Care Transitions and Health Information Exchange  
October 8, 2015  
9am – 9:30am  
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Cerner HS
Conflict of Interest Disclosure

J. Marc Overhage, MD, PhD

I am employed by Cerner and own stock in Cerner and Siemens
A Definition

• The term "care transitions" refers to the movement patients make between health care practitioners and settings as their condition and care needs change during the course of a chronic or acute illness.
Another Definition

• “Transitions of care” refer to the movement of patients between health care practitioners, settings, and home as their condition and care needs change

Joint Commission
Current....

Demand side access management:
- Restricted Benefits
- Managed Care protocols
- FFS with profiles and outlier management

System Result: **Costly, fractious system**
- Unhappy confused patients
- Clinical outcomes??
- Inappropriate resources consumed

Supply side result:
- Isolated, insecure, frustrated clinician practices
- Clinical autonomy compromised
- Huge administration load

Healthcare System

Individually Premiums in Risk pool

System Outcomes

Demand side access management:
- Restricted Benefits
- Managed Care protocols
- FFS with profiles and outlier management

System Result: **Costly, fractious system**
- Unhappy confused patients
- Clinical outcomes??
- Inappropriate resources consumed
System Result: *Higher quality, lower costs, enhanced access*
- Satisfied patients
- Continually improving outcomes
- Reduced waste

**Demand side ‘value’ purchaser:**
- Contracts support optimal clinician/patient interactions
- Measures; reward effectiveness
- Appropriate Benefits

**Supply side governance:**
- Patient centred, integrated support structure
- Clinical autonomy restored
- Happy clinicians in teams

**System Outcomes**

**Preferred...**

**Individuals Premiums in Risk pool**

**Healthcare System**
To a Collaborative Team

Chronic Disease Monitoring

Medication Refills

Test Results

Acute Care

Preventive Medicine

Point of Care Testing

Acute Mental Health Complaint

Chronic Disease Compliance Barriers

Healthcare Support Team

Case Manager

Clinician

Medical Assistants

Behavioral Health

Source: Southcentral Foundation, Anchorage AK
Boeing Dreamliner Collaboration

Fragmentation of production: the example of the Boeing 787 Dreamliner

- Wing box: Mitsubishi Heavy Industries (Japan)
- Wing ice protection: GKN Aerospace (UK)
- Centre fuselage: Alenia Aeronautica (Italy)
- Forward fuselage: Kawasaki Heavy Industries (Japan)
- Spirt Aerosystems (USA)
- Rear fuselage: Boeing South Carolina (USA)
- Lavatories: Jamarco (Japan)
- Doors & windows: Zodiac Aerospace (USA)
- PPG Aerospace (USA)
- Escape slodes: Air Cruisers (USA)
- Flight deck seats: Ipeco (UK)
- Flight deck controls: Esterline (USA), Moog (USA)
- Engines: GE Engines (USA), Rolls Royce (UK)
- Engine nacelles: Goodrich (USA)
- Aux. power unit: Hamilton Sundstrand (USA)
- Horizontal Stabiliser: Alenia Aeronautica (Italy)
- Raked wing tips: Korean Airlines Aerospace division (Korea)
- Passenger doors: Latécoère Aéroservices (France)
- Cargo doors: Saab (Sweden)
- Landing gear: Messier-Dowty (France)
- Electric brakes: Messier-Bugatti (France)
- Tires: Bridgestone Tires (Japan)
- Prepreg composites: Toray (Japan)
- Tools/Software: Dassault Systemes (France)
- Navigation: Honeywell (USA)
- Pilot control system: Rockwell Collins (USA)
- Wiring: Safran (France)
- Final assembly: Boeing Commercial Airplanes (USA)

Source: www.newairplane.com
• The term "care transitions" refers to changes in the care team as their condition and care needs change during the course of a chronic or acute illness.
Care Transitions

*PowerChart, FirstNet, SurgiNet Only

Other includes: Clinical View Only, ED Paramedic, ED Tech, Health Unit Coordinator, HIM, Nutritionist, Pharmacist, Quality Manager, Radiology Tech, Rehab Secretary, Room Service Clerk, Surgery Manager, Surgery Secretary
"We need more case managers."

