Meeting Summary

Electronic Health Records Taskforce
Informing Clinicians Committee
August 30, 2006

The presentation on the Indian Health Service's Electronic Health Record application by Howard Hays, MD, MSPH, Medical Informatics Consultant, Phoenix Indian Medical Center, and Theresa Cullen, MD, MS, Chief Information Officer, Indian Health Service, began at 11 a.m. and ended at 12:30 p.m.

Following is a copy of their slide presentation.

THE INDIAN HEALTH SERVICE

RPMS | EHR
Electronic Health Record

Theresa Cullen, MD, MS
Howard Hays, MD, MSPH

Superior Health Information Management
Now and for the Future

Illinois Department of Health
August 30, 2006

Objectives

- Introduction to IHS and RPMS
- Overview of RPMS EHR
- EHR Site Metrics
- Other RPMS applications
- Demonstration of EHR (if time)

Note: All screenshots depict factitious patient data

RPMS EHR

U.S. Department of Health and Human Services
Indian Health Service
The Federal Health Program for American Indians and Alaska Natives

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IHS·EHR
Electronic Health Record

EHR Presentations

This page contains links to presentations that have been made recently about the IHS Electronic Health Record. They are shared for your interest and information.

Please note that information in these presentations was current as of the date they were presented. Some information may no longer be current, as the software development and testing process is fluid, and some issues change over time. Presentations will be removed from this site if their content is no longer relevant.

- This presentation was offered in workshops at the 2005 Annual IHS Combined Councils Conference in San Diego. It includes some early metrics from EHR sites as well as discussion of suggested preparation activities.
  NCCD 022805 [PPT-2.2MB]

- The following presentation was made in August 2004 to the IHS Technical Conference held in Scottsdale. The emphasis was on facility preparation for EHR. The open forum including presentations by Drs. Byron and Rudd on the Crow and Warm Springs experience is not captured in this show.
  IHS EHR Tech Conf 082504 [PPT-755KB]

- This presentation was offered by Dr. Miles Rudd at the IHS Technical Conference in August 2004. It describes the EHR implementation experience at Warm Springs Health Center.
  EHR Business Process Improvements [PPT-292KB]

- This presentation was prepared for a site manager's conference in August 2004. It describes the EHR preparation process from the Warm Springs perspective.
  Preparing for EHR [PPT-647KB]

- The following presentation was made in April 2004 to the joint Health Information Management and Business Office conference held in Reno NV. The emphasis in this presentation is on the impact of EHR on medical records, data entry, coding and billing staff.
  IHS EHR HIM-BO Mtg 042204 [PPT-272KB]

- The following presentation was made in May 2004 to the national "Toward an Electronic Patient Record" meeting sponsored by the

www.ehr.ihs.gov

Indian Health Service

- Provides comprehensive care to over 1.6 million American Indians / Alaska Natives

- Nearly 600 health care facilities

	Federal	Tribal
Hospitals	36	13
Health Centers	61	158
Health Stations	49	76
Residential treatment centers	5	28
Alaska village clinics		170
Urban programs	34	

RPMS EHR

Indian Health Service

- Over 50% of programs are operated by tribes through tribally run compacted or contracted facilities

- 34 urban programs are contracted to provide care to AI/AN populations in metropolitan areas

- Remaining care is provided through federally operated 'direct' programs (majority of the user population still receives care in direct programs)

RPMS EHR

Mission of IHS

"To raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level."

RPMS EHR

Performance and Funding

- Funding of Federal agencies is tied to performance of mission
- The IHS is responsible for achieving its mission for all beneficiaries whether served by Federal or Tribal facilities
- Proof of performance (improvement of health status) requires collection of individual and public health data
- In IHS, performance is measured by GPRA/CRS

RPMS EHR

Data Needs

- Clinical care
  - Provision of care (diagnoses, meds, results, etc.)
  - Assessment of quality of care
- Public Health Surveillance
  - Fluoridation, Immunization, Suicide, etc.
- Billing / Collections
  - Diagnosis and service codes
- Research
  - Collaborations with CDC, AHRQ, academia
- Performance Assessment
  - GPRA and other national measures
- Legislative
  - Congressional reports, budget justification, etc.

RPMS EHR

Data Issues in IHS

- Funding and reporting are centralized, but administration and governance are decentralized
- Over half of Indian health programs are administered autonomously by tribes
- Submission of health data from tribes is voluntary
- Therefore, we (IHS) must provide tools for quality care and data collection that are attractive and meet the needs of all constituents, Tribal and Federal.

RPMS EHR

RPMS

- Resource and Patient Management System
- IHS Health Information Solution since 1984

---- A.K.A. ----

Really Powerful at Measuring Stuff

RPMS EHR

What is RPMS?

- RPMS is an integrated Public Health information system
  - Composed of over 50 component applications
  - Patient and Population based clinical applications
  - Patient and Population based administrative applications
  - Financially-oriented administrative applications
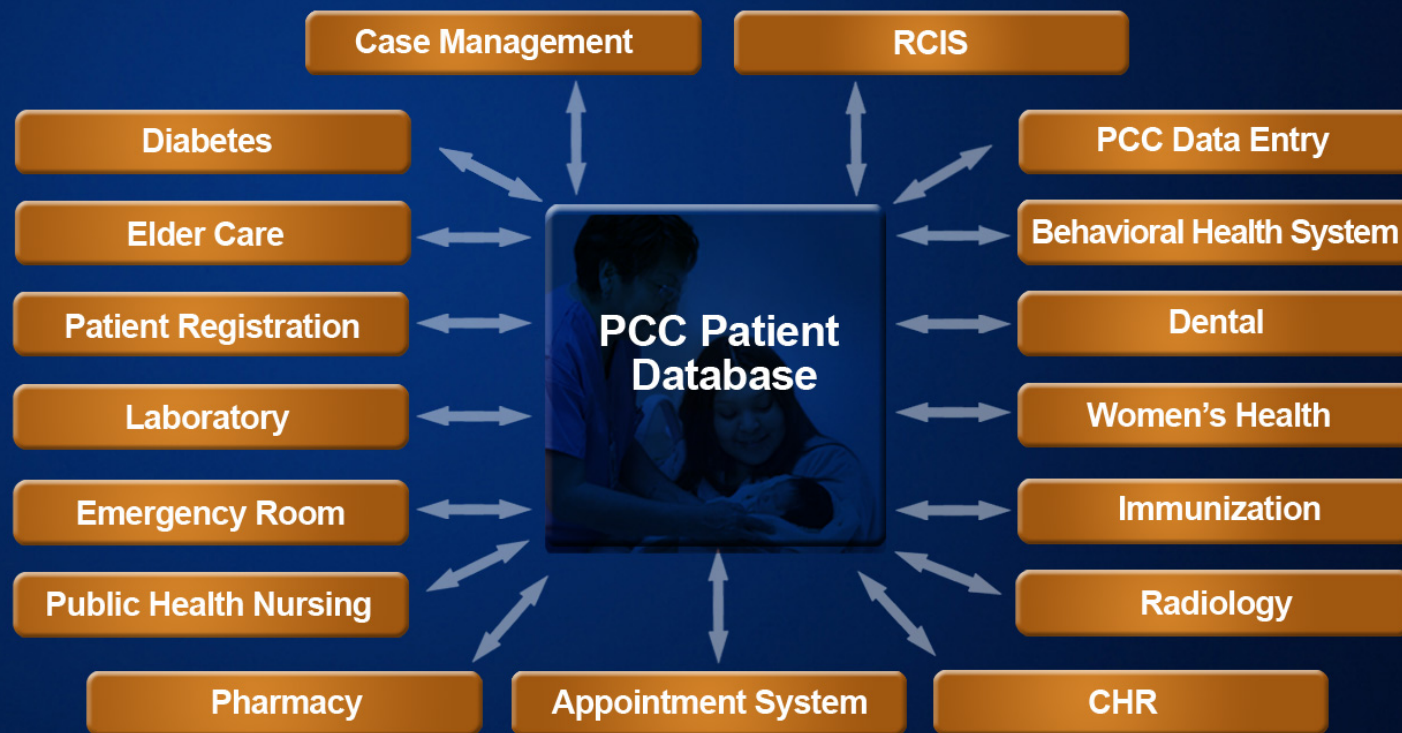   www.ihs.gov/CIO/RPMS

RPMS EHR

VistA and RPMS

- Common programming/database architecture (M/Cache)
- Applications shared by VHA and IHS
- Most developed for use in VHA and adapted for IHS
- Some developed for use in IHS and adapted for VHA
- RPMS focused around Visit data contained in Patient Care Component (PCC)
- IHS uses HRN instead of SSN

RPMS EHR

VistA and RPMS

- **VHA-developed apps:**
  - Pharmacy
  - Radiology
  - Laboratory
  - Dietary
  - PIMS
  - Reminders
  - Mental Health Assistant
  - Care Management
  - Health e-Vet Vista
  - Etc.

- **IHS-developed apps**
  - Women's Health
  - Immunization
  - Pharmacy POS
  - 3rd Party Billing
  - Behavioral Health
  - PCC, PCC+
  - Diabetes Management
  - Integrated Case Mgmt
  - CRS
  - Etc.

RPMS EHR

RPMS Integrates Multiple Clinical Systems

Case Management

RCIS

Diabetes

Elder Care

Patient Registration

Laboratory

Emergency Room

Public Health Nursing

PCC Patient Database

PCC Data Entry

Behavioral Health System

Dental

Women's Health

Immunization

Radiology

Pharmacy

Appointment System

CHR

RPMS EHR

The EHR Challenge for IHS

- Produce or acquire an Electronic Health Record system that:
  - Meets clinical and business needs of both Tribally and Federally operated facilities
  - Is scalable to the needs of facilities ranging from small rural clinics to medium-sized hospitals
  - Is affordable to facilities with no resource cushion or ability to borrow
  - Is sustainable into the future

RPMS EHR

RPMS – Elements of an EHR for over 20 Years

Existing elements
- Registration
- Scheduling
- Pharmacy
- Radiology
- Laboratory
- Immunizations
- Reminders (passive)
- Problem List
- Health Summary
- Other PCC functions
- Billing
- More . . .

Lacking elements
- Provider order entry
- Note authoring
- Point of care data entry
- GUI usability
- Active reminders & notifications

RPMS EHR

What is RPMS EHR?

- **Integrated RPMS database**
  - Applications adapted from VHA or developed by IHS
- **Graphical User Interface**
  - User-friendly and intuitive access to RPMS database for clinicians and other staff
  - Components derived from VHA (CPRS) or developed internally for I/T/U needs
  - Proprietary "framework" for presentation of various GUI components
    - Licensed from Clinical Informatics Associates (now Medsphere Systems)

RPMS EHR

User   Patient   Tools   Help

Patient Chart | Communication | RPMS | CIHA Intranet | Micromedex | E-Mail

Demo,Patient
1   20-Mar-1947 (57)   F

GENERAL   22-Feb-2005 13:48
LAMER,CHRISTOPHER CLAYTON

Primary Care Team Unassigned

Postings
CAD

Alerts
No Alerts Found

Crisis Alerts

Crisis Alert ▲	Date
ADVANCE DIRECTIVE	25-Jan-2005 13:47
CRISIS NOTE	06-Jul-2004 11:12

Adverse Reactions

Agent ▲	Reaction
ALLERGIC TO FLIES	WEIGHT GAIN
ASPIRIN	
BEE STINGS	HIVES;ANXIETY
EASY OPEN CAPS	EASY OPEN CAPS
EGGS	RASH
FLIES	
IODINE	ANAPHYLAXIS
METOCLOPRAMIDE	DROWSINESS
PEANUTS	HIVES
PHENYLEPHRINE/PRO...	muscle irritability
POLLEN EXTRACTS FRE...	CHILLS
POVIDONE IODINE	RASH
SILVER NITRATE	DERMATITIS,CONTAC...

Reminders
No Reminders Found

Problem List
Error Retrieving Problem List...

