



# The Minnesota All Payer Claims Database: An Overview

Stefan Gildemeister | State Health Economist -- Senate Health & Human Services, Feb. 15, 2023

# How Are All Payer Claims Data Being Used

Health Care  
Spending

System  
Efficiency &  
Waste

Health Care  
Quality

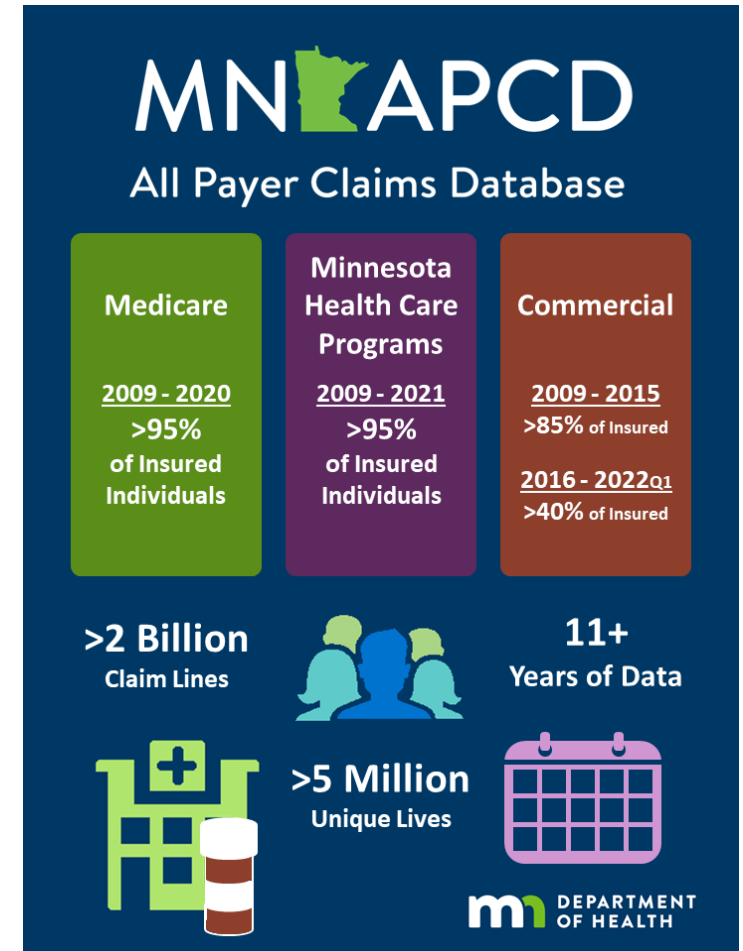
Disease  
Epidemiology

Health Care  
Market

Public  
Health

# What is the MN APCD?

- Large scale data system that collects & integrates data from the process of paying for health care
  - Enrollment
  - Medical and Rx claims
  - Actual transaction prices
- Geographically rich detail for insured Minnesotans
  - Diagnosed conditions
  - Treatment (procedures/drugs) delivered
  - Servicing provider/type



# The MN APCD Contains Only De-identified Information

## What is in the data?

- Age at service date
- Patient 5-digit ZIP code
- Gender
- Diagnosis code & service procedure
- Duration of treatment
- Cost of service, including patient share
- Information on servicing/billing provider
- Health insurance payer

## What is NOT in the data?

- Patient name
- Date of birth
- Social security number
- Patient Address
- Detail on income
- Clinical data from electronic health records

