Using Technology to Improve Care Transitions: The IMPACT Project

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Conflict of Interest Disclosure

Craig Schneider, Ph.D
Lawrence Garber, MD

Have no real or apparent conflicts of interest to report.

Learning Objectives

- **Express the goals and objectives of the IMPACT project**
- **Explain the tools that convert the paper transfer form to electronic, and that translate clinical data into consumer-friendly language**
- **Discuss the system for enabling providers across the continuum of care to participate in the health information exchange**
- **Evaluate the success of the project to date and the role of the learning collaborative**
- **Analyze the replicability of this model to other communities**

Mathematica Policy Research

- Mission is to improve public well-being by bringing highest standards of quality, objectivity, and excellence to our information collection and analysis
- About 1000 employees across 6 offices, HQ in Princeton
- Research affiliates:
  - Center for Studying Health System Change
  - Center for Studying Disability Policy
  - Center for Improving Research Evidence
  - Center on Health Care Effectiveness
  - Center for International Policy Research & Evaluation

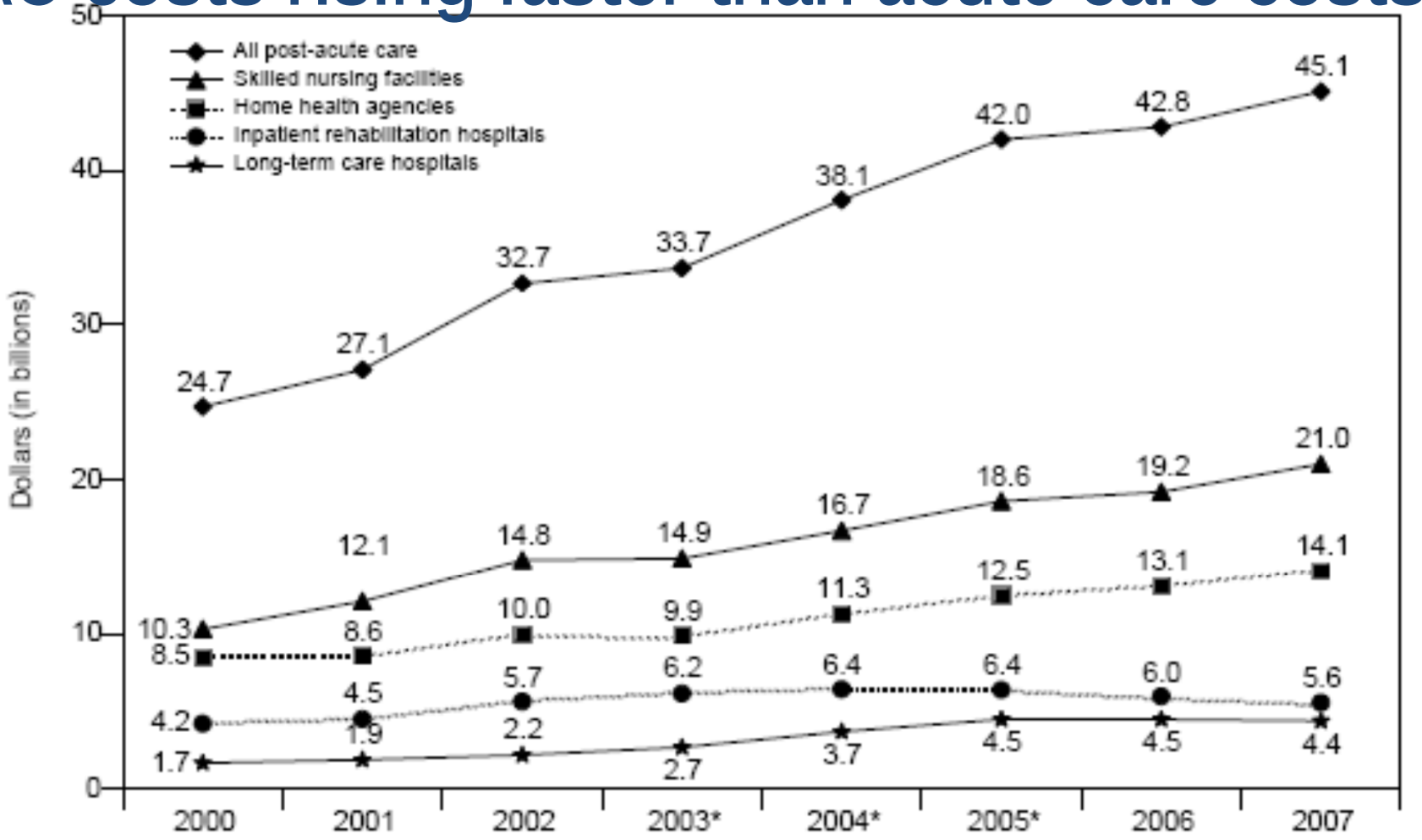
Reliant Medical Group

Reliant Medical Group formerly known as Fallon Clinic

- 300+ provider multi-specialty group practice
- 30 specialties, 23 sites in central Massachusetts
- 200,000 patients with over 1 Million visits/year
- Not-for-profit
- Member of Atrius Health (1000+ physicians)

The Post-Acute Care Problem

PAC costs rising faster than acute care costs



Source: MedPAC, 2008

DeJong 2010

Transitions With PAC Are Costly

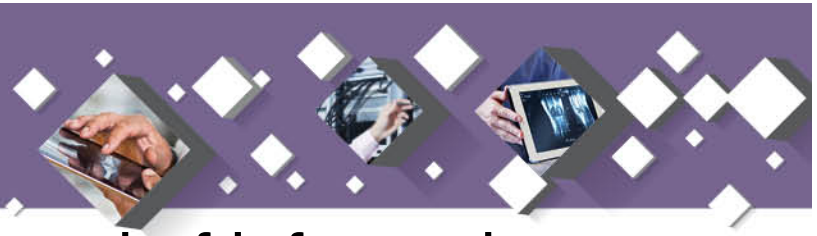
- 15% of ER admissions and $8b wasted annually from ADEs could be avoided if outpatient information known
- 1.5m preventable adverse events annually nationwide from discharge treatment plans not followed
- 20% of patients readmitted within 30 days. Preventable readmissions waste $577m in MA and $25b US annually

Solving The Post-Acute Care Problem

Care Transitions Forum

- Co-chairs: MCPME, DPH, MHDC
- 230 members, over 150 orgs
- Developed Strategic Plan for state
- Coordinate multiple CT projects being implemented in MA

Strategic Plan Principles



- Timely feedback and feed forward of information
- Communication Infrastructure to support efforts to improve CT
- Patient and Family Engagement is essential
- Accountability for care during transition remains with sending providers until receiving providers acknowledge responsibility
- Provider and Practice Engagement are essential
- Improvement in CT assessed using standardized process and outcome measures
- Payment should evolve towards approach that aligns incentives of providers, insurers, and patients to maximize accountability and minimize adverse events

Care Transitions Projects in MA

- STAAR
- INTERACT II
- MOLST
- LifeBox
- BOOST
- RED

Care Transitions Projects in MA (2)

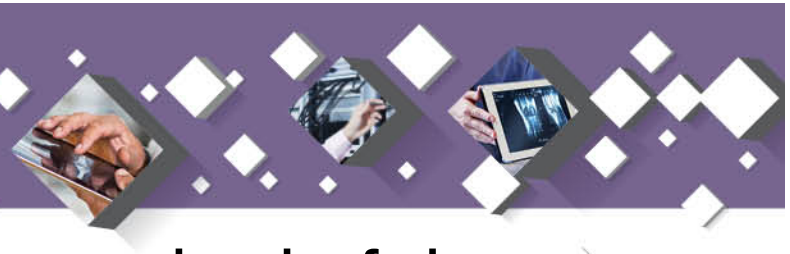
- Partners
- Pressure Ulcer Collaborative
- GBAF4Q
- ADRCs and SCOs
- CCTP
- IMPACT

IMPACT Grant

February 2011 – HHS/ONC awarded 1 of 4 $1.7M HIE Challenge Grants to Mass. (MTC/MeHI):

Improving **M**assachusetts **P**ost-**A**cute **C**are **T**ransfers (**IMPACT**)

IMPACT Objectives & Strategies



- Facilitate developing a national standard of data elements for transitions across the continuum of care
- Develop software tools to acquire/view/edit/send these data elements (LAND & SEE)
- Develop software to transform summary into a consumer-friendly format
- Integrate and validate tools into Worcester County using Learning Collaborative methodology – building on cross-continuum teams (STAAR)
- Measure outcomes

Why Worcester County?

