Clinical Decision Support as a Tool for Public Health and Healthcare Integration

Division of Community Health Webinar

September 18, 2013

The findings and conclusions in this presentation are those of the presenters and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

The Context for Health Information Technology in Improving Population Health

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Chief Medical Officer

Division of Community Health

Centers for Disease Control and Prevention

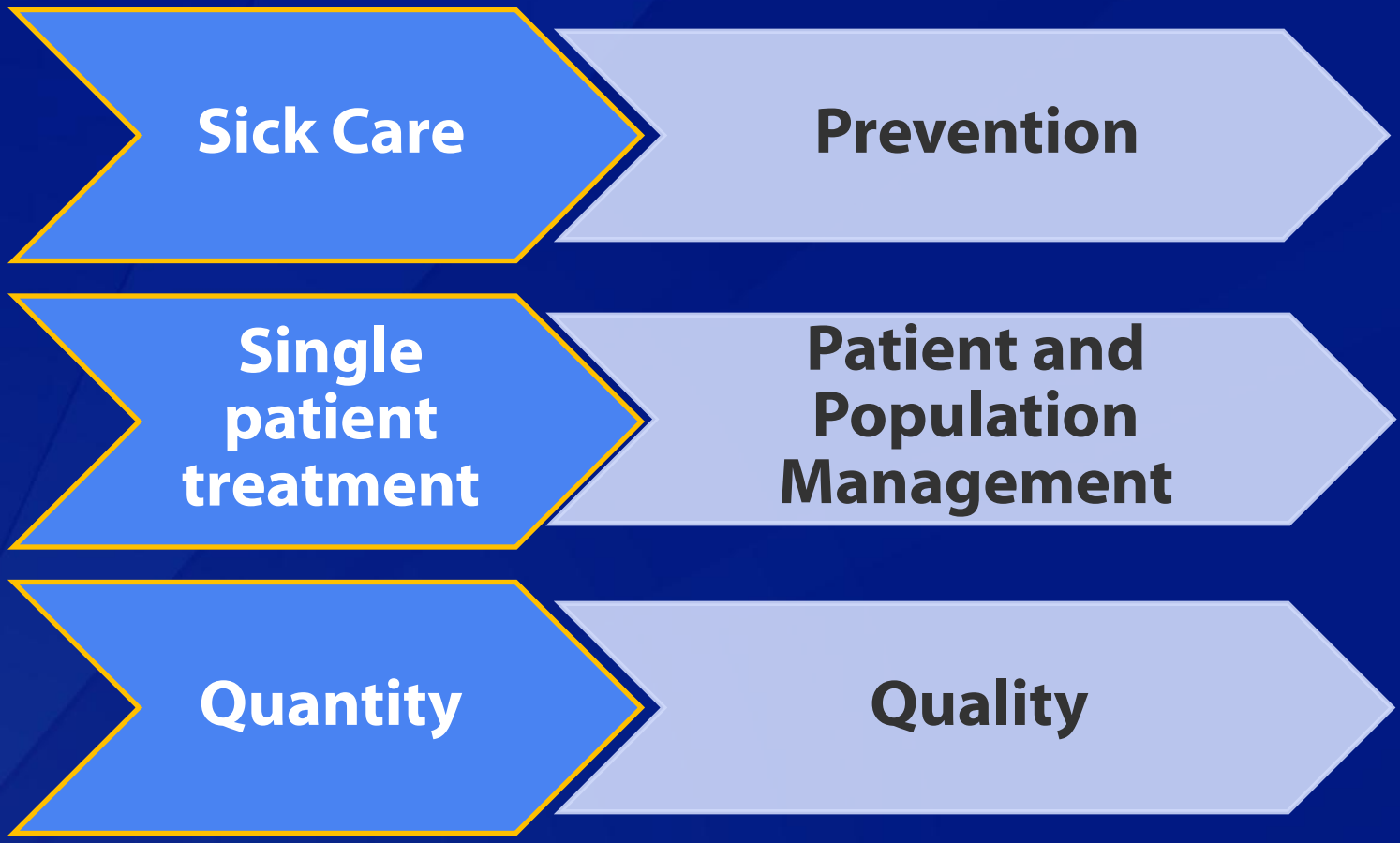
Session Objectives

- Provide insight on how information and data sharing can be used to facilitate collaboration between the community, public health, and healthcare.
- Describe a framework for information flow that can be used to improve population cardiovascular health, i.e. improved control of high blood pressure and cholesterol.
- Understand how awardees are using information technology to improve health outcomes.

Session Overview

- Context for Health Information Technology (HIT) in population health improvement and CCPS, Nicole Flowers
- Framework for public health, healthcare and community integration through information sharing, Jerry Osheroff
- Awardee Presentations

US Healthcare System in Transition



US Healthcare System in Transition

Affordable Care Act (2010)

- Expands Coverage
- Improves Quality
- Improves Prevention and Public Health

National Prevention Strategy (2011)

- Building Healthy and Safe Community Environments
- Expanding Quality Clinical and Community Preventive Services
- Empowering People to Make Healthy Choices
- Eliminating Health Disparities

National Prevention Strategy (NPS), CTG, and HIT

From the national prevention action plan-

- Encourages adoption of certified electronic health record technology, patient reminders, and use of clinical decision support and panel registries

From CTG priority interventions-

- Encourage the use of health information technology to promote uptake of clinical and community preventive services

Why is Health Information Technology Important?

It has the potential to:

- Improve quality of health care
- Reduce costs of health care
- Connect community and clinical efforts for the greatest health impact

By:

- Increasing care coordination
- Increasing measurement of quality
- Increasing access to the right information at the right time for decision-making

The Many Capabilities of Health Information Technology

- Patient lists (a.k.a. panel registries)
- Advanced Reporting
- Decision Support
- Electronic Medication Admin Record (eMAR)
- Transition of Care
- ePrescribing (eRx)
- Medication Reconciliation
- External Queries
- Patient Initiated Transactions
- Remote Monitoring
- Telehealth

Everything in Public Health Begins with Data

- 'Big Data' analytics
- PH Informatics training at various levels
- Linkages to community resources
- Health IT Policies
- Portals to monitor health of communities
- Interoperability of systems

A Framework that Improves Information Flow and Public Health Outcomes

Jerry Osheroff, MD, FACP, FACMI

Principal, TMIT Consulting, LLC: Deloitte Consultant

Clinical Decision Support Subject Matter Expert

Division of Informatics, Practice, Policy, & Coordination

Objectives

Support your efforts with:

- A process – Clinical Decision Support (CDS) – for understanding/enhancing information flow to improve population health
- A framework for strengthening community-wide collaborations on targets such as controlling blood pressure and cholesterol
- A worksheet you can use to put the tools above (and technology that supports information flow) into action in your community

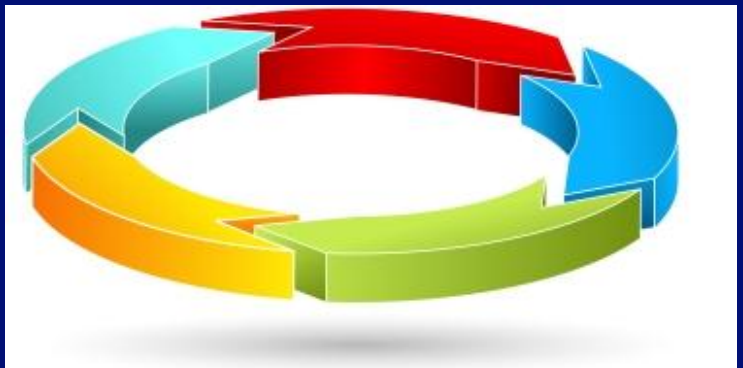
Clinical Decision Support (CDS) Definition

"**A process** for enhancing health-related decisions and actions with pertinent, organized clinical knowledge and patient information to improve health and healthcare delivery." *Improving Outcomes with CDS. HIMSS. 2012*

- Many ways to "enhance decisions"
- How is it done today? Can it be done better?
- Many stakeholders – collaborations?

CDS 5 Rights – A Framework for "Getting CDS Right"

- **To improve targeted healthcare decisions/outcomes, information interventions (CDS) must provide:**
  1. the right information
  2. to the right people
  3. via the right channels
  4. in the right formats
  5. at the right times



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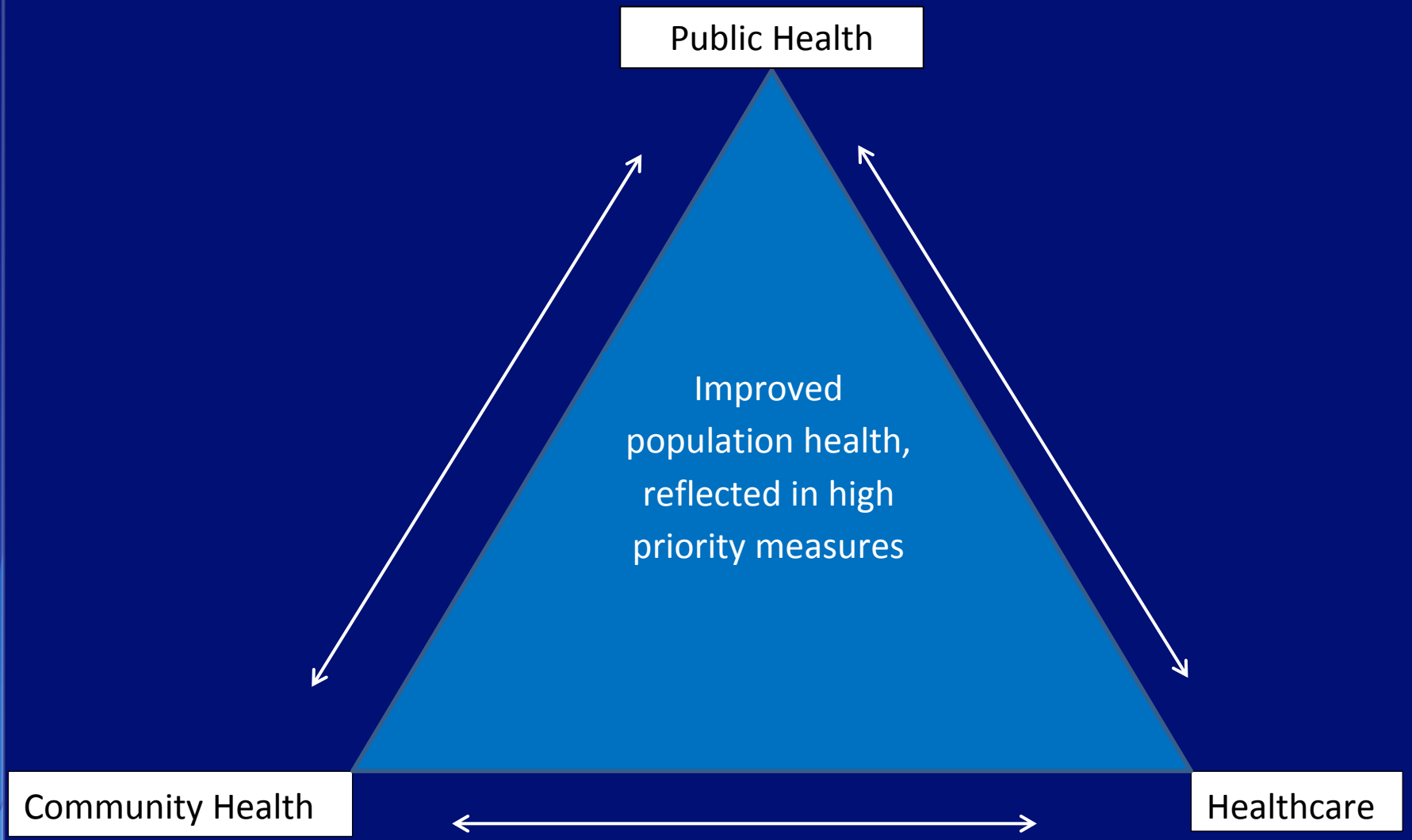
- **Optimize information flow:**
  - who, what, when, where, how

Information Flow Framework for Community-wide Collaboration

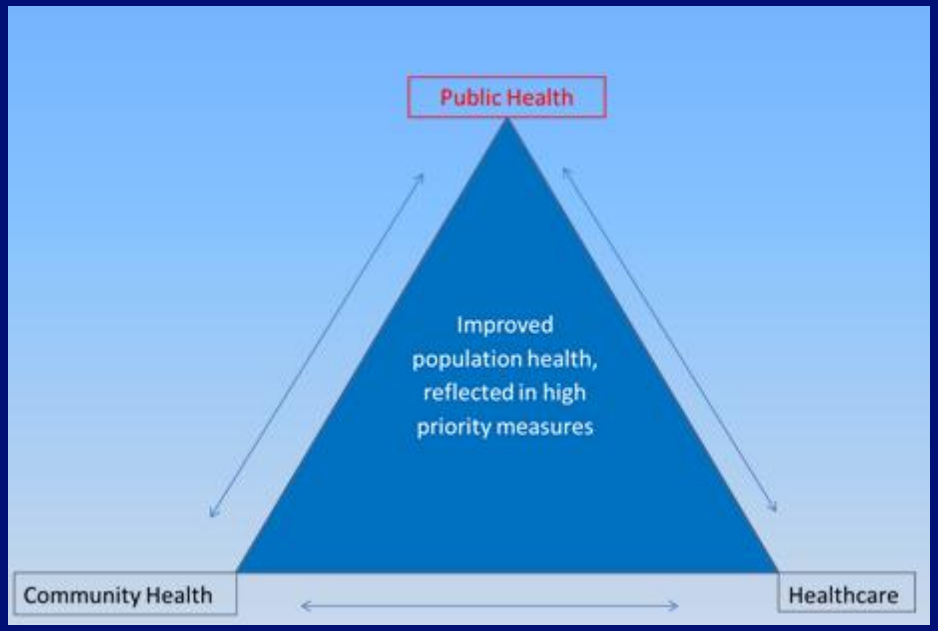
Framework Goals:

- Help public health, healthcare, and community health entities understand inter-dependencies and opportunities
- Provide graphic model illustrating data/information sharing to advance shared health goals (e.g., CVD risk reduction)
- Underpin a ‘worksheet’ for specific actions to improve collaborations and health outcomes

