Reducing Hospital Readmissions via Remote Patient Management

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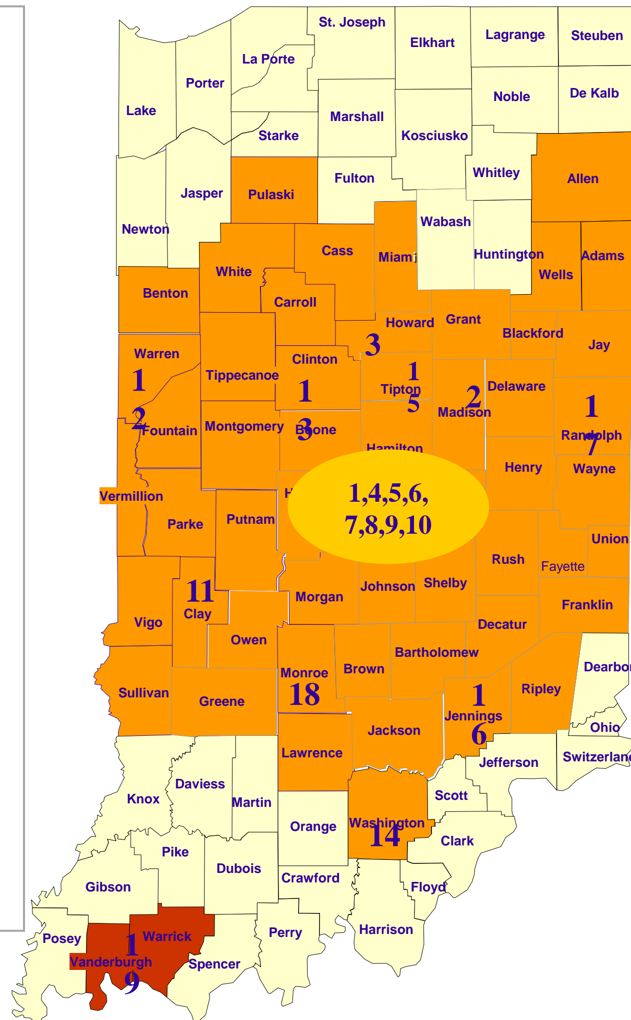
An Ascension Health Ministry

FY 2012 Stats

Total Admissions:
65, 351
Total ER Visits:
256,152
Total Ambulatory Visits:
2,915,075
Total Births:
6,636
Total Beds:
1,733
Gross Revenue:
$5.6 Billion



1 St. Vincent New Hope
2 Saint John's Health System-Anderson
3 St. Joseph - Kokomo
4 St. Vincent Indianapolis
5 St. Vincent Stress Center
6 Seton Specialty Hospitals (2) LTAC
7 Peyton Manning Children's Hosp.
8 St. Vincent Women's
9 St. Vincent Carmel
10 St. Vincent Heart Center

11 St. Vincent Clay CAH
12 St. Vincent Williamsport CAH
13 St. Vincent Frankfort CAH
14 St. Vincent Salem CAH
15 St. Vincent Mercy, Elwood CAH
16 St. Vincent Jennings CAH
17 St. Vincent Randolph CAH
18 St. Vincent Dunn CAH

St. Mary's, Evansville- 2 hospitals

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Ascension Health is the largest Catholic and non-profit health system in the United States, with more than 500 locations in 20 states and the District of Columbia.

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Where did Beacon funding come from?

ARRA Funding 2009
($787 Billion)

HITECH
(~$34 Billion)

Health Information Exchange
($2 Billion)

Regional Extension Centers ($598 Million)	State HIE Cooperative Agreement Program ($564 Million)	Beacon Cooperative Agreement Program **($256 Million)**

AL AK AR AZ CA CO - - - - - VA WA WI WV WY

Funding across all 50 states and US territories

Beacon Community Program

- Central Indiana was one of 17 communities selected
- The Beacon Program supported these communities to build and strengthen their *health IT infrastructure* and *exchange capabilities*.
- Indiana Health Information Exchange, as the lead organization, received $16.1 million award to develop the 3 year program
- Dartmouth HRR 183 area was selected
- 45 counties (out of 92)
- Covers 2.7 million people or 43% of state's population
- 58 Acute Care Hospitals

Indiana Health Information Exchange

Facts:

