

## Denver Health

By: Nicole Dube, Principal Analyst  
January 8, 2018 | 2018-R-0004

### Issue

Provide a brief overview of [Denver Health](#), an integrative public health care system that provides coordinated care to Denver County residents, regardless of their ability to pay.

### Summary

Denver Health is a comprehensive health system that integrates acute hospital and emergency care with public and community health to provide preventive, primary, and acute care services in the most efficient, cost-effective setting. It provides care to approximately 25% (150,000) of Denver County's residents and one out of every three children annually, regardless of their ability to pay. As the state's primary "safety net" health system, it provided approximately \$243.62 million in uncompensated care in 2016. (For more information, see Denver Health's [2016 Annual Report](#).)

Known for its integrated network of care, Denver Health includes several types of facilities and services, such as: a 525-bed acute care hospital; certified-Level 1 trauma center for adults; 17 school-based health centers; nine federally qualified health centers (FQHCs), centers for eating disorders, poison control, health systems research, and drug and alcohol detoxification; public health department; integrated call center with 24-hour nursing advice; and a facility providing care to correctional facility inmates. It also made significant investments in health information technology, investing \$175 million in 2016 to update its centralized electronic medical records system, which allows all its health care providers to access complete patient medical records in any setting.

Denver Health was historically operated by Denver’s health department, but in 1997 the legislature transferred control to the Denver Health and Hospital Authority, which the legislature established as an independent subdivision of the state. This change enabled Denver Health to use its own purchasing and personnel system and access additional funding resources. The authority is governed by an 11-member board of directors appointed by Denver’s mayor. Denver Health’s daily operations are run by an executive management team, including a chief executive officer, chief financial officer, and chief nursing officer, among others.

Denver Health is recognized as a national model of integrative health care for public health systems, due largely in part to reforms implemented by its executive leadership team in the 2000s. Faced with increasing uncompensated care costs and decreasing federal reimbursements, executives turned to the private sector for ways to streamline processes, create financial stability, and improve patient care. In 2004, Denver Health adopted “lean manufacturing,” the management philosophy Toyota used to transform its automobile company in the 1980’s. It was one of the first health systems to do so, and between 2006 and 2011, achieved approximately [\\$195 million](#) in savings without employee layoffs or a reduction in care to the uninsured.

In 2011, Denver Health was the first health care organization to receive the Shingo Bronze Medallion for Operational Excellence, an international award associated with Utah State University’s Huntsman School of Business. In 2012, the federal Centers for Medicare and Medicaid Innovation [awarded](#) Denver Health \$19.8 million to transform its primary care delivery system to provide team-based, coordinated care across health settings. Additionally, Denver Health has ranked in the top 10% of 121 academic hospitals nationwide by Vizient (formerly the [University HealthSystem Consortium](#)) for inpatient survival (i.e., lowest mortality rate) for seven consecutive years.

## Denver Health

Denver Health’s mission statement, governance structure, and system components reflect its comprehensive, integrated approach to delivering health care services.

### *Mission*

Denver Health’s [mission](#) is to:

1. provide residents access to the highest quality preventive, acute, and chronic health care, regardless of their ability to pay;
2. provide emergency medicine and trauma services to the region;
3. meet the community’s public health needs;

4. provide health education for patients;
5. participate in educating the next generation of health care professionals; and
6. engage in research that enhances its ability to meet patients' health care needs.

## ***Governance***

Historically, Denver Health was operated by the city's Department of Health and Hospitals (DHH). But in 1997, the legislature created Denver Health and Hospital Authority, an independent political subdivision of the state, and transferred all Denver Health's programs, services, and facilities from DHH to the authority (Colorado Revised Statutes § 25-29-101, et seq.). The city charter was also amended to eliminate DHH and establish the Department of Public Health and Environment ([DPHE](#)) as its successor (i.e., the city's local health department). Both Denver Health's public health department (see below) and DPHE provide public health services to residents based on an agreement between the two entities that is reviewed annually.

