Connecting the Organizational and Clinical Benefits of Optimal Use of Electronic Medical Records

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CFFM FHT: providing integrated primary care to over 24,000 patients in the Waterloo Region.

New Vision FHT: providing integrated primary care to over 24,000 patients in the Waterloo Region.

OBJECTIVE: To share how good quality EMR data can enable more proactive chronic disease management, preventative care and data sharing through:

- EMR Clinical Data Prioritization and Standardization

- Clinician Engagement, Change Management and Training

- Benefits Evaluation and Realization

- A broad engagement of primary care practitioners

Project ALIVE, funded by:

Ontario
eHealth Ontario

The Problem

- Clinicians like to express themselves[1]…

  - 285 ways of capturing depression

  - 701 ways of capturing diabetes

  - 670 ways of capturing hypertension

  - 302 ways of capturing COPD

- Keeping patient charts up-to-date can be a challenge

- Clinicians want better data, but not at the expense of patient care

1. From: CIHI PHC Voluntary Reporting System-EMR Data Source

Project Scope

- Stream 1 – Support the meaningful use and management of EMR data by working with 30 Primary Care practitioners to:

  - Standardize a sub-set of EMR data (One FHT 12 conditions; Other FHT 18 conditions)
  - Implement the use of a reporting tool
  - Implement processes focussed on sustainable data standardization

- Stream 2 – Report on the current state of information management in Primary Care through:

  - Broad engagement of 300 Primary Care practitioners with EMRs
  - Broad engagement of 35 Primary Care practitioners without EMRs

Coded Data = Simpler Searches

Coded Search   **VS**   **Un-coded Search**

Search Name: MD TypeII Search

CPP Prob SNOMED CT® any item starts with DB-61030
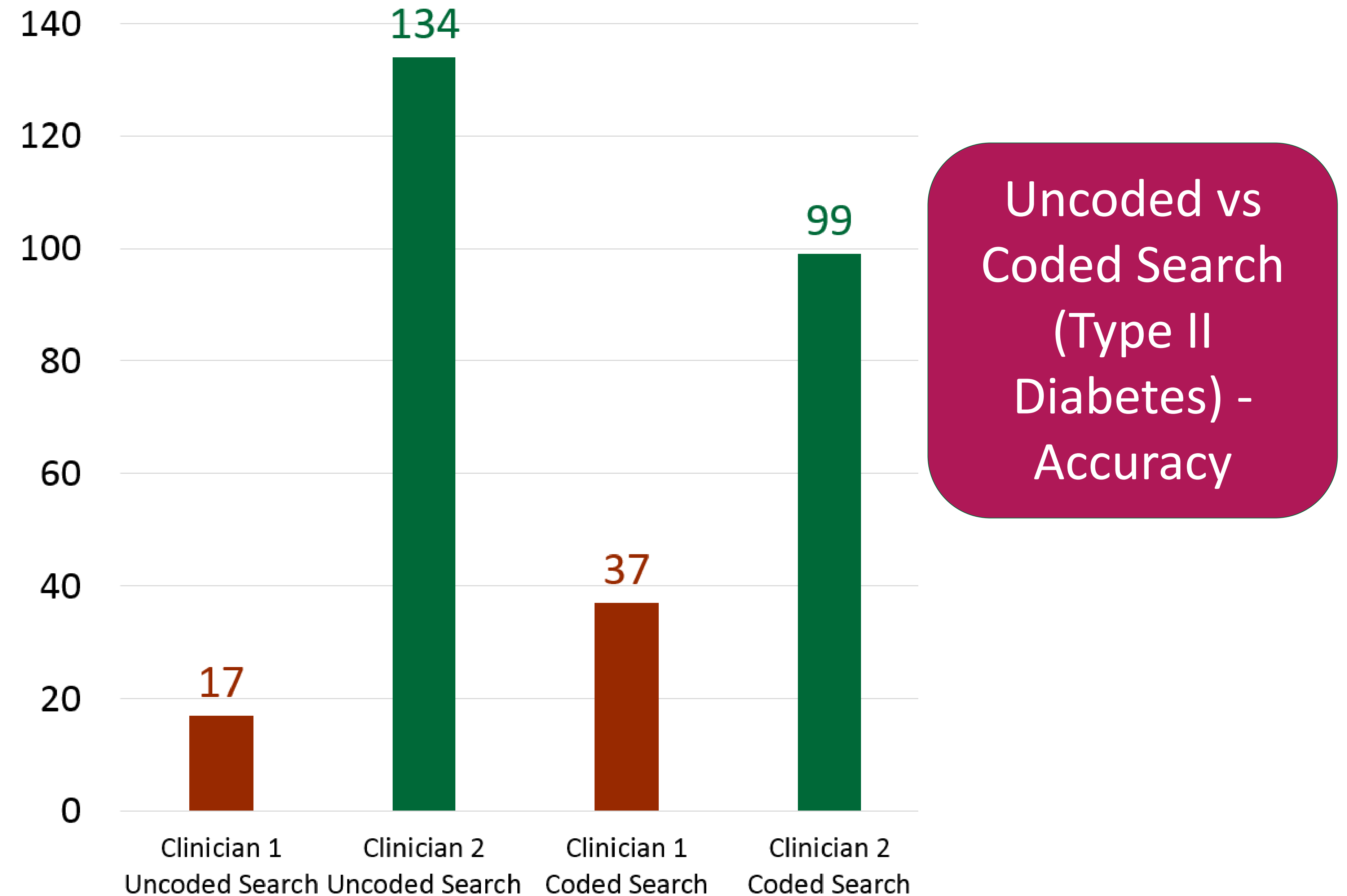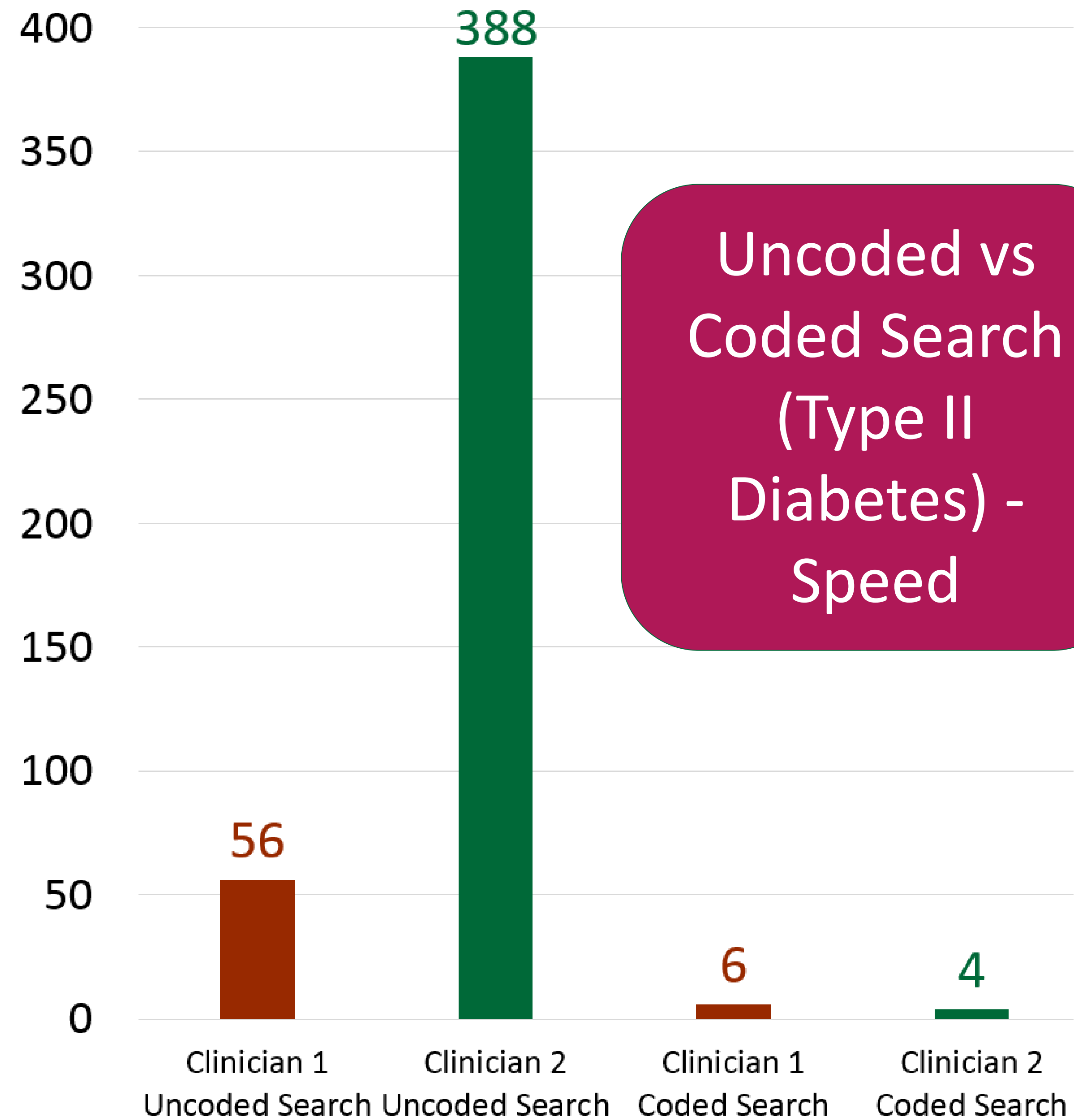or
CPP HPH SNOMED CT® any item starts with DB-61030