- Congestive heart failure (CHF) is the most common Medicare diagnosis related group accounting for more healthcare costs than any other disease
- National readmission rate for patients with CHF is 21%
- Hospitals face increasing pressure to lower the cost of health care while at the same time improving quality
- Behavioral factors, such as noncompliance with medications, lack of timely physician follow up visits and social factors, such as social isolation, frequently contribute to early readmissions, suggesting that many such readmissions could be prevented
- Total annual healthcare expenditure for both direct and indirect healthcare cost of CHF approximates $28 Billion

Readmission Reduction Research Study

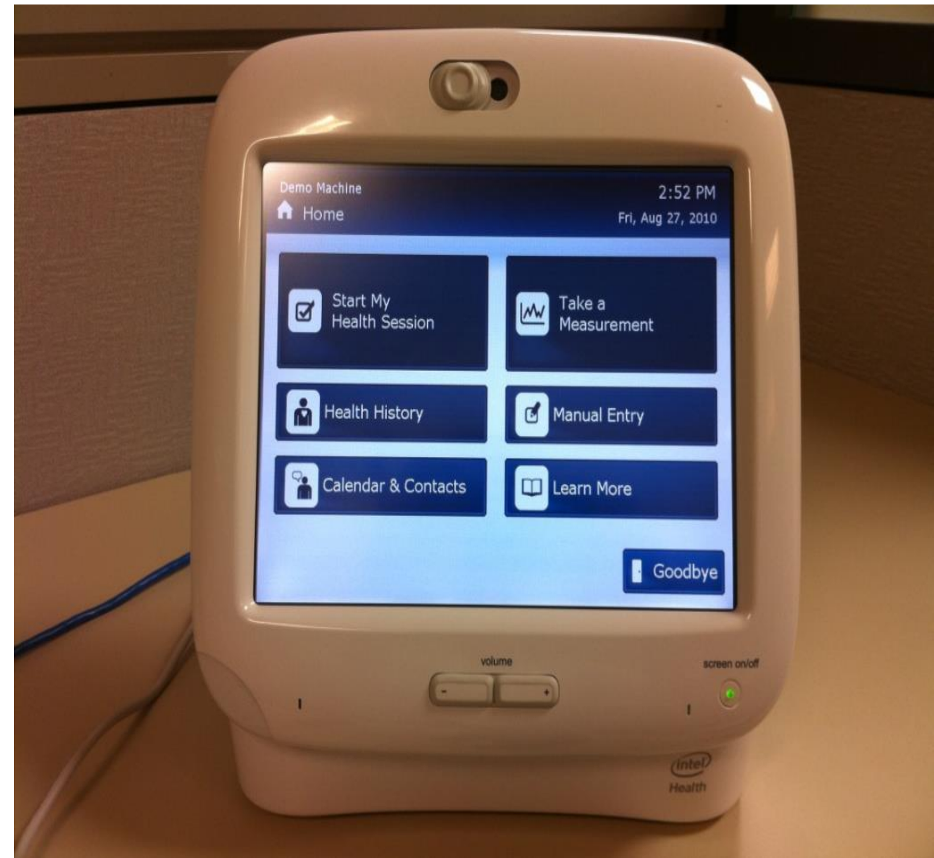
- December, 2010 – December, 2012
- Funding: Federal Beacon Community Grant
- Patient Population: Inpatient discharge diagnosis: CHF & COPD
- Driver: CMS activation of reimbursement holdings for patients readmitted within 30-days of inpatient discharge
- Objective: Reduce readmissions through teaching self-management skills
- Metrics: Patient Activation Measurement (PAM®) to determine confidence in self-management skills and volume of hospital readmissions