Collaboration to Improve Population Health

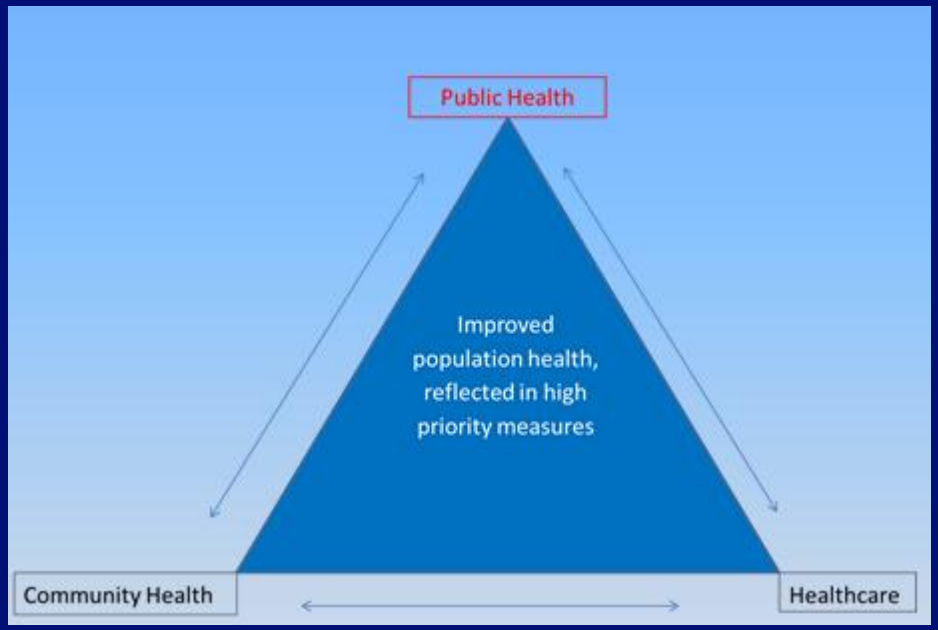


Public Health: Potential Collaborators



- Local Health Dept.
- Public Health Schools
- Community Transformation Grants
- State Dept. of Heart Disease and Stroke Prevention
- Million Hearts collaborators
- Other Federal Initiative Awardees (e.g. Center for Medicare & Medicaid Innovation: Health Care Innovation Awards, State Innovation Models)

Public Health: Sharing across levels



Federal

- Repository of best practices and successes; Evidence based guidelines

State

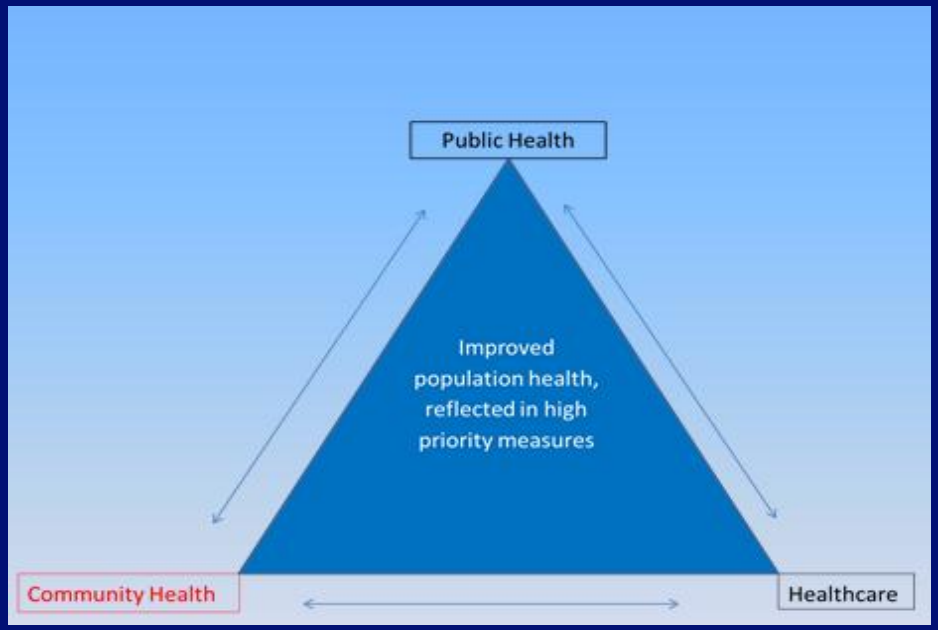
- Aggregated, comparative data across communities

Local

- Local community health indicator data

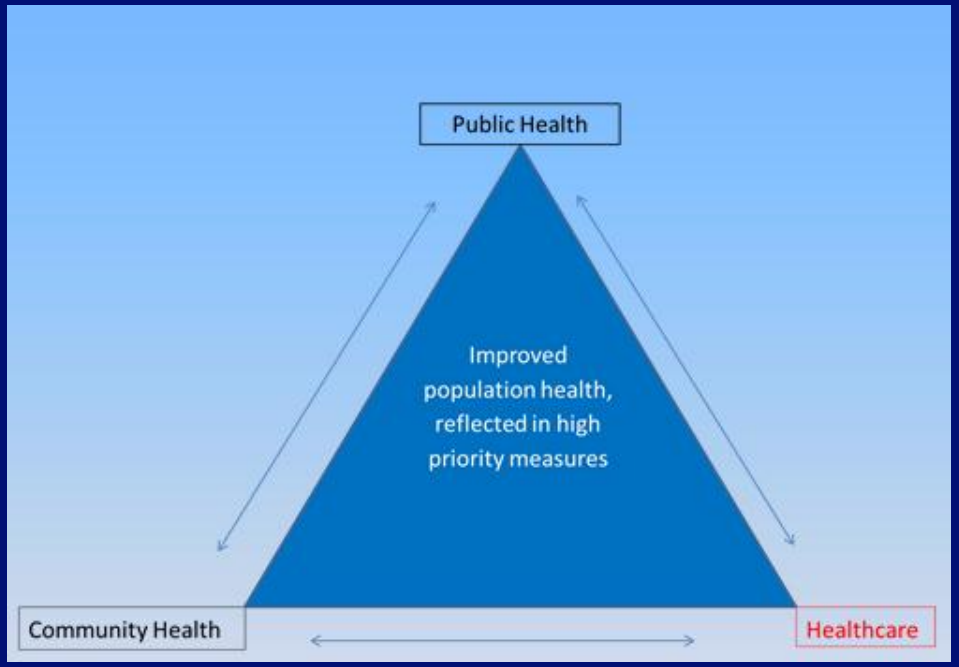
- **Includes information sharing with people**

Community Health: Potential Collaborators



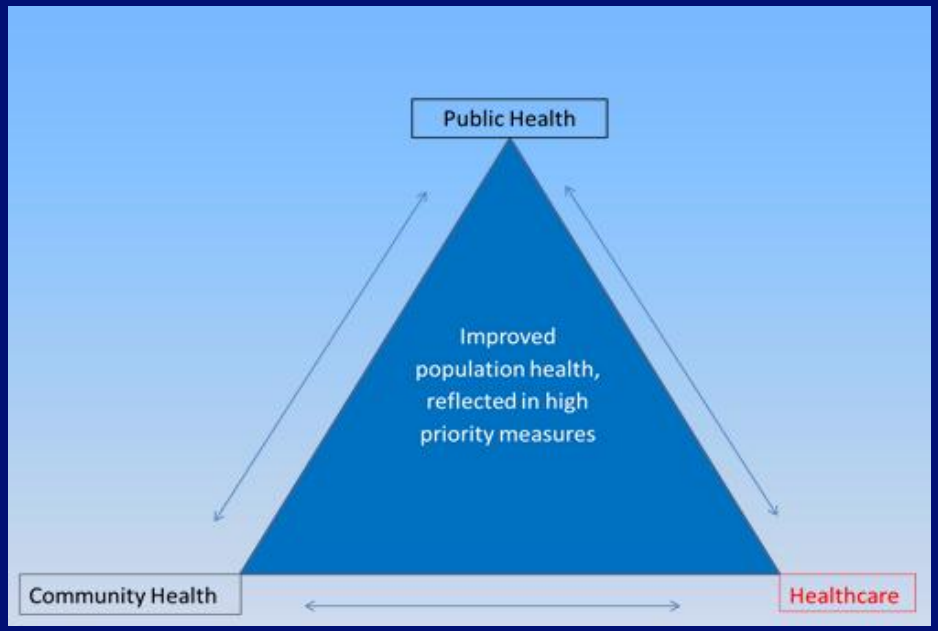
- Community health worker (CHW) associations
- Community pharmacist associations
- Lifestyle modification programs (e.g. YMCA)
- Employers/worksite wellness programs
- Schools

Healthcare: Components



- Hospitals, clinics/offices, other settings
- Care delivery teams (e.g. clinicians/others)
- Includes information sharing with patients

Healthcare: Potential Collaborators

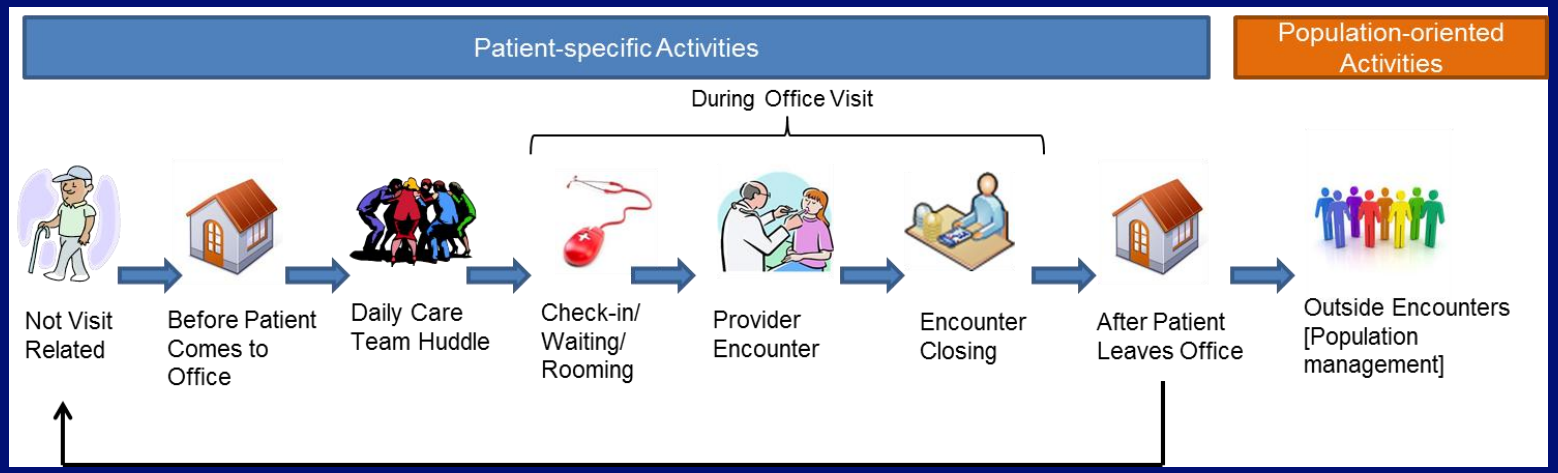


- Federally Qualified Health Centers
- Community health centers
- Regional Extension Centers
- Quality Improvement Organizations
- Health Center Controlled Networks
- Professional organizations

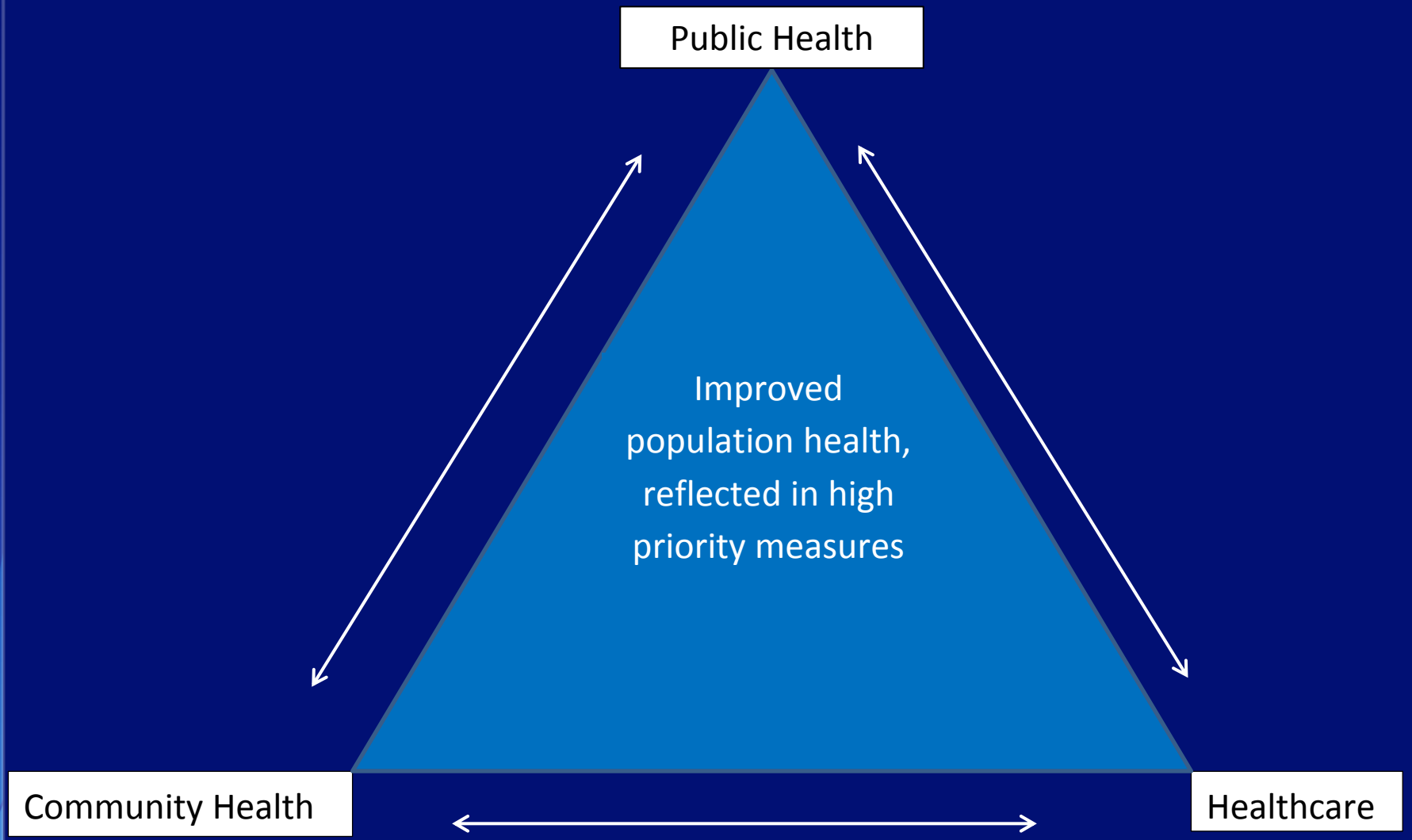
There are robust tools emerging for CDS-enabled quality improvement for the healthcare sector

Decision Support Opportunities

- Below are sample CDS ‘when’ opportunities
- Foundation for asking about info flow: ‘who, what, how, where?’



