Health Information Technology 101: Basics for Hospitals

A Brief Agenda

- **Setting the Stage**
  - **Information Technology (IT) & the health care system**
  - **A Little Perspective**
- **Electronic Health Records**
  - **It really can work now**
  - **Does it make any difference?**
  - **Some additional features and capabilities**
- **The Next Frontier: Personal Health Records**
- **The Concept of Health*e*People**

2004: "Who is "VA"?
Veterans Health Administration

- **VHA is an Agency of the Department of Veterans Affairs**
- **Locations & Affiliations**
  - ~ 1,300 Sites-of-Care
    - » **Including 158 medical centers, ~ 850 clinics, long-term care, domiciliaries, home-care programs**
  - Affiliations with 107 Academic Health Systems
    - » **Additional 25,000 affiliated MD's**
    - » **Almost 80,000 trainees each year**
    - » **60% (70% MDs) US health professionals have some training in VA**

2004: "Who is "VA"?
Veterans Health Administration

- **Budget, Staff, & Patients**

~193,000 Employees (~15,000 Doctors, 56,000 Nurses, 33,000 AHP)

» ***6% decrease since 1995***

- **13,000 fewer employees than 1995**

~ $27.4 Billion budget

» ***42% increase since 1995***

- **Flat at ~ $19B from 1995 - 1999**

– 5.1 million patients, ~ 7.5 million enrollees

» ***104% increase in patients treated since 1995***

- **From 2.5 million patients / enrollees in 1995**

VA's Patient Satisfaction Index

- **External American Customer Satisfaction Index (University of Michigan)**
  - **2000: 79 of 100 on Outpatient Care**
  - **2001: 82/100 Inpatient & 83/100 Pharmacy**
    - **Significantly better than private health sector average of 68**
      - **Loyalty Score of 90 & Customer Service Score of 87 were healthcare benchmarks!**
  - **2002: Repeat Performance - Outpatient (79) & Inpatient (81)**
  - **2003: Repeat Performance - Outpatient (80) & Inpatient (81)**

Health Information Technology as a Lever for Change

"Health information technology provides a mechanism for refocusing care delivery around consumers without substantial regulation and industry upheaval.

Information technology can result in better care (care that is higher in quality, safer, and more consumer responsive) and at the same time, more efficient (care that is appropriate, available, and less wasteful).

There are very few other alternatives that can achieve both of these goals in a balanced and timely manner. "

The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care
July 21, 2004
US Department of Health and Human Services

Improved Health & "*PAPERLESS*"

Standards
- **Data**
- **Communications**

Health Info Systems
- **Electronic Health Records Systems (EHRs)**
- Personal Health Record Systems (PHRs)
- Info Exchange

Adoption by health organizations & persons of affordable, high quality & standards-based EHRs, PHRs & Health Info Exchange

Improved Health

Paperless (IOM)

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

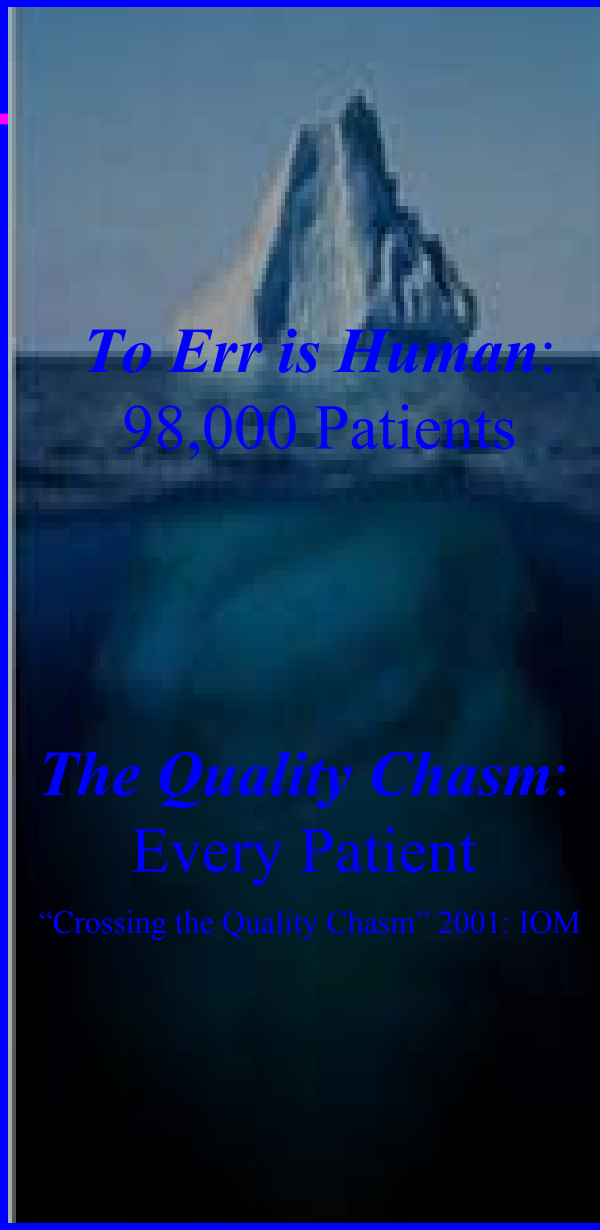
* This graphic inspired by discussions at a Kaiser-Permanente and IOM sponsored meeting in October 2001.

Toward a "Virtual Health System"

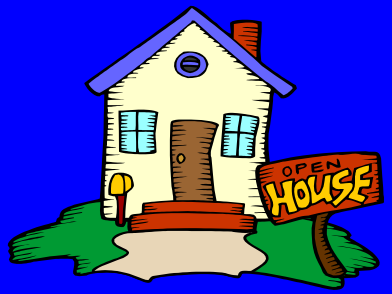
- **Electronic Health Records (EHRs)**
  - **Robust, Widespread Use of High Performance Electronic Health Records (EHRs)**
- **Personal Health Records (PHRs)**
  - **Full copy of one's own health information along with personalized services based on that information**

Safety is Not Enough

- **Patients don't seek care just to be safe, Safety is Fundamental**
  - Goal: Avoid Getting It Wrong
- **Safety & Effectiveness, To Close to Chasm**
  - **Expect effectiveness in maintaining & improving health, managing disease & distress**
  - Goal: Getting It Right . . . Consistently
- **Patient-Centered, Coordinated Care**
  - **Patient is locus of control**
  - **Seamless across environments**
  - **Integrates disease-specific, general health and social needs**
  - **Anticipates health trajectory and modifies risks, even before traditional risk factors manifest**
  - Goal: Care that is safe, effective & predictive and delivered in the time, place & manner that the patient prefers
- **Information Technologies & Care Coordination in Supporting These Goals**



Medical Computing Status



" . . . Given the huge increase in personal computer and Internet use, as well as the dramatic changes in other industries, most consumers assume that healthcare is highly electronic and computerized. The reality, however, is that 90 percent of the business of healthcare remains paper-based. Why? . . . Because healthcare (in the U.S.) is a trillion-dollar cottage industry! "

Rx 2000 Institute http://www.rx2000.org/KnowledgeCenter/hipaa/elearning/QC_govt.htm

Shortcomings of a Cottage Industry: Dual Challenges

- Information:
  - 1 in 7 hospital admissions occurs because care providers do not have access to previous medical records.
  - 12% of physician orders are not executed as written
  - 20% of laboratory tests are requested because previous studies are not accessible.
  - 1 in 6.5 hospitalizations complicated by drug error
    - » 1 in 20 outpatient prescriptions

- Effectiveness:
  - 98,000 Americans die each year from medical errors
  - Virtually every patient experiences a gap in care from best evidence
  - Health care inflation accelerating without commensurate value
    - » ↑ Uninsured & pharm uninsured
    - » ↑ Administrative costs
  - American health care is reactive;
    - » Safety net after catastrophe
    - » Marginal Prevention
    - » Unable to systematically anticipate needs that will predictably arise
  - Patient / Payors / Providers increasingly dissatisfied

Except in VA !

