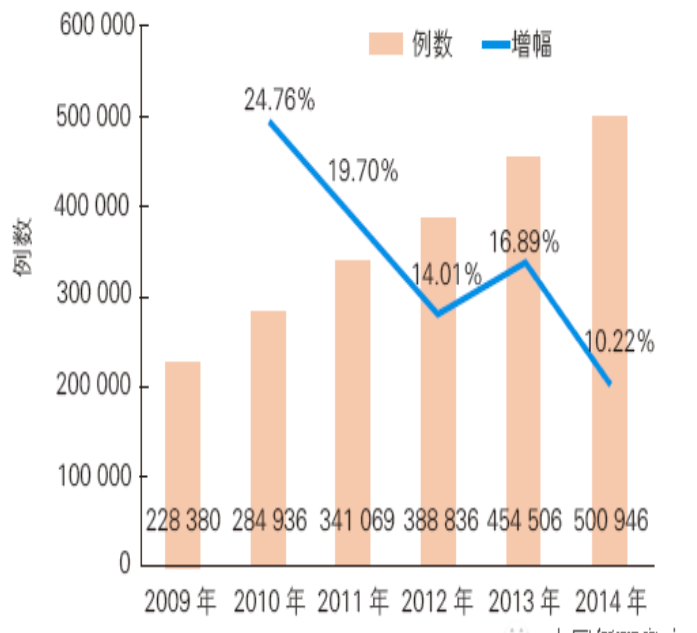


图 8 2009 年 ~2014 年中国冠心病介入治疗例数及年度增长率

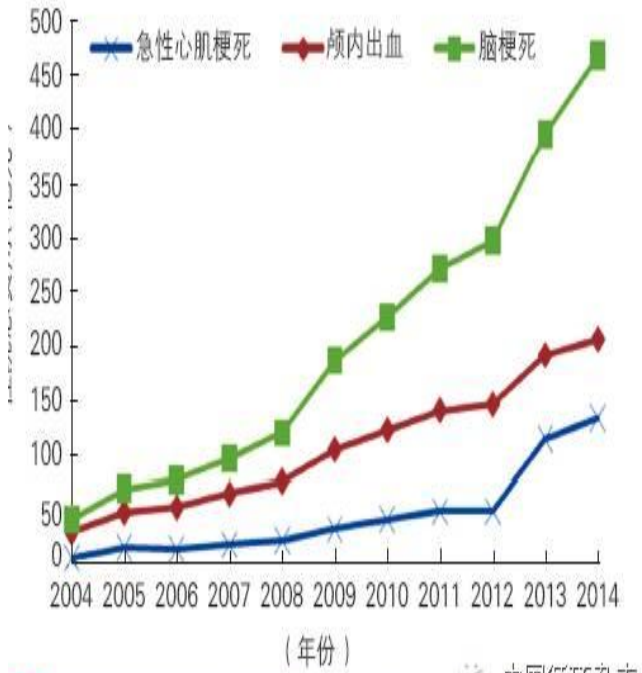


图 11 2004 年 ~2014 年三种心脑血管病住院总费用变化趋势（当年价格）

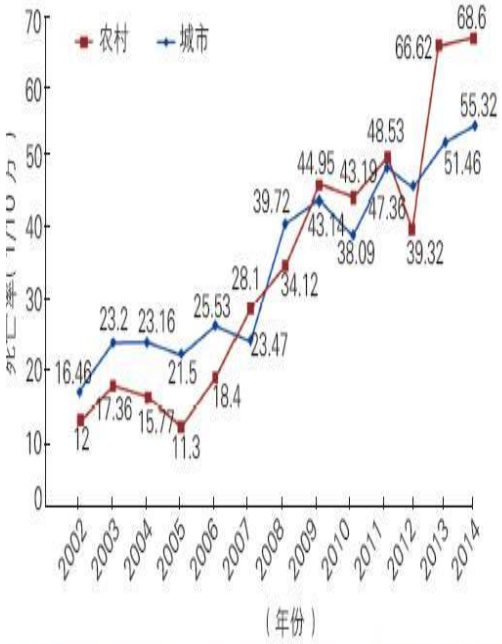


图 7 2002 年 ~2014 年城乡地区 AMI 死亡率变化趋势

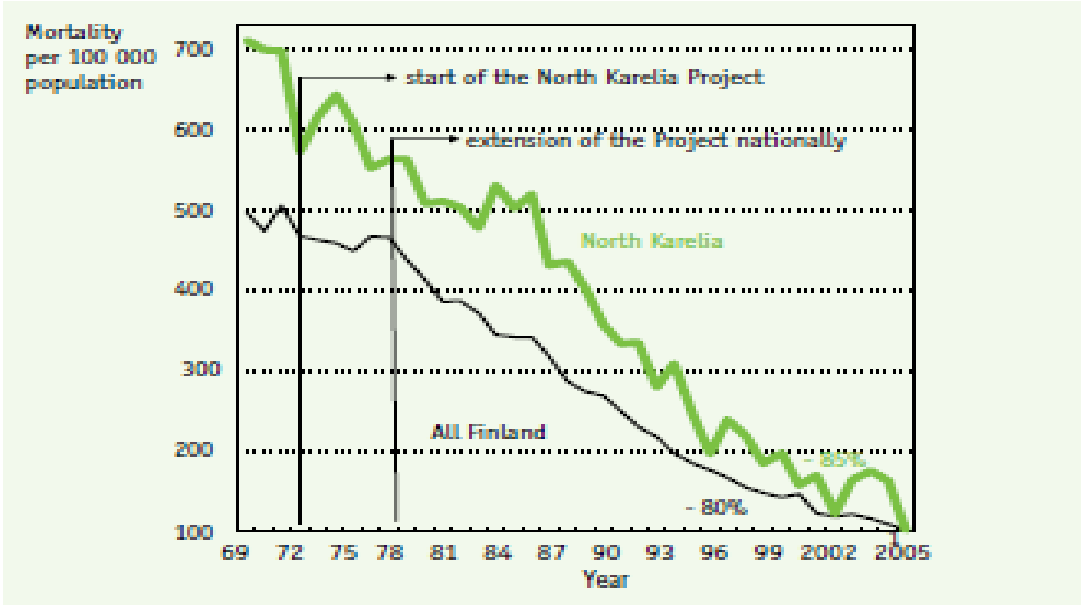


Figure 1. Age-adjusted mortality rates of coronary heart disease in North Karelia

