IHI National Forum Presentation

More Than Medical: The Impact of Social Determinants of Health on Utilization Risk

Perspectives from:
Community Care of North Carolina and
CareOregon

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Objectives

• Analyze the implications of social determinants of health for patient risk profiles and health care costs and utilization
• Differentiate between impactable and non-impactable patients and develop strategies to target risk factors
• Develop sustainable, multidisciplinary strategies to target complex risk at the population and individual levels

Introductions

• Who is in the room?
  – What is your name?
  – Where are you from (organization and location)?
  – What is your role in your organization?
Introductions

Community Care of North Carolina

CCNC Footprint Statewide

- **5,000 primary care providers**
  - 1,800 Practices
  - 90% of PCPs in NC

- **1.5 million Medicaid Patients**
  - 1 million children
  - 500,000 adults
  - 300,000 Aged, Blind, Disabled
  - 150,000 Dually Eligible

All 100 NC Counties

14 Networks

Each network averages:
- 1.4 Medical Directors, 1.0 Psychiatrist
- 42.8 Local Care Managers
- 1.8 Pharmacists
- Multiple disciplines: RN, LCSW, RD, ...

Community Care of North Carolina (CCNC)

- **Footprint**
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- **Counties**
  - All 100 NC Counties

- **Networks**
  - 14 Networks
  - Each network averages: 1.4 Medical Directors, 1.0 Psychiatrist, 42.8 Local Care Managers, 1.8 Pharmacists, Multiple disciplines: RN, LCSW, RD, ...
Introductions

CareOregon is a managed care plan for Medicare and Medicaid in Oregon.
- In total, we serve 250,000 Oregonians across 9 counties through our Medicaid and Medicare lines of business.

During our discussion today, we will be discussing community based programs that target the Dual Eligible Medicare/Medicaid Population (D-SNP).
- We serve approximately 11,000 members through our D-SNP plan.

Who We Serve
Who We Serve

CareOregon D-SNP Members are:
- Average age: 64.4
- 86.2% in metro area vs. 13.8% in rural area
- Average HCC risk score (based on 2015 population): 1.4

Work Session

Using tools and a case study, identify Patient A's risk for hospitalization
Social Determinants of Health

International focus in healthcare trends vacillate between:

Narrowly defined concepts requiring technological, medical, and public health intervention
Example: “Comparison of ACC/AHA and ESC Guideline Recommendations Following Trial Evidence for Statin Use in Primary Prevention of Cardiovascular Disease: Results From the Population-Based Rotterdam Study” – JAMA

Health as a social experience requiring intersectoral approaches to disparities in healthcare
Example: “Looking Beyond the Hospital to Reduce Acute Myocardial Infarction” – JAMA

“In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health.”
- WHO, 2008

To target social determinants of health is also to address health disparities.
Health Affairs: Achieving Health Equity

Breakout Discussion

Who Do You Serve?
- What is your setting (health plan, hospital, community service, clinic, etc.)
- What are some characteristics about your population?
The Invisible Population

Think about your population again and identify your Invisible Populations

• Who are those that the healthcare does not recognize?
• Who are those that the healthcare system has forgotten?
• Who are those whose root problems do not fit the mold of traditional healthcare?

Invisible Populations: The Homeless

• Homeless people are without stable housing
• What health factors are prevalent in this population:
  – Substance abuse
  – Chronic medical conditions
  – Mental health conditions
• What social factors are present?
  – Lack of insurance
  – Transportation
  – Phone
  – Routine follow up
Group Discussion: Selecting the Population

• How can we illuminate the needs of the invisible population?
• What are some of the factors that make these populations “complex”, “unengaged”, “non-compliant”?

More than Medical: Introduction to Social Risk Factors and Impactability
Carlos T. Jackson, Ph.D.
November 1, 2016
Big Data Signals of Impactability

Key Discoveries:

High Risk $\neq$ High Impactable
Difference Between Impactability and Risk

- **Risk Scores:**
  - Predict the likelihood of a given event.
  - However, typically only predict events/outcomes as part of usual care (i.e., if we didn’t intervene, what might be expected to happen).

