21st Century Care: Redesigning Care at Denver Health

Models of Care for High-Need Patients
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• The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies.

• The analysis presented was conducted by the awardee. Findings may or may not be consistent with or confirmed by the independent evaluation contractor.

• The Colorado Multiple Institutional Review Board determined this project to be Quality Assurance, Not Human Subject Research.
Denver Health
An innovative healthcare system that is a model of success for the nation.

OUR AREAS OF FOCUS

Clinical Care
Highest quality, low cost provider

Education
Academic center teaches the next generation of healthcare workers.

Research
Ongoing, leading-edge research

Denver Health Medical Center
One of Colorado’s busiest hospitals, ranked in top 5% for patient survival annually since 2011

Community Health Centers
Offering total family care in neighborhood centers where families need it the most.

Rocky Mountain Regional Trauma Center
Region’s top Level I Trauma Center for adults and Level II Center for children – whole family care

School-Based Health Centers
Keeping kids in school by providing vital health care to DPS students through 16 in-school clinics, free of charge

Denver Health Medical Plan, Inc.
Keeping our community healthy by providing healthcare insurance to 77,000+

Regional Poison Control Center
Trusted experts for multiple states and over 100 national and international brands

Denver Health Foundation
Provides additional resources that bridge the gap financially to fund special projects and specific needs

NurseLine
Registered nurses advising on medical information, home treatment, and when to seek additional care, giving patients peace of mind 24/7

Correctionsal Care
Providing medical care to prisoners in Denver’s jails and via telemedicine

Public Health
Keeps the public safe through tracking communicable disease and promoting healthy behaviors

Rocky Mountain Center for Medical Response to Terrorism
Working every day to plan for the “what if” for 5 states

911 Response
Operates Denver’s emergency medical response system, the busiest in the state

911 Alert

Denver Cares
Provides a safe haven and detox for public inebriants
Improve access and achieve Triple Aim: better care, smarter spending, healthier people

Enhanced clinical services through redesigned health teams (~$9m)
- Clinical pharmacists
- Behavioral health consultants
- RN care coordinators
- Patient navigators
- Social workers
- Specialized high intensity teams

Enhanced health information technology (~$9m)
- Population segmentation/patient risk stratification
- 3M™ Clinical Risk Groups (CRGs)
- eTouch Services

Administration and Evaluation (~2m)
- Rapid Cycle Evaluation NOT Research

CMMI Award
- 2012
- 3 years
- $19.8 million

Data Notes: Adapted from Rachel M. Everhart, PhD, EVALUATION OF A MEDICAL HOME TRANSITIONS OF CARE INTERVENTION IN A SAFETY NET SETTING, Health Services Research PhD Program Thesis Defense. April 24, 2014
Risk Stratification Approach

• Incorporated 3M Clinical Risk Groups (CRGs), based on prior research experience: 9 strata of risk
• Every CRG assigned to 1 of 4 “Tiers” by clinicians and data analysts
• Additional criteria used to over-ride CRG-assigned tier:
  – CSHCN Registry (ICD-9 and pharmaceutical based)
  – Some mental health diagnoses
  – History of premature birth: mother targeted for intervention
  – High hospital or ED use (whether empanelled patient or not)
Patients MMs | Baseline PMPMs | Staffing Model | Enhanced Clinical & HIT Services
---|---|---|---
Tier 4 | 10,087  
Adult 73%,  
Peds 27% | $6,919  
Adults: $7,801  
Peds: $4,552 | Multidisciplinary  
High Risk  
Health Teams  
PN, RN CC,  
PharmD, BHC,  
HIT  
PN  
BHC  
HIT  
HIT  
| High Intensity  
Treatment Clinics  
| Complex Case Management  
(High Risk Care  
Coordination)  
| Chronic Disease Management  
• Panel Management  
• eTouch Programs  

Tier 3 | 31,372  
Adult 80%,  
Peds 20% | $3,035  
Adults: $3,449  
Peds: $1,410  
|  
|  

Tier 2 | 397,463  
Adult 82%,  
Peds 18% | $560  
Adults: $614  
Peds: $314  
|  
|  

Tier 1 | 640,933  
Adult 27%,  
Peds 73% | $93  
Adults: $137  
Peds: $76  |  
|  

Notes: Baseline period is July 2010 through June 2011. This initial "proof of concept" tiering algorithm was implemented by Milliman using CDP5 predictive modeling tool thresholds to define tiers. Tier sizes were pre-determined according to estimated resource capacity. The attributed managed care population was identified through membership files, whereas the fee-for-service population was selected at a single point in time at the beginning of the time period and fixed for the duration. All attributed individuals were tiered. MM: Member months, PMPMs: Per member per month, PN: Patient Navigator, RN CC: Nurse Care Coordinators, PharmD: Clinical Pharmacist, eTouch: Health Text Messages Programs. Grant tiers (Beta version).

Citation: Johnson T, Estacio R, Vlasimsky T et al., “Augmenting Predictive Modeling Tools with Clinical Insights for Care Coordination Program Design and Implementation,” eGEMS (Generating Evidence & Methods to improve patient outcomes). 2015 (In press.) Graphic developed by. Susan Moore, Kathy Thompson and Sarah Sabalot.
Goal to achieve practice transformation by integrating new staff with existing staff to provide team-based care, especially to high opportunity patients.
• Targeted to adults with multiple, potentially avoidable, inpatient admissions within a year
• Serves as the patient’s medical home and has a much smaller panel size
• More robust staffing model – dedicated social worker and navigator, more generous provider, RN, HCP and clerical ratios per patient
• A range of care coordination/care transition services are provided according to a care plan that captures the following domains: Medical, Psychiatric, Medications, Substance Use/Abuse, Social
• Also have contract with Mental Health Center of Denver
“Super-Utilizers” are Stable in Number, BUT Individual Turn-Over is High

Population And Individual-Level Analyses of Adult Super-Utilizers in Denver County, Colorado, May 1, 2011–April 30, 2013

DATA NOTES: Authors’ analysis of data from the data warehouse of Denver Health. NOTES “Not in original cohort” is people who became super-utilizers after the study period began (members of all other categories were in the original cohort). “Will die” is people from the original cohort who died during the study period; some people who died also permanently or temporarily lost super-utilizer status. “Will lose and not regain status” is people from the original cohort who stopped being super-utilizers and did not regain that status during the study period. “Will lose and regain status” is people from the original cohort who stopped being super-utilizers and did regain that status during the study period. “Continuously met criteria” is people who met the criteria for super-utilizers throughout the study period. Some people classified as “not in original cohort” also died, permanently or temporarily lost super-utilizer status, or both during the study period. However, these super-utilizer status changes were not tracked. Only status changes affecting the original cohort are shown in the exhibit.

Cost Savings Analysis: Why can’t we simply compare utilization/costs of before and after program enrollment?

This natural tendency for high-utilizing patients to become less high-utilizing over time is known as “regression to the mean”.

$114K
4.25 Admits / person

$63K
1.98 Admits / person

“INTERVENTION”
Labeled certain patients “Super-Utilizers”

Charges reduced 44% & admissions reduced 53%, but NO clinical intervention was provided!
Total Cost of Care Analysis: Sample (“Mocked-Up”) Data

$ Per Member Per Month (PMPM)

Baseline
Baseline + Trend
Actual

“Savings”

- Savings
- Inpatient
- ED
- Other
- Specialty
- Primary Care