Every VA Medical Center has Electronic Health Records !

EHR
Electronic Health Records

Praise for VistA…

"VHA's integrated health information system, including its framework for using performance measures to improve quality, is considered one of the best in the nation."

Institute of Medicine (IOM) Report, "Leadership by Example: Coordinating Government Roles in Improving Health Care Quality (2002)"

VistA's Contribution to VA

Creating a Culture of Quality: The Remarkable Transformation of the Department of Veterans Affairs Health Care System

"What was largely an inpatient, subspecialty-based system became a "full-service," integrated delivery system committed to a new model of health promotion, disease prevention, and coordination of care.

…

The "culture of quality" depended on the successful implementation of several innovations: **a uniform data collection system facilitated by nationwide implementation of an electronic medical record system**, systematic application of quality standards, and externally monitored local area networks to monitor quality."

Annals of Internal Medicine, Editorial, August 17, 2004

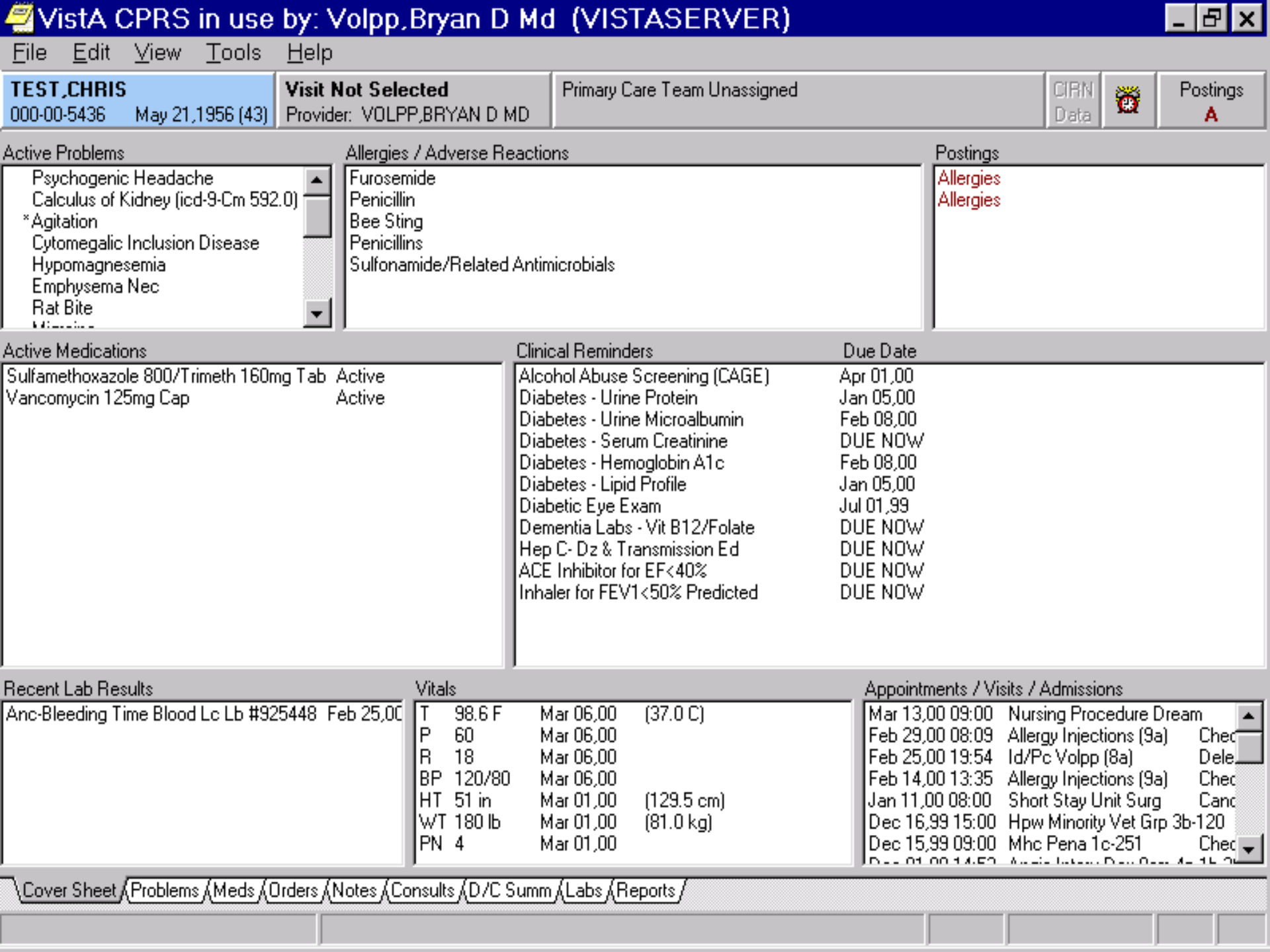
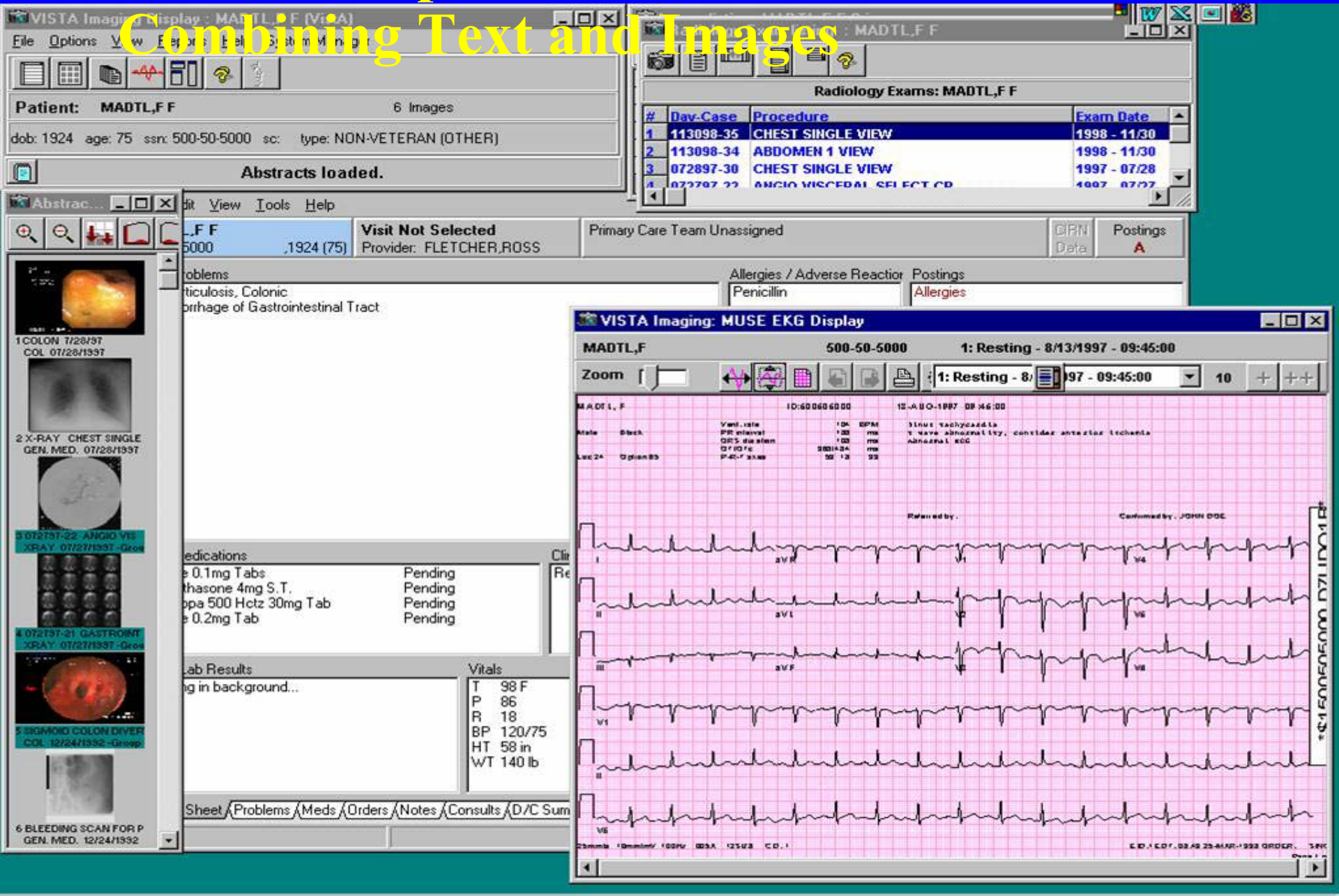