- **Impactability Scores** identify members who will benefit the most from a given intervention:
  - There is strong evidence from our prior experience that a given intervention will result in a significant change in future cost and utilization.
  - Requires controlled analyses to detect intervention impacts beyond “regression to the mean”.


Impactability

- **When considering impactability, you need to define what it is your are impacting. Typical considerations are:**
  - Total Cost of Care
  - Inpatient Utilization
  - Emergency Room Utilization
  - Readmissions
  - Treatment Adherence
  - Disease Severity
  - Disease Morbidity
  - Mortality
  - Social Factors themselves (e.g., Homelessness, Hunger, Poverty)

- **Care Management not likely to result in a “cure,” but it can result in a measurable difference on the healthcare trajectory of the patient.**
How CCNC Defines Impactability:

- **Highly impactable patients** are characterized by complex care needs related to a variety of chronic medical and mental health conditions, as well as social or environmental challenges, which lead to more frequent emergency department use or inpatient hospitalizations than would be expected based on disease burden alone.

- **CCNC’s predictive modeling strategy** detects specific patterns of healthcare utilization and medication use that have been proven to respond well to care management intervention, taking into account the full clinical complexity of the patient as opposed to focusing on any single diagnosis or event.

- This means that the care management team can concentrate efforts on the patients who are most likely to benefit, yielding better outcomes and larger return on investment.

The Sweet Spot: Optimizing ROI requires a focus on impactability

“Risk” predicts where a person is expected to be in the future.

“Impactability” predicts how much change can be expected through care management intervention.
The Pitfall of Targeting the Highest Risk

Historically, care management efforts have been targeted at the highest risk.

Total Enrolled Population

Total costs for an individual
Under conventional flagging methodology, all of these people might have been flagged; care management would likely have had minimal impact for most of them.

A “risk”-based model would target everybody in Risk Group #3 for care management because they have the greatest likelihood of incurring future spend/utilization. However, looking within individual risk groups, you see pockets of undiscovered opportunity, or “impactability”, for care management.
Conditions Themselves Don’t Drive Impactability

John is in a Healthy risk group, with no chronic conditions. However, unlike other Healthy individuals, he frequently uses the emergency room for routine matters.

Joyce has Severe Asthma. However, she has many more acute exacerbations and hospital visits than most people with Severe Asthma.

Mark has both Diabetes and Chronic Renal Failure, and so is expected to be a high utilizer. However, even for patients like him, his cost and utilization is an outlier.

What Else Do We Know About This Population?
Social Risk Factors

- Nurse Care Managers engaged and assessed a total of 13,884 patients already identified as being highly “impactable” during a one year period.

- During the comprehensive assessment, patients were asked about everything their health status and factors potentially impacting their health (including nearly 100 questions related to social risk factors).

- This is what they found.

Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

- 77% have mental illness

Examples: Schizophrenia, bipolar disorder, major depression
Patients may be cognitively and emotionally impaired in their ability to manage their symptoms/conditions, particularly after an acute event. Care management can help connect them with necessary services and coach them in their transition from the hospital.
# Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

- 77% have mental illness
- **30% lack adequate support system**

Examples: Living alone, no reliable friends or family, children in foster care. People need support during challenging times, particularly after a scary hospitalization or a new diagnosis. They benefit from having people around them who can remind them and support them in their goals. They may also feel the ED staff are their only support. Care management can help provide that support and/or link them to community supports.