Readmission Reduction Research Study

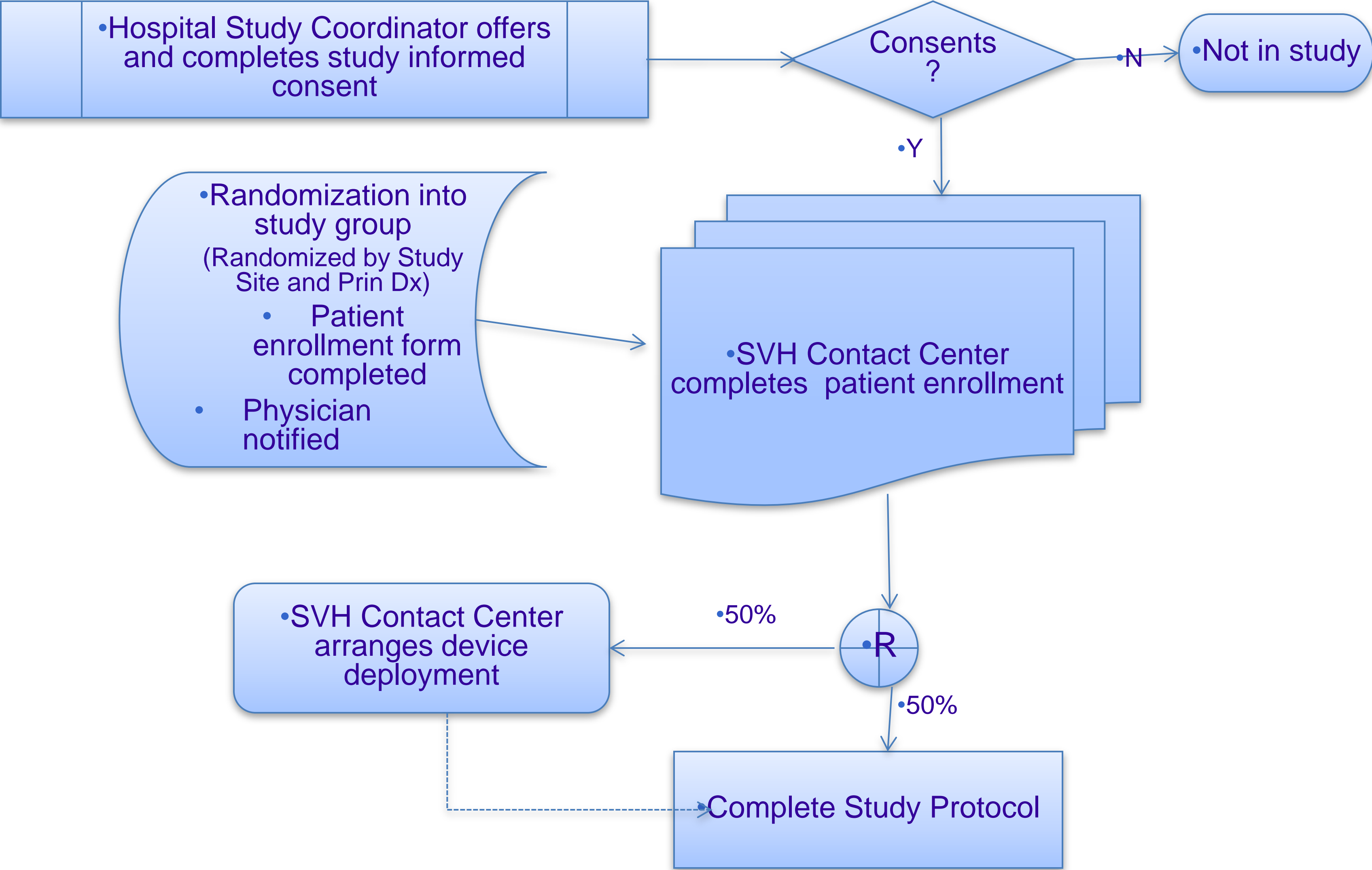
- Methodology:
  - Relationship-centered care through nurse-patient interaction via video conferencing and telephone conversations
  - 30-day remote patient monitoring utilizing home based technology: daily bio-metrics (BP, O2 saturation, weight, glucose levels)
  - Daily health questions
  - Daily educational content including videos

Technology Selected

- Allows for video conferencing with the nurse contact center.
- Provides health educational learning sessions
- Monitors daily bio-metric readings (BP, O2 sat, weight)
- Interacts with the patient daily inquiring about health status



Patient Enrollment Process



Getting Started

- Establish baseline data for participating hospitals
- Obtain IRB approval (Indiana University and St. Vincent)
- Integrate with hospital discharge planning
- Selected device vendor
- Prepared site hospital teams
- Selected/trained equipment management company
- Selected/trained RNs with cardiac care or ICU experience
- Clinical protocols developed
- Communication materials developed (patient welcome video; physician letter, patient, and nurse resources)