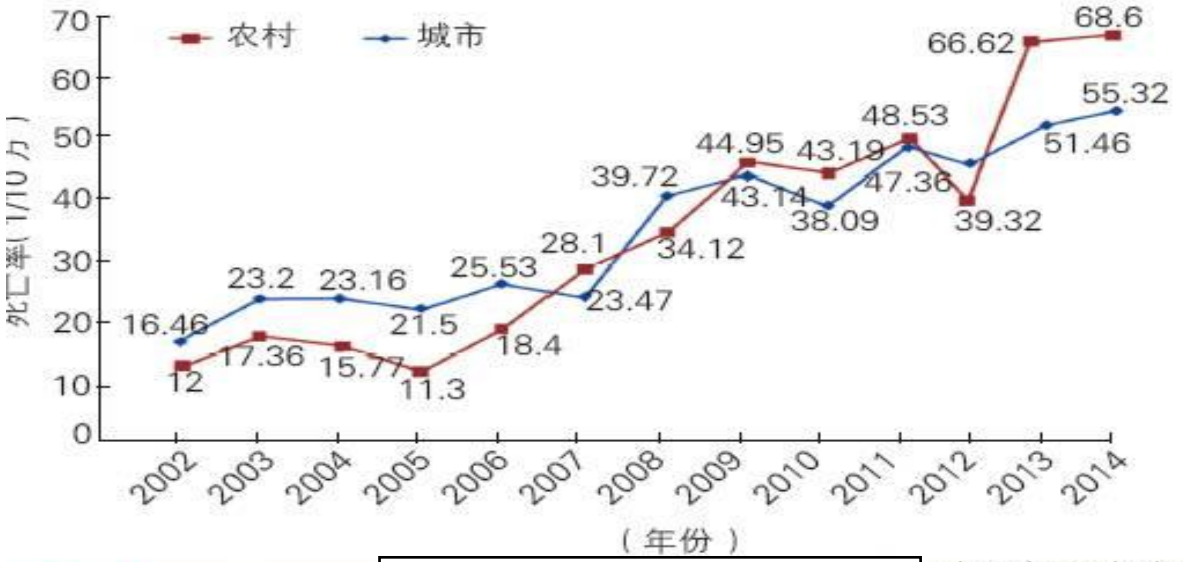


图 7 2002 年 ~2014

AMI mortality

中国循环杂志

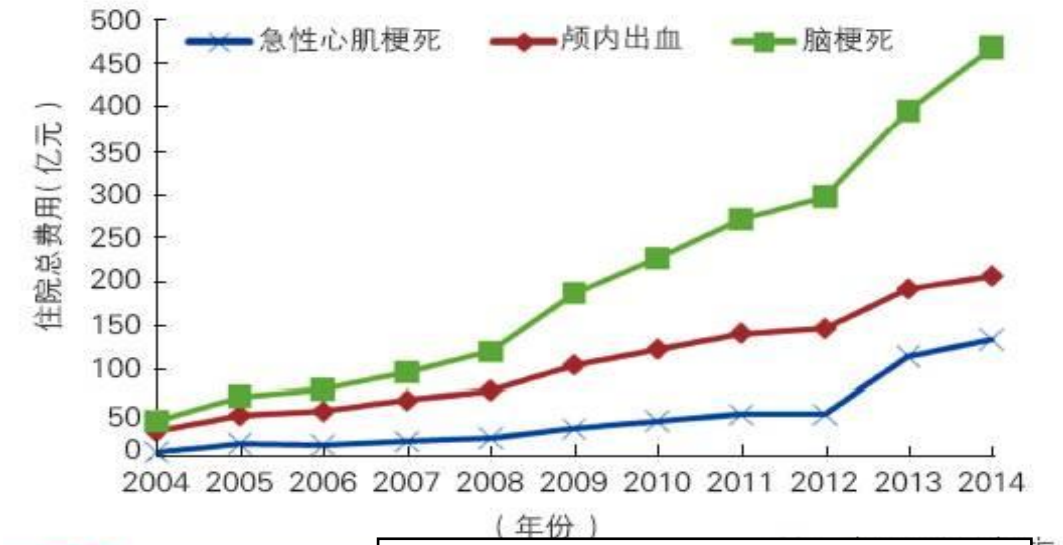


图 11 2004 年 ~2014 年

3 types of CVD Inpatient cost

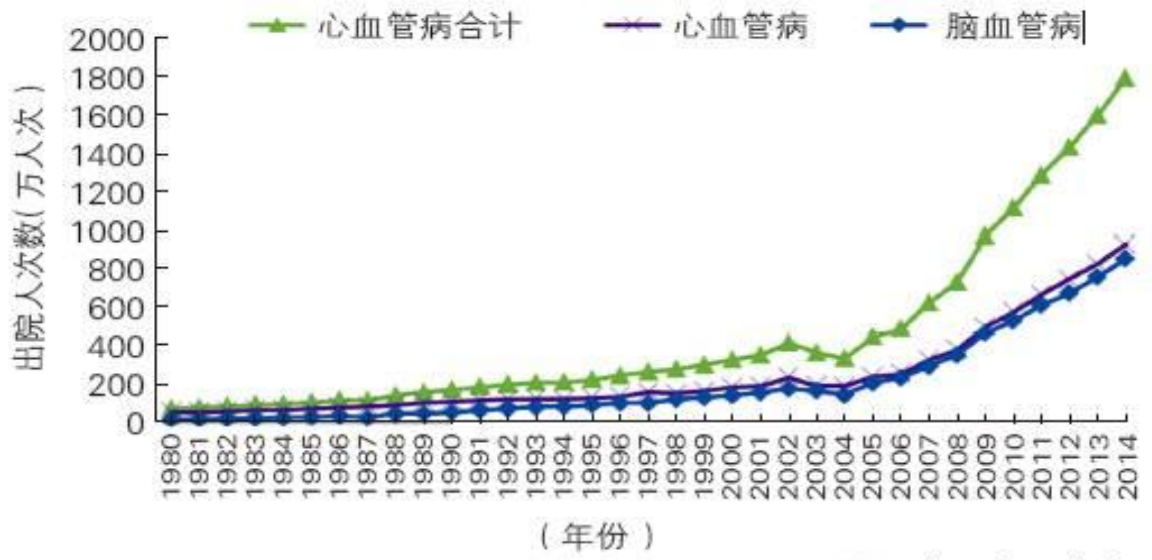


图 9 1980 年~2014

CVD discharged patient number

中国循环杂志

China chronic disease pandemic

- Future concerns：more people become ill, obesity in children, weak economy, drained healthcare system

In terms of chronic disease prevention and monitoring, we have done a lot of work, including developing community service, public health service program and establishing national centers, however, we still have a lot more to accomplish

