Using Data, Information, and Knowledge to Improve the Health of our Most Vulnerable Populations

David Dorr, MD, MS

Professor and Vice Chair, Medical Informatics & Clinical Epidemiology

Professor, Medicine

Oregon Health & Science University

Hartford Center Featured Research on Aging, May 2018

Background and disclaimer

- This talk claims to be focused primarily on data, information, and knowledge; informatics is the study of these topics.

- Most of the talk – and informatics in *practice* - is about humans: their health, their interactions, and how they collaborate.

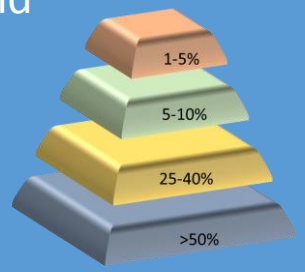
- Also: I've a history of non-exclusive licensing of technology, but none in the last 3 years.

Mission of Care Management Plus

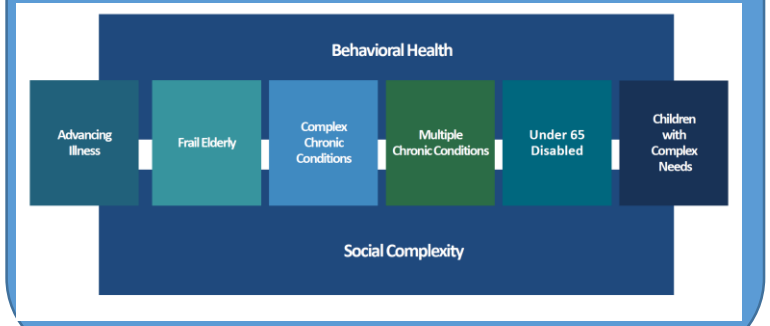
is to better understand how data, information, and knowledge can assist in transforming health for our most vulnerable patient populations.

Identifying vulnerable people

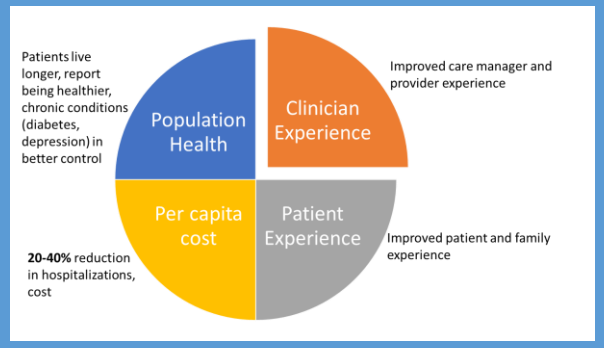
Risk stratification and segmentation



Tailoring care to these needs



Improving outcomes



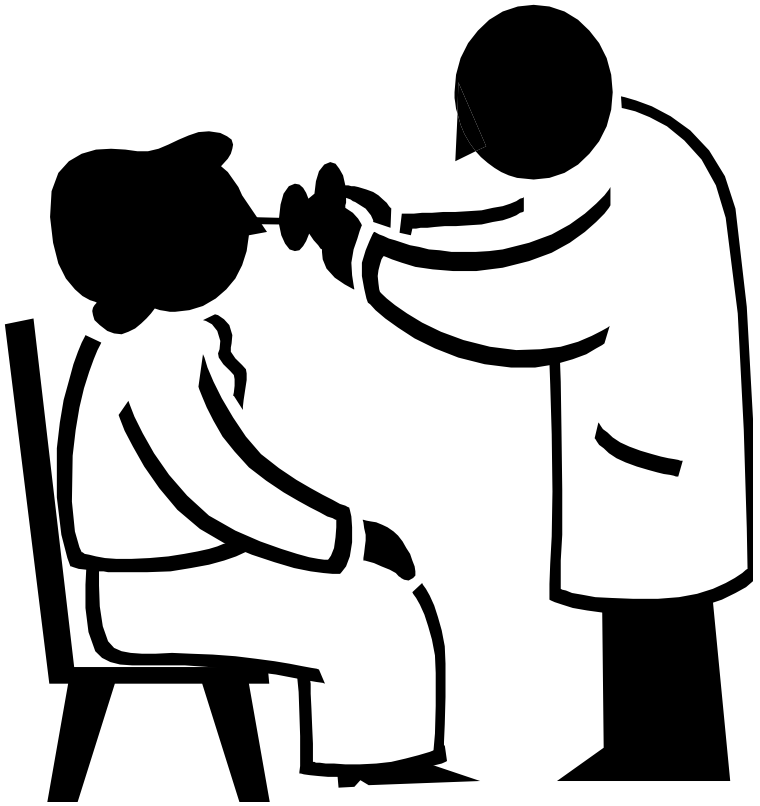
Case study

Ms. Viera: a 75-year-old woman with diabetes, systolic hypertension, mild congestive heart failure, arthritis and recently diagnosed cognitive impairment.

Ms. Viera and her caregiver come to clinic with several problems:

1. Hip and knee pain
2. Trouble taking all of her current 12 medicines
3. Dizziness when she gets up at night
4. Low blood sugars in the morning
5. and a recent fall

And Out in the hall:



6. The caregiver confidentially notes he is exhausted.
7. Money is running low for additional medications.

How can the primary care team handle these issues?

Past: Heroism in the face of multiple illnesses

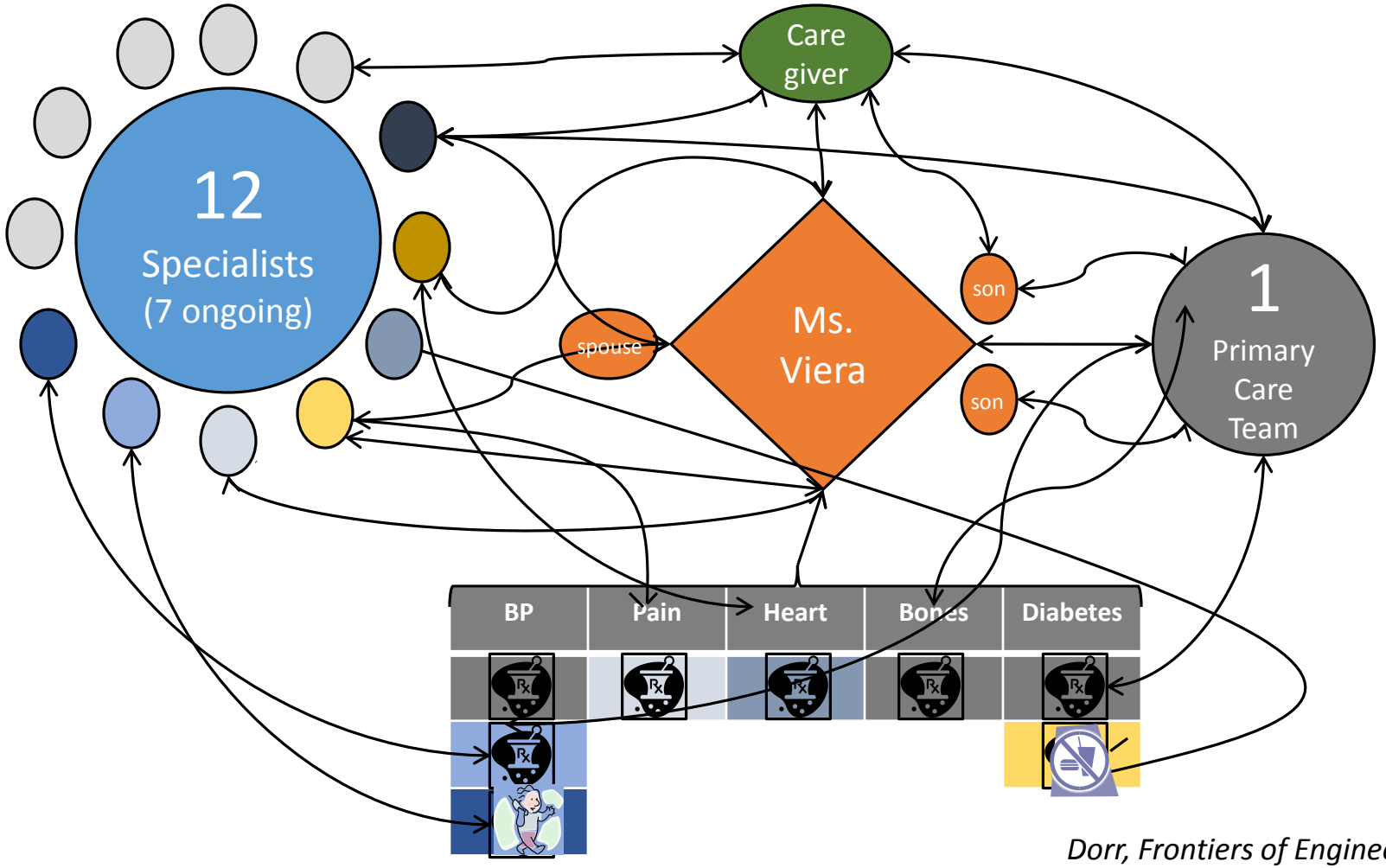
- Multiple chronic conditions increase risk and coordination *exponentially* (5 or more : 90 x risk of hospitalization; 10x prescriptions; 13 providers vs. 2)
- To manage preventive and chronic illnesses in a primary care panel of 2500 patient would take 18 hours a day
- Patients with multiple illnesses have *better* process quality scores but *more* 'preventable' hospitalizations

Anderson, 2004 ; Woolf, 2002; Baron, 2007, 2010; Werner 2008

Incrementalism vs. longitudinal care

http://www.newyorker.com/magazine/2017/01/23/the-heroism-of-incremental-care

The Norm: (Un)Coordinated Care

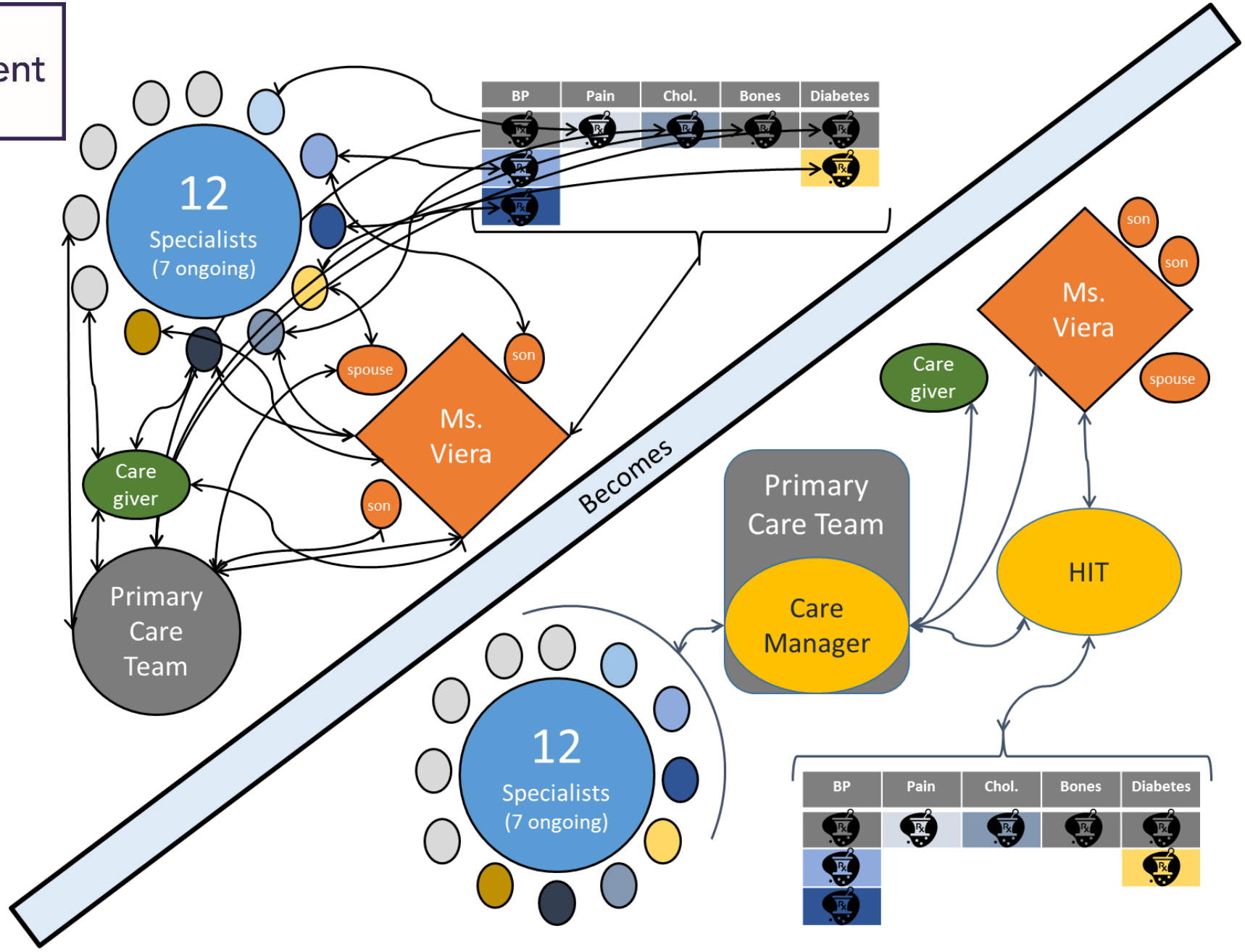


Dorr, Frontiers of Engineering

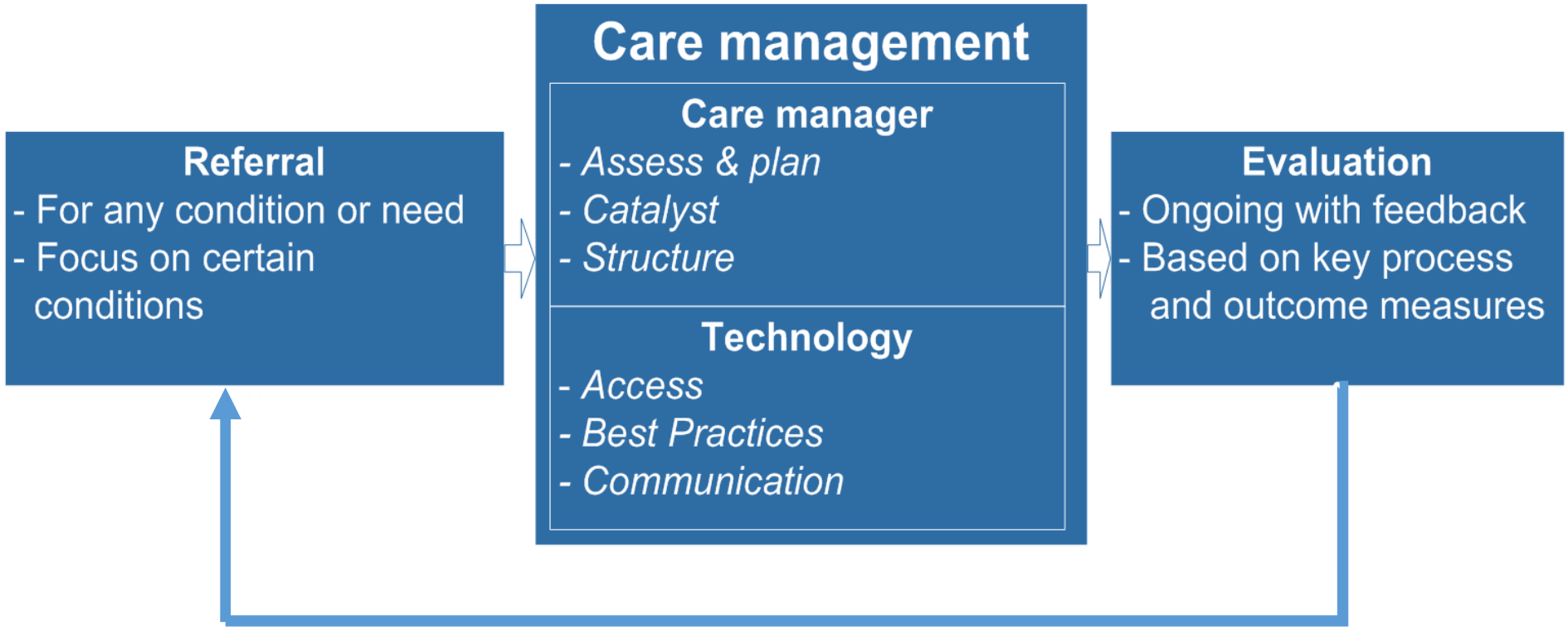
CM+ care management plus

At Intermountain Healthcare, worked with 22 primary care clinics and the Chronic Care Collaborative to create:
A team-focused model with
- care managers
- changed health information technology (HIT) for population health

*Funded by **John A. Hartford Foundation**, NLM, AHRQ, and Gordon and Betty Moore Foundation*



Intervention: Care Management Plus



Larger infrastructure: Electronic Health Record, quality focus

Anderson, 2004 ; Woolf, 2002; Baron, 2007, 2010; Werner 2008

Does CMP make a difference?

