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Diabetes Management Solution

CETC(中电科软件信息服务有限公司)

2015年11月10日
星期二

内部资料 注意保管

Granted SETMA Bible in the year 2014

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Diabetes is a health epidemic in China!

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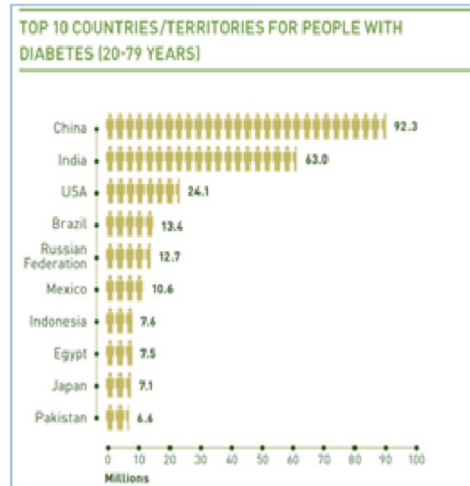
Research JAMA. 2013;310(9):948-958. doi:10.1001/jama.2013.168118

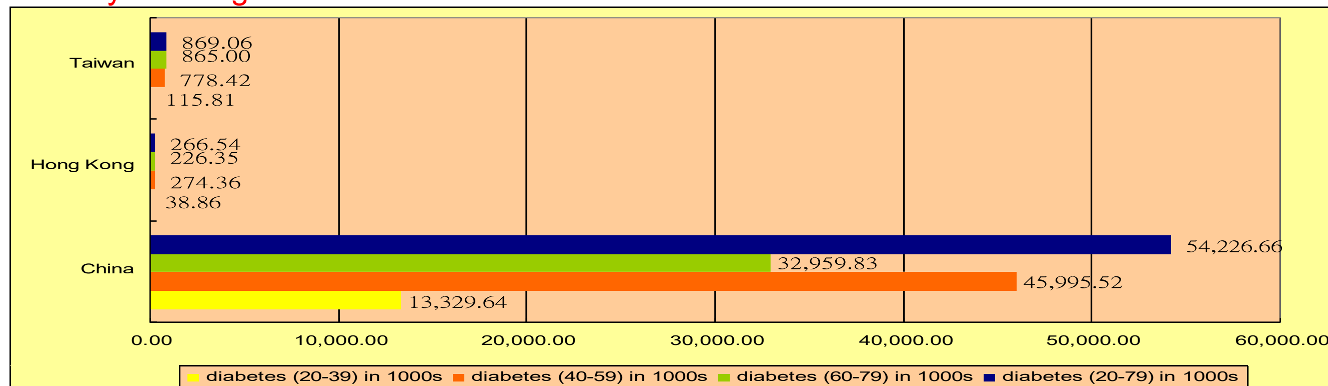
Original Investigation

Prevalence and Control of Diabetes in Chinese Adults

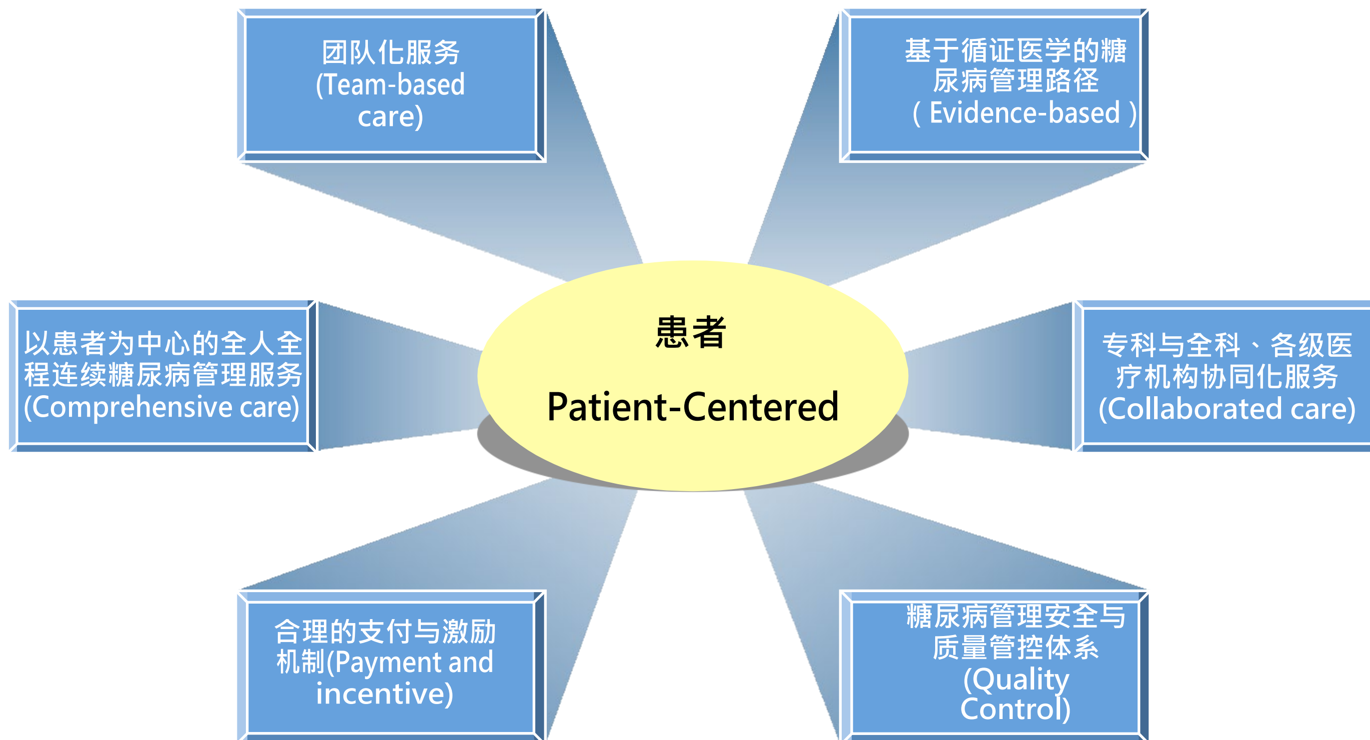
Yu Xu, PhD; Limin Wang, PhD; Jiang He, MD, PhD; Yufang Bi, MD, PhD; Mian Li, PhD; Tiange Wang, PhD; Linhong Wang, PhD; Yong Jiang, MS; Meng Dai, BS; Jieli Lu, MD, PhD; Min Xu, PhD; Yichong Li, MS; Nan Hu, MS; Jianhong Li, MS; Shengquan Mi, PhD; Chung-Shiuan Chen, MS; Guangwei Li, MD, PhD; Yiming Mu, MD, PhD; Jiajun Zhao, MD, PhD; Lingzhi Kong, MD; Jialun Chen, MD; Shenghan Lai, MD, MPH; Weiqing Wang, MD, PhD; Wenhua Zhao, PhD; Guang Ning, MD, PhD; for the 2010 China Noncommunicable Disease Surveillance Group

- Estimate 114 million diabetics in China
- 11.3 percent of adults are diabetes
- Add 22 million new diabetic since 2007
- 500 million (half of adults) are in a pre-diabete state
- Less than 30.1% aware of their condition and only 25.8% get treatment





Identify DM system implementation elements by leveraging PCM



Tiaosanta Community Health Service Center: one of pilot CHSCs of Wuho

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1. DM management specifications defined by Tiaosanta CHSC based on PCMH

- First step, build fundamental DM process based on PCMH;
- Second step, enhance medicine-based application and clinical decision support;