Difficulty—Burden caused by chronic disease continued to increase

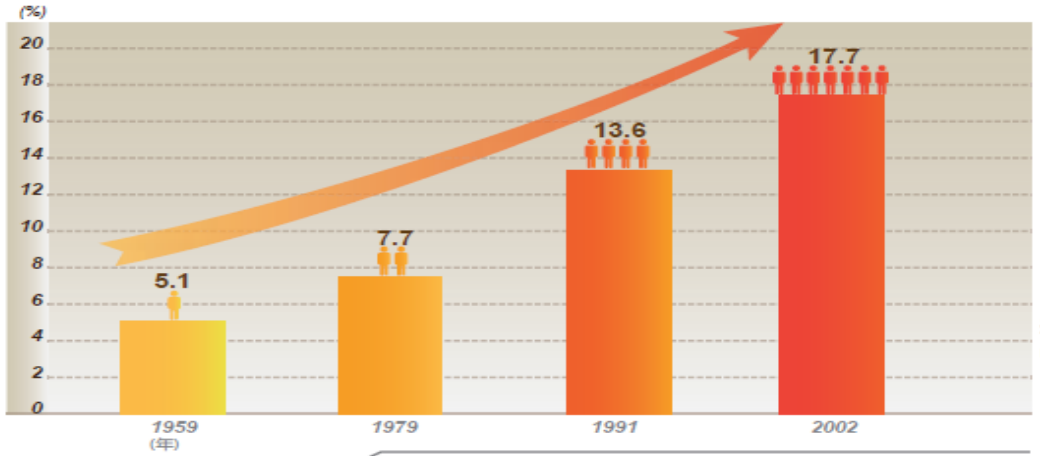


图 3 中国 15 岁以上人群高血压患病率

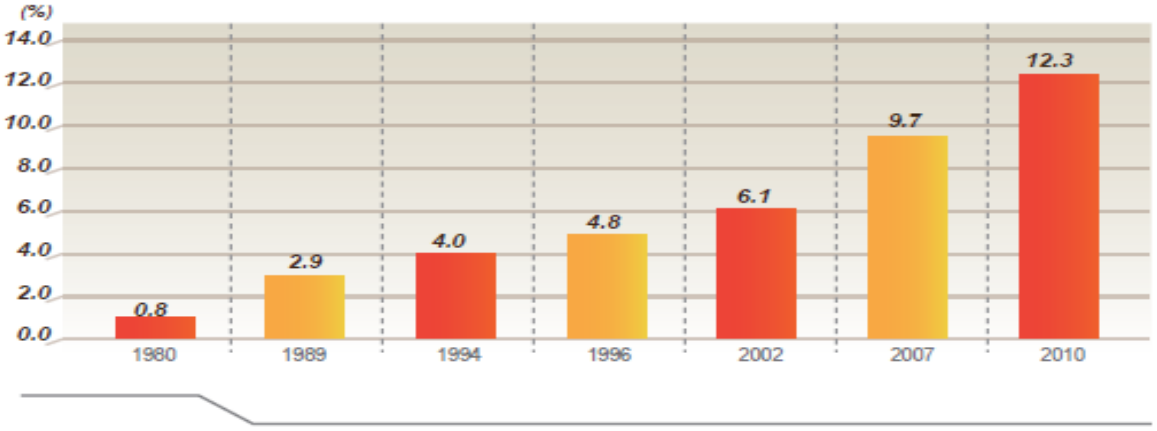
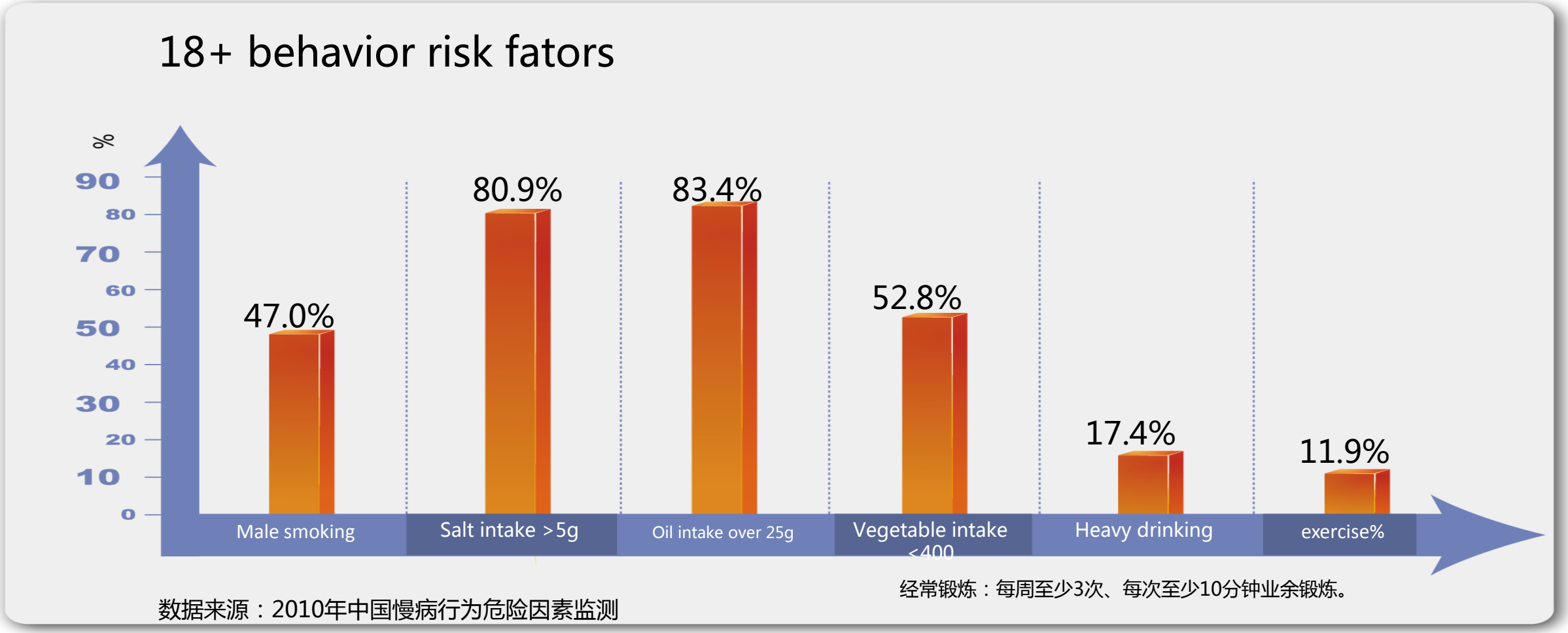


图 4 中国 18 岁及以上人群糖尿病患病率

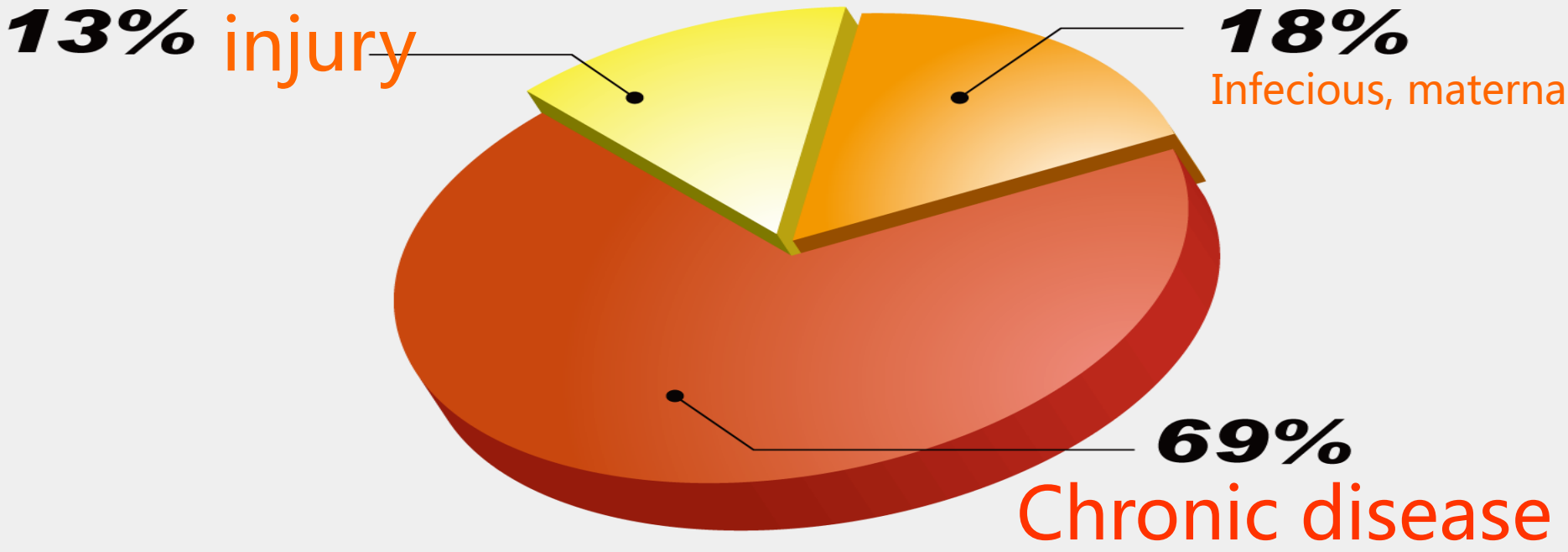
- 2010 estimated mortality 9.50 million
- Premature death 5.50 m，57.8%
- Within premature death : chronic disease75.1%