VistA CPRS in use by: Volpp,Bryan D Md (VISTASERVER)
File Edit View Tools Help
TEST,CHRIS
000-00-5436 May 21,1956 (43)
Visit Not Selected
Provider: VOLPP,BRYAN D MD
Primary Care Team Unassigned
CIRN Data
Postings
A
Active Problems
Psychogenic Headache
Calculus of Kidney (icd-9-Cm 592.0)
*Agitation
Cytomegalic Inclusion Disease
Hypomagnesemia
Emphysema Nec
Rat Bite
Allergies / Adverse Reactions
Furosemide
Penicillin
Bee Sting
Penicillins
Sulfonamide/Related Antimicrobials
Postings
Allergies
Allergies
Active Medications
Sulfamethoxazole 800/Trimeth 160mg Tab Active
Vancomycin 125mg Cap Active
Clinical Reminders Due Date
Alcohol Abuse Screening (CAGE) Apr 01,00
Diabetes - Urine Protein Jan 05,00
Diabetes - Urine Microalbumin Feb 08,00
Diabetes - Serum Creatinine DUE NOW
Diabetes - Hemoglobin A1c Feb 08,00
Diabetes - Lipid Profile Jan 05,00
Diabetic Eye Exam Jul 01,99
Dementia Labs - Vit B12/Folate DUE NOW
Hep C- Dz & Transmission Ed DUE NOW
ACE Inhibitor for EF<40% DUE NOW
Inhaler for FEV1<50% Predicted DUE NOW
Recent Lab Results
Anc-Bleeding Time Blood Lc Lb #925448 Feb 25,0C
Vitals
T 98.6 F Mar 06,00 (37.0 C)
P 60 Mar 06,00
R 18 Mar 06,00
BP 120/80 Mar 06,00
HT 51 in Mar 01,00 (129.5 cm)
WT 180 lb Mar 01,00 (81.0 kg)
PN 4 Mar 01,00
Appointments / Visits / Admissions
Mar 13,00 09:00 Nursing Procedure Dream
Feb 29,00 08:09 Allergy Injections (9a) Chec
Feb 25,00 19:54 Id/Pc Volpp (8a) Dele
Feb 14,00 13:35 Allergy Injections (9a) Chec
Jan 11,00 08:00 Short Stay Unit Surg Canc
Dec 16,99 15:00 Hpw Minority Vet Grp 3b-120
Dec 15,99 09:00 Mhc Pena 1c-251 Chec
Cover Sheet
Problems
Meds
Orders
Notes
Consults
D/C Summ
Labs
Reports

Chart Metaphor, Combining Text and Images



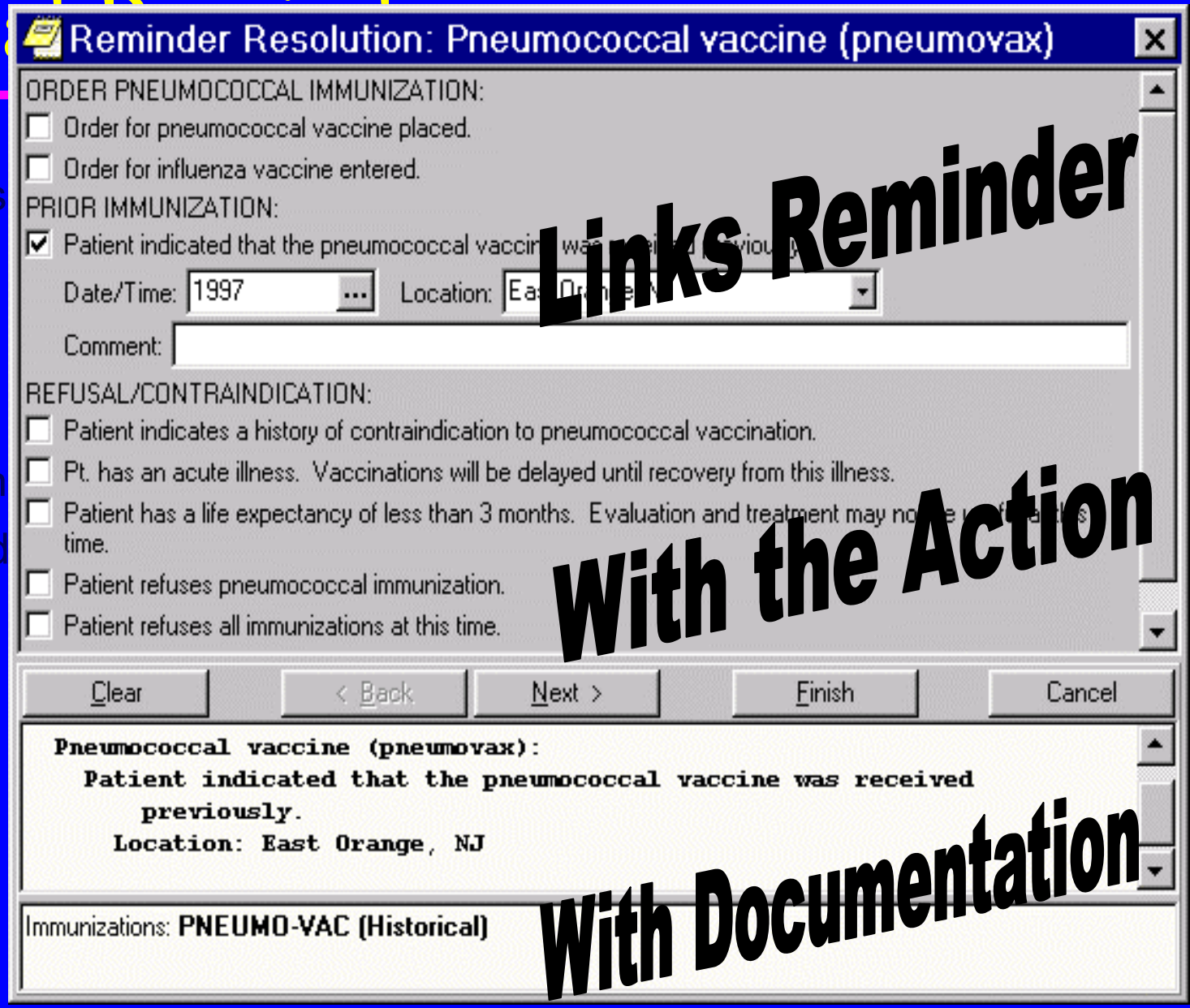
So. . . .

