Objectives

• Provide an overview of the process utilized to identify a high utilizer/multi-visit patient population

• Discuss the structural components of a model designed to enhance the coordination of care for this population

• Outline critical partnerships that can be leveraged to support a population health model
VCU’s Academic Medical Center

VCU Health System
- VCU Health
  - VCU Medical Center
- VCU Health
  - Community Memorial Hospital
- VCU Health
  - MCV Physicians
- VCU Health
  - Virginia Premier
- VCU Health
  - Pauley Heart Center
- CHILDREN’S
  - Hospital of Richmond at VCU

Health Sciences Schools
- VCU Health
  - MCV Campus
- VCU Health
  - VCU School of Dentistry
- VCU Health
  - VCU School of Medicine
- VCU Health
  - VCU School of Nursing
- VCU Health
  - VCU School of Allied Health Professions
- VCU Health
  - VCU School of Pharmacy
- MASSEY
  - School of Cancer Studies

Colleges and Schools
- College of Humanities and Sciences
- Graduate School
- L. Douglas Wilder School of Government and Public Affairs
- School of the Arts
- School of Business
- School of Education
- School of Engineering
- School of Mass Communications
- School of Social Work
- School of World Studies
VCU Health System - 36,000+ admissions and 630,000+ outpatient visits

- **MCV Hospitals**
  - 805 licensed acute care beds
  - 89,000 emergency department visits
  - Region's only Level I Trauma Center

- **VCU Community Memorial Hospital**
  - 99 licensed acute care beds
  - 161 licensed long-term care beds

- **Children’s Hospital of Richmond**
  - Pediatric specialty hospital
  - 60 licensed long-term care beds

- **MCV Physicians**
  - ~700-physician, faculty group practice
  - Provides all teaching and training for medical students and residents

- **Virginia Premier Health Plan**
  - 189,000 member Medicaid Health Plan
VCU Health System: A Major Regional Referral Center and Safety Net Provider
Indigent Care Program in Virginia

- Virginia’s Medicaid program provides categorical coverage

- **Indigent Care Program** established in the late 1970’s to provide financial assistance to the uninsured and underinsured seeking care at VCU Health System and UVA Health System
  - Aligns State General funds and federal dollars

- Eligibility criteria:
  - Reside in the Commonwealth
  - U.S. Citizen
  - At or below 200% FPL
  - Meet asset test criteria
VCUHS recognized the need to develop strategies to manage care for the uninsured

- High volume of Emergency Department visits for the uninsured were for primary care treatable conditions
- Rising cost of care for the population
- “Social Determinants of Health” impacting health outcomes
- Vulnerability of governmental funding
VCUHS Programs Have Been Leveraged to Create Innovative Models

- **1995**: VCUHS purchases 30% interest in Chartered Health Plan (Virginia Premier)
- **1998**: VCUHS and Richmond City Health Dept. launch the “City Care” program for women and children
- **1999**: Meetings held with Community leaders to expand “City Care” to include uninsured adults
- **2000**: Introduction of the Population Health Management model
- **2011**: Established the Complex Care Clinic

- **1995** establishes the Complex Care Clinic
- **1998** purchases remaining interest in Virginia Premier Health Plan
- **1999** purchase remaining interest in Virginia Premier Health Plan
- **2000** installation of the VCC program is established in partnership with community PCP’s
Virginia Coordinated Care for the Uninsured Program (VCC)
Vision

- **Vision**: utilize managed care principles to coordinate health care services for a subset of the patients who qualify for the Commonwealth’s Indigent Care program.

- **Target population**: uninsured in the Greater Richmond and Tri-Cities areas.
VCC Program Goals

• Establish community-based medical homes in partnership with local Primary Care Physicians (PCPs)

• Improve the health of the uninsured population

• Enhance the patient care experience

• Reduce the per capita cost of care delivered
How VCC Works

- Patients enroll in the program for 12 months intervals
- VCC staff conduct health screenings
- Patients are assigned to medical homes
- Nurse Case Managers and Outreach Workers help patients “navigate” the health care system
- Outreach Workers are stationed in the VCUHS Emergency Department to help “frequent flyers” find their medical home and community resources
Program Model

- VCC is not insurance
- VCUHS reimburses community medical homes for primary care services
  - Funding provided from VCUHS operating margin (no DSH)
- Indigent Care Program funding is used to cover inpatient, outpatient, and Emergency Department care provided at VCUHS
- Virginia Premier Health Plan serves as the program’s Third Party Administrator
VCC Population

- Over 85% of the population is below 133% FPL\(^1\)
- Approximately 75% of the patients are minorities
- 50.3% are females; 65.6% are between 40 and 64

\(^1\)Based on last VCC contract during FY2015.
*Selected conditions use primary and secondary ICD codes from MCVH, MCVP, and VCC Community Claims data.
VCC Program demonstrated utilization reductions

38% reduction

45% reduction

Reductions in costs have also been realized.