Operational Processes

- Control Group & Intervention Group randomization
- Qualify patients & enroll in study
- Device deployment & retrieval in the home
- Daily interaction and monitoring of patients
- Discharge patients from the study after 30 days
- Post study survey: instrument "Patient Activation Measure" (PAM). Univ. Oregon; Judith Hibbard
- Jan-Mar 2013- Program evaluation and dissemination of results to stakeholders and other Beacon programs

Source: Care Innovations 2011 by permission only

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Participating Hospitals Readmission Research Study

- **St. Vincent Health sites:**
- St. Vincent Indianapolis
- St. Vincent Heart Center
- St. Vincent Carmel
- St. Johns (Anderson)
- St. Joseph (Kokomo)
- Critical Care Access Hospitals
  - SV Jennings (North Vernon)
  - SV Mercy (Elwood)
  - SV Frankfort (Frankfort)
- **Non- St. Vincent hospitals:**
- Columbus Regional (Columbus)
- Hancock Regional (Greenfield)
- Henry County (New Castle)
- Wishard Hospital (Indianapolis)
- Witham Hospital (Lebanon)

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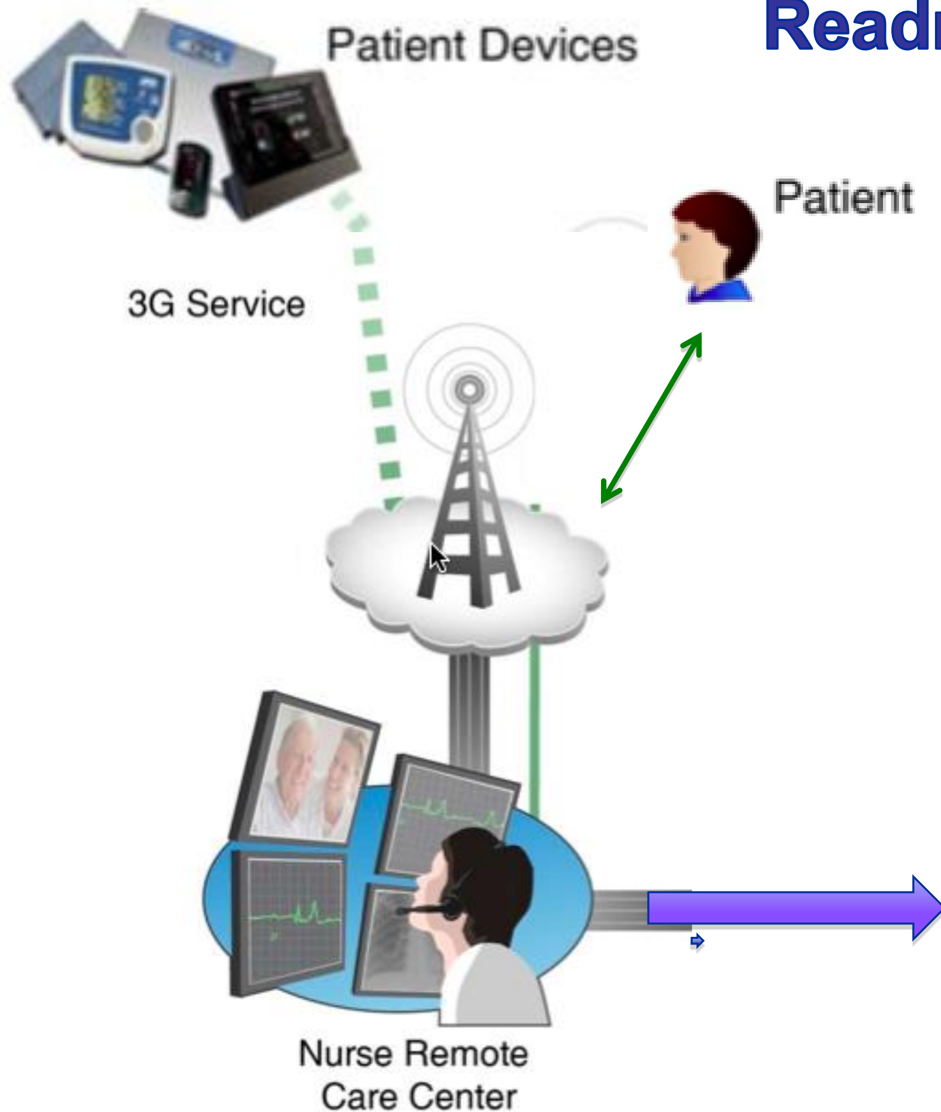
Readmission Infrastructure