- 2 STAAR initiatives
- 11 INTERACT nursing facilities
- 7 MOLST sites
- 6 PCMH sites
- 4 UTF pilot sites
- Experience with HIEs, including SAFEHealth
- 85% of healthcare stays within county
- Pilot sites will be able to study:
  - 90k patient xfers/yr (45k unique patients)
  - 50k commercial pts with all claims data
  - 20k Medicare Advantage pts with all claims data
  - 12k Medicaid patients with all claims data

Developing National Standards to Support Long Term and Post-Acute Care (LTPAC) Needs

Datasets for Care Transitions

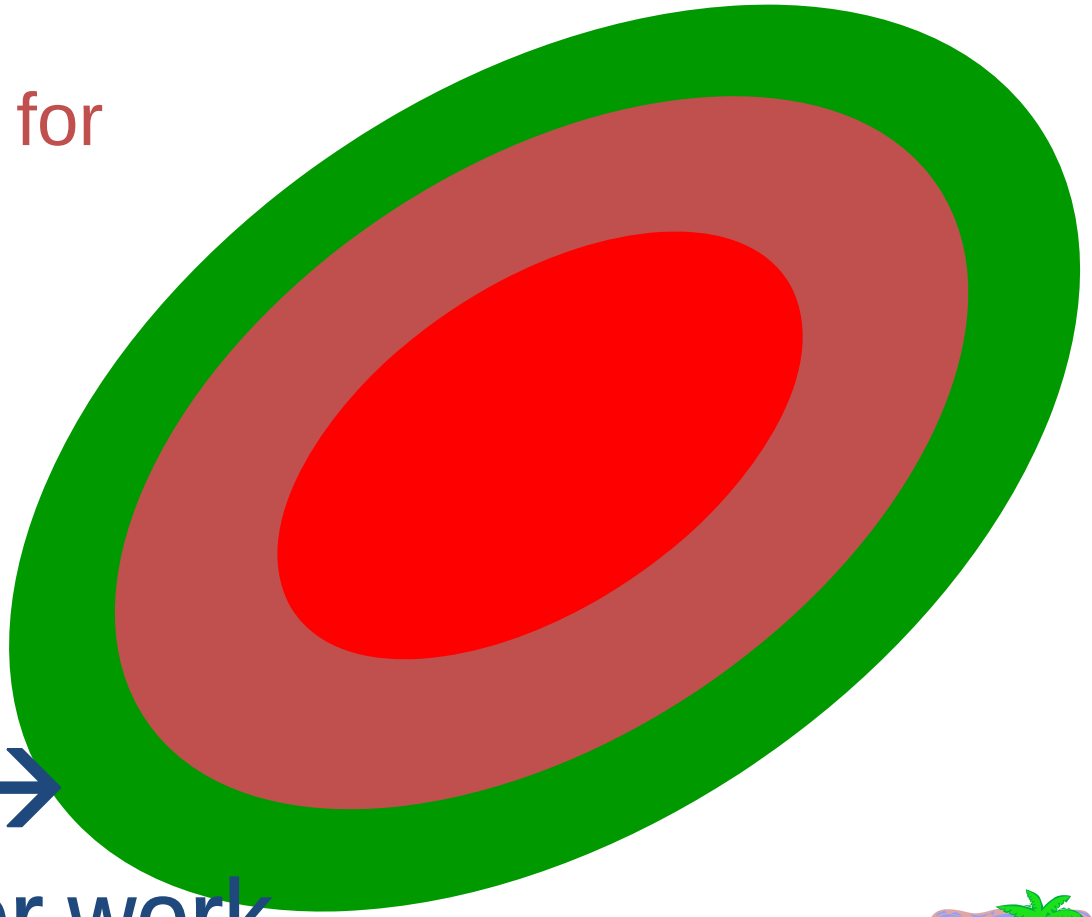
- **Traditionally** – What the **sender** thinks is important to the receiver
- **Future** – Also take into account what the **receiver** says they need

Stakeholders/ Contributors

- State (Massachusetts)
  - MA Universal Transfer Form workgroup
  - Boston's Hebrew Senior Life eTransfer Form
  - IMPACT learning collaborative participants
  - MA Coalition for the Prevention of Medical Errors
  - MA Wound Care Committee
  - Home Care Alliance of MA (HCA)
- National
  - NY's eMOLST
  - Multi-State/Multi-Vendor EHR/HIE Interoperability Workgroup
  - Substance Abuse, Mental Health Services Agency (SAMHSA)
  - Administration for Community Living (ACL)
  - Aging Disability Resource Centers (ADRC)
  - National Council for Community Behavioral Healthcare
  - National Association for Homecare and Hospice (NAHC)
  - Transfer of Care & CCD/CDA Consolidation Initiatives (ONC's S&I Framework)
  - Longitudinal Coordination of Care Work Group (ONC S&I Framework)
  - ONC Beacon Communities and LTPAC Workgroups
  - Assistant Secretary for Planning and Evaluation (ASPE)/Geisinger MDS HIE
  - Centers for Medicare & Medicaid Services (CMS)(MDS/OASIS/IRF-PAI/CARE)
  - **INTERACT** (**Inter**ventions to **R**educe **A**cute **C**are **T**ransfers)

Single dataset for all transitions?

- 175 element CCD
- 325 element IMPACT for LTPAC needs
- 480+ elements for Coordination



Many transitions don't need all data→ unnecessary sender work

14x14 Sender (left column) to Receiver (top) = 196 possibly transition types

Transitions From (Senders) \ Transitions to (Receivers)	In Patient Acute Care Hospitals	ED	Outpatient Services	Behavioral Health Inpatient	LTAC	IRF	SNF/ECF	HHA	Hospice	Amb Care (PCP)	EMS	BH Community Services	CBOs	Patient/ Family
Inpatient Acute Care Hospital														
Emergency Department														
Outpatient services														
Behavioral Health Inpatient														
Long Term Acute Care Hospital														
Inpatient Rehab Facility														
Skilled Nursing/Extended Care														
Home Health Agency														
Hospice														
Ambulatory Care (PCP, PCMH)														
Emergency Medical Services														
Behavioral Health Community														
Community Based Organizations														
Patient/Family														

Prioritize Transitions by Volume, Clinical Instability, and Time-Value of Information

Transitions From (Senders) \ Transitions to (Receivers)	In Patient	ED	Out patient Services	LTAC	IRF	SNF/ECF	HHA	Hospice	Amb Care (PCP)	CBOs	Patient/ Family
In patient				V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = M TV = H	V = H CI = M TV = H	V = H CI = L TV = H	V = H CI = M TV = H	V = H CI = L TV = H	V = H CI = M TV = H
ED				V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = M TV = H	V = M CI = M TV = H	V = H CI = L TV = H	V = M CI = L TV = H	V = H CI = M TV = H
Out patient services				V = H CI = H TV = H	V = H CI = M TV = H	V = H CI = M TV = H	V = H CI = M TV = H	V = L CI = L TV = H	V = H CI = L TV = H		V = H CI = L TV = L
LTAC	V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = H TV = H		V = M CI = M TV = H	V = H CI = M TV = H	V = H CI = M TV = H	V = M CI = M TV = H	V = H CI = M TV = H	V = H CI = M TV = H	V = H CI = M TV = H
IRF	V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = M TV = H	V = L CI = H TV = H		V = H CI = L TV = H	V = H CI = L TV = H	V = L CI = M TV = H	V = H CI = L TV = H	V = H CI = L TV = H	V = H CI = L TV = H
SNF/ECF	V = H CI = H TV = H	V = H CI = H TV = H	V = H CI = M TV = H	V = M CI = H TV = M	V = L CI = M TV = M	V = L CI = M TV = M	V = H CI = M TV = H	V = M CI = M TV = M	V = H CI = L TV = M	V = H CI = M TV = H	V = H CI = L TV = H
HHA	V = H CI = H TV = H	V = H CI = H TV = H					V = L CI = L TV = L	V = M CI = L TV = L	V = H CI = L TV = L	V = H CI = L TV = L	V = H CI = L TV = L
Hospice	V = L CI = H TV = H	V = M CI = H TV = H				V = M CI = M TV = M	V = L CI = L TV = M	V = L CI = L TV = M	V = L CI = M TV = L	V = M CI = L TV = L	V = L CI = M TV = M
Ambulatory Care (PCP)	V = M CI = H TV = H	V = H CI = H TV = H				V = L CI = M TV = H	V = M CI = M TV = M	V = L CI = L TV = H	V = L CI = L TV = M	V = M CI = L TV = M	V = L CI = L TV = L
CBOs											
Patient/Family											