Search Name: MD Diabetes - Type 2 Population

Member Status = FHO Enrolled
and
     PROB/Problem List/Problem List contains Type 2 Diabetes
     or
     PROB/Problem List/Problem List contains Diabetes Type 2
     or
     PROB/Problem List/Problem List contains DM
     or
     PROB/Problem List/Problem List contains DM2
     or
     HPH/Past Hx/History of Past Health contains Diabetes Type 2
     or
     HPH/Past Hx/History of Past Health contains Type 2 Diabetes
     or
     HPH/Past Hx/History of Past Health contains DM
     or
     HPH/Past Hx/History of Past Health contains DM2
and
HPH/Past Hx/History of Past Health does not contain gestational
and
PROB/Problem List/Problem List does not contain gestational
and
PROB/Problem List/Problem List does not contain Type 1
and
HPH/Past Hx/History of Past Health does not contain Type 1

Simpler, Faster Searches that Yield more Accurate Results

Uncoded vs Coded Search (Type II Diabetes) - Speed

Clinician 1 Uncoded Search: 56
Clinician 2 Uncoded Search: 388
Clinician 1 Coded Search: 6
Clinician 2 Coded Search: 4

Uncoded vs Coded Search (Type II Diabetes) - Accuracy

Clinician 1 Uncoded Search: 17
Clinician 2 Uncoded Search: 134
Clinician 1 Coded Search: 37
Clinician 2 Coded Search: 99

The uncoded search for Clinician 2 brought up several false positives

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More Accurate Patient Searches

% of patients who have the condition but were not identified in existing EMR Search

Asthma	13.5%
Dementia	8.5%
Type 1 Diabetes	33%
Type 2 Diabetes	8.5%

Impact: Clinicians learn not to trust the EMR functionality such as reminders and searches

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More Accurate Patient Searches