Study design

- Controlled clinical trial in 7 intervention clinics – adding care managers + technology – compared to 15 control clinics
- CM patients matched to controls on key characteristics
- Difference-in-difference design

Outcomes

- Adherence to guidelines for chronic illness
- Mortality
- Utilization, including hospitalizations
- Provider productivity (work Relative Value Units, wRVU)

Guideline Adherence: Results

Outcome	Odds Ratio
Overdue for HbA1c test	0.79*
HbA1c Tested	1.42*
HbA1c in control (<7.0)	1.24*

**p<0.01*

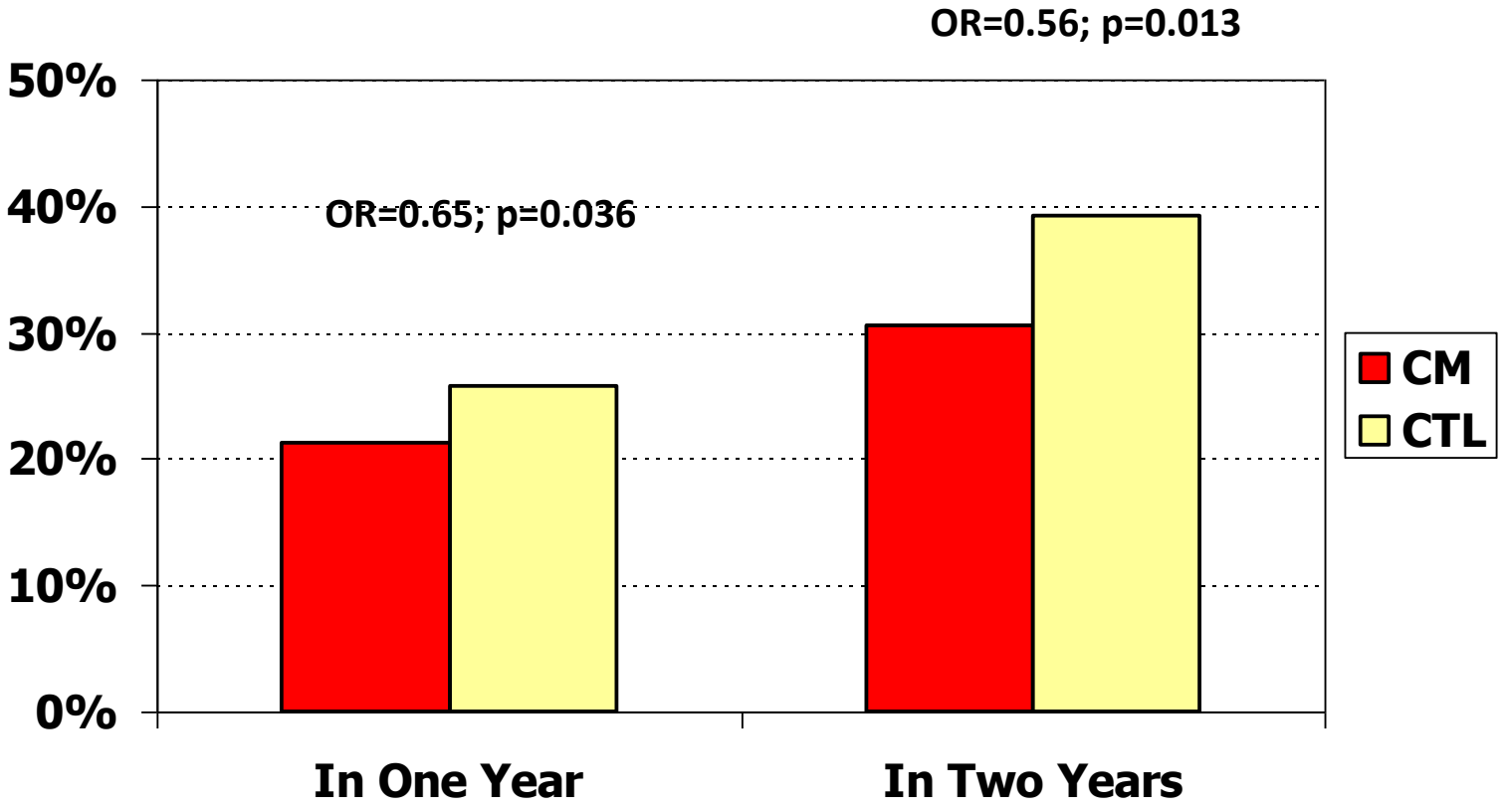
Dorr, HSR, 2005

In CM+, Odds of dying were reduced significantly.

Variable	Time	CM+	Control	Absolute difference
All Patients		(N=1,144)	(N=2,288)	
	at 1 year	6.5%	9.2%	-2.8%
Deaths	at 2 years	13.1%	16.6%	-3.4%
Pts with Comorbid conditions		(N=557)	(N=1114)	
	at 1 year	6.2%	10.6%	-4.4%
Deaths	at 2 years	12.9%	18.2%	-5.3%

Dorr, JAGS, 2008

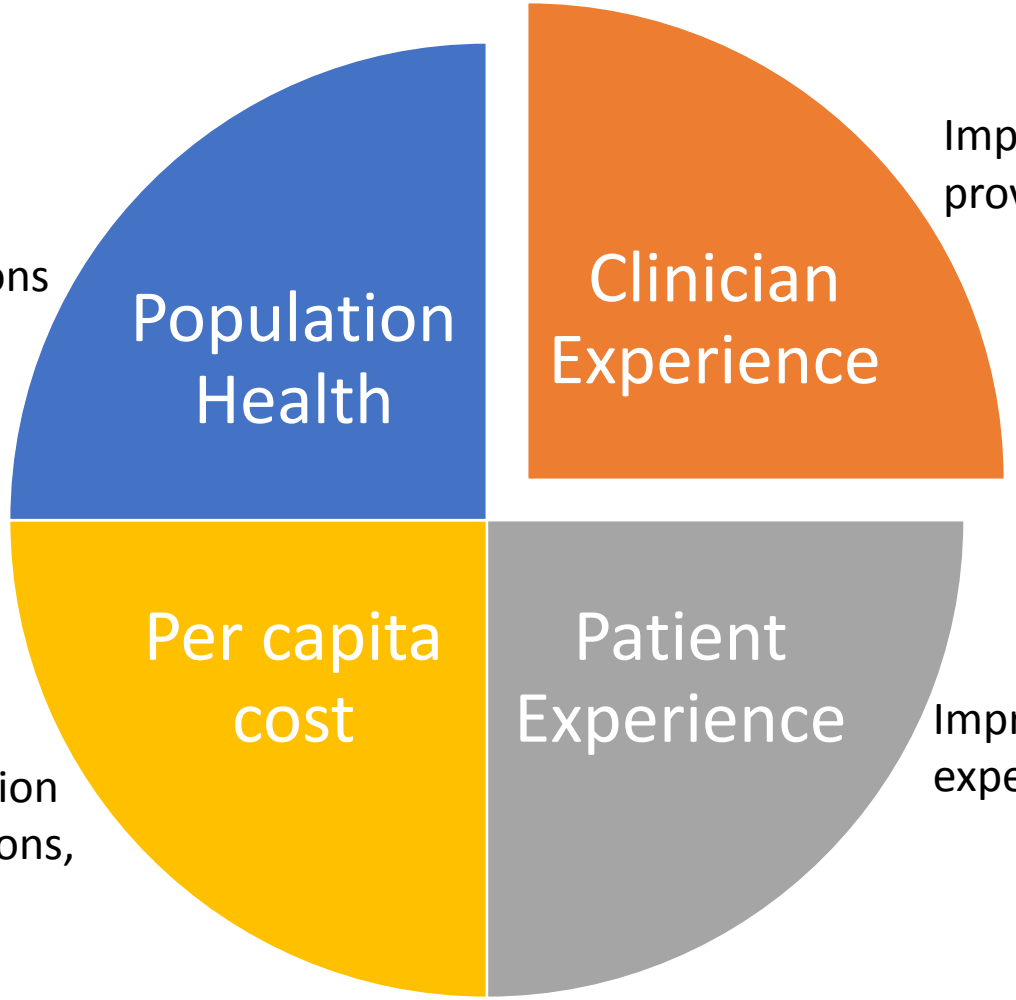
Reduction in hospitalizations from CM+



Dorr, JAGS, Dec 2008

Improving the ‘quadruple’ aim of health care

Patients live longer, report being healthier, chronic conditions (diabetes, depression) in better control



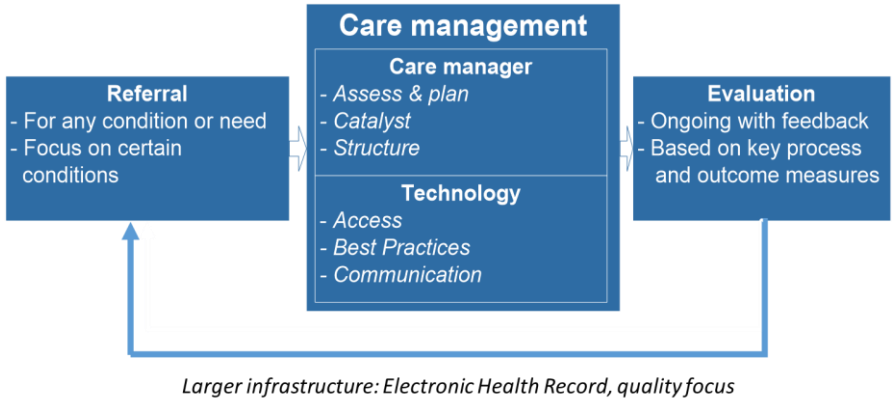
Improved care manager and provider experience

20-40% reduction in hospitalizations, cost

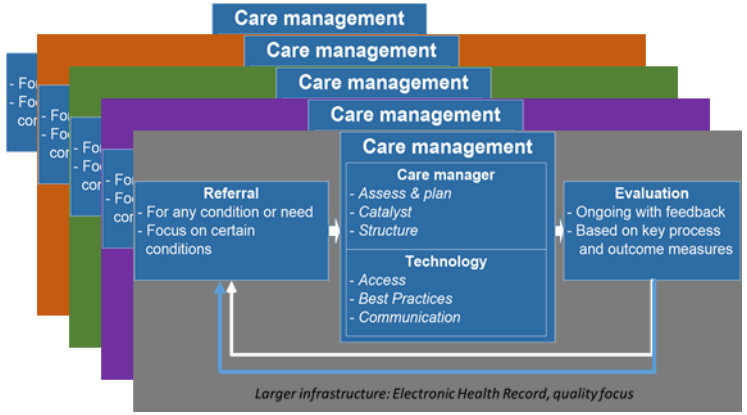
Improved patient and family experience

www.ohsu.edu/cmp/ Publications

Dissemination from discovery to implementation to policy



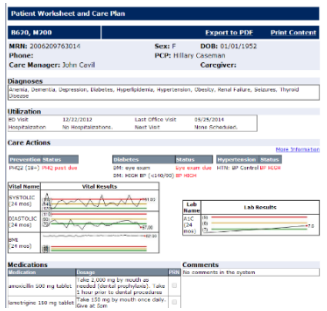
Refinement/ Implementation



TRAINING

Dissemination to over 400 clinical teams

TECHNOLOGY



Policy

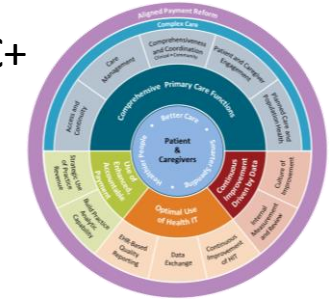
Policy guidance

Policy implementation

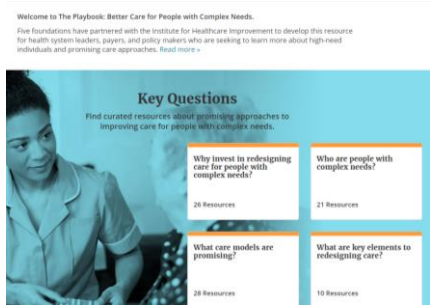
Practice transformation

Technical assistance

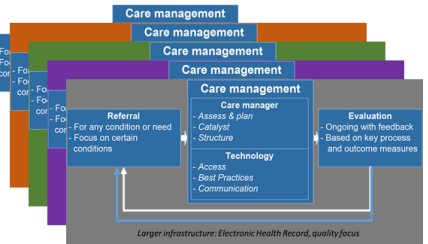
CPC/CPC+



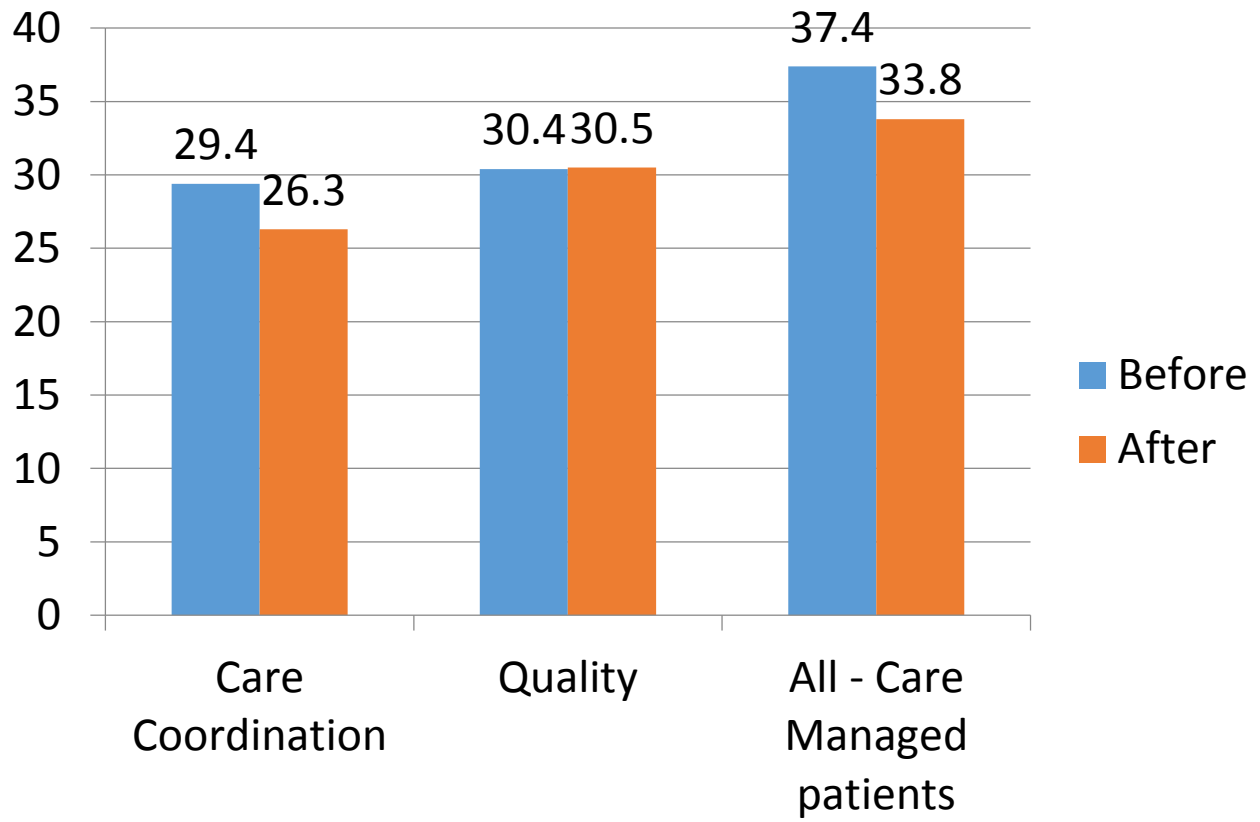
Better Care Playbook



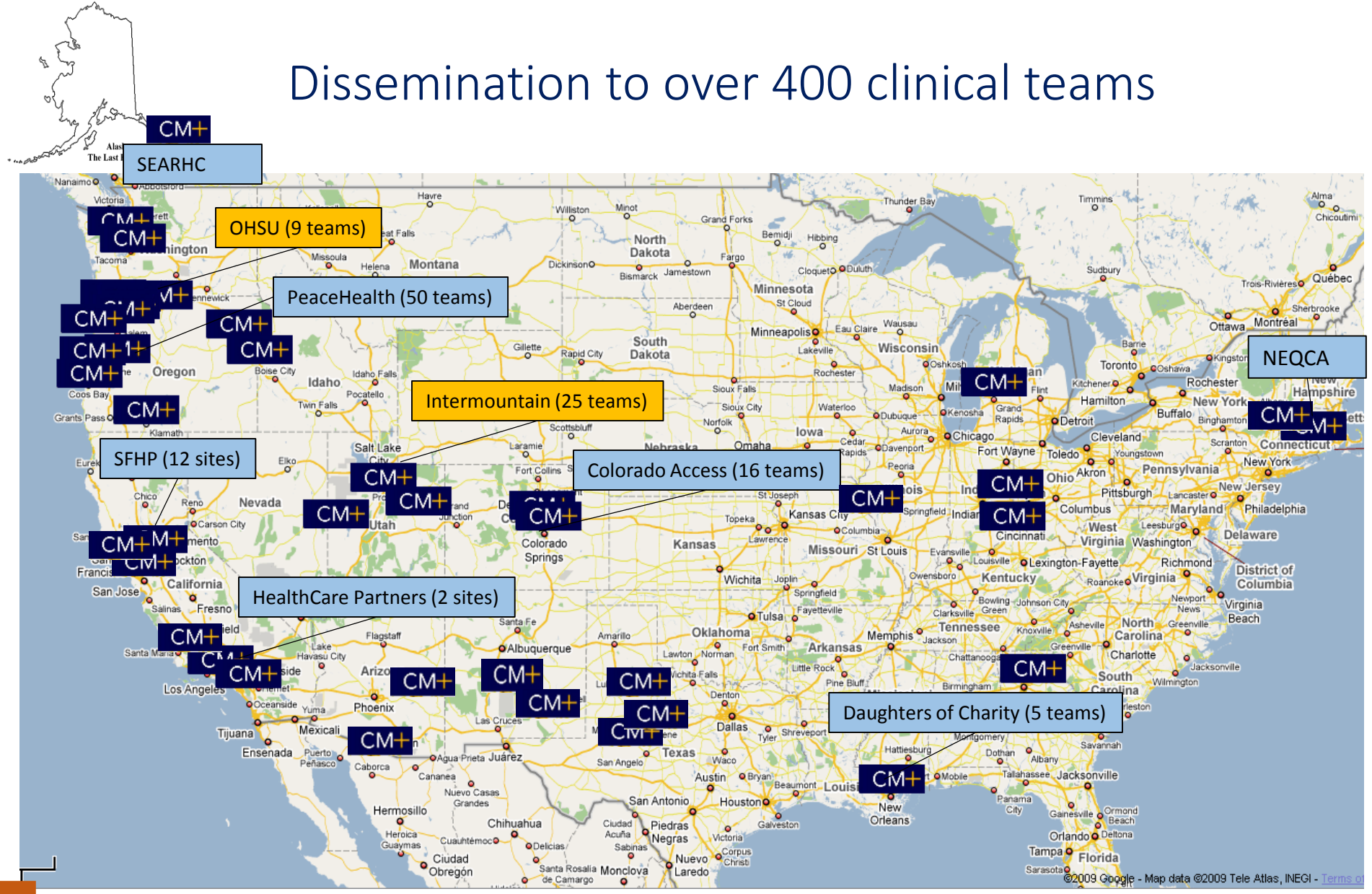
Replication: in the field, clinics focused on Care Coordination reduce utilization more than quality clinics

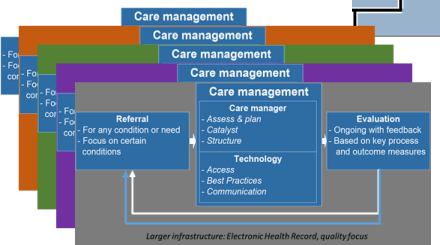


% of high risk clinic patients with 1 or more ED visit in 6 months **before** and **after** study enrollment



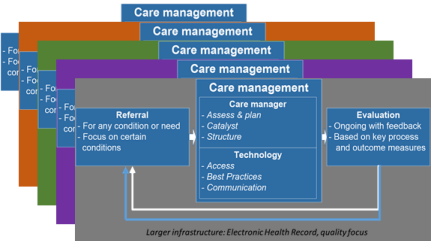
Dissemination to over 400 clinical teams





Care Management Plus training has reached roughly 1000 individuals (90% nurses)

Core curriculum	Online experiential
1-2 day in person	8-10 sessions on line
Motivational interviewing	Geriatric syndromes
Risk assessment + tailoring care	Complex illness
Implementation science / being a change agent	Case-based for people in practice to bring cases



~30 ANCC CEU credits, CME credits

Good opportunity for alignment with nursing faculty and professionals – looking for collaborators

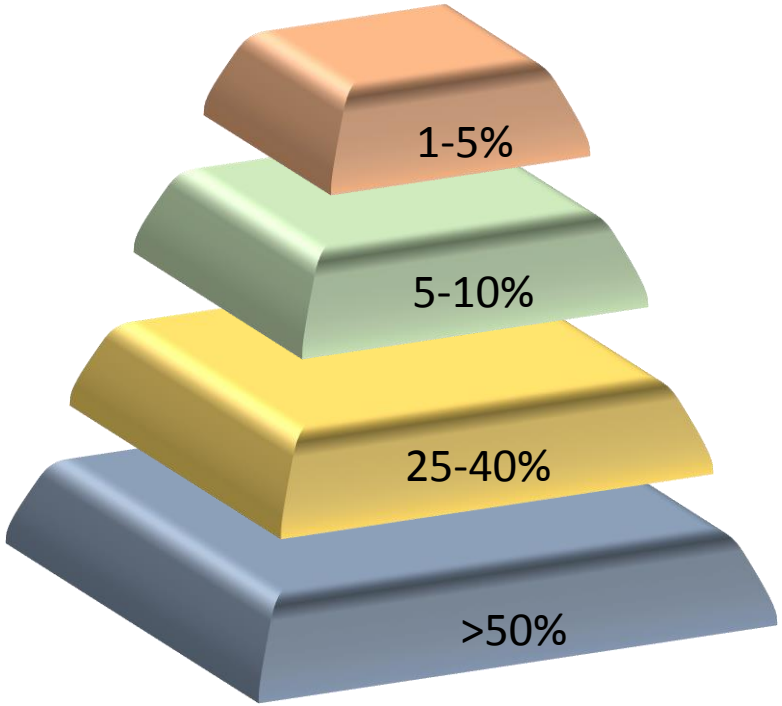
How can we use data, information, and knowledge to better care for vulnerable populations?

