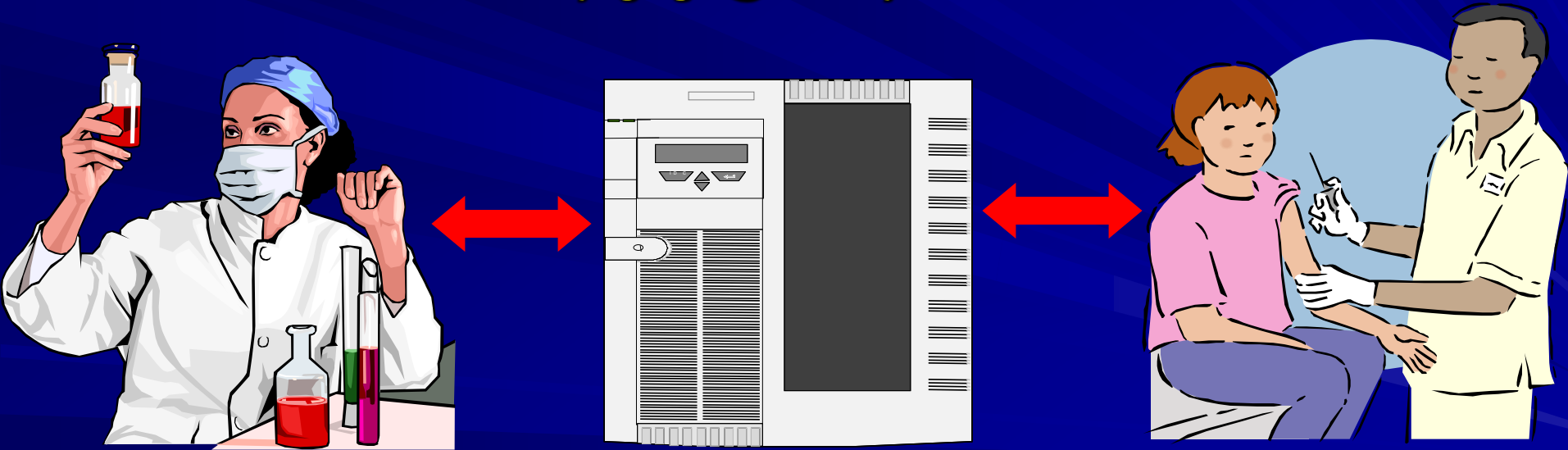


# ***EMRs - Realizing Personalized Medicine***

**Guna Rajagopal PhD**

**Executive Director, Bioinformatics,  
Cancer Institute of New Jersey**

**rajagogu@umdnj.edu**



***Quality Care at Affordable Cost***

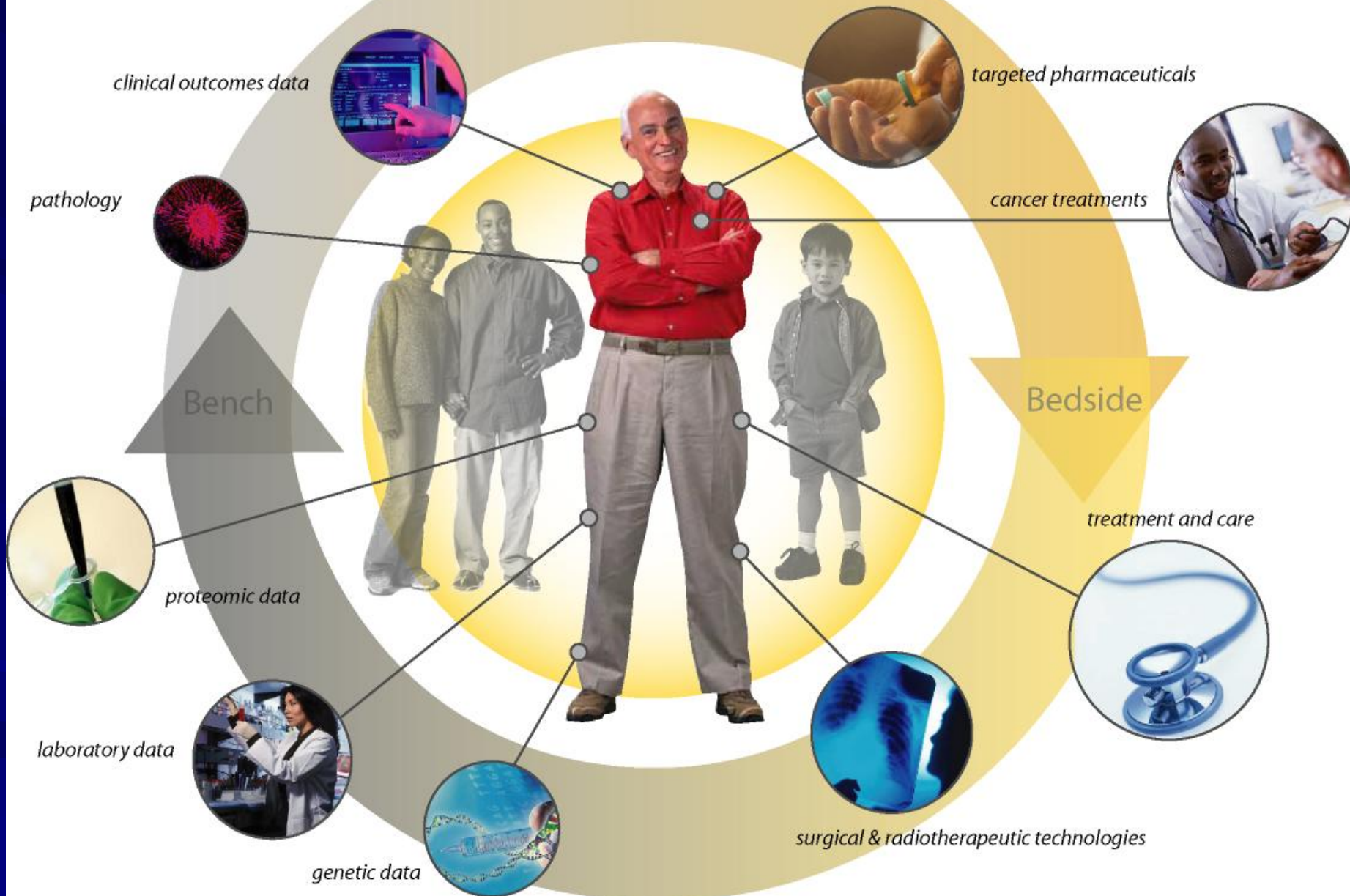
# The Personalized Medicine Mantra

We want –

- the **right dose** of
- the **right drug** for
- the **right indication** for
- the **right patient** at
- the **right time**, for
- *the right \$\$\$\$!*

# Individualized, Targeted Cancer Care

Ken Buetow, NCI



## EMRs – Advancing the Practice of Genomic/Personalized Medicine

- **Ready access** to anonymized patient data for basic, clinical, translational research to advance cancer prevention, treatment, control & survivorship, health disparity etc.
- Facilitate patient **recruitment for clinical trials** – build on CINJ's Network of Hospitals collaborative,
- **Continuity/longitudinal/prospective studies** including long term follow up studies in survivorship, drug side effects, drug repositioning, cancer biomarker discovery etc.,
- **QOS and comparative studies on efficacy of procedures and therapies**, including deriving accurate metrics to measure performance and quality of care delivered to patients,
- to advance drug discovery & pre/post-clinical trial research collaborations **by integrating research/clinical trial data with medical history** etc. EHR in a data warehouse and using machine learning **to mine the data**.

