Innovation in Action: Clinical Pathways

March 31, 2014
Societal Trends Effects on Healthcare

Problem: Healthcare Costs Unsustainable

Solution: Changing Insurance Benefit Design (high deductible, co-pay, co-insurance) pushing cost to consumer

Creation of the Price Sensitive Consumer Changes Everything, Immediately!

Technology is Soaring

The World is Aging

Economy: The World is Flat

THOMAS L. FRIEDMAN
Hot, Flat, and Crowded

Population Ageing
1950-2050
Moving to the future…

NOW

Can we lower prices and improve quality?

Absolutely

Accelerate our Volume to Value Transformation
New Models of Care – coordinated, team-based, continuous, accountable, affordable (align incentives)
Based upon:

Smart Technology

Big Data

Good Science

Big Science

Data Warehouse

Analytics

Personalized Medicine

New Models of Care

Improved Outcomes - Cost Effective
Big Data and Big Science for Appropriate Variation in Care and Personalized Medicine

Big Data Analytics

Clinical Redesign
DECREASE variation in population care

Big Science “omics” + Systems Biology

Personalized Medicine
INCREASE variation in individual care

Go from “Syndrome” to precise individual network

Targeted therapy (reduce unnecessary care)
Value (quality/cost) Care

- Construct care algorithms
- Allow variation when evidence not strong
- Optimize for quality first, then assess cost
- Refine to lower cost at highest quality
Clinical Pathways at UPMC

• Physician-led, evidence-based clinical algorithms to guide workup, management, and treatment of patients with different medical and surgical conditions.

• The goals of these pathways are to develop new models of value-based care (highest quality at lowest cost)
• Value-based care is the future of medicine
Clinical Pathways at UPMC

- Physician-led, evidence-based clinical algorithms to guide workup, management, and treatment of patients with different medical and surgical conditions.

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- Value-based care is the future of medicine
Goals continued

• To develop **value-based care** we must
  – **Reduce variation** in care for populations of patients
    • assure that UPMC clinicians to practice evidence-based care where the evidence is strong (<25%)
    • study and define best practices where evidence is less strong
  – add-back variation, **personalize care**, as we learn more about genetics and shared decision-making

• Pathways will serve as a basis for physicians across a service line to construct **bundled payment** programs
Pathway Development & Launch

for each local project

- Design
- Discovery
- Implementation

- “Launch” includes local pilot, initial improvement case (initial “win”) and widespread rollout
- Reporting and Monitoring
Clinical Pathways: Service-line Chapters

- Cardiovascular
  - Acute MI (STEMI/NSTEMI)
  - CHF
  - Atrial Fibrillation
  - Aortic Stenosis
  - Outpatient CAD
- Gastrointestinal
  - Pancreatitis
  - GI bleeding
  - Hepatitis C and liver imaging
  - IBD
  - Bariatric surgery
  - Ileostomy
  - Hepatectomy
- Pulmonary
  - Asthma
  - COPD
- Endocrinology
  - Thyroid mass
  - Osteoporosis
  - Metabolic Syndrome
- Neurology/Neurosurgery
  - Stroke
  - Epilepsy
  - Neurooncology
- OB/Gyn
  - Hysterectomy
  - Obstetrics
- Musculoskeletal
  - Axial low back pain
  - Spine Surgery
  - Rheumatoid Arthritis
  - Radiculopathy
  - Hips/Knees
  - Geriatric Hip fracture
- ENT/Plastics
  - Head/neck cancer
- Ophthalmology
  - Diabetic retinopathy
  - Glaucoma
- Psychiatry
  - Delirium
  - Bipolar Disorder
Clinical Pathways and Analytics
Different Levels of Pathways

- **Foundation**
  - Paper Order Sets
  - Guidelines

- **Current**
  - Electronic Orders (Powerplans)
  - Smart Sets
  - Some Decision Support

- **Advanced**
  - “Smart Pathways”
  - Fully Interactive
  - Embedded Decision Support
  - Pathways by Exception
Pathways Development at UPMC

- Intelligent Workflow
- Actionable Items
- Content Development

UPMC
LIFE CHANGING MEDICINE
A patient’s family calls 911, reporting a sudden onset of chest pain …
The paramedics arrive and immediately collect an EKG, showing STEMI.

They begin transporting the patient to the UPMC Presby Emergency Department.
While en route, the paramedics notify the hospital, which prepares the ED and activates the Cath Lab.

They transmit basic information about the patient’s history and current condition, which is collected in the pathway.
The on-call cardiologist arrives at the Cath Lab. While he finishes scrubbing in, the patient arrives at the ED.

He takes a second to review the recommended pathway.
Real-time value

By automatically extracting relevant data and applying decision support, Pathways adds real-time user value, even in time-critical situations.
Real-time value (continued)

Preceding steps

User Context

Electronic Health Data

Actionable Decision Support
- Bleeding Risk
- Kidney Function
- Compliance History
Real-time value (continued)

Patient GFR score is 67. Kidney function likely normal.
Proceed with standard contrast dye.

Acknowledge  Adjust Factors
Input data from across clinical record

- Age
- Creatinine
- Known Diseases
- Gender
- Race
Pathways needs to have the flexibility to allow for real-world execution, including asynchronous collaboration by a care team.

These flexible workflows are built around evidence-based guidelines tailored to the needs of the particular institution.
Flexible workflows – Example

By allowing steps to be executed in the appropriate time, by the appropriate actors, Pathways can enable collaboration. In this way, Pathways supports (rather than dictates) workflows.

Patient was lying in bed this morning when he felt a sudden onset of chest pain. His wife called the emergency services.

Reported Time of Onset: Monday at 6:52am

Initial EKG (1)

EMT Collected Meds (8)

Initial Vitals (6)
By allowing steps to be executed in the appropriate time, by the appropriate actors, Pathways can enable collaboration. In this way, Pathways supports (rather than dictates) workflows.
An illustrative story ...

Back in our story, the patient receives a stent with no complications.

Now in the CCU, the attending needs to ensure that the patient receives the best in evidenced-based care.
Checklists for evidence-based care

By comparing the documented care to established best-practices, Pathways is able to ensure that every patient receives optimal care. This care is customized to the patient.
Clinical Care Pathways Development

- Authoring Toolkit
- Workflow Modeling
- Data Integration
- Decision Support
Summary

- Healthcare reform demands that we develop new models of **value-based care** (highest quality at lowest cost)
- Pathways are the tools that are allowing us at UPMC to operationalize and implement and our new models of care
- Institutional leadership and support is critical, as is the direct engagement and participation of the clinicians who are delivering care
- The linkage of clinical pathways and analytics allows us to measure their impact on outcomes and to be able to constantly evolve/refine them
- Development of technology that allows us to seamlessly introduce them into the current clinical workflow while adding value to the clinicians is of significant importance