- By predicting ***poor outcomes***

- By more accurately and efficiently capturing ***complex*** needs

- And ***inserting*** this information and knowledge when it is needed by disseminating technology

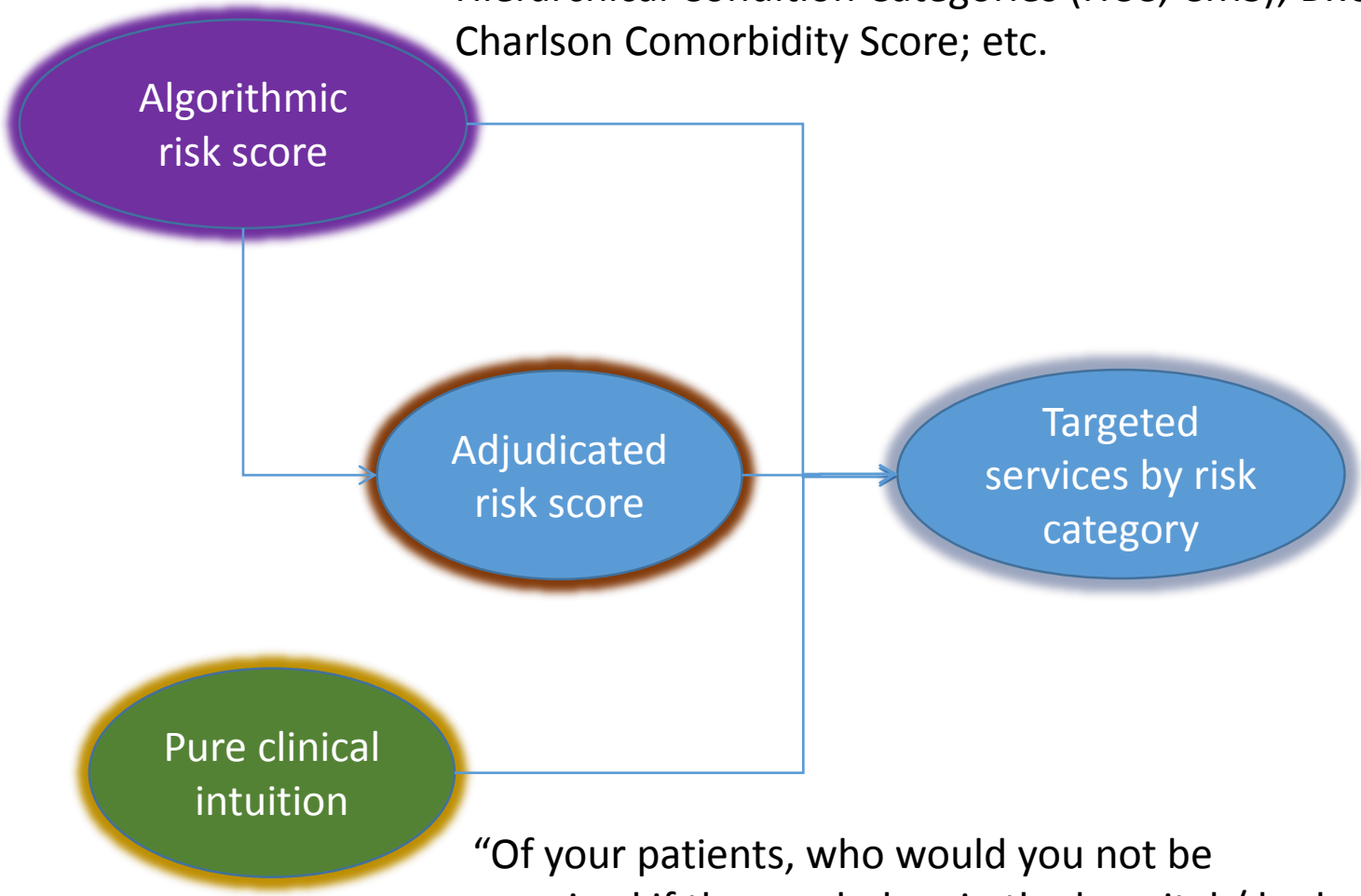
Prediction of at risk, vulnerable populations



Risk	Definition (e.g.)
Highest	Multiple Social, Behavioral, Mental, and Chronic issues
High	Severe/ uncontrolled illness or multiple controlled issues
Moderate	Controlled, stable issues
Low	Preventive needs or limited chronic issues

Risk prediction and scoring

Hierarchical Condition Categories (HCC; CMS); DxCG; ACG; Charlson Comorbidity Score; etc.



"Of your patients, who would you not be surprised if they ended up in the hospital / had a major health issue / died in the next year?"

Adjudication or Human Review is important for successful risk stratification at the point of care

Figure 1a. Individual perceptions of risk stratification outcomes.

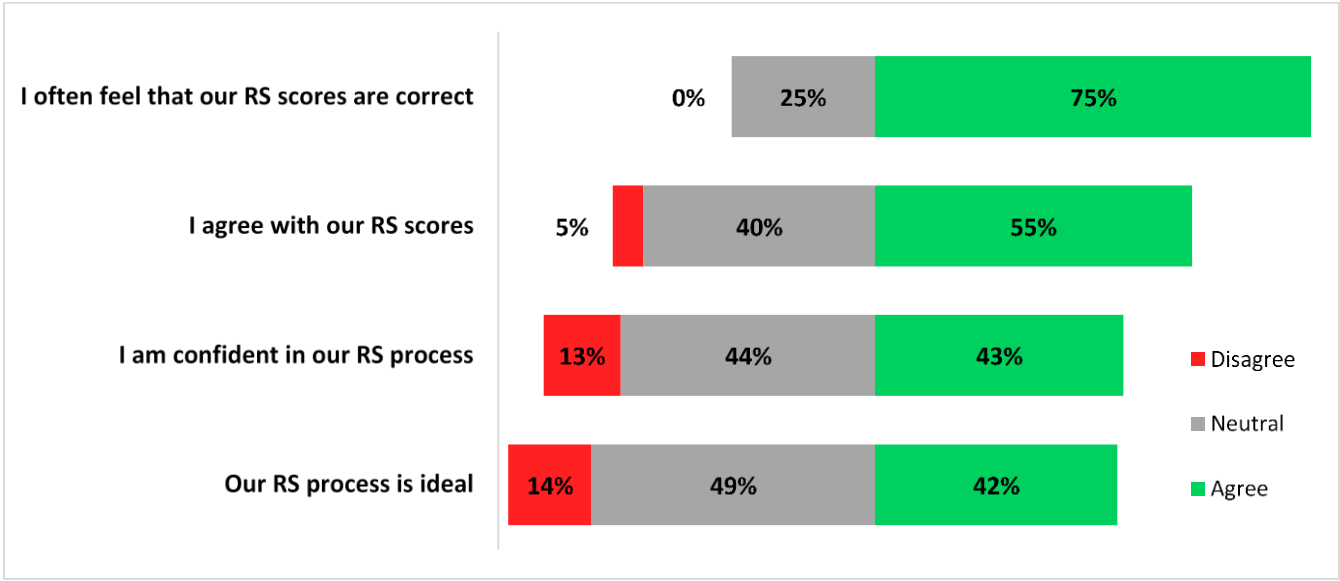
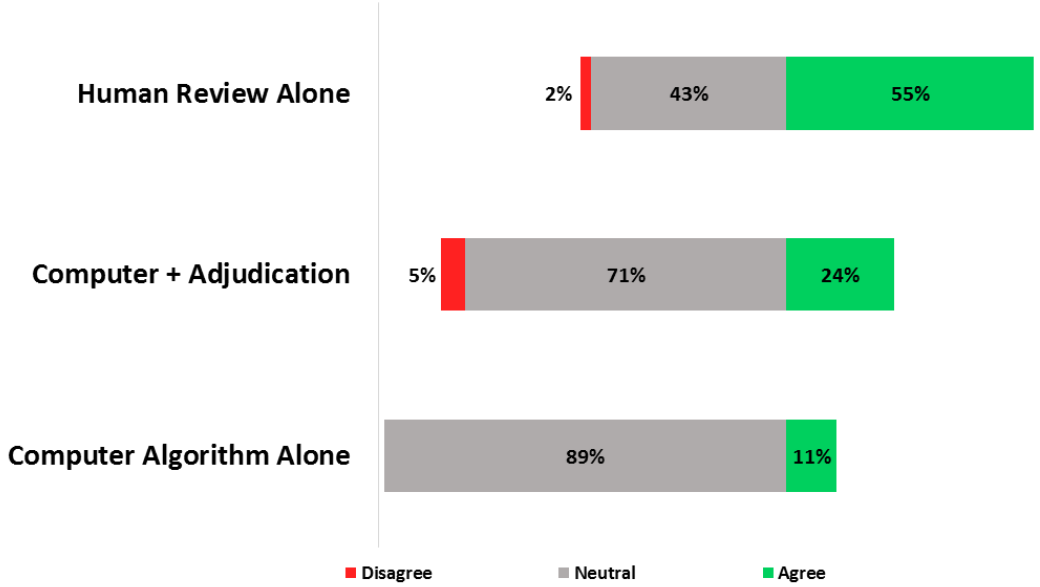
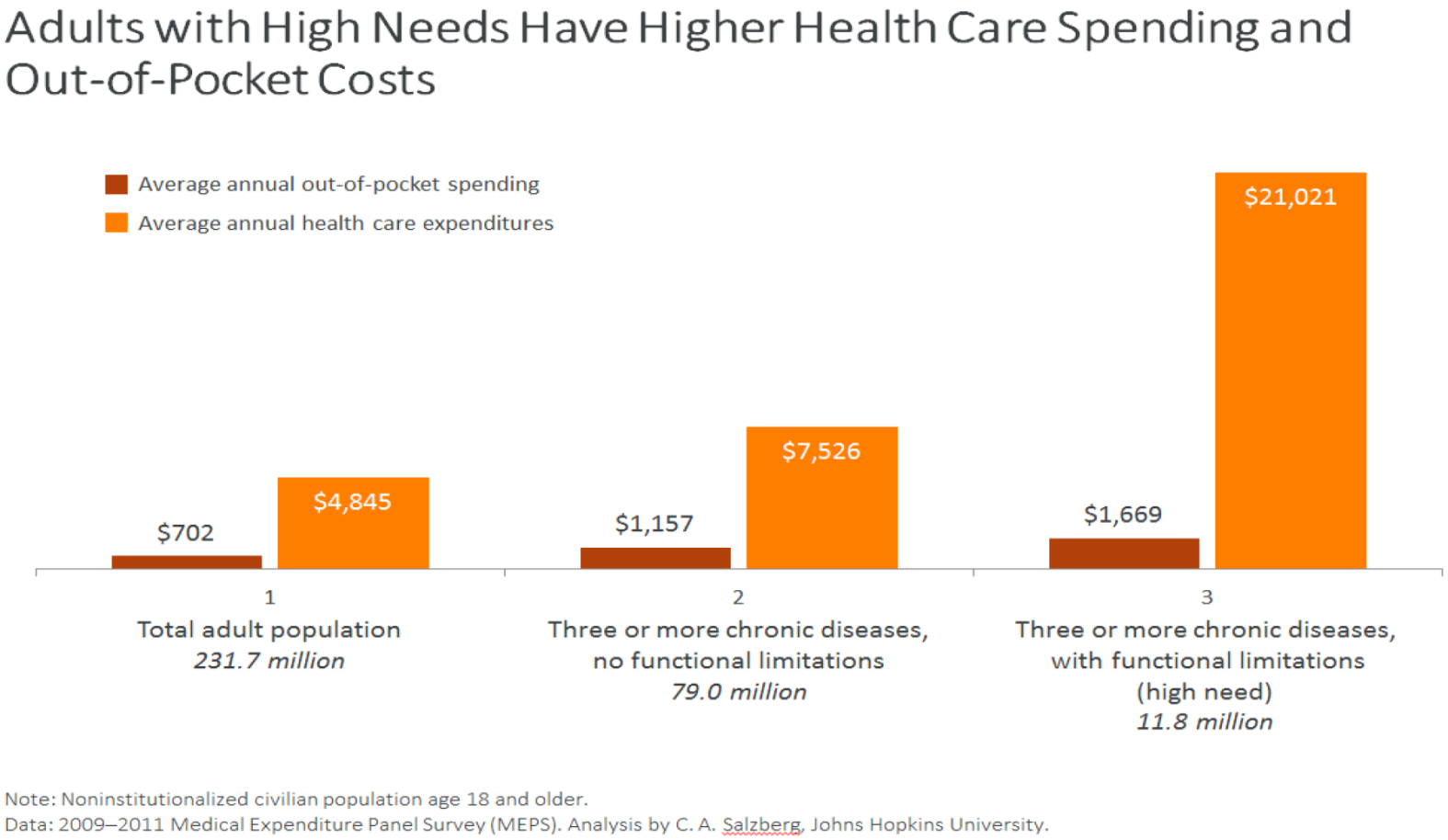


Figure 3a. Composite risk stratification perception by algorithm type



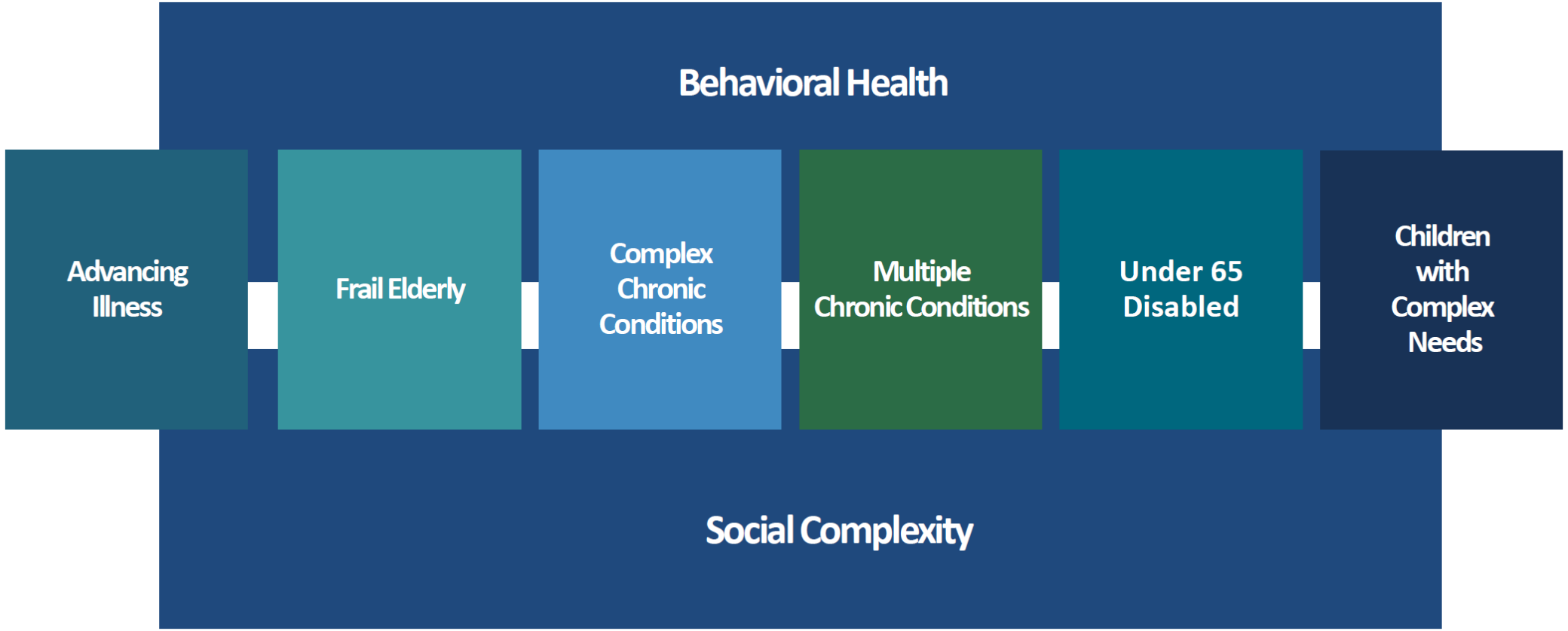
From Ross et al, *under review.*
Survey of 99 persons from 37 clinics engaged in risk stratification.