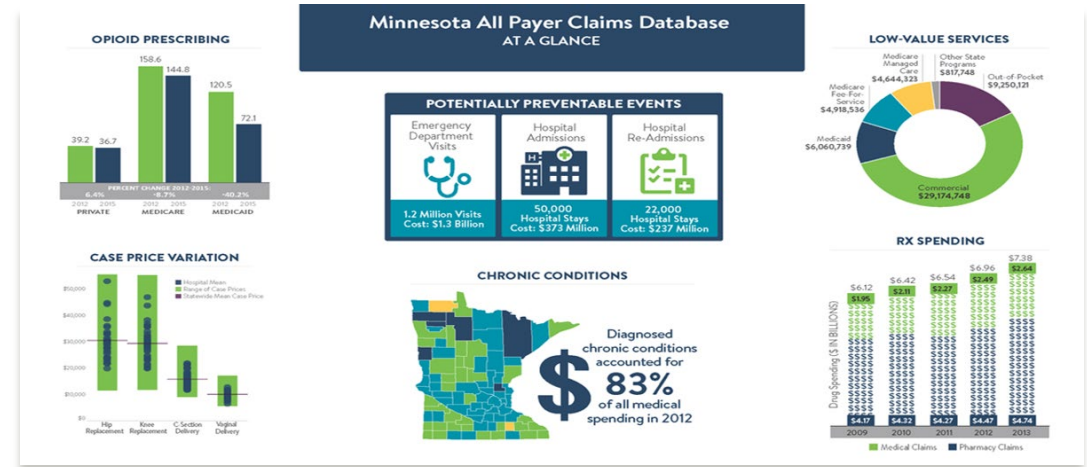
# Data Availability

- MDH use of data is focused on analyzing variations in:

- Health care costs,
- Quality, utilization, and illness burden

- Data is accessible through:

- Research findings in briefs, reports, data short takes
- Summary Public Use Files & Interactive Data Dashboards



**Member**  
How much do Minnesotans spend on health care each year?

**Diagnoses**  
What are the most commonly diagnosed conditions in Minnesota?

**Utilization**  
In what types of settings do Minnesotans receive health care?

**Services**  
What are the most frequent health care services in Minnesota?

**Provider Specialty**  
Who provides Minnesotans with health care?

**Prescription Drugs**  
How much do Minnesotans spend on prescription drugs?

# Strengths and Limitations

## Strengths

- Includes details of:
  - Gender and age
  - ZIP Code
  - Payer (Minnesota Health Care Programs, Medicare, private insurance)
  - Diagnosis codes and service procedures
  - Prices paid for health care services—including patient share
- Rich source of utilization and cost data for insured Minnesotans
- Ability to track de-identified health care users over time, across care settings, and across payers
- Health care equity analysis can rely on some geographic detail including CDC's social vulnerability index for ZIP codes & payer

## Limitations

- Limited return-on-investment because data use is restricted to MDH
- No data on race/ethnicity
- No dental claims
- No clinical data (e.g., laboratory results, etc.)
- Constraints to health care market transparency
- Does **not** include:
  - Uninsured Minnesotans
  - Tricare
  - Veteran's Affairs (VA) benefits
  - The Indian Health Service (IHS)
- Incomplete data from private insurers, including of spending outside of the claims stream

# Examples of Use Cases for the MN APCD

# Uses of the MN APCD

## Health Care Spending, Prices, and Use in Minnesota: 2016 to 2020



### Health Care Spending, Prices, and Use in Minnesota: 2016 to 2020

NOVEMBER 2022



#### Key Findings

- Health care spending by privately insured Minnesotans grew by 19.0% from 2016 to 2019 and fell 4.2% from 2019 to 2020.
- Most spending growth was due to increasingly higher prices rather than increased use of health care.
- The spending decline from 2019 to 2020 was driven by a decrease in utilization of health care coinciding with the disruption to health care delivery caused by the COVID-19 pandemic. In contrast, health care prices rose each year from 2016 to 2020.
- Payments to doctors and other providers were the largest component of health care spending.