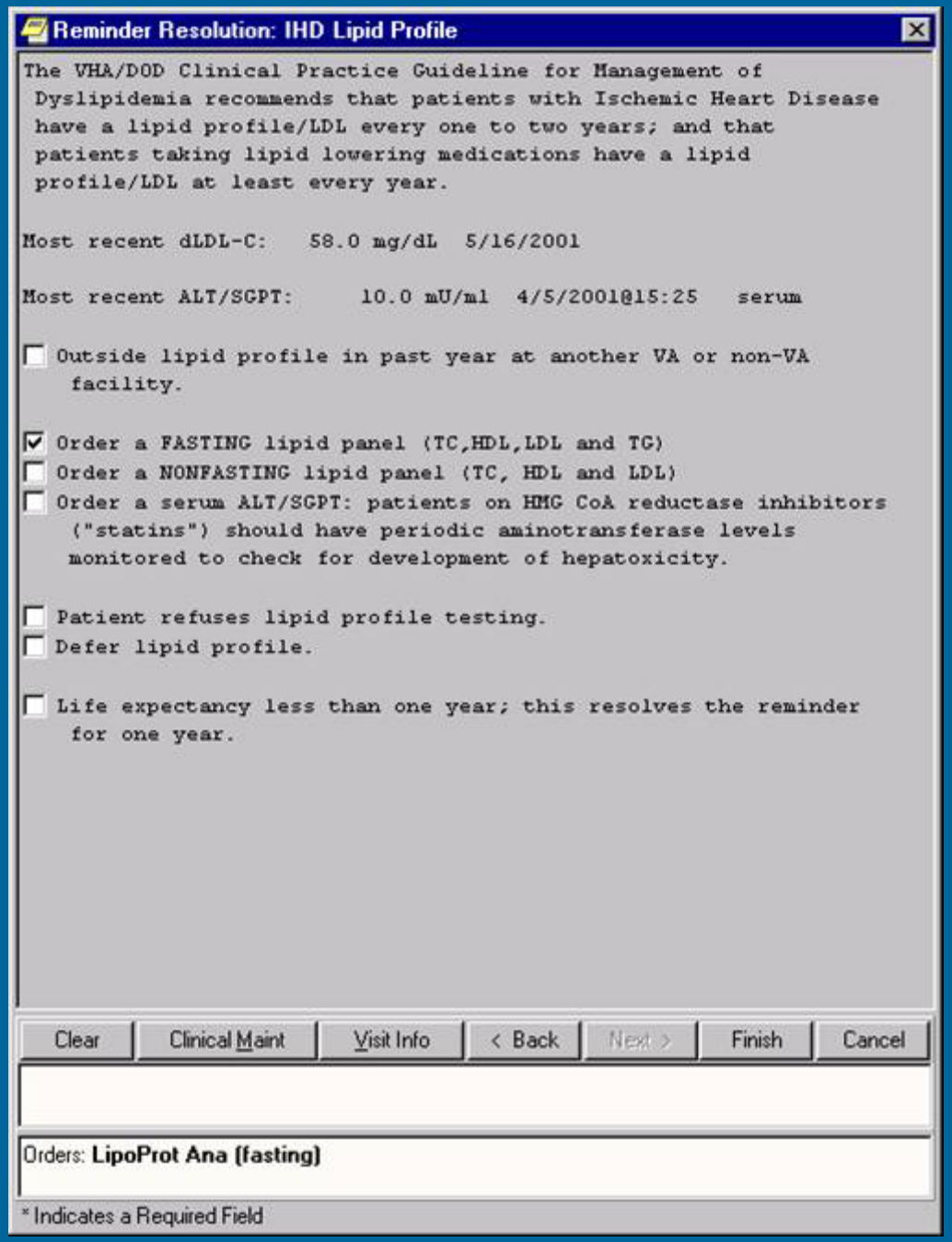
What Else Can an EHR Do?