- Enrollment at time of inpatient discharge
- Installation within 24 hours
- Video conference 1st day
  - Reconcile medications
  - Discuss provider follow up appointment
- Video conference 6 or more times during 30 day monitoring
- Daily biometrics & health questions
- PAM survey

Patient contacts Provider

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Beacon Research Study Preliminary Results

Intervention Group	*Control Group*
69 Complete	100 Complete
25 Drops(11 ineligible)	2 Drops
94	102

Total Randomized Patients = 196

Non-Randomized Patients = 134

- Total Enrolled Patients = 330

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30 Day Readmission Rates

Randomized Trial

- Intervention group: 5 readmissions or 7% (N=69)
- Control group: 11 readmissions or 20.37% (N=54 because 46 were lost to follow up)
- P value = .061
- National average for 30 day readmissions = 21%

2012 Expansion with Non-Randomized Cases

TOTAL NON-RANDOMIZED PATIENTS = 134

- Home Health
  - Indianapolis
  - Veedersburg
  - North Vernon
  - Bedford
  - Decatur
  - Wabash/Miami County
- Hospitals
  - Decatur County
  - Wabash/Miami County
  - LaGrange County
- Care Management Organizations
  - Coordinated Managed Care Services
- Payors
  - MedWise (Medicaid)
- Physician Clinics
  - SV Primary Care Center
  - SV Michigan Road Clinic

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Case Study

Non-Randomized Patient

- 53 year old married female with **6+ chronic conditions**
- 13 admissions during calendar year 2011 at St. Vincent Indianapolis and St. Vincent Heart Center.
- Patient labeled “non-compliant” by her providers; after 4 referrals to home health agency they were no longer able to assist.
- Physician elicited help from Remote Monitoring Program as an alternative.
- Patient has actively participated in the program completing all activities as advised. She has also been compliant with her physician visits, specialty appointments, and medication adherence
- Last discharged on Dec. 20, 2011 and continues to do well at home.
- Only one ED visit and a brief overnight stay in 2012
- Total hospital (IP and OP) costs for **2011 was > $156,000.**
- Total cost for **2012 projected to be $2,500**

Lessons Learned through Experience

Relationships

- Patient (video conferencing)
- Provider engagement (imperative)
- Identifying patient's barriers of care is essential to self-management
- Nursing interaction and socialization skills
- Responsiveness of vendor

Technology

- Technology is NOT cost effective for all patient populations
- Independent set-up (installation very expensive)
- Flexibility of devices is very important
- Shop for efficiency and safety
- Ease of protocol development