Collaboration to Improve Population Health



Question for the Audience

Which of the following represents an opportunity for data/information sharing from **public health → community:**

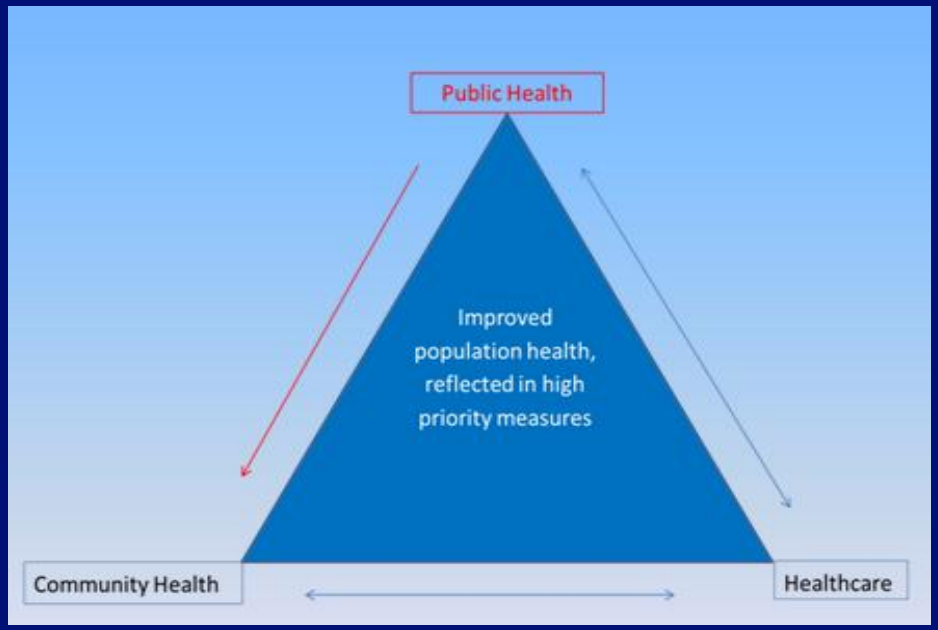
a) Local health department aggregates , compares and shares data on clinical quality measures with 5 health systems in their region

b) Local health department offers training on current management of hypertension for lay health workers

c) Local health department offers assistance in institutionalizing culturally and linguistically appropriate services at local practices

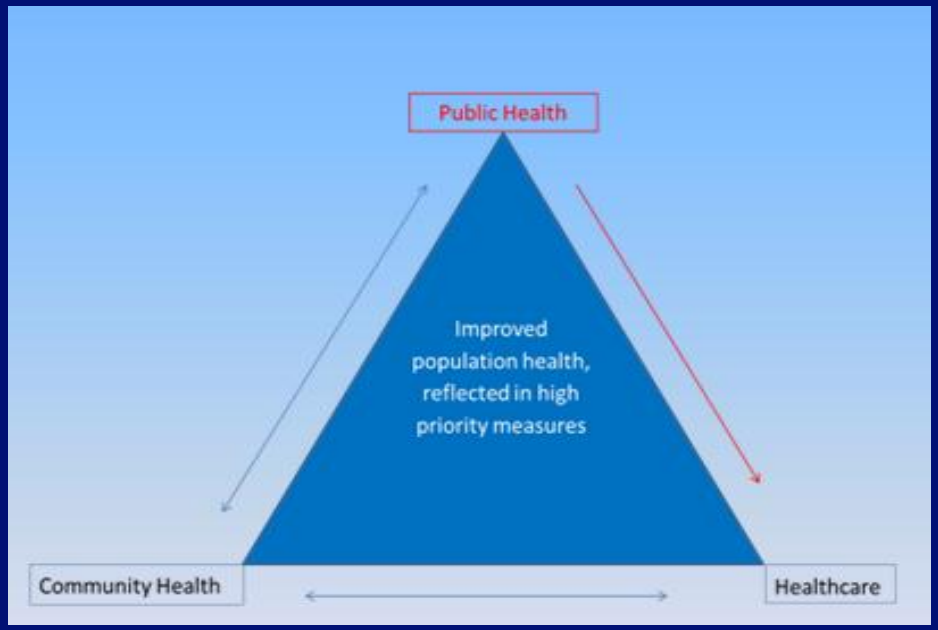
d) Local health department shares results of CHNA to aid hospital in planning to allocate community benefit funds

Information Flow Examples:
Public Health → Community Health



- Information and tools to support patient decisions, actions and communication
- Epidemiology of social determinants of health to support coalitions
- Best practices and protocols

Information Flow Examples:
Public Health → Healthcare



- Demographics, disease or risk factor prevalence
- Aggregated performance measures or quality evaluation data
- Standard protocols, practices and successful models
- Community resources
- Information and tools to support clinical/patient decisions, actions and communication

Question for the Audience

Which of the following does not represent an opportunity for data/information sharing from **community → healthcare:**

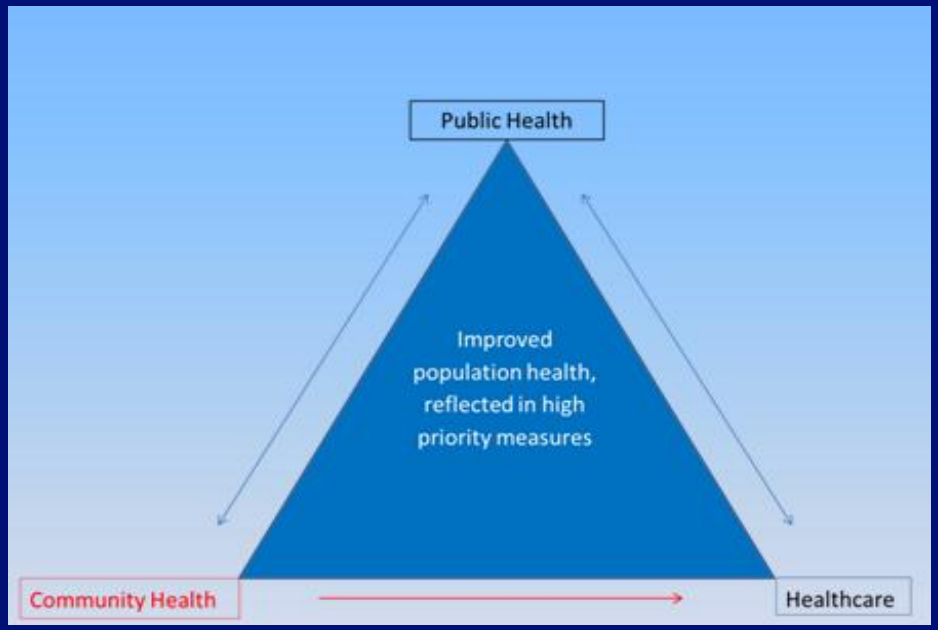
a) Community pharmacist reports frequency of HTN medication refills to the PCP

b) My Life Check® tool from AHA is shared with PCPs by the health department

c) CHW averages the last 20 BP readings during a home visit and reports data to the PCP

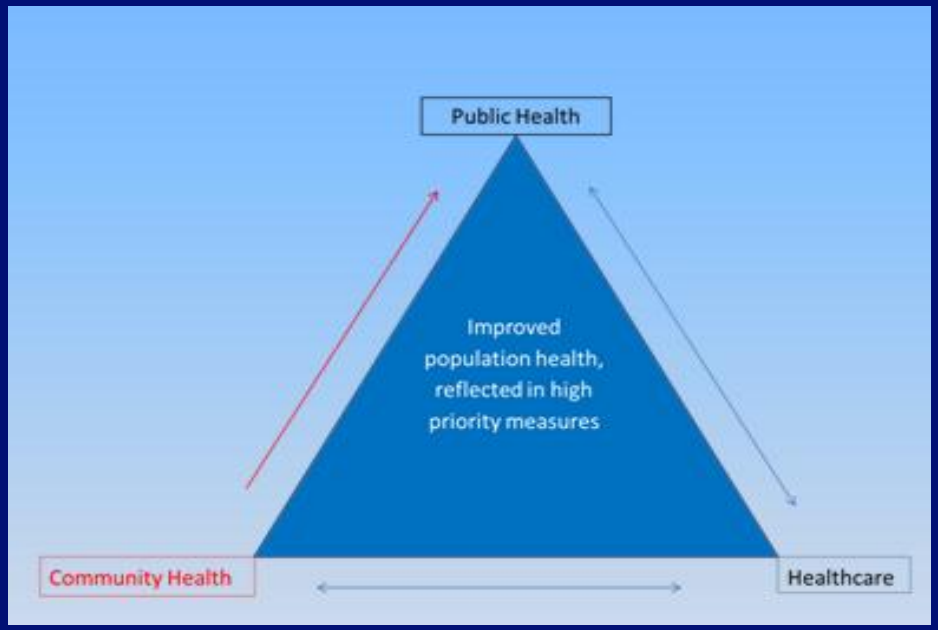
d) YMCA transfers data about attendance and completion of life-style modification course to PCP

Information Flow Examples: Community Health → Healthcare



- Updates on health status
- Guidance and feedback on culturally and linguistically appropriate care

Information Flow Examples:
Community Health → Public Health



- Community impact data
- Clinical data [from community health worker activities] for surveillance and community registries
- Feedback on use/value of PH resources

Question for the Audience

Which of the following represents an opportunity for data/information sharing from **healthcare → community:**

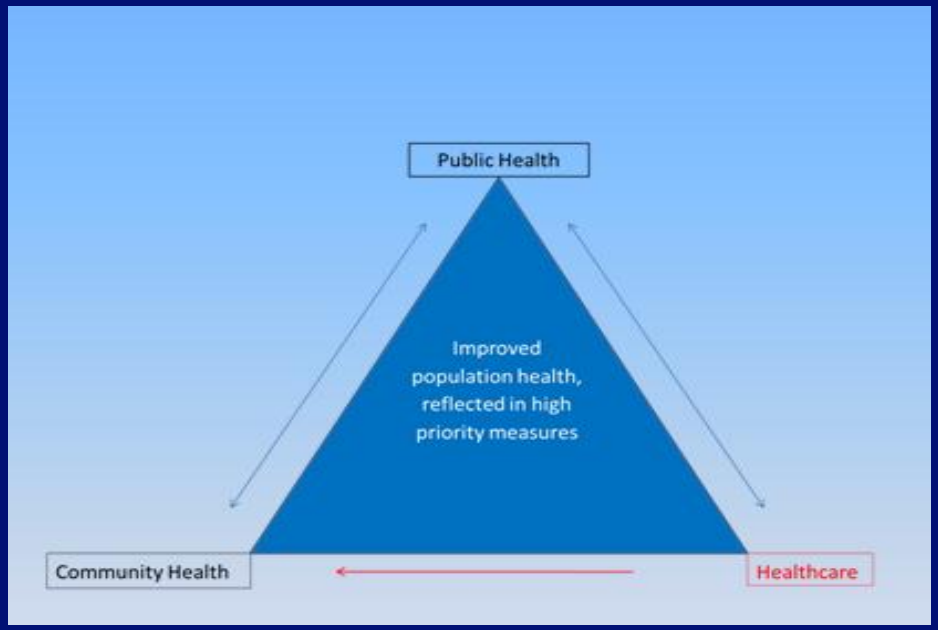
a) Panel list of patients with HTN is provided to CHW for them to assist in disease management

b) List of community resources is generated and maintained by LHD to be used for clinical decision support within clinical information system

c) Clinical data on control of LDL is provided to HD for community surveillance system

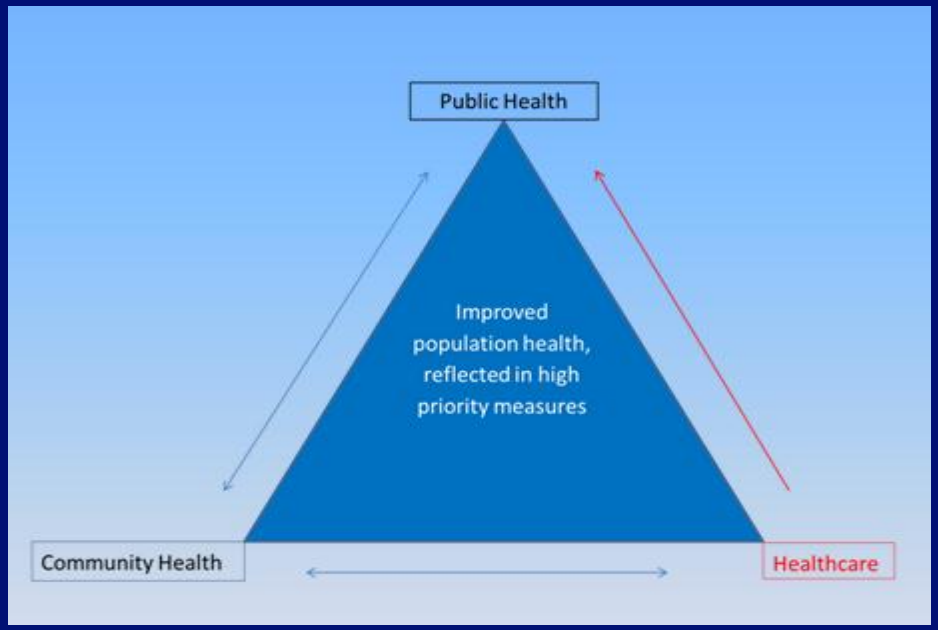
d) LHD shares purchasers guide with employers to aid in selecting health plans

