TRANSLATING GUIDELINES TO PRACTICE

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Evidence To Practice

- Current practice of translation with and w/o an EHR
- Challenges to effective use of knowledge
- A look to the future

CPGs, EHR, and Computer Aided Clinical Decision Support (CDS)

- Common applications of CDS
  - Diagnosis
  - Preventive care reminders
  - Disease management or protocols for bundles of reminders
  - Drug dosing/prescribing protocols
- 25% of studies are from 4 systems and not generalizable
- Simple point-of-care reminders or alerts
  - Rx or test orders, recommended care, documentation, avoidance of unnecessary care
  - <10% effective on process measures
- CDS alerts fail on the most basic measure of utility
  - Failure to use

CPGs, EHR, and Computer Aided Clinical Decision Support (CDS)

- Easy to blame the customer
  - "They are just not cooperating"
- Proximal causes of alert f...
  - Poorly designed, poor... ...on content
  - Designed for so... ...an a physician (e.g., qualit...
  - Directe... ...g person
  - M... ...re burdensome
- Most... ...nce on CDS has not evaluated
  - Maintained by large delivery systems with years of experience using EHRs

Should There Be a CME Model for Learning During Practice Through the Use of CDS?

Translating Knowledge to Practice
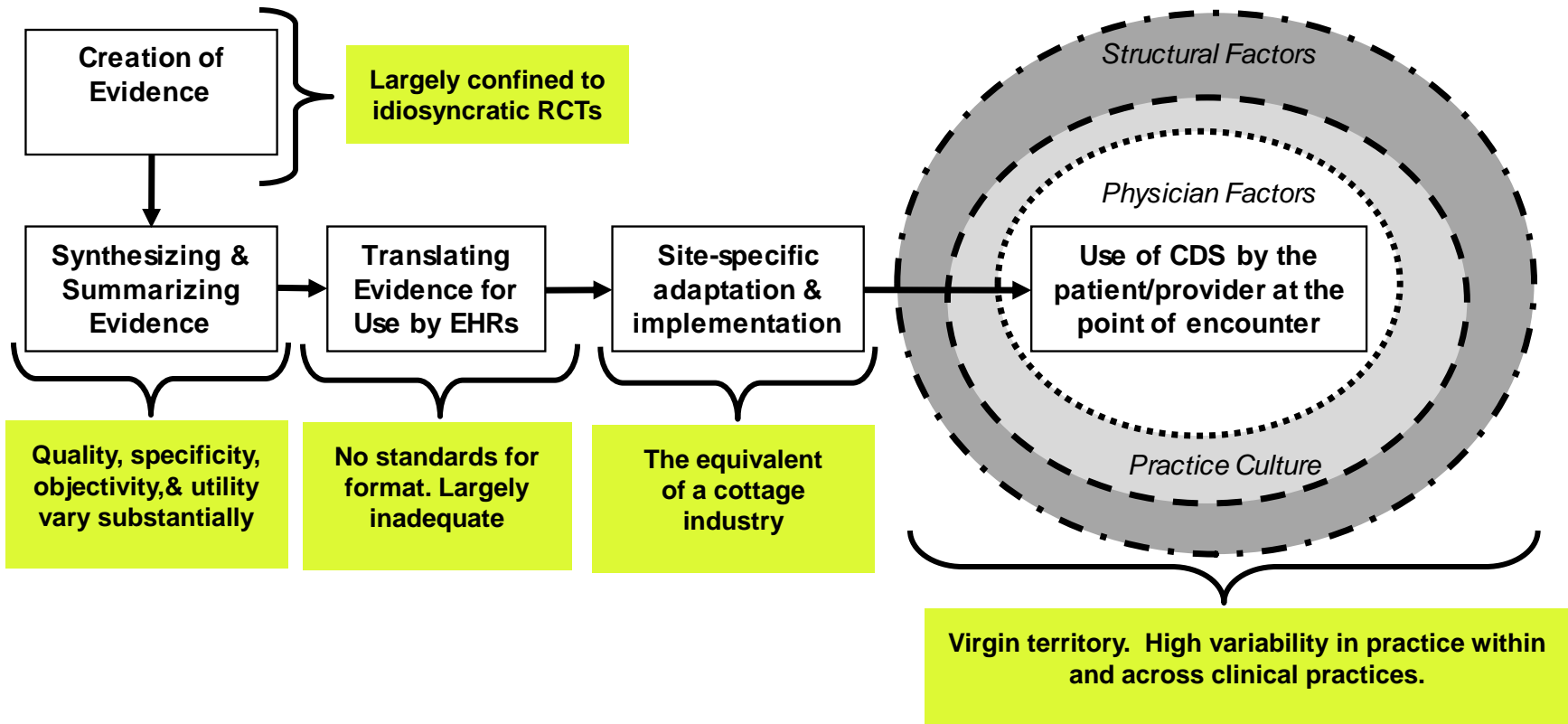
Effective Use of Knowledge