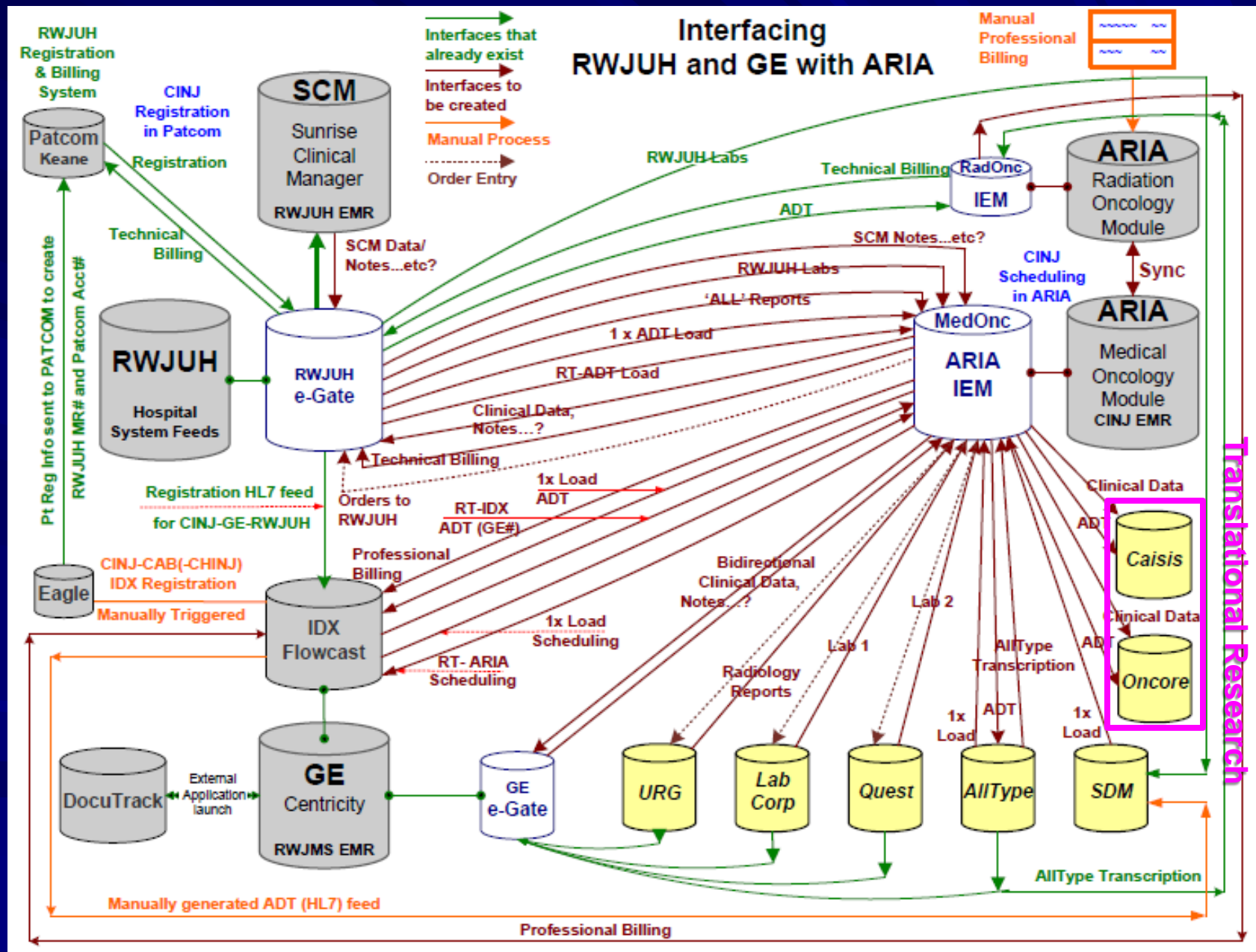
# Secondary uses of Electronic Health Record(EHR) data in Life Sciences

**Figure 2:** Potential benefits of integrating EHR data within drug development (Illustrative).

Trial Design (Refining Inclusion / Exclusion Criteria)	Patient & Investigator Recruitment (Patient Recruitment)	Execution Analysis (Patient Compliance Tracking)
<ul style="list-style-type: none"> <li>EHR alerts increased enrollment rates from 2.4% to 22% of recruited patients (Prior knowledge of health status could drive further improvement)</li> <li>Total cost savings for screening 40,000 patients with a 5% "hit" rate is approximately \$3.2 million</li> </ul>	<ul style="list-style-type: none"> <li>Studies show EHR data can drive:               <ul style="list-style-type: none"> <li>A 28% increase in eligible patient identification</li> <li>A doubling of monthly patient enrollment rate</li> <li>A near ten-fold increase in the enrolled to referred ratio</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Journaling compliance increased from 11% with paper-based methods to 94% electronically</li> <li>EHR-based monitoring enables intervention before patient must be excluded from data set</li> <li>Use of EHR data and patient alerts reduces attrition rate by 50%, reducing overall trial size</li> </ul>
<b>Potential Savings: \$3.2 Million</b>	<b>Potential Revenue Estimate: \$125 Million</b>	<b>Potential Savings: \$1.8 Million</b>
<b>Assumptions for Calculating Savings &amp; Additional Revenue</b>	<ul style="list-style-type: none"> <li>Phase III clinical trial</li> <li>40,000 patients screened given 5% "hit rate"</li> <li>2,000 patients enrolled in anticipation of 25% attrition rate</li> <li>Recruitment expected to last 250 days</li> <li>Per patient screening cost: \$100</li> <li>Cost per enrolled patient: \$6,000</li> <li>Anticipated product revenue: \$1 M/day</li> </ul>	