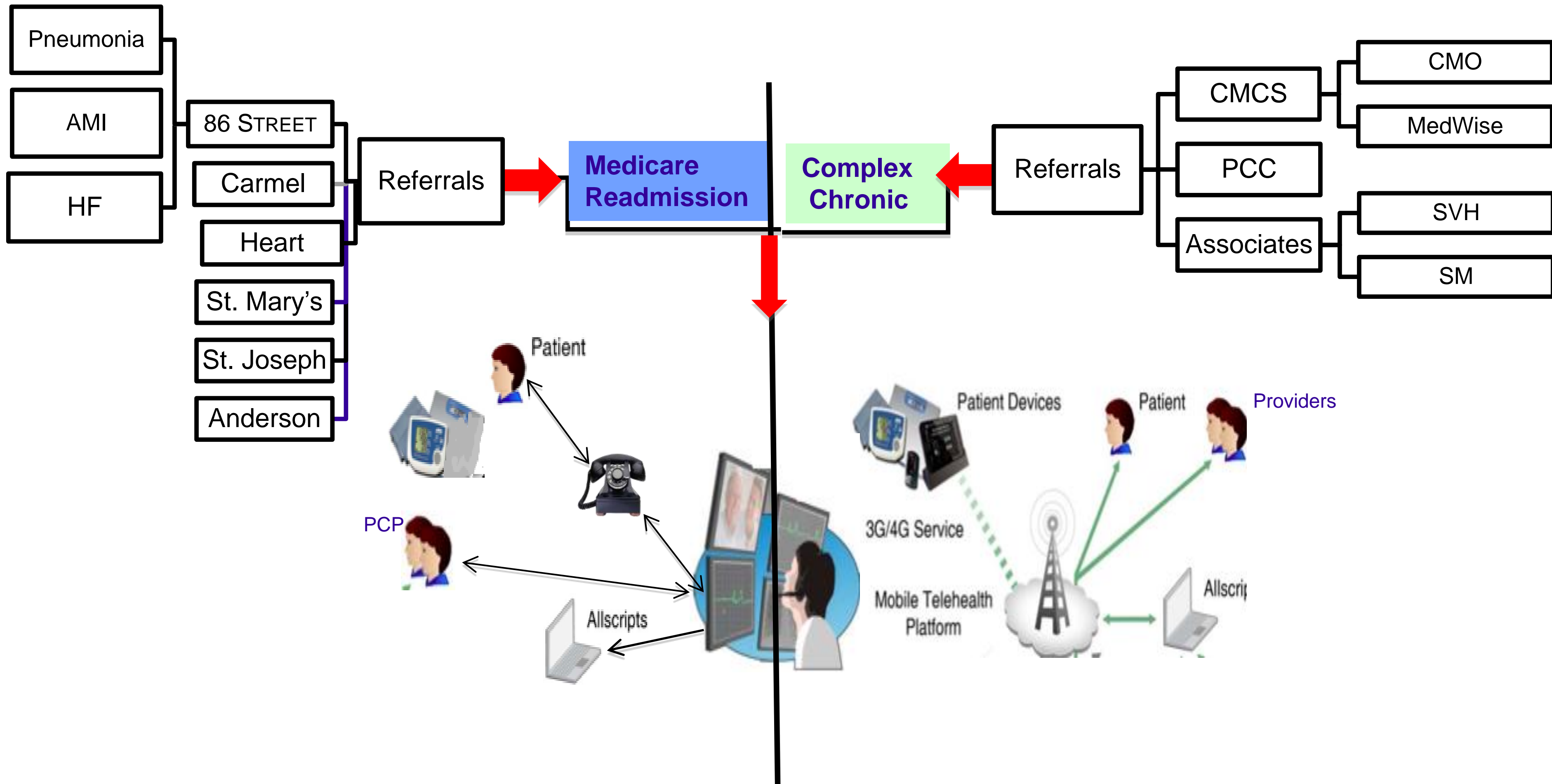
Lessons Learned Through Others

- Multiple chronic conditions increase the risks for poor outcomes, increased mortality, and high cost services
- Beneficiaries with multiple chronic conditions had more hospitalizations and ER visits during the year
- 20.7 million Medicare beneficiaries had two or more chronic conditions in 2008
- Same year health care spending was about $7,681 per resident
- It is estimated that health care costs for chronic disease treatment account for over 75% of national health expenditures

Remote Care Management

New Service Offering, 2013

Remote Care Management Program Model



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Future Platform –Features

- **Patient:**
  - **Connected** – docked, always on, 3G/4G connected.
  - **Secure** – HIPAA authentication, no local HPI storage.
  - **Simple** – intuitive touch screen prompts, including:
    - Personal health device measurements.
    - Customized care plan surveys.
    - Video help and reminders.

- **Caregiver:**
  - **Devices** – management of patient health devices.
  - **Alerts** – real-time alerts and patient prioritization.
  - **Details** – patient monitoring details and charts.
  - **Web** – browser and mobile access from any device.
  - **Scale** – population management filters.
  - **Integration** – vital measurements are pushed to EMR and PHR in real-time.

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Intuitive Health Differentiators

- Size and experience of company
- Strong partners and relationships: Polycom, Erikson, AT&T, American Heart Association, Samsung
- Ability to influence solution:
  - Spirituality
  - Sandboxing capability (movies, games, social media, etc.)
- Six languages including voice