Challenge —Chronic disease behavior risk factors



Challenge —*chronic disease burden*

69% of total disease burden

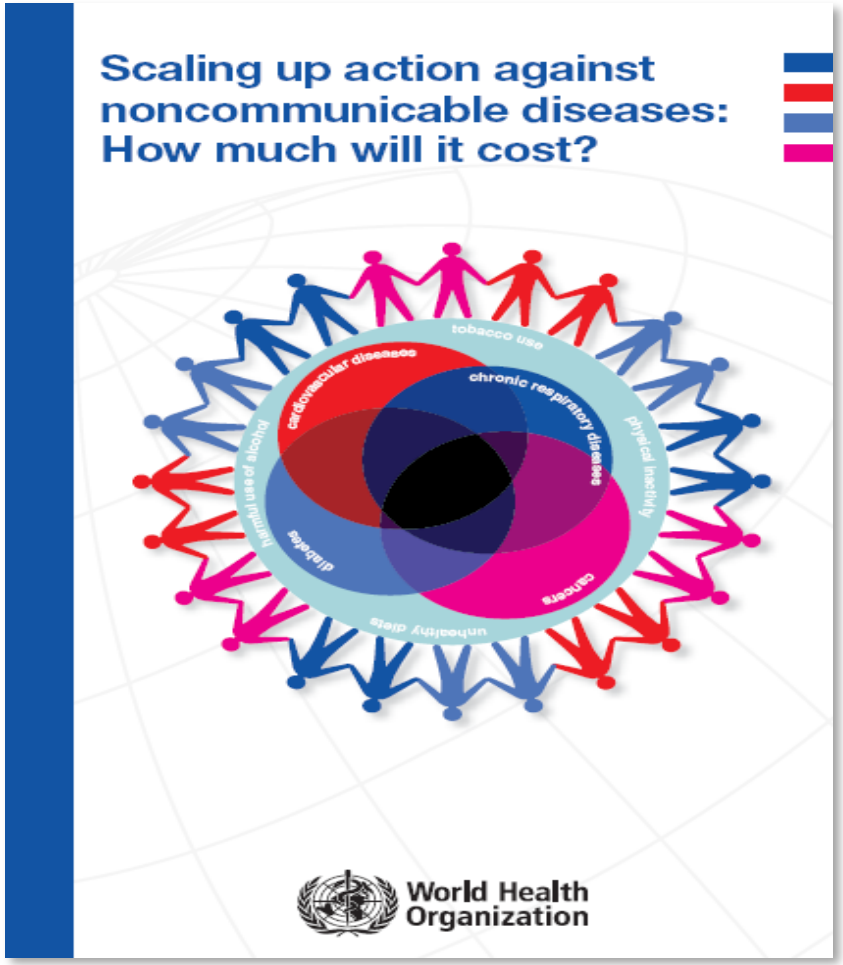


数据来源：世界卫生组织，疾病负担研究，2009年。

Technical pathway

WHO：chronic disease best practice

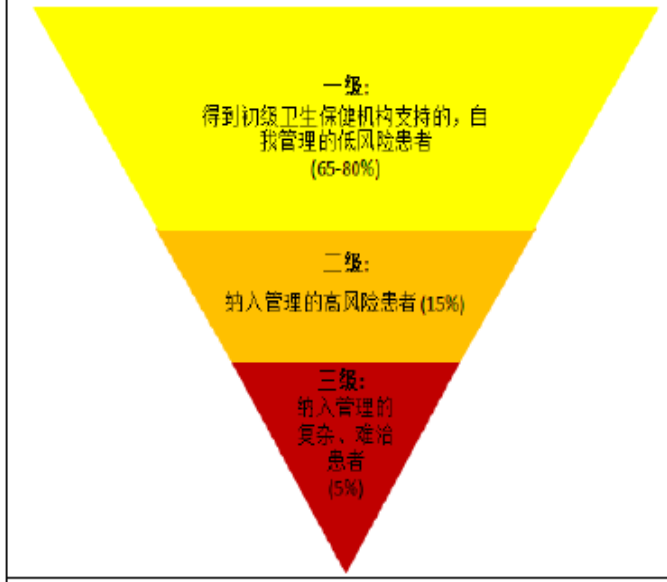
- Population base intervention
  - Smoking
  - Salt
  - Diet and activity、
  - Heavy drinking
- Interpersonal intervention in healthcare
  - Promotion of essential medicines and technology



Create a healthy and harmonious life to contain China NCD epidemic

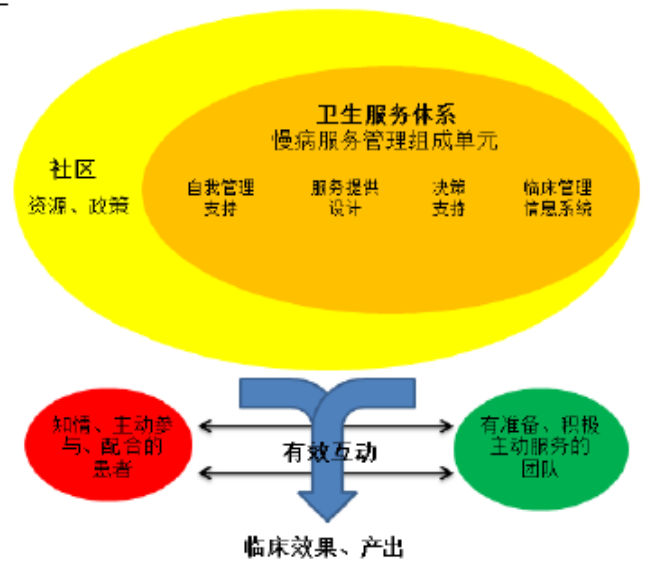
《Worldbank report》2011

图 18：“慢病管理金字塔”



资料来源: E. Nolte, M. McKee. 为慢病患者提供服务：医疗体系视角, 2008。

图 19：“慢病管理”模型

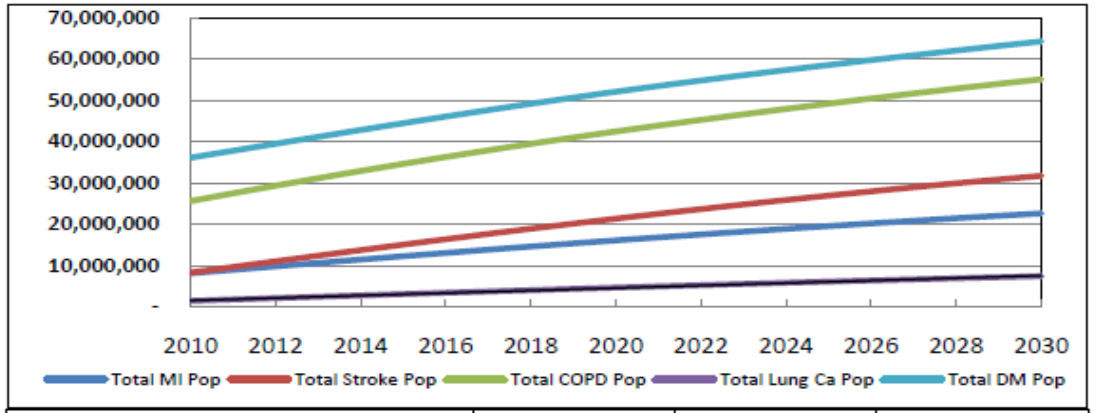


资料来源: Wagner EH, 1998.

"Chronic disease management pyramid" model based on the degree of severity of illness and required clinical management to classify patients and provide corresponding medical and health services.