Appointments/Visits

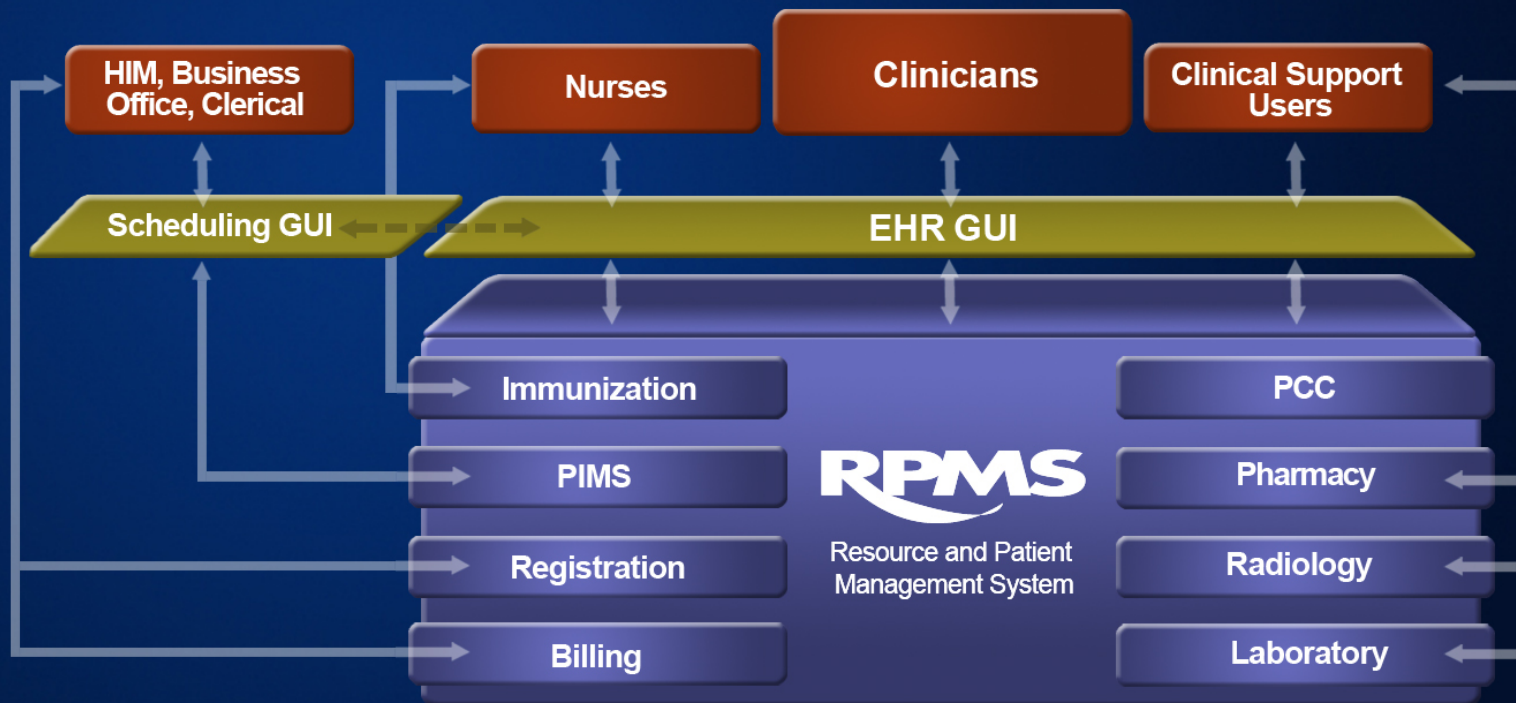| Appointment/Visit	Date ▼	Status
Payne	12-Apr-2005 14...	
Payne	29-Mar-2005 1...	CANCELLED BY PATIENT
FARRELL FP-15	16-Mar-2005 1...	
Payne	01-Mar-2005 1...	
ULTRASOUND-2	25-Feb-2005 0...	CANCELLED BY PATIENT
PT student	22-Feb-2005 1...	CANCELLED BY CLINIC
CONTINUITY O...	22-Feb-2005 1...	AMBULATORY
HYDE-G SAME ...	22-Feb-2005 1...	
<PHYSICAL TH...	22-Feb-2005 0...	AMBULATORY
<PHYSICAL TH...	22-Feb-2005 0...	AMBULATORY
HYDE-G SAME ...	18-Feb-2005 1...	CANCELLED BY CLINIC
HYDE-G SAME ...	18-Feb-2005 1...	CANCELLED BY CLINIC
PT student	18-Feb-2005 1...	CANCELLED BY CLINIC
<PHYSICAL TH...	18-Feb-2005 1...	AMBULATORY

Lab Orders

Lab Order ▲	Status	Date
HGB BLOOD S...	COMPLETE	02-Feb-2005 10:52
URINE DIPSTIC...	COMPLETE	14-Feb-2005 12:39

Notifications | Cover Sheet | Triage | Wellness | Notes | Orders | Medications | Labs | Prob/POV | Services | Reports | D/C Summ | Consults | Privacy

LAMER,CHRISTOPHER CLAYTON | CHEROKEE-HO.NSH.IHS.GOV | CIHA HOSPITAL
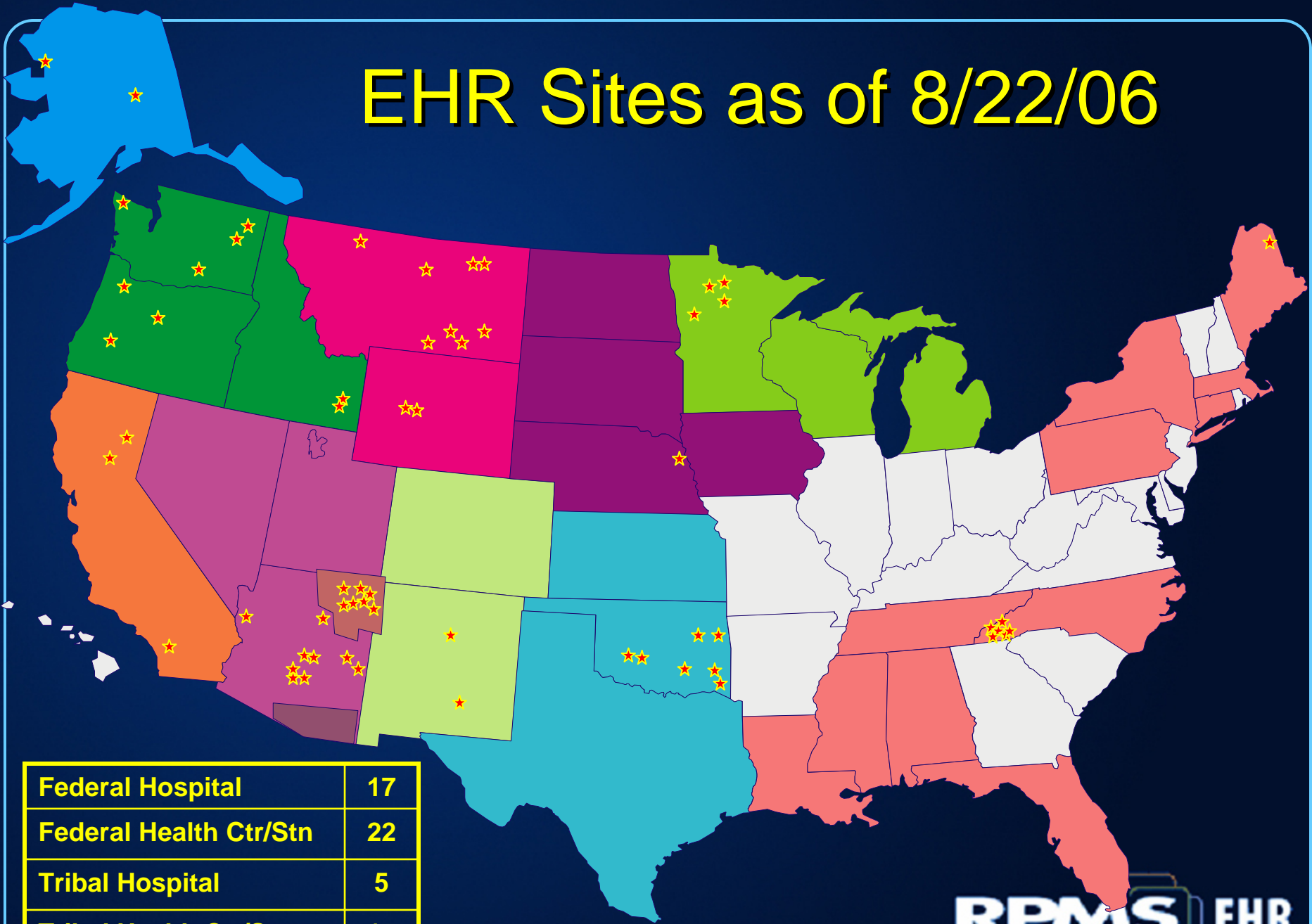
Start | IHS·EHR | 1:48 PM

Advantages of RPMS EHR

- Retains existing RPMS database
  - Users have access to all prior RPMS data
- Same data from EHR and non-EHR sites
  - No interfacing or reformatting of data for national exports
- Extensive customizability at local level
- Full integration of RPMS applications
- Very low cost, no license fees
- Future growth/development
  - Ongoing partnership with VHA, other developers

RPMS EHR

EHR Milestones and Status

- RPMS EHR was certified January 2005
- 7 test sites participated in 2004
- Presently 61 facilities use EHR
- Goal for all Federal sites to be using EHR by end of 2008
- Tribal sites encouraged to use EHR as well

RPMS EHR

EHR Sites as of 8/22/06

Federal Hospital	17
Federal Health Ctr/Stn	22
Tribal Hospital	5
Tribal Health Ctr/Stn	17

RPMS EHR

How Can EHR Improve Care?

- **Access to Information**
  - Immediately available, no data entry delay
  - Service Unit wide, even satellite clinics
  - Legible

- **Computerized Order Entry**
  - **Much** less chance for error
  - Order checks for allergies and interactions
  - Complete, up to date medication lists

- **Reminders, Notifications, and Alerts**
  - Abnormal lab results
  - Screening and interventions that are due

RPMS EHR

Windows 2000

IHS-EHR   CHEROKEE INDIAN HOSPITAL

User   Patient   Tools   Help

Patient Chart | Communication | RPMS | CIHA Intranet | Mi

Doe,Jane
31 Dec 1957 (4)   LAMER CHRISTOPHER CLAYTON

PHARMACY   21-Dec-2004 09:

Contraceptive

ORAL CONTRACEPTIVES
Brevicon 28
Levlen
Loestrin FE 1/20
Loestrin FE 1.5/30
Norinyl 1/35
Ortho Novum 7/7/7
TriLevlen

Medication Order

ETHINYL ESTRADIOL/NORETH

Display Restrictions/Guidelin

Dosage	Complex
1 TABLET LOESTRIN 1/20 FE (2	
1 TABLET NORINYL 1/35 (28)	
1 TABLET ORTHO-NOVUM 1/35	
1 TABLET BREVICON-28	
1 TABLET ORTHO NOVUM 7/7/	
1 TABLET LOESTRIN 1/20 FE (2	
1 TABLET LOESTRIN 1/20 (21)	
2 TABLETS LOESTRIN 1/20 (21)	
1 TABLET NORETH/ETHESTR	

Comments:

Days Supply	Quantity	
28	28	

LOESTRIN 1/20 FE (28)
TAKE ONE TABLET BY MOUTH
Quantity: 28 Refills: 11

SHAKE
Quanti

LINEZ
TAKE ONE TABLET BY MOUTH DAILY
Quantity: 90 Refills: 0

*FERRIC NA GLUCONATE INJ,SOLN
12.5MG/ML
INJECT 125MG INTRAVENOUSLY
WEEKLY
Quantity: 1 Refills: 4

BISMUTH SUBSALICYLATE

Notifications | Cover Sheet | Triage | Wellness | Notes | **Orders** |

LAMER,CHRISTOPHER CLAYTON   CHEROKEE-HO.NSH.IHS.GOV   CII

Restrictions/Guidelines

```
            Oral Contraceptive Comparison Chart
Product                   Estrogen      Progestin     Androgen
------------------------  ------------  ------------  ------------
                          Monophasic
Ortho-Cept                ++            ++++          +
*Levlen                   ++            ++            ++
Nordette                  ++            ++            ++
Nordette                  ++            ++            ++
Lo Ovral                  ++            ++            ++
*Demulen 1/35             +             ++++          ++
*Demulen 1/50             ++            ++++          ++
*Loestrin 1/20            +             +++           +++
*Loestrin 1.5/30          +             ++++          +++
Brevicon                  ++++          +             +
Modicon                   ++++          +             +
Ovcon 35                  ++++          +             +
*Norinyl 1/35             +++           +++           ++
*Norinyl 1/50             +++           +++           ++
Ortho Novum 1/35          +++           +++           ++
Ortho-Cyclen              +++           +             +
Ortho Cept                ++            ++++          +
Desogen                   ++            ++++          +
Ovcon-50                  ++++          +++           ++
*Ovral                    ++++          ++++          +++
Ortho Novum 1/50          +++           +++           ++
                          Biphasic
Jenest-28                 +++           ++            ++
Ortho Novum 10/11         ++++          ++            ++
                          Triphasic
*Ortho Novum 7/7/7        ++++          ++            ++
Ortho Tri Cyclen          +++           +             ++
Tri-Norinyl               ++++          ++            ++
*Tri-Levlen               ++            +             ++
Triphasil                 ++            +             ++
                          Progestin only
*Micronor                 None          +             +
Ovrette                   None          +             +
-----------------------------------------------------------------
-
Estrogen Excess
dys/hypermenhorrea, bloating, edema, headache, migraine, weight gain,
irritability, leg cramps, nasuea/vomitting, visual changes
-----------------------------------------------------------------
Estrogen Deficiency
absence of withdrawal bleeding, early/midcycle bleeding, continuous
bleeding
```

Print   Close

User   Patient   Tools   Help

Patient Chart | Local Resources | Web Resources | BH Options

Demo,Mother R
3423   02-Sep-1957 (48)   F

DIABETES   18-Jul-2006 21:28
USER,DEMO

GREEN / Hager,Mary G

Visit Summary | Pharm Ed | Posting A

Privacy Cover | Nursing | Patient Review | Tests and Results | Orders and Documentation | Codes and Services | BH | Miscellaneous

Orders | Medications | Health and Wellness | TIU Notes | Consults

Education   Show Standard (i)   Add Edit Delete

	Visit Date ▼	Education Topic	Comprehension	Status	Objectives	Comment
🔒	07/13/2006	Asthma, Unspecified-Disease Process	FAIR			
🔒	07/13/2006	Dm Uncompl/t-Ii/niddm,uncontr-Ii/niddm,uncontr	GOOD			
🔒	07/12/2006	Asthm				
🔒	07/12/2006	Anem				
🔒	07/12/2006	Medic				
🔒	07/12/2006	Medic				
🔒	05/23/2006	Diabe				
🔒	05/16/2006	Diabe				
🔒	05/16/2006	Diabe				
🔒	05/16/2006	Diabe				
🔒	05/09/2006	Anem				
🔒	05/08/2006	Sexua				

Health Factors   Add Edit Delete

Visit Date	Health Factor	Category	Co
05/23/2006	Cessation-smokeless	Tobacco	
05/09/2006	Rubella Immune	Rubella	

Add Patient Education Event

Education Topic Asthma-Medication
(Asthma)

Type of Training   ◉ Individual   ○ Group

Comprehension Level GOOD

Length 10   (min)

Comment [ ]

Provided By USER,DEMO

Status/Outcome
◉ Goal Set   ○ Goal Met   ○ Goal Not Met

Will use steroid inhaler twice daily

☐ Historic Event
Event Date [   ] ...
Location [   ]
◉ Facility   ○ Other

ASTHMA-MEDICATION

OUTCOME:
The patient and/or family will understand the goal of drug therapy and be able to demonstrate and explain use of the prescribed medication regimen.

STANDARD:
1. Review the patient's medications. Reinforce the importance of knowing the drug, dose, and dosing interval of medications.
2. Review common side effects, signs of toxicity, and drug interactions of medication(s).
3. Discuss the difference between fast relief and long-term control metered dose inhalers.
4. Explain the difference between maintenance and rescue drugs.
5. Emphasize full participation and explain how effective use of medications can facilitate a more active life style for the asthma patient.
6. Emphasize the importance of consulting with a health care provider before using any OTC medication.

Font Size: 9   Print...   Close

Personal He

Click to Add   Db
Reproductive G3
Functional MA
Asthma Status JU

Patient Care Metrics

- Principal reason for EHR – improve patient care
- How do we know we have done that?
- Sites should be identifying important metrics and tracking them
- Ready-made patient care metrics: CRS
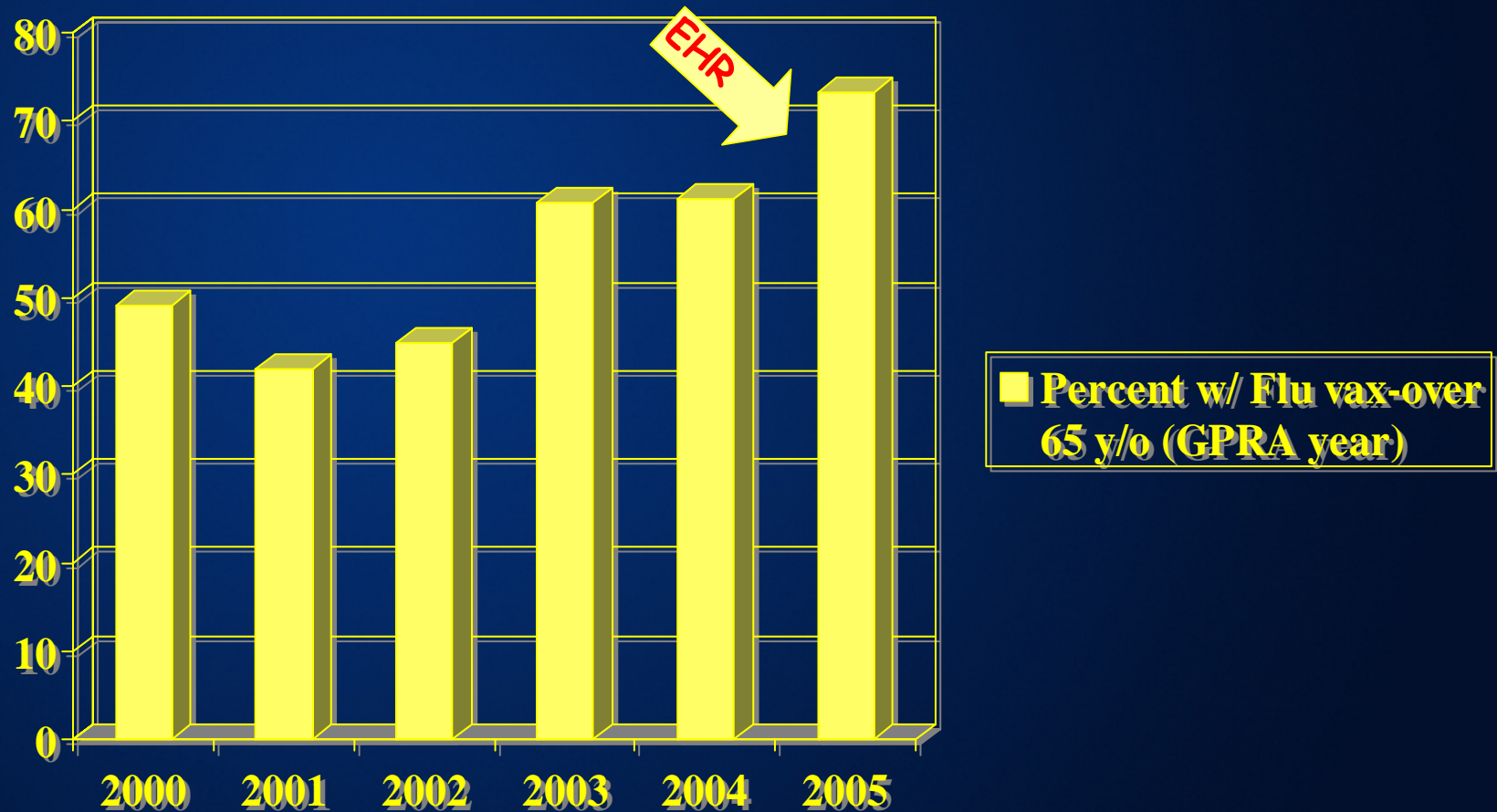- EHR can provide the tools for quality improvement but an active QI program is a must

RPMS EHR

Active Only	**Chronic Only**	**180 days**	**Print...**	**Process...**	**New...**	
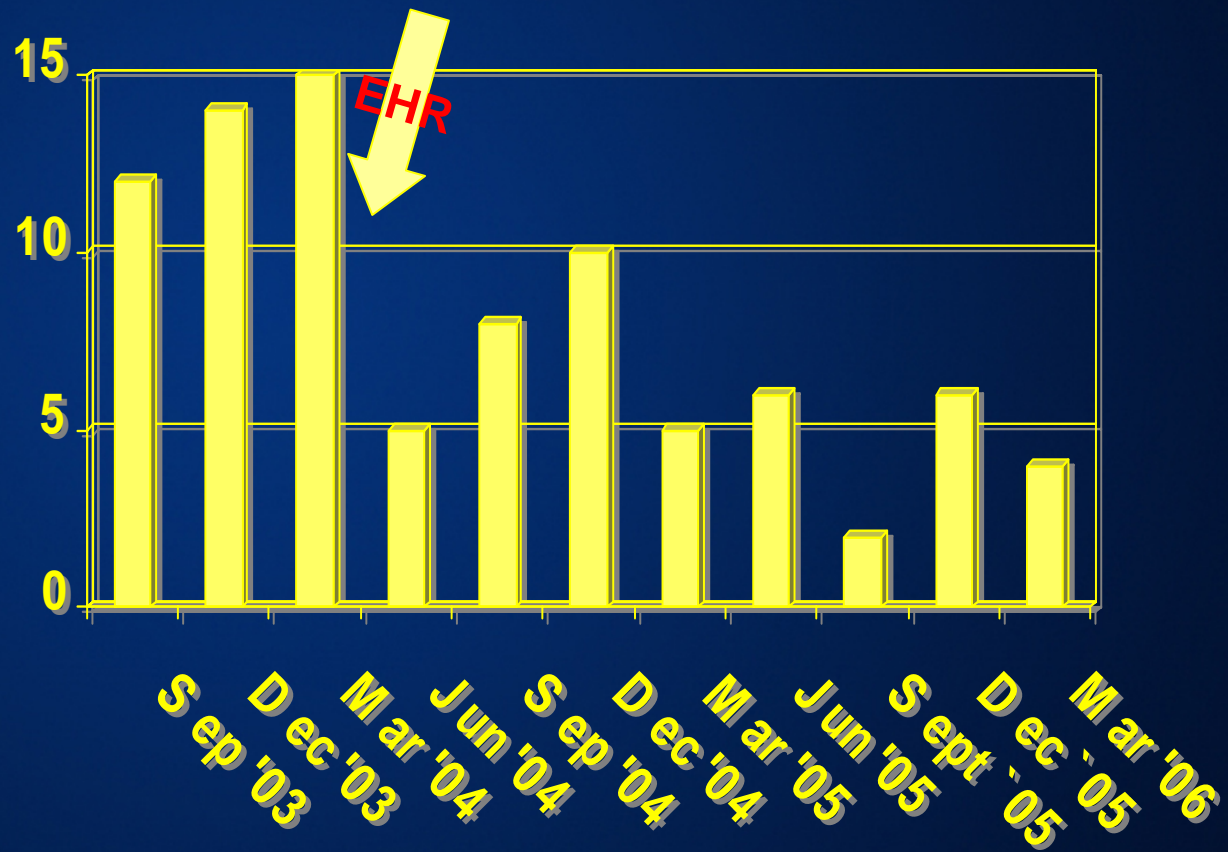
Action	Chronic	Outpatient Medications	Status	Issued	Last Filled	Expires	Refills Remaining	Rx #	Provider
	✓	FUROSEMIDE 40MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Not Picked Up	10-Mar-2006		11-Mar-2007	3	1626311	USER,POWER
	✓	FUROSEMIDE 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH EVERY MORNING TO HELP CONTROL BLOOD PRESSURE OR EXCESS FLUID	Expired	31-Mar-2006	31-Mar-2006	30-Apr-2006	0	1626314	USER,POWER
	✓	ACETAMINOPHEN 325MG TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH BEFORE MEALS AND AT BEDTIME TO RELIEVE PAIN OR FEVER	Expired	03-Mar-2006	10-Mar-2006	02-Apr-2006	0	1626308	USER,POWER
	✓	LISINOPRIL 20MG TAB** Qty: 30 for 30 days Sig: TAKE ONE TABLET BY MOUTH ONCE EACH DAY TAKE FOR BLOOD PRESSURE	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	11	1626315	USER,POWER
		DILTIAZEM 30MG TAB Qty: 90 for 30 days Sig: TAKE ONE TABLET BY MOUTH THREE TIMES A DAY	Active	31-Mar-2006	31-Mar-2006	01-Apr-2007	3	1626313	USER,POWER
		NIFEDIPINE 30MG XL TAB Qty: 60 for 30 days Sig: TAKE TWO TABLETS BY MOUTH DAILY TO HELP CONTROL BLOOD	Expired	10-Feb-2005	10-Feb-2005	11-Feb-2006	3	1626307	USER,POWER