Black circles = highest priority
Green circles = high priority

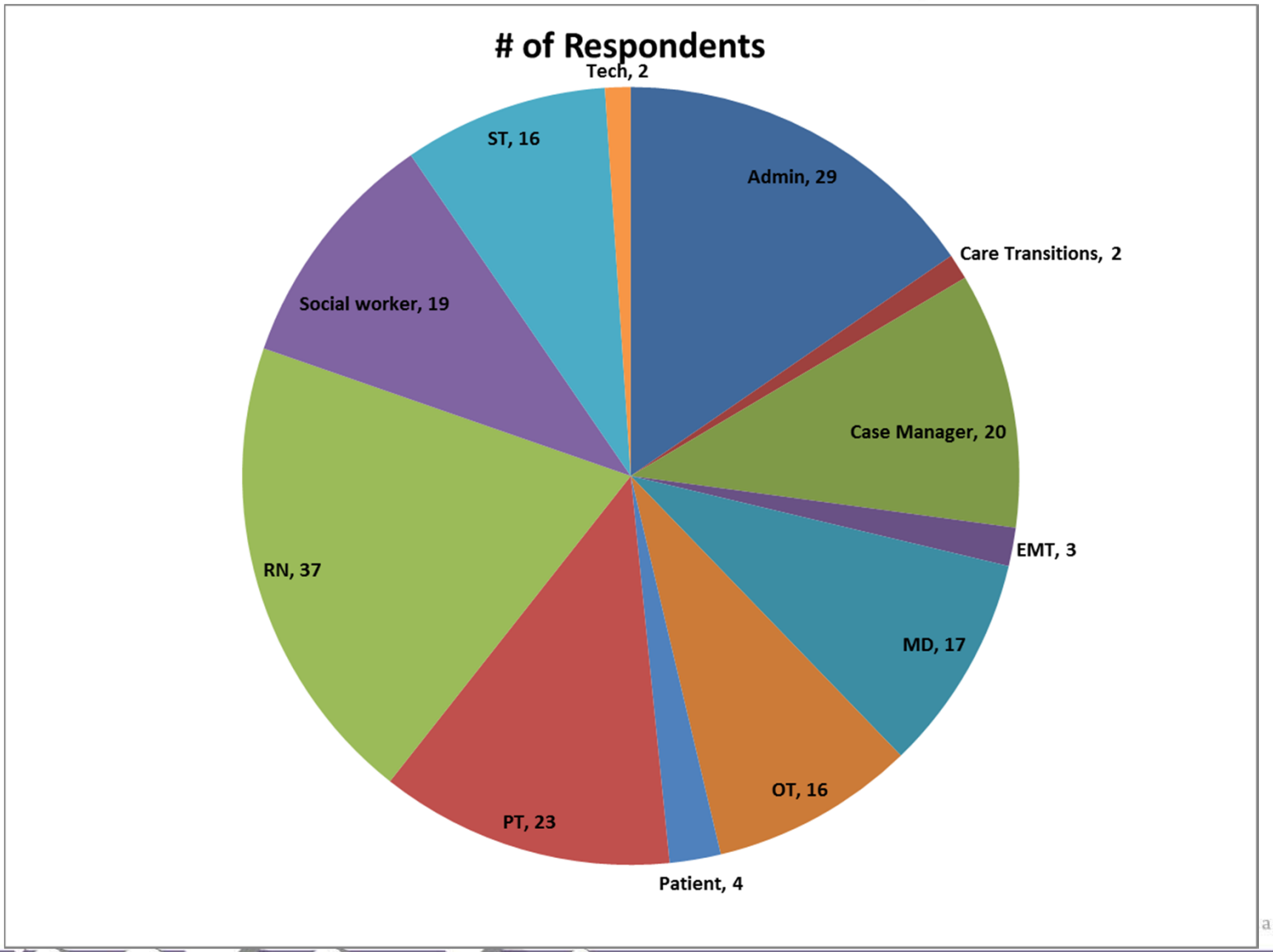
"Receiver" Data Element Survey

- 1135 Transition surveys completed
- Largest survey of Receivers' needs
- 46 Organizations completing evaluation
- 12 Different types of user roles

6		From Acute Care Hospital	From Emergency Department	From Skilled Nursing Facility
72	Chief Complaint	Required	Required	Required
73	Reason Patient is being referred	Required	Required	Required
74	Reason for Transfer	Not needed/No	Not needed/No	Not needed/No
75	Sequence of events proceeding patient's disease/condition	Optional	Optional	Required
76	History of Present Illness	Required	Required	Required

Contact Information | HomeHealth Nurse

12 User Roles



Findings from Survey

- Identified for each transition which data elements are required, optional, or not needed
- Each of the data elements is valuable to at least one type of Receiver
- Many data elements are not valuable in certain care transition
- A single paper form can't represent this variability in data needs
- Can be grouped into 5 types of transitions