创建健康和谐生活遏制中国慢病流行 《世界银行报告》2011

图 2：预测慢病患者人数（40 岁以上人群）



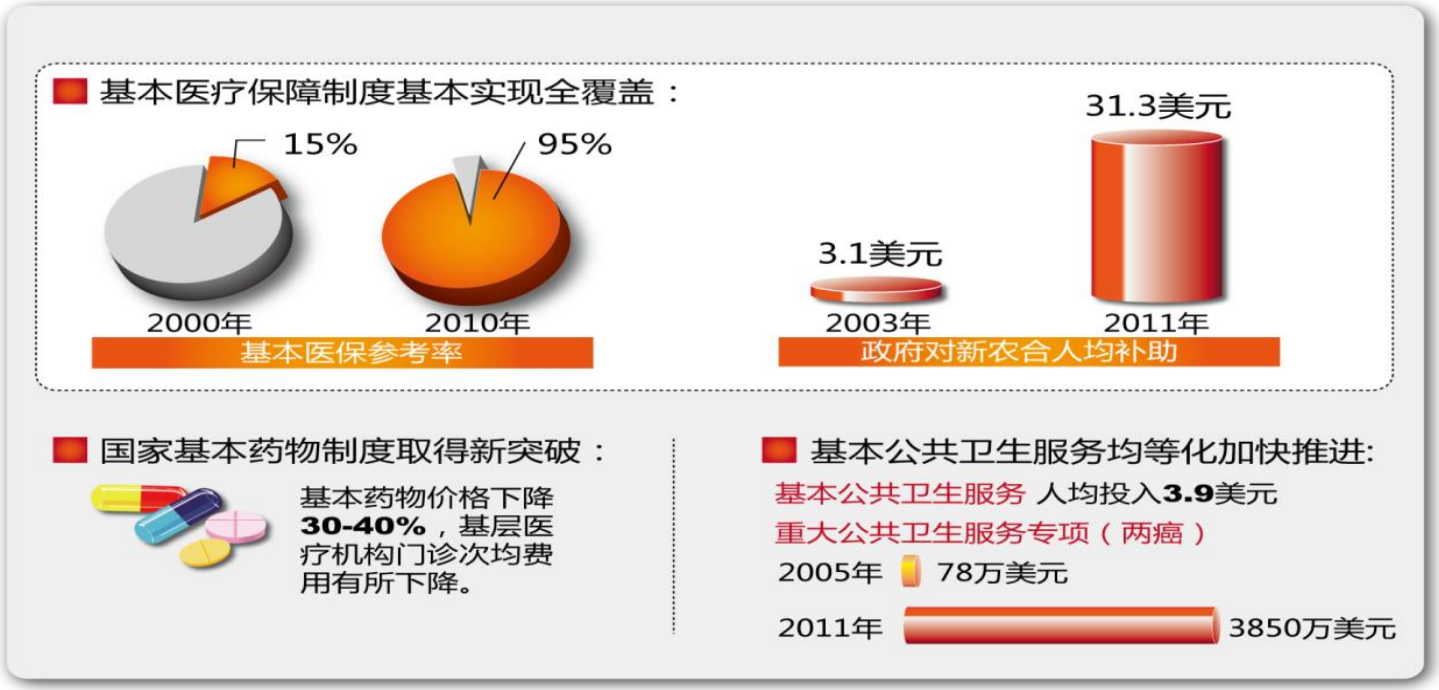
预测慢病患者人数	2010	2020	2030
心梗	8,101,001	16,081,550	22,630,244
中风	8,235,812	21,356,978	31,773,456
慢阻肺	25,658,483	42,527,240	55,174,104
肺癌	1,412,492	4,621,900	7,391,326
糖尿病	36,156,177	52,118,810	64,288,828
总数	**79,563,965**	**136,706,478**	**181,257,958**

资料来源： 中国营养与卫生调查，2002，中国国家慢性非传染性疾病危险因素监测 2007。

With out integration and continuity of chronic disease services, China’s health system will fail to combat the raising disease burden from both chronic and infectious disease.

Working with the foundation - Chinese government

- ✓Pay more attention to people's livelihood
- ✓LE increase 1 year
- ✓Deepening medical reform
- ✓Consensus at different social level
- ✓Healthy City Construction



Chronic disease is a focus of “12-5” planning

中国的行动策略 China Action

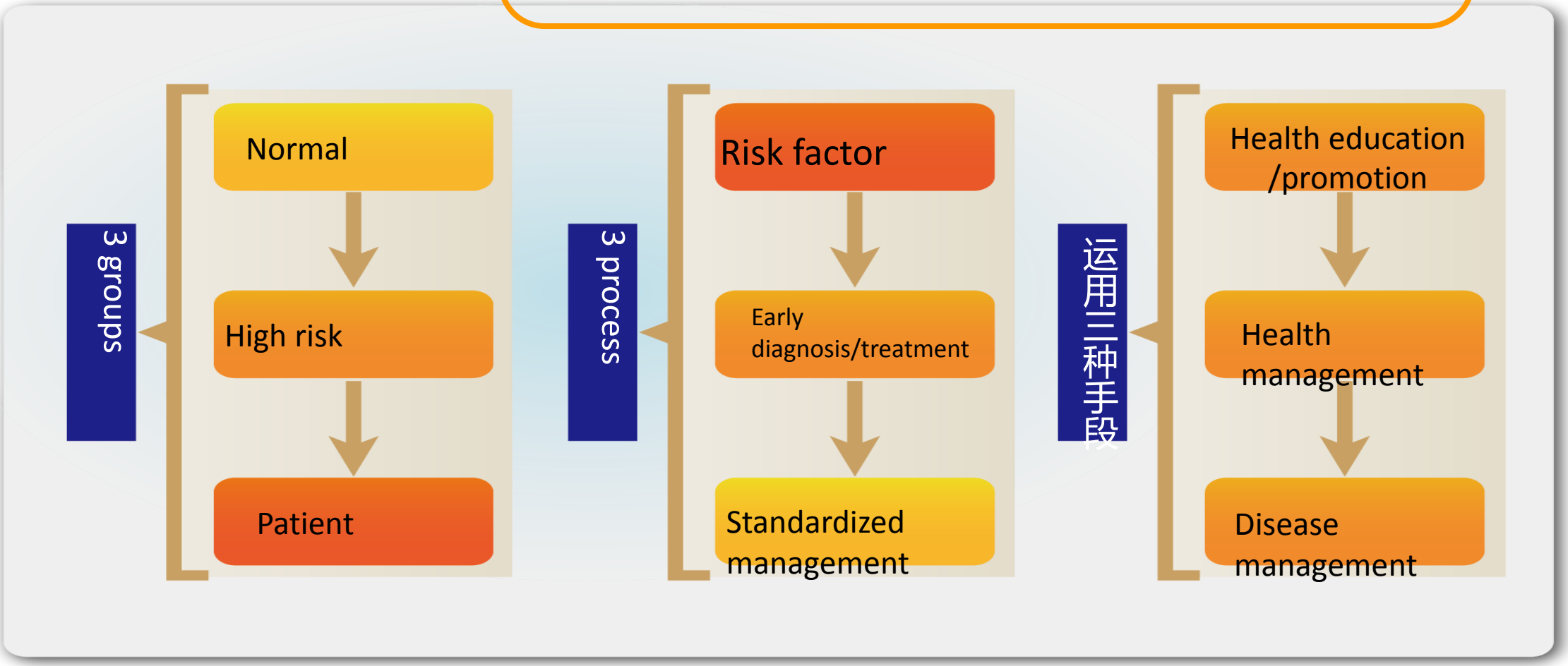
1升：Improve population health

2早：Early diagnosis /treatment

3降：Reduce incidence, mortality, disability

◆3.3.3 measures

Chronic disease prevention/management strategy Action



Overal strategy Action

◆4.4.4 key points

5 key chronic diseases	4 Biological indicators	4 main risk factors
CVD	Blood pressure	Smoking
Cancer	Glucose	Diet
Diabetes	Blood lipid	Activity
Chronic respiratory disease	Overweight/Obesity	Excessive drinking

Chronic disease（CD）concept

- A new phenomenon：
  ——life style change
  ——health technology improvement
- We focus in chronic disease – those that cause chronic health issue. Not all chronic diseases are non-communicable, not all communicable diseases are chronic.
- Global economy and social policies lead to epidemic of chronic diseases
- Ignoring chronic disease is a political failure

Chronic disease classification

- Intuitive Chronic Diseases
- Rules-Based Chronic Diseases
- Chronic disease management :
  1.Diagnosis and treatment plan;
  2.Help patients adhere to treatment
- Al most all decisions on health service are made by chronic patients themselves. 2/8758

Policy response to the challenges of chronic diseases - Chronic disease prevention and treatment Intellectual integrated health service system pilot project

Integrated Healthcare Delivery System （IDS）

Integrated Healthcare Delivery System （ IDS ）— a ordered, cooperative network that integrates different services at different level and their technology, process and structure, to provide and promote coordinated and continuous healthcare service, and achieve systematic improvement in efficiency. The core objective is to solve issues of healthcare system accessibility and comprehensiveness, and aggregate the health system.