<table>
<thead>
<tr>
<th>Transportation needed for:</th>
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<tbody>
<tr>
<td>Follow-up appointments</td>
</tr>
<tr>
<td>Lab work</td>
</tr>
<tr>
<td>Filling prescriptions</td>
</tr>
<tr>
<td>Regular activities of daily living such as grocery shopping.</td>
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</tbody>
</table>

In some areas, even the public transportation is inadequate, particularly in suburban and rural areas. If the person lacks funds and needs to go to the doctor, may choose an ambulance ride because it is free. Care managers can help arrange for necessary transportation.
Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

- 77% have mental illness
- 30% lack adequate support system
- 29% lack adequate transportation
- **18% have unstable housing**

Can range from sleeping on the street to sleeping on a friend’s couch to being at high risk for eviction. May feel that the emergency room is the only warm place they can go. Care managers can connect them with more stable housing resources in the community.

Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

- 77% have mental illness
- 30% lack adequate support system
- 29% lack adequate transportation
- 18% have unstable housing
- **17% have experienced trauma or abuse**

Trauma can have harmful long-term effects on one’s ability to manage their activities of daily living, including managing their symptoms/conditions. Care managers can offer support and help connect them with necessary services.
Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

• 77% have mental illness
• 30% lack adequate support system
• 29% lack adequate transportation
• 18% have unstable housing
• 17% have experienced trauma or abuse
• 17% have substance abuse problems

Patients may be dependent on substances to feel normal and be impaired in their ability to manage their symptoms/conditions and other activities of daily living. Care management can help connect them with necessary services.

Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

• 77% have mental illness
• 30% lack adequate support system
• 29% lack adequate transportation
• 18% have unstable housing
• 17% have experienced trauma or abuse
• 16% have unmet nutritional needs

Many patients living in poverty may have difficulty meeting nutritional needs, but some patients may find it particularly difficult to either obtain any food or obtain any nutritional food. Good nutrition is necessary for prevention and recovery from hospitalization. Care management can help connect them with necessary services.
Impactability and Social Determinants

88% of Impactable patients have at least one of the following social risk factors in addition to their medical conditions*:

- 77% have mental illness
- 30% lack adequate support system
- 29% lack adequate transportation
- 18% have unstable housing
- 17% have experienced trauma or abuse
- 17% have substance abuse problems
- 16% have unmet nutritional needs
- 14% are illiterate

Literacy is necessary for managing many aspects of life. Literacy is particularly important when it comes to things like needing to read prescriptions, disease management literature, or discharge instructions.

By virtue of being on Medicaid, they are also poor.
Challenges in Rural Areas

People living in rural areas face unique healthcare challenges due to:

- Limited access to basic preventive care (e.g., primary care)
- Fewer community resources typically available in urban areas
- Lack of transportation typically available in urban areas
- Limited options for purchasing nutritional food
- Increased poverty
- Poorer overall health

The North Carolina Office of Rural Health and Community Care (ORHCC) has for more than 35 years helped North Carolina’s rural and underserved communities develop health services for low-income and vulnerable populations. These efforts have included statewide or regional efforts to improve access to:

- Primary Care Medical Home,
- Behavioral Health Services,
- Long-term Care,
- Hospital
- School Health Services

This infrastructure helped set the framework for Community Care of North Carolina

Meeting the Rural Health Needs of North Carolina

Federally Qualified Community Health Centers
Other Safety Net (Rural Health Clinics, Local Health Deps, other)
Independently-owned Primary Care Providers

*Note: does not include large numbers of hospital-owned practices located primarily in urban areas
Thinking “Outside the Box”

Invisible populations may require approaches outside the norm to be able to engage and impact them.

Motivational Interviewing

- Since 2011, Motivational Interviewing has been a core feature of CCNC’s care management model.
- Instead of telling patients what to do, MI evokes the patient’s own motivation and resources for change.
- Everyone is motivated about something.
- Ambivalence is normal.
- Start by meeting the patient “where they are at”.