- Requires more than simply learning knowledge

- Numerous other contextual and iterative cognitive processes
  - Understanding context
  - Gathering the right data
  - Accessing the right knowledge
  - Applying knowledge to data
  - Interpreting options
  - Communicating options

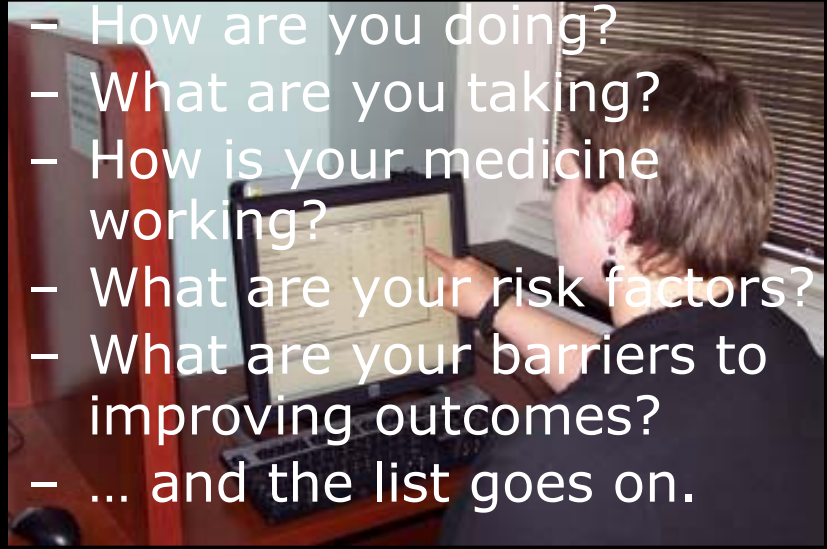# Digital Steps in Translating Knowledge to Practice

- **Trigger**: A decision to initiate a process
  - Usually requires preliminary and actionable data
- **Input data**: In a form that is actionable
  - Need to know more about the patient to tailor options
- **Apply rules to data to identify options**
  - Options should be presented in an intuitively understandable form
  - Score options in relation to patient preferences
- **Display of information**
  - The review of **Options** should be a shared process

Recent Efforts and Lessons Learned

- Clinical applications
    - Cardiovascular Risk Management in Primary Care
    - Headache management in primary care
    - Back pain management in primary care
    - Rheumatology practice web tools
    - Future: Oncology care
- Lessons Learned
    - Utility, utility, utility
    - Learning in practice

What The Patient Has to Say Matters a Lot, but…

- An evidence based personalized trigger requires patient input in the form of data
- Obtaining data is difficult
  - Not enough time
  - Patients respond differently when a doctor asks
  - The doctor may not know what questions to ask
- Even with the right questions…
  - Translation varies
  - Documentation varies
- Computer assisted data capture tools address these challenges

- Why are you here?
- What do you have?
- What do you want?
- How are you doing?
- What are you taking?
- How is your medicine working?
- What are your risk factors?
- What are your barriers to improving outcomes?
- … and the list goes on.

Patient Decision Aid and CVD Risk Management

- Web tool used by patients with elevated relative risk for heart attack
  - Focus is on modifiable risk factors
- Informed about options, risks, and benefits
- Patient makes decisi... before seeing th...
- Patient is al... decisio...
  - Priori... benefit... ...oice
- Results com...nicated to doctor in real time

Physician accessed web tool only 20% of the time. Primary complaint was that it did not save time

Patient preferences along with expert guidance

Complex Conditions for Primary Care Providers

- Complex conditions are common to primary care
  - Depression, anxiety, back pain, migraine, etc
- Conditions are complex to manage because:
  - Detailed patient data (what do you have, how are you doing, is the treatment working) is usually required to optimize treatment decision making
  - Need to merge patient data with detailed knowledge of treatment guidelines
- Somewhat unrealistic demand and expectation for primary care physicians
  - Inadequate care and Overuse of care

Primary Care Decision Aid

- Sophisticated patient questionnaire
  - Real time access of prescribed medications to create response options
- Requires extensive integration of databases
  - Patient data
  - Medications names
  - Evidence tables and more
- Rules engine processes patient data against codified guidelines
- Web table summary
  - Recommendation
  - Patient data