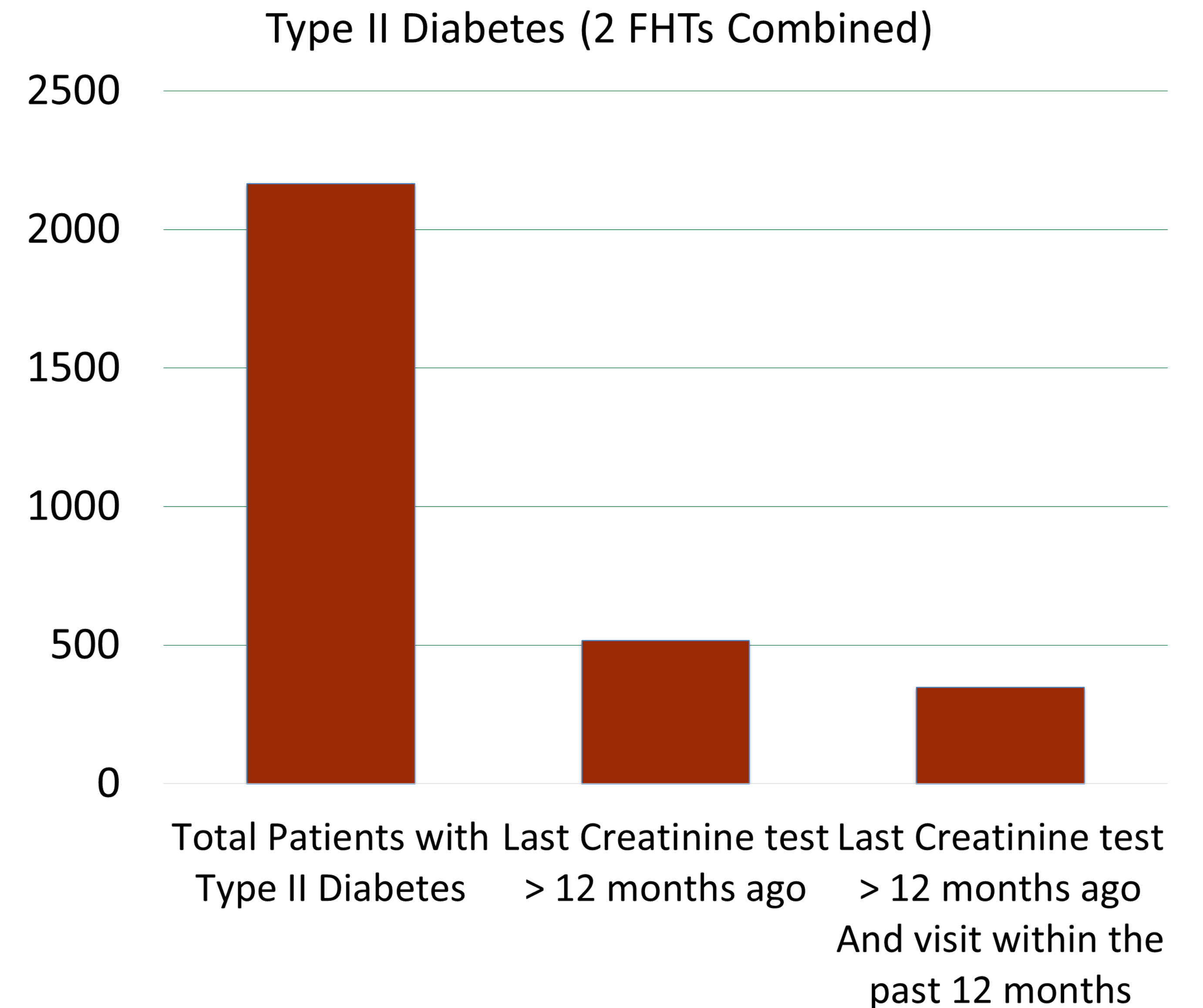% of patients who do not have the condition but were incorrectly identified as having the condition

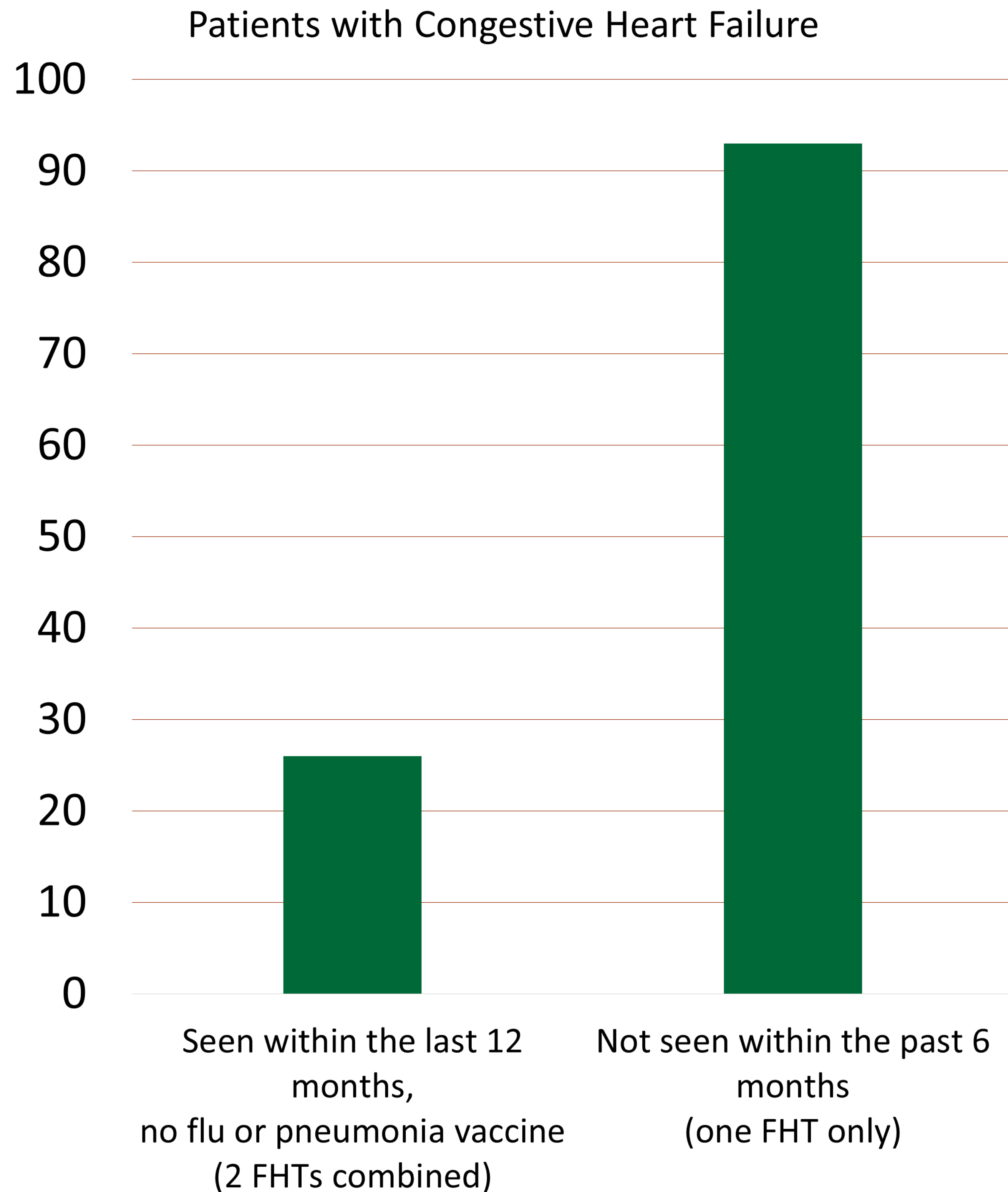| Asthma	16.4%
COPD	24.7%
Dementia	19.7%
Pre-diabetes	35.7%