“对体系内卫生服务所涵盖的各项资源进行组织和管理， 使人们能够在需要的时候能够通过友好的方式获得其应得的系统性卫生服务，从而得到其想要的（健康）结果并产生经济价值”—WHO

IDS

Optimize health resource allocation, establish a comprehensive, coordinated healthcare service system that is compatible to national economy and social development, population health needs. (13-5 planning)

•Establish mechanisms for information sharing between public health agencies, hospitals, primary health care institutions to achieve combining prevention with disease control;

•Division of task among hospital and grassroots medical institutions, promote integrated care；

•Strengthen public and private collaboration；

•Open green channel for retirement service and health service for chronic disease management.

整合型医疗服务体系（IDS）core

——Community health centered

——Seamless continuum of care

——Management health with established resource

——and responsible for community

A comprehensive/organized service system is defined as ：a coordinated and continuous service for a defined group of people, and a organized network that is responsible clinically and financially for the health outcomes of the group of people.

Organized service system can be established through “virtual" integration process

Intellectual integrated health service system

- Use evidence-based guideline, chronic disease as breaking point, internet as IT support, to explore within district prevention and treatment integration, health system horizontal integration, GP and specialist integration, health policy and insurance policy integration, optimize health resource allocation, improve overall efficiency, improve health service performance, and provide cost-effective “prevention – treatment – rehabilitation" integrated health service.

What is Intellectual integrated care ?

- Intellectual integrated care is a new integrated care model
  - Use IT as technological foundation, GP assisted decision making as support, big data as analytical power, with remote clinic and wearable monitor device
  - Construct “pre-hospital prevention”, “inpatient clinical pathway”, “community rehabilitation pathway”
  - Build a “patient-centered” community and hospital collaboration, actively participating patient health management

Objectives

- Build system — Establish health education, screening of high-risk groups, clinical preventive interventions, acute phase standard treatment, rehabilitation care and disease management integrated chronic disease prevention and treatment of CVD and stroke service system;
- Improve ability — diagnostic ability of healthcare staff on heart and stroke identification, reduce the incidence, morbidity, improve the regional stroke and heart disease prevention capacity and efficiency;
- Public awareness——increase public management awareness of high risk factors, early CVD and stroke prevention, improve population health.

Chronic disease effective business model

- Chronic disease diagnosis and treatment plan design and practice
- Continue to treat and change behavior, prevent complications
- ——Two different tasks
- Today's healthcare business model rarely optimize diagnosis and treatment progress. There isn't any model that can improve patient adherence and treatment continuity.

点击此处添加标题

Project

Pilot established a network system of “chronic disease and CVD stroke prevention – intervention – treatment” integrated care covering all healthcare resources within district

Build system

Establish health education, screening of high-risk groups, clinical preventive interventions, acute phase standard treatment, rehabilitation care and disease management integrated chronic disease prevention and treatment of CVD and stroke service system; ;

Improve ability

Diagnostic ability of healthcare staff on heart and stroke identification, reduce the incidence, morbidity, improve the regional stroke and heart disease prevention capacity and efficiency;

1、Regional chronic disease, heart and stroke prevention and treatment integration base

2、3-level hospital advanced CVD and stroke treatment center

3、 2-level hospital basic CVD and stroke treatment center

4、community chronic disease management , cvd and stroke outpatient center

Public awareness

Increase public management awareness of high risk factors, early CVD and stroke prevention, improve population health.

Project

CVD stroke pre-hospital emergency service specification

CVD stroke emergency service specification

CVD stroke special outpatient service specification

Risk screening clinic service specification

Improve case reporting system, and establishment of IT management and reporting systems
1, MI and stroke inpatients report system.
2, CVD stroke screening of high-risk individuals registration system.
3, CVD stroke clinical treatment centers IT support.

CVD stroke inpatient service standards and insurance payment methods

Community service specification high-risk individuals

Strengthen personnel training and technical support

Integrate health education and network resources to jointly carry out health education campaigns for the prevention of stroke

Objectives

Chronic disease "prevention、treatment、rehabilitation" integration： the use of advanced IT technology systems, medical technology and service model for Qingdao to build multi-level, multi-mode, wide coverage, a full range of integrated and comprehensive chronic disease system. Specifically in **FIVE dimensions**

Treatment technology：Drug + life style intervention + health education + indicator monitoring

Service technology：internet of things, internet, cloud technology, support internet, mobile sand face-to-face services

Treatment facility：Primary, secondary, tertiary hospital collaboration, integrated two-way referall

