

Primary Care Information Project (PCIP)



Public Health's Role in Health Information Technology: *The New York City Model*

*Dr. Jesse Singer, Director of Development, jsinger@health.nyc.gov
Mat Kendall, Director of Operations, mkendall@health.nyc.gov*

The Primary Care Information Project

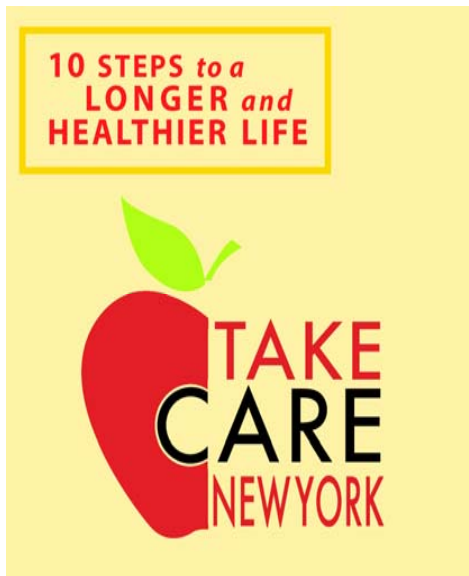


- By bringing this health technology to New Yorkers, we are building a national model for a health care system that works, by preventing illness rather than merely treating people after they're already sick.
 - Mayor Michael Bloomberg 2/25/08

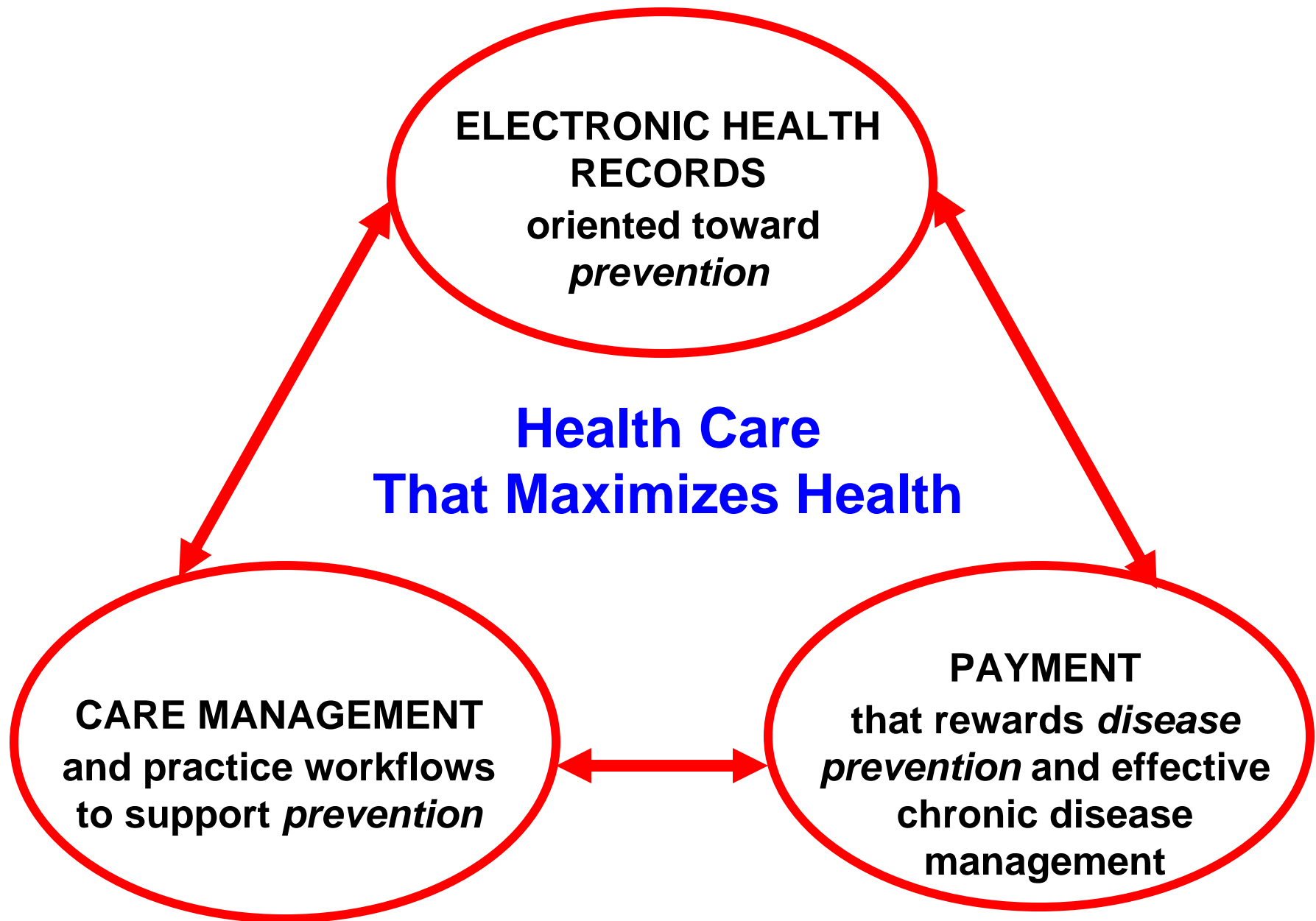
Government Role?