Action	Inpatient Medications	Status	Stop Date

Notifications | Cover Sheet | Prob/POV | Services | Notes | Orders | **Medications** | Labs | Hlth Maint | D/C Summ | Reports | Consults

USER,POWER	DEMO.CIAINFORMATICS.COM	DEMO HOSPITAL	17-May-2006 18:20

GPRA Indicator -
Flu Vaccine 65+ (Site A)

GPRA Indicator – Pneumovax over 65 y/o (Site A)
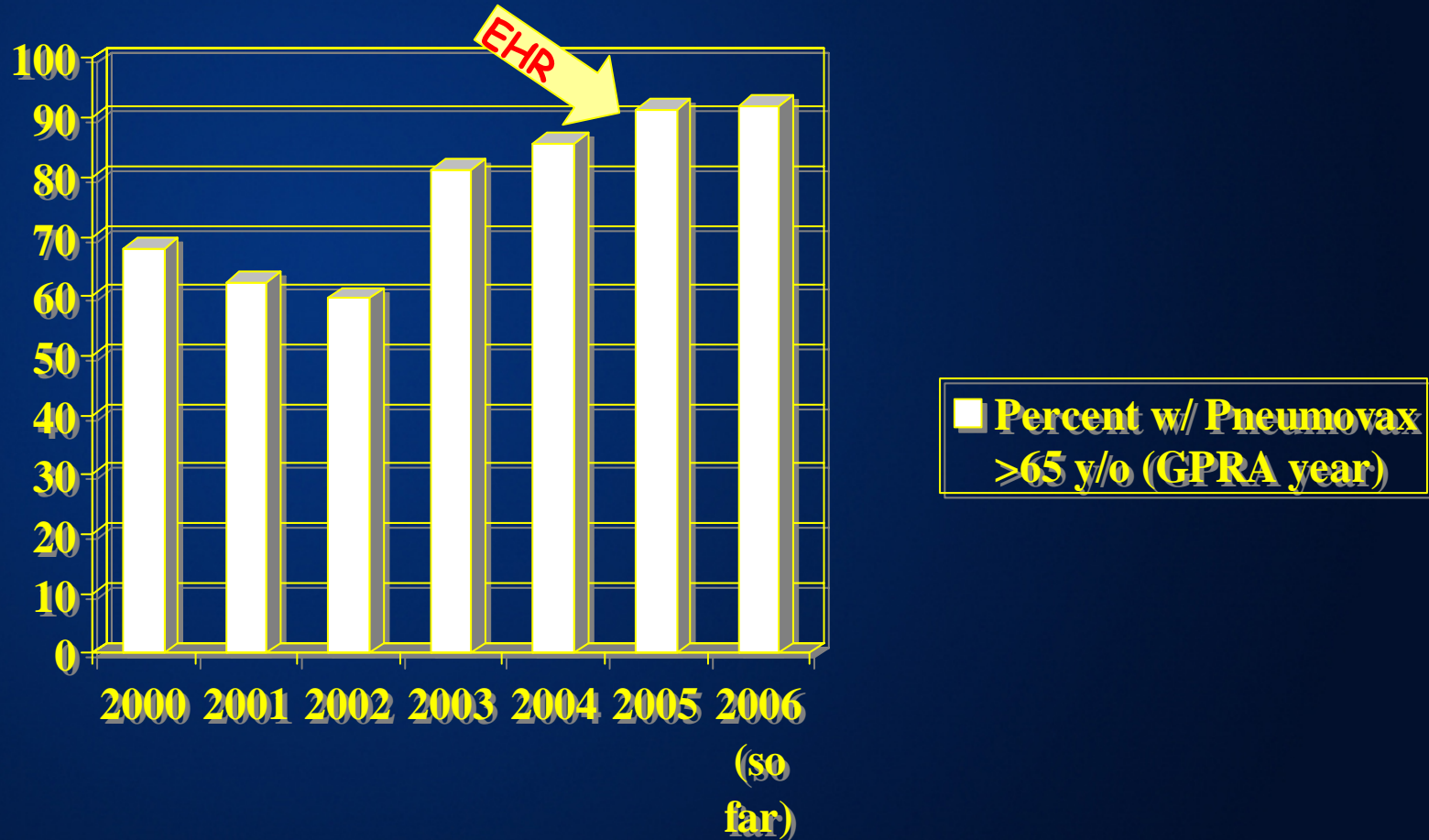
EHR

Percent w/ Pneumovax >65 y/o (GPRA year)

2000 2001 2002 2003 2004 2005 2006 (so far)

