Defining Populations, Identifying Complex Patients and Using Data to Design Care Strategies

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Chief Clinical Officer
Cherokee Health Systems
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Our Mission...

To improve the quality of life for our patients through the blending of primary care and behavioral health.

Together...Enhancing Life
Primary Service Area

Kentucky
Virginia
North Carolina
Missouri
Arkansas
Tennessee
Alabama
Georgia
Mississippi
North Carolina
Virginia
Arkansas
Mississippi
Alabama
Georgia
Tennessee
Kentucky

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Giving our Best for Those Most in Need

Improving Access and Outcomes for the Underserved

Calendar Year 2018

72,911 Patients Seen
383,230 Services Provided
16,690 New Patients
Strategic Emphases

- Population-based care
- Blended behavioral and primary care
- Go where the grass is brownest
- Outreach and care coordination
- Telehealth
- Training healthcare providers
- Value-based contracting
- Healthcare analytics
Populations/Communities Served

- Rural Appalachian
- Black/African American
- Migrant/Agricultural Farm Workers
- Latino/Hispanic
- Homeless
- Public Housing
- Refugee – Africa, Middle East, Eastern Europe/Russia
Managing an Assigned Population

• 35,000 assigned Medicaid lives
• Value-based contracts put us at risk (both upside and downside) for quality targets and cost targets (quality bonus and shared savings)
• Who are these patients?
• What is driving their use of services? Medical? Psych? SDOH?
• Who are the sickest and what resources do they need?
• Who are next sickest and what resources do they need?
Complex Adaptive Theory: Applications for PC

**SIMPLE**
- Recipe essential
- Recipe tested to assure replicability
- No particular expertise, knowing how to cook increases results

**COMPLICATED**
- Formulas are necessary
- High level of expertise in many specialized fields
- Separate parts and then coordinate

**COMPLEX**
- Formulas have limited application
- Expertise can help, but not key, relationships
- Can’t separate parts from whole
- Every child is unique
- Outcome is uncertain

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Population Health Management

Bio-Psycho-Social Assessment (BPSA)
Model description

• Biopsychosocial Algorithm of Patient Complexity

• Quantifies patient complexity from biological, psychological, and social domains

• Points assigned to conditions are combined into overall BPSA score by patient
**Patient Information**
- Age, Income, BMI, Language, Living Arrangement
- Appointment No-Show Rate, Care Plan Engagement

**Claims/Utilization**
- Medical and Behavioral Diagnoses
- Prescriptions, BHC Visits, Hospital IP/ER Use

**Social Factors**
- Support System, Isolation, Legal, Culture, Access to Health Care
- Transportation, Housing, Access to Food, Education, Employment

**BPSA Score**
Patient, EHR, HIE, Claims Data...

Med (Bio)
- Hypertension
- Asthma
- Myocardial Infarction
- Cerebrovascular Disease
- Diabetes
- Leukemia
- Low Back Pain
- AIDS
- Hep C
- Etc.

Psych/BH
- Anxiety
- Trauma/PTSD
- Substance Use Disorder
- Major Depression
- Bipolar Disorder
- Schizophrenia

Social
- Income below federal poverty guidelines
- Homeless or unstable housing
- Transportation barriers
- Employment barriers
- Issues with primary support system
- Legal problems
- Lack of access to food/clothing
- Social isolation
- Language/cultural barriers
- Health Literacy

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## Quality Metrics

<table>
<thead>
<tr>
<th>Measure</th>
<th>NCQA 75th Percentile (2013)</th>
<th>TennCare Target 2014</th>
<th>Proposed Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood Immunization Status, Combo 10 (CIS 10)</td>
<td>38%</td>
<td>n/a</td>
<td>____%</td>
</tr>
<tr>
<td>Treatment for Children with Upper Respiratory Infection (URI)</td>
<td>90%</td>
<td>84%</td>
<td>____%</td>
</tr>
<tr>
<td>Breast Cancer Screening (BCS)</td>
<td>58%</td>
<td>55%</td>
<td>____%</td>
</tr>
<tr>
<td>Controlling High Blood Pressure (CBP)</td>
<td>63%</td>
<td>64%</td>
<td>____%</td>
</tr>
<tr>
<td>Diabetic HbA1C Testing (CDC HbA1C)</td>
<td>87%</td>
<td>n/a</td>
<td>____%</td>
</tr>
<tr>
<td>Diabetic LDL-C Screening (CDC LDL)</td>
<td>81%</td>
<td>n/a</td>
<td>____%</td>
</tr>
<tr>
<td>Postpartum Care / Visits (PPC)</td>
<td>71%</td>
<td>71%</td>
<td>____%</td>
</tr>
<tr>
<td>Follow up Visit Within 7 Days of Discharge from Acute MH Admission</td>
<td>69%</td>
<td>n/a</td>
<td>____%</td>
</tr>
<tr>
<td>Antidepressant Medication Management -Acute Phase, First 60 Days</td>
<td>56%</td>
<td>n/a</td>
<td>____%</td>
</tr>
<tr>
<td>Follow-Up Care for Children Prescribed ADHD Medication</td>
<td>46%</td>
<td>n/a</td>
<td>____%</td>
</tr>
</tbody>
</table>
Optimizing EHR for Integrated Care and Population Mgmt.