Information Flow Examples:
Healthcare → Community Health



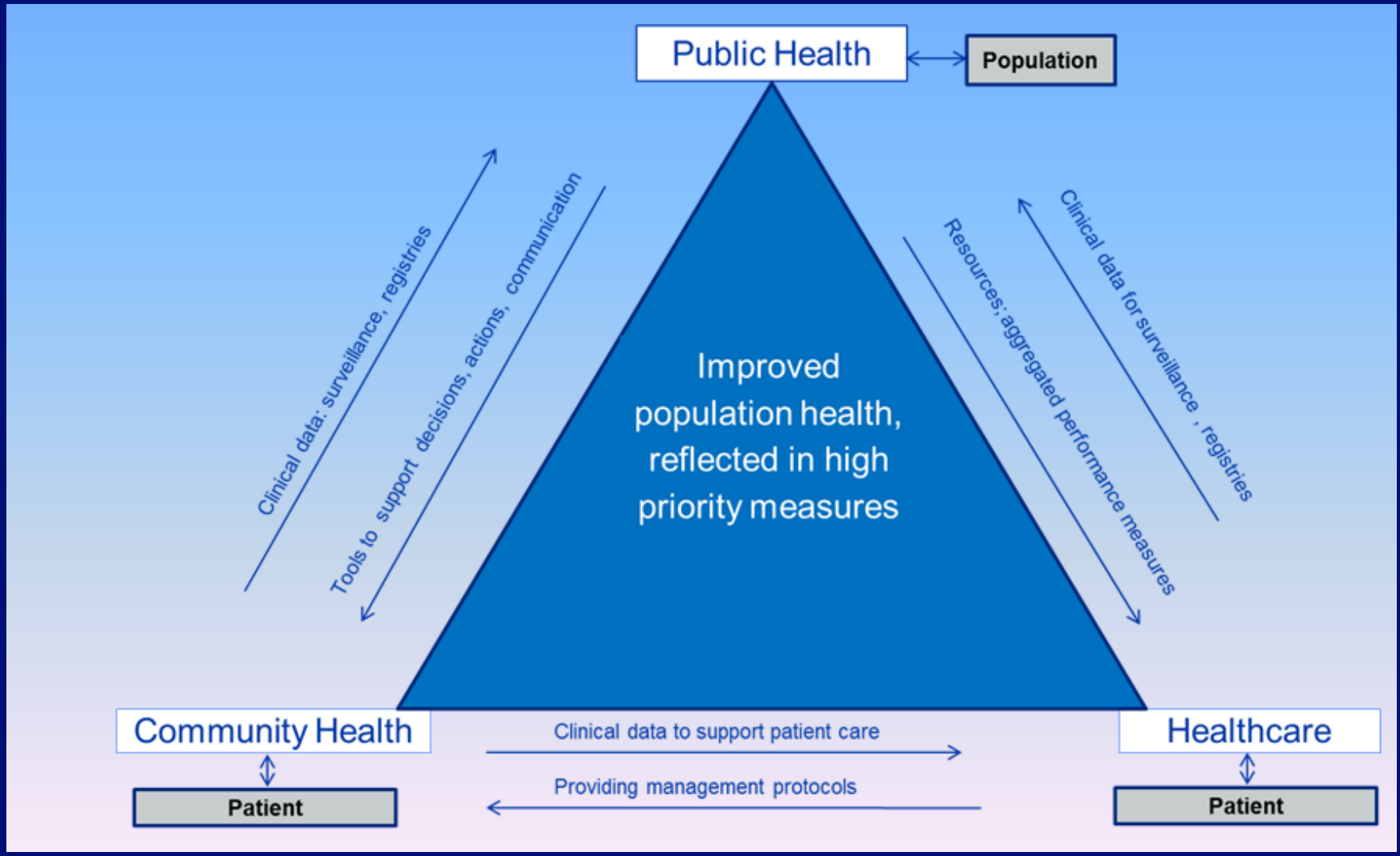
- Panel list
- Clinical management guidelines
- Updates changes in treatment plans
- Feedback on health status

Information Flow Examples:
Healthcare → Public Health



- Data on diagnosis, intervention, adverse events or outcomes across a panel
- Provide clinical data for surveillance and registries
- Provide feedback on use of public health tool resources

Information Flow Summary with Examples



Putting Frameworks Into Action

Cultivating Community-wide Collaboration on Million Hearts: Worksheet

1. Identify and reach out to potential collaborators in your community

Example of potential collaborators:

- **Public Health**: Local Health Dept., Schools of Public Health, Community Transformation Grants, State Dept. of Heart Disease and Stroke Prevention, Million Hearts collaborators, other Federal Initiative Awardees (CMMI/ HCIA/SIM)
- **Healthcare**: provider practices, FQHCs, community health centers, RECs, QIOs, HCCNs, provider professional organizations
- **Community Health**: Associations of community health workers, associations of community pharmacists, lifestyle modification programs (e.g. YMCA), employers/ worksite wellness programs, schools.

Organization	Contact	Synergies (Y/N)	Next Steps	Notes
1.				
2.				

Worksheet, cont.

2. Explore, prioritize and implement better information flow among collaborators (Healthcare-Public Health-Community Health) to improve Million Hearts efforts and outcomes.

Information flow opportunity examples:

	Public Health (PH) ⟷ Healthcare	Healthcare ⟷ Community Health	Community Health ⟷ PH
→	*Demographics, disease or risk factor prevalence *Aggregated performance measures or quality data *Standard protocols, practices, success models *Community resources *Information/tools to support clinical/patient decisions, actions and communication	*Panel list *Clinical management guidelines *Treatment plan changes *Feedback on health status	*Community impact data *Clinical data [from community health workers] for surveillance, community registries *Feedback on use/value of PH resources
←	*Data on diagnosis, intervention, adverse events/outcomes across a panel *Clinical data for surveillance, registries *Feedback on use public health tools	*Updates on health status Guidance/feedback on culturally appropriate care	* Information/tools to support patient decisions, actions, communication *Social determinants of health *Best practices and protocols

A. Opportunities to improve information flow among stakeholders in *your* community:

	Public Health (PH) ⟷ Healthcare	Healthcare ⟷ Community Health	Community Health ⟷ PH
→			
←			

B. Next steps to improve information flows and ABCS outcomes:

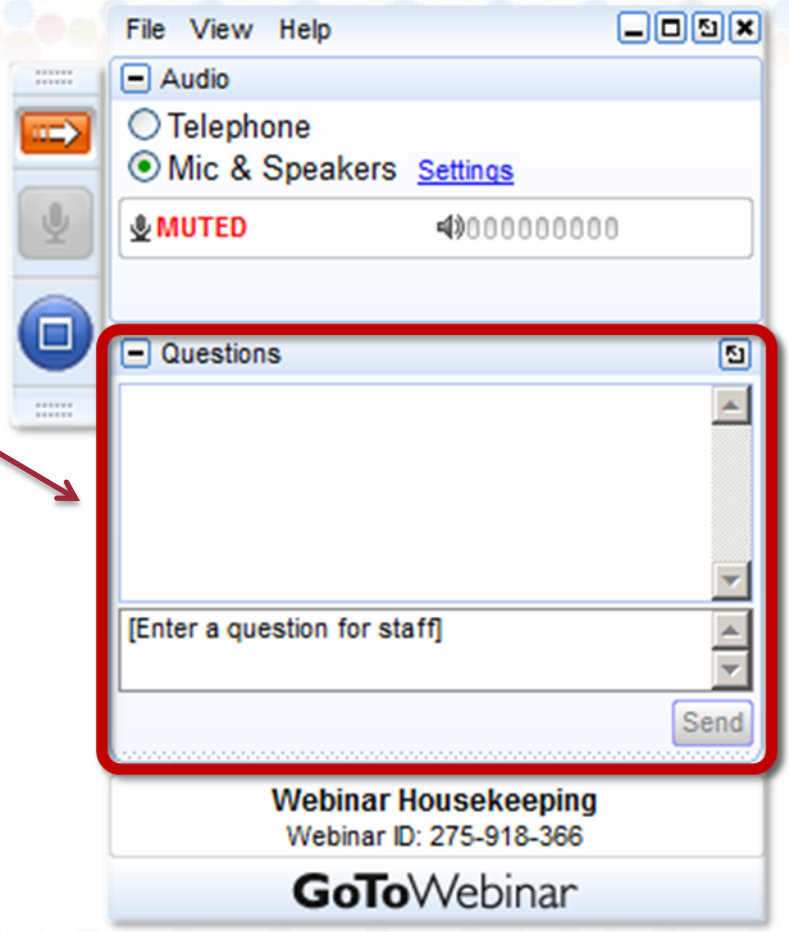
Summary

- Robust opportunities for cross-stakeholder collaboration
- Leverage Framework / Worksheet to identify and execute
- Apply to your work!

Questions?

Questions and Answers (Q&A) Session

- Submit questions and comments via the Questions pane



CDS Experience in New York City: Using EHR Alerts for Preventive and Chronic Care Management

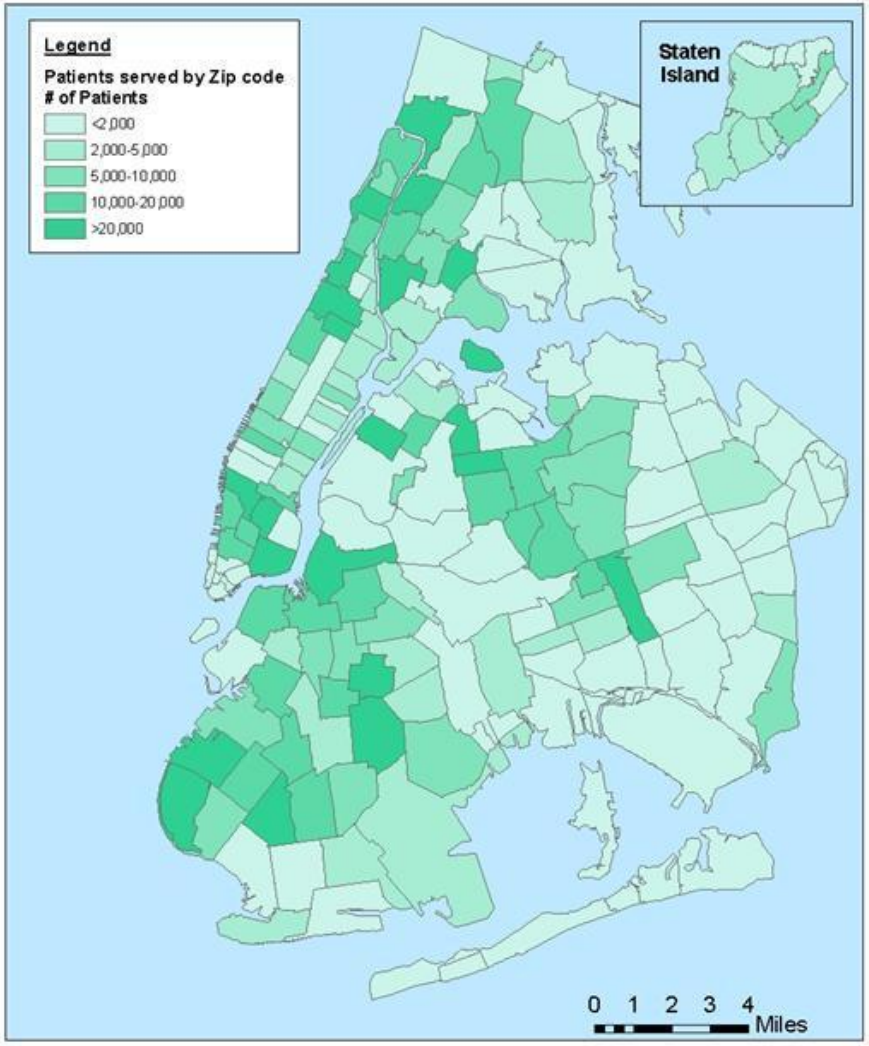
Sam Amirfar, MD MS

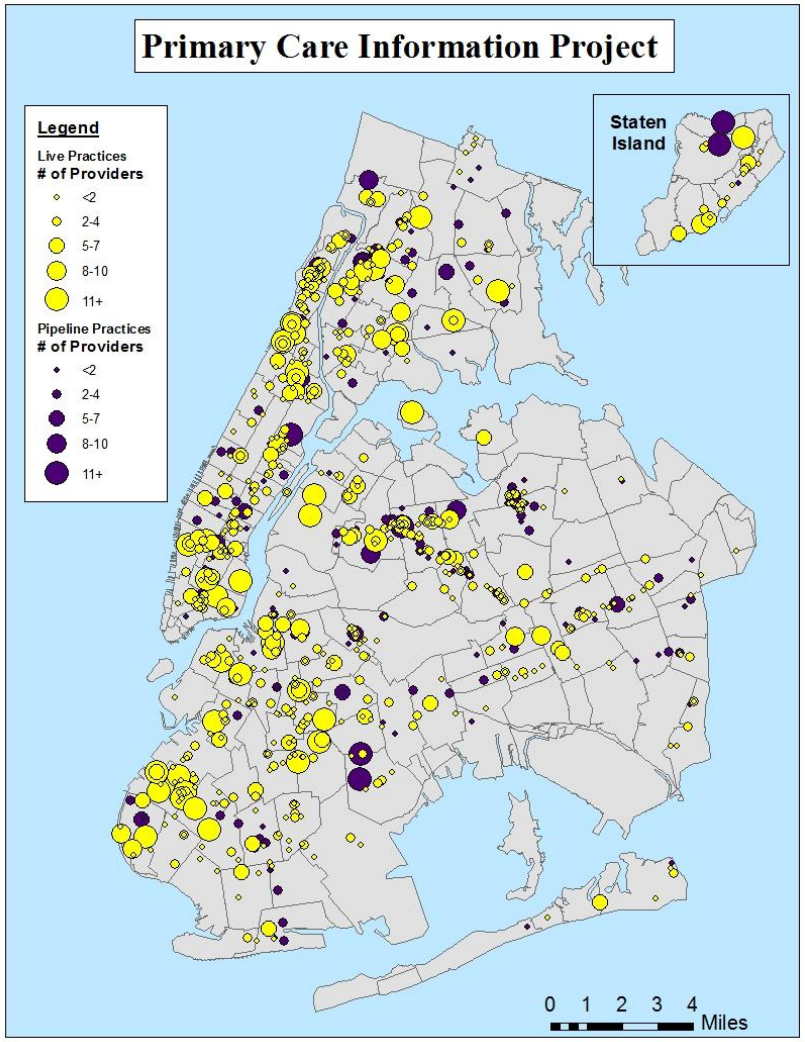
Sept 18, 2013

OVERVIEW

1. Overview of PCIP
2. Definition of CDSS
3. Explanation of TCNY CDSS alerts
4. CDSS in Action!

OVER 2.5 MILLION PATIENTS SERVED BY PRIMARY CARE INFORMATION PROJECT (PCIP) PROVIDERS, MOSTLY IN LOW INCOME NEIGHBORHOODS