第一章　糖尿病健康管理基本流程

①签约注册
- 身份信息核对建档
- 医保信息核对建档
- 签约交费

②健康信息收集建档
- 一般信息
- 疾病信息
- 体查信息

③糖尿病综合评估
- 健康危险因素评估
- 诊断性评估
- 缺血性心血管病评估
- 双向转诊评估
- 糖尿病自我管理能力评估

④制定个性化的健康管理计划
- 制定糖尿病综合控制目标
- 制定个性化的健康管理计划：健康教育计划、药物处方、饮食计划、运动计划等

⑤提供连续性的医疗卫生保健服务
- 实施健康管理计划
- 预约门诊
- 随访管理

⑥监测评估
- 管理指标监测
- 健康管理服务流程监测
- 服务规范和标准监测
- 服务的有效性监测

⑦阶段性评估
- 结果指标
- 自我管理能力
- 履约率
- 满意度

Clinical Guideline

ICSI Institute for Clinical Systems Improvement

American Diabetes Association

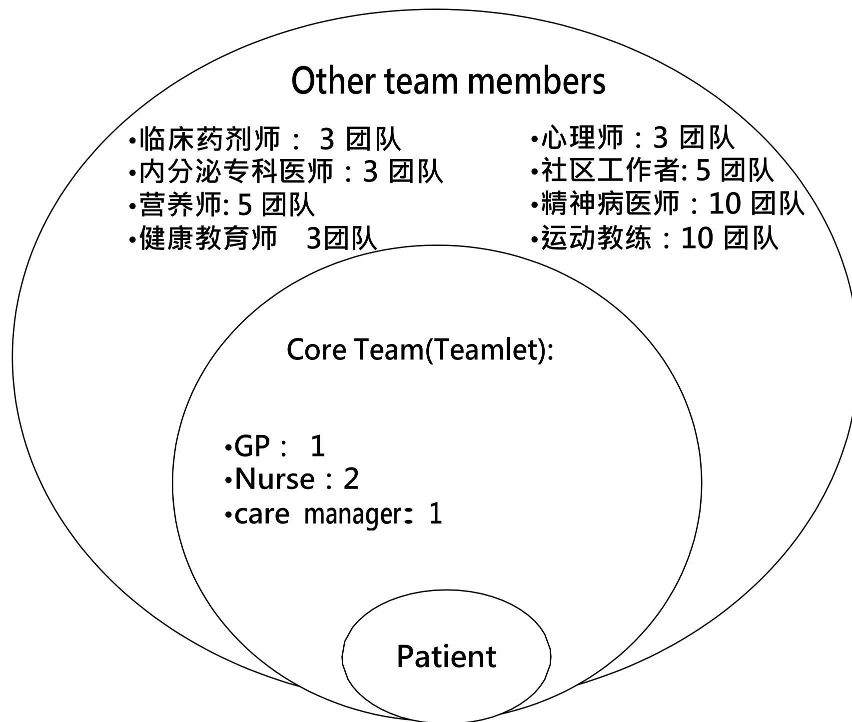
Diabetes Care

Clinical Practice Recommendations 2013

Main Algorithm

Glycemic Control Algorithm

2.Team-based service model: team organization



- **7 teams at Tiaosanta CHSC;**

2. Team-based service model: core team members and their responsibilitie

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Specialist

专科医师

- **完成专科患者的诊治**
- 对依从性差，血糖控制不佳的患者提供技术指导
- 专科会诊及医疗专业支持
- **完成远程会诊**
- **提高关联社区管理患者的联合达标，并长期保持**
- **完成团队专科培训，**提高临床管理能力
- 通过远程培训进行**指南推广**