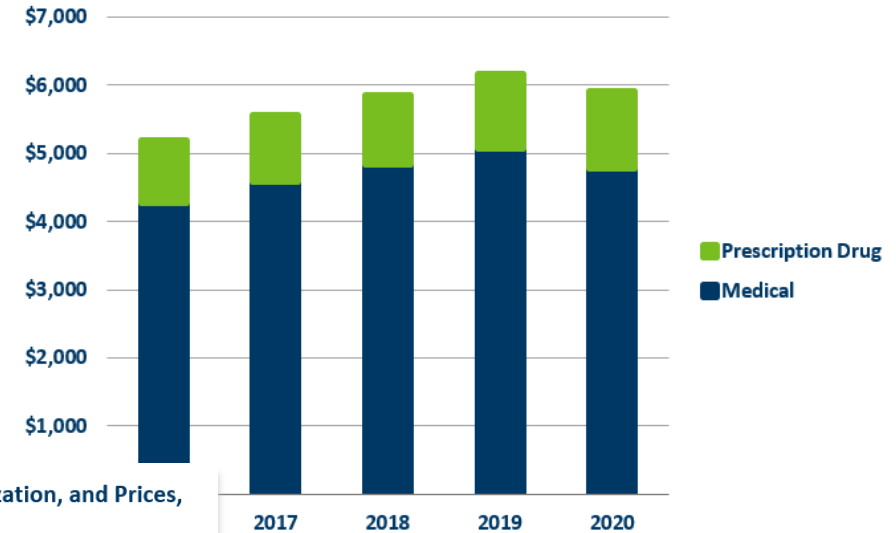
#### Background

Medical care and prescription drugs continue to be a major source of spending in the United States, with total health expenditures in 2020 reaching \$4.1 trillion nationally and \$60.1 billion in Minnesota.<sup>i</sup> Health spending is the product of two main factors, the volume of health care used (utilization) and the price of each procedure, visit, drug, or other service (price).<sup>ii</sup>

This issue brief uses data from the Minnesota All Payer Claims Database (MN APCD) to measure trends in health care spending, utilization, and prices in Minnesota from 2016 through 2020. The MN APCD is a state repository of de-identified health care enrollment and claims data administered by the Minnesota Department of Health.<sup>iii</sup> The source of these data are health care payers—primarily insurance plans and managed care organizations.

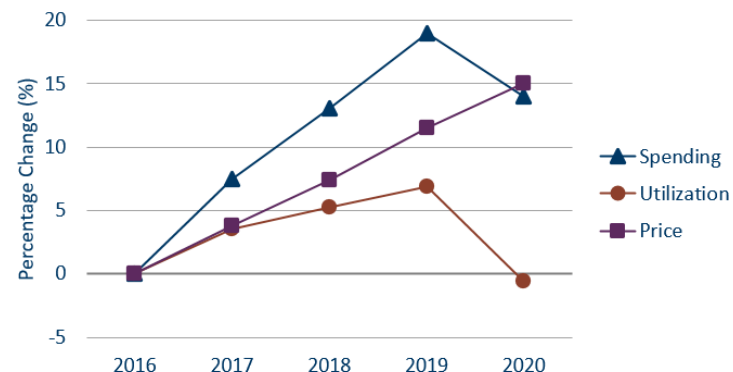
Patterns of utilization, prices, and spending for medical care and prescription drugs in MN 2017-2021 in production

Figure 2: Per-Person Spending by Category 2016 to 2020



Source: Health Economics Program analysis of 2016 to 2020 data from the Minnesota All Payer Claims Database, July 2022

Figure 1: Cumulative Growth in Health Care Spending, Utilization, and Prices, 2016 to 2020



Source: Health Economics Program analysis of 2016 to 2020 data from the Minnesota All Payer Claims Database, July 2022

Available online:  
<https://www.health.state.mn.us/data/economics/docs/hcspendingbrief.pdf>