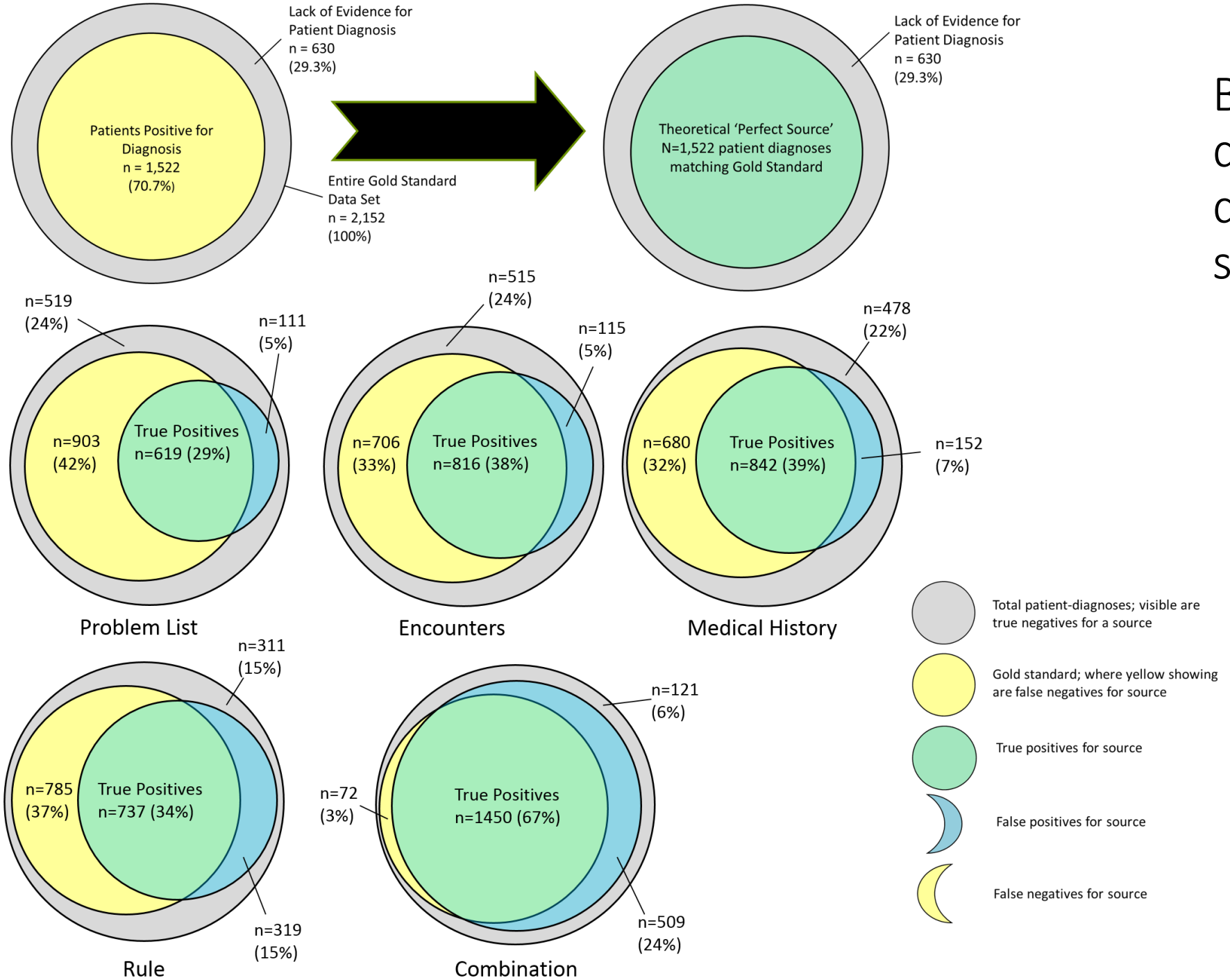
Identification of vulnerable people



SOURCE: S. L. Hayes, C. A. Salzberg, D. McCarthy, D. C. Radley, M. K. Abrams, T. Shah, and G. F. Anderson, High-Need, High-Cost Patients: Who Are They and How Do They Use Health Care? The Commonwealth Fund, August 2016.

Identification can lead to segmentation … to help tailor care and allocate resources



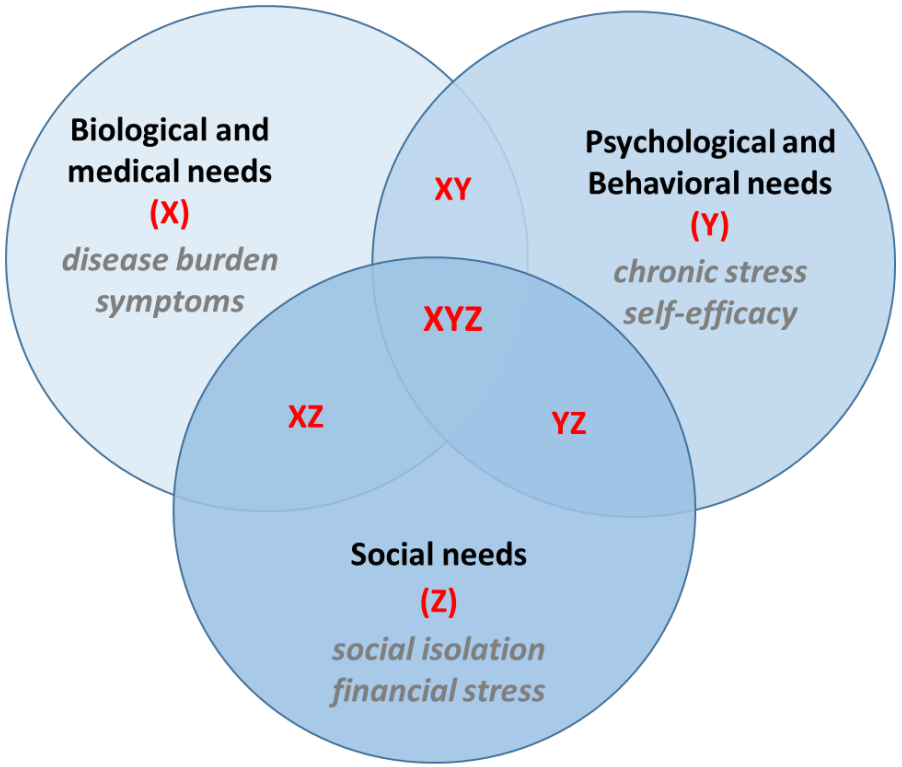


But the data quality doesn't allow us to detect risk well or segment

Sensitivity was highest in encounters (.55), and specificity in the Problem List (.82). Combining all information led to sensitivity of .95 and specificity of .19.

And rarely has accurate biopsychosocial characteristics

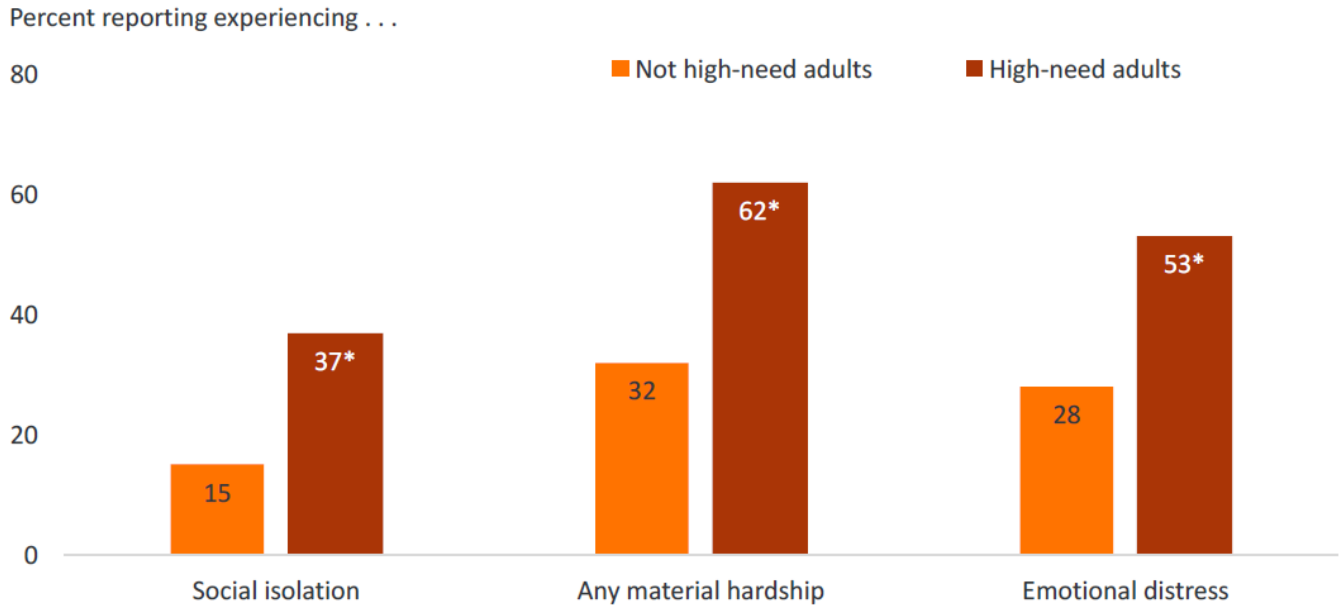
Figure 1. Overlapping Biopsychosocial Domains



Disease exacerbations
Unplanned healthcare utilization

Exhibit 1

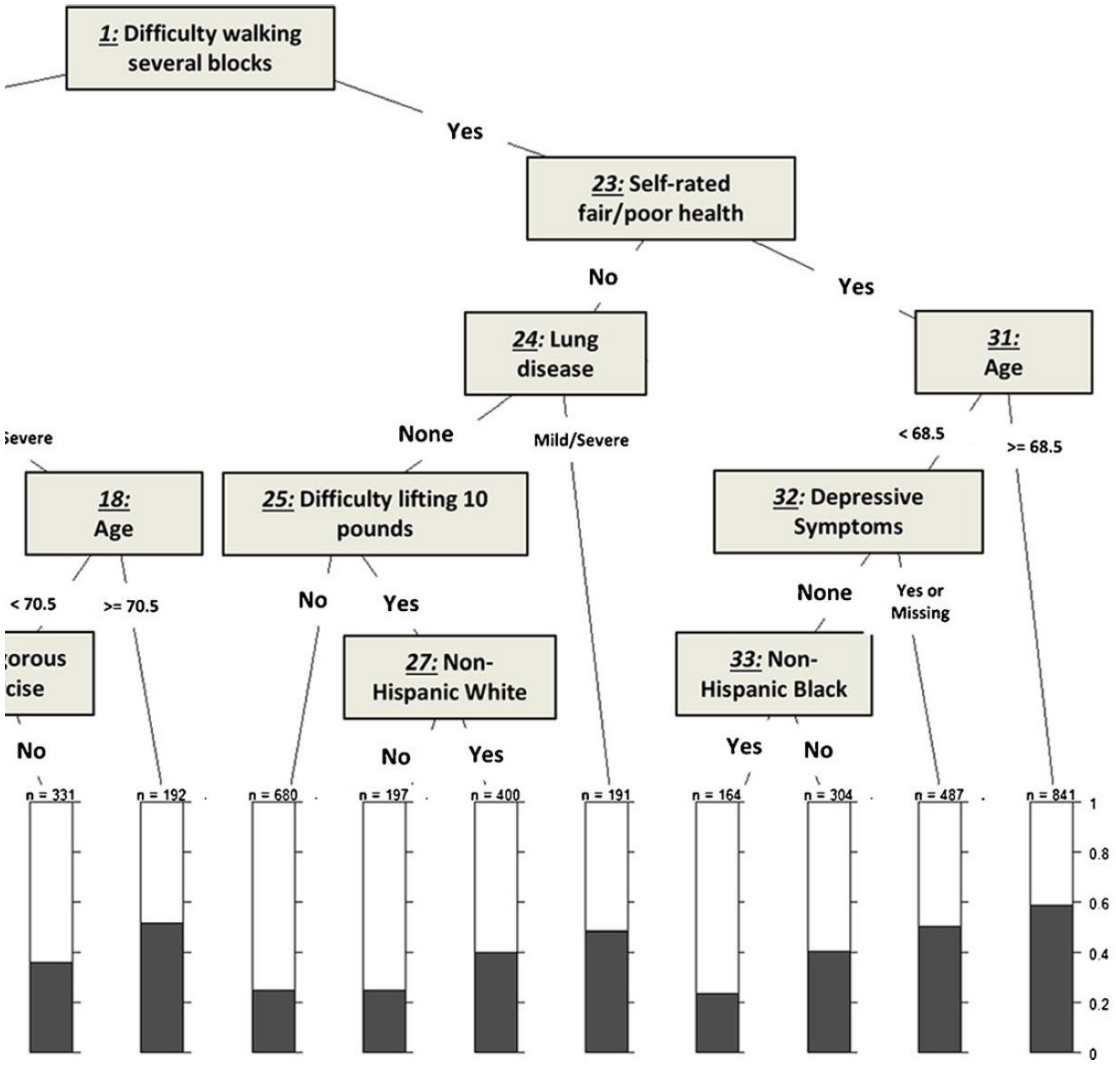
Poverty and Social Isolation Are More Prevalent Among High-Need Patients



Notes: Social isolation = Reported often feeling left out, lacking companionship, or feeling isolated from others. Any material hardship = Reported worry or stress about having enough money to pay rent/mortgage, pay gas/oil/electric, or buy nutritious meals in the past year.
* Significantly different from not high-need adults at the p<0.05 level.
Data: The 2016 Commonwealth Fund Survey of High-Need Patients, June–September 2016.

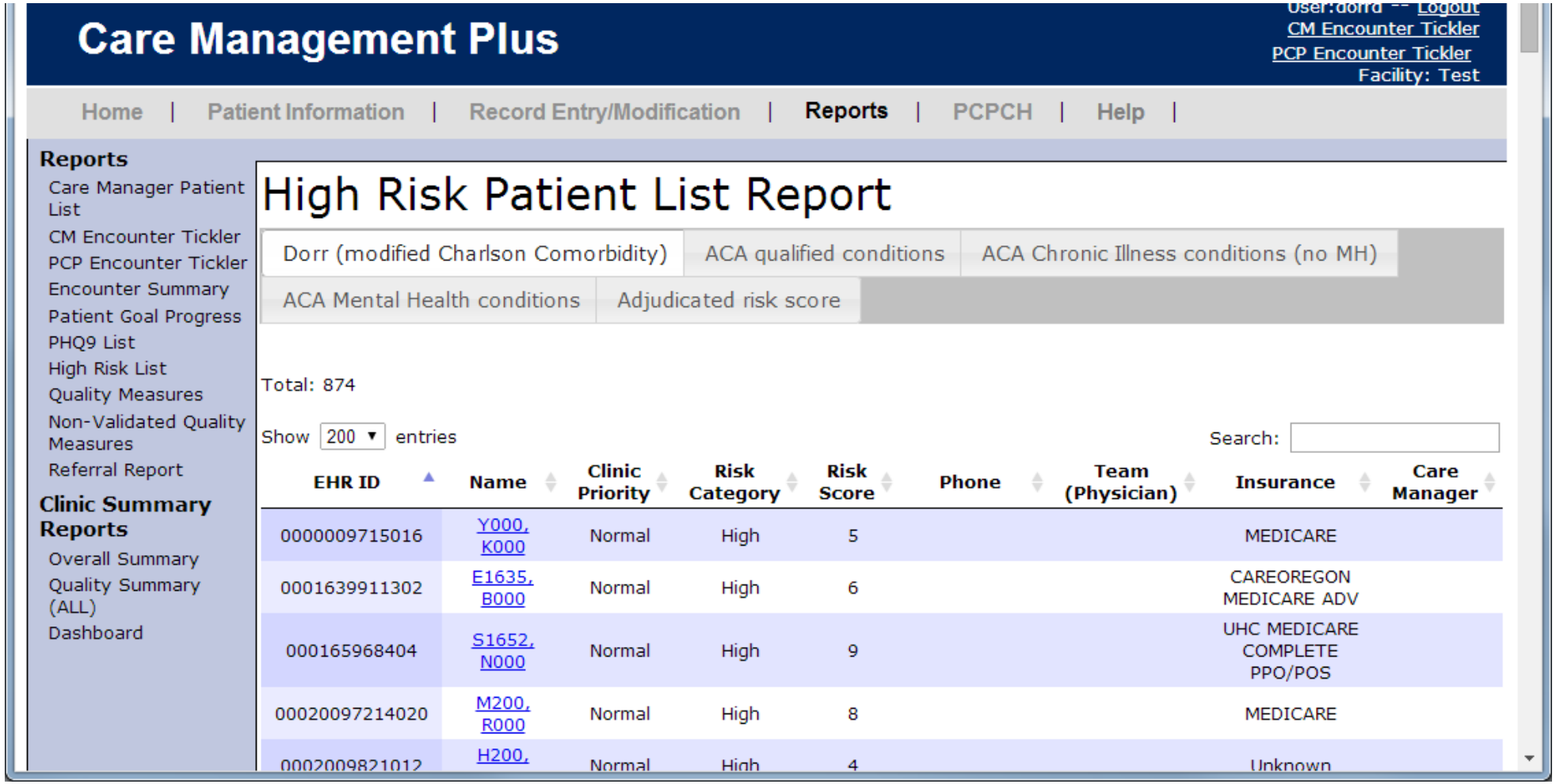
How can we get better data? Reduce data collection demands…

- Classification and Regression Trees (CART) on
- The Health and Retirement Study (N=16,640 persons 50+)
- To predict 2 year worsening in health (e.g., associated with functional loss)



Koroukian et al., JGIM 2016

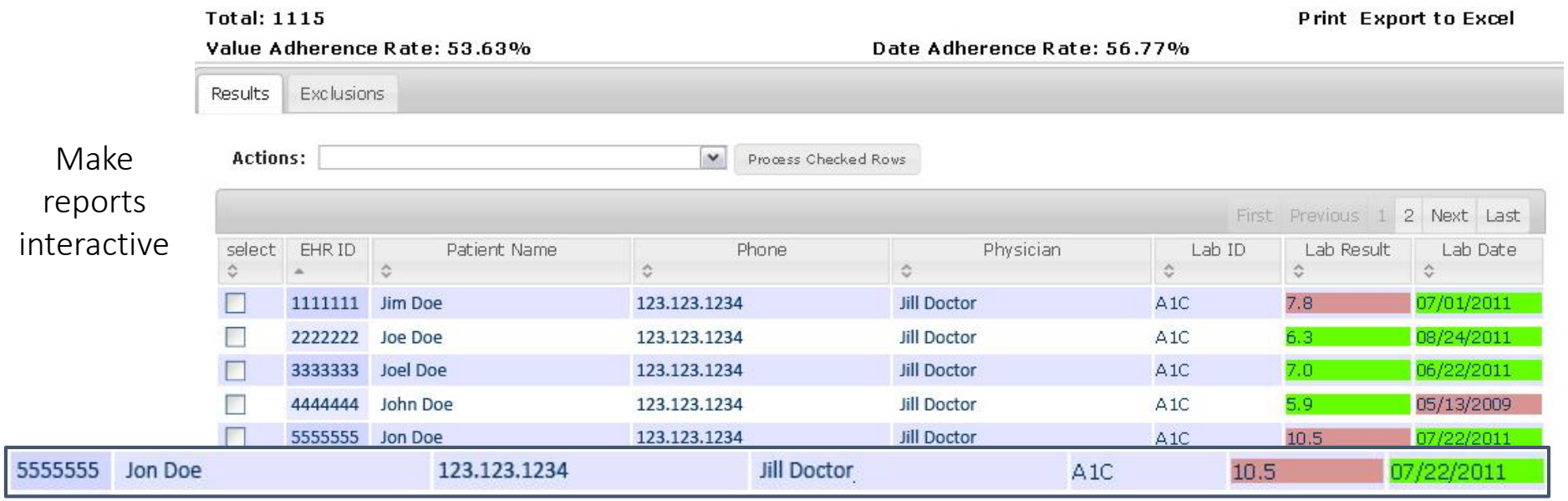
And improve technology to help us do better…