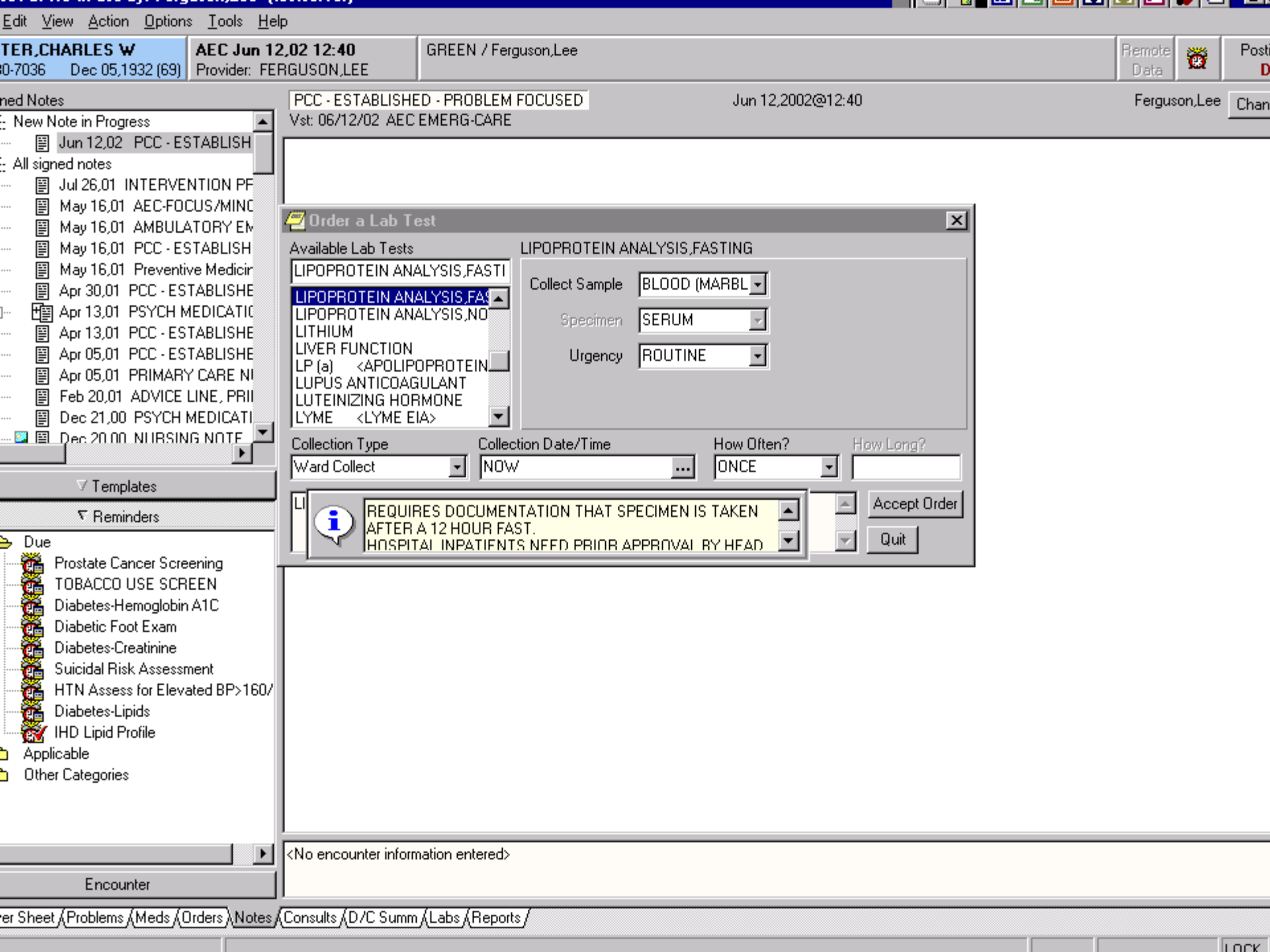
Clinical Reminders

Contemporary Expression of Practice Guidelines

- Time & Context Sensitive
- Reduce Negative Variation
- Create Standard Data
- Acquire health data beyond care delivered in VA




Reminder Resolution: IHD Lipid Profile
The VHA/DOD Clinical Practice Guideline for Management of Dyslipidemia recommends that patients with Ischemic Heart Disease have a lipid profile/LDL every one to two years; and that patients taking lipid lowering medications have a lipid profile/LDL at least every year.
Most recent dLDL-C: 58.0 mg/dL 5/16/2001
Most recent ALT/SGPT: 10.0 mU/ml 4/5/2001@15:25 serum
Outside lipid profile in past year at another VA or non-VA facility.
Order a FASTING lipid panel (TC,HDL,LDL and TG)
Order a NONFASTING lipid panel (TC, HDL and LDL)
Order a serum ALT/SGPT: patients on HMG CoA reductase inhibitors ("statins") should have periodic aminotransferase levels monitored to check for development of hepatoxicity.
Patient refuses lipid profile testing.
Defer lipid profile.
Life expectancy less than one year; this resolves the reminder for one year.
Clear
Clinical Maint
Visit Info
< Back
Next >
Finish
Cancel
Orders: LipoProt Ana (fasting)
* Indicates a Required Field


Edit View Action Options Tools Help
TER,CHARLES W
30-7036 Dec 05,1932 (69)
AEC Jun 12,02 12:40
Provider: FERGUSON,LEE
GREEN / Ferguson,Lee
Remote Data
ER
Posti
ned Notes
New Note in Progress
Jun 12,02 PCC - ESTABLISH
All signed notes
Jul 26,01 INTERVENTION PF
May 16,01 AEC-FOCUS/MINC
May 16,01 AMBULATORY EM
May 16,01 PCC - ESTABLISH
May 16,01 Preventive Medicir
Apr 30,01 PCC - ESTABLISHE
Apr 13,01 PSYCH MEDICATIC
Apr 13,01 PCC - ESTABLISHE
Apr 05,01 PCC - ESTABLISHE
Apr 05,01 PRIMARY CARE NI
Feb 20,01 ADVICE LINE, PRII
Dec 21,00 PSYCH MEDICATI
Templates
Reminders
Due
Prostate Cancer Screening
TOBACCO USE SCREEN
Diabetes-Hemoglobin A1C
Diabetic Foot Exam
Diabetes-Creatinine
Suicidal Risk Assessment
HTN Assess for Elevated BP>160/
Diabetes-Lipids
IHD Lipid Profile
Applicable
Other Categories
Encounter
PCC - ESTABLISHED - PROBLEM FOCUSED
Vst: 06/12/02 AEC EMERG-CARE
Jun 12,2002@12:40
Ferguson,Lee
Chan
Order a Lab Test
Available Lab Tests
LIPOPROTEIN ANALYSIS,FASTI
LIPOPROTEIN ANALYSIS,FAS
LIPOPROTEIN ANALYSIS,NO
LITHIUM
LIVER FUNCTION
LP (a) <APOLIPOPROTEIN
LUPUS ANTICOAGULANT
LUTEINIZING HORMONE
LYME <LYME EIA>
LIPOPROTEIN ANALYSIS,FASTING
Collect Sample
BLOOD (MARBL
Specimen
SERUM
Urgency
ROUTINE
Collection Type
Ward Collect
Collection Date/Time
NOW
How Often?
ONCE
How Long?
REQUIRES DOCUMENTATION THAT SPECIMEN IS TAKEN
AFTER A 12 HOUR FAST.
HOSPITAL INPATIENTS NEED PRIOR APPROVAL BY HEAD
Accept Order
Quit
<No encounter information entered>
er Sheet
Problems
Meds
Orders
Notes
Consults
D/C Summ
Labs
Reports

Edit View Action Options Tools Help

O,BILL GLENN 0-5555 Jun 17,1940 (61) | **4EA MED 4E226-26** Provider: FERGUSON,LEE | BLUE / Attending: Herbers,J

ned Notes

- New Note in Progress
  - Jun 12,02 PCC - ESTABLISH
- All signed notes
  - Mar 01,02 ADVERSE REACTI
  - Feb 26,02 RESEARCH ENRO
  - Feb 13,02 PSYCH: AIMS, PSY
  - Feb 13,02 PSYCHIATRIC, PS
  - Feb 13,02 PTSD: PCT PATIEI
  - Feb 12,02 Preventive Medicin
  - Feb 11,02 PSYCHOLOGY NO
  - Feb 11,02 PATIENT EDUCAT
  - Feb 08,02 PTSD: PCT PATIEI
  - Feb 08,02 PTSD: PCT PATIEI
  - Feb 08,02 PTSD: PCT PATIEI
  - Feb 08,02 PTSD: PCT AFTEF
  - Feb 08,02 PTSD: PCT AFTEF