Impact: Clinicians learn not to trust the EMR functionality such as reminders and searches

Enhanced Patient Care Opportunities

Patients with Congestive Heart Failure

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/ EMR Information.

Type II Diabetes (2 FHTs Combined)

Practice/Patient Benefits

Quick and Flexible Reports to better inform clinicians and the organization of the needs of their patients and which patients with chronic conditions require follow-up care.

Better Identification of Patients allowing the full inter-professional team to better care for complex patients.

2 Clinical Best Practice Reminders have been activated by utilizing advanced EMR functionality based on the coded data. This includes outstanding lab work for diabetes and outstanding vaccinations for patients with congestive heart failure.

Flu shot and Pneumococcal vaccine for CHF patient

Example: Clinical Best Practice Reminder for CHF patient, within patient record
CFFM, 2014

Examples of Patient Care Opportunities

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/ EMR Information.
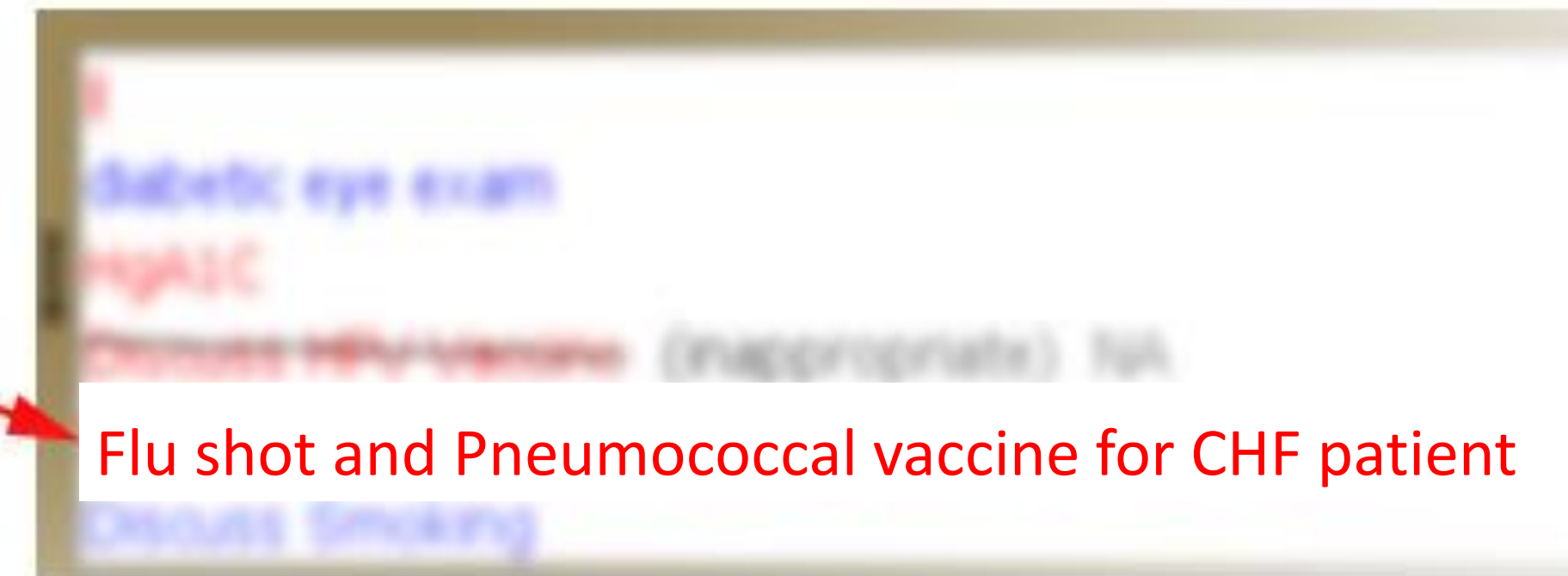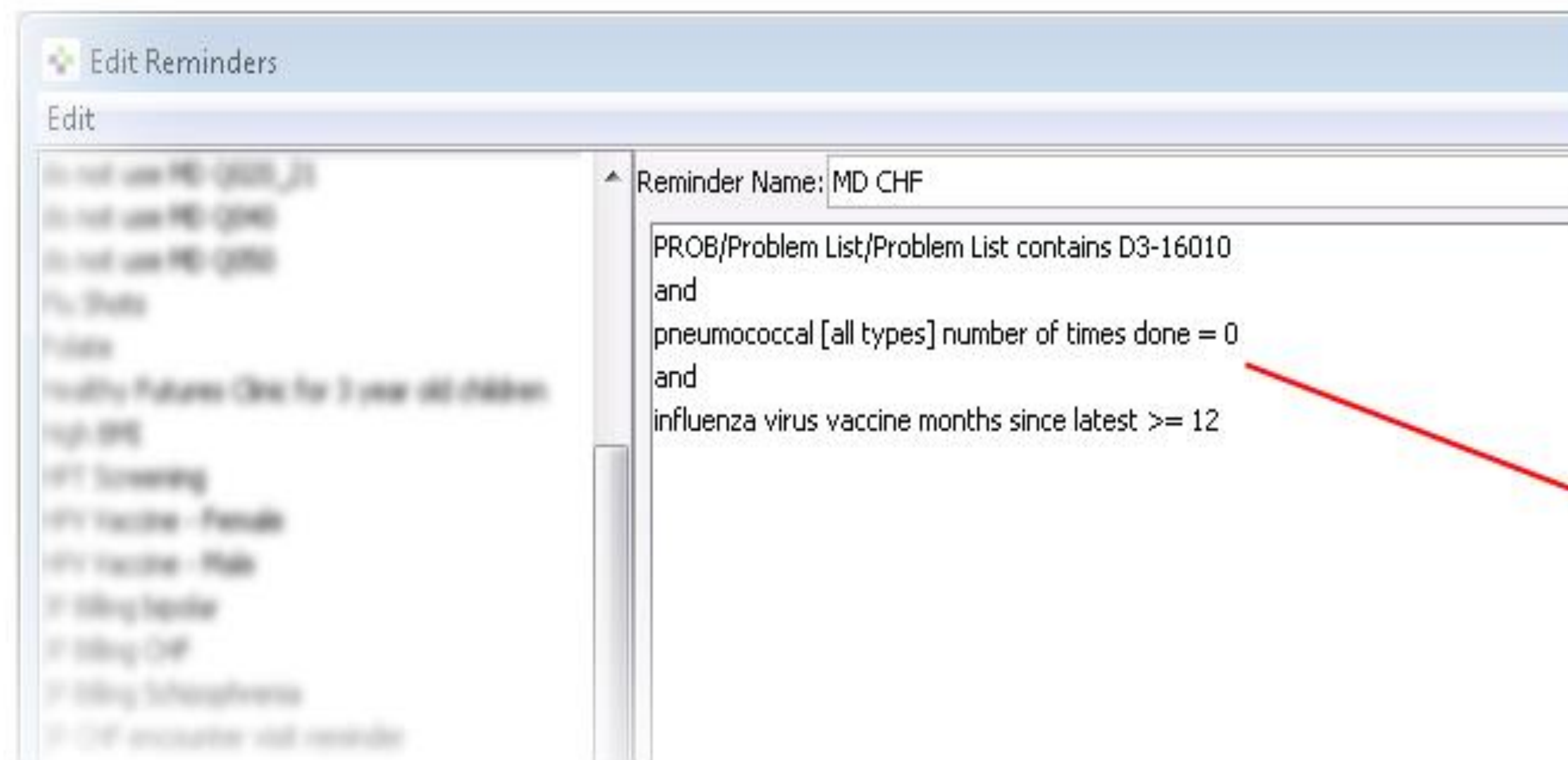
Better Continuity of Care for Patients
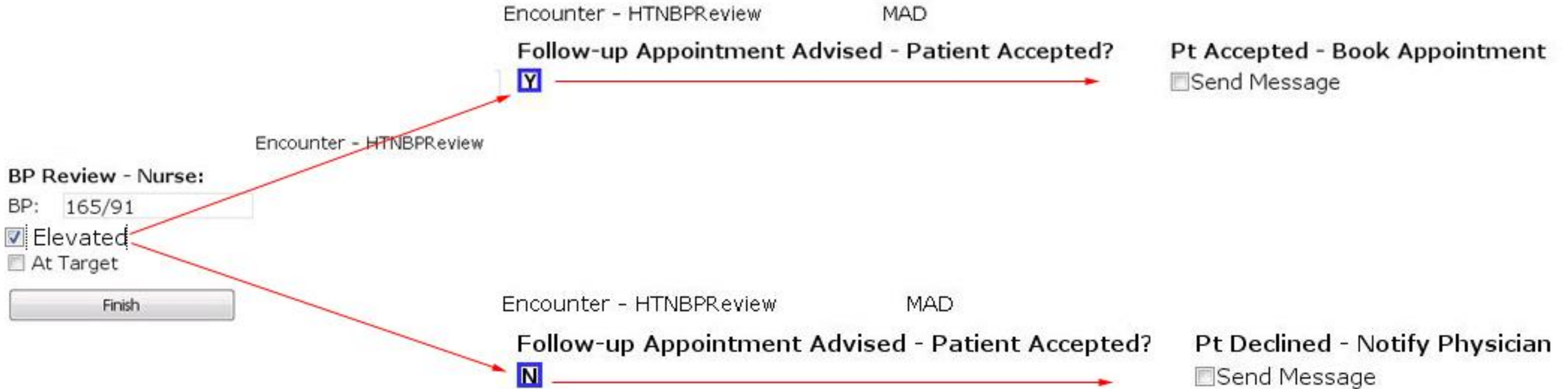
Encounter – HTNBPReview   MAD

Follow-up Appointment Advised - Patient Accepted?
Y

Pt Accepted - Book Appointment
Send Message

Encounter – HTNBPReview

BP Review - Nurse:
BP: 165/91
☑ Elevated
☐ At Target

Finish

Encounter – HTNBPReview   MAD

Follow-up Appointment Advised - Patient Accepted?
N

Pt Declined - Notify Physician
Send Message

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/ EMR Information.