- Integrated Clinical Record
- Communication
- Coordination
- Patient Dashboard
Multi-Level Population Health: Team Coordination And Communication

- Dashboards – CHS, Region, Clinic, Provider, Patient Dashboard
- Weekly Integrated Team Meetings
- EHR Team Care Coordination
- Daily Opportunities Reports
- Morning Huddles
- Patient Outreach
- Patient/Family
# Monday Morning Coffee... and Dashboards

<table>
<thead>
<tr>
<th>Metric</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Weight Screening (Line 13)</td>
<td>77%</td>
</tr>
<tr>
<td>Asthma Pharmacologic Therapy (Line 16)</td>
<td>80%</td>
</tr>
<tr>
<td>Cervical Cancer Screening (Line 11)</td>
<td>51%</td>
</tr>
<tr>
<td>Childhood Immunization (Line 10)</td>
<td>40%</td>
</tr>
<tr>
<td>Colorectal Cancer Screening (Line 19)</td>
<td>34%</td>
</tr>
<tr>
<td>Coronary Artery Disease: Lipid Therapy (Line 17)</td>
<td>86%</td>
</tr>
<tr>
<td>Dental Sealants</td>
<td>48%</td>
</tr>
<tr>
<td>Early Entry Into Prenatal Care</td>
<td>60%</td>
</tr>
<tr>
<td>Ischemic Vascular Disease (Line 18)</td>
<td>88%</td>
</tr>
<tr>
<td>Patients Screened for Depression and Follow-Up (Line 21)</td>
<td>74%</td>
</tr>
<tr>
<td>Prenatal - Complete Data</td>
<td>95%</td>
</tr>
<tr>
<td>Table 7 - Diabetes</td>
<td>75%</td>
</tr>
<tr>
<td>Table 7 - Hypertension</td>
<td>60%</td>
</tr>
<tr>
<td>Table 7 - Low Birth Weight</td>
<td>91%</td>
</tr>
<tr>
<td>Tobacco Use Screening and Cessation (Line 14a)</td>
<td>90%</td>
</tr>
<tr>
<td>Height Assessment/Counseling for Children (Line 12)</td>
<td>75%</td>
</tr>
<tr>
<td>Region</td>
<td>BMI/Adult</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Target</td>
<td>77%</td>
</tr>
<tr>
<td>Region 1</td>
<td>94%</td>
</tr>
<tr>
<td>Region 2</td>
<td>94%</td>
</tr>
<tr>
<td>Region 3</td>
<td>95%</td>
</tr>
<tr>
<td>Region 4</td>
<td>85%</td>
</tr>
<tr>
<td>Region 5</td>
<td>97%</td>
</tr>
<tr>
<td>Region 6</td>
<td>100%</td>
</tr>
</tbody>
</table>
### Care Team

<table>
<thead>
<tr>
<th>Type</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCP</td>
<td>Grieve PA-C, Heather</td>
</tr>
<tr>
<td>PSY</td>
<td>Phillips PMHNP-BC, Rebekah Marie</td>
</tr>
<tr>
<td>TPR</td>
<td>FREEMAN PHD, DENNIS</td>
</tr>
<tr>
<td>TX</td>
<td>FREEMAN PHD, DENNIS</td>
</tr>
</tbody>
</table>