General Practitioner

糖尿病患者和高危人群的筛查

- 从历史数据中筛查
- 依据指南进行筛查

完成糖尿病的常规随访

- 评估选择合适的治疗方案
- 开具处方，提供周期中的药品
- 下诊断并完成病历

慢性并发症预防

- 筛查并发症
- 生活方式及药物干预

评估患者转诊条件提出转诊

发起不同专科医师对患者的协同诊疗

- 在需要时申请专科会诊
- 查看并执行专科意见

评定患者的糖尿病教育重点

Patient

就诊预约

- 自行提出就诊预约
- 接受Care Manager预约
- 完成访前病史问卷

就诊

- 准时到达
- 将所用药物准备或列举清单
- 核对访病史信息
- 完成健康风险评估
- 执行实验室检验，检查
- 配合医师完成诊治

自我管理

- 共同健康教育
- 饮食运动自我管理
- 参与病友的团队互助活动

Care Manager

对外：患者维护

- 在智能决策支持引导下对高风险人群筛查
- 建立与患者的初始接触
- 预约就诊
- 跟进检查结果及自我管理
- 安排相似病人的集体访谈

对内：团队协调

- 将患者分配给团队中的合适人员
- 转、会诊的协调
- 协调辅助科室与团队的联系

协助医师病史信息采集

- 访前患者信息收集
- 就诊当日病史常规体检实验室的信息
- 随访间期患者自我监测信息

健康教育

Nurse

完成患者面诊医疗护理

- 询问一般情况和近期症状
- 检查有无危险症状
- 指尖血糖、心电图
- 常规查体

协助医师完成病史收集并记录在案

辅助Care Manager健康教育

- 新病人健康教育执行

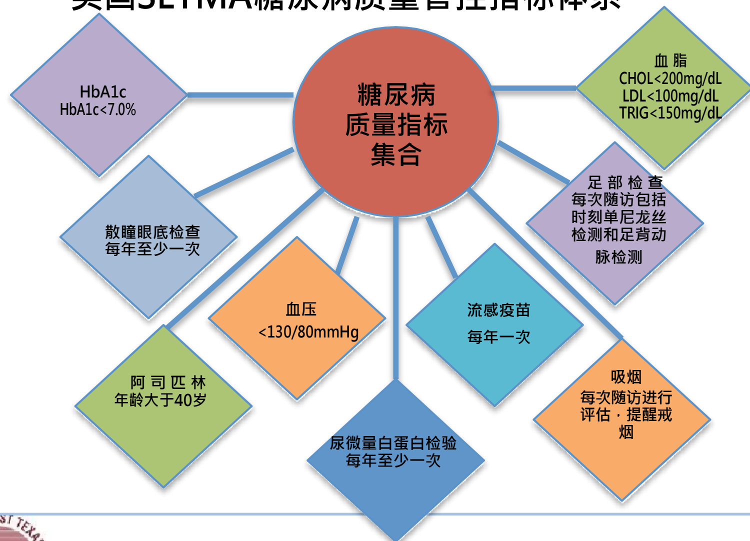
物质文档医疗设备耗材管理

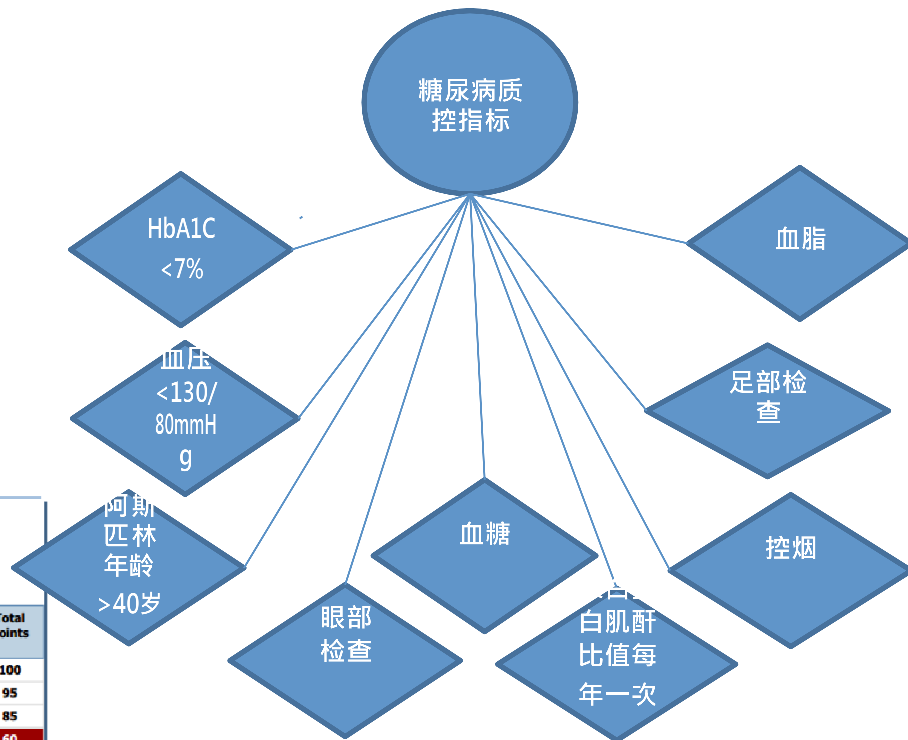
参加团队中的业务培训

团队（物理层面）支持

- 组织每日会议
- 网络社保联系畅通

4. DM quality control system: DM outcome indicators





NCQA Diabetes Measures
Encounter Date(s): January1, 2013 to December 31, 2013

Provider	Encounters	A1c >9.0 <= 15%	A1c < 8.0 >= 65%	A1c < 7.0 >= 40%	BP > 140/90 <= 35%	BP < 130/80 >= 25%	Eye Exam >= 60%	Smoking Cessation >= 85%	LDL >= 130 <= 35 %	LDL < 100 >= 50%	Nephropathy >= 85%	Foot Exam >= 80%	Total Points
Anthony	999	11.7%	80.1%	57.0%	11.5%	64.9%	68.0%	96.4%	10.9%	70.7%	92.4%	96.3%	**100**
Anwar	1,192	11.2%	77.8%	55.0%	4.9%	73.7%	63.6%	90.3%	9.2%	70.1%	90.4%	77.6%	**95**
Aziz	919	12.7%	74.4%	56.3%	24.2%	51.9%	50.2%	95.8%	9.9%	75.5%	88.7%	71.3%	**85**
Cash	2,345	22.0%	60.2%	33.5%	3.7%	63.3%	72.0%	82.2%	10.2%	69.6%	82.4%	99.8%	**60**
Castro	930	8.3%	65.3%	45.6%	25.6%	45.3%	62.2%	84.5%	6.1%	55.9%	69.7%	97.1%	**85**
Cox	261	3.4%	32.2%	23.0%	14.6%	43.3%	12.6%	63.0%	8.4%	24.1%	23.0%	90.8%	**52**
Darden	374	12.3%	75.4%	55.3%	16.0%	51.6%	54.5%	81.2%	12.0%	63.1%	78.3%	91.2%	**75**
Deiparine, C	823	13.2%	70.5%	48.7%	12.8%	59.8%	42.5%	97.8%	11.9%	64.9%	72.8%	79.6%	**80**

4. DM quality control system: Enhance process control