![Bar chart showing VCC Population Average Cost/Year (2000 – 2007)]

Since 2000, VCC has:

- Provided services to over 86,000 low income uninsured individuals
- Reimbursed community providers over $52 million
- Achieved estimated savings of approximately $8 million/year for the Indigent Care program
While the VCC model was effective, program growth uncovered issues

- VCC enrollment exceeded 30,000 in FY12
- Encountered capacity issues with the PCP network
- Majority of enrollees had episodic problems
- “Crowding out” of individuals with chronic conditions
- A small percentage of the patients were responsible for the majority of the utilization
VCC Risk Stratification
Cost and Utilization Method

**Step 1:** Filter the data to select current VCC enrollees

- MCV Physician
- MCV Hospital
- Community PCP and Specialist Claims

**Step 2:** Assign the highest level based on hospital costs and ED visits

<table>
<thead>
<tr>
<th>Level</th>
<th>Hospital Costs</th>
<th>ED Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Less than or equal to $7,000</td>
<td>Less than 6 ED visits</td>
</tr>
<tr>
<td>Level 2</td>
<td>$7,001 to $19,999</td>
<td>6 to 12 ED visits</td>
</tr>
<tr>
<td>Level 3</td>
<td>Greater than or equal to $20,000</td>
<td>Greater than 12 ED Visits</td>
</tr>
</tbody>
</table>

**Step 3:** If prescribed more than 6 medications then bump up one level
VCC Population Risk Stratification Model

Medical Home for VCC Enrollees
Co Located: Practice/HS
Multi-disciplinary Care Team

Risk Stratification

Level 1
Maintenance/Intake
Stable, intermittent care needs. Other basic issues (food, shelter, safety). May not engage with PCP.

Level 2
Chronic
Moderate illness burden. Physical as well as mental health issues. Understands need for ongoing care and is willing to work with caregiver.

Level 3
Complex
At highest health risk
High utilizers of expensive services and at risk for using more. Many have mental health as well as physical conditions.
24% of the population represents 77% of the total cost.
Launched a Population Health Program for VCC Complex Patients

• “Advanced Health Home” model designed to enhance management of patients with chronic conditions

• Focused on the population with the highest cost and utilization

• Goal: Achieve the Triple Aim
  • Better care: Decrease readmission rate, inpatient and ED utilization
  • Better Health: Improve clinical outcomes
    • HgbA1c, Hypertension, Cholesterol, BMI
  • Lower Cost: Reduce total cost of care
VCC Complex Care Clinic for High Cost/High Use Patients Opened in 2011

- Supported by an interprofessional team
  - Physician
  - Nurse Practitioner
  - Social Worker
  - Clinical Psychology Fellow
  - Pharmacist
  - Clinical Nurse
  - RN Case Manager
  - Medical Outreach Worker

- Focused on VCC patients with multiple chronic conditions
Disease Prevalence

Hypertension, Diabetes, Mental Illness, COPD, and CHF were the leading diagnoses in the Complex Care Clinic.

Top 10 most frequent diagnoses*

<table>
<thead>
<tr>
<th>Disease</th>
<th>% Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>82%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>53%</td>
</tr>
<tr>
<td>Mental illness</td>
<td>50%</td>
</tr>
<tr>
<td>COPD</td>
<td>41%</td>
</tr>
<tr>
<td>CHF</td>
<td>32%</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>24%</td>
</tr>
<tr>
<td>Renal disease</td>
<td>23%</td>
</tr>
<tr>
<td>Mild liver disease</td>
<td>18%</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>18%</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>17%</td>
</tr>
</tbody>
</table>

78% of Complex Care Clinic patients had 3 or more chronic conditions.

*Includes primary and secondary diagnoses

Source: VCUHS Enterprise Analytics compiled by VCU Office of Health Innovation, January 2016
Outcomes - VCC Complex Care Clinic
(Year 1 Results)

- Costs reduced by **49%**
- Inpatient use dropped **44%**
- ED utilization fell **38%**
- Primary Care use increased **22%**

*Includes Hospital inpatient, outpatient and ED costs*

Source: VCUHS Enterprise Analytics compiled by VCU Office of Health Innovation, January 2016
Year 1 Clinical Outcomes for All Patients
Pre and Post Analysis (N= 443)

Source: VCUHS Enterprise Analytics compiled by VCU Office of Health Innovation, January 2016
Patient engagement with the Complex Care Team has increased

CCC primary care visits per 1000 enrollees

- FY13: 4403 (39% increase)
- FY14: 6105
- FY15: 6259 (3% increase)

Source: CCC KPI report January 2016

Source: VCUHS Enterprise Analytics
compiled by VCU Office of Health Innovation,
January 2016
Complex Care Clinic patients have experienced a reduction in the rate of inpatient hospitalizations.

Inpatient discharges per 1000 enrollees

<table>
<thead>
<tr>
<th>Year</th>
<th>Discharges per 1000 enrollees</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY13</td>
<td>955</td>
<td></td>
</tr>
<tr>
<td>FY14</td>
<td>850</td>
<td>11%</td>
</tr>
<tr>
<td>FY15</td>
<td>784</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: CCC KPI report January 2016
Costs for inpatient hospitalizations have been reduced.