- Ensure that electronic health record systems address priority public health issues.
- Use economies of scale to support a myriad of factors that impact care management.
- Harmonize different funding streams to support quality improvement.
- Assist provider groups to optimize the EHR

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

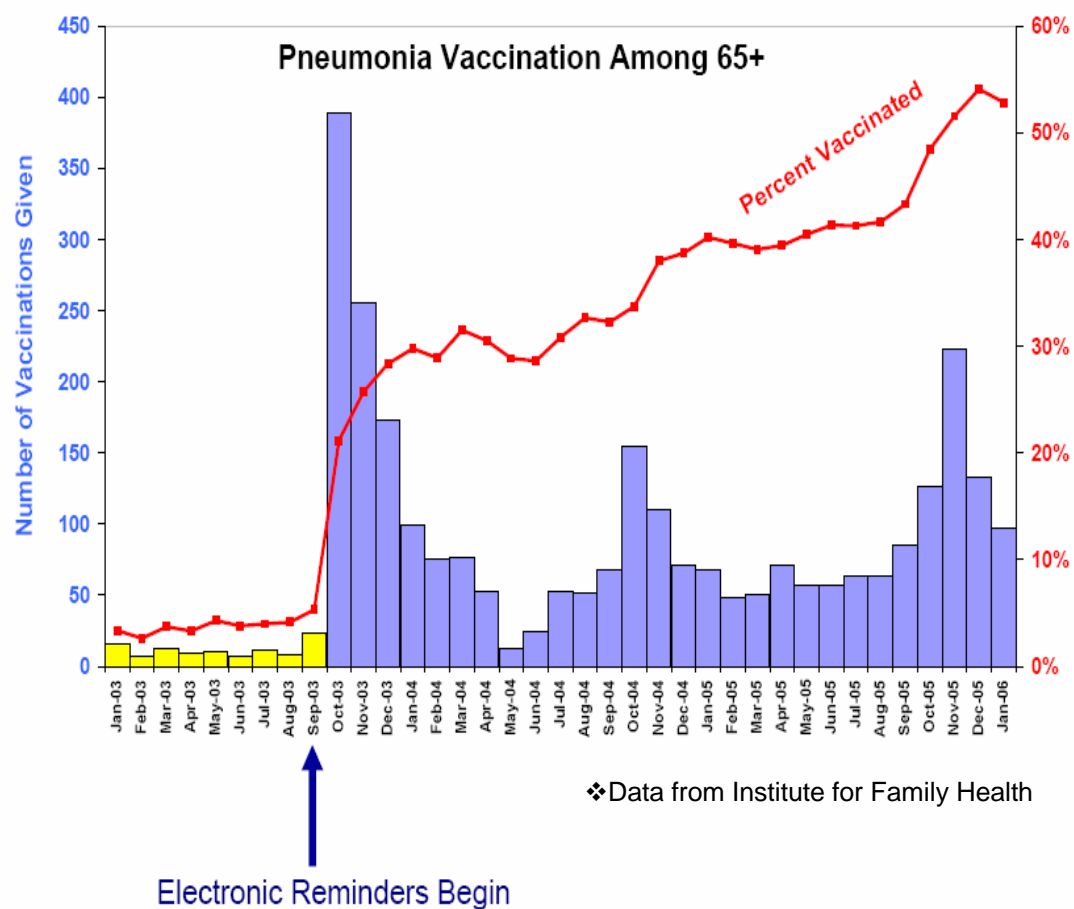
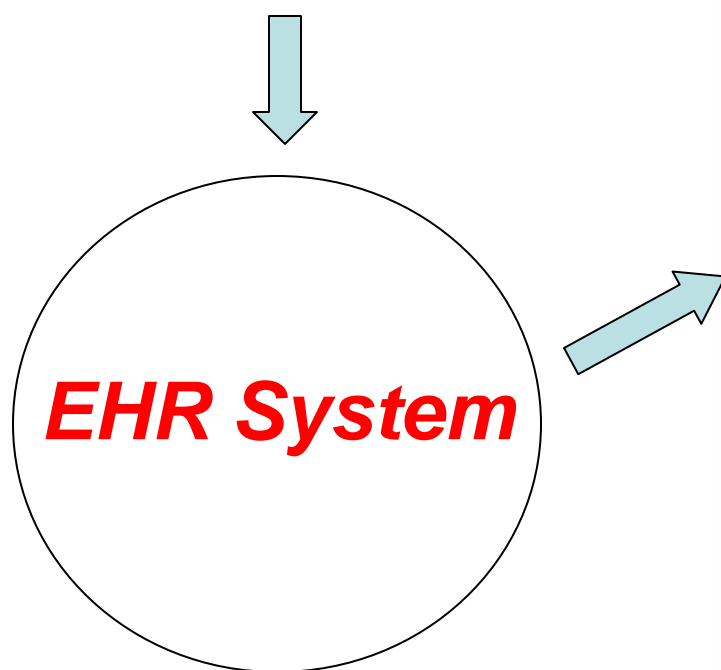