RPMS EHR
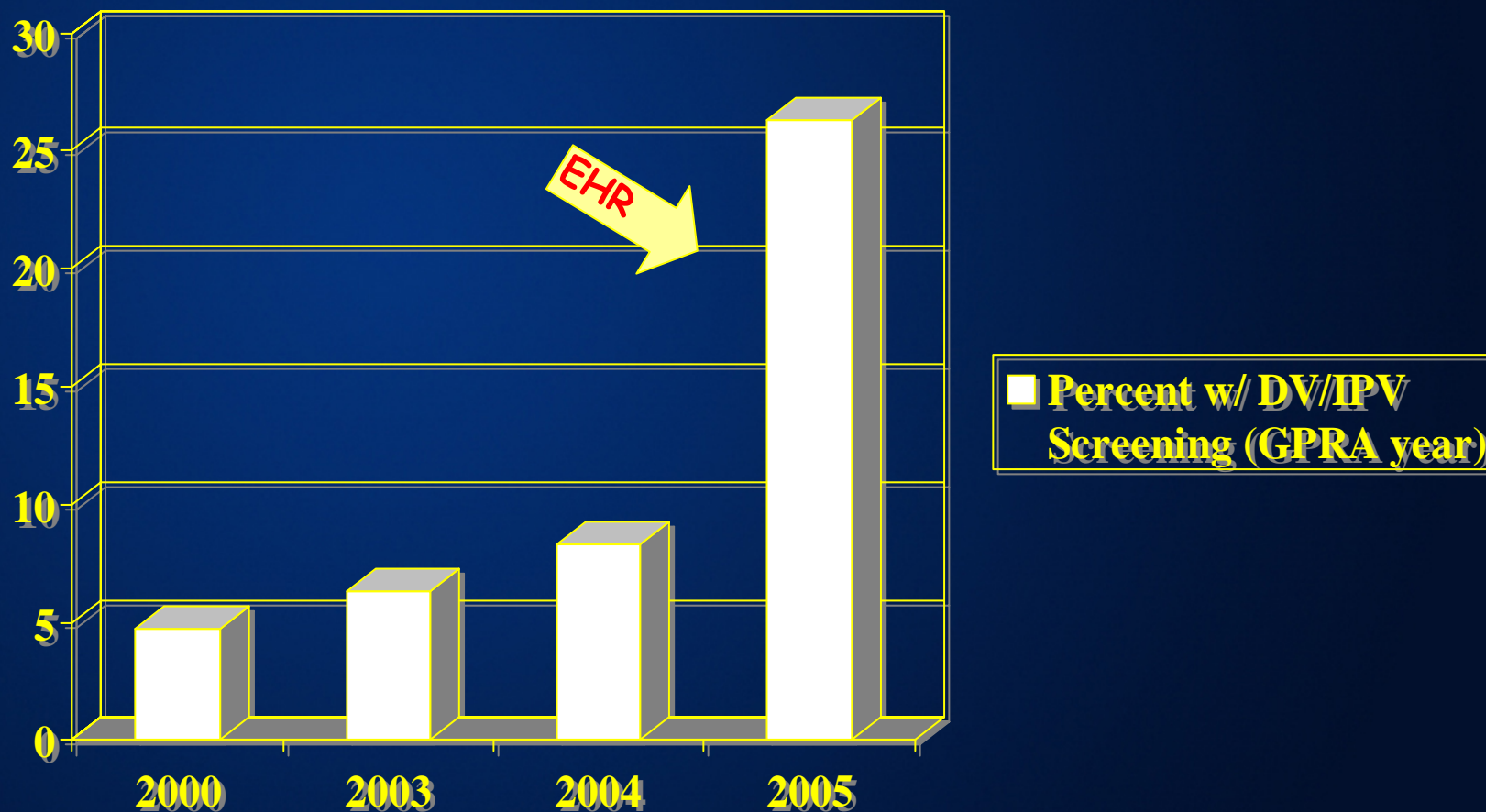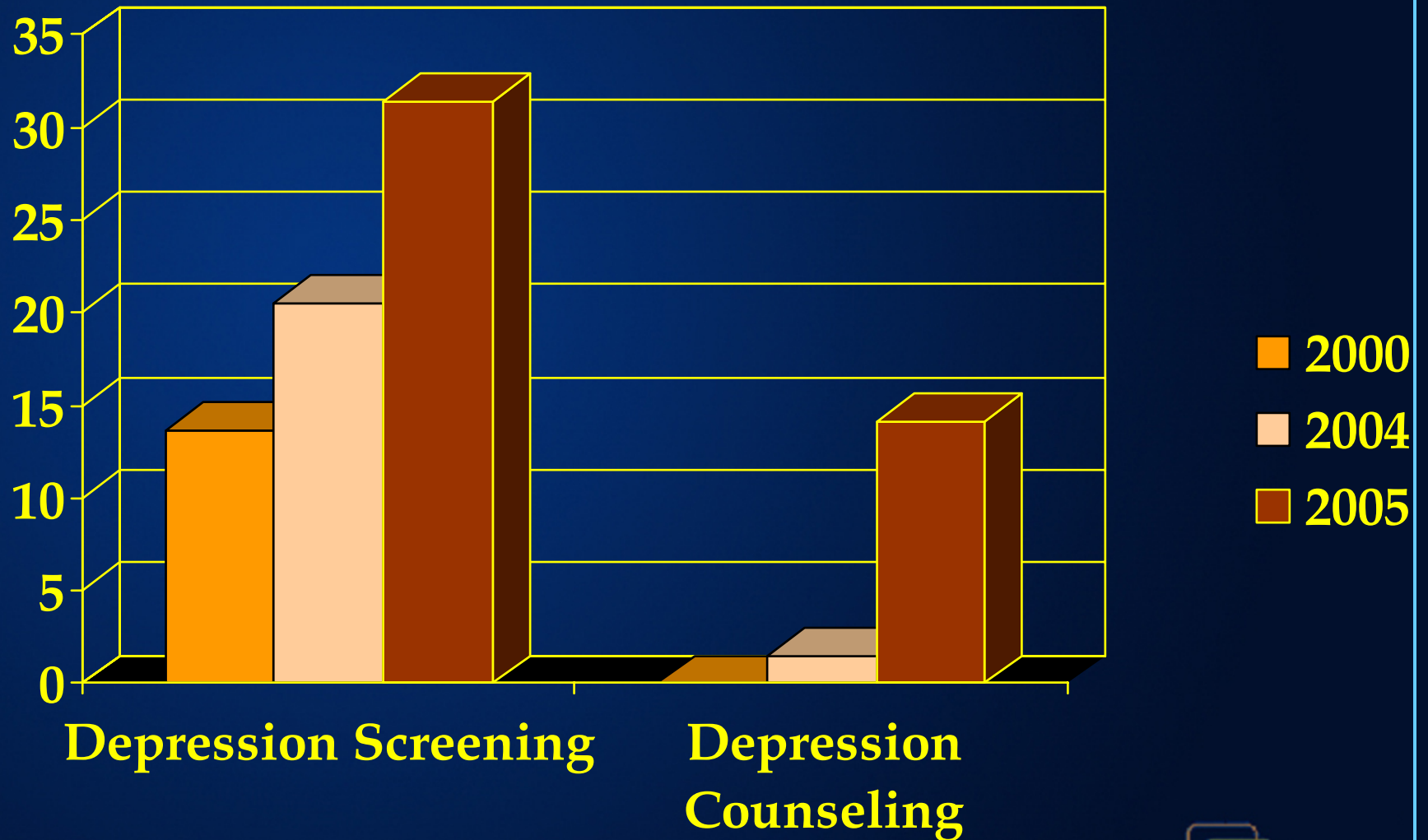
GPRA Indicator –
Tobacco Assessment (Site A)
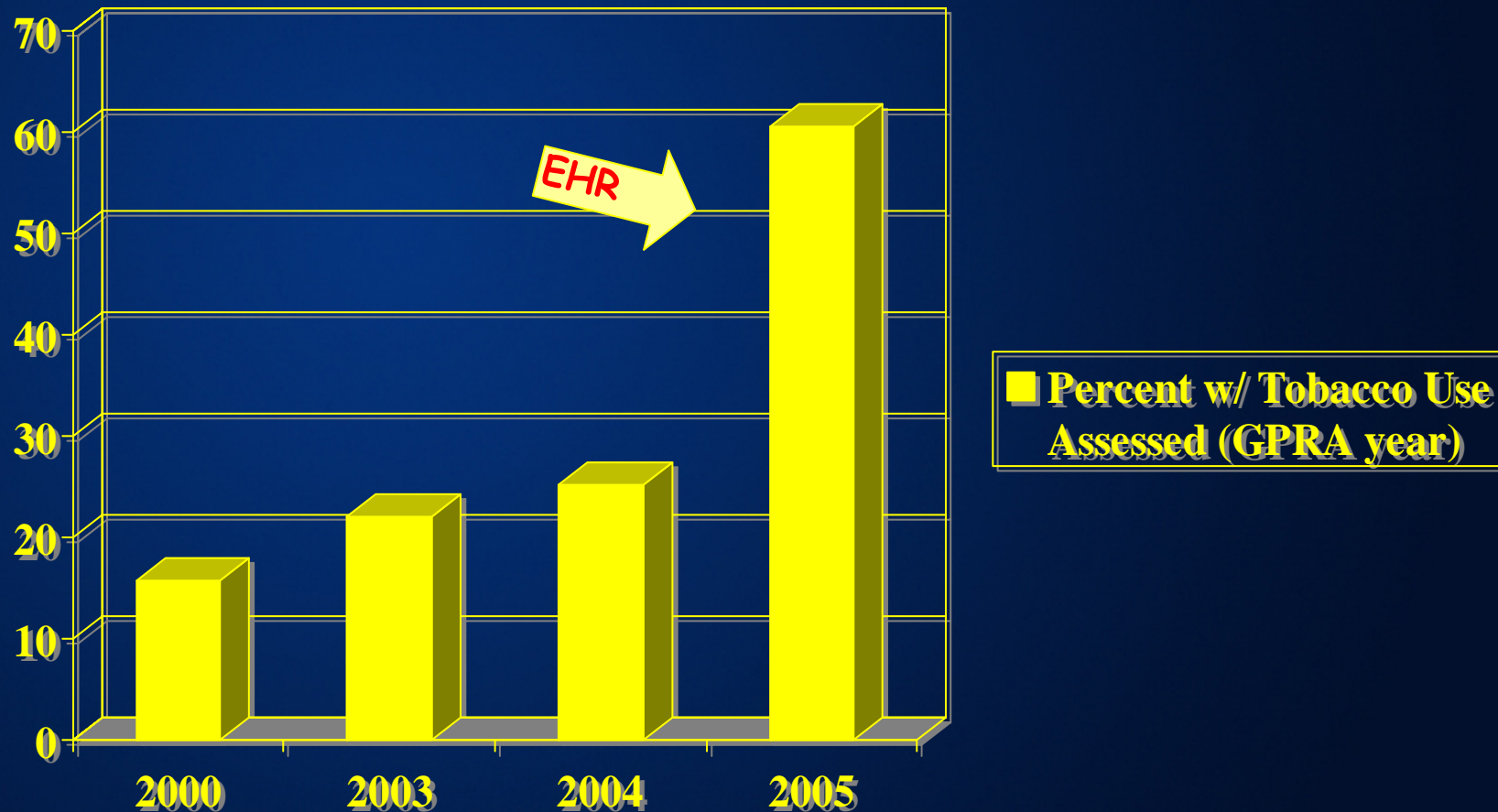
GPRA Indicator –
Medication Education (Site A)
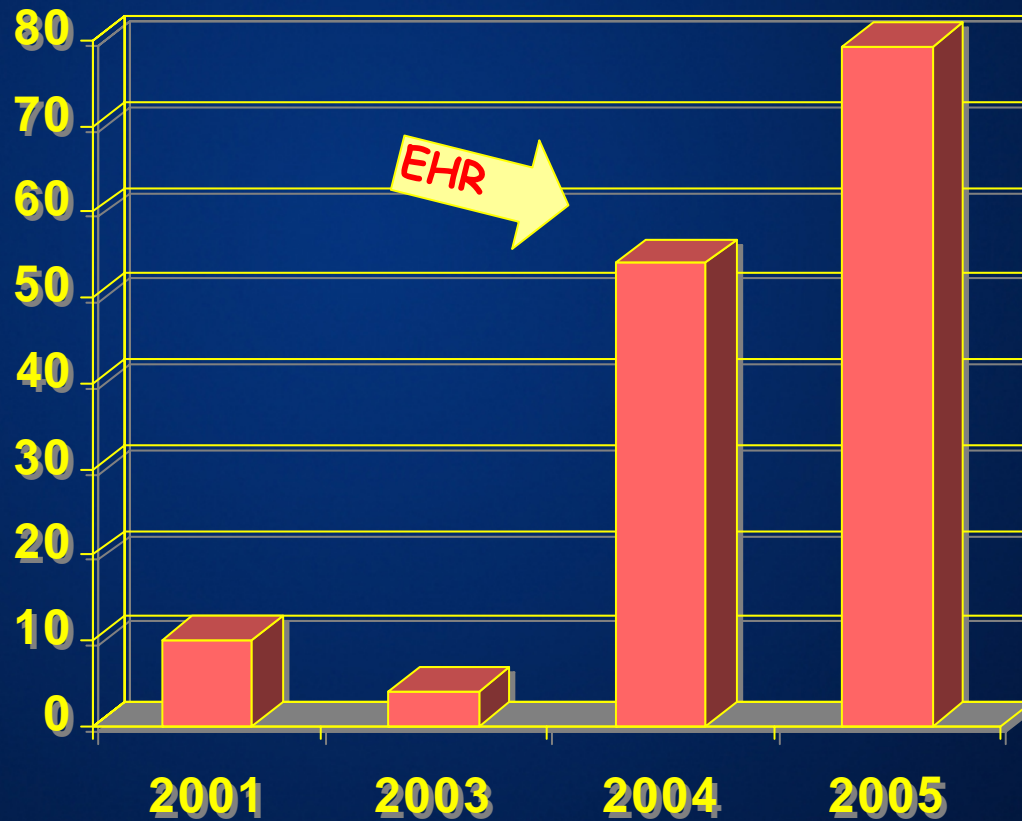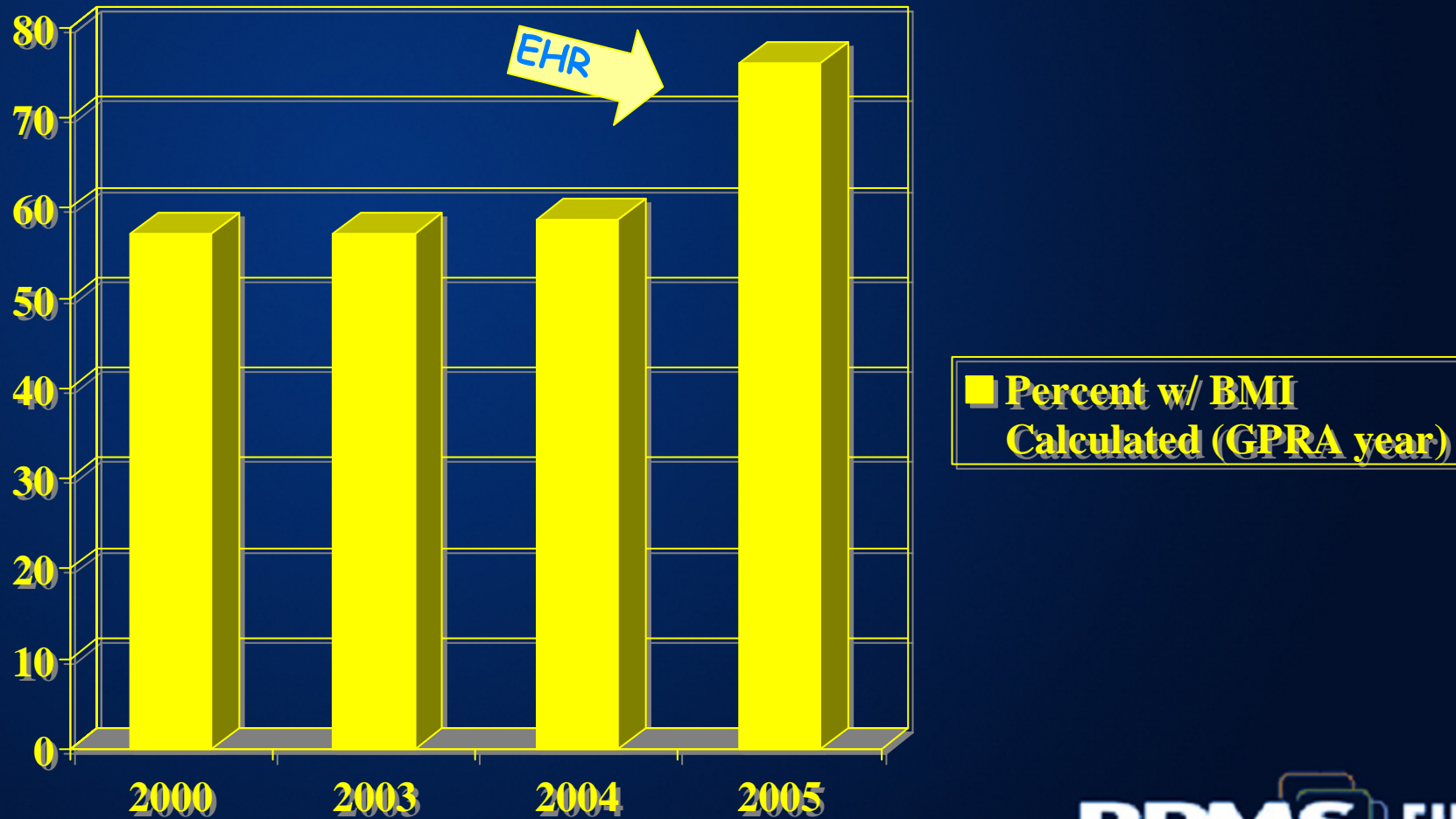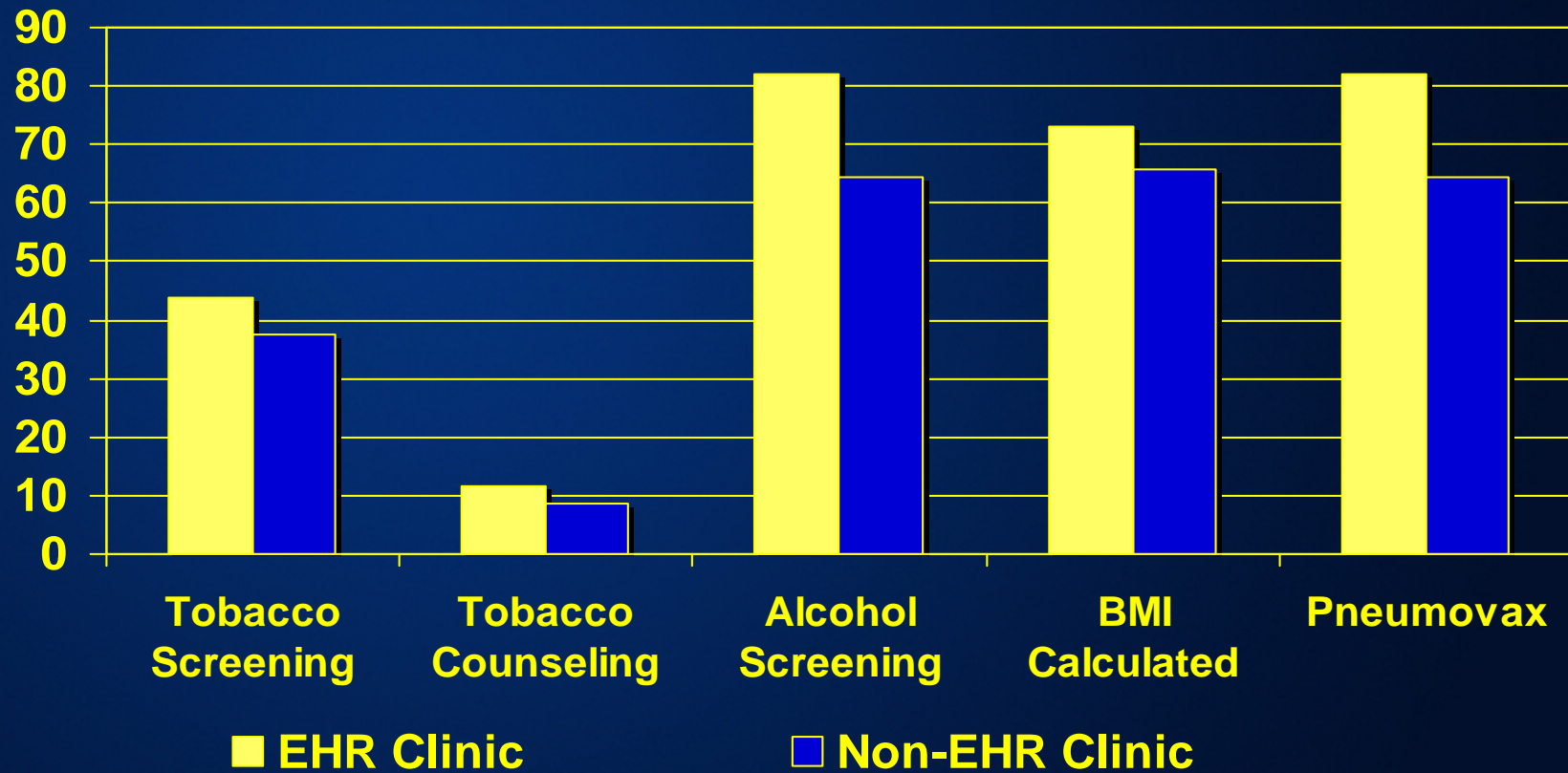
EHR Creates the Potential to Improve Collections:

- More complete documentation with templates
- Provider notifications for forgotten POVs or codes
- Superbills, ICD/CPT Pick Lists – easier to find correct codes
- Coding Tools and Training with EHR

RPMS EHR

Reminders in EHR

User   Patient   Tools   Help

Patient Chart   Communication

Demo,Female A
21334   10-Aug-1976 (29)   F

Visit not selected
HAGER,MARY G

No Postings

Problem List

Problem ▲	Date
Asthma	15-Dec-2004
Pregnancy	15-Dec-2004

Adverse Reactions

No Adverse Reactions Found

Alerts

No Crisis Alerts Found

Medications

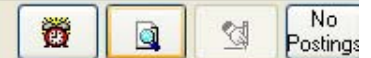| Medication	Status	Issue Date
ACETAMINOP...	EXPIRED	15-Dec-...
ALBUTEROL 0....	EXPIRED	15-Dec-...

Status
⦿ All   ◯ Active

Inpatient/Outpatient
⦿ All   ◯ Out   ◯ In

Reminders

Reminder ▲	Date
Alcohol Screen	DUE NOW
Blood Pressure	15-Dec-2005 15:17
Cocci	DUE NOW
Dental Screening	DUE NOW
No Allergy Assessment	DUE NOW
Pap Smear	DUE NOW
TEST	DUE NOW
Tobacco Screen	15-Dec-2005 15:16
Weight	15-Dec-2005 15:17

Vital Measurements

Vital	Value	Date ▼
TMP	98.6 F (37 C)	15-Dec-2004...
PU	72 /min	15-Dec-2004...
RS	16 /min	15-Dec-2004...
BP	120/80 mmHg	15-Dec-2004...
HT	66 in (167.64 cm)	15-Dec-2004...
WT	135 lb (61.23 kg)	15-Dec-2004...
PA	3	15-Dec-2004...
BMI	21.79	15-Dec-2004...

Lab Orders

No Lab Orders Found

Appointments and Visits

Appointment/Visit	Date ▼	Status
TEST CLINIC	23-Mar-2006 12:15	AMBULATORY
TEST CLINIC	20-Mar-2006 10:56	AMBULATORY
TEST CLINIC	14-Mar-2006 14:46	AMBULATORY
TEST CLINIC	17-Feb-2006 11:44	AMBULATORY

Notifications   Cover Sheet   Triage   Wellness   Notes   Services   Prob/POV   Orders   Medications   Labs   D/C Summ   Reports   Consults   rcis   Womsn's Health

start   2 Cache Term ...   RPMS·EHR   Microsoft Outloo...   Medsphere Syst...   Document1 - Mic...   2:23 PM

View   Action

Available Reminders	Due Date	Last Occurre...	Pri...
⊟ 🗁 All Evaluated			
⏰ Immunization Forecast	04/14/2006	04/13/2006	
No Allergy Assessment	DUE NOW		
Alcohol Screen	DUE NOW		
Asthma Management Plan	04/13/2007	04/13/2006	
Asthma-on steroids	04/13/2007	04/13/2006	
Asthma Severity	04/13/2007	04/13/2006	
Colon Cancer			
Domestic Violence	02/17/2007	02/17/2006	
Height	12/15/2009	12/15/2004	
HepB Adult Immunization	10/13/2006	04/13/2006	
Blood Pressure	12/15/2005	12/15/2004	
DM ACE/ARB			
DM Aspirin			
DM Dental Exam			
DM Eye Exam			
DM Foot Exam			
DM HgbA1c			
DM Microalbumin			
Depression Screen			
Dtap Immunization			
Flu Shot Immunization			
HCT/HGB			
Head Circumference			
Hearing Test			
Height			
HepA Adult Immunization			
HepA Ped Immunization			
HepB Ped Immunization			
Hibtiter Immunization			
High Risk Flu			
High Risk Pneumovax			
IPV Immunization			
Lipid Profile Female			
Lipid Profile Male			
MMR Immunization			
Mammogram			
PPD			

Clinical Maintenance: Pap Smear

```
 --STATUS--    --DUE DATE--    --LAST DONE--
  DUE NOW        DUE NOW          unknown


Applicable: Due every 3 years for ages 18Y to 64Y within cohort.
Patient is at an age to receive a pap smear every 3 years and
evidence was not found in the computer that this was done.  Patient
should receive a pap smear
```

Font Size: 9

Print...   Close

Reminder Dialogs

- **Resolves pending reminders**
- **Create orders**
- **Document education**
- **Creates a TIU document of the intervention**

Reminder Resolution: Alcohol Screen

☑ Check to indicated the results of the CAGE questionnaire.

    ◉ CAGE 0/4

    Comment

    ○ CAGE 1/4
    ○ CAGE 2/4
    ○ CAGE 3/4
    ○ CAGE 4/4

☑ Patient had alcohol screening exam done at this encounter.

    Result of Exam: * [Normal/negative ▾]

    Comment: [   ]

☑ Check to indicated alcohol education done at this visit

    ☑ Educated about alcohol screening

    Level of Understanding: * [Refused ▾]

    Education duration: [5 ⬍]

    Comment [   ]

    ☐ Educated about the dangers of alcohol/drug addiction
    ☐ Given literature about alcohol/drug use
    ☐ Edcated about alcohol and drug addiction being treatable chronic conditions
    ☐ Educated about the disease of alcohol/drug addiction
    ☐ Education on the complications of alcohol/drug addiction

☑ Patient declined alcohol screening and education at this visit.

    Comment: [   ]

    Reason for refusal: [Refused service ▾]

Indicates a Required Field

CLINICAL REMINDER ACTIVITY
  Alcohol Screen:
    CAGE test results
      CAGE 0/4
    Patient had alcohol screening exam done at this encounter.
      Result of Exam: Normal/negative
    Alcohol education
      The patient/family was educated about the process of screening for

Patient Educations: **AOD-SCREENING**
Health Factors: **CAGE 0/4**
Examinations: **ALCOHOL SCREENING**

[Clear] [Clinical Maint]   [< Back] [Next >] [Finish] [Cancel]

RPMS EHR

Reminder Resolution: DM HgbA1c

Diabetic patients should have their hgba1c done yearly. Patient's last
 Hgba1c was Last HEMOGLOBIN A1C   8.4   JAN 31,
 2005@08:15:42

☑ Check below to order hgba1c

* Indicates a Required Field

CLINICAL REMINDER ACTIVITY
   DM HgbA1c:
     HgbA1c ordered

Orders: **HgbA1c**

[Clear] [Clinical Maint]

Order a Lab Test

Available Lab Tests

    HEMOGLOBIN A1C

| HEMOGLOBIN A1C |
| HEMOGLOBIN A2 BY COLUM |
| HEMOGLOBIN AC <HEMOGL |
| HEMOGLOBIN AND HEMATC |
| HEMOGLOBIN ELECTROPHO |
| HEMOGRAM W/DIFFERENTI |
| HEMOGRAM W/REFLEX DIF |
| HEMOGRAM, |

HEMOGLOBIN A1C

Collect Sample   BLOOD (5ml PU ▼)
Specimen   BLOOD ▼
Urgency   ROUTINE ▼

Collection Type
Send Patient to Lab ▼

Collection Date/Time
T   [...]

How Often?
ONCE ▼

How Long?

Clinical Indication:
Dm Type 2 Uncntrld ▼

HEMOGLOBIN A1C BLOOD   SP ONCE Indication: Dm Type 2 Uncntrld

[Accept Order]
[Quit]

RPMS Innovations in Care

- Immunization Data Exchange
- Well Child Care
- Prenatal Care
- Behavioral Health System
- Diabetes Management System
- Asthma Register System
- Integrated Case Management System
- Clinical Reporting System

RPMS EHR

Immunization Data Exchange

- IHS and Tribes share many patients with private sector
  - Shot records are often incomplete due to patient mobility
  - Risk for under- and over-immunization
- Data exchange system for pediatric immunizations developed
  - HL-7 data files exported to and imported from State immunization registries
  - Exchange with 6 states to date

RPMS EHR

Well Child Care

- **CDC Growth Charts – in PCC+ and EHR GUI**
- **Infant birthweight & feeding choices**
- **Ages & Stages Questionnaire (ASQ)**
  - Age-specific screening in 5 dimensions
  - Print form, record score in EHR or PCC
  - Guidance for abnormal screens
- **Well Child Knowledgebase**
  - Thousands of age-specific reminders, education, developmental & medical screening, etc.
  - Nationally deployed set with local management
- **Additional screening tools (DDST milestones)**