Case #1: 24 y.o. male with IDDM, hyperlipidemia, Bipolar, Asperger’s

- abusive family
- poor literacy
- inadequate housing
- no transportation

Healthcare challenges addressed by care manager:

- Pharmacy wouldn’t refill insulin without a new prescription - led to a hospitalization for diabetic ketoacidosis
- Discharged without a follow-up appointment
- Wanted to change PCP’s but couldn’t get appointment for several weeks
- PCP gave prescriptions for new antipsychotic and referral to a BH provider
- Psychiatric referral not taking Medicaid; needed to work with BH-MCO
- PCP did not report on labwork (A1C = 14%)
- Got insulin filled, but syringes and not pens
- Bed bugs identified and needed help changing housing
- Lost glucometer
- Found “old” insulin and started using.

Outcome:

- 3 months later, patient was well connected to new PCP and doing much better

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<thead>
<tr>
<th></th>
<th>Before CM</th>
<th>After CM</th>
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<tbody>
<tr>
<td>ED visits</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>IP admits</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Case #2: 37 y.o. female with poorly-controlled asthma.
- PTSD
- poor literacy,
- has 4 children including twin infants,

Healthcare challenges addressed by care manager:
- Difficulty getting appointment with PCP
- Difficulty getting appointment with BH provider
- Can't afford food for herself or children
- Unable to make appointment because of childcare

Outcome:
- 3 months later, patient was well connected to new providers and was receiving food assistance

<table>
<thead>
<tr>
<th>Before CM</th>
<th>After CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED visits</td>
<td>16</td>
</tr>
<tr>
<td>IP admits</td>
<td>5</td>
</tr>
</tbody>
</table>

Case #3: 44 y.o. female, NIDDM w/ foot neuropathy, schizophrenia
- unstable housing,
- no transportation
- can't afford copay for meds,
- can't afford nutritious food,
- lives with abusive family,
- separated from her children,

Healthcare challenges addressed by care manager:
- When approached for care management, the patient had no medications
- And no PCP appointment
- And no BH provider
- When finally had appointment, neuropathy identified
- Unable to purchase compression stockings or diabetic shoes

Outcome:
- 3 months later, patient was well connected to new providers and was receiving financial assistance

<table>
<thead>
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<tbody>
<tr>
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Work Session

• Using your risk analysis for Patient A, what resources do you have at your disposal to address the specific factors that would influence Patient A's risk of going to the hospital?
• Which of Patient A's Factors are impactable?
• What can you do about them?
Examples at CareOregon

• Advanced Illness
• Health Resilience Program
• Recuperative Care Program
• Housing with Services
• Transitional Care and Outreach
• Spotlight Initiative

It is not “What’s wrong with them”… but “What has happened to them:”

• **Formal qualitative study of “Adverse Life Events”**
  – Ongoing research
Health Resilience Program

- Embedded in primary care clinic
- Targeting high acuity, high need patients with psychosocial, mental, physical, or systems barriers to achieving better outcomes
- Key goals are to develop meaningful partnerships with enrolled patients to better meet their health care needs while reducing inappropriate utilization and reducing total costs of care

EDIE/PREMANAGE

- State-wide information exchange system.
  - Hospitals report all event data in real time
- Real time notification enables timely and informed care coordination, population management and discharge planning
- Custom alerts and care coordination messages share patient-specific preferences and goals of care to those directly caring for the patient
CareOregon and PreManage

- Reduce ED and IP admissions
- Reduce cost and utilization
- Meet CMS regulatory requirements
- Standardize and improve care coordination and planning—physical, behavioral, dental
- Optimize member and provider engagement

Next Steps

- Extending PreManage to network clinic providers
- Expanding Use of Care Recommendations
- Engaging SNF facilities, urgent care
Health Resilience Program

<table>
<thead>
<tr>
<th>HRP PATIENT</th>
<th>HEALTH RESILIENCE SPECIALIST</th>
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<tbody>
<tr>
<td>Has potentially modifiable, high utilization patterns such as:</td>
<td>• Mental health/addiction training</td>
</tr>
<tr>
<td>≥1 IP visit within 12 months</td>
<td>• Strong understanding of trauma dynamics</td>
</tr>
<tr>
<td>≥6 ED visits within 12 months</td>
<td>• Ability to work across cultures</td>
</tr>
<tr>
<td></td>
<td>• Working knowledge of local services and resources</td>
</tr>
</tbody>
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Costs:

- Hospital Visits: 24%
- ED Visits: 17%
- Primary Care visits: 27%
- OutPt BH visits: 11%

-$3,636 PMPY

(2016 = $2400)

(N=677 enrolled members)
Impactability: Optimal Impact

The HRP intervention was most effective for members with moderate behavioral health comorbidity.