*Frieden TR, Mostashari F. JAMA. 2008 Feb 27;299(8):950-2.



The Power of a Prevention-Oriented EHR:

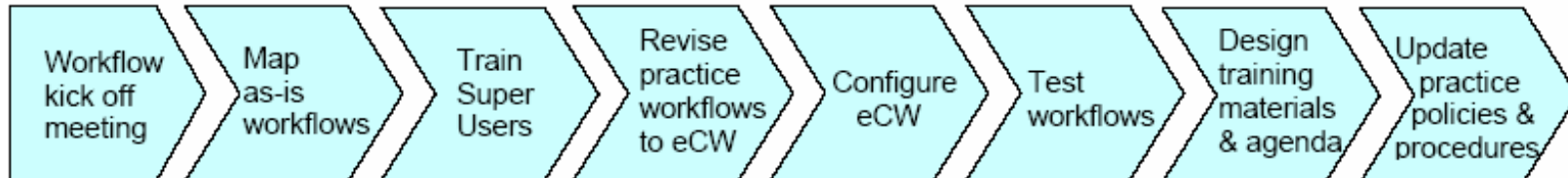
Electronic Health Record Reminders Increase Preventive Services



Implementation Support: DOHMH Plan for Workflow Redesign

Workflow Plan

Redesigning workflows is an important process for redefining staff roles, designing practice-specific training materials, and configuring the EHR to fit the needs of your practice. The timeline for mapping workflows and configuring the database will begin shortly after your kick off call with eCW and continue through go live. The basic stages of workflow and configuration are:

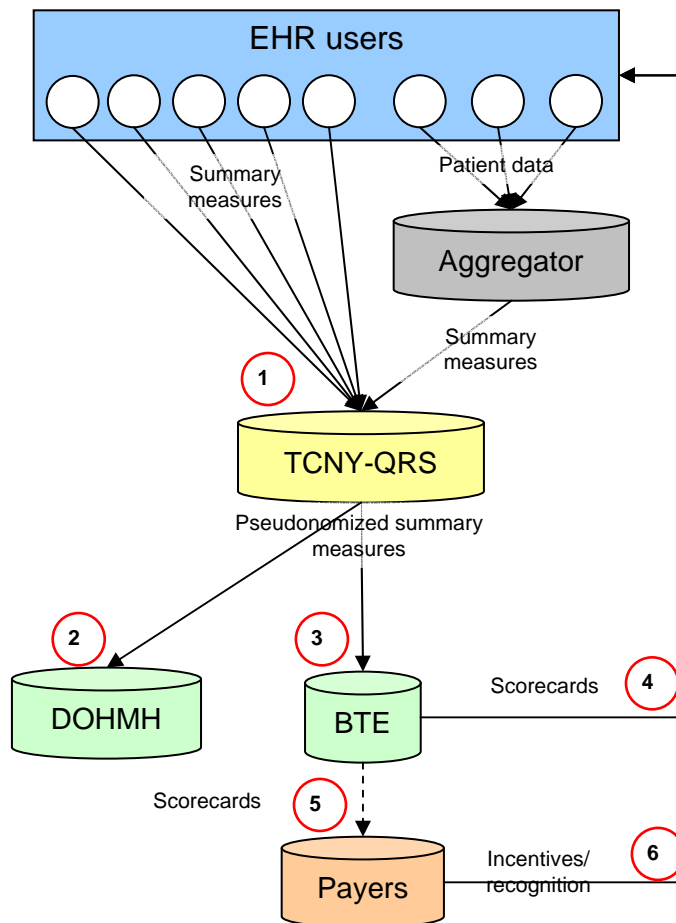


	Week 1	Weeks 2-3	Week 4	Weeks 5-6	Weeks 6-8	Weeks 9-10	Week 11-12	Post-go-live
Goals	<ul style="list-style-type: none"> Identify key practice staff who will need to be involved in the redesign process and set the workflow schedule 	<ul style="list-style-type: none"> Understand current high-level processes that will be impacted by the EHR. Identify reports and other information that must be tracked in the EHR 	<ul style="list-style-type: none"> Learn basic functions, workflow, and reporting ability of eCW. Understand how certain procedures are typically performed in eCW. 	<ul style="list-style-type: none"> Reassess high level processes and determine how they will be altered through the adoption of the EHR. Identify how staff roles will change Identify required points of configuration 	<ul style="list-style-type: none"> Configure the system to meet practice-specific operational and clinical policies and procedures Load information into the EHR that will allow for successful billing and other transactions 	<ul style="list-style-type: none"> Ensure revised practice workflows can be successfully adapted to site-specific staffing and procedures. Ensure that site hardware has been properly placed 	<ul style="list-style-type: none"> Provide staff with tools that can assist them in completing new tasks. Plan training agenda with eCW and prepare practice-specific elements 	<ul style="list-style-type: none"> Ensure the practice's policy and procedures reflect the new EHR-enabled policies and procedures
Deliverables	<ul style="list-style-type: none"> Workflow schedule defined. Staff named for all required roles. 	<ul style="list-style-type: none"> As-is flowcharts for high-level processes Examples of all key documents and reports that will need to be in the system 	<ul style="list-style-type: none"> Mapping of data elements from key reports/forms to existing data elements in eCW. Staff post-training "hot seat" test results 	<ul style="list-style-type: none"> New eCW-enabled flowcharts List of new staff EHR functions List of specific configuration needed in the system 	<ul style="list-style-type: none"> Successful testing of the new EHR processes 	<ul style="list-style-type: none"> Sign off on adapted workflows and configuration by Process Owners 	<ul style="list-style-type: none"> "Cheat sheets" for specific processes Final attendee lists for training sessions submitted to eCW 	<ul style="list-style-type: none"> Documentation codifying the EHR-enabled policies and procedures New job descriptions for staff

PCIP Care Management and Implementation Support

- Support for information technology infrastructure
 - DOHMH group purchasing of equipment for 10 CHCs and 50 small practices
- Assistance with workflow analysis
 - As-is and EHR-enabled workflow assessments
- EHR vendor support
 - Basic project management, data migration, on-site training, interfaces etc.
- Support for billing
 - On-site consultants and group trainings
- On-going quality improvement assistance
 - On-site assistance in developing care management programs
- NCQA Medical Home Certification
 - Tied to EHR system adoption/successful utilization

Citywide Quality Reporting System: Draft Approach for P4P



- (1) EHR users collect patient data and transmit summary measures in a standardized, pseudonymized format to the TCNY-QRS (Note: An Aggregator will be required to standardize measures for some EHR users)
- (2) NYC DOHMH uses pseudonymized measures for population surveillance
- (3) Bridges to Excellence (BTE) uses pseudonymized measures to assess performance of participating physicians
- (4) EHR users receive scorecard from BTE and review results for practice QI. IPRO will provide quality improvement and auditing services
- (5) VOLUNTARY: EHR users authorize BTE to pass performance assessment to contracted payers.
- (6) Payers recognize/send incentives to EHR users that qualify based on P4P benchmarks

The following storyline illustrates the TCNY Clinical Decision Support System in action

*Jane Doe, a 48 year-old woman is cared for by
her family practitioner, Dr. James Bear.*

8 Key Features of the TCNY Build

1

MEASURE REPORTS

Side-by-side provider comparisons of performance on quality measures

2

ENHANCED REGISTRY

Identifies patients by structured data (e.g., diagnoses, drugs, labs, demographics)

3

AUTOMATIC VISUAL ALERTS

Highlights abnormal vitals

4

CDSS

Automatically displays preventive service alerts that are suppressed when addressed

5

QUICK ORDERS

One-click ordering of recommended preventive services

6

COMPREHENSIVE ORDER SETS

Displays best practice recommendations (e.g., for meds, labs, patient education)

7

eMedNY

With patient consent, displays 90-day history of all Rx's filled by Medicaid patients