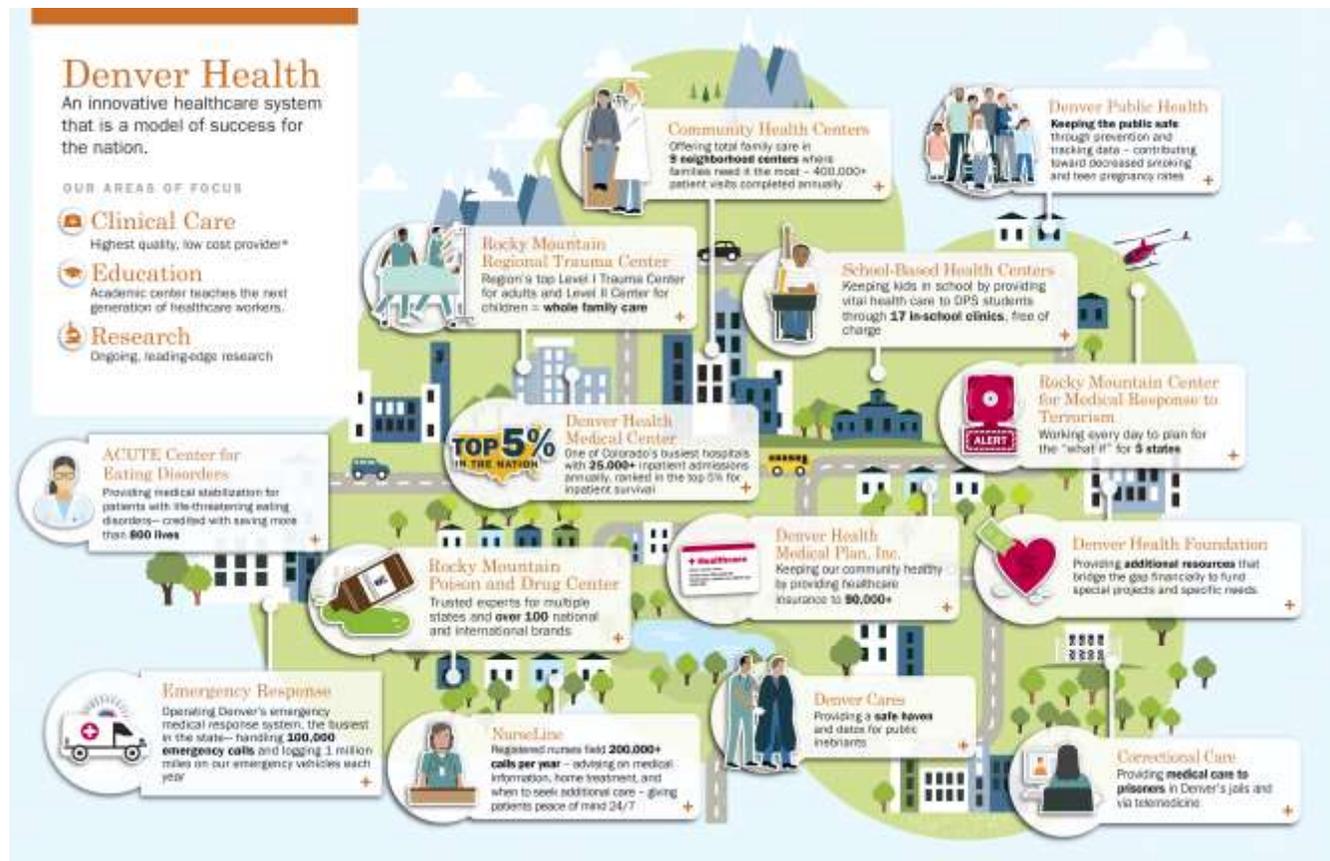
Transitioning Denver Health's governance from the city to an independent government authority was encouraged by Denver Health executives, who felt that doing so would enable the health system to better operate as a public, academic, and independent health system. (Generally, quasi-public entities have more autonomy and flexibility than city departments.) Among other things, it allowed the health system to use its own purchasing and personnel system, as opposed to going through the city, and access additional fundraising and grant resources.