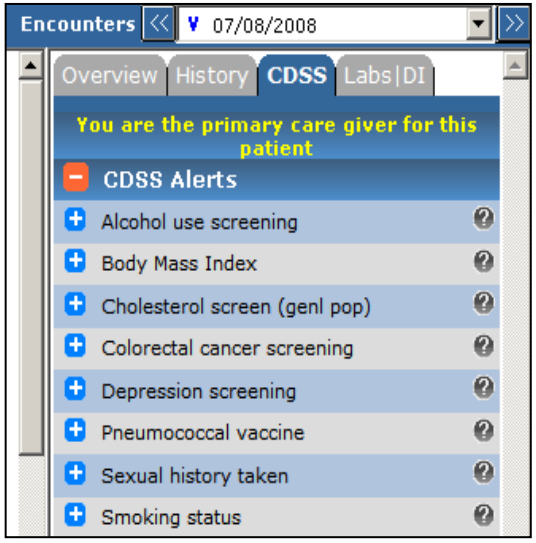
Definition: CDSS

CDSS: Clinical Decision Support System; suite of tools designed to aid providers in patient care

Powered by 34 prevention-focused quality **measures**

Actionable **alerts** in the right panel for recommended services

- Order labs, procedures, immunizations, referrals, medication
- Perform recommended screenings



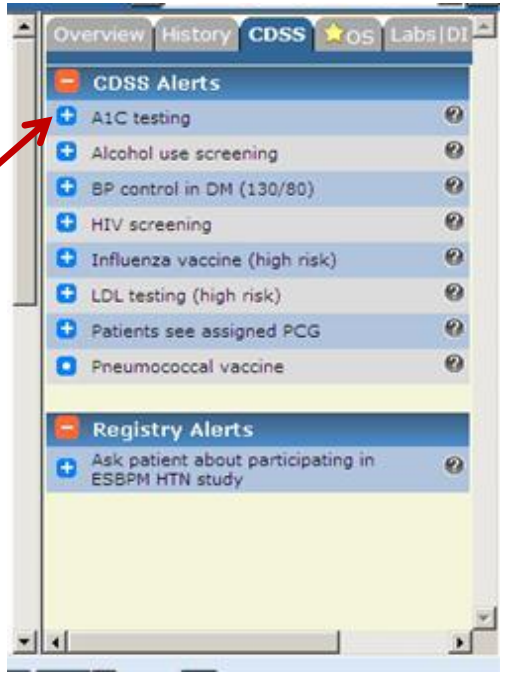
Definitions: Measures vs. Alerts

Measure: Preventive care guidelines based on the Take Care New York initiative as well as other nationally recognized quality standards.

- Example: All diabetics should have their A1C's tested every 6 months

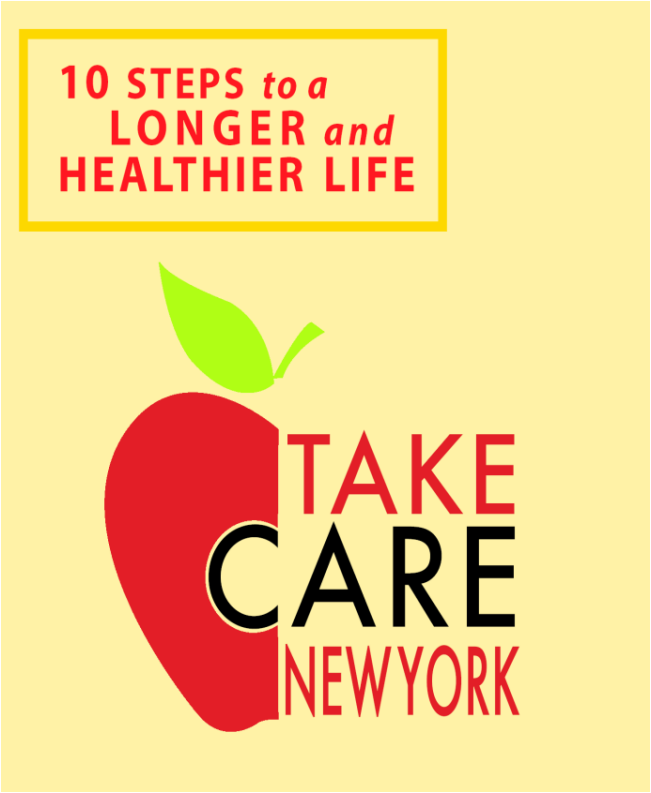
Alert: Actionable visual reminder on the right panel indicating that a patient should receive the intervention suggested by a measure.

- Example: A1C testing alert in right panel



ADVANCING NYC'S PUBLIC HEALTH PRIORITIES

1. Have a Regular Doctor or Other Health Care Provider
2. Be Tobacco-Free
3. Keep Your Heart Healthy
4. Know Your HIV Status
5. Get Help for Depression
6. Live Free of Dependence on Alcohol and Drugs
7. Get Checked for Cancer
8. Get the Immunizations You Need
9. Make Your Home Safe and Healthy
10. Have a Healthy Baby



- Large burden, killing thousands of NYers and causing hundreds of thousands of preventable illnesses or disabilities each year
- Proven amenable to intervention
- Best addressed through coordinated action by City agencies, public-private partnerships, health care providers, businesses, individuals

Important and winnable battles that affect every New Yorker

CORE MEASURES: the 

The ABC'S are the top ten measures with the potential to save the greatest number of lives in New York City

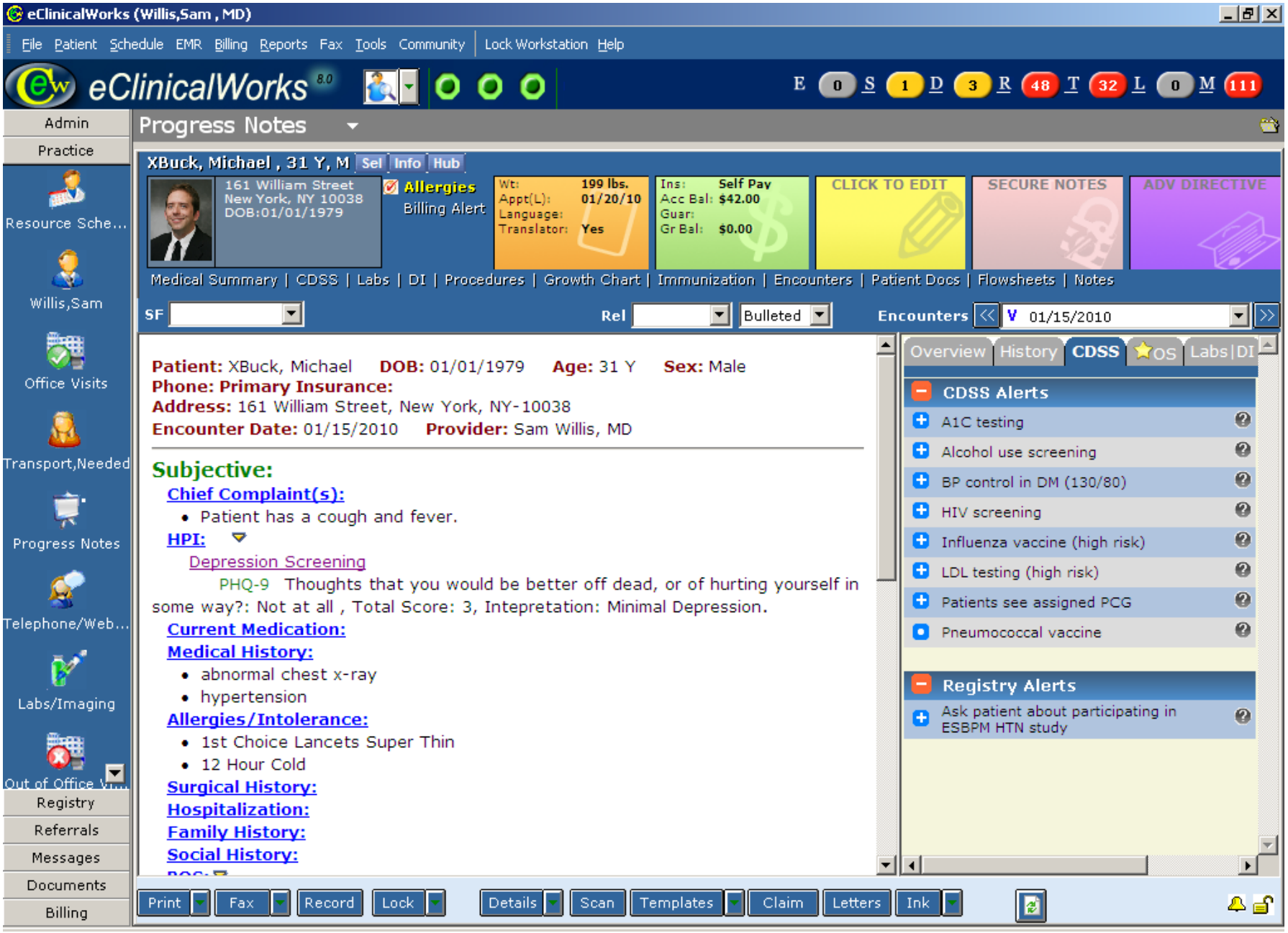
ABC'S:

- **Aspirin**
  - Antithrombotic therapy for patients with IVD or DM
- **Blood Pressure**
  - BP Control (140/90) in Hypertensive patients without IVD or DM
  - BP Control (140/90) in patients with IVD but not DM
  - BP Control (130/80) in patients with DM
- **Cholesterol**
  - Cholesterol screening in general population
  - Cholesterol control in general population
  - LDL testing in High Risk Patients (IVD, DM)
  - LDL control in High Risk Patients (IVD, DM)
- **Smoking**
  - Assess Tobacco Use in Adults
  - Cessation Intervention for Smokers

The ABC'S form the core of the Quality Improvement curriculum

Short Measure Name	Adults/Peds	TCNY Clinical Area
Patients see assigned PCG	A	Regular Doctor
Smoking status	A	Tobacco
Smoking cessation intervention	A	Tobacco
BP control in HTN (140/90)	A	Cardiovascular health
Antithrombic tx (IVD or DM)	A	Cardiovascular health
Body Mass Index	A	Cardiovascular health
Cholesterol screen (general population)	A	Cardiovascular health
Cholesterol control (general population)	A	Cardiovascular health
LDL control (high risk)	A	Cardiovascular health
LDL control in high risk patients with lipoid disorder	A	Cardiovascular health
LDL testing (high risk)	A	Cardiovascular health
A1C testing	A	Cardiovascular health
A1C control (< 7%)	A	Cardiovascular health
BP control in IVD (140/90)	A	Cardiovascular health
BP control in IVD AND HTN (140/90)	A	Cardiovascular health
BP control in DM (130/80)	A	Cardiovascular health
BP control in DM AND HTN (130/80)	A	Cardiovascular health
HIV screening	A	HIV
HIV viral load and CD4 testing	A	HIV
Depression screening	A	Depression
Depression followup	A	Depression
Depression control	A	Depression
Alcohol use screening	A	Substance Abuse
Colorectal cancer screening	A	Cancer screening
Breast cancer screening	A	Cancer screening
Cervical cancer screening	A	Cancer screening
Influenza vaccine (child)	P	Immunizations
Influenza vaccine (high risk)	A	Immunizations
Influenza vaccine (high risk)	P	Immunizations
Influenza vaccine (over 50)	A	Immunizations
Pneumococcal vaccine	A	Immunizations
Lead testing (1 year)	P	Environmental Health
Lead testing (2 years)	P	Environmental Health
Asthma control (18-56 yrs)	A	Environmental Health
Asthma control (12-17 yrs)	P	Environmental Health
Asthma control (5-11 yrs)	P	Environmental Health
Asthma symptom assessment	A	Environmental Health
Chlamydia screening	A	Reproductive Health
Sexual history	A	Reproductive Health
Sexual history taken	P	Reproductive Health

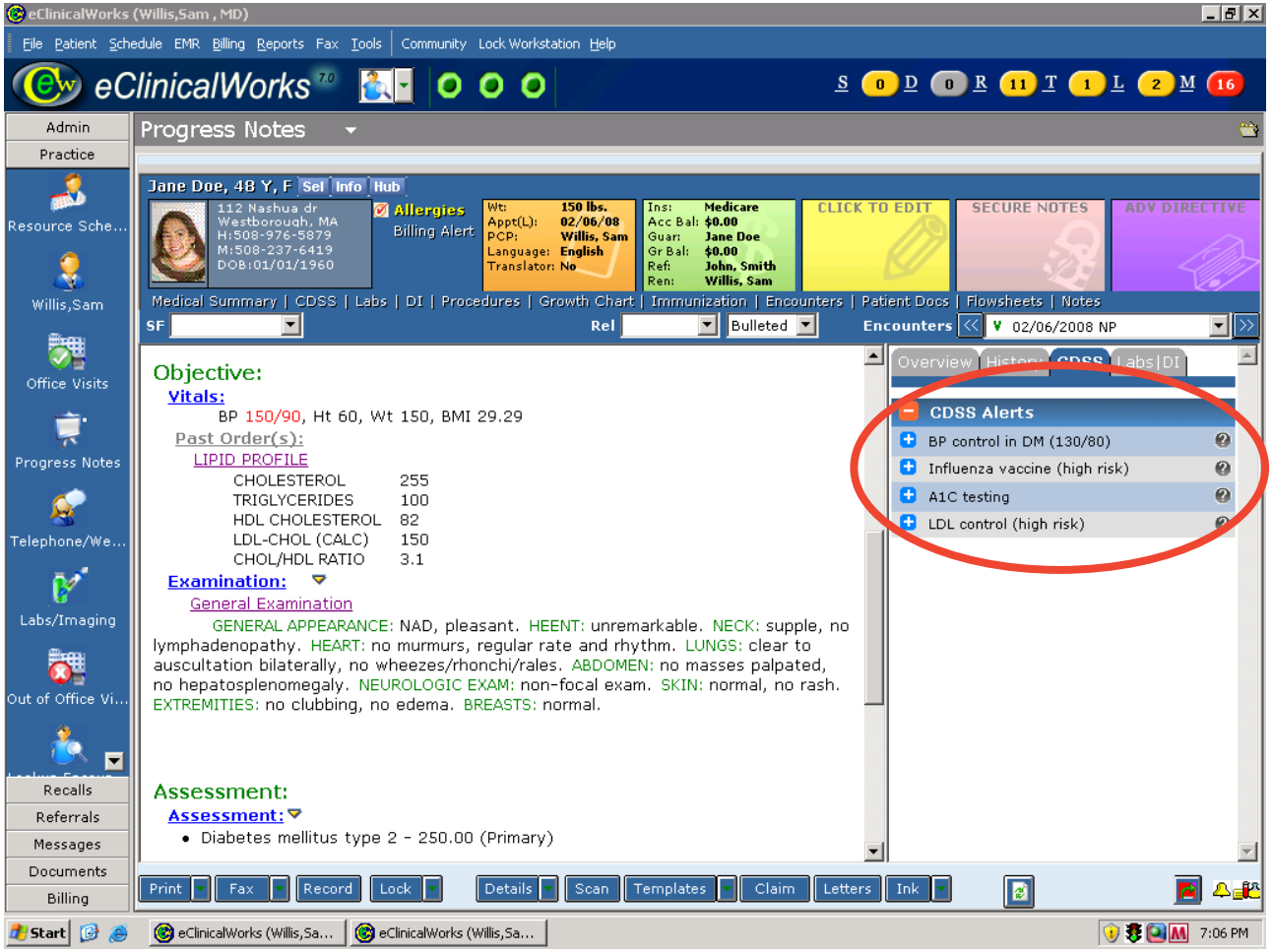
OVERVIEW



CLINICAL DECISION SUPPORT FUNCTION

Based on Jane's chief complaint of excessive thirst, Dr. Bear performs a fingerstick test and confirms his suspicion that Jane has diabetes