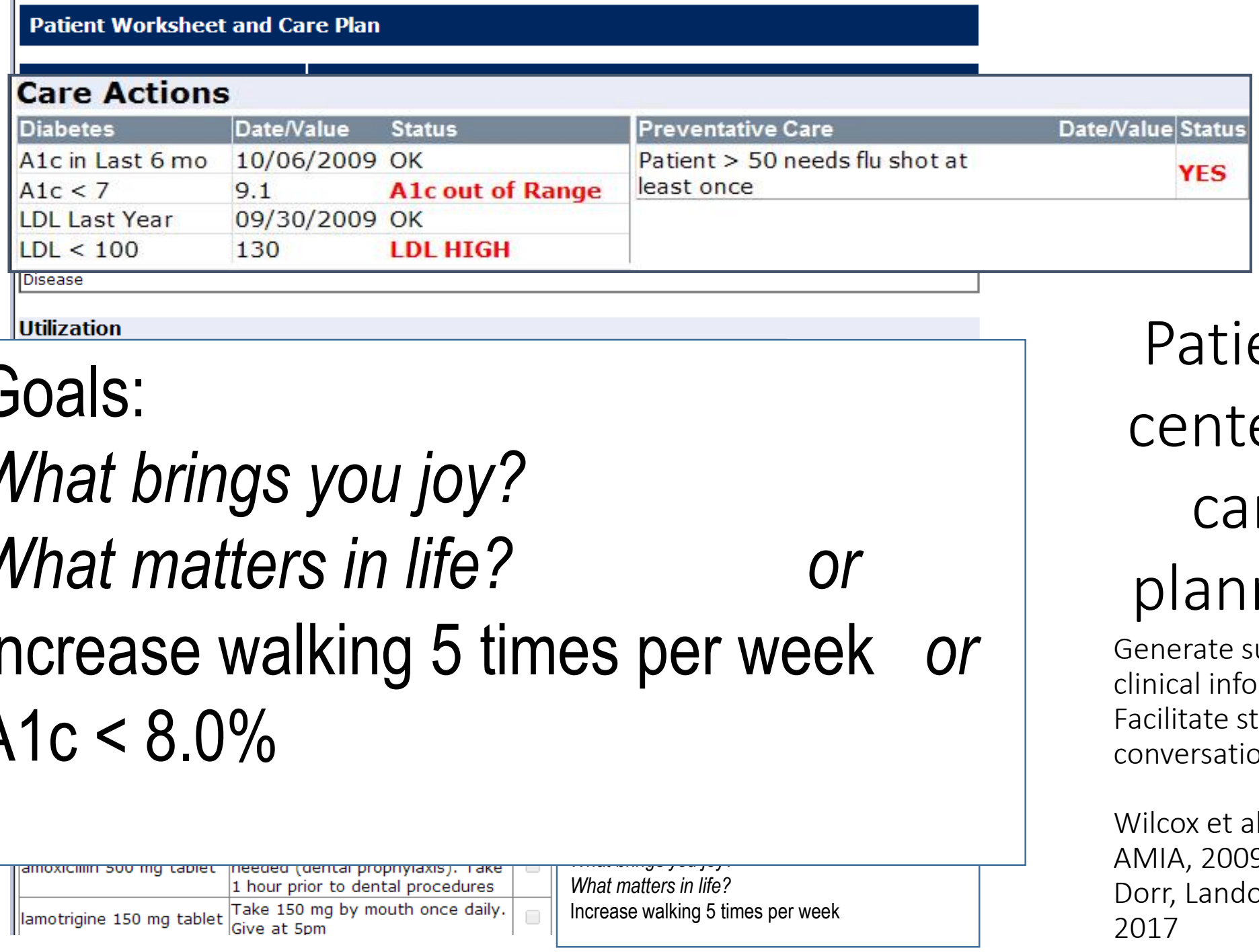
The **High Risk Patient List Report** provides a means to track and enroll high risk patients. It also stores multiple risk calculations and what approaches have been used to address needs.

Advanced reminder systems for complex tasks

Make reports interactive



Prioritized Population Reminders As a task list

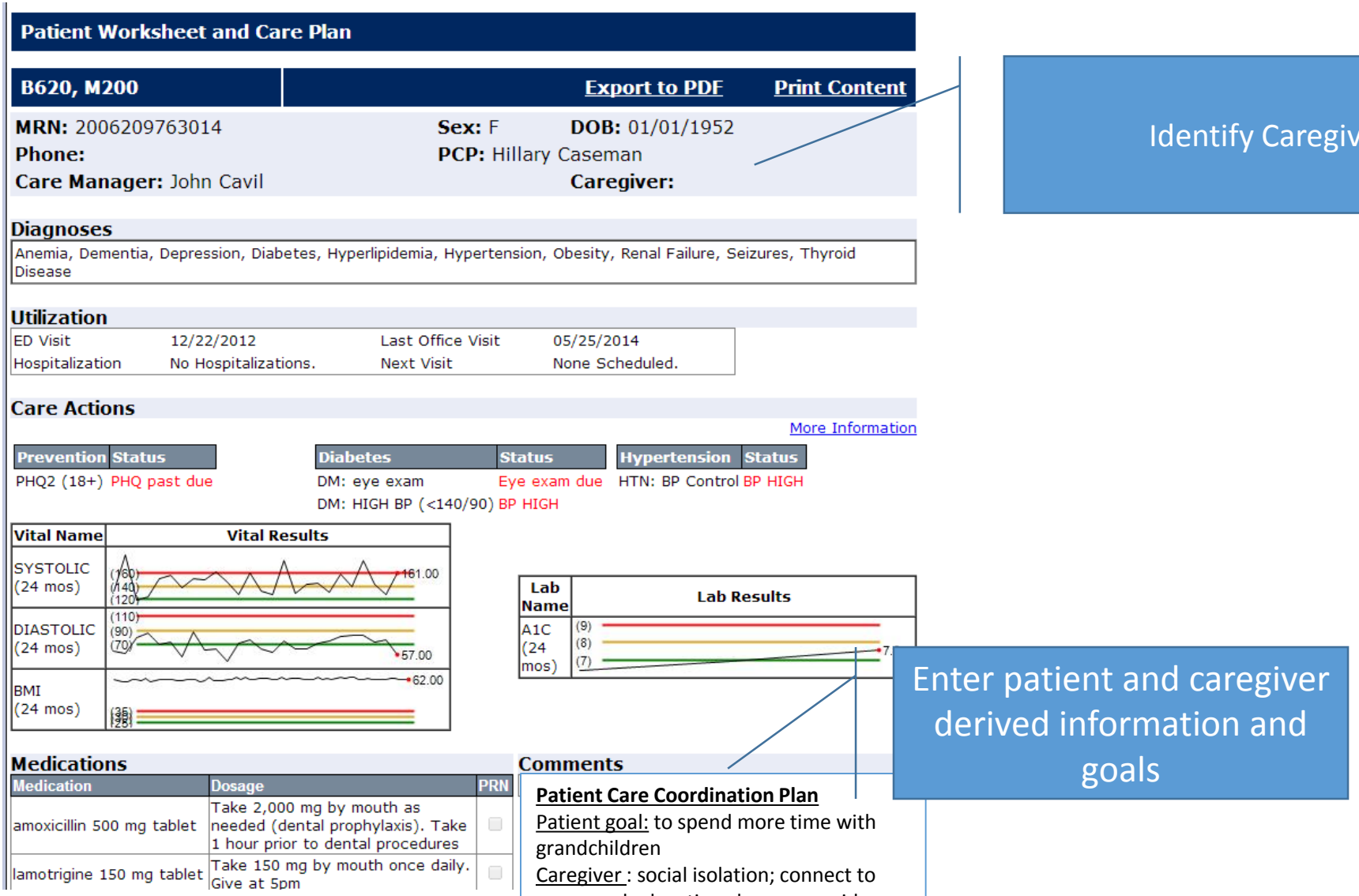


Patient-centered care planning

Generate summarized clinical information; Facilitate structured conversations

Wilcox et al, Proc AMIA, 2009; Edwards, Dorr, Landon JAMA, 2017

A major issue as people age is the desire to remain at home, but this may require a caregiver; how do we know when a caregiver is engaged?



Patient Worksheet and Care Plan

B620, M200 | Export to PDF | Print Content

MRN: 2006209763014 **Sex:** F **DOB:** 01/01/1952
Phone: **PCP:** Hillary Caseman
Care Manager: John Cavil **Caregiver:**

Diagnoses

Anemia, Dementia, Depression, Diabetes, Hyperlipidemia, Hypertension, Obesity, Renal Failure, Seizures, Thyroid Disease

Utilization

ED Visit	12/22/2012	Last Office Visit	05/25/2014
Hospitalization	No Hospitalizations.	Next Visit	None Scheduled.

Care Actions

More Information

Prevention	Status	Diabetes	Status	Hypertension	Status
PHQ2 (18+)	PHQ past due	DM: eye exam	Eye exam due	HTN: BP Control	BP HIGH
		DM: HIGH BP (<140/90)	BP HIGH		

Vital Name	Vital Results
SYSTOLIC (24 mos)	161.00
DIASTOLIC (24 mos)	57.00
BMI (24 mos)	62.00

Lab Name	Lab Results
A1C (24 mos)	

Medications

Medication	Dosage	PRN
amoxicillin 500 mg tablet	Take 2,000 mg by mouth as needed (dental prophylaxis). Take 1 hour prior to dental procedures	
lamotrigine 150 mg tablet	Take 150 mg by mouth once daily. Give at 5pm	

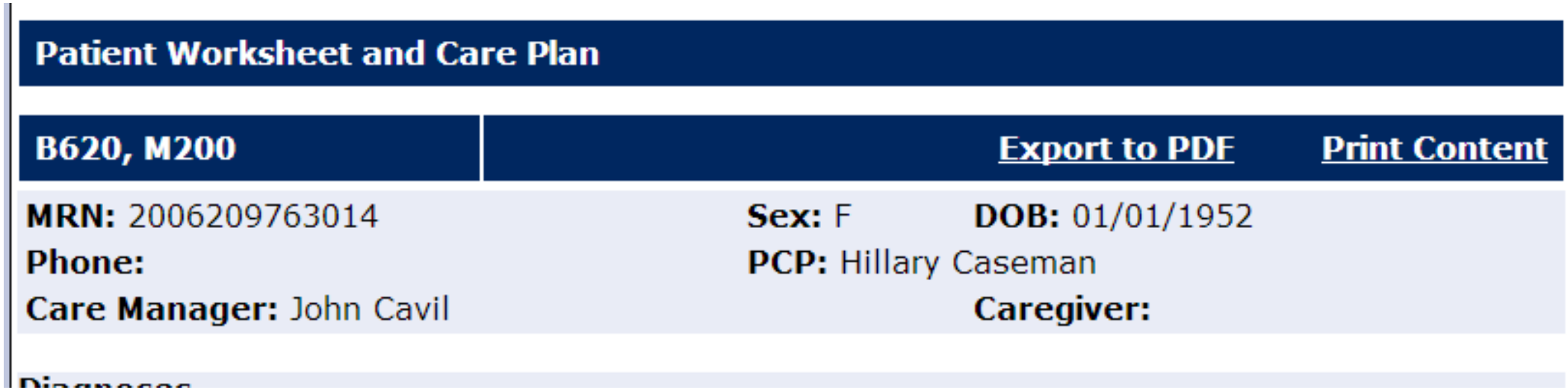
Comments

Patient Care Coordination Plan
Patient goal: to spend more time with grandchildren
Caregiver : social isolation; connect to group and education classes; consider respite

Identify Caregiver

Enter patient and caregiver derived information and goals

Answer: we usually do not…



Patient Worksheet and Care Plan

B620, M200 | Export to PDF | Print Content

MRN: 2006209763014 **Sex:** F **DOB:** 01/01/1952
Phone: **PCP:** Hillary Caseman
Care Manager: John Cavil **Caregiver:**

Diagnoses

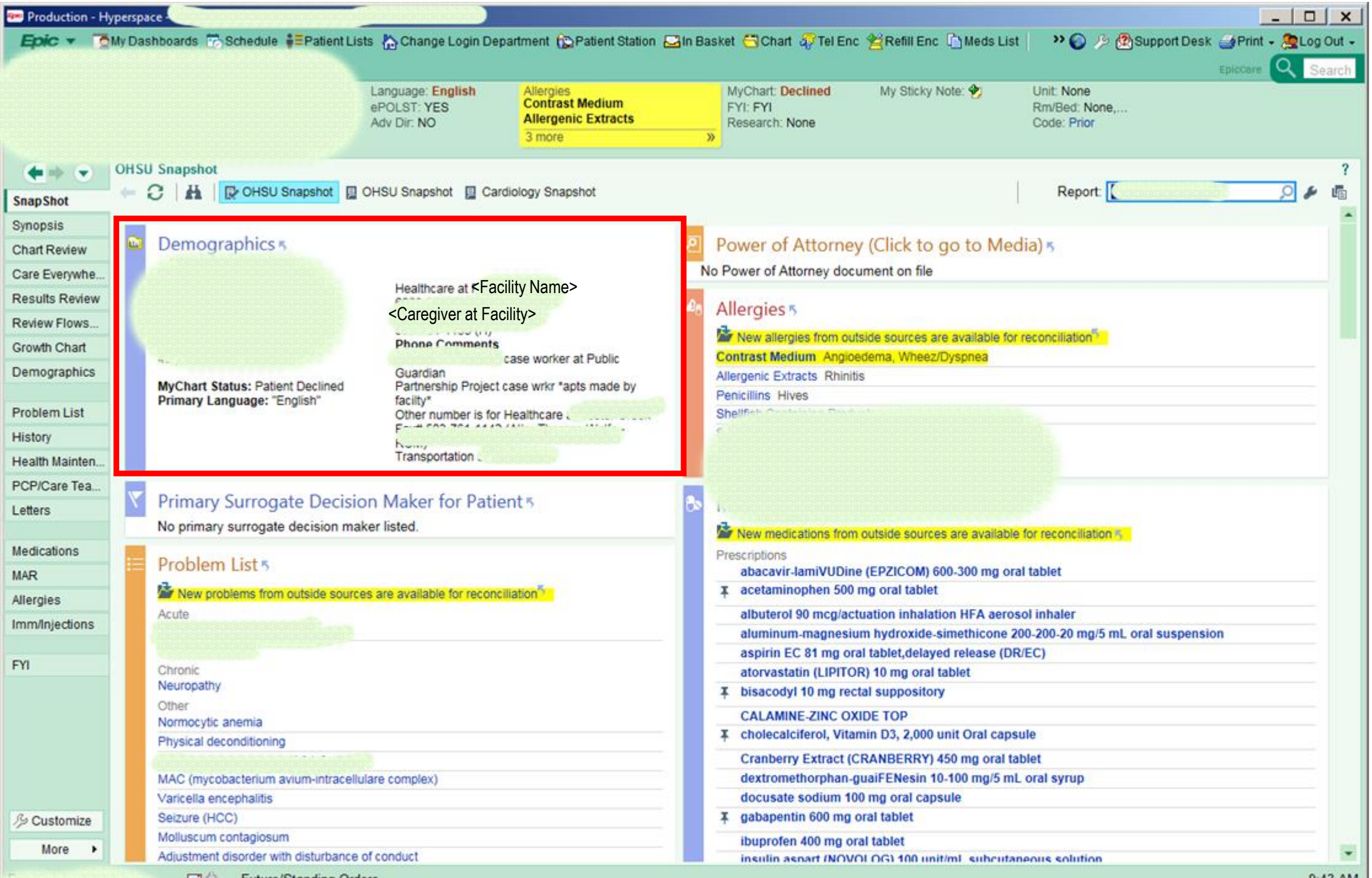
Status	Patients	Average Age	Deceased
Caregiver reported	3277	59.7	348 (10.6%)
No caregiver reported	161,151	43.2	2415 (1.5%)