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From Historical to Go-Forward Coding

Change Management coaching deployed to incorporate the standardization of patient data into existing workflows, allowing for **Ongoing and Sustainable Standardization by Clinicians.**

Example: Template to allow simple "point and click" standardization from within patient record

CFFM, 2014

ALIVE Implementation Model
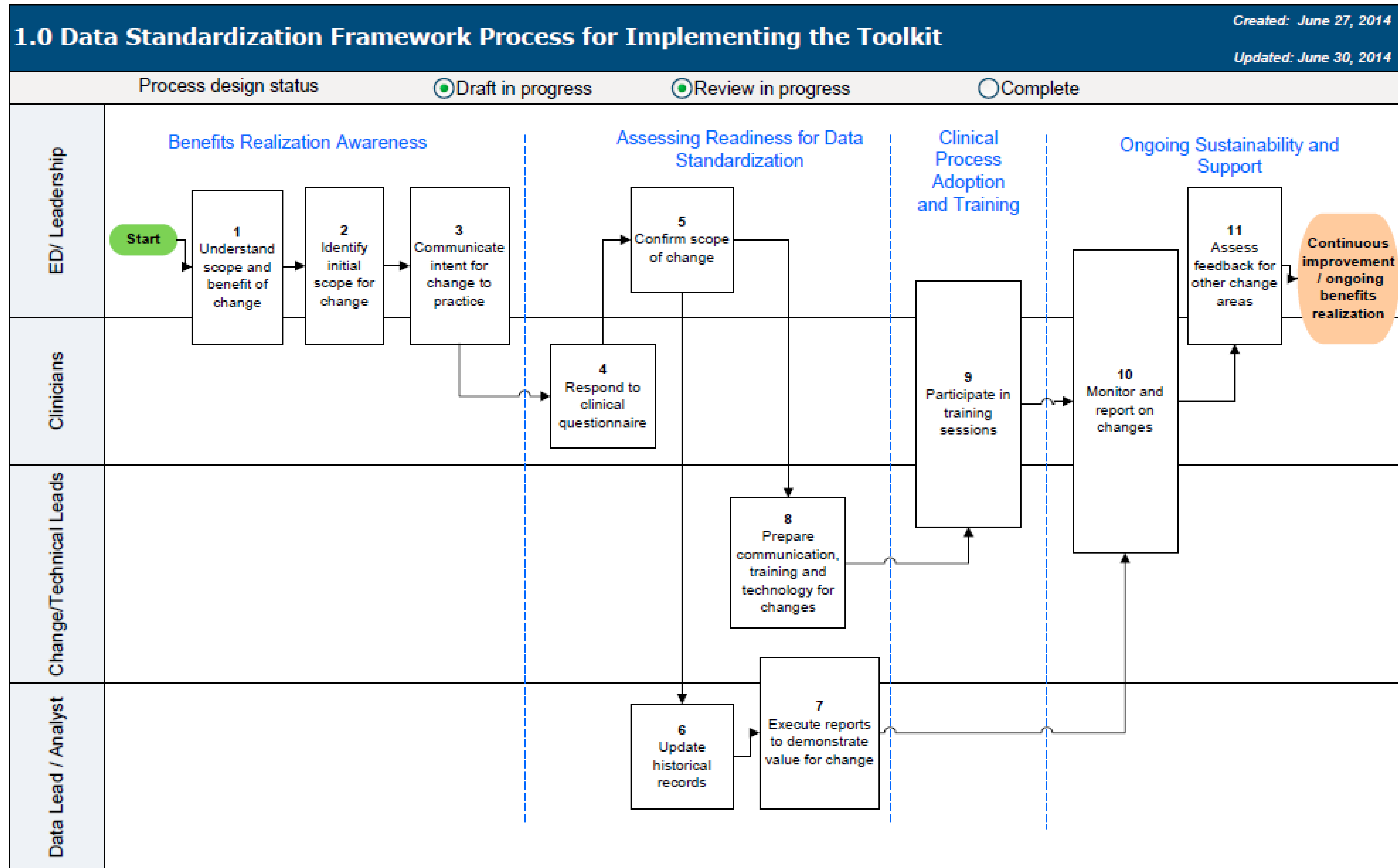
Value/Benefit in Health Organizations

Ravichandran and Lertwongsatien (2005) suggested an organization's performance "can be explained by how effective the firm is in using information technology to support and enhance its core competencies."