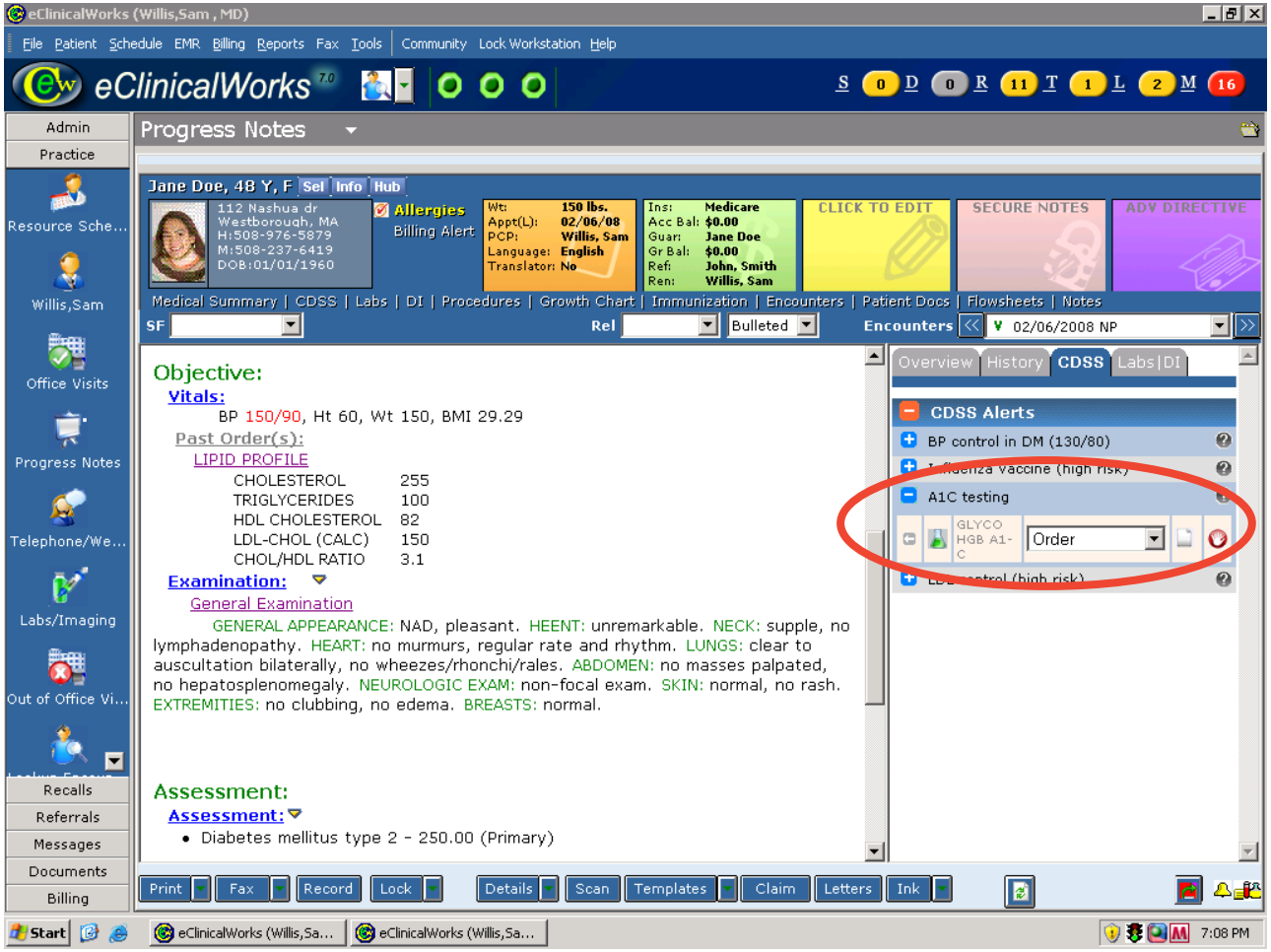
Dr. Bear enters a diagnosis of diabetes into the EHR



Based on Jane's new diagnosis of diabetes, the **CLINICAL DECISION SUPPORT FUNCTION** identifies four preventive care services that should be performed. This list of services is automatically populated in the CDSS panel.

QUICK ORDER FUNCTION

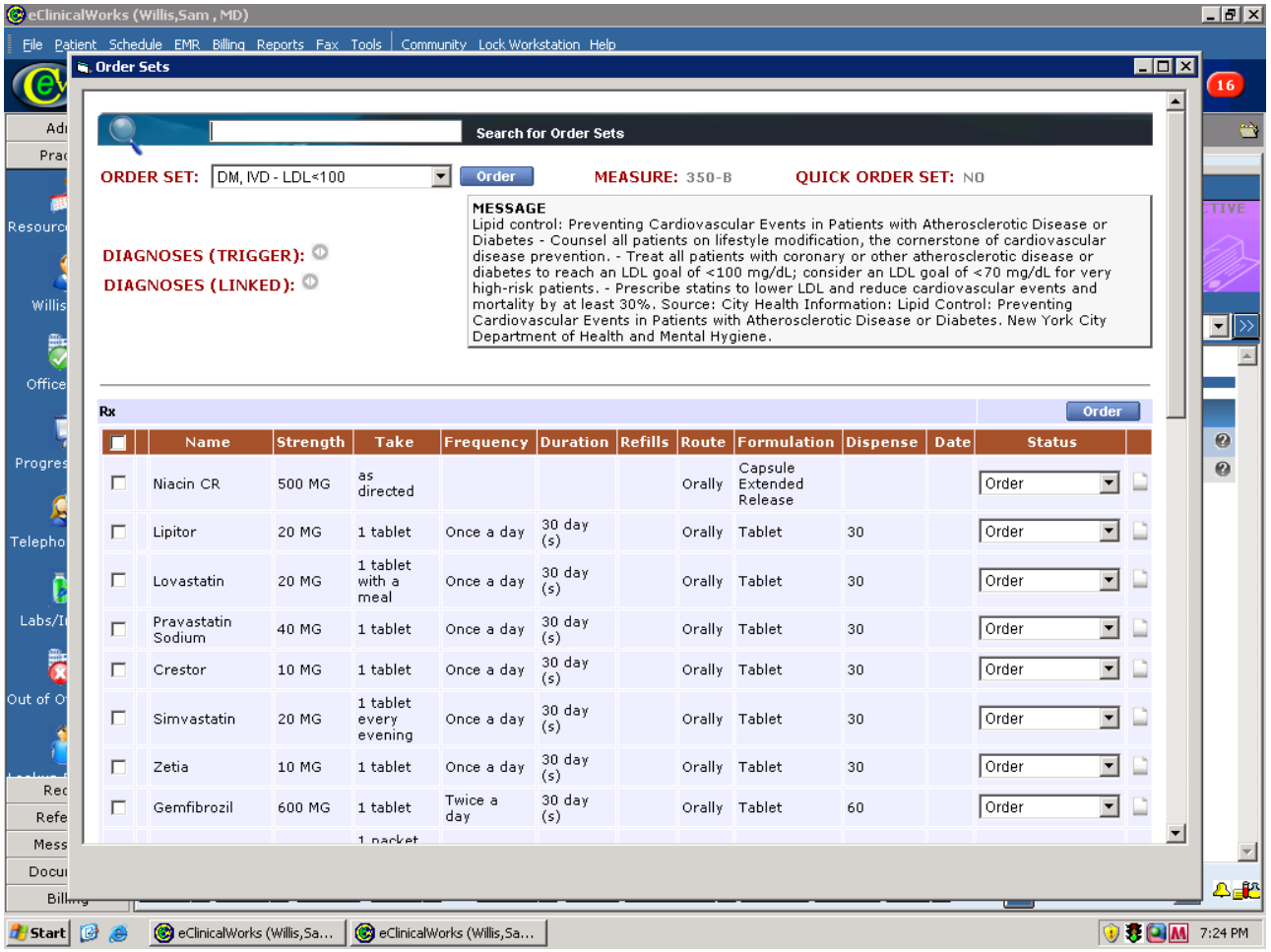
Dr. Bear agrees that these tests are appropriate and should be performed



Dr. Bear uses the **QUICK ORDER FUNCTION** to order an HbA1C test for Jane, as well as a flu vaccine; the alerts disappear from the panel once they are ordered. Dr. Bear may also choose to suppress alerts, if he deems them unnecessary.

COMPREHENSIVE ORDER SET (1/2)

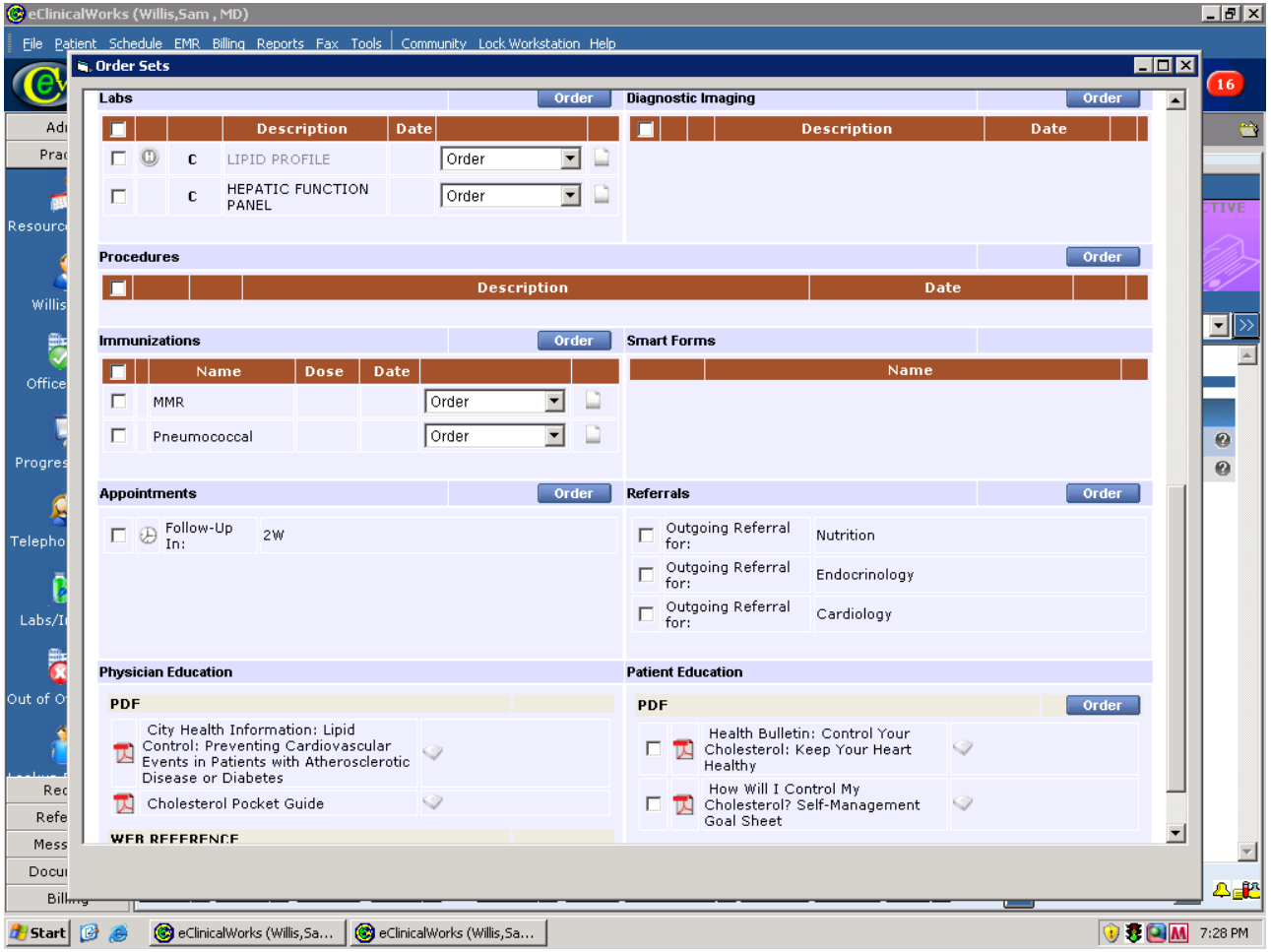
Dr. Bear also selects the “LDL control (high risk)” alert, which displays the order set for high LDL levels



The 1st part of the **COMPREHENSIVE ORDER SET** displays a selected list of recommended medications (brand & generic) for lipid control.