# The Data Must Flow



CINJ Registration

CINJ Billing

**Central Goal:**

- Improve patient care & treatment outcome
- Advance CINJ's Research Mission
- Enhance productivity throughout our three enterprises



**INTER-OPERABILITY**

**RWJ**

**RWJ**

**University Hospital**

**Medical School**



**Cancer Institute of New Jersey**

**ONCORE  
CaBIG / CDMS  
CAISIS**

**INTERNAL R&D**

**Phase 2**

Enable Clinical / Translational R&D  
And facilitate practice at Genomic Medicine  
To be operational by 2/1/2012

**External R&D**

**ONCORE  
CaBIG / CDMS  
CAISIS**

**Rutgers, Princeton  
UMDNJ & IAS**

**CINJ Network  
Hospitals**

**Pharma**

**NCI Cancer Centers  
CaBIG**

**CINJ Survivorship**

**CINJ SEER NC/DBMS**

**URG & Partners/eRAD**

**CINJ TAS/ONCORE BSM**

**CINJ Core Facilities**

Subject to  
State/Fed/IRB  
approval & regs

**DIMACS**

**Phase 1**

**Making EMR Operational**  
Software Component (Guna)  
Hardware Component (John)  
Deliverables:  
- CPOE + ePrescription  
- sunset SDM (by Aug 2010)  
To be operational by 2/1/2011

**To execute:**

- CIC Team - Neema, Kevin, Adam, John & Guna
- 11 Work Groups
- 1 Steering Committee
- 1 Leadership Committee
- 1 Tech. Group Committee
- 1 Physician Champions Committee