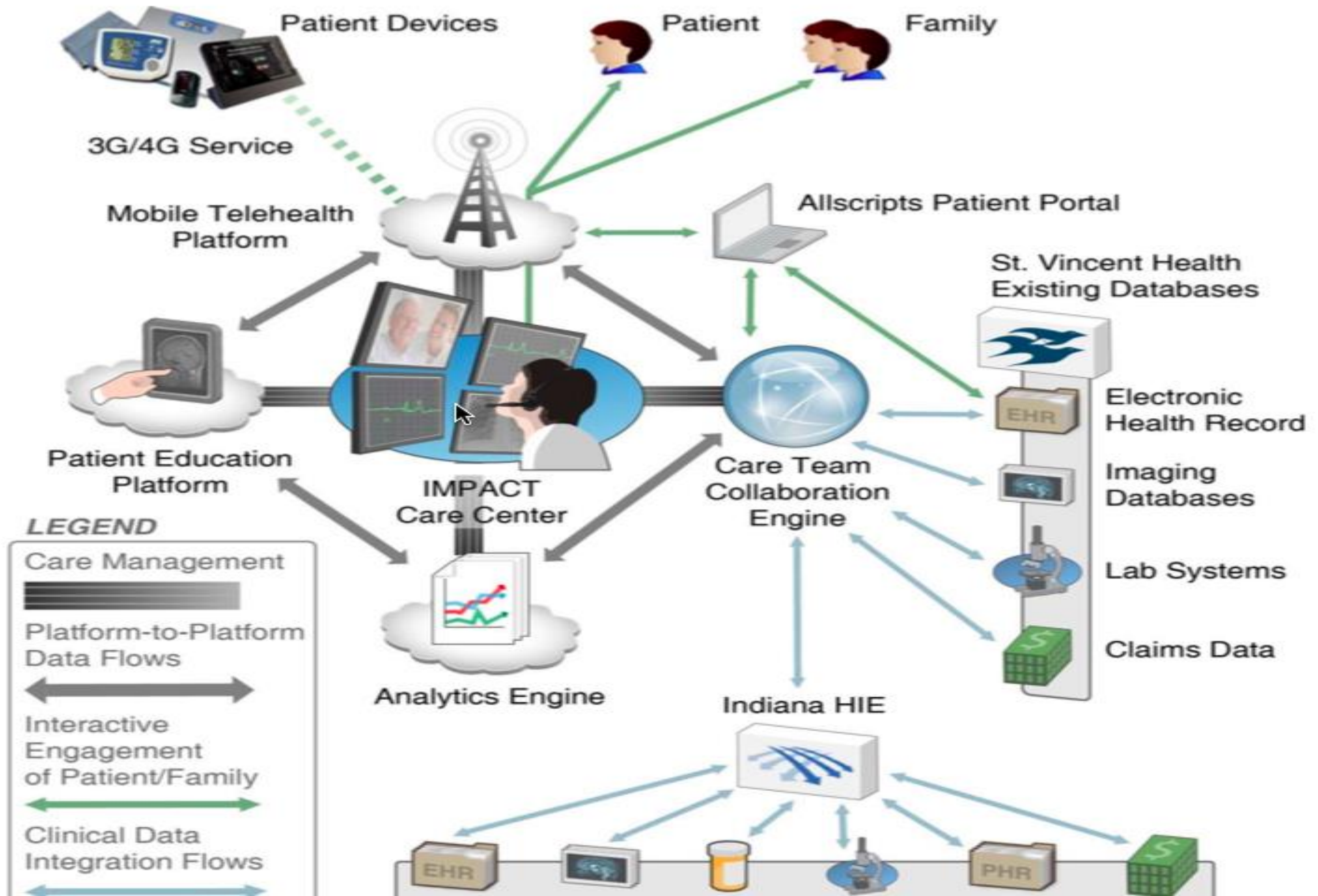
Remote Care Management Model

- Relationship-based care
- PCP engagement and integration into practice work-flow
- Comprehensive, customized patient care plans
- Provides technology enabled care

- Patient risk stratification
- Barriers to Care assessment
- Comprehensive Health Assessment including environmental scan, psych-social assessment

Assumptions

- **Readmission Patient Enrollment**
  - Ramp-up is defined based on the number of discharges for Medicare patients with HF, MI and Pneumonia at of the participating hospitals.
  - Assumption 33% of patient will elect not to participate in the program
  - Allow for a ramp-up period
- **Complex Chronic Patient Enrollment**
  - Ramp-up 25 patients every month capping at 400 patients over 3
  - Patients will spend an average of 4 months in Tech-Enabled before transitioning to 4 months of Phone Only.
- **Device Purchase**
  - The cost of device purchase per patient – purchase in quantity
  - Low-tech devices provided even after they have left the program.
  - High-tech devices replaced per year is assumed to be 40%.
  - Additionally estimates for storage and shipping included.