Pre-Visit/Preventive Screening

General Measures (Patients >18)

Has the patient had a tetanus vaccine within the last 10 years? Yes
Date of Last 06/02/2005 Order Tetanus

Has the patient had a flu vaccine within the last year? Yes
Date of Last 10/19/2011 Order Flu Shot

Has the patient ever had a pneumonia shot? (Age>50) N/A
Date of Last 01/26/2005 Order Pneumovax

Does the patient have an elevated (>100 mg/dL) LDL? Yes
Last 113 09/21/2011 Order Lipid Profile

Has the patient been screened at least once for HIV? (Age 13-64) Yes
Date of Last 07/27/2011 Order HIV Screen

Testing not required if patient refused or if positive diagnosis previously confirmed.
☑ Click If Patient Refuses Testing

Elderly Patients (Patients >65)

Has the patient had an occult blood test within the last year? (Patients >50) N/A
Date of Last / /

Has the patient had a fall risk assessment completed within the last year? N/A
Date of Last 11/08/2011

Has the patient had a functional assessment within the last year? N/A
Date of Last 04/01/2011

Has the patient had a pain screening within the last year? N/A
Date of Last 04/01/2011

Has the patient had a glaucoma screen (dilated exam) within the last year? N/A

Diabetic Patients

Has the patient had a HgbA1c within the last year? Yes
Date of Last 10/29/2011 Order HgbA1c

Has the patient had a dilated eye exam within the last year? Yes
Date of Last 02/03/2011 *Add Referral Below*

Has the patient had a 10-gram monofilament exam within the last year? Yes
Date of Last 08/24/2011 Click to Complete

Has the patient had screening for nephropathy within the last year? No
Date of Last 08/18/2010 Order Micral Strip

Has the patient had a urinalysis within the last year? Yes
Date of Last 07/07/2011 Order Urinalysis

Has the patient ever been referred to DSME? Yes
Has the patient been referred to DSME within the last two years? No
Add Referrals Below