COMPREHENSIVE ORDER SET (2/2)

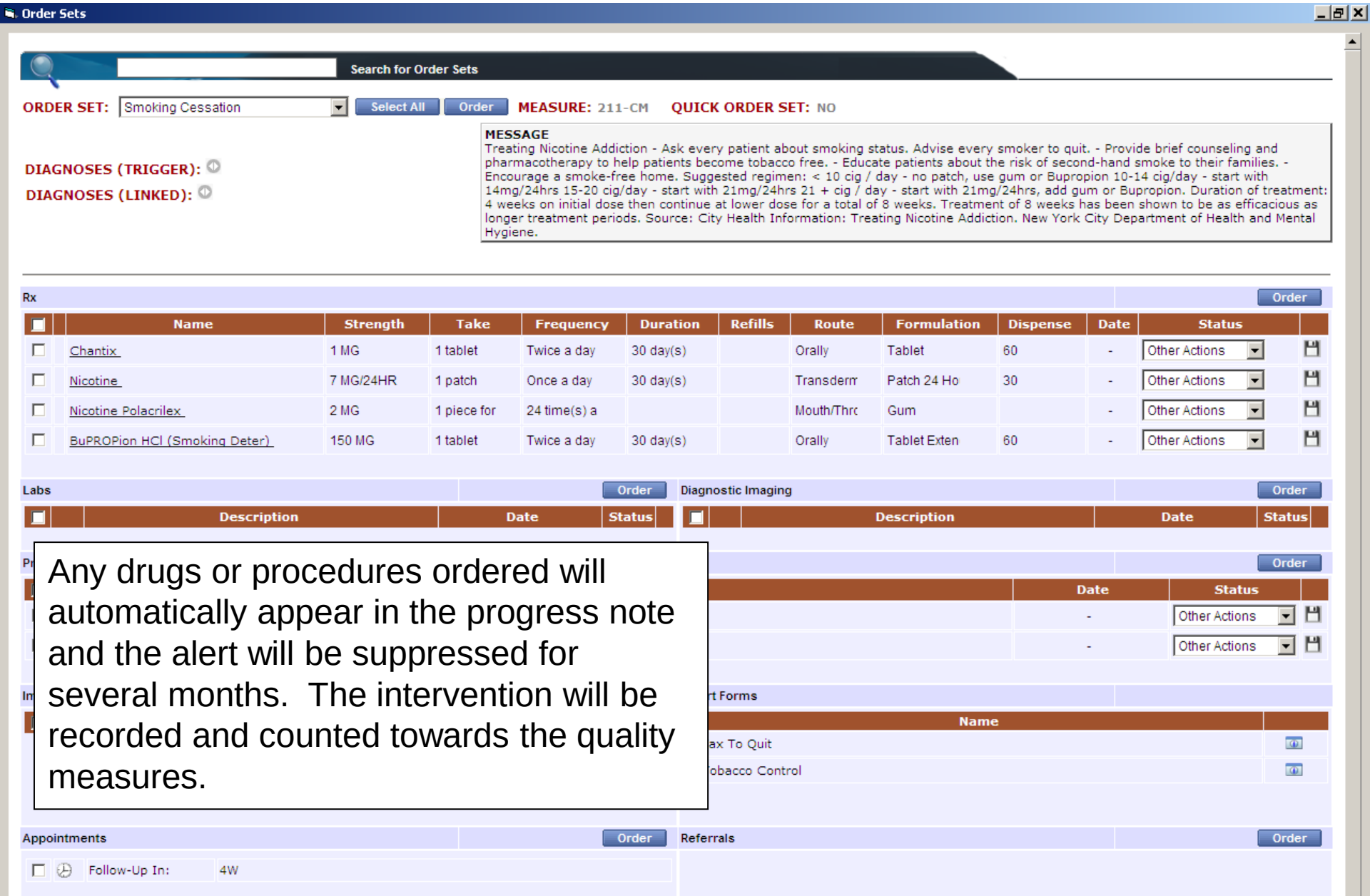
Dr. Bear views other order sets for high LDL levels



The 2nd part of the **COMPREHENSIVE ORDER SET** displays a selection of recommended labs, immunizations, follow-up appointments, referrals as well as printable physician and patient education materials.

RELEVANT INFORMATION AT THE POINT OF CARE

Example: Smoking cessation intervention alert and order set



Any drugs or procedures ordered will automatically appear in the progress note and the alert will be suppressed for several months. The intervention will be recorded and counted towards the quality measures.

SMOKING

ASSESS TOBACCO USE IN ADULTS

Numerator: Patients in denominator with smoking status updated in Tobacco Control Smart Form in the last year

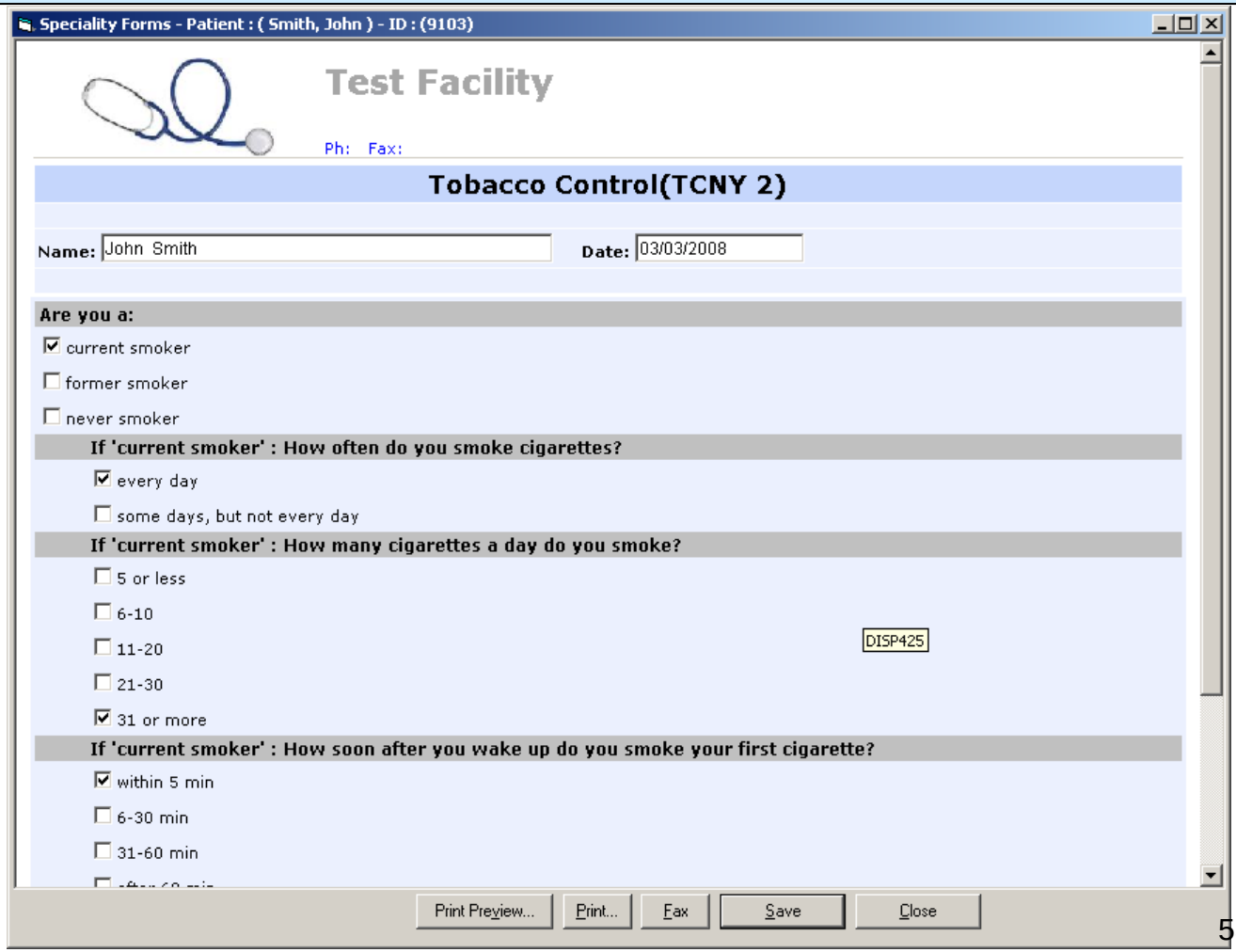
Denominator: Patients seen in the reporting period, age 18+ at time of visit

Tobacco use **must** be documented in the Tobacco Control Smart Form

– Are you a…

Current
Former
Never

…Smoker



HIGHLIGHTS

1. CDSS offers unique opportunities to affect patient care while patient is in room

2. Most important function of EHRs besides storing data in structured format

3. Should recommend action ad provide a shortcut for action

4. Do not interfere or interrupt with providers work

5. Future: Siri-like medical encyclopedia

Thank you!

Any questions/comments

Please email:
samamirfar@gmail.com

SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH – PRIMARY CARE

Strategies for implementing clinical decision support

Brief Overview of Health System

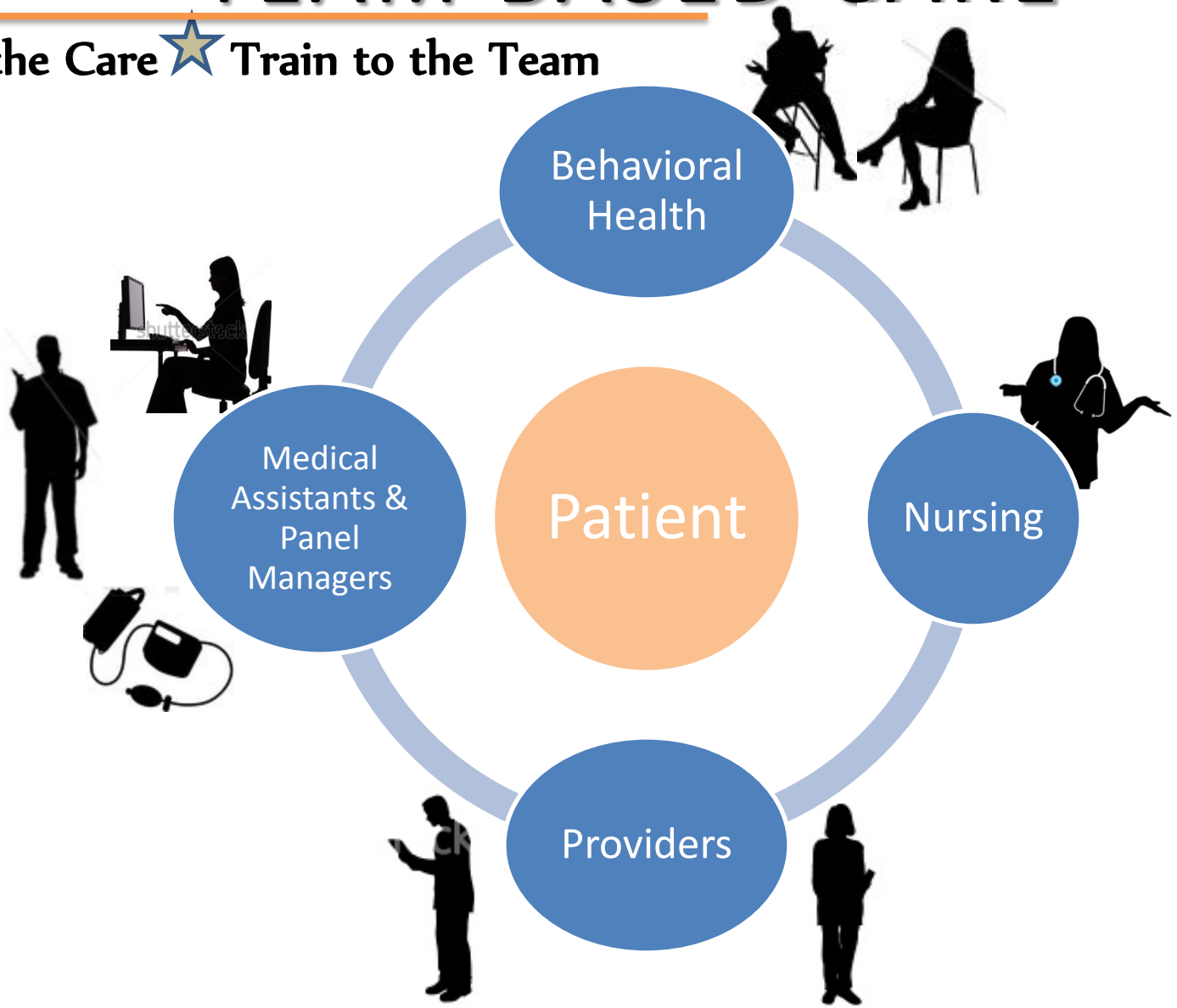
- **12 primary care health centers + 4 primary care resident training programs**
- **70,000 primary care patients**
- **SF General Hospital**

IT Infrastructure

- Hospital Electronic Health Records (EHR) and Practice Management System
  - Lifetime Clinical Record (LCR)
- EHR
  - E-Clinical Works (ECW)
- Population Management Tool/Registry
  - i2iTracks

TEAM BASED CARE

Share the Care ☆ Train to the Team



Why Team Based Care?

- Worsening adult primary care practitioner shortage
  - Only 9% of US medical students choosing adult primary care
  - Not enough Nurse Practitioners/Physician Assistants to fill the gap
- Panel sizes go up
  - reductions in access, quality, and clinician dissatisfaction
- Solution is to share responsibility for the health of the patient panel between clinicians and non-clinician team members
  - Teams are now a necessity

Tom Bodenheimer MD & Berdi Safford MD.
Safety Net Medical Home Summit, 2011

What it Looks Like

Pre-Visit Planning

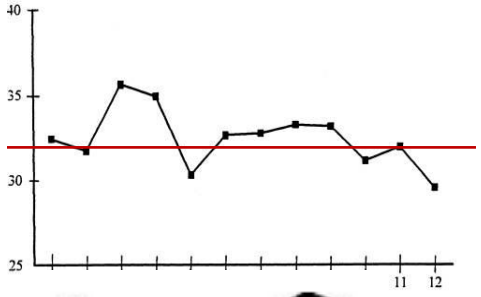
Southeast Health Center

Team Huddle

San Francisco VA

PANEL MANAGEMENT

Prepared ★ **Proactive** ★ **Effective**



IDENTIFY PATIENTS WITH CARE GAPS → OUTREACH AND IN-REACH → ENGAGE PATIENTS

Why Panel Management?