Transitions in Care – what we know

- In 2014, hospital admissions accounted for 30% of the total cost for our COA plus population; 1 admit = $10K
- Approximately 1 in 6 COA plus members admitted to the hospital will experience a readmission within 30 days
- A recent systematic review estimates at least 27% of hospital admissions are avoidable, and this % is much higher among the highest risk patients (1)
- 50% of all hospital admissions occurring in a population of homeless individuals resulting in a 30-day readmission (2)
- Effective transition programs can reduce readmissions by up to 20% in a Medicaid population (3)
- Common elements of effective programs include delivery system involvement, home visits, and medication management
Transitional Care and Outreach

Supporting existing hospital programs with alternative funding and building programs where they don’t exist

Supporting transitional care models in clinics with RNs, HRS, and Clinical Pharmacy

Team of RNs, BHS, and a Coordinator provide transitional care and outreach

Impact on Inpatient Utilization

All-cause D-SNP inpatient utilization went down

(These results are not isolated to transitional care interventions, and are part of a larger organizational strategy to reduce D-SNP costs)
Recuperative Care Program
Post Hospitalization Case Management

- Immediate temporary housing with private rooms located in downtown Portland
- On-site case management and access to primary care
- Assistance with follow up appointments and meeting their daily needs
- Additional addiction and mental health care services are available
- Housing case management to attempt permanent housing for individuals

Impact on CareOregon Members

- RCP provided care and housing for more than 1,000 patients since program inception in 2005.
- For a single typical patient, RCP reduced annual hospitalization and medical costs by more than $80,000.
- 80% of patients are discharged to permanent, supportive housing.
Addressing the Social Determinants of Health: Community Health Innovation Programs

Reducing food insecurity, social isolation and homelessness by addressing barriers to fundamental needs.

- Housing Case Management
- Housing with Services
- Give to Get
- Food Rx
- CareOregon Go Mobile

Addressing urgent challenges in affordable housing, homelessness and healthcare.

- 382 new housing units across three locations
- 176 units for medically fragile people and people in recovery from addictions and mental illness with a clinic and 24-hour medical staffing
- 155 units of workforce housing
- 51 units designed for families to help displaced residents return to their neighborhood
CareOregon Advanced Illness Care (AIC)
Safety Net Palliative Care

Traditional Palliative Care

- Symptom Management
- Care Coordination
- Goals of Care
Safety Net Palliative Care

- Symptom Management
- Relationship
- Care Coordination
- Goals of Care

Traumatic Life Experience
“Relationships are the agents of change and the most powerful therapy is human love.”
— BRUCE D. PERRY, MD

Five Programs/Pilots
Design Theory

* Location: Embedded vs. Community Based
* Discipline: Health Resilience Specialist vs. Palliative MSW
* Type: Specialty vs. Primary Care
* Contracts: Salaried, FFS, PMPM
* Pharmacy: Home delivery, formulary, consultation
* RN + Social Worker “wrap around” PCP

Younger Population

![Age Groups Chart]

Number of Members

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Number of Members</th>
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<tbody>
<tr>
<td>21-24</td>
<td>2</td>
</tr>
<tr>
<td>30-34</td>
<td>3</td>
</tr>
<tr>
<td>35-39</td>
<td>1</td>
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<tr>
<td>40-44</td>
<td>9</td>
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<tr>
<td>45-49</td>
<td>2</td>
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<tr>
<td>50-54</td>
<td>10</td>
</tr>
<tr>
<td>55-59</td>
<td>31</td>
</tr>
<tr>
<td>60-64</td>
<td>19</td>
</tr>
<tr>
<td>65+</td>
<td>40</td>
</tr>
</tbody>
</table>
Majority will never go to hospice