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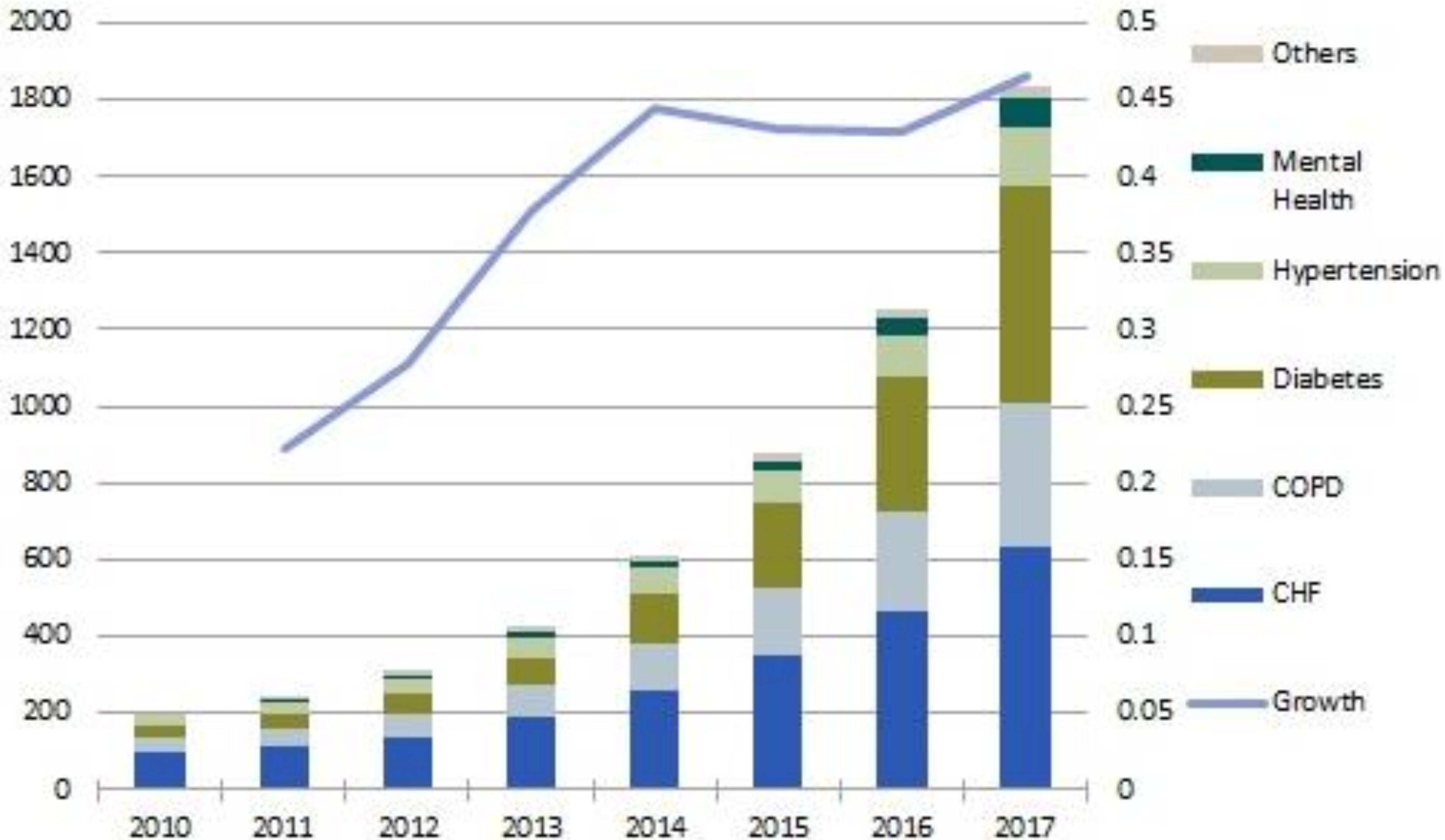
Telehealth Projected to Reach 1.8 million Patients by 2017

- In 2012 it was estimated there were some 308,000 patients worldwide remotely monitored for congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), diabetes, hypertension and mental health conditions
- Majority were post-acute patients who had been hospitalized and discharged
- Also used to monitor ambulatory patients diagnosed with a disease but not hospitalized.
- In the U.S.,an estimated 140,000 post-acute patients were monitored by telehealth in 2012, as compared with 80,000 ambulatory patients.

Telehealth in growth mode worldwide



The World Market for Telehealth – An Analysis of Demand Dynamics – 2012,