RPMS EHR

Growth Graph in EHR
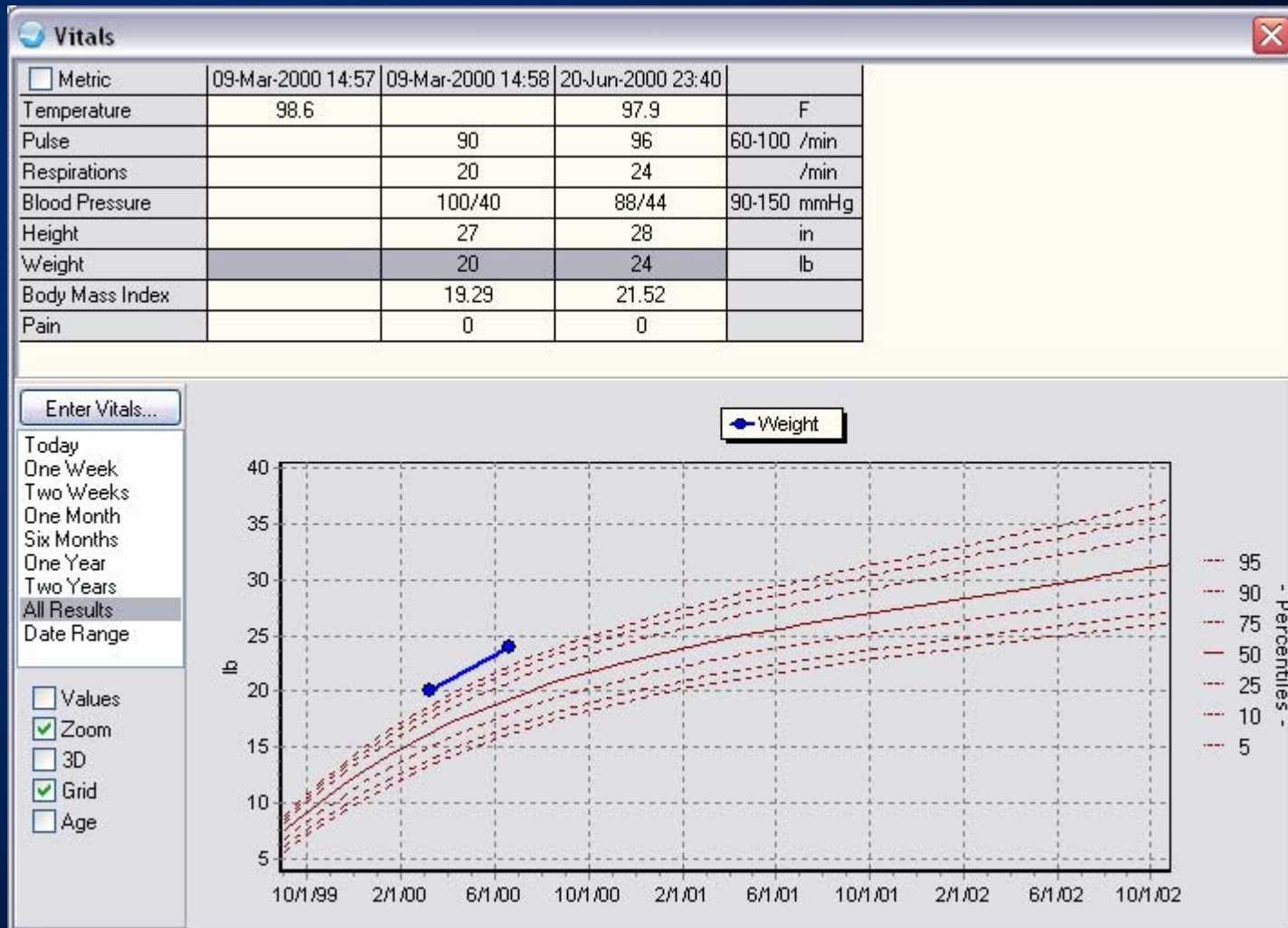
Infant Data & Feeding Choices

Entering ASQ Data in EHR

PCC + ASQ + Desktop Version

Enter chart number: 145628

[Find]

Patient Identifiers:

MALE DOB: 3/10/05
MOTHER:

Enter Gestational Age (Wks): 40

[Exit]   [Print...]   [Enter Scores >]

Problem solving

20   **20**   25

30   **50**   30.5

[Exit]   [< Previous]   [Submit]

RPMS EHR

Prenatal Care (in development)

- Data collection and entry for:
  - First Prenatal Visit
  - Interim Prenatal Visits
  - Postpartum Visit
- Over 600 data points
- Flowchart presentation where appropriate
- Data carries over to future pregnancies
- Multiple GUI components planned
- Flowchart infrastructure extensible to other types of data

RPMS EHR

RPMS Behavioral Health System

- MH/SS developed in early 1990's
  - The first complete electronic record in IHS
  - All data could be directly entered by providers
- BHS released 2003
  - Combined MH, SS, and A/SA functionality
  - BH GUI released 2004
  - BHS and BH GUI are in use at ~250 I/T/U sites

RPMS EHR

Behavioral Health System

- Ability to document:
  - 1:1 patient encounters
  - Group encounters
  - Wellness Activity: Patient Ed, Health Factors and DV, DEP and ETOH screening
  - Treatment Plans and Treatment Plan reviews
  - Case Management Information
  - Incidences of Suicidal Behavior
- Integrated with RPMS medical information
- Additional features/functionality

RPMS EHR

EHR Behavioral Health Components

- **Full Behavioral Health System functionality**
  - Clinical documentation
    - Individual and group encounters
    - Case Status and Intake
    - Treatment Planning
    - Suicide Surveillance
    - Wellness Activities (Screening, Health Factors, Patient and Family Education)
  - Administrative activity documentation
  - Comparable to IHS Patient Chart
- **Integrated with EHR**

RPMS EHR

Group Encounter - Add

Group Encounter Documentation   **CROW HO**

Primary Provider	[ ] ...
Program:	CHEMICAL DEPENDENCY ▼
Group Name:	Wednesday Evening AA Group
Clinic:	ALCOHOL AND SUBSTANCE ...
Encounter Location:	CROW HO ...
Type of Contact:	OUTPATIENT ...

Encounter Date: 1/25/2006 ▼

Arrival Time: 6:00:00 PM ▼

Community of Service: [   ] ...

Activity: GROUP TREATMENT ...

Activity Time: 60

Group Data | Patients | Patient Data

Secondary Providers

Name		Add
		Delete

POV (Primary Group Topic)

Code	Description		
27	ALCOHOL DEPENDENCE		Add / Edit / Delete

S/O/A/P (Standard Group Note)

Wednesday AA group.
Guest Speaker George Washington.
Video presentation on Medical Effects of Alcohol.

CPT Codes

Code	Description		
T1007	ALCOHOL&/SUBSTANCE ABUSE SERVICES		Add / Delete

Save   Close

Behavioral Health - Add Regular Visit

	M	DOB 4/16/1998	Age 8	HRN 45444	

Primary Provider: [redacted]   **Encounter Date:** 5/4/2006 Clear

Program: MENTAL HEALTH   **Encounter Location:** TUBA CITY INDIAN MEDICAL CTR

Clinic: MENTAL HEALTH   **Appointment/Walk-In:** APPOINTMENT

Type of Contact: OUTPATIENT   **Community of Service:** TUBA CITY

Arrival Time: 03:42 PM

Tabs: POV | CC/SOAP | Rx Notes | Visit Admin | CD STG | Wellness

POV (DSM Diagnosis or Problem Code)

Axis I: Clinical Disorders; Other conditions that may be a focus of clinical attention

Axis II: Personality Disorders; Mental Retardation

Code	Narrative
3	UNSPECIFIED MENTAL PROBLEM
5	PHYSICAL ILLNESS,ACUTE

Add / Edit / Delete

Axis III: General Medical Conditions

Patient has Type 1 Diabetes

Spell Check

Axis IV: Major Psychosocial and Environmental Problems

Code	Narrative
4	OCCUPATIONAL PROBLEMS
8	LEGAL INTERACTION PROBLEMS

Add / Delete

Axis V: Global Assessment of Functioning (GAF) Scale: 85

Save   Close

Diabetes Management System

- Case Management for diabetic patients
- Automated additions to registry
- Reminders and performance indicators
- Automated periodic diabetes audits
- Reports

RPMS EHR

Asthma Management System

- Collect data on Asthma severity and triggers
- Case management & registry functions
- Reminders based on severity and medication taxonomies
- Reports

RPMS EHR

Asthma Documentation in EHR

Integrated Case Management (iCare)

iCare Goals

- Facilitate proactive management of patient care
- Integrated decision support and patient management for single or multiple disease states and or care conditions
- Manage patients by retrieving information from the RPMS database and presenting it in case management views
- Integrated patient record to minimize stovepiped management
- Incorporate information specific to an individual's household and community

RPMS EHR

iCare Features

- Component within the Resource Patient Management System (RPMS)
- Graphical user interface (GUI) for a fully integrated case management system
- Integrate and pull together all the information available about a patient into one view so the "whole picture" is appreciated
- Display patient "flags" related to care management, including abnormal labs, hospitalizations, ER visits and unanticipated ER returns

RPMS EHR

iCare Features (cont'd)

- Utilize logic written for other clinical applications to "tag" individuals with pre-defined diagnoses and conditions
- Generate nationally-defined general prevention and disease/condition specific healthcare reminders that are integrated to display most stringent criteria applicable to the patient's chronic condition(s)
- Apply "official" GPRA report logic to user-defined populations that are not currently available in the Clinical Reporting System (CRS)
- Provide users with the ability to create multiple, predefined and easy-to-define patient panels that are customizable

RPMS EHR

iCare Features (cont'd)

- Allow users to "share" panels with others and provide a "surrogate" feature enabling one user to create a panel for another user
- Intended to be a "wrapper" application for current and future disease/condition specific register management systems (i.e. HIV, CVD, Diabetes, Asthma, Women's Health, Immunizations etc)
- Incorporate information regarding both the patient's household and community

RPMS EHR

iCare Perspectives

- **An Individual Patient**
- Provides an integrated patient record
- Displays both household and community profiles
- Displays integrated health reminders

- **A Provider's Patients**
- Allows for multiple, customizable panels of patients
- Allows the provider to define who "My" patients are and create a panel
- Immediate, periodic analysis of both individual and aggregated GPRA performance measures

- **A Population of Patients**
- Mass mailings/notifications
- Reports
- Panels of patients based on commonalities (i.e. diagnosis, age, gender, condition)

- **A Community of Patients**
- Local Resources
- Community Alerts
- Earned Income Tax Credit
- Community Profile

RPMS EHR

File Tools Help

Name:

Gender: F   8122 N MACARTHUR BLVE   **Tribe:**   CHEROKEE NATION OF OKLAHOMA   **Designated PCP:**
Age: 69   TAHLEQUAH,OKLAHOMA 74464   **Community:**   TAHLEQUAH   **Insurance:**
DOB: 5/8/1936   **Phone:**   555-555-6162
DOD: **Alt. phone:**   555-999-5422   **Barriers to**
SSN: **HRN:**   101857   **Learning:**

Patient Record | Alerts | Problem List | Reminders | Health Summary | Patient Summary | Labs | Radiology | Meds | Referrals | Patient GPRA

Providers

Role	Name	Last Visit	Next Visit
DESIGNATED PRIMARY PROVIDER		06/14/2004	
WOMENS HEALTH			

Recent Visits   Last: 1 month

Date	Clinic	Provider	Diagnosis	POV

Scheduled Appointments   Next: 1 month

Date	Clinic	Provider

Panels

Panel Name	Owner
AD HOC TEST MULTI COMMUNITY-R...	
MY PATIENTS	
MY PATIENTS-	

RPMS Registers

Title	Status	Status Date	Category	Creator

start   Inbox - Microsoft ...   3   Document4 - Micr...   39°   2:31 PM

Name:

Gender:	F	8122 N MACARTHUR BLVE	**Tribe:**	CHEROKEE NATION OF OKLAHOMA
Age:	69	TAHLEQUAH,OKLAHOMA 74464	**Community:**	TAHLEQUAH
DOB:	5/8/1936	**Phone:** 555-555-6162		
DOD:		**Alt. phone:** 555-999-5422		
SSN:		**HRN:** 101857		

Designated PCP:
Insurance:
Barriers to Learning:

Patient Record | Alerts | Problem List | **Reminders** | Health Summary | Patient Summary | Labs | Radiology | Meds | Referrals | Patient GPRA