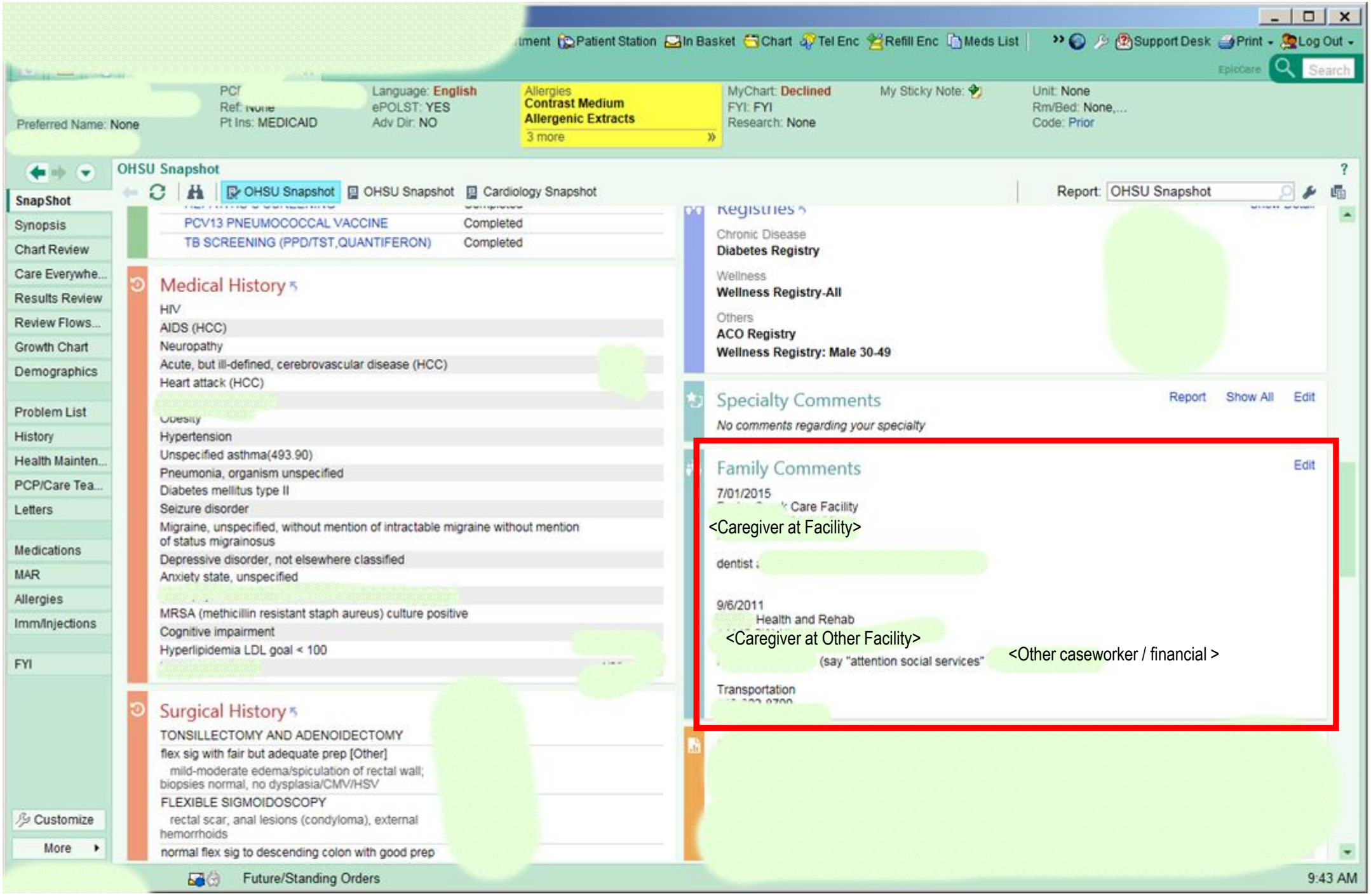
1.9% of all population; 9.8% of high risk population

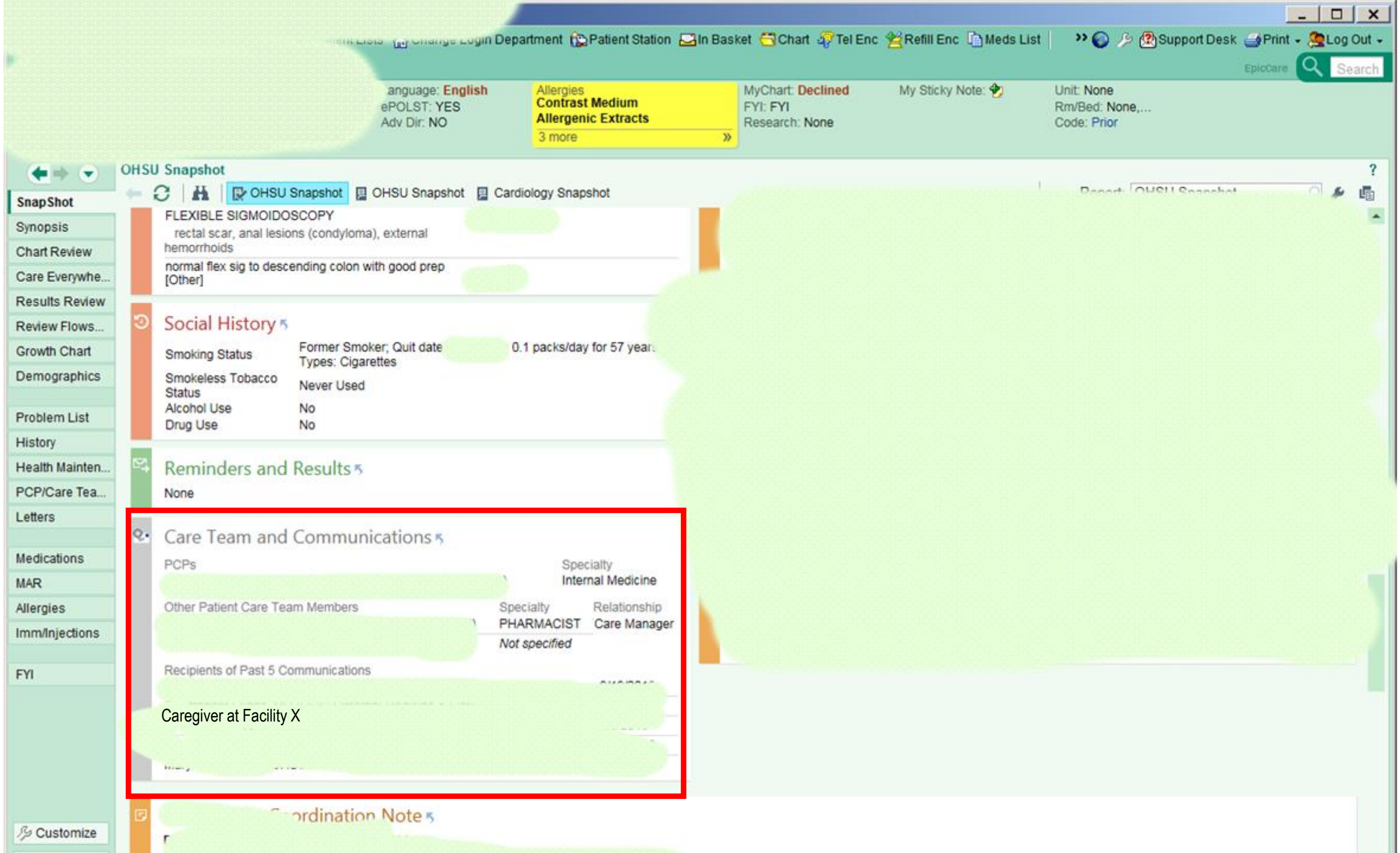
One can use the sociotechnical framework to understand why this happens …

Table 1. The Simplified Sociotechnological Framework.

Simplified Sociotechnical Domains	
Domain name	**Sub-domains**
Culture	· Patients & Families · Leadership · Teamwork · Psychological Safety · Burnout/Resilience
Process	· Structured Communication · Reliable Processes & Policy · Process Improvement · Organizational Learning
Technology	· Usability · Usefulness · Workflow · Safety


Production - Hyperspace
My Dashboards
Schedule
Patient Lists
Change Login Department
Patient Station
In Basket
Chart
Tel Enc
Refill Enc
Meds List
Support Desk
Print
Log Out
Search
Language: English
ePOLST: YES
Adv Dir: NO
Allergies
Contrast Medium
Allergenic Extracts
3 more
MyChart: Declined
FYI: FYI
Research: None
My Sticky Note:
Unit: None
Rm/Bed: None,...
Code: Prior
OHSU Snapshot
OHSU Snapshot
OHSU Snapshot
Cardiology Snapshot
Report:
SnapShot
Synopsis
Chart Review
Care Everywhe...
Results Review
Review Flows...
Growth Chart
Demographics
Problem List
History
Health Mainten...
PCP/Care Tea...
Letters
Medications
MAR
Allergies
Imm/Injections
FYI
Customize
More
Demographics
Healthcare at <Facility Name>
<Caregiver at Facility>
Phone Comments
case worker at Public
Guardian
Partnership Project case wrkr *apts made by facility*
Other number is for Healthcare
Transportation
MyChart Status: Patient Declined
Primary Language: "English"
Power of Attorney (Click to go to Media)
No Power of Attorney document on file
Allergies
New allergies from outside sources are available for reconciliation
Contrast Medium Angioedema, Wheez/Dyspnea
Allergenic Extracts Rhinitis
Penicillins Hives
Primary Surrogate Decision Maker for Patient
No primary surrogate decision maker listed.
Problem List
New problems from outside sources are available for reconciliation
Acute
Chronic
Neuropathy
Other
Normocytic anemia
Physical deconditioning
MAC (mycobacterium avium-intracellulare complex)
Varicella encephalitis
Seizure (HCC)
Molluscum contagiosum
Adjustment disorder with disturbance of conduct
New medications from outside sources are available for reconciliation
Prescriptions
abacavir-lamiVUDine (EPZICOM) 600-300 mg oral tablet
acetaminophen 500 mg oral tablet
albuterol 90 mcg/actuation inhalation HFA aerosol inhaler
aluminum-magnesium hydroxide-simethicone 200-200-20 mg/5 mL oral suspension
aspirin EC 81 mg oral tablet,delayed release (DR/EC)
atorvastatin (LIPITOR) 10 mg oral tablet
bisacodyl 10 mg rectal suppository
CALAMINE-ZINC OXIDE TOP
cholecalciferol, Vitamin D3, 2,000 unit Oral capsule
Cranberry Extract (CRANBERRY) 450 mg oral tablet
dextromethorphan-guaiFENesin 10-100 mg/5 mL oral syrup
docusate sodium 100 mg oral capsule
gabapentin 600 mg oral tablet
ibuprofen 400 mg oral tablet


Patient Station
In Basket
Chart
Tel Enc
Refill Enc
Meds List
Support Desk
Print
Log Out
Search
Preferred Name: None
Language: English
ePOLST: YES
Adv Dir: NO
Pt Ins: MEDICAID
Allergies
Contrast Medium
Allergenic Extracts
3 more
MyChart: Declined
FYI: FYI
Research: None
My Sticky Note:
Unit: None
Rm/Bed: None,...
Code: Prior
OHSU Snapshot
OHSU Snapshot
OHSU Snapshot
Cardiology Snapshot
Report: OHSU Snapshot
SnapShot
Synopsis
Chart Review
Care Everywhe...
Results Review
Review Flows...
Growth Chart
Demographics
Problem List
History
Health Mainten...
PCP/Care Tea...
Letters
Medications
MAR
Allergies
Imm/Injections
FYI
Customize
More
PCV13 PNEUMOCOCCAL VACCINE Completed
TB SCREENING (PPD/TST,QUANTIFERON) Completed
Medical History
HIV
AIDS (HCC)
Neuropathy
Acute, but ill-defined, cerebrovascular disease (HCC)
Heart attack (HCC)
Hypertension
Unspecified asthma(493.90)
Pneumonia, organism unspecified
Diabetes mellitus type II
Seizure disorder
Migraine, unspecified, without mention of intractable migraine without mention of status migrainosus
Depressive disorder, not elsewhere classified
Anxiety state, unspecified
MRSA (methicillin resistant staph aureus) culture positive
Cognitive impairment
Hyperlipidemia LDL goal < 100
Surgical History
TONSILLECTOMY AND ADENOIDECTOMY
flex sig with fair but adequate prep [Other]
mild-moderate edema/spiculation of rectal wall; biopsies normal, no dysplasia/CMV/HSV
FLEXIBLE SIGMOIDOSCOPY
rectal scar, anal lesions (condyloma), external hemorrhoids
normal flex sig to descending colon with good prep
Registries
Chronic Disease
Diabetes Registry
Wellness
Wellness Registry-All
Others
ACO Registry
Wellness Registry: Male 30-49
Specialty Comments
Report
Show All
Edit
No comments regarding your specialty
Family Comments
Edit
7/01/2015
Care Facility
<Caregiver at Facility>
dentist
9/6/2011
Health and Rehab
<Caregiver at Other Facility>
(say "attention social services"
<Other caseworker / financial >
Transportation
Future/Standing Orders
9:43 AM


Patient Station
In Basket
Chart
Tel Enc
Refill Enc
Meds List
Support Desk
Print
Log Out
Search
anguage: English
ePOLST: YES
Adv Dir: NO
Allergies
Contrast Medium
Allergenic Extracts
3 more
MyChart: Declined
FYI: FYI
Research: None
My Sticky Note:
Unit: None
Rm/Bed: None,...
Code: Prior
OHSU Snapshot
OHSU Snapshot
OHSU Snapshot
Cardiology Snapshot
SnapShot
Synopsis
Chart Review
Care Everywhe...
Results Review
Review Flows...
Growth Chart
Demographics
Problem List
History
Health Mainten...
PCP/Care Tea...
Letters
Medications
MAR
Allergies
Imm/Injections
FYI
Customize
FLEXIBLE SIGMOIDOSCOPY
rectal scar, anal lesions (condyloma), external hemorrhoids
normal flex sig to descending colon with good prep
[Other]
Social History
Smoking Status
Former Smoker; Quit date
Types: Cigarettes
0.1 packs/day for 57 year
Smokeless Tobacco Status
Never Used
Alcohol Use
No
Drug Use
No
Reminders and Results
None
Care Team and Communications
PCPs
Specialty
Internal Medicine
Other Patient Care Team Members
Specialty
Relationship
PHARMACIST
Care Manager
Not specified
Recipients of Past 5 Communications
Caregiver at Facility X
ordination Note

Language: English
ePOLST: YES
Adv Dir: NO

Allergies
Contrast Medium
Allergenic Extracts
3 more

MyChart: Declined
FYI: FYI
Research: None

My Sticky Note:

Unit: None
Rm/Bed: None,...
Code: Prior

Patient Care Coordination Note

Working care plan last updated o. :N

Background (barriers, recent life changes, reason for referral to care management): Patient has complex medical history. Patient lives in Care Facility.

Care Plan

Patient's goal(s) of care: To be determined.

Patient's completed goal(s):
-Received 2014 Flu Shot

Health team goal(s):
-Medication adherence
-Illness avoidance
-Early identification and treatment of future illness

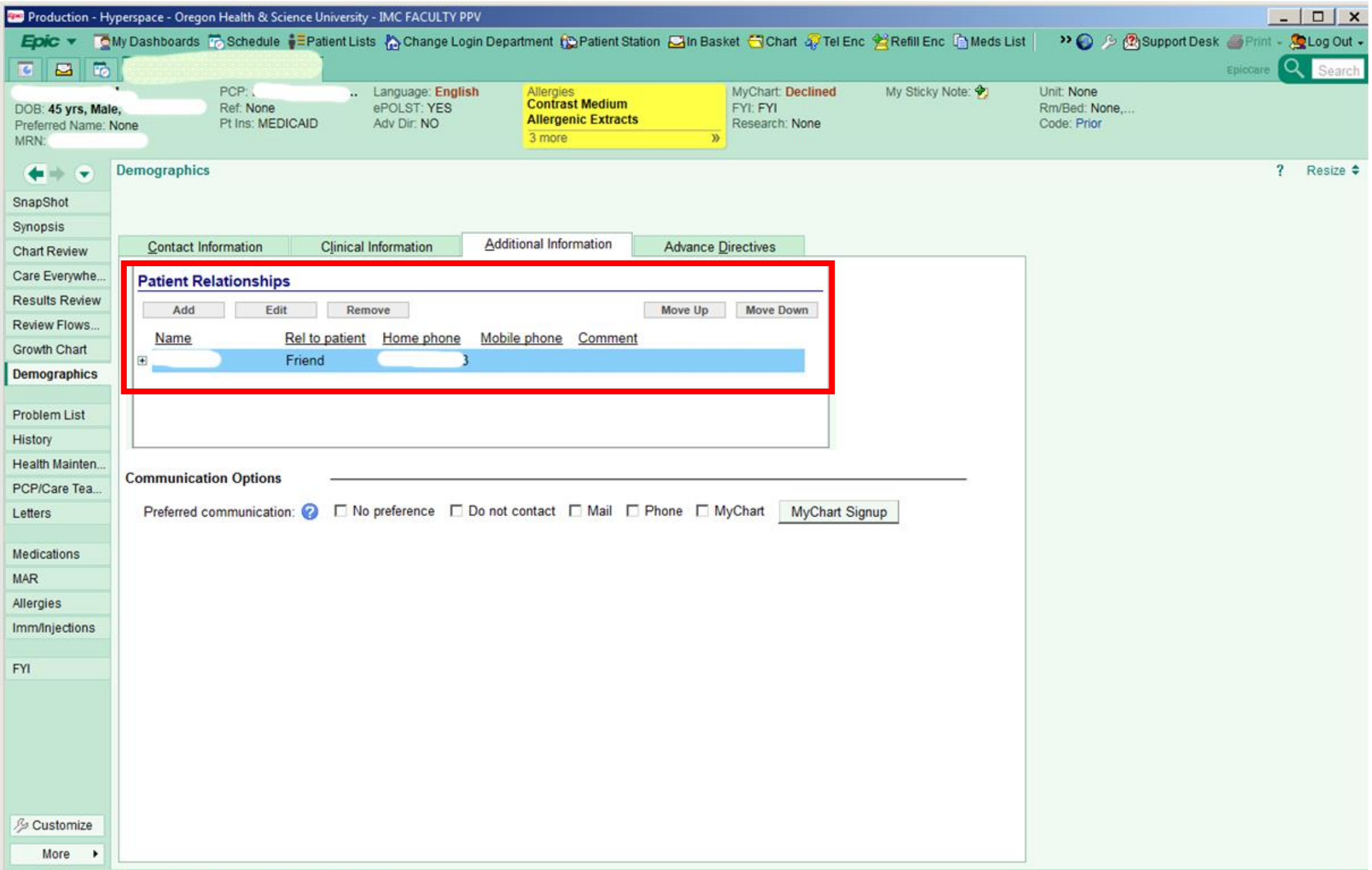
Action plan:
-Encourage patient to continue to take 100% of all medications from facility staff
-Patient to avoid sick contacts
-Encourage patient/facility to call for early symptoms of illness

Next scheduled contact with RN Care Manager:
Reason for next contact: Status check

Lab Results

Component	Value
CD4ABSOLUTE	290*
CD4PERCENT	17.0*
HIVPCR	Undetected

My Last Outpatient Progress Note


Production - Hyperspace - Oregon Health & Science University - IMC FACULTY PPV
Epic
My Dashboards
Schedule
Patient Lists
Change Login Department
Patient Station
In Basket
Chart
Tel Enc
Refill Enc
Meds List
Support Desk
Print
Log Out
Search
DOB: 45 yrs, Male,
Preferred Name: None
MRN:
PCP:
Ref: None
Pt Ins: MEDICAID
Language: English
ePOLST: YES
Adv Dir: NO
Allergies
Contrast Medium
Allergenic Extracts
3 more
MyChart: Declined
FYI: FYI
Research: None
My Sticky Note:
Unit: None
Rm/Bed: None,...
Code: Prior
Demographics
Resize
SnapShot
Synopsis
Chart Review
Care Everywhe...
Results Review
Review Flows...
Growth Chart
Demographics
Problem List
History
Health Mainten...
PCP/Care Tea...
Letters
Medications
MAR
Allergies
Imm/Injections
FYI
Customize
More
Contact Information
Clinical Information
Additional Information
Advance Directives
Patient Relationships
Add
Edit
Remove
Move Up
Move Down
Name
Rel to patient
Home phone
Mobile phone
Comment
Friend
Communication Options
Preferred communication:
No preference
Do not contact
Mail
Phone
MyChart
MyChart Signup

Spreading the value of caregiver identification

- What ***benefit*** does the system, the team, and the individual get from engaging the caregiver?
- How do we minimize the ***cost*** of recording, tracking, educating caregivers?
- How do we instill a culture of continuous improvement in engaging caregivers?