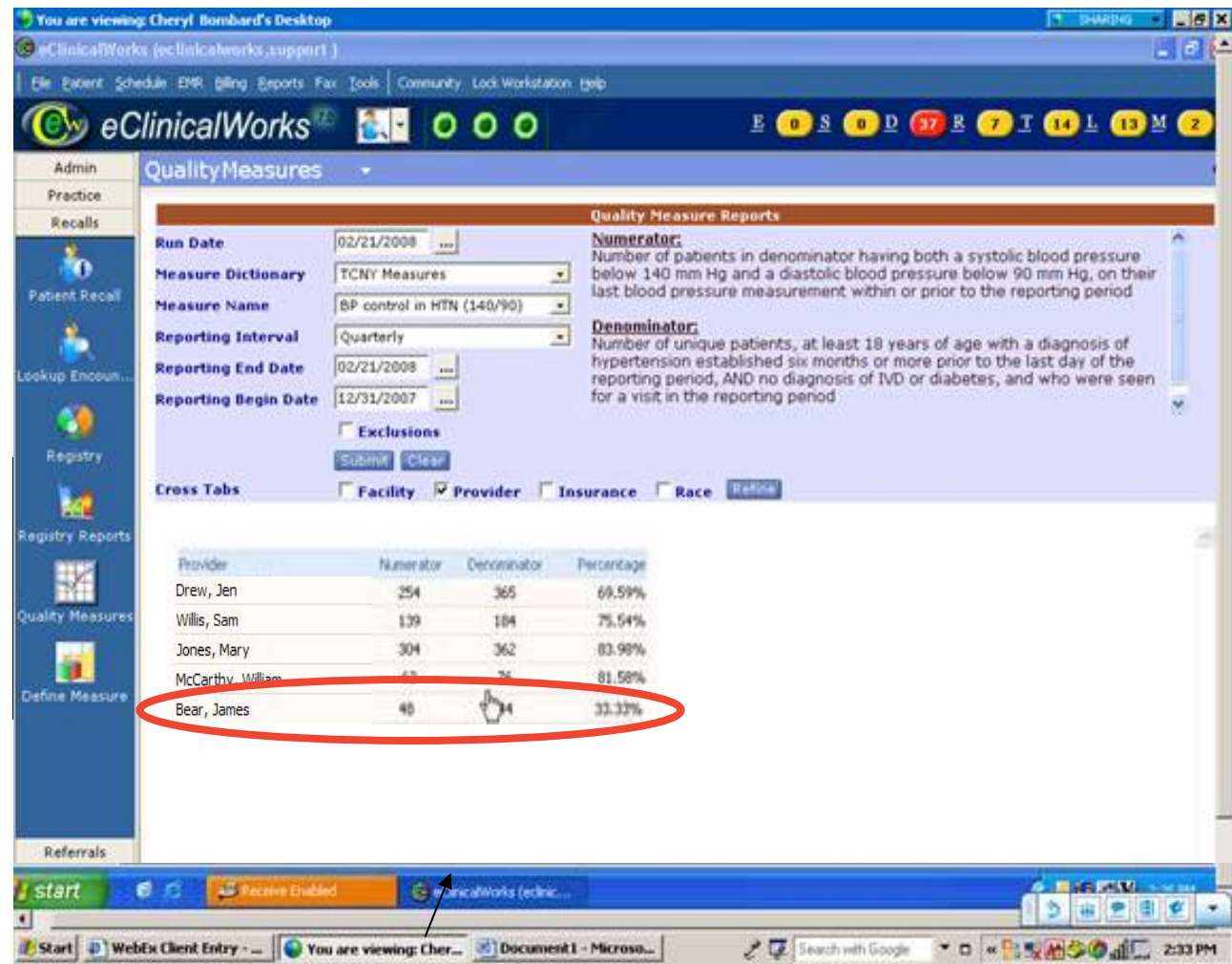
8

CIR and School Health

Sends information to City Immunization Registry and generates school health forms

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

Dr. Bear wants to find out how he is performing compared to other physicians in his practice in controlling high blood pressure for his patients.



Using the **QUALITY MEASURE REPORTS FUNCTION**, Dr. Bear is inspired by the performance of his peers in managing the blood pressure (BP) of their hypertensive patients; only one-third of his hypertensive patients have achieved good BP control.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

Dr. Bear wants to improve his score on BP control and queries the EHR to identify patients with poorly controlled hypertension

The screenshot shows the eClinicalWorks interface with the Registry tab selected. The Registry tab has sub-tabs for Demographics, Vitals, Labs / DI, ICD, CPT, Rx, and Medical History. The Vitals sub-tab is active, showing a list of patients with checkboxes for selection. A red circle highlights the first patient, Jane Doe. The interface also shows various filters and options for generating reports and queries.