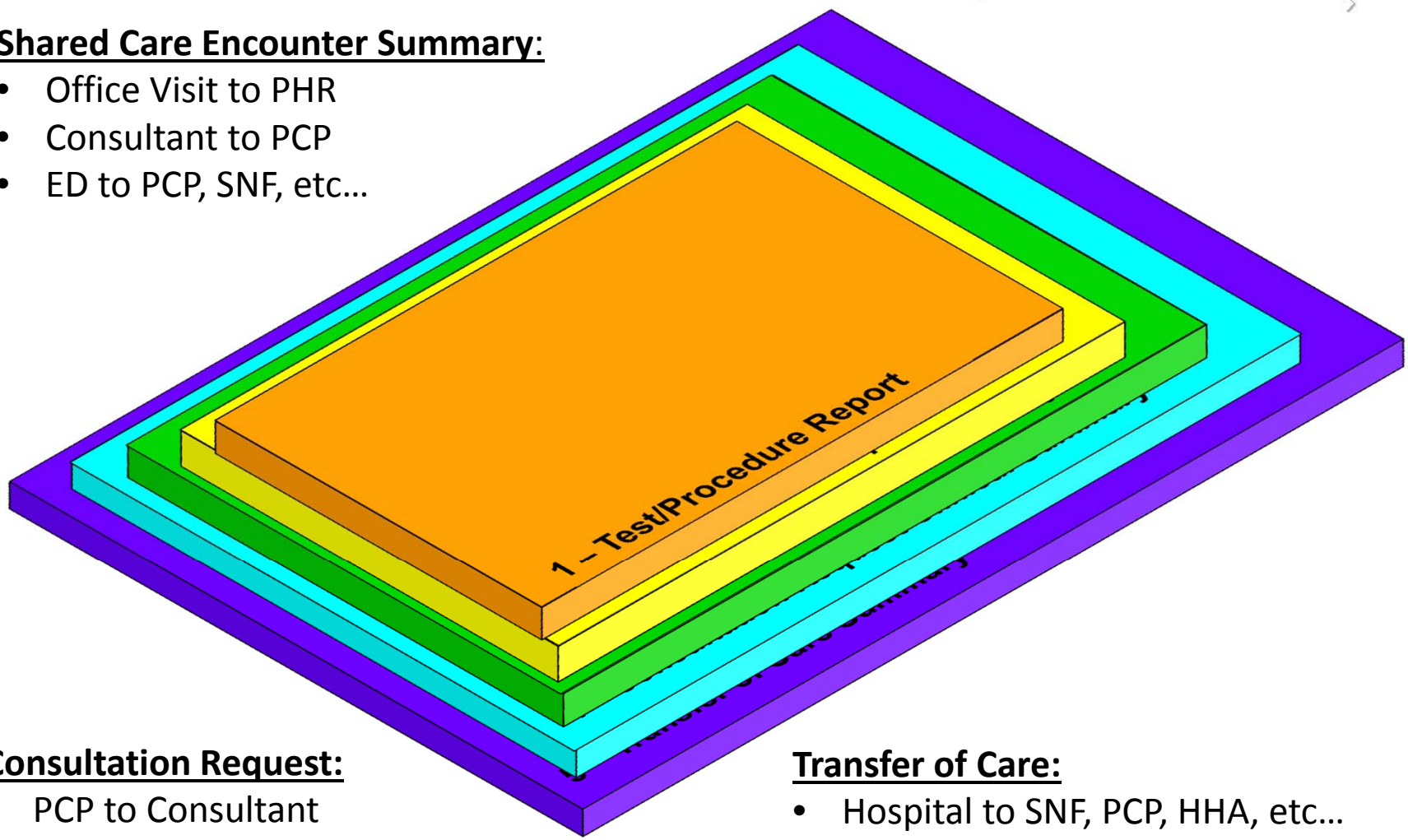
Five Transition Datasets

1. **Report from Outpatient testing**, treatment, or procedure
2. **Referral to Outpatient testing**, treatment, or procedure (including transporation)
3. **Shared Care Encounter Summary** (Office Visit, Consultation Summary, Return from the ED to the referring facility)
4. **Consultation Request** Clinical Summary (Referral to a consultant or the ED)
5. Permanent or long-term **Transfer of Care** to a different facility or care team or Home Health Agency

Five Transition Datasets

Shared Care Encounter Summary:

- Office Visit to PHR
- Consultant to PCP
- ED to PCP, SNF, etc…



Consultation Request:

- PCP to Consultant
- PCP, SNF, etc… to ED

Transfer of Care:

- Hospital to SNF, PCP, HHA, etc…
- SNF, PCP, etc… to HHA
- PCP to new PCP

Five Transition Datasets

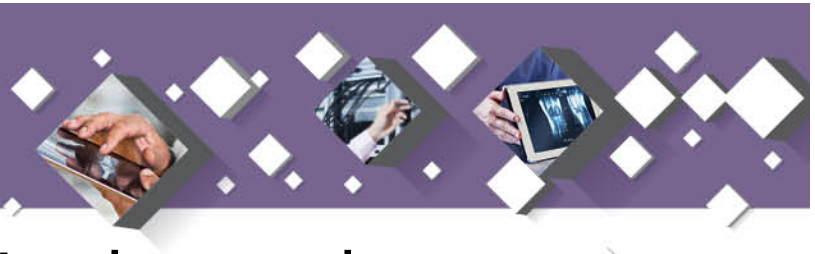
Transitions From (Senders) \ Transitions to (Receivers)	In Patient	ED	Out patient Services	LTAC	IRF	SNF/ECF	Amb Care (PCP)	Hospice	HHA	CBOs	Patient/ Family
In patient							5				
ED							3				
Out patient services									1		
LTAC							5				
IRF											
SNF?ECF									5		
Ambulatory Care (PCP)											
Hospice											
HHA	5	4	2								
CBOs											
Patient/Family											

Testing the IMPACT Datasets

Pilot Sites to Test the Datasets

- 9/2011 – Applications sent to 34 organizations
- Selection Criteria:
  - High volume of patient transfers with other pilot sites
  - Experience with Transitions of Care tools/initiatives
- 16 Winning Pilot Sites:
  - St Vincent Hospital and UMass Memorial Healthcare
  - Reliant Medical Group (formerly known as Fallon Clinic) and Family Health Center of Worcester (FQHC)
  - 2 Home Health agencies (VNA Care Netwk, Overlook VNA)
  - 1 Long Term Acute Care Hospital (Kindred Parkview)
  - 1 Inpatient Rehab Facility (Fairlawn)
  - 8 Skilled Nursing and Extended Care Facilities

Nursing Facility Pilot Sites



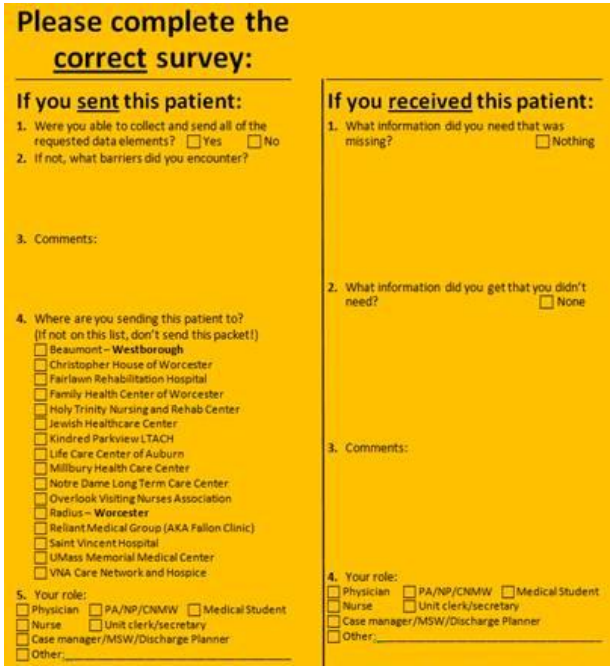
- Beaumont Rehabilitation of Westborough
- Christopher House of Worcester
- Holy Trinity Nursing & Rehab
- Jewish Healthcare Center
- LifeCare Center of Auburn (+EMR)
- Millbury Healthcare Center
- Notre Dame LTC
- Radius Healthcare Center Worcester

IMPACT Learning Collaborative: Testing the Care Transitions Datasets

16 organization, 40 participants,
6 meetings over 2 months, and
several hundred patient transfers…

Learning Collaborative Surveys

- Surveys directly on envelopes carrying IMPACT packet, filled out by sender as well as receiver.



Please complete the correct survey:

If you sent this patient:

1. Were you able to collect and send all of the requested data elements? ☐ Yes ☐ No
2. If not, what barriers did you encounter?

3. Comments:

4. Where are you sending this patient to? (If not on this list, don't send this packet!)
   - ☐ Beaumont – **Westborough**
   - ☐ Christopher House of Worcester
   - ☐ Fairlawn Rehabilitation Hospital
   - ☐ Family Health Center of Worcester
   - ☐ Holy Trinity Nursing and Rehab Center
   - ☐ Jewish Healthcare Center
   - ☐ Kindred Parkview LTACH
   - ☐ Life Care Center of Auburn
   - ☐ Millbury Health Care Center
   - ☐ Notre Dame Long Term Care Center
   - ☐ Overlook Visiting Nurses Association
   - ☐ Radius – **Worcester**
   - ☐ Reliant Medical Group (AKA Fallon Clinic)
   - ☐ Saint Vincent Hospital
   - ☐ UMass Memorial Medical Center
   - ☐ VNA Care Network and Hospice
5. Your role:
   ☐ Physician ☐ PA/NP/CNMW ☐ Medical Student
   ☐ Nurse ☐ Unit clerk/secretary
   ☐ Case manager/MSW/Discharge Planner
   ☐ Other:_____

If you received this patient:

1. What information did you need that was missing? ☐ Nothing

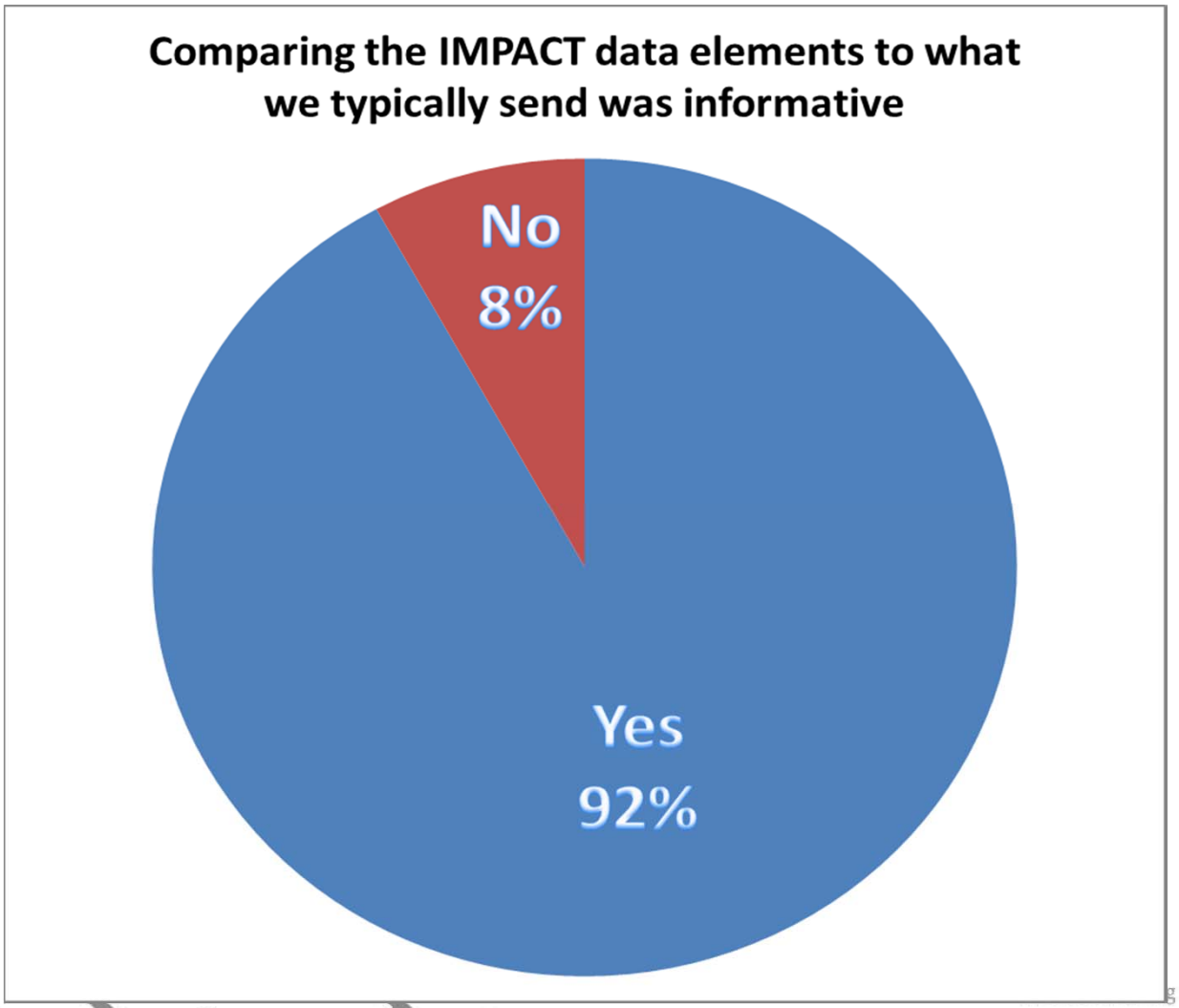
2. What information did you get that you didn't need? ☐ None

3. Comments:

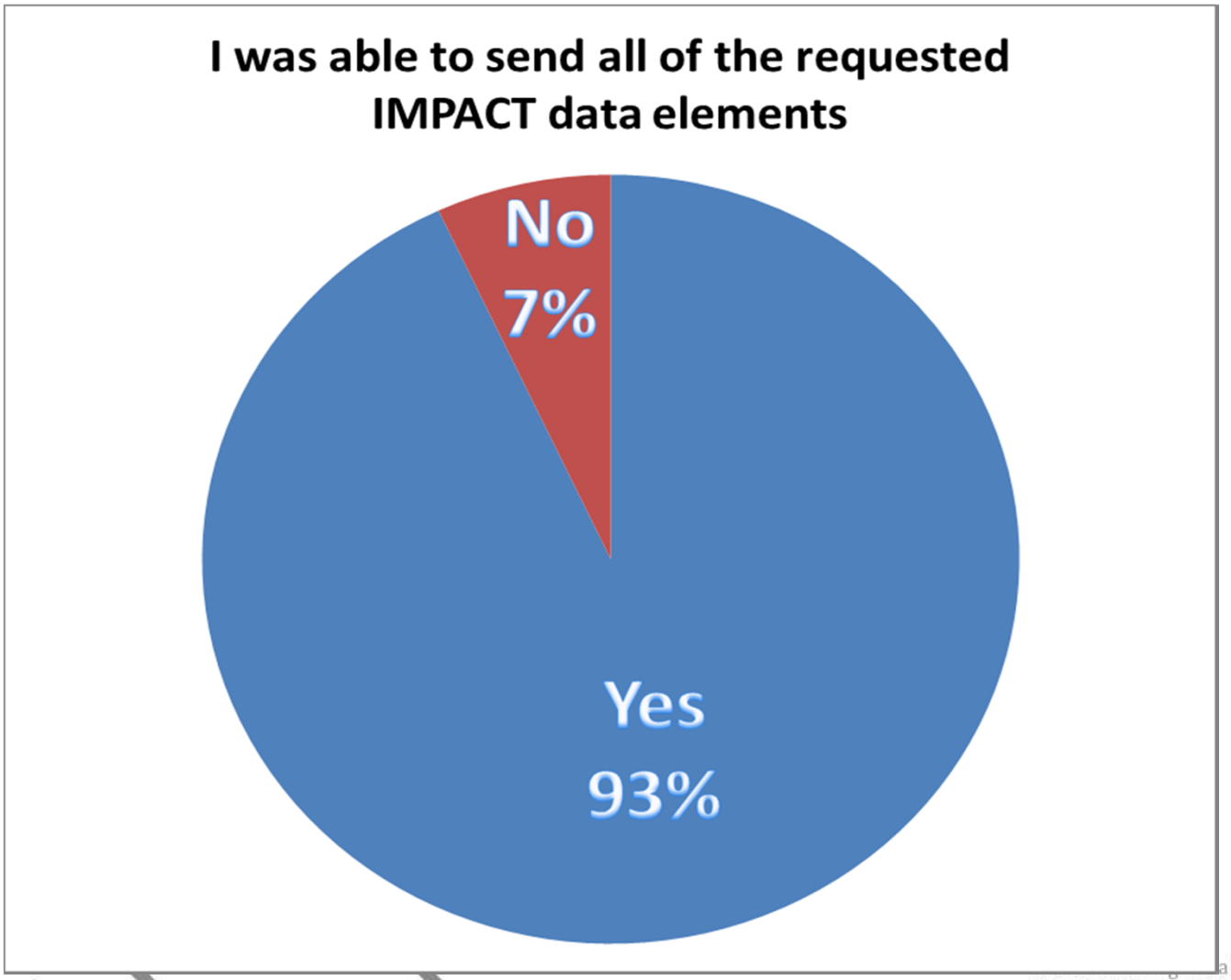
4. Your role:
   ☐ Physician ☐ PA/NP/CNMW ☐ Medical Student
   ☐ Nurse ☐ Unit clerk/secretary
   ☐ Case manager/MSW/Discharge Planner
   ☐ Other:_____