51% Did not die in Hospice

49% were in Hospice at time of death

CareOregon Dual Eligible Members who died in 2012 or 2013

Number of Days Spent in Hospice Prior to Death

- 51 - 98 days
- 31 - 50 days
- 15 - 30 days
- 8 - 14 days
- 1 - 7 days

Half were in Hospice 1383 days

High Risk CareOregon Member Study

Active Behavioral Health Challenge

- PTSD: 31%
- Depression: 75%
- Anxiety: 51%
- No: 36%
- Yes: 64%

Chronic Pain

- Yes: 42%
- No: 58%

Active Trauma

- Yes: 54%
- No: 46%

Current Living Situation

- Temporary Housing: 9%
- Permanent Housing: 91%
Need time to build relationships

The Costs of Waiting: Implications of the Timing of Palliative Care Consultation among a Cohort of Decedents at a Comprehensive Cancer Center
* Learning Collaborative/Workforce Training
* Goals of Care: Vital Talk+Motivational Interviewing+Trauma Informed Care+Volandes Videos
* Final Thought: Safety net palliative care may require a population specific model of care, with additional skills and strategies
Resources and Integration

- High Risk Services Integrator
- Health Educators
- Advanced Illness Care RNs
- Advanced Illness MSW
- Ambulatory Care Clinical Pharmacist
- Health and Housing Manager
- Pharmacy
- Utilization Management
- Benefits
- Community partners
What is Community Care of North Carolina?
CCNC Footprint Statewide

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- Multiple disciplines: RN, LCSW, RD,...

Shared Statewide Infrastructure for Care Management of Complex Patients

>32,000 Individuals received CCNC Transitional Care Support in 2015
Additional 24,000 received complex care management unrelated to TC.
Targeted from among 1.5 million Medicaid patients enrolled in CCNC, 146,000 with hospitalizations.

- Community-based multidisciplinary care team
- Connecting the dots with PCMH and other providers
- Comprehensive medication management
- Goal setting and care plan
- Education and self-management support
- Linkage to community resources
Building Blocks for CCNC’s HealthCare Analytics

CCNC’s Real-World Care Management Experience, and analysis of outcomes

CCNC’s Experience Has Been Key to Identifying Opportunities

- Through CCNC’s Care Management Information System, we are able to capture a variety of interventions delivered to a variety of patients
  - Diverse population
  - Diverse clinical complexity
  - Diverse healthcare systems
  - Diverse interventions

- CCNC also has the necessary volume to conduct these types of evaluations:
  - 100,000+ receiving transitional care
  - 100,000+ receiving complex care management
  - Lots of opportunity for naturalistic experiments
Complex Care Management

The Sweet Spot: Optimizing ROI requires a focus on impactability

“Risk” predicts where a person is expected to be in the future.

“Impactability” predicts how much change can be expected through care management intervention.

Care Manager Intervenes

Outcome

Time
### Complex Care Management (CCM) Impactability Score™

**How Defined?**
- A score from 0-1,000 reflecting likely cost saving, per month (over 6 months following care management).

**What it means?**
- CCNC prioritizes patients with a CCM Impactability Score above 200.

- Clinical characteristics and utilization patterns indicate a high likelihood of benefiting from care management. Prioritizing patients with a score of 200-1,000 flags less than 1% of the Medicaid population, but for these patients, we are confident that we can expect an average savings of $1,200 - $6,000 per patient receiving care management.

### How do we identify someone as having high impactability from complex care management?

- Characteristics of patients who have demonstrated strong savings from care management, as demonstrated in rigorous, controlled evaluations of CCNC’s care management.