# Uses of the MN APCD

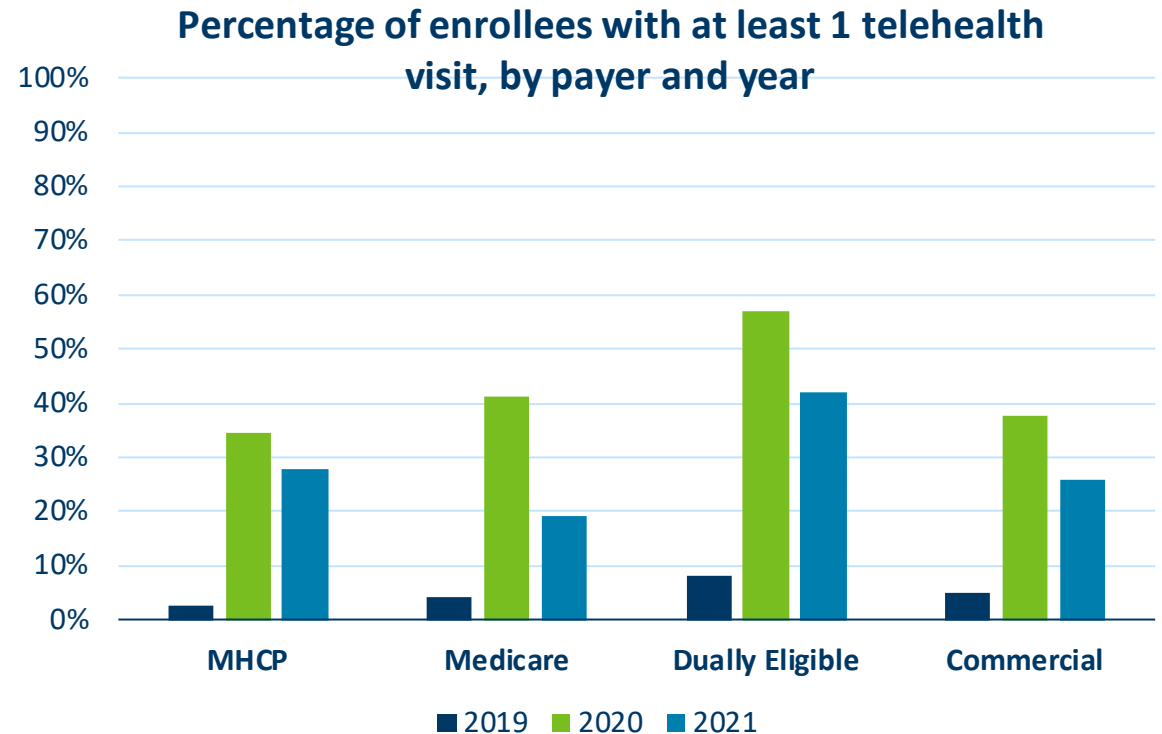
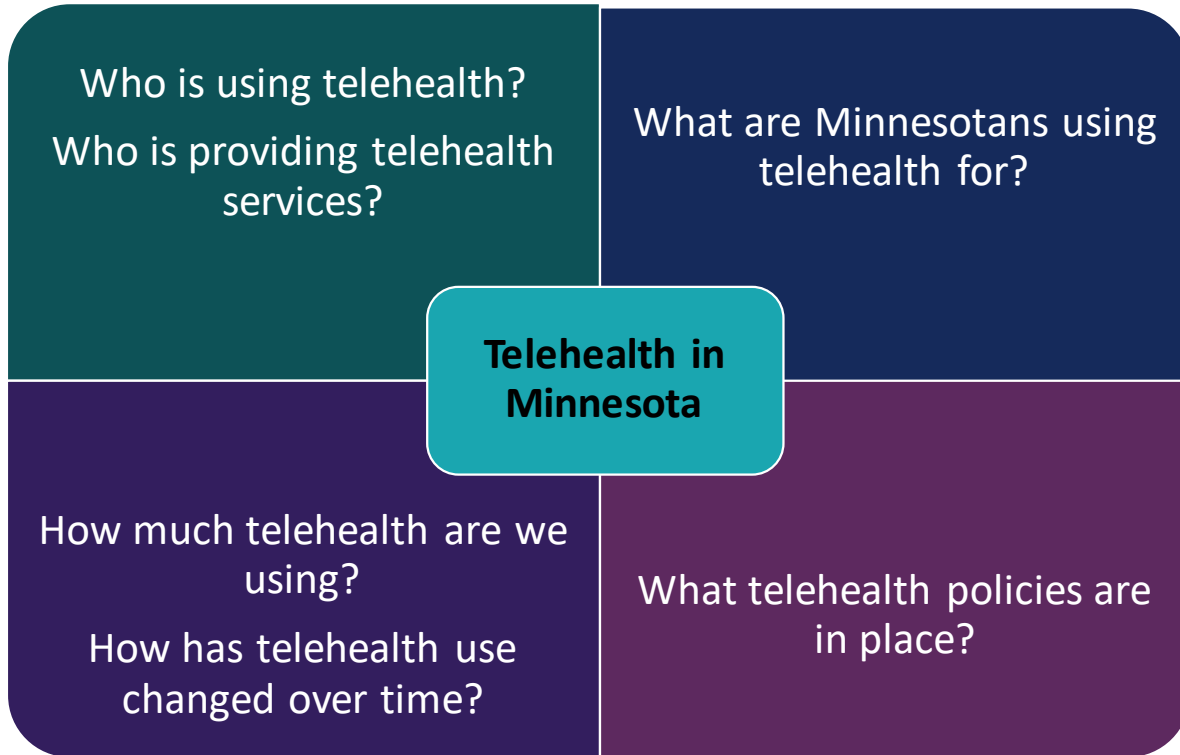
## Commercial Price Variation (July 2014 – June 2015)