- Online survey at completion of pilot

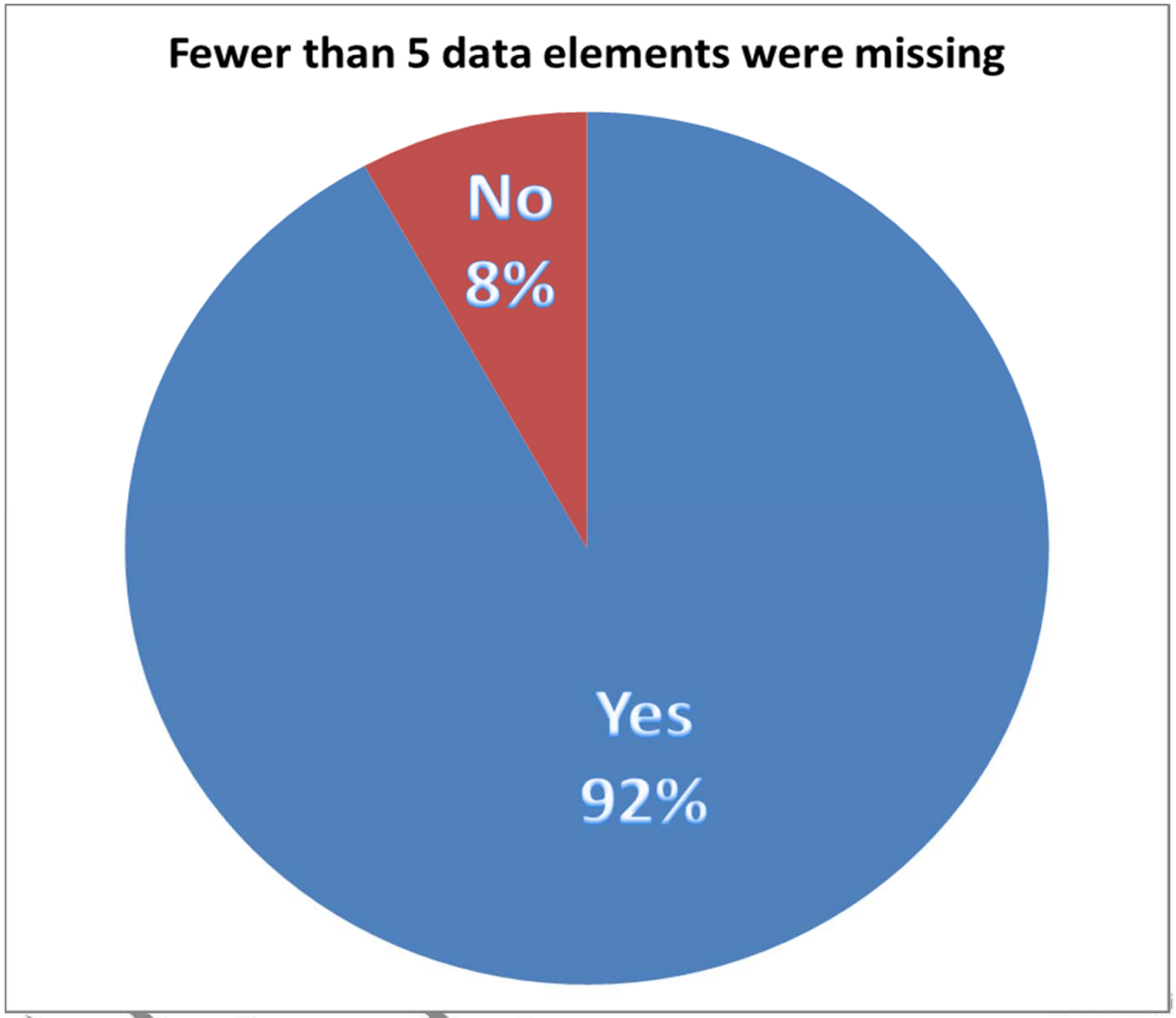
Analyzing data elements helped



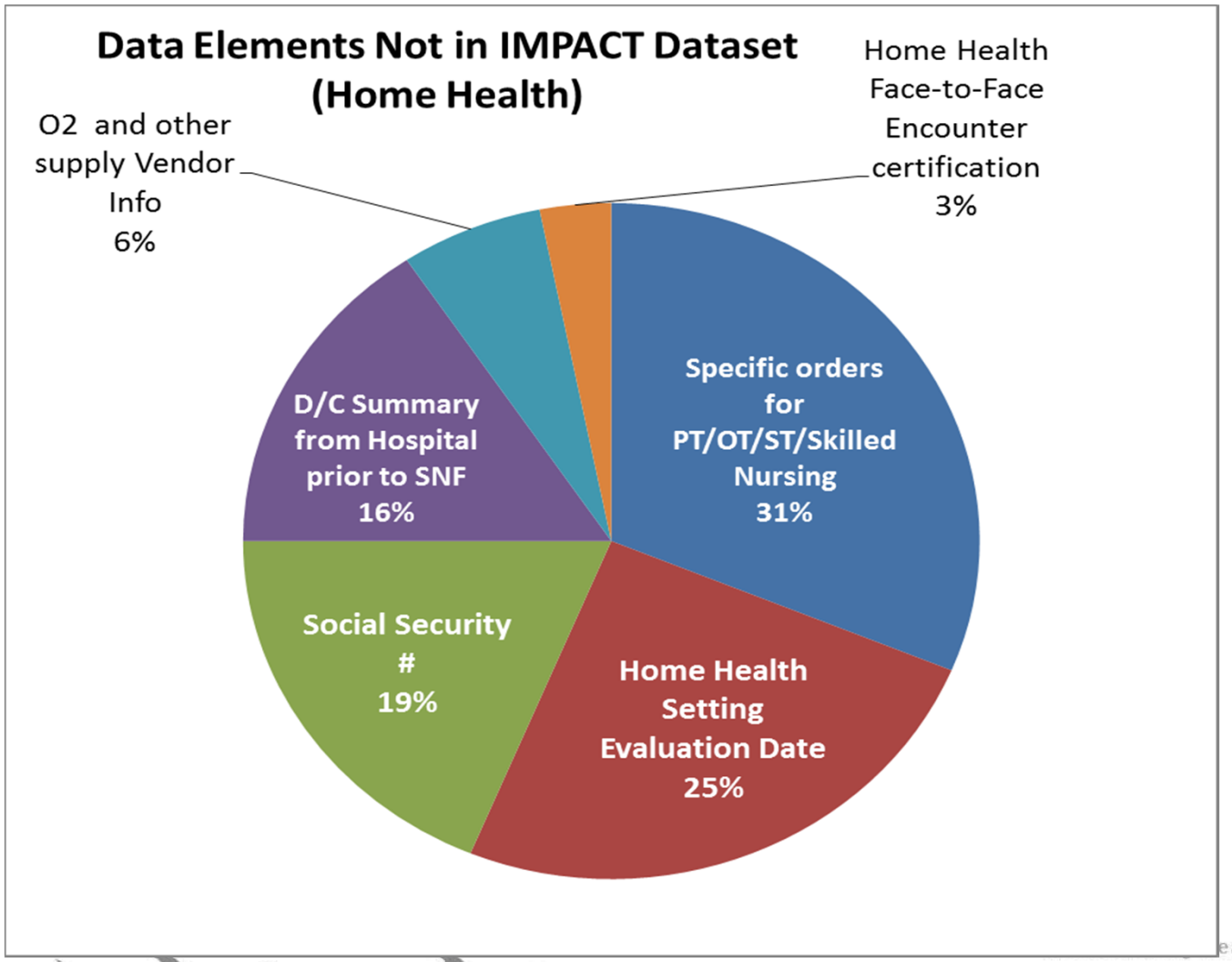
Senders found the data



Receivers got most of their needs



Home Care needed even more!



Comment from Pilot Site Survey

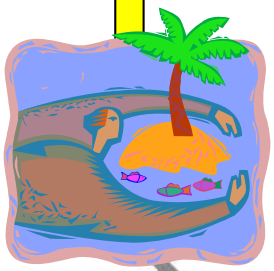
"While we knew what EDs and hospitals required, we didn't realize Home Health Agencies needed much more than what we typically sent."

-*Skilled Nursing Facility*

New World of Standards Development

National Coordinator for Health IT (ONC)

- Office of the Deputy National Coordinator for Programs & Policy
  - Office of Policy & Planning
    - → **HIT Policy Committee Defines "Meaningful Use" of EHRs**
  - Office of Science & Technology (formerly known as the Office of **Standards and Interoperability (S&I)**)
    - → **S&I Framework convenes public and private experts, and proposes HIT/HIE standards**
      - → **HL7 ballots standards**
        - → **Secretary of HHS makes standards part of "Meaningful Use" and EHR Certification**
  - Office of Provider Adoption Support
  - Office of State & Community Programs
- Office of the Deputy National Coordinator for Operations
- Office of the Chief Privacy Officer
- Office of Economic Analysis & Modeling
- Office of the Chief Scientist



IMPACT

S&I FRAMEWORK

Timeline for Standards Development

- October 2012 - MA HIway go-live in 10 large sites with CCD and LAND
- February 2013 - Preliminary Implementation Guide completed
- May 2013 - Pilot electronic Transfer of Care Datasets between 16 central Massachusetts organizations using MA HIway, LAND & SEE
- July 2013 - Finish Implementation Guide using the S&I Framework incorporating pilot feedback
- September 2013 - HL7 Balloting of Implementation Guide for inclusion in Consolidated CDA

Getting Connected: LAND & SEE

LAND & SEE

- Sites with EHR or electronic assessment tool use these applications to enter data elements
  - **LAND** ("**L**ocal" **A**daptor for **N**etwork **D**istribution) acts as a data courier to gather, transform, and securely transfer data if no support for Direct SMTP/SMIME or IHE XDR
- Non-EHR users complete all of the data fields and routing using a web browser to access their "**S**urrogate **E**HR **E**nvironment" (**SEE**)