"We need systems that are easier for the client to navigate on their own."
The 21st Century Care Manager

• Promotes collaborative partnerships with the entire health care team that includes the patient and their identified support system
• Continuously collaborates and communicates with Healthcare Team and the patient.
• Creates and implements a synchronized care plan that crosses the boundaries, promotes continuity and builds continuum based relationships
• Coordinates care and contemplates the patient holistically – including the social and psychological aspects
• Promotes Client self determination
• Watches the fiscal bottom line regarding care and works with the entire team to implement the best options
Redefining Stakeholder Roles in Healthcare

- **Patients:**
  - Passive
  - Active

- **Physicians:**
  - Individual
  - Team

- **Pharma:**
  - Blockbuster Drug
  - Therapeutic Solution

- **Care Coordinators:**
  - Secondary Role
  - Primary Role

- **Care Providers:**
  - Breadth of Services
  - Targeted Care Models

- **Medical Device Companies:**
  - Procedure Based
  - Value Based

- **Insurers:**
  - Administrative
  - Analytic
Unfortunately, these transitions do not always go smoothly. Ineffective care transition processes lead to adverse events and higher hospital readmission rates and costs. One study estimated that 80% of serious medical errors involve miscommunication during the hand-off between medical providers.
Barriers to Smooth Transitions

• Communication Breakdowns
• Patient Education Breakdowns
• Accountability Breakdowns
Components of Successful Transition Models

- Multidisciplinary communication, collaboration and coordination – including patient/caregiver education
- Clinician involvement and shared accountability during all points of transition
- Comprehensive planning and risk assessment throughout episode of care
- Standardized transition plans, procedures and forms.
- Standardized training
- Timely follow-up, support and coordination after the patient transitions to a new care setting
- If a transition fails, gain an understanding of why
Building Blocks of Healthcare System Reform

Population medicine and the healthcare system
- Planned: capacity = local population needs
- Patient & Community centered
- Accountable for production / outcomes

Integrated local healthcare systems
- Collaborative Teams
- Multidisciplinary, proactive patient centered approach
- Autonomous – owned & managed by working clinicians
- Well supported – management, support staff; Health IT

Value contract – funds from ‘shared value’ with Payers
- Individual/FFS replaced by value based payments
- rewards – quality/prudence measures
- Competition is between coherent systems
Advanced Health Models and Meaningful Use
Workgroup Focus

• What HIT policies are needed to support advanced health models’ (AHMs) capabilities to address the holistic health of individuals and communities that they serve?
• Key features of AHMs include:
  – Accessing data from clinical, social, psychological, behavioral and other data sources to create a truly holistic view of an individual
  – Coordinating service delivery across the entire “continuum of care” beyond the traditional settings, to include clinical settings (e.g. LTPAC entities, hospice, and home health) and nonclinical settings (e.g. schools, food banks, prisons
Key Issues from AHM & MU Workgroup Hearings

• “Advanced health models are making substantial progress by making existing data actionable in new ways, but stakeholders need seamless access to analytics capabilities to make this data useful.”

• Community organizations “are integral partners to advanced health models and are highly motivated to share data, but sharing across clinical settings and social services is not standardized and poorly incentivized.”

• Some advanced health models are “responding to interoperability challenges by granting community organizations with access to a single platform, rather than realizing true interoperability across different systems.”

• “Most panelists described a need for a reliable method of matching patients and alluded to a unique health identifier.”

• They also concluded that health organizations, and HHS, need to think beyond EHRs in terms of their data infrastructure.
Institute of Medicine’s Six Major Challenges

“Organizations will need to negotiate successfully six major challenges.”

- Redesigned care processes based on best evidence
- Effective use of information technology
- Knowledge and skills management
- Development of effective teams
- Coordination of care across conditions, services, and settings
- Use of performance and outcomes measurement for continuous improvement and accountability
The Proposed Model of Care (so far)...

- Single, personalised and shared care plan
- Patients & their carers / family

- Named GP
- Integrated health and social care workers, primary care navigators
- Case manager (could be from health or social care)
- CIS case manager

- Single SPA for joint health & social needs

- Is holistic & supports both medical and social wellbeing
- Is proactive, personalised, preventive and empowering
- Is simpler and easier to access across your health and social needs
- Always has clear point of accountability with a core team that reflects your needs
- Is available 24x7 at a location most suitable to your needs
- Is safer, more responsive, and compassionate
Patient Feedback So Far...