**Phase 3**

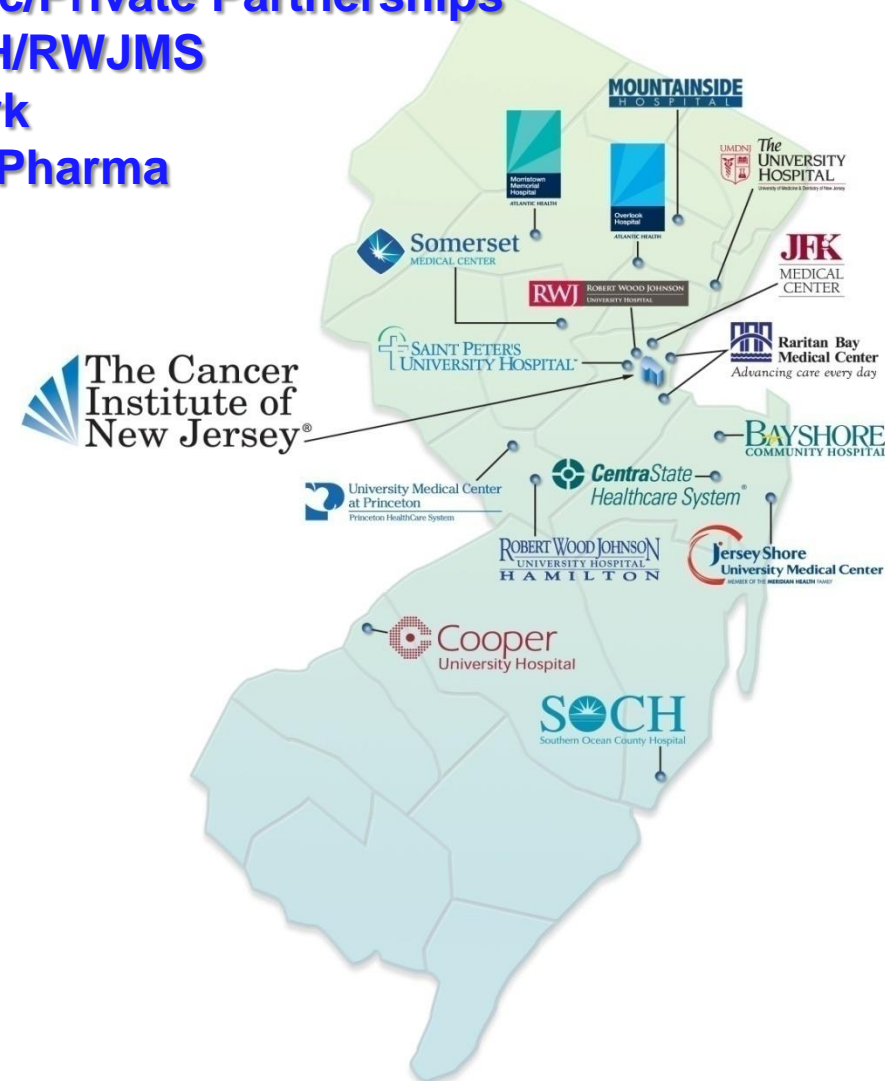
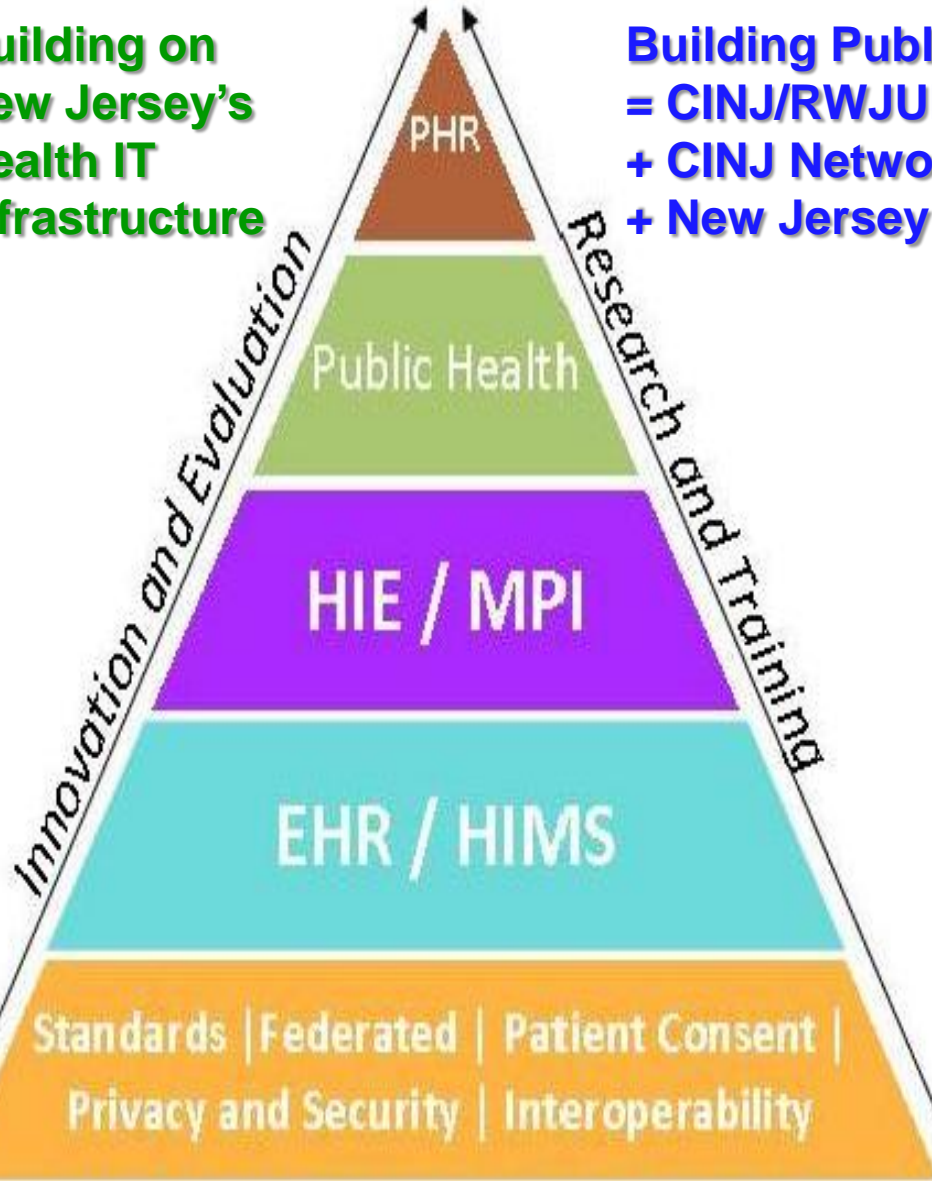
**Project Popweb / TransMed**  
Goal: Linking data from bench and  
Bedside throughout NJ to advance  
CINJ's mission in cancer prevention,  
treatment control and survivorship  
To be operational by 2/1/2013



# Facilitating Personalized Medicine Across New Jersey

Building on  
New Jersey's  
Health IT  
Infrastructure

Building Public/Private Partnerships  
= CINJ/RWJUH/RWJMS  
+ CINJ Network  
+ New Jersey Pharma



# Thank You!

# Q&A