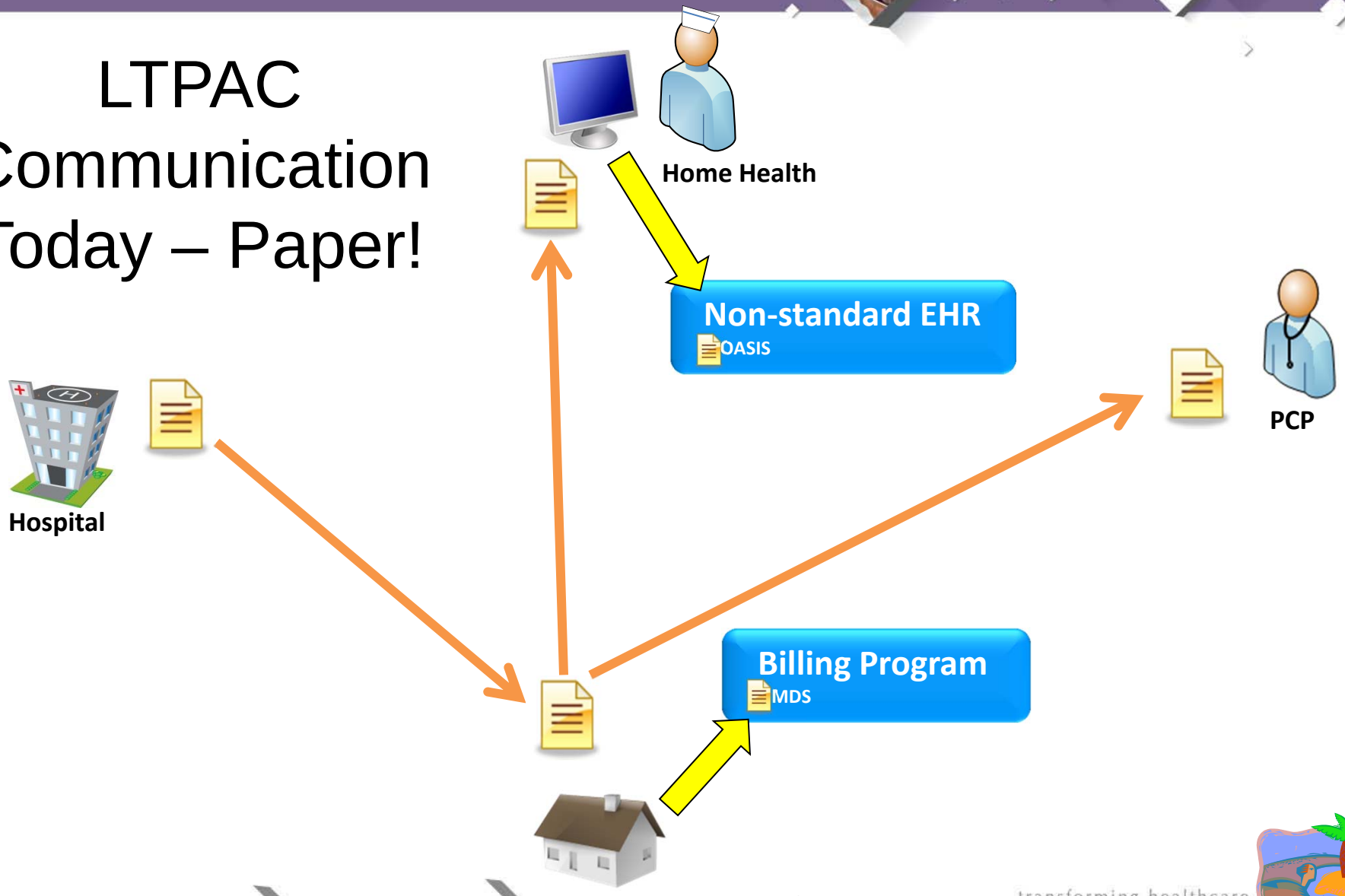
Surrogate EHR Environment (SEE)

- Acts as destination for routed CCD+ documents
- Software hosted by trusted authority, accessed via web browser
- SEE is accessed via the HIE's web mailbox
- Non-EHR users able to use SEE to view, edit, send CDA documents via HIE or Direct to next facility
- Can select document type (e.g. Transfer of Care or INTERACT) to display section flags indicating their optionality
- Can reconcile 2 documents to create a third
- SEE users able to locally print or fax copies of the documents or subsets of the documents

Using SEE for LTPAC Workflows

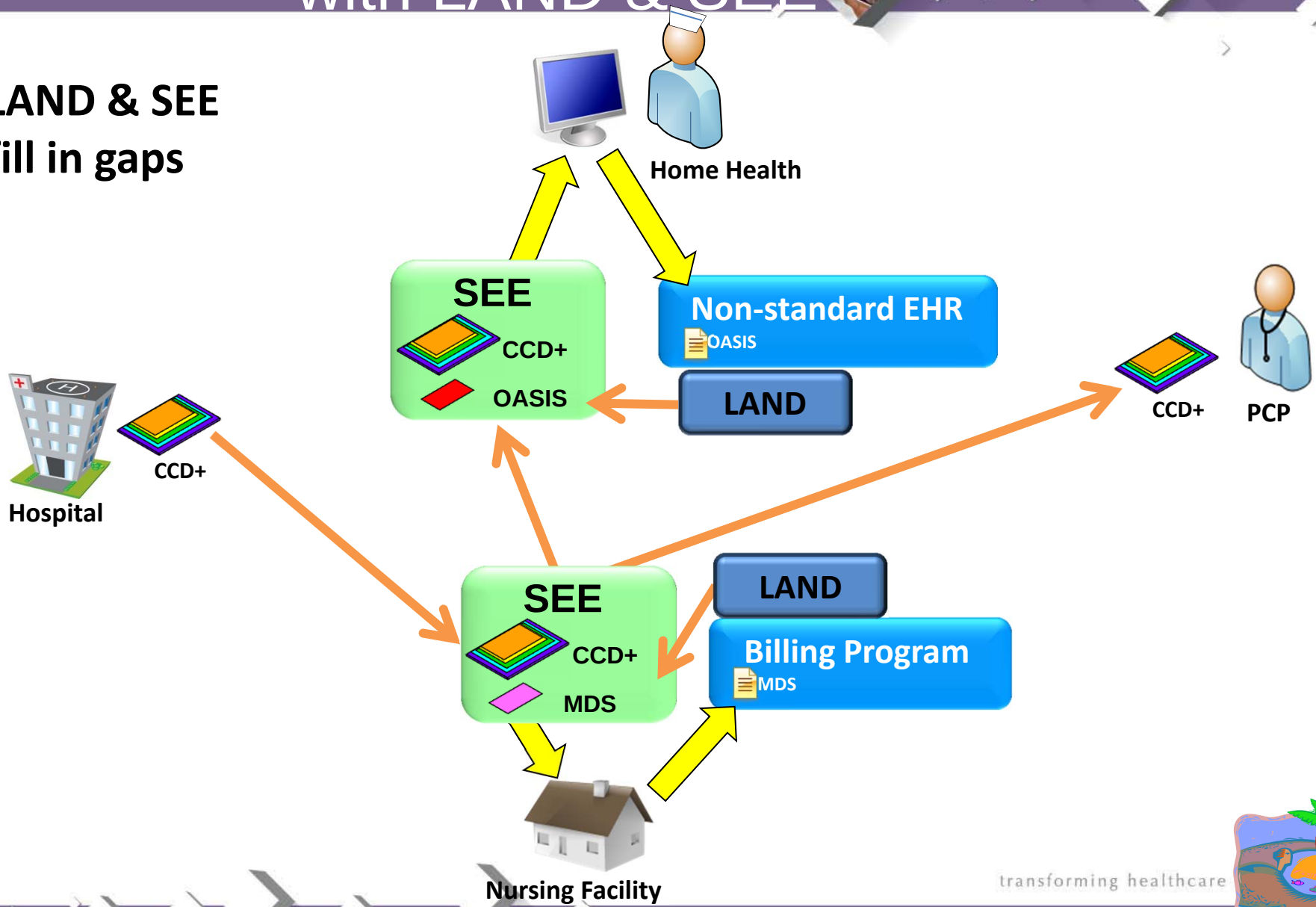
- SNF patient getting sicker
  - Subset of Transfer of Care dataset that is in INTERACT is flagged for completion by nurse online
  - Can re-use data received from hospital
  - Can re-use clinical assessment data (function, cognition, wound) from last MDS
  - Completed INTERACT printed for chart
- Patient transfer to Emergency Department
  - Can re-use hospital, MDS, OASIS or INTERACT data
  - Multiple users (nurse, social worker, clerk, etc…) can work on different sections online at same time
  - Completed dataset sent electronically to ED
  - Subset can be printed for ambulance & patient

LTPAC Communication Today – Paper!