Templates

Reminders

- Due
  - Prostate Cancer Screening
  - TOBACCO USE SCREEN
  - TOBACCO USE COUNSELING
  - HTN Lifestyle Education
  - IHD Elevated LDL
- Applicable
- Other Categories

Encounter

PCC - ESTABLISHED - PROBLEM FOCUS

Adm: 02/25/02 4EA MED

```
Ceftazidime
Warfarin (Coumadin) Na 1mg Tal
Warfarin
Insulin Reg Human 100 U/Ml In
Needed Under The Skin Four Ti
Insulin Reg Human 100 U/Ml In
Needed Under The Skin Three T:


Problem list: (Active & Verif
    Coronary Artery Disease

Reason for Visit:

Today's vitals:
  BP:          P:          R:
Pain Score: 0 (02/13/2002 11:

EXAM:

Recent Lab Results:
 GLUCOSE: 101.0 mg/dl  2/6/20
 CREAT:   pending mg/dl  3/1/
 K:         4.2 mmol/L 2/6/20
 CO2:      25.0 mmol/L 2/6/20
 SGPT:     21.0 mU/ml  2/6/20
 ALK PHO:  95.0 mU/ml  2/6/20
 CA:        9.9 mg/dl  9/21/1

 WBC:      23.5 K/cmm  5/18/2
 HCT:      33.4 %      5/18/2
 MCV:      75.0 cmu    5/18/2
 PLT:      40.0 K/cmm  5/18/2

 T.CHOLESTEROL: 198 (JAN 14,
 dLDL-C:  145.0 mg/dL  1/14/2
 HEMOGLOBIN: HGBA1C:    5.0 %
```

<No encounter information entered>

er Sheet | Problems | Meds | Orders | Notes | Consults | D/C Summ | Labs | Reports

Reminder Resolution: IHD Elevated LDL

The VHA/DOD Clinical Practice Guideline for Management of Dyslipidemia recommends an LDL goal of <120 mg/dl for patients with Ischemic Heart Disease; the NCEP Adult Treatment Panel II recommends a more stringent goal of <100 mg/dl. Consider initiating or adjusting lipid lowering treatment.

Most recent dLDL-C: 145.0 mg/dL 1/14/2000

Most recent ALT/SGPT: 21.0 mU/ml 2/6/2002@11:24 serum

- [ ] Patient documents a more recent outside LDL <120.

- [x] Place a NEW order for Simvastatin
- [ ] Order a directly measured LDL cholesterol
- [ ] Order a FASTING lipid panel (TC,HDL,LDL and TG)
- [ ] Order a NONFASTING lipid panel (TC, HDL and LDL)
- [ ] Order a serum ALT/SGPT: patients on HMG CoA reductase inhibitors ("statins") should have periodic aminotransferase levels monitored to check for development of hepatoxicity.

- [ ] No lipid treatment change is needed based on patient's current status.
- [ ] Lipid lowering medications are contraindicated.
- [ ] Lipid lowering management provided by another VA or non-VA facility.
- [ ] Patient refuses lipid lowering therapy.
- [ ] Defer lipid lowering medications.

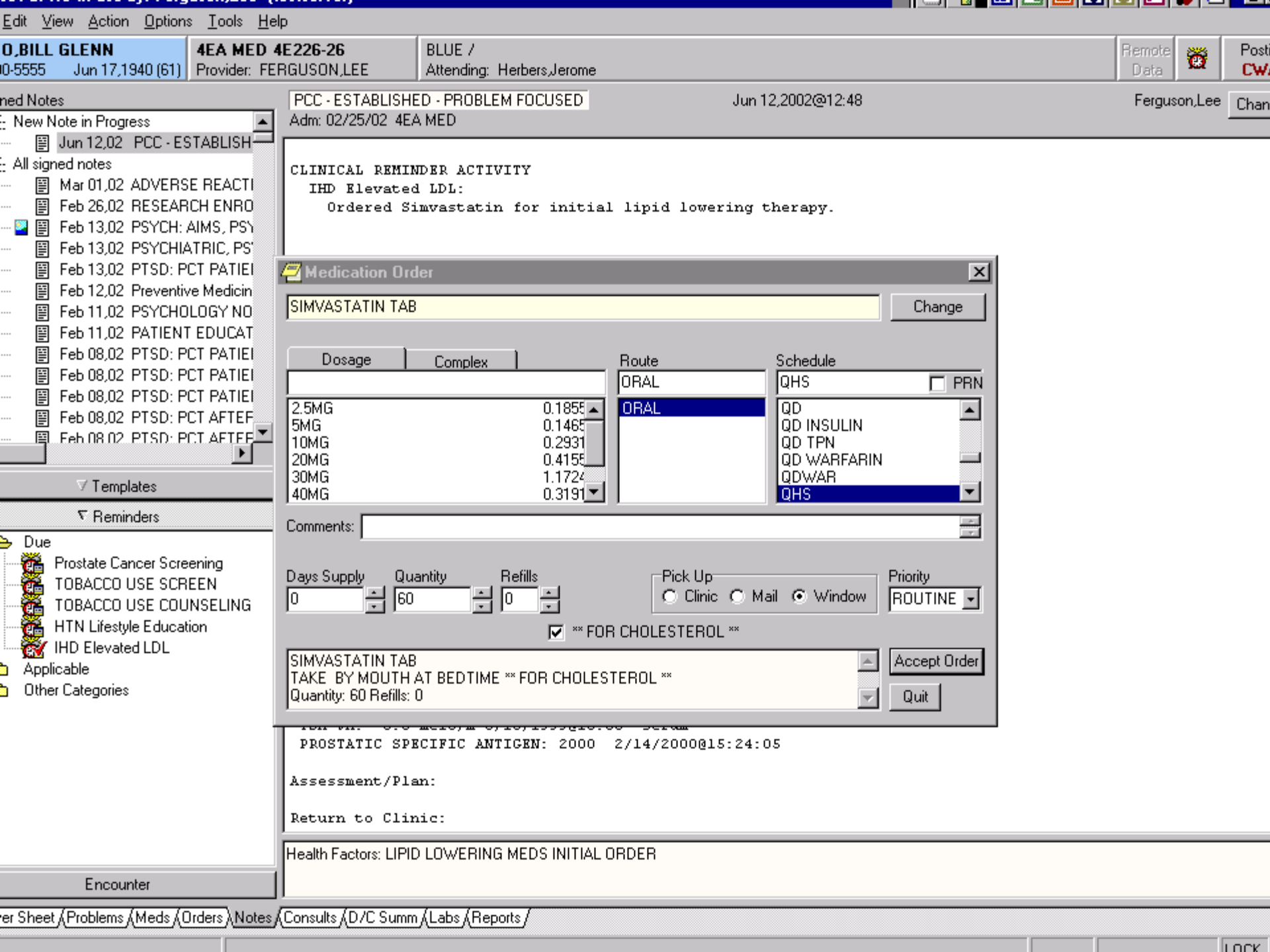
- [ ] Life expectancy less than one year; this resolves the reminder for one year.