Population user：provide service to healthy, at-risk, high risk and patients

Place and time：patient receive care in or out hospital at anytime

Services and processes

- **5 forces :**

  diet, activity, education, drug, self monitoring

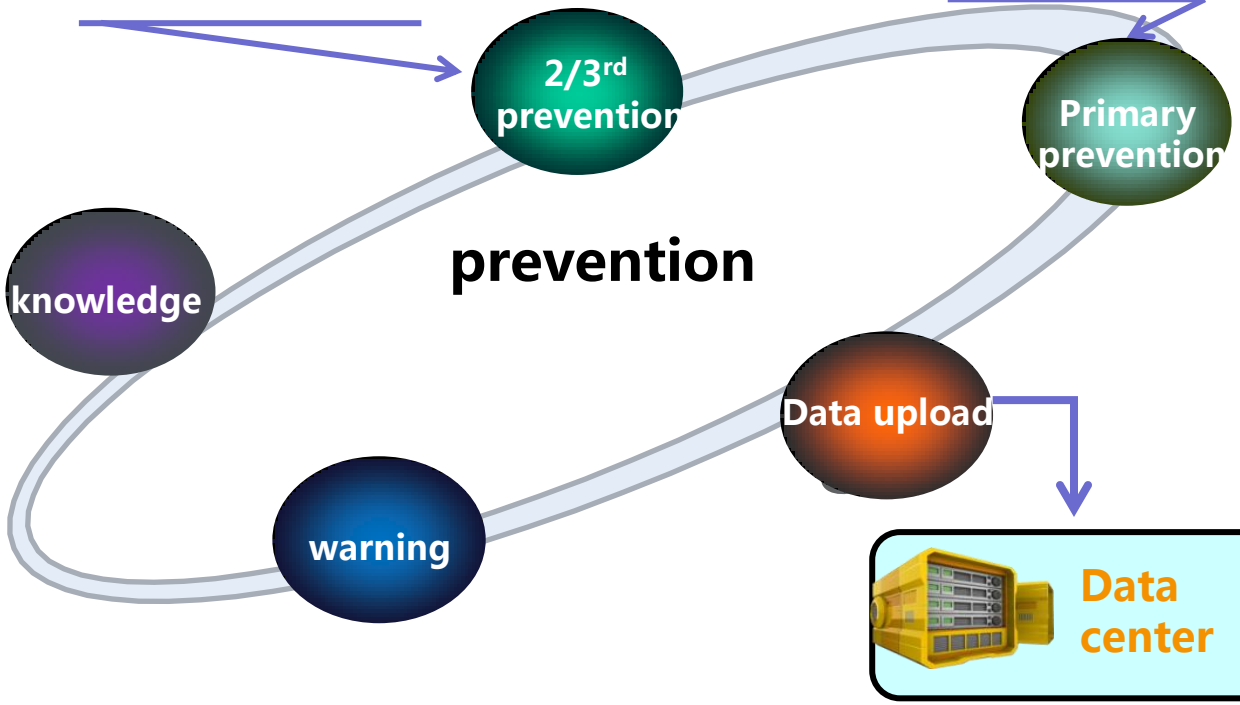
Service model

Service model to all population

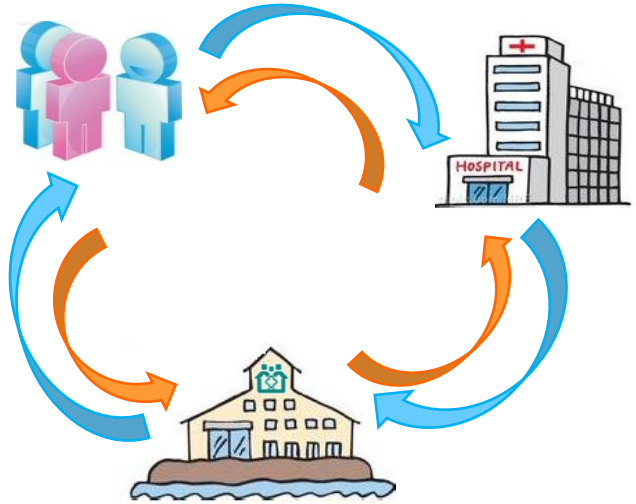
Health, sub-healthy and high-risk groups
multilevel prevention

Secondary hospital

Community



patients : integrated care



- first diagnosis at grassroots
- Two-way referal
- Acute chronic separate care
- integration

点击此处添加标题

Project plan

Pilot established a network system of “chronic disease and CVD stroke prevention – intervention – treatment” integrated care covering all healthcare resources within district

1 **Composition of the institution, issued a document to start the implementation**
（2015. 1–4）

2 **An expert team to determine the mechanism, research and development of specification documents**
（2015. 5–12）

3 **Development of various types of institutions and personnel Manual**
（2016. 1–12）

4 **Summary assessment and comprehensive promotion**
（2017. 1–6）

点击此处添加标题

Intellectual integrated care system

（1）Self-awareness of abnormal status and automatic health alarm platform as basic pathway；
（2）Actively book for diagnosis ；
（3）GP using assessment and diagnosis assistant system, upper level hospital specialist use remote assistance, to determine disease types (primary or severe) and set pre- diagnostic plan

Health record centered

Family doctors contracted services - main mode

Wearable device-based, intelligent, real-time, dynamic, full monitoring, early warning of abnormal indicators, reducing the risk of disease

Provide medical advice, medication reminders, personalized information push and interactive features between patients, personalized health management services.

Project initiation
——Qingdao west coast new district

West of Qingdao

area 2127 m2

2015 population 1.48 million

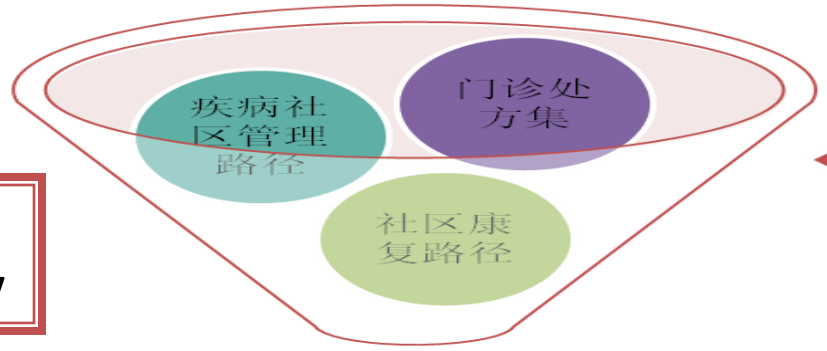
GDP260 billion

30% of Qingdao

• System frame work

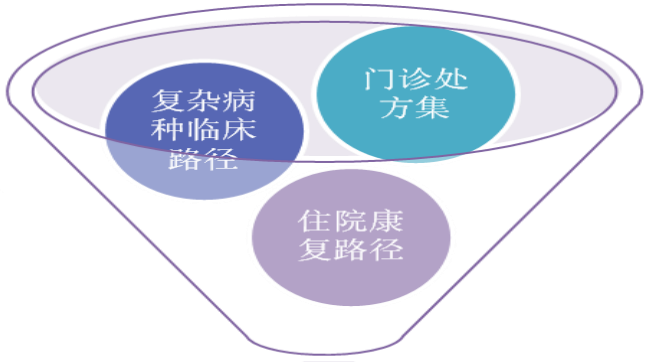
Disease history	Risk factor intervention	Cause intervention	Complication treatment	Reduce disability
Classified management	Primary	secondary	treatment	rehabilitation
Services	Health education promotion	Disease screening Health examination Early detection	Acute treatment Early treatment	Post acute treatment, rehabilitation
Integrated pathway	Primary prevention pathway	Secondary prevention pathway	Clinical pathway	Rehab treatment pathway
Institutions	Community health centers township hospitals Health room, station	Community health centers township hospitals Health room, station	Tertiary hospital Secondary hospital	Secondary hospital, county hospitals and district Community Health Center Township hospitals
Graded referral	Functional assessment	Upward referral standard	Two-way referral standard	Two-way referral standard