Female Patients

Has the patient had a pap smear within the last two years? (Ages 21 to 64) N/A
Date of Last / / *Add Referral Below*

Has the patient had a mammogram within the last two years? (Ages 40 to 69) N/A
Date of Last / / *Add Referral Below*

Has the patient had a bone density within the last two years? (Age >50) N/A
Date of Last 03/27/2009 *Add Referral Below*

Male Patients

Has the patient had a PSA within the last year? (Age >40) No
Date of Last 04/02/2007 Order PSA

Has the patient had a bone density within the last two years? (Age >65) N/A
Date of Last 03/27/2009 *Add Referral Below*

Referrals (Double-Click To Add/Edit)

- 借鉴SETMA(东南德克萨斯医疗联盟)的疾病管理思想，加强对患者目标达成管理，比如对于某2型糖尿病患者，按照糖尿病防治指南的要求，需要每三月进行一次HgbA1c，肾病筛查每年一次，眼底检查每年一次的检查等，如果没有做到及时提醒患者；
- 可以通过信息系统自动判断执行情况，通过短信提醒，或者诊间医生面诊患者时当面提醒并采取相应措施；

PCPI Diabetes Management

Has the patient had a Hemoglobin A1c within the last year? Yes — Order HgbA1c
Date of Last 08/25/2010

Has the patient had a Lipid Profile witin the last year? Yes — Order Lipid Profile
Date of Last 12/02/2010

Has the patient had a urinalysis within the last year? No — Order Urinalysis
Date of Last 04/24/2007

Has the patient had a dilated eye exam within the last year? No — *Add Referral Below*
Date of Last 10/29/2009

Has the patient had a flu shot within the last year? Yes — Order Flu Shot
Date of Last 03/05/2010

Has the patient had a 10-gram monofilament exam within the last year? Yes — Click to Complete
Date of Last 03/05/2010

Is the patient on Aspirin? Yes — *Add Medication Below*
Is the patient allergic to aspirin? ◉ Yes ○ No

Is the patient's blood pressure controlled (<130/80 mmHg)? No

Today's Blood Pressure 166 / 96

Does the patient have at least one visit schedule for the next six months? — Follow-Up Visit

Has the Diabetes Treatment Plan been completed with the last year? Yes — Click to Complete
Date Last Completed 12/13/2010