- Studied commercial case price variation for eight high-volume procedures
- Focused on low and moderate severity admissions and adjusted for outliers
- Found significant variation across all three dimensions studied:
  - Statewide
  - Between hospitals
  - Within hospitals

# Uses of the MN APCD

## Telehealth in Minnesota



Yu J, Mink PJ, Huckfeld PJ, Gildemeister S and J Abraham (2018) "Population-Level Estimates Of Telemedicine Service Provision Using An All-Payer Claims Database", Health Affairs, 37(12)

# Uses of the MN APCD

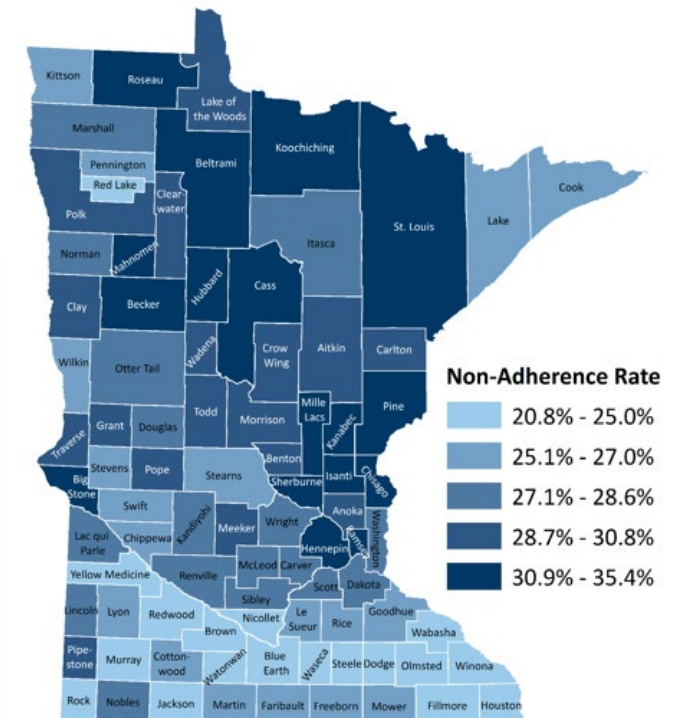
## Hypertension Prevalence (2014) and Medication Adherence (2015)

### Hypertension Data by ZIP and County:

- Number with hypertension (HTN)
- Age-adjusted HTN prevalence
- Number and percent taking high blood pressure (HBP) medications
- Number and percent non-adherent to HBP medications
- Data shown by age group and payer
- Maps and tables