### Future Appointments

<table>
<thead>
<tr>
<th>Provider</th>
<th>Event</th>
<th>Time</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREEMAN PHD, DENNIS</td>
<td>BH 30 Therapy</td>
<td>09:30</td>
<td>02/16/2016</td>
</tr>
<tr>
<td>Serrell MD, Paul Burt</td>
<td>PC Nephrology FU</td>
<td>10:00</td>
<td>03/03/2016</td>
</tr>
<tr>
<td>Phillips PMHNP-BC, Rebekah Marie</td>
<td>BH Est Psy 15</td>
<td>09:30</td>
<td>03/30/2016</td>
</tr>
</tbody>
</table>

### Past Appointments

<table>
<thead>
<tr>
<th>Provider</th>
<th>Event</th>
<th>Status</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREEMAN PHD, DENNIS</td>
<td>BH 30 Therapy</td>
<td>Kept</td>
<td>01/19/2016</td>
</tr>
<tr>
<td>FREEMAN PHD, DENNIS</td>
<td>BH 30 Therapy</td>
<td>Cancelled</td>
<td>01/07/2016</td>
</tr>
<tr>
<td>Yates MD, James Douglas</td>
<td>PC Cardio Fol Up</td>
<td>Kept</td>
<td>01/07/2016</td>
</tr>
</tbody>
</table>

### Self Management

<table>
<thead>
<tr>
<th>Goal</th>
<th>Status</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk 30 mins 3 x a week</td>
<td>Ongoing</td>
<td>02/11/2016</td>
</tr>
</tbody>
</table>

### Allergies

<table>
<thead>
<tr>
<th>Description</th>
<th>RXN Desc</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO KNOWN DRUG ALLERGIES</td>
<td></td>
</tr>
</tbody>
</table>

### Hospital ER/Admissions (Last 90 Days)

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

### Care Coordination

<table>
<thead>
<tr>
<th>Care Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHC outreach when indicated</td>
</tr>
</tbody>
</table>

### Point of Care

#### Preventative Care

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Status</th>
<th>Last Date</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammogram</td>
<td></td>
<td>07/19/2013</td>
<td>07/19/2013</td>
</tr>
<tr>
<td>PAP</td>
<td></td>
<td>09/18/2013</td>
<td>09/18/2016</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td></td>
<td>11/26/2012</td>
<td>01/14/2034</td>
</tr>
</tbody>
</table>

#### Health Management

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Status</th>
<th>Last Date</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td></td>
<td>02/15/2016</td>
<td></td>
</tr>
<tr>
<td>Eye Exam</td>
<td></td>
<td>08/25/2015</td>
<td>08/25/2016</td>
</tr>
<tr>
<td>Hemoglobin A1c</td>
<td></td>
<td>11/10/2015</td>
<td>05/10/2016</td>
</tr>
<tr>
<td>Lipid Panel</td>
<td></td>
<td>09/25/2015</td>
<td>09/25/2016</td>
</tr>
<tr>
<td>Microalbumin</td>
<td>Due</td>
<td>11/01/2011</td>
<td>11/01/2012</td>
</tr>
</tbody>
</table>
Integrated Clinical Record
Communication
HIE & Payor Data Integration with EHR

Automated tasks created for admissions, discharges and transfers
Appears on Patient Dashboard
CHS Web Reporter
Coordination
Population Management & Care Coordination

- Daily automated non-compliant patient reports emailed to practice administrators, CHCs and BHCs
High Impact

Low-hanging fruit
Maybe later

Low Impact
Makes little or no difference
Not worth doing

Low Effort
High Effort

Figure 1: When it comes to solar energy strategies, sustainability is most advanced by picking the "low-hanging fruit" first, even though it is often unknown, ignored or forgotten.
Opportunities & i-

1. B4 Dx by CTHS, Therapist, BHC, CTHS
2. B4 Therapist training, BHC, CTHS
3. B4 Team review, BHC, CTHS
4. B4 CME, CTHS, Med, CTHS only
5. B4 Dx by CTHS
6. B4 Dx by CTHS, PCP, THL enrolled
7. B4 Dx by claim - attributed but not enrolled
8. B4 Dx by claim - attributed but not enrolled
9. THL enrolled other; CTHS Perm 
   - PT unaware
   - FT unaware
   - Actively
   - Helping model -— decide—

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Activity

In your team groups, think about and write down:

- What data do you have available?
- Where do you think you’re putting a lot of effort with low impact?
- Where can you put focused effort for high impact results?
- What is your low hanging fruit?

Feel free to write down a list or draw a chart like this and start placing sticky notes to organize!
Thank you!

Questions?

Suggestions?

Comments?

Ideas?