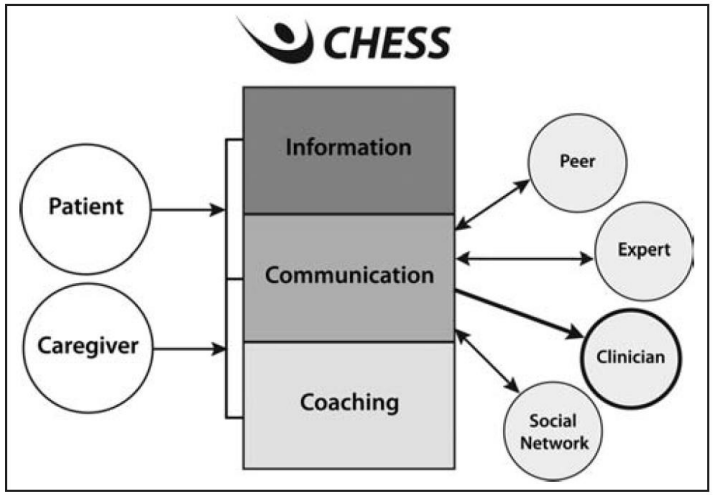
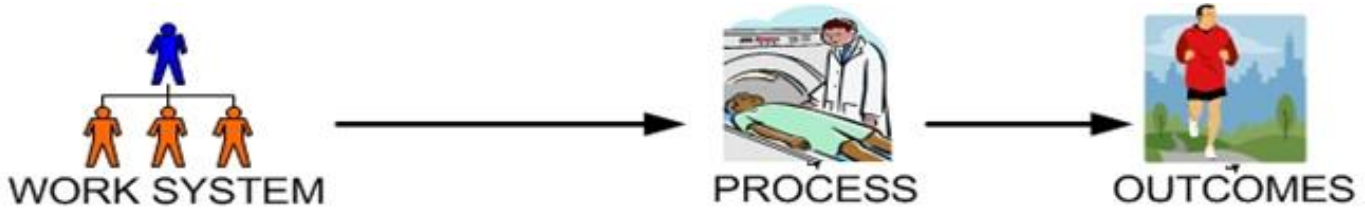
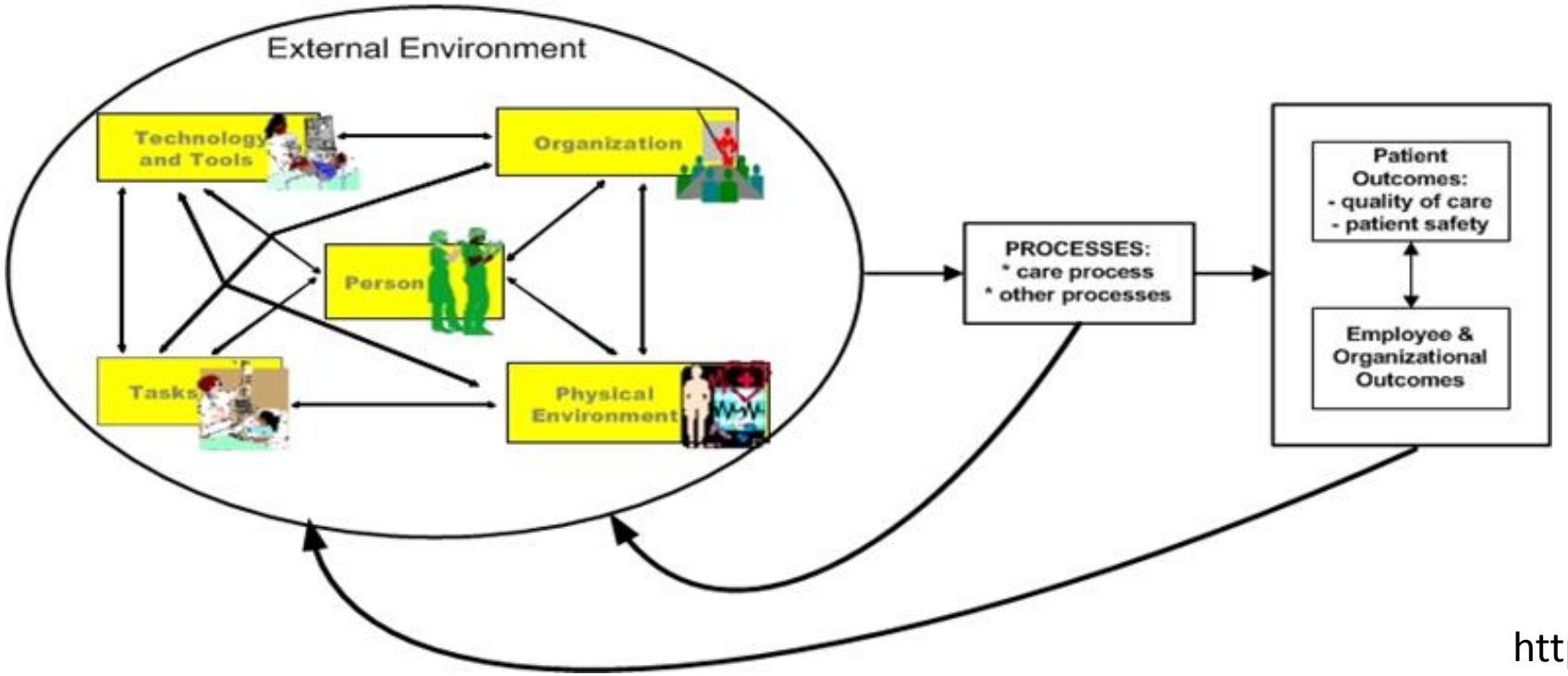


Figure 1 Model of how CHESS connects patients/caregivers to key others in cancer experience.

http://journals.sagepub.com/doi/pdf/10.1177/0272989X10386382 ; Center for Health Enhancement Systems Studies http://journals.sagepub.com/doi/abs/10.1177/089826439801000102

Attempting to standardize the work when there are complex, overlapping workflows





http://cqpi.wisc.edu/seips-main.htm

Technical Assistance: Gathering and synthesizing evidence

- 5 Foundations engaged the National Academies of Medicine

VIEWPOINT

VITAL DIRECTIONS FROM THE NATIONAL ACADEMY OF MEDICINE

Tailoring Complex Care Management for High-Need, High-Cost Patients

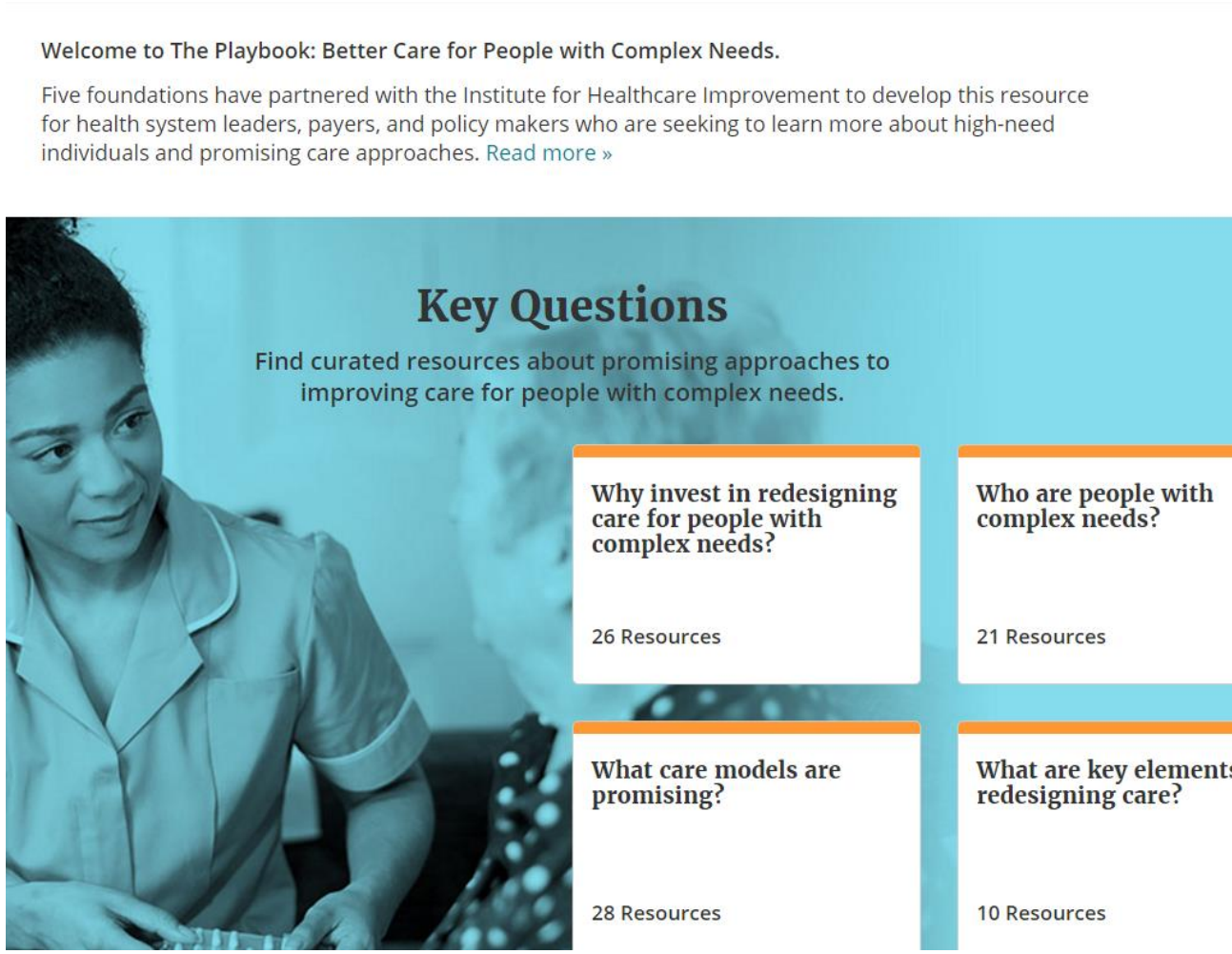
Segment populations by need

Avoid ‘incrementalism’ in favor of coordination and longitudinal approaches

Improve planning, including electronic connections

Refine models

Improve capacity – training and informatics



Blumenthal and Abrams, JAMA 9/2016

BetterCarePlaybook.org

Summary

Better using data, information and knowledge to improve health of vulnerable populations requires

- Reorganizing teams and systems
- Improving technology
- Changing policy
- Changing incentives; AND
- Significant facilitation, including by innovators

CM+ care management plus

Thank you!

dorrd@ohsu.edu www.ohsu.edu/cmp

Oregon Health & Science University

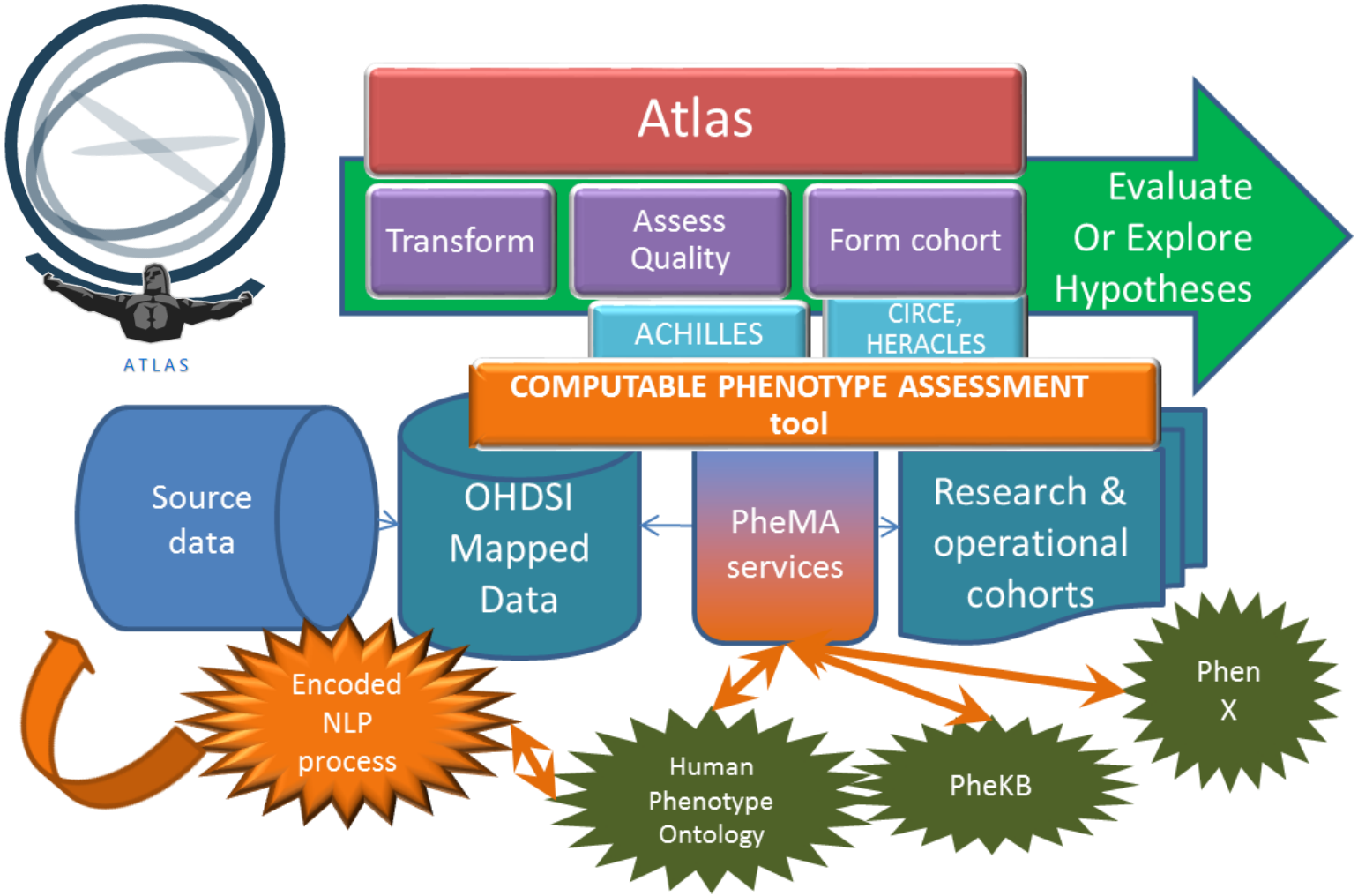
- Bhavaya Sachdeva
- Melanie Marzullo
- Raja Cholan
- Nicholas Colin
- Matthew Storer

Colleagues and Mentors

- Cherie Brunker, MD
- Adam Wilcox, PhD
- Bill Hersh, MD
- Paul Clayton, PhD

Family

Improving data quality: standard data mapping and transformation



Improving data quality: encouraging better mapping

PheKB Phenotype: Dementia (excerpt)

```
data DxList ;
  input Dx $char6. ;
cards;
290.0        Senile dementia, uncomplicated
290.10-290.13   Presenile dementia
290.11
290.12
290.13
290.20  senile dementia delusional [paranoid] features
290.21  senile dementia with depressive features
290.3        senile dementia with delirium or confusion
290.40-290.43   arteriosclerotic dementia
290.41  Vascular dementia with delirium
290.42  Vascular dementia with delusions
290.43
291.0        291.0-291.2     dementia due to alcohol
291.1
291.2
292.82  dementia due to drugs
294.8   dementia, unspecified          (added at the request of Peggy Peissig May 19, 2008
294.10-294.11   dementia not classified as senile, presenile, or arteriosclerotic
294.11
331.0        Alzheimer's disease
331.11  Pick's disease of the brain
331.19  Other frontotemporal dementia
331.82  Dementia with Lewy bodies.  Dementia with Parkinsonism
run;
```

PhenX Protocol Name	PhenX ID	LOINC Name	LOINC Code	CDE Name	CDE ID
Global Mental Status Screener - Adult	**PX130701**	Global mental status adult proto	62769-5	Adult Cognitive Assessment Score	3076130

... subvariables under this level with logic

Human Phenotype Ontology: Dementia

human phenotype ontology

Keywords: Search terms

Class: Dementia

Term IRI: http://purl.obolibrary.org/obo/HP_0000726

Definition: A loss of global cognitive ability of sufficient amount to interfere with normal socia
loss of previously present cognitive abilities, generally in adults, and can affect memory, think
[database_cross_reference: HPO:probinson]

Annotations

- **database_cross_reference:** MeSH:D003704; UMLS:C0497327
- **has_alternative_id:** HP:0002274; HP:0007122; HP:0007150; HP:0007283
- **has_exact_synonym:** Progressive dementia; Dementia, progressive
- **has_obo_namespace:** human_phenotype
- **id:** HP:0000726

Atlas

COMPUTABLE PHENOTYPE ASSESSMENT tool

Evaluation

Availability
Feasibility
Accuracy
Currency
Completeness, and
Representativeness

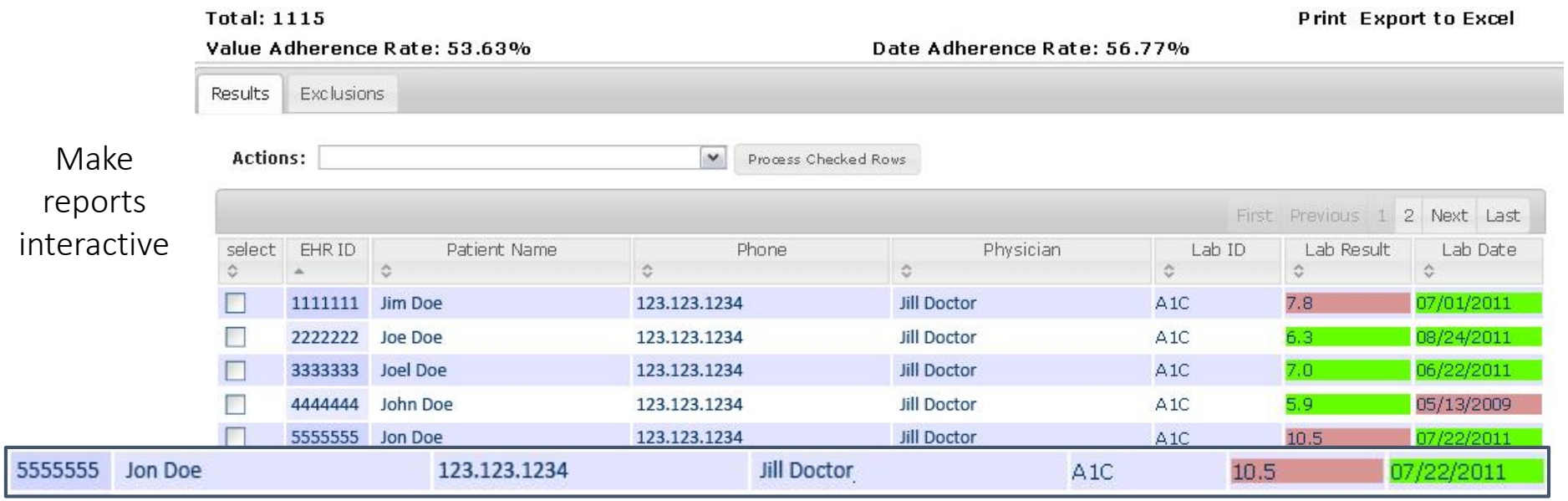
www.ohdsi.org

Data quality and use of data

- The Sims stages of data grief (as adapted from Kübler-Ross)