Clear | Clinical Maint | Visit Info | < Back | Next > | Finish | Cancel

CLINICAL REMINDER ACTIVITY

Health Factors: **LIPID LOWERING MEDS INITIAL ORDER**
Orders: **SIMVASTATIN**

* Indicates a Required Field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Feb 08,02 PTSD: PCT PATIEI
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Feb 08,02 PTSD: PCT AFTEF
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TOBACCO USE SCREEN
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HTN Lifestyle Education
IHD Elevated LDL
Applicable
Other Categories
Encounter
PCC - ESTABLISHED - PROBLEM FOCUSED
Adm: 02/25/02 4EA MED
Jun 12,2002@12:48
Ferguson,Lee
Chan
CLINICAL REMINDER ACTIVITY
IHD Elevated LDL:
Ordered Simvastatin for initial lipid lowering therapy.
Medication Order
SIMVASTATIN TAB
Change
Dosage
Complex
Route
Schedule
ORAL
QHS
PRN
2.5MG 0.1855
5MG 0.1465
10MG 0.2931
20MG 0.4155
30MG 1.1724
40MG 0.3191
ORAL
QD
QD INSULIN
QD TPN
QD WARFARIN
QDWAR
QHS
Comments:
Days Supply
Quantity
Refills
Pick Up
Clinic
Mail
Window
Priority
0
60
0
ROUTINE
** FOR CHOLESTEROL **
SIMVASTATIN TAB
TAKE BY MOUTH AT BEDTIME ** FOR CHOLESTEROL **
Quantity: 60 Refills: 0
Accept Order
Quit
PROSTATIC SPECIFIC ANTIGEN: 2000 2/14/2000@15:24:05
Assessment/Plan:
Return to Clinic:
Health Factors: LIPID LOWERING MEDS INITIAL ORDER
er Sheet
Problems
Meds
Orders
Notes
Consults
D/C Summ
Labs
Reports

Some National VistA Statistics (Total / Daily)

- **Number of orders**
  - **1.14 Billion / >860,000**
- **Number of Documents**
  (Progress Notes, Discharge Summaries, Reports)
  - **533,000,000 / >510,000**
- **Number of Medications Administered with BCMA**
  - **500,000,000 / >580,000**
- **Number of Images**
  - **197,000,000 / ~340,000**

Performance Measurement Setting the U.S. Benchmark for 18 Comparable Indicators

Clinical Indicator	VA 2003	Medicare 03	Best Not VA or Medicare
Advised Tobacco Cessation (VA x3, others x1)	75	62	68 (NCQA 2002)
Beta Blocker after MI	98	93	94 (NCQA 2002)
Breast Cancer Screening	84	75	75 (NCQA 2002)
Cervical Cancer Screening	90	62	81 (NCQA 2002)
Cholesterol Screening (all pts)	91	NA	73 (BRFSS 2001)
Cholesterol Screening (post MI)	94	78	79 (NCQA 2002)
LDL Cholesterol <130 post MI	78	62	61 (NCQA 2002)
Colorectal Cancer Screening	67	NA	49 (BRFSS 2002)
Diabetes Hgb A1c checked past year	94	85	83 (NCQA 2002)
Diabetes Hgb A1c > 9.5 (lower is better)	15	NA	34 (NCQA 2002)
Diabetes LDL Measured	95	88	85 (NCQA 2002)
Diabetes LDL < 130	77	63	55 (NCQA 2002)
Diabetes Eye Exam	75	68	52 (NCQA 2002)
Diabetes Kidney Function	70	57	52 (NCQA 2002)
Hypertension: BP $\leq$ 140/90	68	57	58 (NCQA 2002)
Influenza Immunization	76	P	68 (BRFSS 2002)
Pneumocooccal Immunization	90	P	63 (BRFSS 2002)
Mental Health F/U 30 D post D/C	77	61	74 (NCQA 2002)

And yet a few more features . . . .

Care Management: Clinician Dashboard, Result

Abnormal Results Red Square

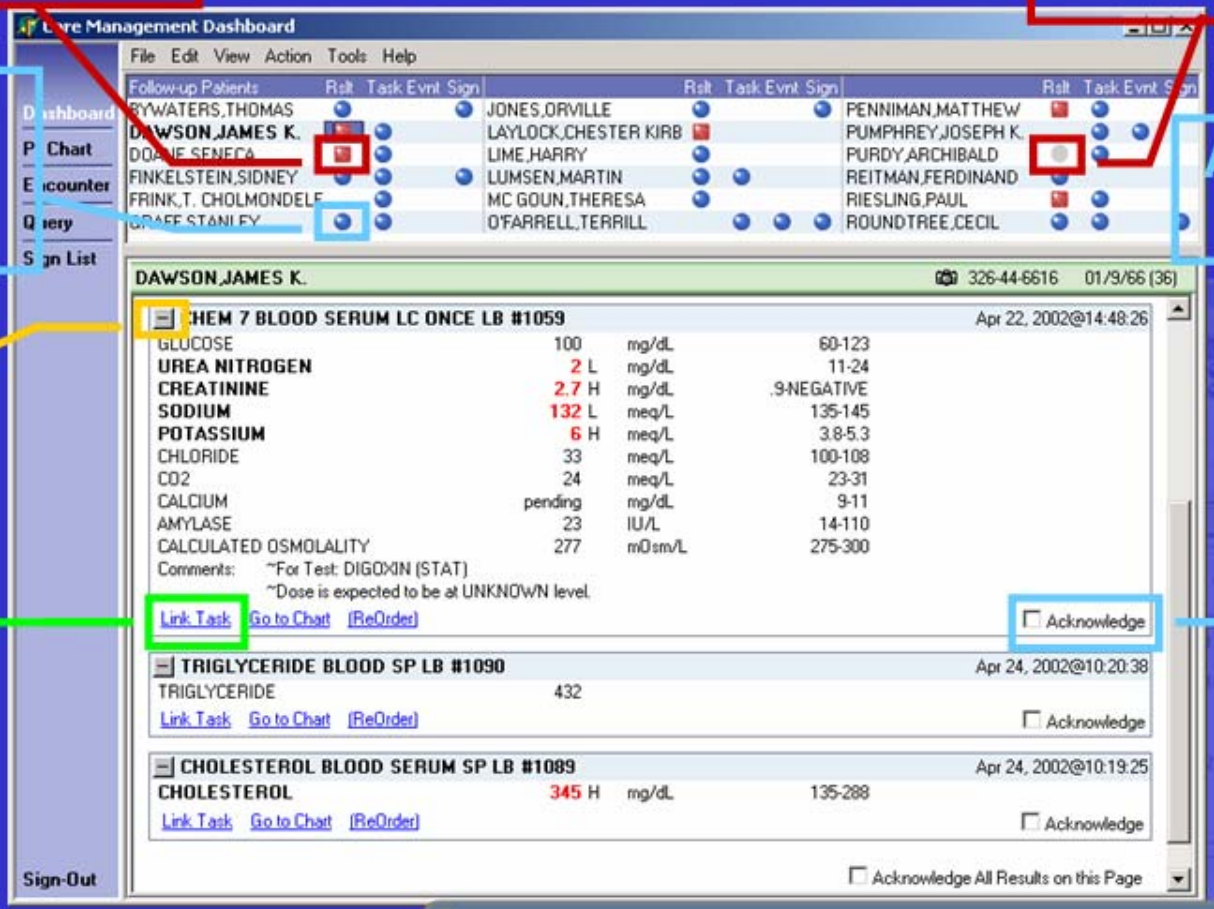
Acknowledged All Gray

Normal Result Blue Circle

Acknowledge Result

Expand or Collapse Results

Link Task



New results may be viewed, acknowledged and associated with tasks for follow-up

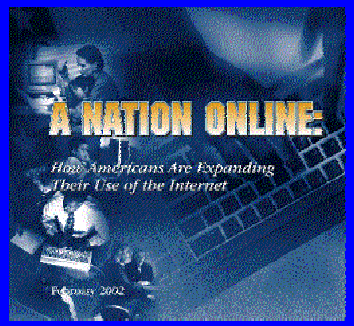
Bar-Coded Medication Administration (BCMA)