Description	Last	Next Due
BARIUM ENEMA	07/19/2000	
COLONOSCOPY	07/07/2000	
FLEXIBLE SIG		CLINICAL DECISION
BREAST EXAM	04/07/2004	Undetermined (by NO DATE) (per Women's Health system)
COLORECTAL CA-SCOPE/XRAY		
COLORECTAL SCREENING 07/		MAY BE DUE NOW (WAS DUE 07/06/05)
DIABETES SCREENING	07/29/2004	MAY BE DUE NOW (WAS DUE 07/30/05)
HEARING INQUIRY		Consider inquiring about hearing difficulties at least every 2...
HEIGHT	07/29/2004	MAY BE DUE NOW (WAS DUE 07/29/05)
INFLUENZA	10/16/2003	MAY BE DUE NOW (WAS DUE 10/15/04)
MAMMOGRAM	06/19/2002	Undetermined (by NO DATE) (per Women's Health system)
PAP SMEAR	04/07/2004	Routine PAP (by 04/2005) (per Women's Health system)
PELVIC EXAM	03/19/2002	MAY BE DUE NOW (WAS DUE 03/19/03)
PHYSICAL EXAM		MAY BE DUE NOW
PNEUMOCCAL POLYSACCHARIDE	08/13/1997	REVACCINATION MAY BE DUE NOW
RECTAL		MAY BE DUE NOW
SCREEN FOR ALCOHOL USE		MAY BE DUE NOW
SCREEN FOR TOBACCO USE	05/20/2004	MAY BE DUE NOW (WAS DUE 05/20/05)
TD-ADULT		MAY BE DUE NOW
TONOMETRY		MAY BE DUE NOW
VISUAL ACUITY EXAM	12/17/2003	MAY BE DUE NOW (WAS DUE 12/16/05)
WEIGHT	07/29/2004	MAY BE DUE NOW (WAS DUE 07/29/05)

File   Patients   Tools   Help   Quick Patient Search:

Sched Appts by Clinic   **Total Patients = 78**

Patient List | Alerts | GPRA | **GPRA Aggregated**

GPRA Help   **Reporting Period: Jan 01, 2005-Dec 31, 2005**

Clinical Group	Measure	# Patients in Denominator	# Patients in Numerator	% Met	IHS Current Performance	2010 GOAL
Access to Dental Servi...	Dental Access General # w/d...	78	0	0%	Maintain	40.0%
	A. # Refusals w/ % of Total...	0	0		Maintain	40.0%
Adult Immunizations: I...	Total # w/Flu vaccine docum...	62	0	0%		
	A. # of Refusals w/ % of Tota...	0	0			
Adult Immunizations: P...	Total # w/Pneumovax docum...	58	40	69.0%		
	A. # Refusals w/ % of Total IZ	40	0	0%		
Cancer Screening: Ma...	# w/Mammogram recorded...	0	0			
	A. # Refusals w/ % of total M...	0	0			
Cardiovascular Diseas...	# w/LDL 101-130	20	2	10.0%		
	# w/LDL 101-130	42	7	16.7%		
Childhood Immunizatio...	# w/ 4 doses DTaP or w/ Dx/...	1	0	0%	N/A	80.0%
	# w/ 3 doses HIB or w/Dx/Co...	1	1	100.0%	N/A	80.0%
	A. # Refusals w % of Total H...	1	0	0%	N/A	80.0%
	B. # w/ Dx/Contraind/NMI Re...	1	0	0%	N/A	80.0%
	# w/ 3 doses Hep B or w/ Dx/...	1	0	0%	N/A	80.0%
	A. # Refusals w/ % of Total/...	0	0		N/A	80.0%
	B. # w/ Dx/Contraind/NMI Re...	0	0		N/A	80.0%
	# w/ 1 dose Varicella or w/ D...	1	0	0%	N/A	80.0%
	A. # Refusals w/ % of Total V...	0	0		N/A	80.0%
	B. # w/ Dx/Contraind/NMI Re...	0	0		N/A	80.0%
	# w/ All IZ (4:3:1:3:3:1) or w/...	1	0	0%	N/A	80.0%
	A. # Refusals w/ % of Total...	0	0		N/A	80.0%
	A. Refusals w/ % of Total all...	0	0		N/A	80.0%
	B. # w/ Dx/Contraind/NMI Re...	0	0		N/A	80.0%
	Childhood 19-35 mos # w/ 4:...	1	0	0%	N/A	80.0%
	# w/ All 4:3:1:3:3:1 IZ - Only...	1	0	0%	N/A	80.0%
	# w/ 4:3:1:3:3 combo - Only...	1	0	0%	N/A	80.0%
	B. # w/ Dx/Contraind/NMI R...	0	0		N/A	80.0%
	# w/ 3 doses Polio or w/ Dx/...	1	1	100.0%	N/A	80.0%
	A. # Refusals w/ % of Total P...	1	0	0%	N/A	80.0%

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Clinical Reporting System (CRS)

- **Tracks GPRA & other clinical measures for local use as well as national reporting**
- **Available in both GUI and roll-and-scroll versions**

RPMS EHR
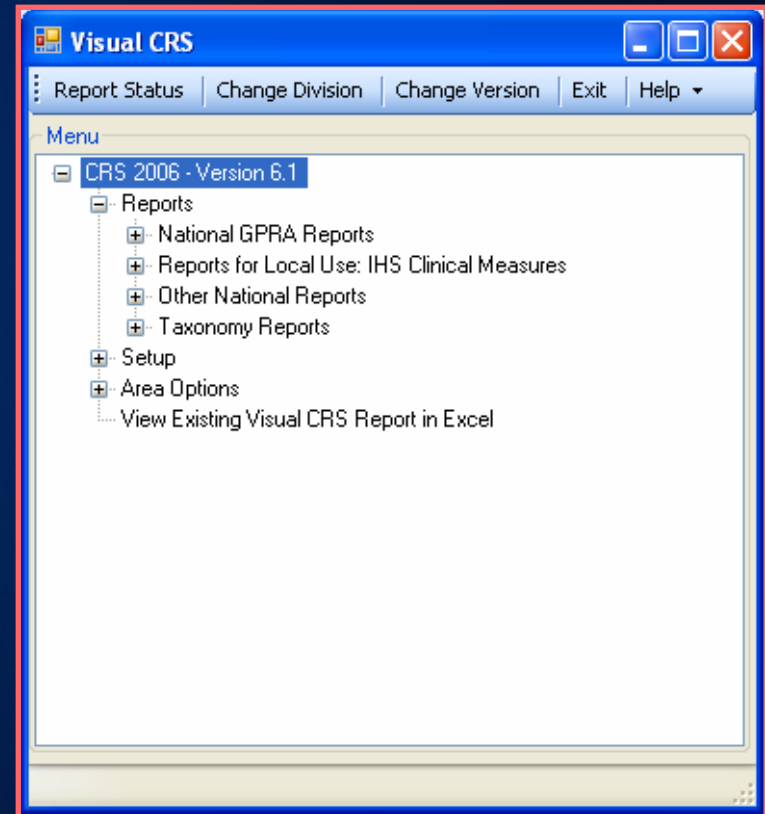
CRS

- Identical logic ensures *comparable* performance data across all facilities
- Updated annually to reflect changes in the logic descriptions and to add new measures
- Local facilities can choose to transmit data for National GPRA, Elder Care and HEDIS performance reporting to their Area
- Area Offices can produce aggregated Area performance reports

RPMS EHR

CRS 2006 Clinical Measures

- 21 **GPRA** treatment and prevention measures
- 23 **other key clinical measures** Examples:
  - Diabetes Comprehensive Care
  - Osteoporosis Screening
  - Comprehensive CVD-Related Assessment
- 21 **HEDIS** measures
- 23 **Elder Care** measures (patients 55+)
- 17 **CMS** (hospital) measures

RPMS EHR

Sample CRS Report

- 3 report periods for comparing performance over time
- Output to MS Word and/or delimited (text) file format for use in Excel or SAS

```
SK                              May 03, 2006                         Page 6
        *** IHS 2006 National GPRA Clinical Performance Measure Report ***
                               DEMO HOSPITAL
                Report Period: Jan 01, 2003 to Dec 31, 2003
             Previous Year Period:  Jan 01, 2002 to Dec 31, 2002
                Baseline Period:  Jan 01, 2000 to Dec 31, 2000
-----------------------------------------------------------------------------

Diabetes:  Glycemic Control (con't)


                       REPORT     %    PREV YR    %   CHG from   BASE      %   CHG from
                       PERIOD          PERIOD         PREV YR %  PERIOD        BASE %
Active Diabetic Pts
(GPRA)                   155            149                       114

# w/A1c done w/
 or w/o result          129  83.2      109  73.2      +10.1      96  84.2      -1.0
# w/A1c
 > 9.5 (GPRA)            37   23.9      22   14.8      +9.1       29  25.4      -1.6
# w/A1c <7
 (GPRA)                  43   27.7      19   12.8      +15.0      27  23.7      +4.1
```

EHR

Sample CRS Patient List

- Output to MS Word and/or delimited (text) file format for use in Excel or SAS

```
***** CONFIDENTIAL PATIENT INFORMATION, COVERED BY THE PRIVACY ACT *****
   SK                            May 03, 2006                    Page 118

        ***   FY06 Clinical Performance Measure Patient List   ***
                            DEMO HOSPITAL
             Report Period: Jan 01, 2005 to Dec 31, 2005
                          Entire Patient List


--------------------------------------------------------------------------
Cancer Screening: Pap Smear Rates: List of women 21-64 with documented
test/refusal, if any. (con't)
UP=User Pop; AC=Active Clinical; AD=Active Diabetic; AAD=Active Adult Diabetic
PREG=Pregnant Female; IMM=Active IMM Pkg Pt

PATIENT NAME              HRN     COMMUNITY     SEX AGE DENOMINATOR NUMERATOR
--------------------------------------------------------------------------
                        000094 CAMERON          F   21   UP,AC      02/06/03 88164
                        000121 CAMERON          F   21   UP,AC      07/26/04 V76.49
                        000248 CAMERON          F   21   UP
                        000330 CAMERON          F   21   UP,AC      08/29/05 V72.3
                        000823 CAMERON          F   21   UP
                        000894 CAMERON          F   21   UP,AC      03/15/05 ref
                        000504 CAMERON          F   21   UP,AC      05/16/05 V76.2
                        000860 CAMERON          F   21   UP,AC

Total # of Patients on list: 592
```

CRS Patient Lists Can Be Used For...

- Verifying RPMS data against patient's chart info
- Identifying patients who need certain screenings/procedures
  - e.g., A1c, flu shot
- Identifying "at risk" patients
  - e.g., high LDL, high BP, obese

RPMS EHR

Clinical Logic Repository

- Currently reminders and performance logic reside in various stovepiped applications
- Logic for similar interventions (e.g. lipid management) may differ depending on disease state – confusing for clinicians
- If guidelines or performance indicators change, reprogramming in multiple packages
- Solution – single logic repository callable from various packages through APIs
- Presently in conceptual phase - ?PXRM v2.0?

RPMS EHR

IHS · EHR
Electronic Health Record

Resources for
IHS Management

IHS-EHR Home

EHR Clinical
Overview

EHR Technical
Overview

EHR Walk Through

Preparing for EHR

EHR Current Status

Key EHR Program
Contacts

Patient Information
Management System
(PIMS) Application

EHR Presentations

EHR FAQ

Feedback

EHR Listserv

Clinical Applications
Web Site

Login

Register

Welcome to the IHS Electronic Health Record Website

These pages will introduce you to the Indian Health Service's latest medical software application, the IHS Electronic Health Record (EHR). The site is designed primarily for IHS, Tribal, and Urban (I/T/U) Indian health care facilities that are actively involved in implementation of IHS-EHR, or are contemplating doing so in the near future. It provides a variety of information about the EHR product, as well as links to a number of helpful documents.

The Indian Health Service has long been a pioneer in using computer technology to capture clinical and public health data. The IHS clinical information system is called the Resource and Patient Management System (RPMS). Its development began nearly 30 years ago, and many facilities have access to decades of personal health information and epidemiological data on local populations. The primary clinical component of RPMS, Patient Care Component (PCC), was launched in 1984. IHS-EHR represents the next phase of clinical software development for the IHS.

www.ehr.ihs.gov

In this site, website you explore the following pages:

» **EHR Clinical Overview** - Learn the key capabilities of EHR as seen by the user in clinical practice.

» **EHR Technical Overview** - Learn how EHR relates to the rest of RPMS, and the technical and hardware specifications required to operate it.

» **EHR Walk Through** - View the EHR application either through an animated Flash demonstration (with sound) or still pictures and text.

» **Preparing for EHR** - Learn what facilities can do to begin the process of preparation for this new clinical technology.

» **Patient Information Management System (PIMS)** - This page describes the new Scheduling and