- The community hubs are currently being designed
- Patients suggest...
  - Single hub good idea and should feel like a village
  - North and South need a hub
  - Should provide for social and wellbeing needs not just medical needs
  - Good transport links/parking (or provide transport), be near, be able to offer multiple appointments on the same day at same location
  - Could include, community health, voluntary services and other therapists but also wellbeing and social activities/services
- Services should include reactive and proactive:
  - GPs
  - Health checks
  - Diagnostics
  - Step-up and step down
  - Drop ins
  - Specialist services – including specialist older persons nurses
  - Voluntary sector

Other services could include:

<table>
<thead>
<tr>
<th>Service</th>
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<tbody>
<tr>
<td>Blood tests</td>
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<tr>
<td>Dentist</td>
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<td>Diabetes – (one group suggested these are perhaps in separate hubs of excellence - Blood tests, dieticians, vascular, psychotherapy, exercise)</td>
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<tr>
<td>Eye test/opticians</td>
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<tr>
<td>Exercise</td>
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<tr>
<td>Hearing</td>
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<tr>
<td>Hydrotherapy</td>
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<tr>
<td>Massage</td>
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<tr>
<td>Mental health advice/psychological services</td>
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<tr>
<td>Pharmacist</td>
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<tr>
<td>Physio</td>
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<td>Podiatry</td>
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<tr>
<td>Social Activity – Tea dances, crochet, lunches, gardening, music, day trips, bridge, CAB</td>
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<tr>
<td>X-ray</td>
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# Levels of Interoperability

<table>
<thead>
<tr>
<th>Type of Integration</th>
<th>Connectivity</th>
<th>Benefits of Integration</th>
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<tbody>
<tr>
<td>Isolated</td>
<td>• Fax • Paper record requests</td>
<td>• None</td>
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<tr>
<td>Networked</td>
<td>• Direct • CommonWell • Regional HIEs</td>
<td>• Electronic data sharing (CDA) • Data and meds reconciliation</td>
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<tr>
<td>Integrated</td>
<td>• Single vendor and common record for all EHR deployment</td>
<td>• Single shared record • Automatic process integration • Shared business services</td>
</tr>
<tr>
<td>Interoperable</td>
<td>• FHIR APIs • SMART Apps • CommonWell • Direct</td>
<td>• Access to longitudinal record • Shared Care Plans via Apps • Reconcile actions + data • Able to take on risk (ACO-like)</td>
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Care Management Process

Care Management Component Architecture

- Secure Messaging
- Data Sources
- ESB (Messaging, Routing, Transformation)
- Business Process Management
- Complex Event Processing
- Health Information Exchange Functions
  - EMPI
  - Information Extraction
  - Data Normalization
  - EDI Claims Parser
- Person Centered Repository
  - N1
  - N2
  - Nn
  - HBase
  - RDBMS
- Data Access Layer
- Care Management Applications
  - Reports and Dashboard
  - Mobile View
  - CM UI
- Contextualization Engine
## Assign Tasks to the Most Cost Effective Care Team Member

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>PHM Strategy</th>
<th>Resource Utilization</th>
<th>Targeted Sub-population</th>
<th>Goal</th>
<th>Care Team Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Primary Prevention</td>
<td>Low</td>
<td>Healthy with no known chronic disease</td>
<td>Prevent the onset of disease</td>
<td>Patient</td>
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<td>Healthy but showing warning signs of potential health risks</td>
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<td>Patient</td>
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<tr>
<td>Moderate</td>
<td>Secondary Prevention</td>
<td>Moderate</td>
<td>Has chronic disease. Is managing it well. Meeting their desired goals</td>
<td>Treat disease and prevent complications</td>
<td>Patient + non-clinical care coordinator</td>
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<td></td>
<td></td>
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<td></td>
<td>Patient + health coach</td>
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<tr>
<td>High</td>
<td>Tertiary Prevention</td>
<td>High</td>
<td>Chronic disease has progressed; Clinical status unstable; developed new conditions and/or significant complications;</td>
<td>Treat the late or final stages of a disease and minimize disability</td>
<td>Care Managers, Physicians; Extenders</td>
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<td></td>
<td>Catastrophic</td>
<td>Extremely High</td>
<td>Severe illness /condition and potentially significant risk; Intensive long term needs; Highly complex treatment; Under direct care of multiple providers</td>
<td>Ranges from restoring health to palliative care and hospice</td>
<td>Care Managers, Physicians; Extenders</td>
</tr>
</tbody>
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Questions?

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