- Although the following are examples of characteristics, no one thing drives impactability scores, and patients typically have multiple of these:
  - Having historical inpatient and ED spend that is exceptionally above expected for similar patients
  - Being an exceptionally frequent user of the emergency room (regardless of reason)
  - Stop taking medications necessary to treat chronic conditions
  - Having a change in trajectory in their total cost of care
Conditions Themselves Don’t Drive Impactability

John is in a Healthy risk group, with no chronic conditions. However, unlike other Healthy individuals, he frequently uses the emergency room for routine matters.

Joyce has Severe Asthma. However, she has many more acute exacerbations and hospital visits than most people with Severe Asthma.

Mark has both Diabetes and Chronic Renal Failure, and so is expected to be a high utilizer. However, even for patients like him, his cost and utilization is an outlier.

1.8 Million Medicaid Recipients
CCNC’s Targeting Strategy Optimizes the Care Management ROI
Since implementing CCM Impactability Scores, CCNC has continued to achieve incremental cost savings to Medicaid. CCNC enrollees are currently spending 5.8% below expected, compared to 1.7% prior to implementation.

Multidisciplinary Transitional Care Management
Charlie

- 62 y.o. with developmental disability and multiple chronic conditions
- Very little family support
- Dependent on CAP-DA and other in-home services prior to admit
- 2 month hospital stay wound care and unstable conditions
- Multiple team meetings during inpatient stay to coordinate discharge plans
- Linked to multiple services - CAP-DA, Home Health, Palliative Care, DME, Specialists

Charlie

- Discharged home on Labor Day
- Home Visit by CCNC Care Manager
- Home Health for B.I.D. dressing changes had not yet begun
- No dressing change supplies
- Pain regimen had been denied by Medicaid had not been communicated, resulting in 3 days without pain med
- CAP-DA was unable to resume services until 3 days after discharge, resulting in no assistance with personal care
Impactable Patients Often Cross Multiple Hospital Systems

- The image below is based on real data: the bubbles represent hospital systems that take care of patients within their PCP offices, and the lines connecting bubbles represent where patients go for inpatient care.
- Larger systems are no more likely to see all of the care their patients receive.

The Great “Unattributable”: The Need for Shared Accountability to Address the Needs of Impactable Complex Patients

- Impactable patients tend to have multiple providers and to use multiple systems for acute events.
- The most impactable patients (scores = 500 or greater) use an average of 2.5 different hospitals for acute events (inpatient admissions and ED visits) during just a one year period.
  - 70% use more than one hospital
  - 20% use 4 or more hospitals
- Additionally, impactable patients have an average of 14 different billing providers during any given year (including hospital inpatient/outpatient, professional services, therapies, home health, dental, mental health services, etc...)
- Therefore, effective management of the population will require a collaborative system with shared accountability.
Typical patient identified as high priority for CCNC Transitional Care

Patient is a 58 year old man with severe diabetes, kidney disease and Hepatitis C

- Earlier in the year:
  - Two ED visits at Duke and Durham Regional;
  - Two UNC hospitalizations with uncontrolled DM and hyperosmolarity coma
  - Recently hospitalized at Duke with hepatic encephalophathy and aspiration pneumonitis/acute respiratory failure
  - Re-hospitalized at UNC with c diff colitis and hepatic coma
  - Primary care provider is in a Duke-affiliated practice
Medication Review

20 medicines in patient's possession based on prescription fill history. Additional 10 (unmatched) medicines listed on hospital discharge summary.

What about Impactability in the Context of Transitional Care?

In general, we know Transitional Care (TC) works:

- Effectively reduces risk of future readmissions
- Effectively reduces risk of additional admissions
- Effect is long-lasting (differences still seen a year later)
- Effectively lowers future total cost of care

Works better for some than others!