Journal of Management Information Systems 21(4), p. 237

Processes
Producing
Organizational
Value

Processes
Producing
Clinical
Value

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Value/Benefit in Health Organizations
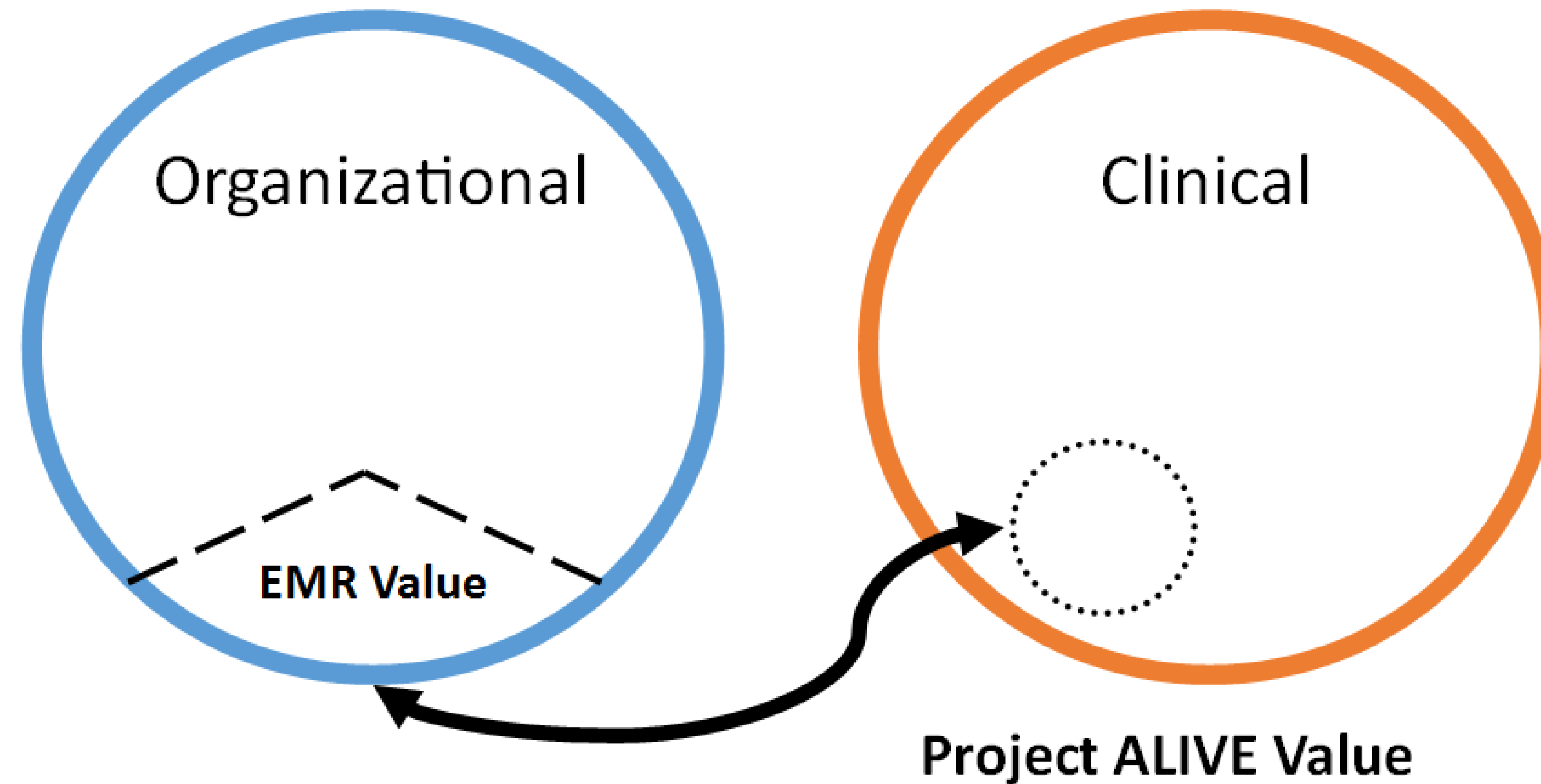
Project ALIVE developed Organizational and Clinical Value in EMRs.

This offers the potential to learn about and improve care delivery informed by different information.
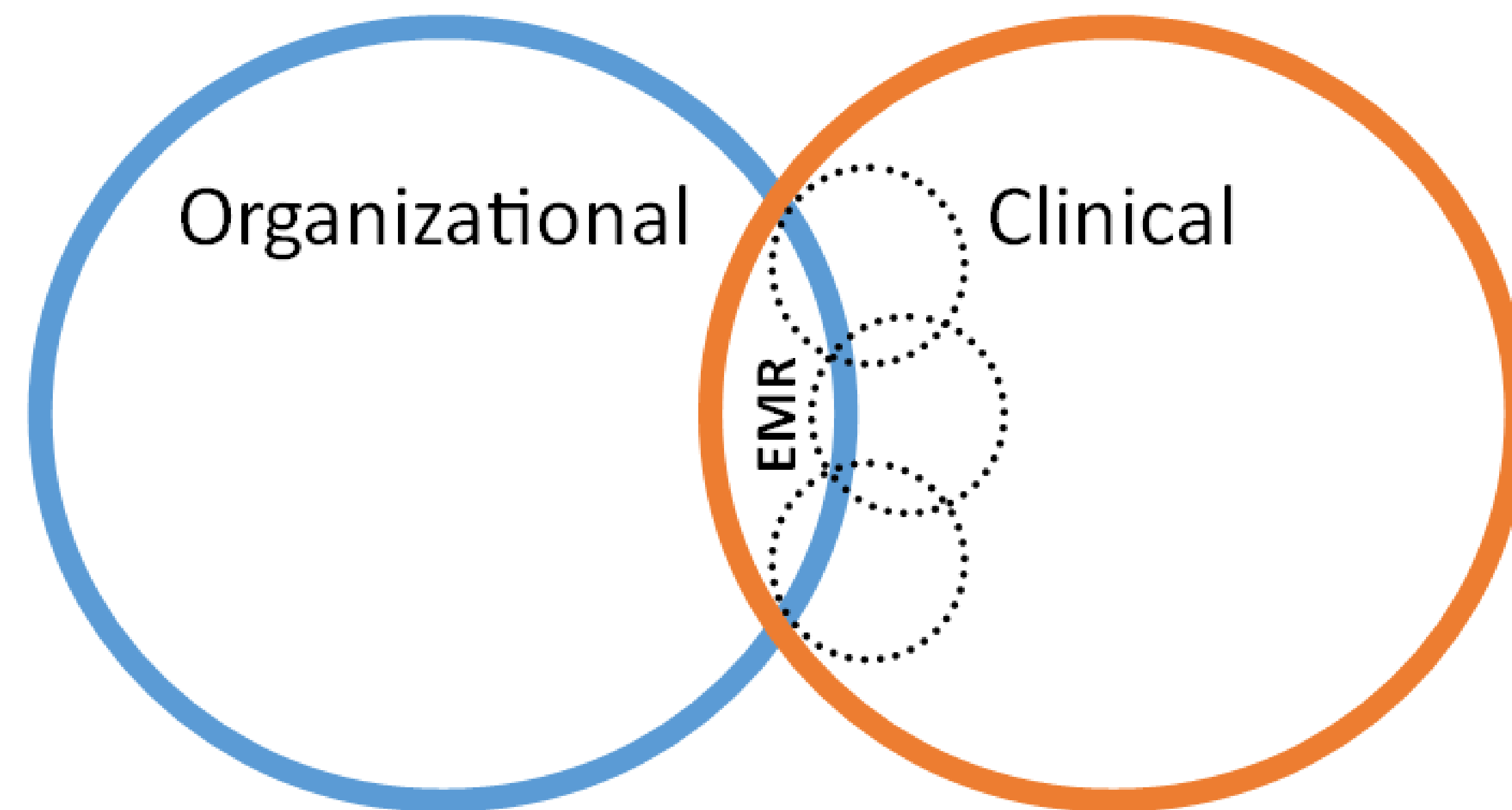
The process of developing clinical value using informants from the EMR introduces multi-professional care and change the way Primary Care Organizations function.