- Every established patient receives optimal care whether he/she regularly comes in for visits or not
- Practice is responsible for a finite number of patients
  - Assign all patients to a provider panel; regularly review and update panel assignments
  - Assess practice supply and demand; balance patient load accordingly
- Use panel data and registries to proactively contact, educate, and track patients

Safety Net Medical Home Initiative

http://www.safetynetmedicalhome.org/change-concepts/empanelment

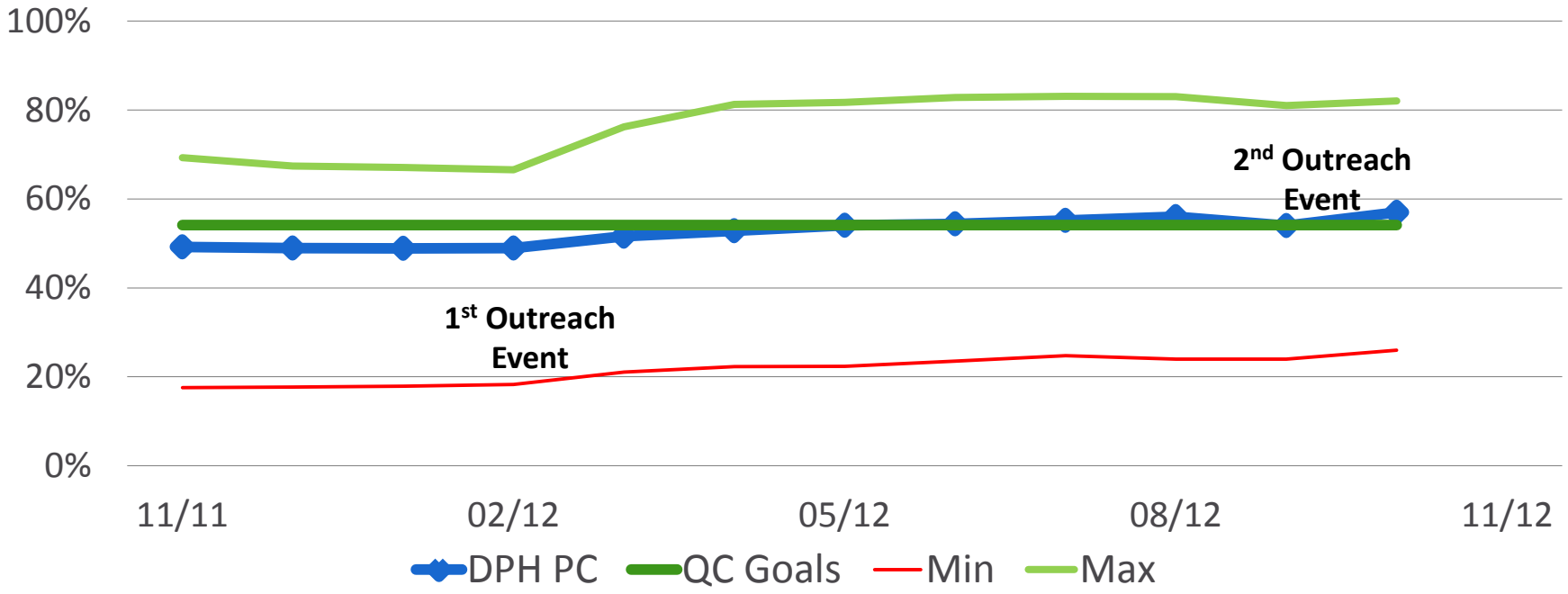
Implementing CDS

Teams trained on how to query registry for patients due for screening

In pairs, team members practice using scripts for communicating importance of screening to patients

Teams outreach to patients by phone; enter data into registry for tracking

Colorectal Cancer Screening Outreach



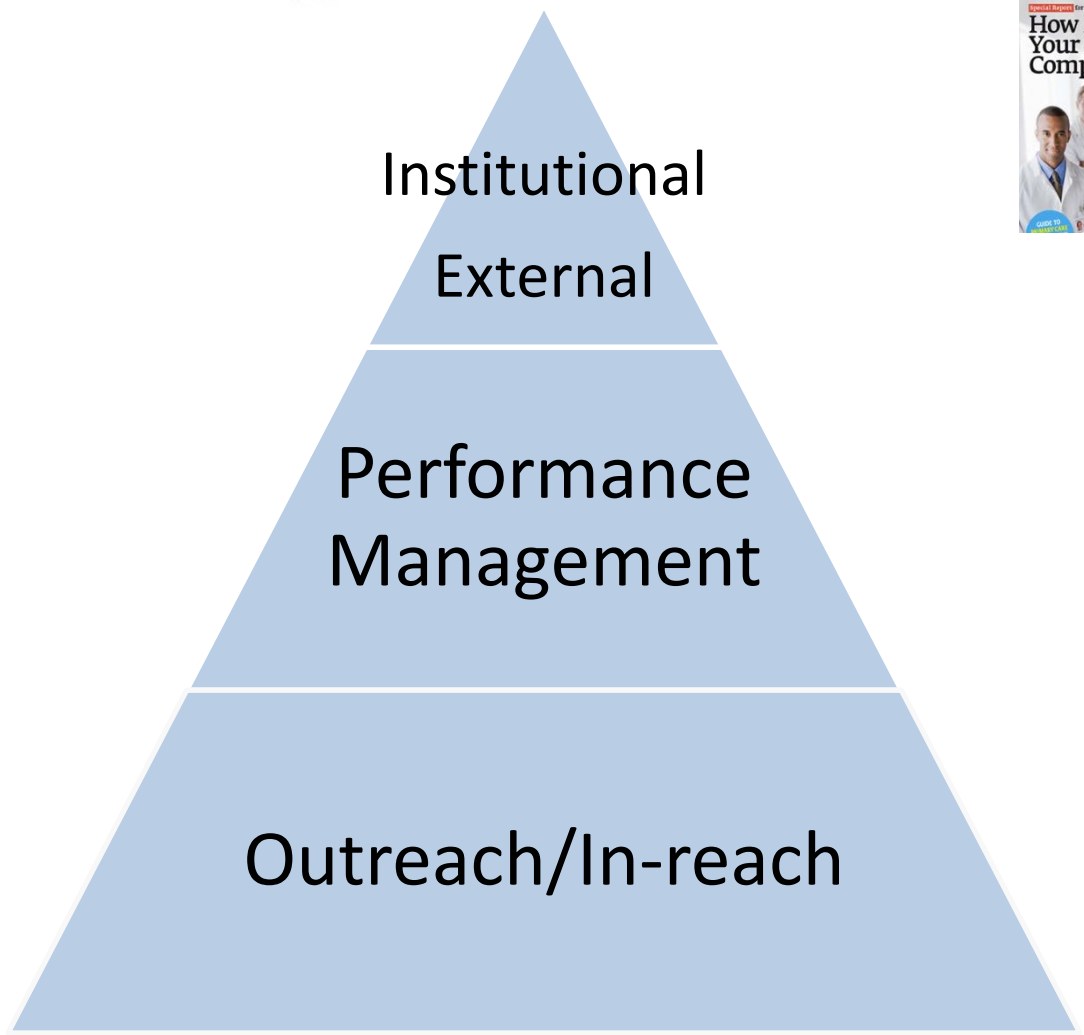
Nov-11	Feb-12	May-12	Aug-12	Nov-12	QC Goal	HEDIS Medicare
49%	49%	54%	56%	57%	**60%**	**57%**

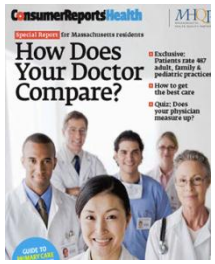
2012 Quality Council Goals

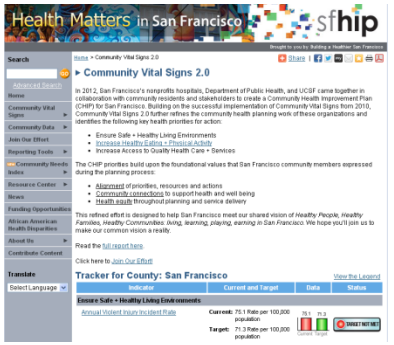
	Oct -10	Oct -11	Oct -12	2012 Goal	2010 HEDIS Av.
Blood Pressure Documentation	56%	85%	91%	90%	NA
Smoking Status Assessed	51%	73%	79%	80%	NA
Colorectal Cancer Screening	44%	47%	57%	60%	57%
Diabetes Mellitus (DM) HbA1c Control	62%	74%	72%	70%	62%

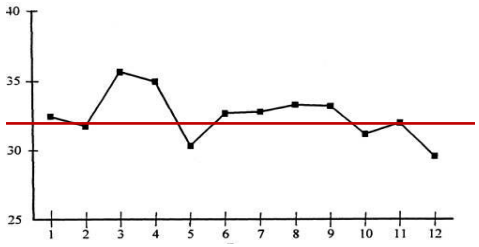
DATA STRATEGY

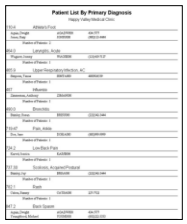
Actionable **Timely** **Responsive**

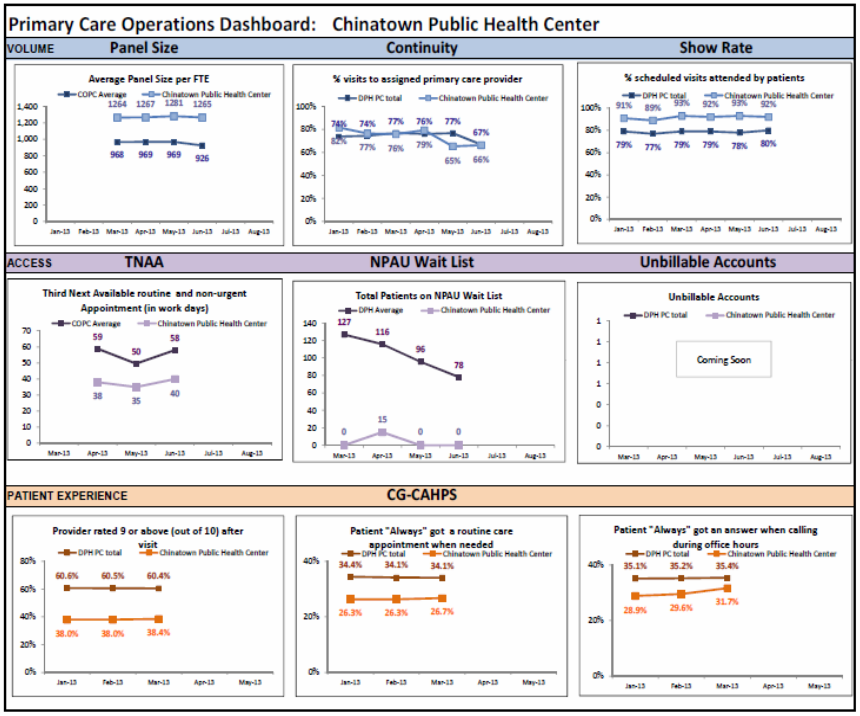


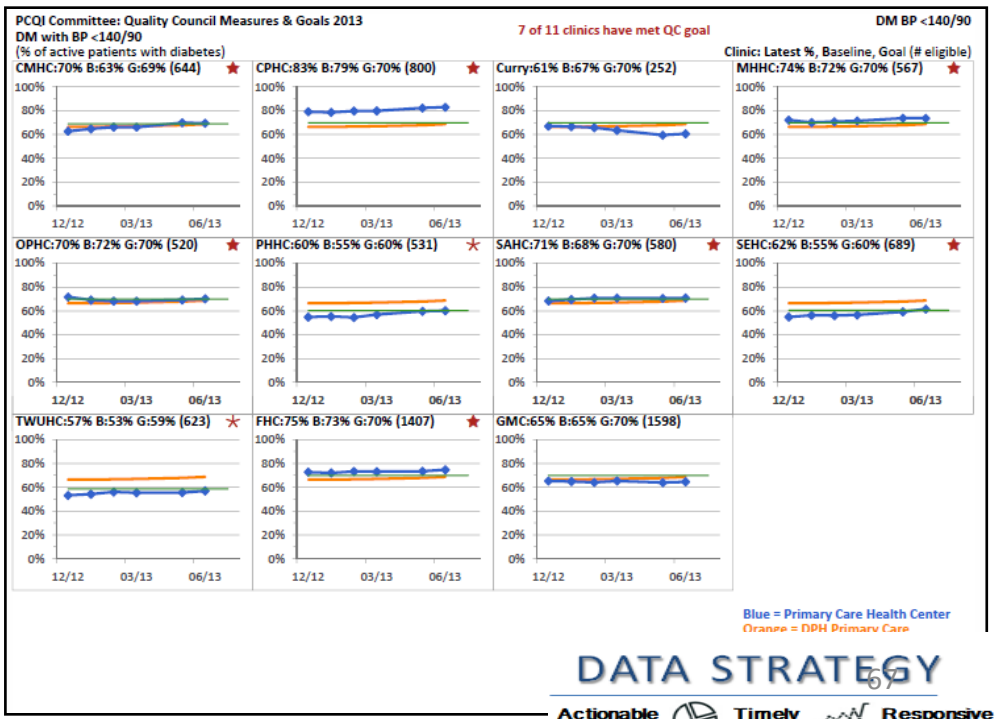










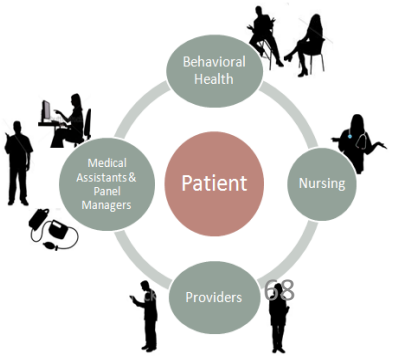


DATA STRATEGY
Actionable Timely Responsive

Goals for Training + Support:

- What is needed: training alone is not enough!
  - Training : consistent content, offered on regular basis as initial and refresher training
  - Competency: coaching, observation, clear role definitions and expectations for who will do the task
  - Oversight and Supervision: documentation of skills through proctoring and annual Performance Appraisal

- Written protocols and tools
  - standard for COPC / SFDPH-PC



Thank you!

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Questions and Answers (Q&A) Session

- Submit questions and comments via the Questions pane