Advanced reminder systems for complex tasks

Make reports interactive



Prioritized Population Reminders As a task list

Gaps slowing progress

- Quality of data and information
- Accessibility and generalizability of knowledge
- Delivery for inclusion
- Uptake and fidelity of improvements (models of care)

High priority elements and current gaps

- Efficient, meaningful data and information -> data quality is poor
- Targeted, intelligent, flexible prediction ->
  - Individual level
  - Population level
- Data driven improvement science **-> data quality improvement, then performance improvement**
- Adaptable visualization based on principles
- New models of care that include facilitation

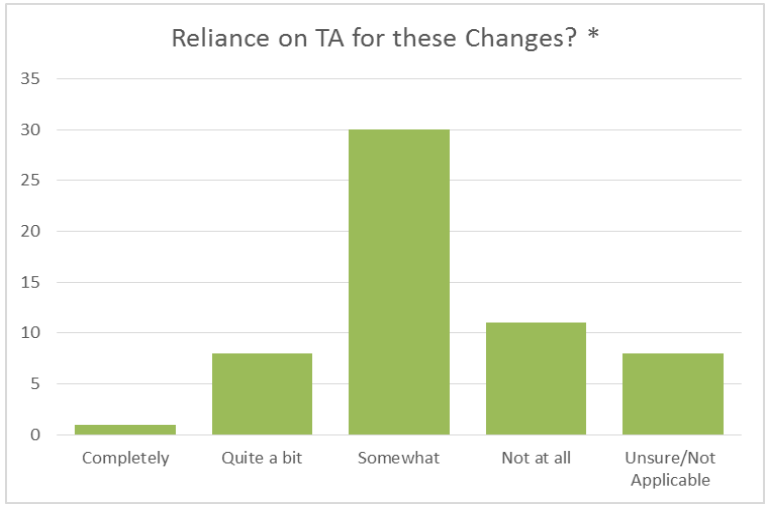
CPC Classic Lessons Learned

CPC Technical Assistance Survey:

58 responses representing 52 practices

Most Significant Changes:

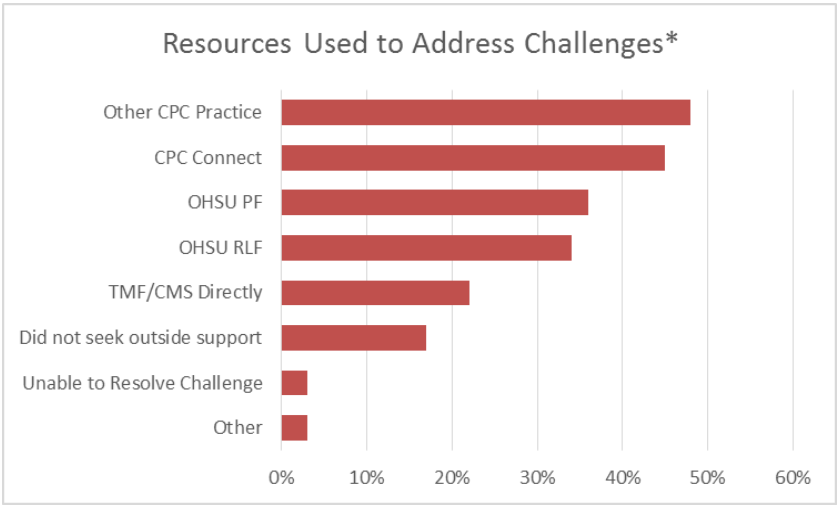
1. Care Management
2. BH Integration
3. Staffing Changes
4. Hospital Follow-ups
5. PFAC Implementation
6. Risk Stratification



*COUNT of changes

Biggest Challenges:

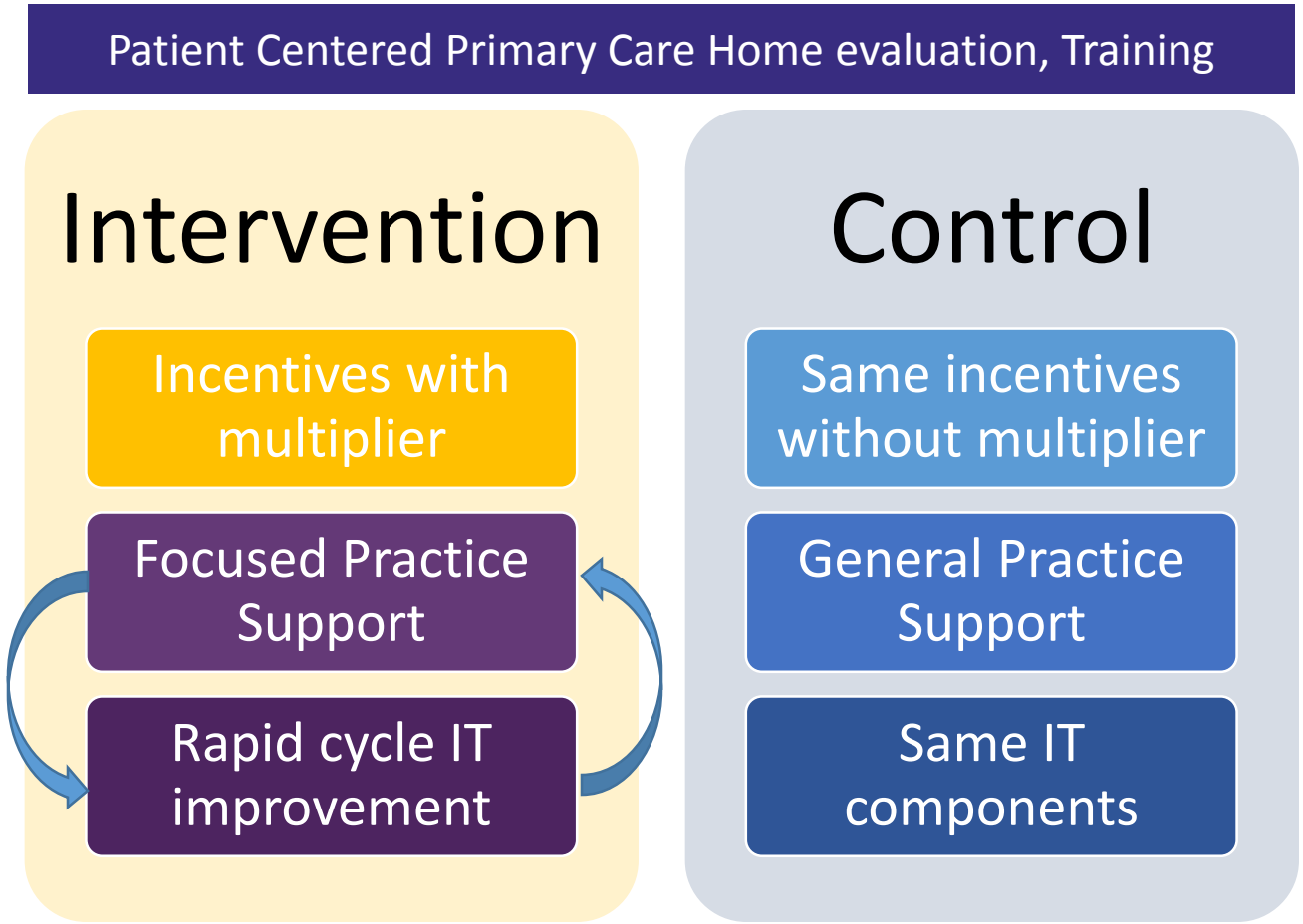
1. Physician & Staff Buy-In
2. Turnover/Staffing
3. Reporting
4. Data-Related Issues
5. Shared Decision Making
6. Care Plans



*PERCENTAGE of respondents

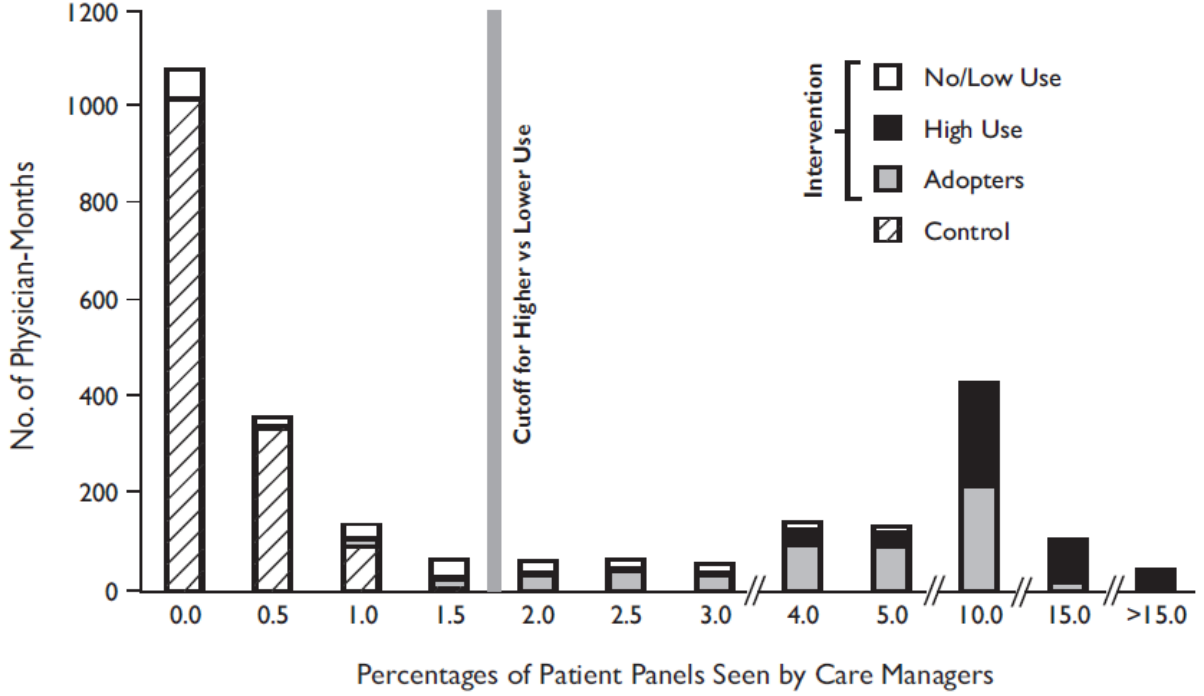
Incentive redesign - tie closely to expected goals: TOPMED trial

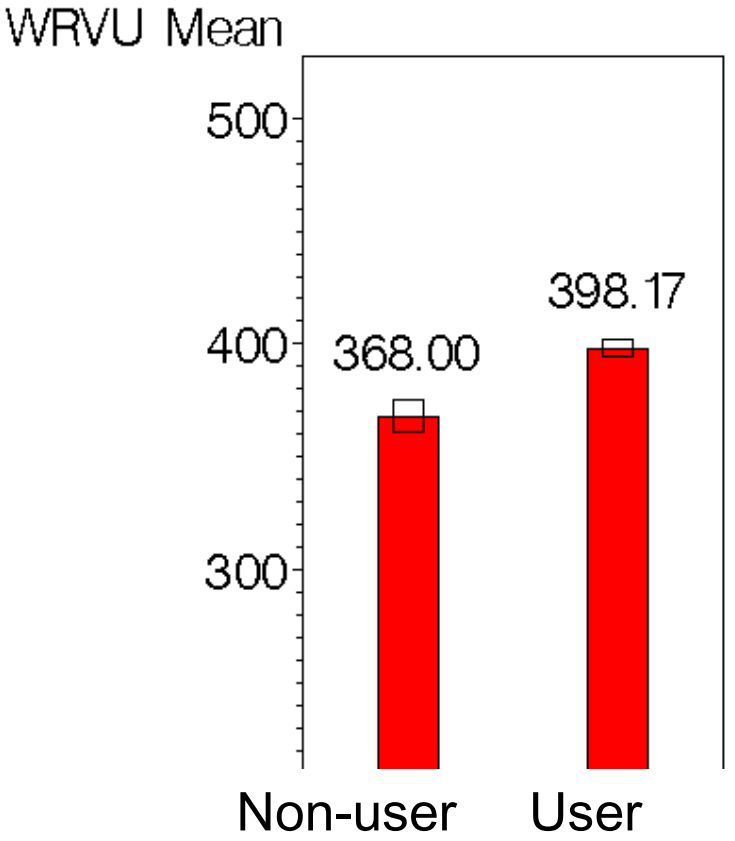
Cluster Randomized Controlled Trial in 8 clinics



Create ‘slack’ for providers through teamwork

Figure 1. Percentages of Physicians’ Patient Panels Seen by Care Managers





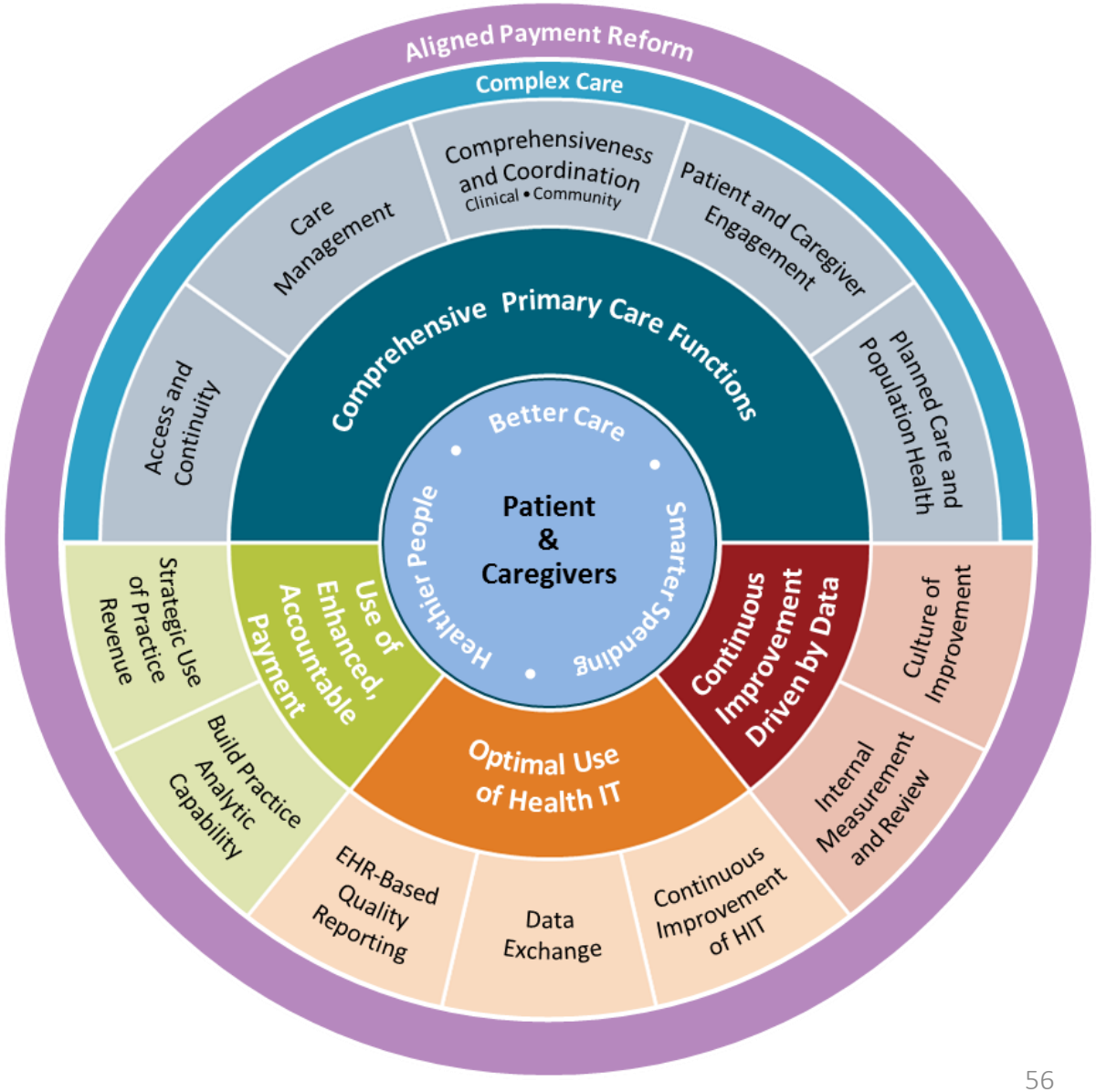
Physicians who referred to care managers (‘users’) were ***8% more productive*** than peers in the same clinic.

- change was seen in early ‘high use’ and ‘adopters’

Dorr, AJMC, 2007

Policy to Technical Assistance: Comprehensive Primary Care (CPC) and CPC+

- National advanced primary care medical home model
- Initial phase 2012-2016; Plus phase 2017-2022
- Aim: strengthen primary care through
  - regionally-based multi-payer payment reform, and
  - care delivery transformation
- 2 tracks
- 14 regions - ~2700 practices
- 5 years



Policy: Significant payment changes

	CPC	CPC+ Track 1	CPC+ Track 2
PBPM Risk-Adjusted Care Management Fee	$20 average (PY 1-2); $15 average (PY 3-4)	$15 average	$28 average
Underlying Payment Structure	Standard FFS	Standard FFS	
Quality & Cost Performance Incentive	Retrospective regional shared savings	Prospective, at-risk practice-level incentive payment ($2.50 opportunity) (PBPM)	Prospective, at-risk practice-level incentive payment ($4.00 opportunity) (PBPM)