The authority is governed by an 11-member board of directors appointed by Denver's mayor. Board members serve five-year terms and oversee Denver Health's administration, including financial management, education, quality assurance, personnel, and Denver Health Medical Plan, Inc. (its health insurance plan, see below). Denver Health's daily operations are run by an [executive leadership team](#), including a chief executive officer, chief nursing officer, and chief financial officer, among others.

## ***Major System Components***

Denver Health continued to strengthen and expand its system to provide patients with a continuum of care after it transitioned its governance from a city health department to an independent government authority. The system now has several components, including, among other things, a 525-bed acute care hospital with a Level 1 trauma center for adults, FQHCs located in underserved areas within the region, school-based health clinics, the 911 emergency response system, a drug and alcohol detoxification center, a call center with a poison control center and 24-hour nurse advice line, a public health department, and its own health insurance plan (see Infographic below). Following are brief descriptions of some of Denver Health's major system components.

## Infographic: Denver Health's Major Components



Source: Denver Health [website](#)

### Denver Health Medical Center

[Denver Health Medical Center](#) is the health system's acute care hospital with 525 licensed beds and approximately 26,000 admissions annually. It serves as the state's primary "safety net" hospital, providing a significant portion of its services to vulnerable populations, such as Medicaid enrollees and the under- and uninsured.

### Rocky Mountain Regional Trauma Center

Denver Health Medical Center houses the [Rocky Mountain Regional Trauma Center](#), the region's only American College of Surgeons-certified Adult Level 1 and Pediatric Level II trauma center. It treats and stabilizes approximately 3,000 of the region's most severely injured patients annually.

## ***Correctional Care Medical Facility***

The [Correctional Care Medical Facility](#) provides inpatient and outpatient medical care in a locked unit at Denver Health Medical Center to inmates from all correctional jurisdictions in the state. The center also provides on-site medical, nursing, and dental services at Denver County Jail and Denver Pre-Arrangement Detention Facility infirmaries. It also provides inmates at these facilities telemedicine consultations with board-certified physicians.

## ***Rocky Mountain Center for Medical Response to Terrorism, Mass Casualties, and Epidemics***

The [center](#) assists government agencies in coordinating a regional response to terrorist events, mass casualties, and epidemics. Among other things, it develops education for the public and health care professionals and improved public health surveillance methods.

## ***ACUTE Center for Eating Disorders***

According to Denver Health, the [center](#) is the first and only medical inpatient eating disorder treatment program in the country. It is located in a dedicated medical unit and Denver Health Medical Center where patients receive care from a team of eating disorder specialists.

## ***911 Emergency Response System***

Denver Health Operates Denver's 911 emergency response system, and its [Paramedic Division](#) is the sole provider of emergency medical services for Denver County. According to its 2016 Annual Report, Denver Health paramedics responded to more than 100,000 calls for emergency medical assistance and transported more than 70,000 patients to 12 area hospitals.

## ***Community Health Services***

Denver Health's [community health services](#) include (1) nine federally qualified health centers located throughout Denver that provide primary care and pharmacy services and (2) 17 school-based health centers that provide on-site medical care to elementary, middle, and high school students. In 2015, Denver Health's community health services managed 477,271 visits.

## ***Public Health***

[Denver Public Health](#) (DPH) is the system's health department that collaborates with Denver's [Department of Public Health and Environment](#) to provide certain public health services, including communicable disease reporting, surveillance, investigation, and control. DPH's infectious disease physicians work with hospital physicians on disease prevention and treatment throughout the hospital and family health centers. DPH also conducts infectious disease research in areas such as hepatitis surveillance, tuberculosis clinical trials, HIV/AIDS prevention, and vaccine trials.

## ***Rocky Mountain Poison and Drug Center***

The [Rocky Mountain Poison and Drug Center](#) provides a range of services, including (1) handling minor poisoning emergencies by telephone, (2) treating patients with serious chemical- or poison-related illnesses at Denver Health Medical Center, and (3) conducting research on preventing and treating toxicity injury and disease.