Virtually Eliminates Errors at the Point of Administration

PHR
Personal Health Record

The Opportunity of the Web:

- 2 million new Internet users/month
- 45% of the population uses email on a regular basis
- 35% of internet users are searching for health information
- National Survey of Veterans in 2001: 62% of veterans reported internet access



Those who have been the least traditional users – people of lower income levels, lower education levels, or the elderly – are among the fastest adopters of this technology.

A NATION ONLINE: How Americans Are Expanding Their Use of the Internet
U.S. DEPARTMENT OF COMMERCE February 2002

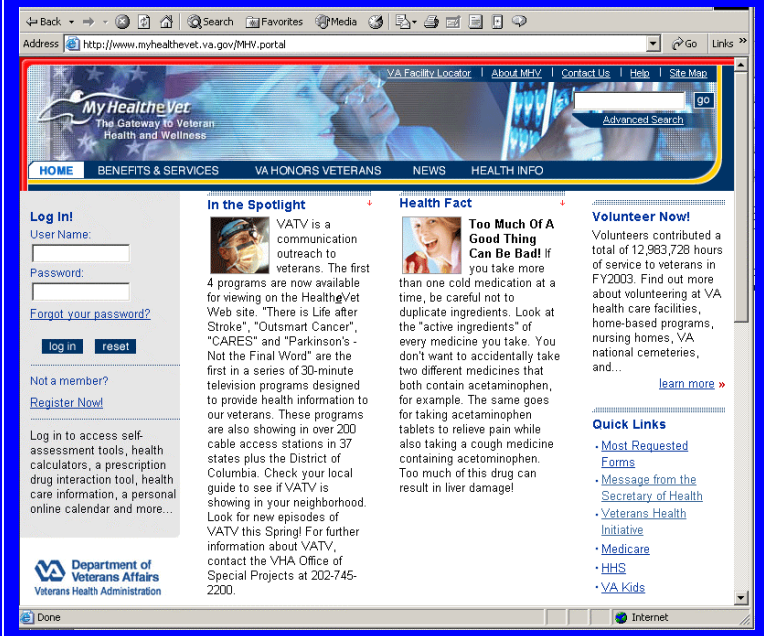
What Is My Health*e*Vet ?

- **My Health*e*Vet is a new *e*health portal where veterans, family, and clinicians may come together to optimize veterans' health care.**
- **Web technology will combine essential patient record information and online health resources to enable and encourage patient/clinician collaboration.**
- **Veterans will be provided with information on benefits, services, and special programs, and can request services online.**

Principles:

- The veteran "owns" his/her My HealtheVet Personal Health Record
- The VistA Computerized Patient Record System (CPRS) is the authoritative VA medical record
- The veteran can request that a copy of his/her VistA record be electronically extracted and sent to the My HealtheVet system

My HealtheVet (Phase 1)
Veterans Day 2003



www.myhealth.va.gov


HealthePeople

HealthePeople Initiative: Toward a "Virtual Health System"

- **EHRs –**
  - **Provide financial incentives**
  - **Strongly encourage private sector vendors to make available affordable, high quality, standards-based EHRs**
  - **Strongly encourage provider-based efforts like AAFP**
  - **Continue to improve HealthePeople-VistA & make available**
- **Standards –**
  - **Consolidated Health Informatics as federal leadership**
  - **Strongly encourage public/private development/adoption of national standards**
- **PHRs –**
  - **Strongly encourage public/private sector to work together to develop & make available PHRs for persons**
- **EHR/PHR Info Exchange (IE) –**
  - **Strongly encourage public & private sector to work together to develop & make available national "exchange" solution**

EHRs, PHRs, Health Info Exchange (IE) & Standards (S)

What Causes Value?

Brown and Hagel. Harvard Business Review, July, 2003

- **Innovation in business practices**
- **Economic value results from incremental innovations rather than "big bang" initiatives**
- **Strategic value results from the cumulative effect of sustained initiatives to innovate business practices**

Studies of Sustained IT Excellence

- McKenney, Copeland and Mason. *Waves of Change: Business Evolution Through Information Technology.* Harvard Business School Press (1995)
- Sambamurthy and Zmud. *Information technology and Innovation: Strategies for Success.* Financial Executives Research Foundation (1996)
- Ross, Beath and Goodhue. "Develop Long-Term Competitiveness Through IT Assets." *MIT Sloan Management Review* (1996)
- Weill and Broadbent. *Leveraging the New Infrastructure: How Market Leaders Capitalize on Information Technology.* Harvard Business School Press (1998)

Achieving and Sustaining IT Excellence

- **Strong, sustained and clear themes often provided the basis for IT decisions**
  - **We must continuously improve the care we deliver**
  - **We must improve the professional lives of our providers**
  - **We must engage the patient as an active participant in their care**
- **Individuals and leadership matter**
  - **Leaders who are smart, honest, seasoned, committed and value the healthy exchange of ideas**
  - **Leadership engages in the information systems conversation and once committed has the strength to stay the course**
  - **Leadership asks hard questions and is pragmatic but it never loses sight of its beliefs and value**
  - **Leadership has focus and stamina and endures**

Achieving and Sustaining IT Excellence

- Relationships between IT and organization individuals and teams are crucial
  - CIO/CEO/COO/CFO/CMO/CNO
  - Project teams and project managers
  - Various mechanisms to integrate physicians into the IT agenda and activities
- Technical infrastructure both enables and hinders
  - Possesses characteristics of agility, potency, supportability, reliability and efficiency
  - Provides critical capabilities, e.g., enables the extension of applications to anywhere on the globe or allows delivery of applications to any form factor

Achieving and Sustaining IT Excellence

- **Innovation is encouraged and is recognized to take time**
  - **Supports experimentation and creativity**
  - **Encouragement is practical, goal-directed, bounded and managed**
- **Evaluation of IT opportunities is thoughtful**
  - **Folds the IT agenda into the strategy conversation and the budget discussion**
  - **Applies disciplined upfront and post-implementation review**
  - **"Allows" instinct and raw beliefs**
- **Processes, data and differentiation forms the focus of impact**
  - **Referral, order entry or patient access**
  - **Quality measures, referral patterns or financial status**
  - **Patient-physician communication or referring physician booking of specialist appointment**