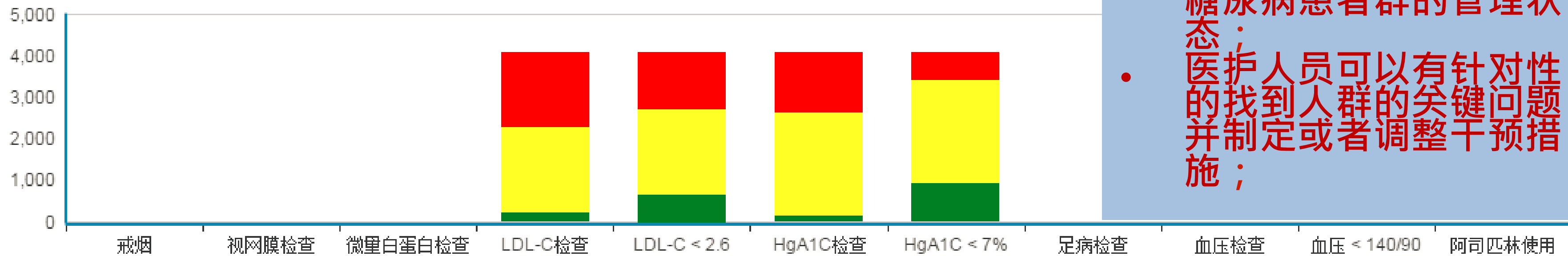
Referrals Double-Click to Add/Edit

Referral	Date

Active Medications Double-Click to Add/Edit

Brand Name	Dose
ALENDRONATE SODIUM	10 MG
ASPIRIN	81 MG
ASPIRIN EC	325 MG
ATENOLOL	100 MG

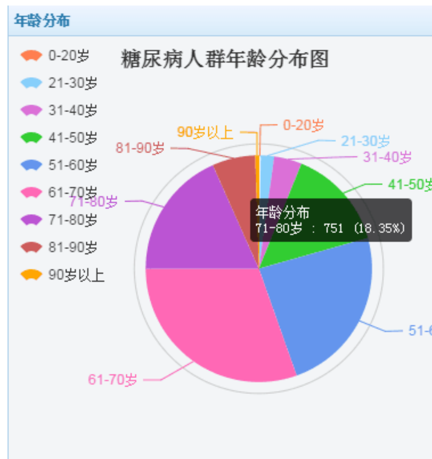
4. DM quality control system: Population management quality analysi

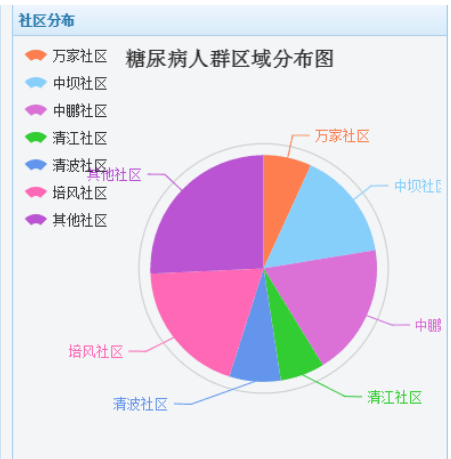


- 实时可视化监控区域内糖尿病患者群的管理状态；
- 医护人员可以有针对性的找到人群的关键问题，并制定或者调整干预措施；

血压测量情况

	收缩压									舒张压						
责任医生	< 120	120 - 129	130 - 139	140 - 149	150 - 159	160 - 169	170 - 179	>= 180	未测量	< 75	75 - 79	80 - 89	90 - 99	100 - 109	>= 110	未测量
严灿	3.85%	46.15%	30.77%	3.85%	3.85%	0.00%	3.85%	0.00%	7.69%	38.46%	19.23%	30.77%	3.85%	0.00%	0.00%	7.69%
任桂蓉	19.23%	34.62%	26.92%	0.00%	0.00%	0.00%	0.00%	0.00%	19.23%	38.46%	26.92%	15.38%	0.00%	0.00%	0.00%	19.23%
吴传奇	15.20%	33.82%	26.96%	5.39%	0.74%	0.74%	0.49%	0.00%	16.67%	32.60%	18.63%	30.64%	1.47%	0.00%	0.00%	16.67%
周燕娥	0.00%	77.08%	10.42%	0.00%	0.00%	0.00%	0.00%	0.00%	12.50%	33.33%	18.75%	35.42%	0.00%	0.00%	0.00%	12.50%
张勇	10.00%	20.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	10.00%	0.00%	50.00%	0.00%	0.00%	0.00%	40.00%
李云昆	4.35%	56.52%	8.70%	8.70%	0.00%	0.00%	0.00%	0.00%	21.74%	17.39%	30.43%	26.09%	4.35%	0.00%	0.00%	21.74%
李鸿	11.54%	46.15%	23.08%	1.92%	1.92%	0.00%	0.00%	0.00%	15.38%	46.15%	19.23%	19.23%	0.00%	0.00%	0.00%	15.38%
杨春梅	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%	0.00%	0.00%	0.00%
温敏	6.06%	45.45%	30.30%	3.03%	6.06%	0.00%	0.00%	0.00%	9.09%	27.27%	42.42%	21.21%	0.00%	0.00%	0.00%	9.09%
聂密泞临	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
许晓琴	8.33%	50.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	58.33%	0.00%	16.67%	0.00%	0.00%	0.00%	25.00%
赵仁粉	25.51%	37.76%	8.16%	1.02%	0.00%	0.00%	0.00%	0.00%	27.55%	43.88%	20.41%	8.16%	0.00%	0.00%	0.00%	27.55%
魏平	6.49%	49.35%	23.38%	3.90%	2.60%	1.30%	0.00%	0.00%	12.99%	40.26%	23.38%	22.08%	1.30%	0.00%	0.00%	12.99%





Thanks!