Primary Care Management of Chronic Low Back Pain

- Patient assessment questionnaire
  - Pain experience
  - Psychological assessment (e.g., fear avoidance, depression, anxiety, etc)
  - Preferences
- Web Display of Expert Advice
  - Forecasts patient phenotype
  - Foster shared discussion of data
- Automation
  - Ordering
  - Progress notes

LOW BACK PAIN EXPERT ADVICE

CATEGORY	EXPERT ADVICE	PLACE ORDER	PROGRESS NOTE
PROBABLE DIAGNOSIS		○	○
SERIOUS CONCERN (RED FLAG)		○	○
EVALUATION		○	○
PROGNOSIS	(Score or image scale)	○	○
RECOMMENDED MANAGEMENT PLAN		○	○
MEDICATION(S)		○	○

Integrated Visual Display Tools

- EHRs do not offer sophisticated visual display capabilities
  - Rheumatology example
  - Internal growth in demand from all clinical specialties
- Web tool designed to interface with EHR
  - Patient reported data on outcomes during 90% of encounters
  - Outcomes tracking for shared discussion
  - Interactive tool that augments provider workflow
  - Automatically creating progress notes and patient after visit summary
  - Used by physician in more than 90% of visits

Patient
JOHN DOE

Age
57

Sex
M

MRN
9876543

Insurance
Geisinger Health Plan

PCP
YOUNG, DARA

Today's Date
9/29/2009

OUTCOMES GENERAL | OUTCOMES COMPOSITE | MONITORING | DEMOGRAPHICS | BEST PRACTICE | TODAYS VISIT CONSTRUCTION | TODAYS VISIT NOTE | TODAYS VISIT AVS

Diagnosis

Rheumatic

Rheumatic	Date of DX	Duration
733.00 Osteoporosis	05/13/2002	7.3 years
714.0 Rheumatoid Arthritis	03/07/2000	9.5 years

...MATION

Medication

Current Meds Rheumatic

Fosamax
MTX Oral (dose in 2.5 mg)
Prednisone

Current Meds Other

ASPIRIN 81 MG PO TABS
BD ULTRA-FINE LANCETS MISC
FASTTAKE TEST VI STRP
FOLIC ACID 1 MG PO TABS
GLIMEPIRIDE 4 MG PO TABS

Previous DMARDs

Update | Delete | Insert

History

Med/Surg History

GI Bleed/PUD	no
Renal Insufficiency	no
Maligancy	no
Joint Replacement	no
Gastric Bypass	no

Social History

Work Status:	retired
Occupation:	former plant engineer
Home Status:	Spouse
Exercise:	1-2 times per week
Education Level:	14
ETOH:	No
Smoking:	Quit

Disparate EHR data displayed in a single, actionable view

...-Safety

? ☑Yes ☐No

	Date	
RF	214	03/07/2000
Nodules	Yes	02/01/2007

Rheumatic Labs - Immune

Test	Result	Result Date
ANA	<40	02/01/2000

Xrays and Ancillary Tests

Test	ResultDate
CXR	02/23/2000

Patient	Age	Sex	MRN	Insurance	PCP	Today's Date
JOHN DOE	57	M	9876543	Geisinger Health Plan	YOUNG, DARA	9/29/2009

OUTCOMES GENERAL | OUTCOMES COMPOSITE | MONITORING | DEMOGRAPHICS | BEST PRACTICE | TODAYS VISIT CONSTRUCTION | TODAYS VISIT NOTE | TODAYS VISIT AVG

-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep

Trending

Multiple info sources (patient, doctor, labs)

PATIENT

- MDHAQ
- Tender Joints
- Global

- Pain
- Fatique
- Stiffness

Prednisone

MTX Oral (dose in 2.5 mg)