## ***NurseLine***

Denver Health's "[NurseLine](#)" provides free, specialized nursing advice via telephone to patients as well as medical triage services to clinics, schools, hospitals, and insurance providers, among others. It is staffed by registered nurses 24 hours per day and serves approximately 170,000 patients annually.

## ***Denver CARES***

Denver Health's Behavioral Health Services offers Comprehensive Addictions Rehabilitation and Evaluation Services ([CARES](#)) to treat non-opiate drug and alcohol substance use disorders. Denver CARES is a 100-bed, non-medical clinically managed treatment facility that provides (1) detoxification from alcohol and drugs, (2) transitional (i.e., 45 to 90 days) residential rehabilitation treatment for substance dependent individuals, and (3) emergency service patrols that pick up individuals who are publicly inebriated and transport them to the CARES facility.

## ***Denver Health Medical Plan, Inc.***

[Denver Health Medical Plan, Inc.](#) provides health insurance coverage to over 27,000 Denver area residents, including employees of the city or county, public school system, police department, and Denver Health and Hospital Authority. It also administers (1) a Medicare Advantage Plan for Denver residents, (2) a Child Health Plan Plus for children up to age 18 in four counties with household income under 260% of the federal poverty level (\$5,330 per month for a family of four in 2017), and (3) individual health insurance plans through the state's health insurance exchange, (called "[Elevate](#)"), and (4) an 87,000 member Medicaid Managed Care Organization.

## ***Center for Health Systems Research***

The [center](#) was established with a grant from the federal Agency for Healthcare Research and Quality to conduct patient-centered outcomes research in a safety-net health care system. Its research focuses on issues most relevant to safety net providers, such as causes of health disparities and identifying strategies for delivering high-quality care to populations who are unable to pay.

## **Denver Health's Integrated Care Model**

Faced with years of increasing uncompensated care costs and decreasing federal reimbursements, in 2004, Denver Health executives began exploring ways to streamline processes while improving patient care. To achieve these goals, former Denver Health CEO, Patricia Gabow, turned to the private sector for assistance and convened an advisory group with representatives from global companies, including FedEx, Microsoft, Ritz-Carlton, and Toyota.

Denver Health subsequently adopted the management philosophy of “lean manufacturing,” which Toyota used to transform its automobile company in the 1980's. It was one of the first health systems to adopt lean manufacturing principles with the goal of identifying waste and improving efficiency while improving patient services. The model is based on five principles:

1. identify the product's value from the customer's perspective,
2. identify the steps for creating the product and eliminate steps without value,
3. make the value-creating steps occur in tight sequence so the product will flow smoothly toward the customer,
4. let customers pull value from that flow, and
5. begin the process again and continue until perfection is reached where the perfect value is created with no waste (Lean Enterprise Institute [website](#)).

Companies apply these principles to identify the processes used to design, produce, and deliver goods or services to customers, and along which information, materials, and worth, flows (i.e., “value streams”). Denver Health executives initially identified five value streams for its reform efforts: access to care, inpatient care flow, outpatient care flow, operating room flow, and billing. Individual processes were then improved within each value stream. According to Gabow, anything that did not add value to the patient was considered wasteful to (1) employees, because they were asked to do work that added no value and (2) patients, because they were asked to endure a process that was of no value.

According to a 2010 *Health Affairs* [article](#), over the next few years, Denver Health trained all managers in lean manufacturing principles and gave them the directive to use these principles daily to each remove at least \$30,000 in waste annually. Additionally, over 2,000 employees initially participated in “rapid improvement events,” four-day events where employees identified strategies to reduce waste in a specified area. According to [Gabow](#), between 2006 and 2011, Denver Health achieved approximately \$195 million in savings without employee layoffs or a reduction in care to the uninsured. (Denver Health now trains other hospitals and health systems in lean manufacturing principles through its [Lean Academy](#).)

A core component of Denver Health’s lean manufacturing approach has been health information technology. In 2016, it invested approximately \$175 million to improve its centralized electronic medical records system. This system enables Denver Health providers in any setting (e.g., FQHC, hospital, or emergency department) to obtain a patient’s complete Denver Health medical record, which eliminates silos, improves patient safety, and controls health care costs.

ND:tjo