

# ***The Value of Population and Public Health in e- Health: Beyond Hemoglobin A1C***

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# Objectives

- Demonstrate how a HIT solution should support
  - Provider
  - Patients
  - Populations
  - Communities
- Understand health status and quality improvement measures in defined populations
- How reporting tools such as the Clinical Reporting System are essential to maximize the utility of electronic health records
- Future possibilities for improving health status

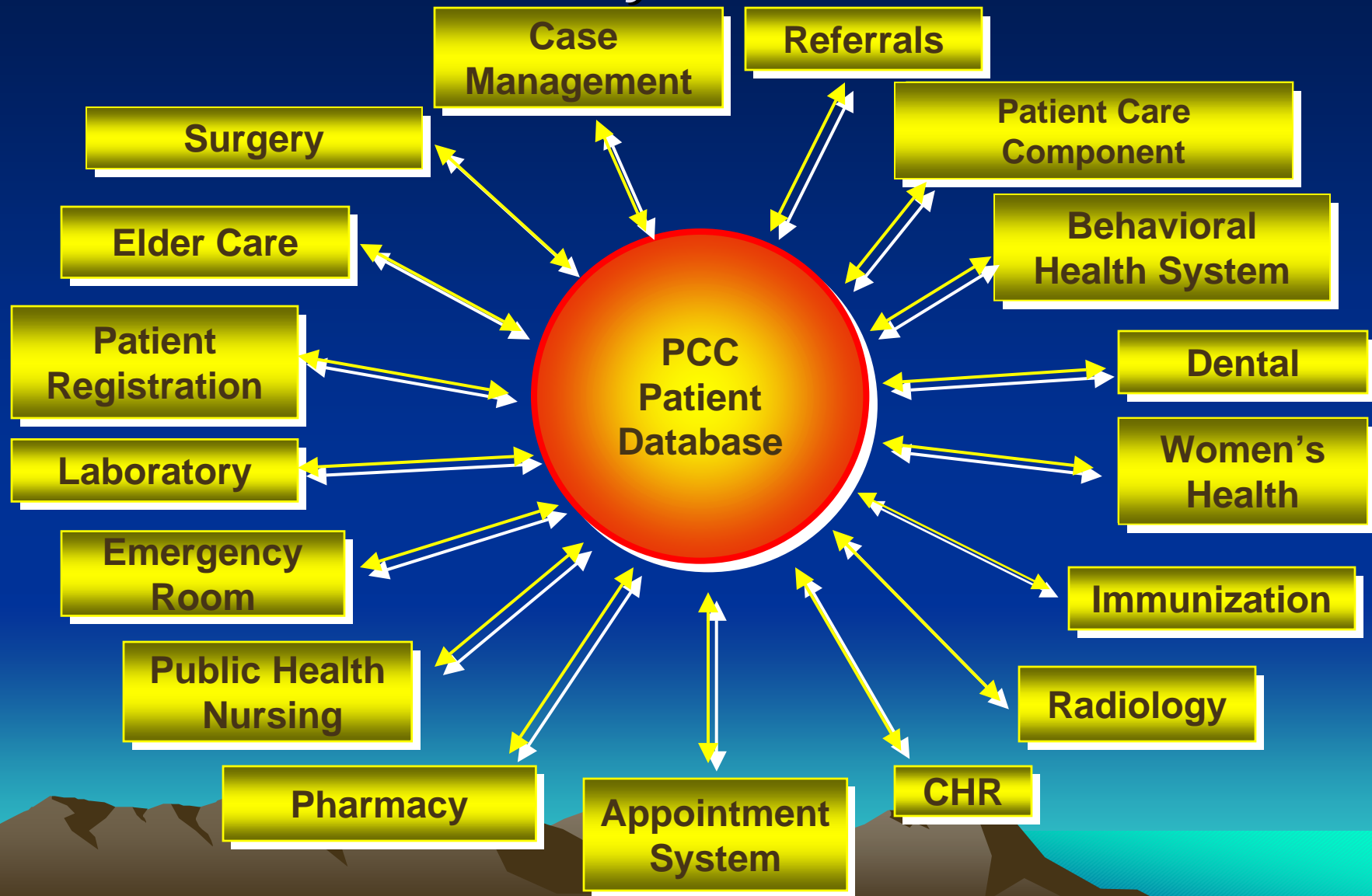


# ***Supporting provider centric health care delivery***

- Integrated patient health record ***for provider use***
- Traditional goal of HIT is to e- display what you already should know in a more usable format
  - Health Summary
  - Patient centric health reminders ( based on pop health measures)
  - Lab and Reference Lab Interface data
  - Immunizations and State Immunization Sharing data
  - Pharmacy
  - Allergies
  - Etc