Demographics	Vitals	Labs / DI	ICD	CPT	Rx	Medical History
<input type="checkbox"/> Height (IN) [] - []	<input type="checkbox"/> Heart Rate [] - []					
<input type="checkbox"/> Weight (LBS) [] - []	<input type="checkbox"/> HC [] - []					
<input type="checkbox"/> BP (SYS/DIA) 140/90 - []	<input type="checkbox"/> Temp [] - []					

Vitals Date Range: 2/22/2003 to 2/22/2008

Buttons: Migrate Vitals, Save Queries, Run Subset (NOT), Run Subset, Run New

Demographics	Vitals	Labs / DI	ICD	CPT	Rx	Medical History
<input checked="" type="checkbox"/> Doe, Jane	01/01/1960	F	48Y			
<input checked="" type="checkbox"/> Hagland, Jason	04/04/1967	F	40Y			
<input checked="" type="checkbox"/> Jackson, John	04/04/1967	M	40Y			
<input checked="" type="checkbox"/> Johnson, Ken	05/05/1967	M	40Y			
<input checked="" type="checkbox"/> Smith, Alex	01/02/1960	M	48Y	608-843-5678		

Demographics :: Age >=18 AND Sex = Both
ICD :: 401.9
Vitals :: AND BP >= 140/90

Choose Letter [] Run Letter < Prev

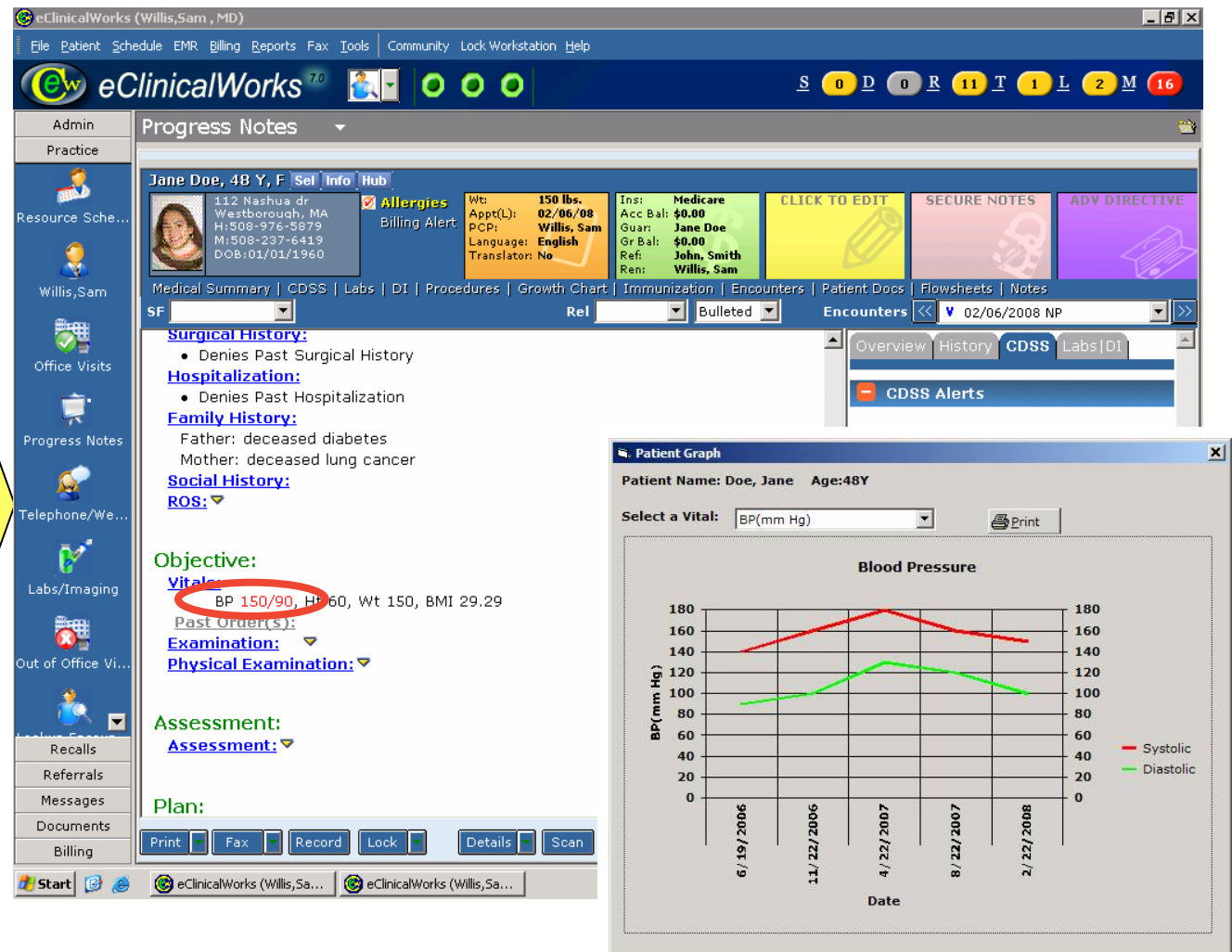
Buttons: 25, Patient Hub, New Appointment, Copy, Send eM

The screenshot also shows a preview of a letter generated by the system, addressed to Dan saHansome, 125 Worth St, New York NY 10007. The letter is dated 2/22/2008 and is signed by Sumir Sahgal MD. The letter text reads: "Dear Dan saHansome, Your last measured blood pressure measured in the clinic was greater than 140/90 and it's been more than three months since we saw you. I would like you to make an appointment where we can discuss possible changes to your treatment regimen. Please call the office at your earliest convenience to schedule an appointment. Sincerely, Sumir Sahgal MD".