= taking med
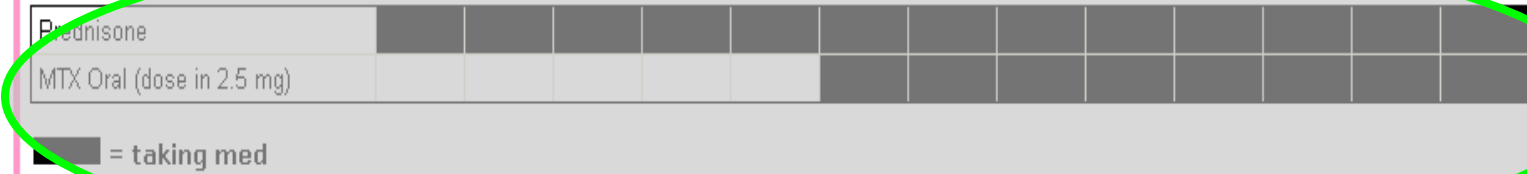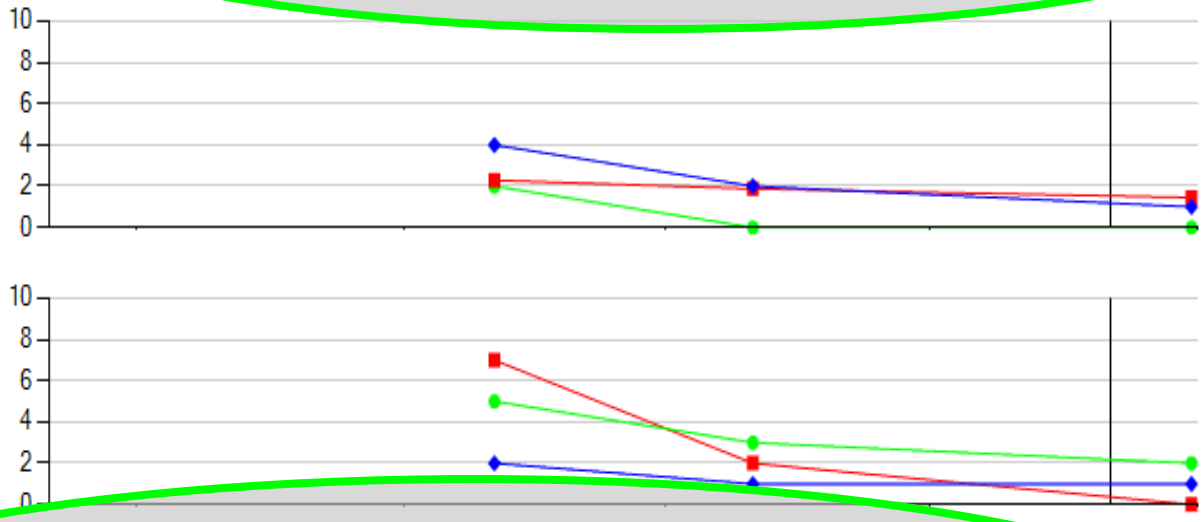
Med exposure over time

PACERRHEUM

Property of Geisinger Health Systems. (v1.02)

OUTCOMES GENERAL | OUTCOMES COMPOSITE | MONITORING | DEMOGRAPHICS | BEST PRACTICE | TODAYS VISIT CONSTRUCTION | TODAYS VISIT NOTE | TODAYS VISIT AVS

Today's Visit

History:

JOHN DOE is a 57 years old MALE with Ost

Rheumatoid Arthritis & Inflammatory Polyarthritis

Auto-population of documentation

insert   update   delete

taking Prednisone, MTX Oral (dose in 2.5 mg), Fosamax. See med list below for dosing. All medical problems include

(Max Limit - 40 Char)

insert   update   delete

Permanent History (Max Limit - 2000 Char)

Longstanding Rheumatoid Arthritis, but managed to wo

Information "feeds" clinic note and AVS

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RHEUMATOLOGY FOLLOW-UP VISIT SUMMARY
For: John Doe

During my visit to the Geisinger Rheumatology Clinic on 9/29/2009, I saw Natasha Smith, RN. This note summarizes my rheumatic problems and how I am doing.

What Do I Have?
My medical record indicates that I have the following rheumatic conditions:

Rheumatoid Arthritis, or A chronic immune disease causing inflamed joints, and possibly affecting other body systems

Osteoporosis, or A disease of decreased bone strength and increased risk of fracture.

How Am I Doing?
We decide whether you are getting better by the measures summarized below that we decided were most important to you.

MHAQ – The MHAQ score tells me how well I am able to move and do my daily functions. This score ranges from a low of 0 to a high of 10. A value of 0 means I am doing very well. A value of 10 means I am functioning poorly.
Score Range: 0 to 10
My Goal: 1
My Score on 9/29/2009: 0.33
My Score on 5/1/2009: 0.33
Interpretation: My function score is about the same
Goal Met: yes

Pain – The Pain score tells me how much pain I am having. This score ranges from a low of 0 to a high of 10. A value of 0 means I am having no pain. A value of 10 means I am having a lot of pain.
Score Range: 0 to 10
My Goal: 3
My Score on 9/29/2009: 2
My Score on 5/1/2009: 3
Interpretation: My pain score is getting better
Goal Met: yes

What Should I Do?

Future Development: Oncology Care

- Growth in knowledge already exceeds ability of oncologists to keep up
- Best treatment options in each case depends on:
  - Cancer stage and pathophysiologic factors
  - Patient goals and preferences
  - Patient comorbidities
- Data from separate locations
- Best treatment options are often in locally available options for RCTs

Requires hours of work by the Oncologist and Nurse Oncologist.