- **Inpatient costs per member per month**
  - FY13: $1,240
  - FY14: $1,223
  - FY15: $1,056

*Source: CCC KPI report January 2016*
However, the 30-day all cause readmission rate increased.

*NOTE: VCC enrollee readmission rate (FY15) = 12%*
Transforming Complex Care (TCC) Initiative

Center for Health Care Strategies, Inc. Demonstration

Supported by the Robert Wood Johnson Foundation
Transforming Complex Care will enable leading health organizations to more effectively address the social determinants of health for high-need, high-cost patients, and will offer lessons for replication that maximize existing community strengths.

- Allison Hamblin, Vice President, Center for Health Care Strategies
• **Goals:** Reduce readmissions and improve the self-management of our high need, high cost patients.

• **Model:** Introduce **Community Health Workers (CHWs)** to extend care management services beyond the clinic setting into the communities where medically and socially complex individuals live, work, and play.

• **Rationale:** Recent studies have demonstrated that CHW’s and other lay health workers who make home visits and educate patients help reduce readmission rates and improve medical home engagement.\(^1\)

Targeted approach integrating hybrid data sources:

• Claims
• Provider and patient feedback
• Social determinants of health data
• Utilization and cost data
• Geospatial analysis of patient zip codes and previously identified neighborhood risk factors
Geospatial Analysis Demonstrating the Need to Target Defined Communities

A) Complex Care Clinic Patient Density

B) Percentage of Population Below Poverty Level

C) CCC Patients - FY 2015 ED Visits and Inpatient Discharges

D) Community Partners

Legend:
- City Boundaries
- Complex Care Clinic Patient Density
- Percentage of Population Below Poverty Level
- CCC Patients - FY 2015 ED Visits and Inpatient Discharges
- Community Partners

Legend:
- Partner Locations
- Interstates
- City Boundaries

Sources: A & C - VCU Enterprise Analytics, B - US 2010 Decennial Census; D - Feedsome: AS - ESR
Prepared by VCU Office of Health Innovation January 2016
TCC Intervention Strategies

- Enhanced Patient Engagement
- Community partner connections to address social needs
- Escorting patients to community resources and doctor’s appointments
- Facilitating appointments for medical and social resources
- Learning the patients’ goals, preferences, and cultural and linguistic barriers
- Alignment of the patients’ goals with the care plan
- Coaching patients on disease self-management
Strengthened Community Partner Engagement

- **Peter Paul Development Center** - Food distribution site for the Central Virginia Food Bank and meeting space.

- **The YMCA of Greater Richmond** - Pre-diabetes and diabetes self-management education.

- **The Daily Planet** - Assistance for participants who are homeless or at risk of homelessness.

- **Richmond Behavioral Health Authority** - Assistance for participants who are need of behavioral health and/or substance abuse prevention and intensive case management services.
Case Study

- CHW visited 50+ year old woman with COPD and renal failure during recent hospitalization regarding her frequent ED use (avg. 4-5 visits/month) and multiple hospitalizations
- Identified issues with understanding of nebulizer use and completing dialysis treatments
- The Dialysis Center was removing patient from the machine early due to anxiety - causing fluid retention which resulted in her returning to the ED due to shortness of breath most weeks
- Strategies implemented included calls and visits to the patient during the week prior to dialysis treatments, and in-person visits during the last hour of dialysis
- Patient has not been seen in the ED in more than 45 days and no hospitalizations reported
Lessons Learned

• The reasons for readmission are often related to social determinants of health or mental illness
• Home visits are important to observe the living environment and identify the types of assistance or community resources needed
• Advocates are often needed to assist patients with low health literacy understand the severity of their illness
• The CHW models can be labor intensive; remain focused on evaluating the ROI
• Rapid cycle performance improvement processes are critical to continuously evaluate outcomes
Closing Thoughts
America’s Essential Hospitals’ Members Recognized for Addressing Population Health in Communities Across the Nation

- University of New Mexico Hospitals (NM)
  - Rural Health Education Outreach

- Hennepin County Medical Center (MN)
  - Coordinated Care Clinic

- Parkland Memorial Hospital (TX)
  - Prenatal Care

- Truman Medical Centers (MO)
  - Chronic Conditions

- Grass Health System (GA)
  - Heart Failure Clinic

- Virginia Commonwealth University Health System (VA)
  - Virginia Coordinated Care for the Uninsured

- Nassau University Medical Center (NY)
  - Emergency Operations Planning

- Cambridge Health Alliance (MA)
  - Asthma Program

- San Francisco General Hospital (CA)
  - Healthy San Francisco

- UW Medicine Harborview (WI)
  - Mental Health Integration Project

Source: AEH Gage Award Submission, 2013, Health Affairs, 2012, 31(2)
VCC Complex Care Clinic Program

• Served as a model for the design of programs to manage complex populations in Virginia’s 2015 CMMI State Innovation Model (SIM) grant

• One of three models included in the 2016 Vizient/UHC “playbook” for the design of programs to manage chronically ill populations
There is more work to be done....
Thank you!

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