LTPAC Communication with LAND & SEE

LAND & SEE fill in gaps



Advantages of LAND & SEE

- Most role-based authentication uses EHR, using work that local organizations have already done
- Most users (docs & nurses) only work out of 1 system
- Data re-used whenever possible
- No blended central clinical data repository
- Case/discharge managers or nurses can control when and where to route documents because they're the ones that know when and where!
- Non-EHR users get same HIE transport functionality as EHR users
- Relatively low-cost to deploy and support
- Easily scalable and replicable

Measuring Outcomes

Measure outcomes

Evaluate pre- and post-implementation:

- Efficiency of transfer process
- Adoption of the Care Transitions Datasets: content and process
- Satisfaction with transfer process: patients, families, senders, receivers
- Total cost of care (c/w prior year and cohort)
- Emergency Department (ED) visits, admissions, readmissions

Measure outcomes

- Data sources will include:
  - Surveys of senders, receivers, pts, families
  - Utilization data of Fallon CHP Medicare Advantage, commercial, Medicaid
  - State Hospital Utilization Database
- Build evaluation into work flow
  - Evaluation as part of the hand-off process
  - Low intensity, high frequency survey method

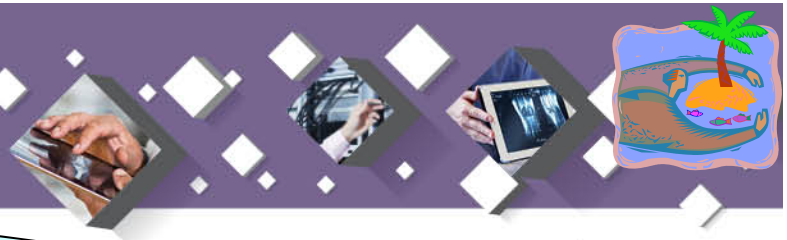
Dissemination

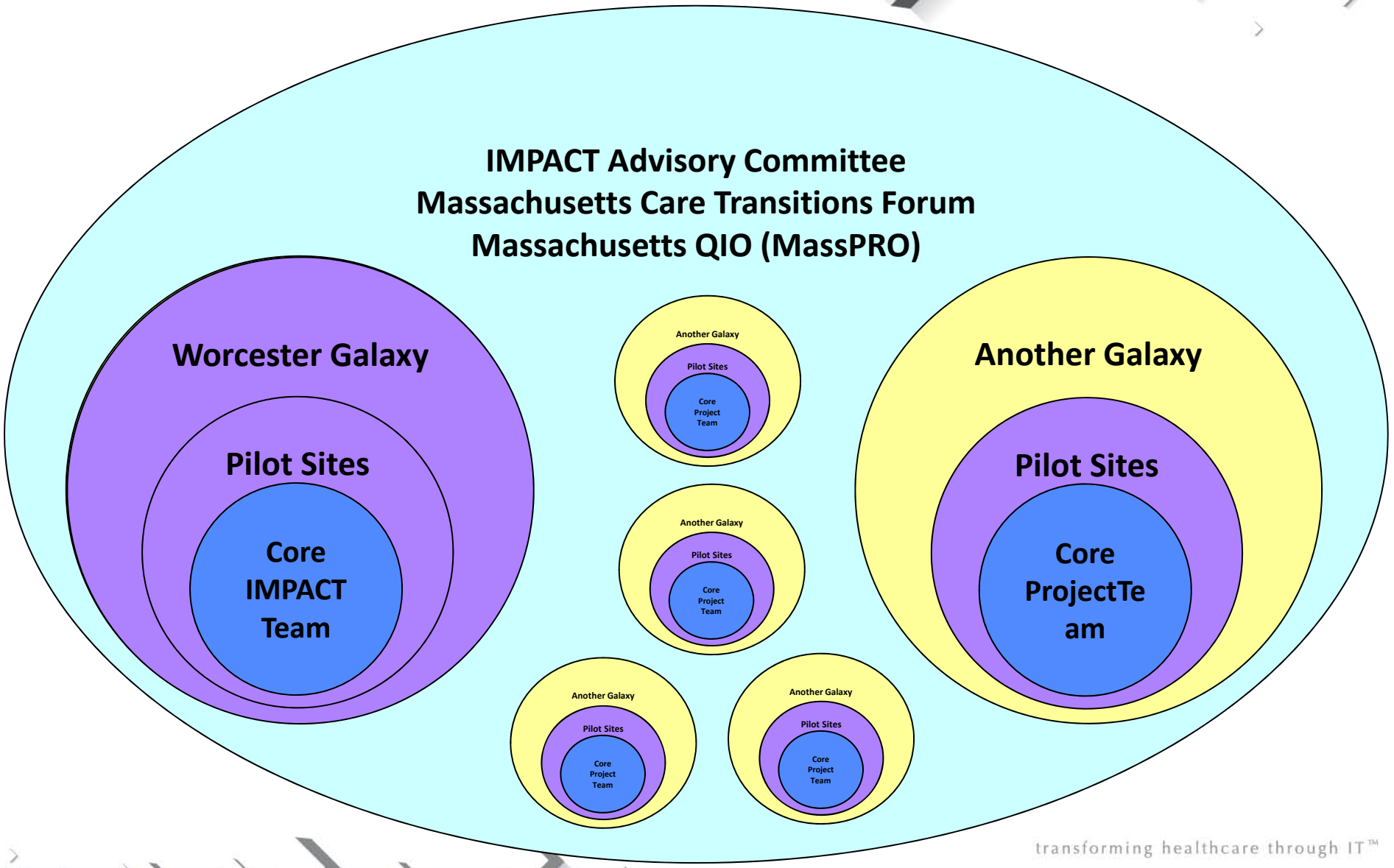
Sharing LAND & SEE

- LAND
  - Orion Health's Rhapsody Integration Engine

    http://www.orionhealth.com/solutions/packages/rhapsody
  - We'll make some standard configurations available
- SEE
  - Written in JAVA
  - Baseline functionality software and source code that can connect to Orion's HISP mailbox via API available for free starting summer 2013 (Apache Version 2.0 open source license)
  - Innovators can develop and charge for enhancements, for example:
    - Integration with other vendors' HISP mailboxes
    - Automated CDA document reconciliation

Disseminating the Seeds

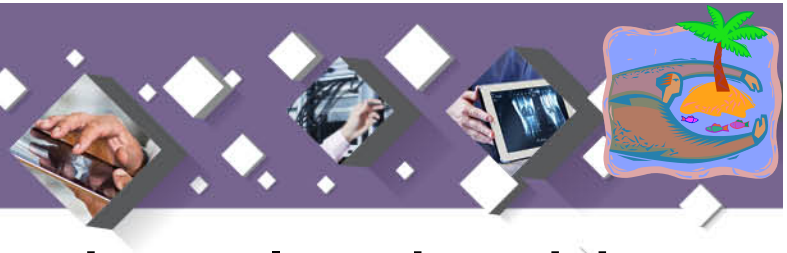




Conclusion

- Desired impact of IMPACT:
  - Enable all providers (regardless of HIT) to participate in HIE to improve care transitions
  - Improve communication between sending/receiving facilities
  - Develop a model that is easily replicable in other communities in MA and US
  - Inform the national standards for care transitions data elements
  - Achieve Triple Aim: Improve care, better health, reduce costs

Special Thanks To:



- Massachusetts e-Health Institute leadership and staff
- Massachusetts EOHHS leadership and staff
- Office of the National Coordinator (ONC)
- Terry O'Malley, MD, Partners HealthCare System
- Alice Bonner, Ph.D, CMS (formerly of MDPH and Mass. Senior Care Foundation)
- IMPACT Advisory Committee members
- Worcester IMPACT pilot site leadership & staff

Questions?

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