Mike McAfee
Associate Vice President of Technology Solutions, Population Health, Allscripts, Pittsburgh, PA

Jennifer Bolduc, MD
Principal Clinical Advisor, Office of Strategy Management and Marketing, Allscripts, Burlington, VT

Advancing Interoperability Across Care Settings
Advancing Interoperability Across Care Settings: A Strategic Imperative
Strategic Imperative for Health Care

Shift from reactive care to proactively and predictably managing populations

**PATIENT POPULATIONS**

- **5%**
  - Polychronic

- **20%**
  - At risk for major procedures (e.g., cardiology, oncology)

- **75%**
  - Healthy, minor health issues

**COST BREAKDOWN**

- **45%**
  - ER visits, overutilization, high care variation, noncompliance

- **35%**
  - Infections, complications, rehospitalizations

- **20%**

Note: Data excludes the uninsured and VA populations, year = 2012. | Source: Oliver Wyman analysis, Kaiser, CMS, Census Bureau, CDC.

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The Vision: A Closed Loop Healthcare Platform
The Reality: Heterogeneous Environments
The Solution: Data Design for Population Management
Point-of-Care Analytics | EHR Agent HUB

Interoperability Case Studies
UPMC Today: Snapshot

- $12 billion integrated global health enterprise
- 60,000 employees
- 22 academic, community and regional hospitals with more than 4,200 licensed beds
- More than 187,000 inpatient admissions and 165,000 surgeries performed annually
- Each year, more than 4.5 million outpatient visits and 480,000 emergency visits
- More than 40 UPMC Cancer Centers with 180 affiliated oncologists
- UPMC Health Plan: 2.4 million total members, a network of more than 125 hospitals and other facilities and more than 11,500 physicians
UPMC Three-Node Deployment

Clinical Connect
- Altoona Regional Hospital
- Armstrong County Hospital
- Butler Hospital
- The Children’s Institute
- Excela Health System
  - Westmoreland Hospital
  - Excela Health-Frick Hospital
- Heritage Valley Health System
  - Heritage Valley Sewickley
  - Heritage Valley Beaver
- Jefferson Regional Hospital
- Pediatric Alliance
- St. Clair Hospital
- The Washington Hospital

UPMC
- Children’s Hospital of Pittsburgh of UPMC
- Magee-Womens Hospital of UPMC
- UPMC Bedford Memorial
- UPMC East
- UPMC Hamot
- UPMC Horizon
- UPMC McKeesport
- UPMC Mercy
- UPMC Montefiore
- UPMC Northwest
- UPMC Passavant
- UPMC Presbyterian
- UPMC Shadyside
- UPMC St. Margaret
- Western Psychiatric Institute and Clinic of UPMC

UPMC Health Plan
- UPMC Health Plan

UPMC Health Plan
- PA SIIS (State Immunizations)
- Quest
- Labcorp
Baylor Scott & White Health

- Baylor Scott & White Health includes 46 hospitals and 6,000 affiliated physicians
- Baylor Scott & White Quality Alliance ACO covering over 100,000 Patient Lives across Central and Northern Texas
- Workflow Integration across 250 care sites in the North Texas area comprising over 74 distinct vendor systems.
- Value on the Day One:
  - 2,603 unique users using Agent and Clinical Viewer
  - 956 patients viewed in the system and
  - 3,447 views distributed across different clinical domains
  - Risk Stratification delivered to point of care
Thank You!
Advancing Interoperability Across Care Settings: A Clinician’s Perspective

Jennifer Bolduc, MD
Principal Clinical Advisor, Office of Strategy Management and Marketing, Allscripts, Burlington, VT
Faces of Interoperability

Technical definition:

In healthcare, interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged (HIMSS)

Clinical definition:

For clinicians, interoperability is the ability to immediately access, view and utilize relevant patient information that is new to them and that exists in other systems from within their own EHR. (Dr. Jen)
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00 AM</td>
<td>Call the baby line to check for newborns to see in the hospital</td>
</tr>
<tr>
<td>5:30 AM</td>
<td>Coffee and preload patients for the day, kids and dogs are up</td>
</tr>
<tr>
<td>7:00 AM</td>
<td>Turn on pager and leave for the hospital</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Interrupted for a C-section- twins!</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>Late for clinic, 12 patients scheduled, 2 already arrived</td>
</tr>
<tr>
<td>11:45 AM</td>
<td>Called to the ED for infant with respiratory distress who requires hospitalization</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Late for clinic, 15 patients scheduled, 3 already arrived, reception extending my day</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>Interrupted for question about infant with respiratory distress and did I see the labs/x-rays?</td>
</tr>
<tr>
<td>6:00 PM</td>
<td></td>
</tr>
<tr>
<td>8:00 PM</td>
<td>7 patients added to evening clinic, another new baby to see but at the other hospital</td>
</tr>
<tr>
<td>10:00 PM</td>
<td>Clinic patients seen, but documentation nowhere near complete, did I eat today?</td>
</tr>
</tbody>
</table>

Inpatients tucked in at both hospitals, possible C section later and still on call
Why do clinicians resist interoperability?

- Pain in Limb
- Right knee sprain
- Need for flu vaccine
- DERMATOPHYTOSIS OF FOOT
- Carpal tunnel syndrome
- Polyneuropathy in diabetes
- Right ankle pain
- Acute otitis externa
- Chronic back pain
- HIV counseling
- Hoarse voice quality
- LACK OF ADEQ SLEEP
- HYPERSMN W/SLEEP APN UNS
- DM neuro manif type II
- Plantar fasciitis

- JOINT PAIN-L/LEG
- Arthritis, rheumatoid
- Extreme obesity with respirator
  - Obstructive sleep apnea syndrome
- Astigmatism
  - HYPERMETROPIA
  - PRESBYOPIA
- Allergic conjunctivitis
- Dry eyes
- Lumbar radiculopathy
- Keratoderma, acquired
  - Xerosis cutis
  - OM (onychomycosis)
- Type II Diabetes Mellitus
- Numbness

AND THIS IS JUST THE FIRST HALF
Why do clinicians resist interoperability?
Why do clinicians resist interoperability?
Why do clinicians resist interoperability?
The Good Really Old Days
The Good Old Days
Interoperability Tools of the Past
Making interoperability work for clinicians

☑ Immediate access from within the EHR to avoid login and password overload

☑ View the most relevant clinical data with option to view details to decrease the noise

☑ View care across care settings

☑ Add selected community clinical data to the EHR to utilize it as if you entered it yourself
Example of Interoperability
Access within the EHR
View other clinician’s notes
View care across care settings
Add clinical data to the EHR
What successful interoperability looks like

Triple Aim of Health Care:

LOWER COST OF CARE + BETTER PATIENT OUTCOMES + HIGHER PATIENT SATISFACTION = ENHANCED HEALTHCARE
And this..
And this..
And this!
A closing story

- 75 yo female patient discharged from hospital after new onset CHF exacerbation.
- Started on an ACE inhibitor and aldosterone blocker.
- Seen by homecare nurse in follow up and they documented new medications on med list.
- Patient seen by PCP 7 days after discharge (homecare note was not yet received via paper fax).
- ACE was not identified by patient as a new medication.
- Patient found unconscious by homecare nurse 4 days later.

**Outcome:** Admitted with renal failure and life threateningly high potassium secondary to ACE and diuretic therapy.
Preventable failures

- No discharge communication.
- No communication/sharing of med list between hospital and homecare nurse.
- No communication/sharing of med list between homecare nurse and PCP.
- Lack of real time communication between various touch points with patient: hospital, homecare nurse and PCP.
Open Discussion
Thank You!