Using the **ENHANCED REGISTRY FUNCTION**, Dr. Bear identifies five patients with high blood pressure who do not have an appointment scheduled, and reaches out to each patient; he generates a letter scheduling a follow-up visit with patient Jane Doe.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

- Jane Doe receives the letter and makes a f/u appointment
- During the visit, Dr. Bear's assistant takes her history and vitals
- Jane mentions that she has had a few weeks of excessive thirst and fatigue



Jane's blood pressure is elevated (150/90) and highlighted in red by the **AUTOMATIC VISUAL ALERT FUNCTION**. Dr. Bear can trend her BP over time.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

- 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

The screenshot shows the eClinicalWorks interface for a patient named Jane Doe, 48 Y, F. The patient's medical summary is visible, including vital signs (BP 150/90, Ht 60, Wt 150, BMI 29.29) and a recent lipid profile. The assessment section shows a diagnosis of Diabetes mellitus type 2 - 250.00 (Primary). On the right side, the CDSS (Clinical Decision Support System) panel is open, displaying a list of alerts that are automatically generated based on the patient's new diagnosis. These alerts include: BP control in DM (130/80), Influenza vaccine (high risk), A1C testing, and LDL control (high risk). The CDSS panel is circled in red in the image.

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.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

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

The screenshot shows the eClinicalWorks interface for a patient named Jane Doe. The main window displays her progress notes, including vital signs (BP 150/90, Ht 60, Wt 150, BMI 29.29), lipid profile (Cholesterol 255, Triglycerides 100, HDL Cholesterol 82, LDL-Chol (Calc) 150, Chol/HDL Ratio 3.1), and examination findings. The CDSS Alerts panel on the right is circled in red, showing alerts for BP control, Influenza vaccine, A1C testing, and LDL control. The A1C testing alert is highlighted with a red circle, and the 'Order' button is visible next to it.

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.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

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

ORDER SET: DM, IVD - LDL<100 **MEASURE:** 350-B **QUICK ORDER SET:** NO

MESSAGE
Lipid control: Preventing Cardiovascular Events in Patients with Atherosclerotic Disease or Diabetes - Counsel all patients on lifestyle modification, the cornerstone of cardiovascular disease prevention. - Treat all patients with coronary or other atherosclerotic disease or diabetes to reach an LDL goal of <100 mg/dL; consider an LDL goal of <70 mg/dL for very high-risk patients. - Prescribe statins to lower LDL and reduce cardiovascular events and mortality by at least 30%. Source: City Health Information: Lipid Control: Preventing Cardiovascular Events in Patients with Atherosclerotic Disease or Diabetes. New York City Department of Health and Mental Hygiene.

DIAGNOSES (TRIGGER):
DIAGNOSES (LINKED):

	Name	Strength	Take	Frequency	Duration	Refills	Route	Formulation	Dispense	Date	Status
<input type="checkbox"/>	Niacin CR	500 MG	as directed				Orally	Capsule Extended Release			Order
<input type="checkbox"/>	Lipitor	20 MG	1 tablet	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Lovastatin	20 MG	1 tablet with a meal	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Pravastatin Sodium	40 MG	1 tablet	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Crestor	10 MG	1 tablet	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Simvastatin	20 MG	1 tablet every evening	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Zetia	10 MG	1 tablet	Once a day	30 day (s)		Orally	Tablet	30		Order
<input type="checkbox"/>	Gemfibrozil	600 MG	1 tablet	Twice a day	30 day (s)		Orally	Tablet	60		Order

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

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

Dr. Bear views other order sets for high LDL levels

The screenshot displays the 'Order Sets' window in the eClinicalWorks application. The window is organized into a grid of sections, each with a table of items. The sections include:

- Labs:** A table with columns for Description and Date. It lists 'LIPID PROFILE' and 'HEPATIC FUNCTION PANEL', each with an 'Order' button.
- Diagnostic Imaging:** A table with columns for Description and Date.
- Procedures:** A table with columns for Description and Date.
- Immunizations:** A table with columns for Name, Dose, and Date. It lists 'MMR' and 'Pneumococcal', each with an 'Order' button.
- Smart Forms:** A table with a column for Name.
- Appointments:** A table with columns for Description and Date. It lists 'Follow-Up In: 2W'.
- Referrals:** A table with columns for Description and Date. It lists 'Outgoing Referral for: Nutrition', 'Outgoing Referral for: Endocrinology', and 'Outgoing Referral for: Cardiology', each with an 'Order' button.
- Physician Education:** A table with columns for Description and Date. It lists 'City Health Information: Lipid Control: Preventing Cardiovascular Events in Patients with Atherosclerotic Disease or Diabetes' and 'Cholesterol Pocket Guide', each with a PDF icon.
- Patient Education:** A table with columns for Description and Date. It lists 'Health Bulletin: Control Your Cholesterol: Keep Your Heart Healthy' and 'How Will I Control My Cholesterol? Self-Management Goal Sheet', each with a PDF icon and an 'Order' button.