- Only about 25% of Medicaid discharges are likely to benefit meaningfully from a comprehensive TC care team support;
- Even within this 25% priority population, a smaller segment is most likely to benefit meaningfully from specific components that require higher resource intensity:
  - home visit,
  - pharmacist involvement,
  - palliative care considerations,
  - early outpatient follow-up

A positive ROI from TC is highly dependent upon discerning and targeting the patients most likely to benefit.
Transitional Care Learnings

• TC reduces readmission risk by 20% for patients with multiple chronic conditions

• Overall NNT=6 to prevent 1 readmission; but NNT ranges from 3 to 133 across risk groups. Impactability is predictable!

• Patients with comorbid mental illness are particularly likely to benefit

• How important is early outpatient follow-up? It depends! We can effectively identify and focus on the patients who really need it.

• Is the home visit worth the cost? YES—in a big way—IF targeted appropriately

Time to First Readmission for Patients Receiving Transitional Care Vs. Usual Care Among CCNC Transitional Care Priority Patients

Survival Function

Proportion still out of the hospital

Months since discharge from the hospital
### Separating the Concepts of Risk and Impactability:
**Time to First Readmission for Patients Receiving Transitional Care Vs. Usual Care**

![Graph showing survival function for patients receiving transitional care vs. usual care.](image)

### Transitional Care (TC) Impactability Score™

<table>
<thead>
<tr>
<th>Score</th>
<th>How Defined?</th>
<th>What it means</th>
</tr>
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<tbody>
<tr>
<td><strong>Transitional Care Impactability Score™</strong></td>
<td>A score from 0-1,000 reflecting likely cost saving, per month (over 6 months following discharge in which the patient received transitional care management); CCNC prioritizes patients with a TC Impactability Score above 200 who are being discharged from the hospital.</td>
<td>Clinical characteristics and utilization patterns indicate a high likelihood of benefitting from transitional care management following inpatient discharge. Prioritizing patients with a score of 200-1,000 flags less than 1% of the Medicaid population, but for these patients, we are confident that we can expect an average savings of $1,200 - $6,000 per patient receiving care management.</td>
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![Impactability Score chart](image)
Know when/where patients are in the hospital AND which interventions will likely yield the best return-on-investments (based on CCNC's own experience).

Coupled with specific data-driven Care Guidance:
- $S$ ROI Estimate (Impactability Score $x6$)
- Home visit priority
- Timing of outpatient follow-up
- Risk of drug therapy problems (interactions, duplications, adherence)
- End-of-life planning (mortality risk)
- Children in foster care system
- Chronic pain/opiate misuse
- Behavioral health comorbidity

Results

Although CCNC's inpatient rate was already 6% below expected for Medicaid in 2012, with the implementation of TC Impactability Scores, CCNC has further reduced inpatient utilization to 27% below expected.
Primary Care and Behavioral Health Integration

Meeting the Needs of Patients with Psychiatric Comorbidities

- Many individuals with mental health conditions also have chronic medical conditions and thus require care for their entire person to address both.
- 73% of patients with SPMI in North Carolina Medicaid receive care in their primary care medical home, with 21% exclusively seen by primary care clinicians.
- These individuals need coordinated physical and mental health care to ensure their needs are met.
- Evidence suggests that enrollment in a primary care medical home reduces the likelihood of patients being admitted and readmitted to a hospital following a psychiatric admission.
- Cross-facility traffic is even greater among psychiatric patients: when readmitted, over 40% of the time it is to a different hospital system.
Time to First Readmission for Patients Receiving Transitional Care Versus Usual Care For Quad 4 Patients with Schizophrenia

Non-psychiatric Index Hospitalization

Psychiatric Index Hospitalization

Antipsychotic Adherence and ED Utilization

Average Annual Rates of Emergency Department Visits for CCNC Enrollees with Schizophrenia, by Medication Adherence Category, 2015
Thank you!

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cjackson@n3cn.org

Case Studies

• Work Session on Case Studies
Q & A

Take Aways

• What is one thing you can take away and implement in the next 6 months?
• What is one thing you would like to take away and implement in the next 2 years?