# *IHS-HIT Integrates Multiple Clinical Systems*



**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

| Alert | Date |
|-------|------|
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |
|       |      |

**Reminders**

No Reminders Found

| Reminder | Date |
|----------|------|
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |
|          |      |

**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           |

**Crisis Alerts**

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

**Problem List**

Error Retrieving Problem List...

| Problem | Date |
|---------|------|
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |
|         |      |

**Lab Orders**

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

**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... |

# ***Supporting patient centric health care delivery***

- Integrated patient health record ***for patient use***
- Patient Portal development in many organizations
- IHS patient health summary includes
  - Patient health summary
  - Lab results
  - Medication lists
  - Immunization
  - Interpretation of the above



# Patient Health Summary

- [First Name] [Last Name] [Chart Number] [Address]
- [Provider Name]
- [Phone Number]  
[Hospital Phone Number]
- Hello [Mr. Ms.] [Last Name], thank you for choosing [Cherokee Indian Hospital] .
- This sheet is a new way for you and your doctor to look at your health.
- Immunizations (Shots) Getting shots protect you from some diseases and illnesses.
- [Good news! Your immunizations are up to date.]  
[X immunizations are due][Immunizations due]
- Weight is a good measure of health – and knowing what it means depends on how tall you are.
- You are [XX] feet and [XX] inches tall.
- Your last weight is [XX] pounds.
- Your Body Mass Index today was [XX]. This is a good way to compare your height and weight.
- [You are at a healthy weight. Keep up the good work!: if BMI < 25]
- [You are above a healthy weight. Too much weight can lead to health problems – diabetes, heart disease, back pain, leg pains, and more.. Ask your provider about things you can do to assist in your weight control.: if BMI >26]



# *Supporting population and public centric health care delivery*

- Software views/applications that allow for ‘on the fly’ passive extraction of comparable and defined data for analysis, evaluation, and improved performance –based on defined provider, populations and communities
- Must include population and public health measures
- Can be used for P4P
- One example: IHS Clinical Reporting System



# IHS Clinical Reporting System Disclaimer

- Software is **not** a solution
- Program as LITTLE as you can
- Software is only a **tool** to assist you (and your facility) in identifying and aggregating **comparable** clinical information
- Software can **help** you identify problems
  - with clinical documentation process
  - with clinical care and quality
  - with populations/communities



# Dependence on Standard Code Sets

- Hard-coded in CRS program logic; users cannot change the codes
- Types of Standard Codes
  - CPT
  - ICD
  - LOINC: for laboratory tests, etc.
  - IHS National Patient Education Codes
  - IHS Health Factors (to accommodate the lack of standard code sets for many data fields)
  - IHS Defined Taxonomy Sites



# Measures Reported by CRS

- 21 GPRA *treatment* and *prevention* measures based on RPMS data; each measure has a baseline and target
- 23 other key healthcare performance measure topics.  
Examples:
  - Diabetes Comprehensive Care Assessment
  - Controlling High Blood Pressure
  - Comprehensive CVD-Related Assessment
- 18 HEDIS measures
- 23 Elder Care measures (patients 55+)
- 10 CMS (hospital) measures
- Patient, Provider, Population lists available and exportable to Excel
- Interface with Scheduling Package – electronically notifies scheduling package of what patient is missing

# *Supporting community centric health care delivery*

- Software views that allow for integration of community based data within a HIT system
  - Requires standard data fields
- Community based health measures
  - Community based resources and health status information
    - Fluoride water levels
  - Early notification of community based risk events
    - Sentinel community based events ( e.g. suicide)
      - One event can trigger notification
    - ‘Early epidemic’ notification based on community
      - **Pertussis, environmental exposures**



# IHS- iCare

## 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





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%     |

# Future for e-population health

- Seamless integration of population and other health *views* into the traditional provider/ patient centric EHR
- Passive, routine public/ population based health *reporting* as an integral part of HIT (not a second thought)
- Knowledge Management 'database' that includes reminders, reports, and on the fly ability to modify these at local sites



# Future work for improving health status

- ‘Actionable’ populations for order entry
- Expansion of health factors to include standard code sets for non-standard factors that influence health
  - Currently include domestic violence as well as granular tobacco assessment and tracking
  - Expand to include ‘adverse childhood events’ that are evidence based to predict health status
  - Appropriate case management based upon these factors