Integrated care pathway



社区路径

信息化



医院版路径

医疗机构

村卫生室
卫生站

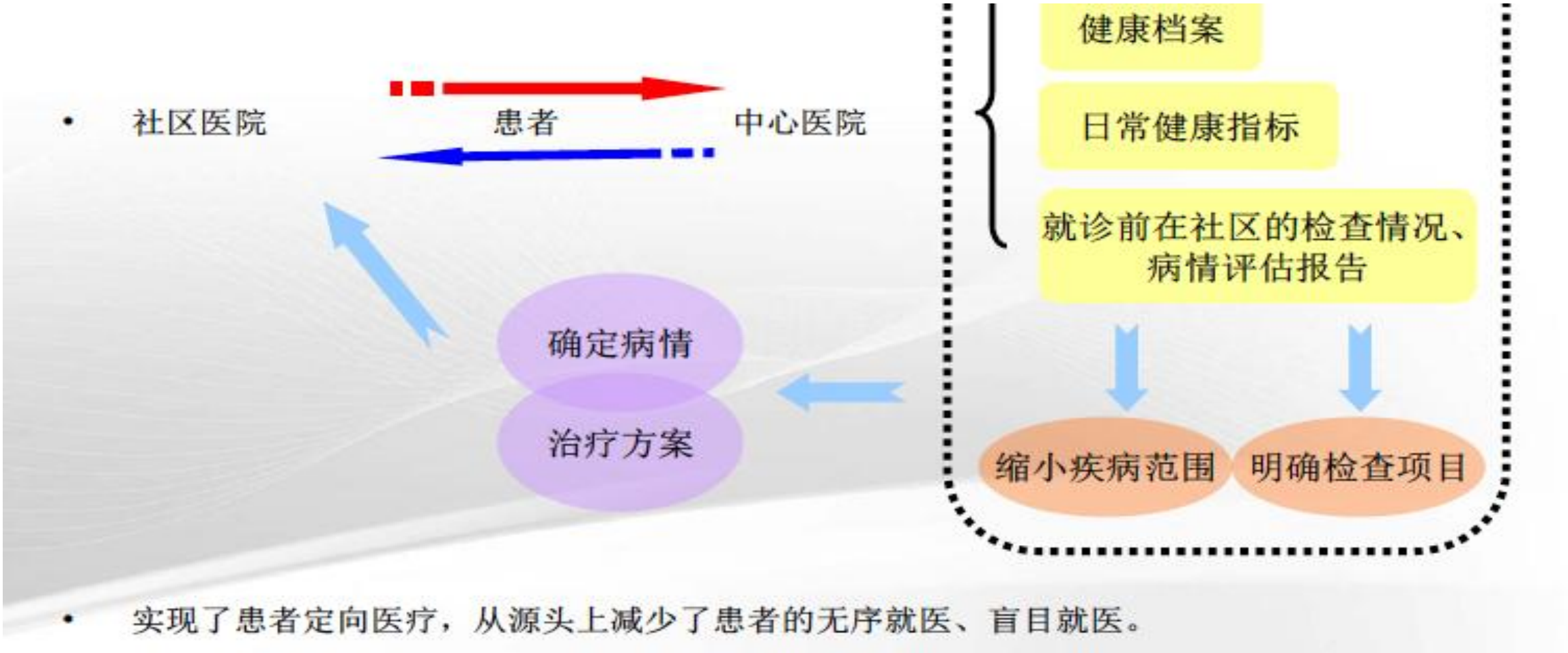
乡镇卫生院
社区服务中心

二级综合
医院

医保支付：
治疗:按门诊总额付费 +慢病门诊付费
预防:按人头付费（一、二级预防）
政府资金激励：
基本药物补偿资金和公共卫生均等化资金作为一、二级预防激励手段

医保支付：
住院: 单病种定额结算+**院内病种总额付费**
门诊: 慢病门诊支付
社保资金激励：
定额结算，结余归医院，按绩效分配

（2）Hospital clinical management pathway

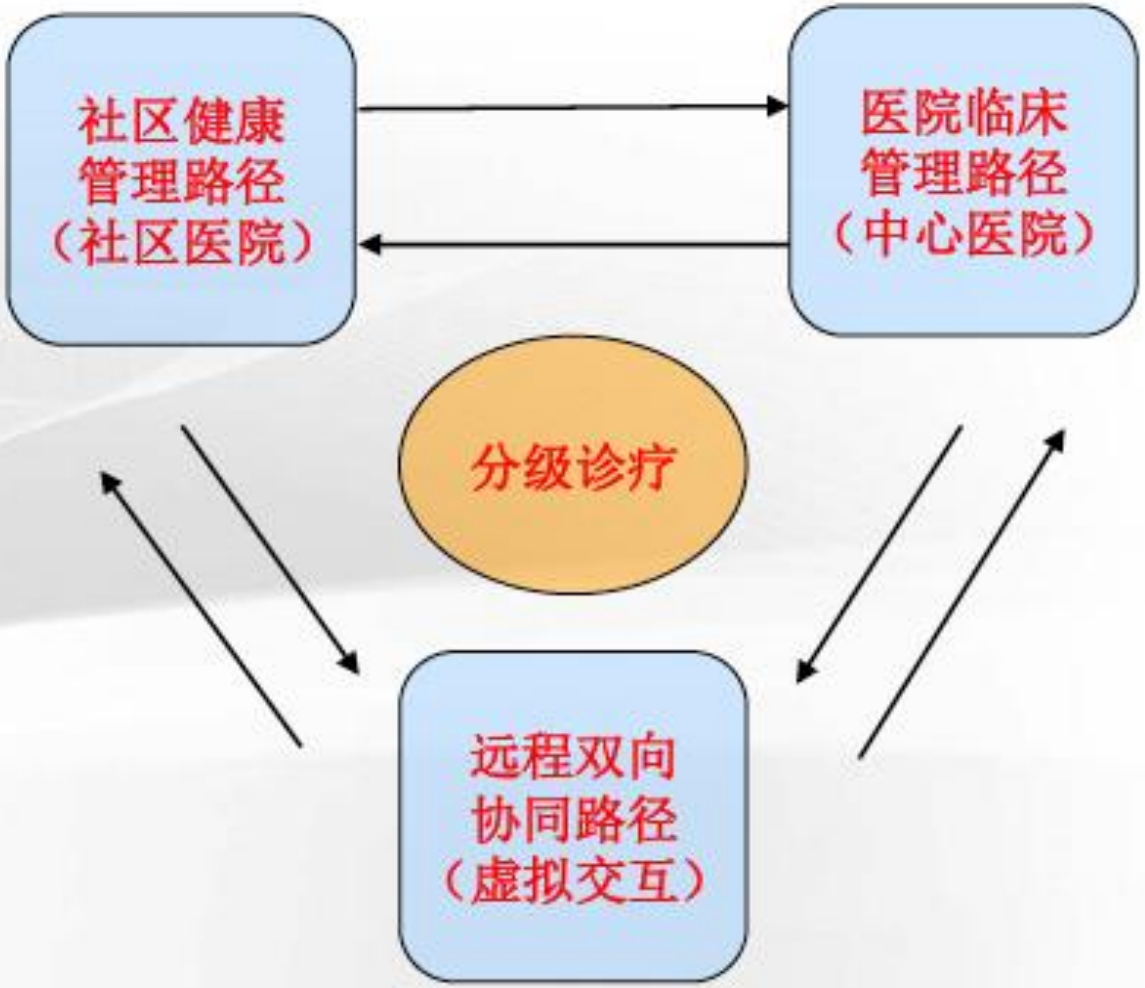


- 实现了患者定向医疗，从源头上减少了患者的无序就医、盲目就医。

（3）Remote two-way cooperative pathway

它以平台协同为核心，连接社区医院与中心医院，通过患者健康档案与医院电子病历互联互通与协同作业，实现分级诊疗的双向协同管理。

Use a platform to connect center and community hospitals, through integrating patient health record , establish management system for two-way referral.



点击此处添加标题

Intellectual integrated care

Two-way referral path with IT Innovation

1.Technology
•build a internet based it platform, standardize electronic health record, improve community doctor’s IT skills.

2.Standard guideline。
•build a standard plan for chronic disease management

3.Software notice and monitor
Through new technology to build a two-way referral system, notify doctor and patient, at the same time monitor if big hospitals achieve the standard for down-ward patient referral

4.Two-way coordination
Follow up of down-referral patients, complete treatment.

Use chronic disease and cvd stroke as pilot diseases, use medical insurance payment system, two-way referral incentive system, define all levls of healthcare institutions' tasks

Form a system with health education, population screening, prevention-intervention, standard treatment, rehabilitation

Chronic disease prevention and management system

Integrated modal with grassroots diagnosis, two-way referral, acute/chronic separation, integrated care

Improve health service system's cost-effectiveness, utilization of health resources, and reduce patient's financial burden

Adequate technology: combine drug and life style intervention, form an adequate system of prevention and treatment

Next step

- Systematically integrate BMJ best practices, develop local family doctor decision making system, continue to expand diseases types and realize standardization and transformation.
- Establish family doctor incentive mechanism – contract service signing fee
- Develop public/private insurance to fulfill all needs

Future health service trend:

Future

- To provide universal healthcare to all population, is the solemn commitment made by the government to build a moderately prosperous society.
- Family doctor system is an important cornerstone of this commitment.
- General Practice is not only a concept of discipline, it is also a transformation of health service concept.
- To change patient's behavior, we must first change the health care delivery model and physician practice patterns


Thank you !

标注

字体使用	英文 Calibri 中文 微软雅黑
行距	正文 1.3
背景图片出处	cn.bing.com
声明	本网站所提供的任何信息内容（包括但不限于 PPT 模板、Word 文档、Excel 图表、图片素材等）均受《中华人民共和国著作权法》、《信息网络传播权保护条例》及其他适用的法律法规的保护，未经权利人书面明确授权，信息内容的任何部分(包括图片或图表)不得被全部或部分的复制、传播、销售，否则将承担法律责任。

OfficePLUS

背景图片素材