Options for Pursuing Value

Basic All providers need to develop reliable data. Cost variation by number of chronic diseases coded	Intermediate Building on improved data completeness, work with PCO to identify CDPM clinical processes and organizational processes that can be enabled	Advanced More custom features developed, more workflow and change management required
Historical coding of patient records	Develop workflow analysis to integrate workflow changes into organizational processes	Improved links to clinical guidelines to proactively manage chronic diseases i.e. reminders for vaccines, interventions etc.
Improved basic report generation	Improve organizational processes to improve billing search efficiency	Develop dashboard feature for performance improvement, professional development, QIP opportunities
Tools to make EMR functionality more accessible to enable coding	Improved intra-organizational and inter-organizational referrals for chronic disease management	Develop improved communications interface within the EMR to manage communications with specialty clinics

Primary Care Performance Measurement Framework

(Ontario Primary Care Performance Measurement Steering Committee, June 2013)

Access

- Extent of (avoidable) emergency department, walk-in clinic, urgent care centre use *(Integration) S
- Access to a regular primary care provider S+P
- Access to an inter-professional primary care team S+P
- Timely access at regular place of care S+P
- Access to after-hours care (telephone and in-person) S+P
- Access to non face-to-face care (e.g., telephone, email, etc.) S+P
- Access to home visits for target populations S+P
- Patient access to their own health information *(Efficiency)

Integration

- Information sharing across the continuum of care including patients and family caregivers S+P
- Care coordination with other health and community care providers and services *(Efficiency and Patient-Centredness) S+P
- Time to referred appointment with medical/surgical specialist or other specialized services *(Access) S+P
- Hospital admissions and readmissions *(Effectiveness) S+P
- Follow-up with regular primary care provider post hospital discharge S+P
- Waiting time for community services S+P
- Primary care providers' access to specialist advice via telephone, email, etc.
- Time to referred diagnostic test (e.g., CAT scan, MRI, etc.)
- Shared care arrangements for patients to see a specialist in their regular primary care setting

Efficiency

- Per capita health care cost (primary care, specialist care, hospital care, diagnostics, pharmaceuticals, long-term care, community care) S
- Support for family caregivers S+P
- Unnecessary duplication of diagnostic tests/imaging S+P
- Implementation and meaningful use of Electronic Medical Records/Electronic Health Records *(Integration) S+P
- Self management support and collaboration with patients and families *(Patient-Centredness and Effectiveness) S+P
- Patient wait times in office P
- Extent of generic prescribing

Effectiveness

- Management of chronic conditions including people with mental health and addictions and multiple chronic conditions S+P
- Advanced disease/palliative care S+P
- Symptom management *(Patient-Centredness) S+P
- Negotiated care plan for patients with chronic conditions *(Patient-Centredness) S+P
- Shared clinical decision-making *(Patient-Centredness)

Focus on Population Health

- Preventive care for infants and children (beyond immunization) S
- Health and socio-demographic information about the population being served (including health status) S+P
- Immunization through the life span S+P
- Screening and management of risk factors for cardiovascular disease and other chronic conditions. (e.g., obesity, smoking, physical inactivity, diet, alcohol and substance abuse, socio-demographic characteristics, sexual and other high risk behaviours *(Effectiveness) S+P
- Chronic disease screening (e.g. cancer, diabetes, hypertension, asthma, depression, dementia) *(Effectiveness) S+P
- Prenatal care S+P

Safety

- Infection prevention and control S
- Medication management, including medication reconciliation S+P
- Recognition and management of adverse events including medical errors S+P
- Injury prevention *(Focus on Population Health)

Patient-Centredness

- Respect for patients' and families' values, culture, needs and goals S+P
- Process to obtain patient/client and care-giver input regarding health care services S+P
- Respectful and under-standable communication with patients S+P
- Coordination of care within the primary care setting S+P
- Process for addressing suggestions/ complaints S+P
- Privacy and confidentiality

Appropriate Resources

- Funds received by primary care practices (by category) S
- Human resources availability, composition (skills mix) and optimized scope of practice S+P
- Healthy work environment and safety S+P
- Funding and use of electronic systems to link with other settings *(Integration) S+P
- Practice improvement and planning P
- Human resources training and professional development, including patient- and family- centred care P
- Provider remuneration methods
- Total cost of care *(Efficiency)
- Availability of information technology systems
- Information technology investment and expenditure
- Provider satisfaction (employee engagement culture)

Legend

- ALIVE Direct Impact on Achievement
- ALIVE Enabler of Achievement

Equity

Equity is a cross cutting domain and will be assessed in relation to a variety of economic and social variables such as income, education, gender, urban/rural location, age, sexual orientation/identity, language, immigration, ethno-cultural identity and Aboriginal status.

Ontario — Health Quality Ontario

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