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.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

- Dr. Bear wonders if he should change Jane's medication regimen to better control her lipids and wants know what medications have been filled by her in the past 90 days
- Jane has signed a consent form to give the provider access to her medication history

The screenshot displays the eClinicalWorks interface for Dr. Willis, Sam, MD. The 'Select Medication' window is open, showing a list of medications for a patient named Jane. The 'Rx External History' section is visible, showing a list of medications and their fill dates. A red circle highlights the 'Last Fill Date' column, which shows dates ranging from 05/20/2006 to 12/07/2007. The medications listed include Simvastatin 10 MG TABLET, Azithromycin 250 MG TABLET, Chlorthalidone 12.5 MG TABLET, and others.

Name	Provider Name	Quantity/Units	Direction	Last Fill Date	Refill
SIMVASTATIN 10 MG TABLET	SATISH GUPTA	30.0/Not Specified		12/07/2007	
SIMVASTATIN 10 MG TABLET	SATISH GUPTA	30.0/Not Specified		11/18/2007	
SIMVASTATIN 10 MG TABLET	SATISH GUPTA	30.0/Not Specified		10/16/2007	
SIMVASTATIN 10 MG TABLET	SATISH GUPTA	30.0/Not Specified		09/11/2007	
SIMVASTATIN 10 MG TABLET	SATISH GUPTA	30.0/Not Specified		08/13/2007	
AMOXICILIN 250 MG CAPSULE	MIHAELA STOIAN	30.0/Not Specified		12/07/2007	
AZITHROMYCIN 250 MG TABLET	SATISH GUPTA	30.0/Not Specified		12/27/2006	
CHLORHEXIDINE 0.12% RINSE	MUSTAFA KHALIL	473.0/Not Specified		05/20/2006	

Since Jane is a Medicaid patient, Dr. Bear can use the **eMedNY FUNCTION** to view her 90-day medication history. He notices that Jane has not filled her lipid medication (simvastatin) for the past three months; she admits that she has stopped taking them because she wondered if her tiredness might have been due to these pills.

1. Measure Reports	2. Enhanced Registry	3. Automatic Visual Alerts	4. CDSS
5. Quick Orders	6. Comprehensive Order Sets	7. eMedNY	8. CIR and School Health

- While she's there, Jane asks Dr. Bear for a school health form for her 5 year-old (Tim) who is entering day care.
- Dr. Bear generates a preloaded NYC School Health form populated with Tim's information for Jane to take with her.

Test Facility

Ph: Fax:

New Admission Examination Form

TO BE COMPLETED BY PARENT OR GUARDIAN

Form No: [Blank]

Student Last Name: Doe First: Tim Middle: [Blank] Gender: male DOB: 01/01/03

Race: Native Hawaiian or other Pacif Ethnicity: Hispanic

Relationship: Mother Last: Doe First: Jane

Address: 112 Nashua dr, City: Westborough State: MA Zip: 01581

Home Phone: 508-976-5879 Work Phone: 508-247-1365

School District: [Blank] Number: [Blank] Type: [Blank] School Name: [Blank] Annex: [Blank]

Health Insurance: Yes

TO BE COMPLETED BY THE HEALTH CARE PROVIDER

Does the student have a past or present medical history of the following:

Asthma: No Onset Date: [Blank] Diabetes: Present Onset Date: [Blank]

(If present attach medication administration forms)

Speech Problems: No Onset Date: [Blank] Cancer: No Onset Date: [Blank]

Allergies: Present

Penicillin G Sodium : hives (Allergy) ,

Allergies:

Surgery: No Onset Date: [Blank] Hospitalizations: No Onset Date: [Blank]

Orthopedic Problems: [Blank] Onset Date: [Blank] Serious Illness: [Blank] Onset Date: [Blank]

Print Preview... Print... Fax Save Close

Billing Print Fax Record Lock Details Scan Templates Claim Letters Ink

Start eClinicalWorks (Willis, Sa... eClinicalWorks (Willis, Sa... 7:39 PM

Tim's information has already been automatically uploaded to the **CITYWIDE IMMUNIZATION REGISTRY**. The CIR will maintain a complete record of Tim's immunizations which can be accessed by other providers as needed.