County	Number of Adults with HTN	All Adults, Age-Adjusted Prevalence	Age 18-44 Prevalence	Age 45-64 Prevalence	Age 65+ Prevalence	Medicare Prevalence	Dually-Eligible Medicare & Medicaid Prevalence	Medicaid Prevalence	Commercial Insurance Prevalence
<b>MINNESOTA</b>	<b>968,626</b>	<b>25.4%</b>	<b>7.9%</b>	<b>34.3%</b>	<b>65.6%</b>	<b>63.7%</b>	<b>59.7%</b>	<b>22.0%</b>	<b>18.6%</b>
Aitkin	4,603	29.0%	10.9%	40.3%	67.1%	65.9%	62.3%	27.1%	27.1%
Anoka	61,173	27.1%	8.5%	36.4%	68.3%	66.8%	58.3%	22.2%	20.3%
Becker	7,223	27.4%	9.1%	38.9%	65.1%	63.4%	63.7%	23.6%	22.5%
Beltrami	8,457	28.8%	10.3%	39.2%	67.9%	64.3%	62.9%	22.4%	22.1%
Benton	6,569	25.8%	8.1%	34.8%	66.1%	63.3%	55.2%	21.0%	18.1%
Big Stone	1,452	30.2%	11.1%	41.4%	69.7%	68.0%	68.0%	30.0%	25.2%
Blue Earth	10,345	25.4%	7.5%	35.0%	65.9%	63.8%	53.7%	18.3%	18.3%
Brown	5,955	26.5%	7.9%	37.1%	69.1%	67.5%	64.4%	25.6%	21.7%
Carlton	7,744	29.6%	11.1%	40.6%	69.7%	67.5%	62.3%	27.4%	23.7%
Carver	13,660	22.6%	6.8%	28.1%	62.2%	61.2%	56.5%	22.2%	16.0%
Cass	7,413	27.4%	9.7%	38.1%	65.1%	63.0%	59.7%	25.0%	23.6%
Chippewa	2,712	26.0%	8.2%	36.9%	64.5%	63.5%	60.5%	22.9%	21.4%
Chisago	10,085	26.8%	9.1%	35.1%	66.7%	65.0%	57.2%	23.3%	21.2%
Clay	9,257	28.6%	10.6%	38.7%	67.4%	65.2%	60.5%	22.5%	21.0%
Clearwater	1,814	28.4%	10.6%	40.5%	65.5%	59.7%	71.0%	25.5%	23.3%
Cook	1,209	22.4%	7.1%	30.2%	58.1%	56.8%	61.2%	16.8%	21.9%
Cottonwood	2,752	27.3%	8.5%	37.5%	70.1%	68.2%	62.3%	23.0%	21.9%

Zip Code	Primary City or Town	Number of Adults with Hypertension	All Adults, Age-Adjusted Prevalence	Age 18-44 Prevalence	Age 45-64 Prevalence	Age 65+ Prevalence	Medicare Prevalence	Dually-Eligible Medicare & Medicaid Prevalence	Medicaid Prevalence	Commercial Insurance Prevalence
-	<b>MINNESOTA</b>	<b>968,626</b>	<b>25.4%</b>	<b>7.9%</b>	<b>34.3%</b>	<b>65.6%</b>	<b>63.7%</b>	<b>59.7%</b>	<b>22.0%</b>	<b>18.6%</b>
55001	Afton	541	18.5%	3.6%	25.4%	54.8%	54.3%	-	20.0%	17.5%
55003	Bayport	458	23.0%	5.9%	29.4%	73.1%	72.2%	-	18.7%	15.8%
55005	East Bethel	687	27.3%	9.2%	36.3%	67.9%	64.9%	52.5%	20.3%	20.9%
55006	Braham	789	30.5%	11.6%	43.6%	69.7%	67.3%	57.8%	23.0%	25.6%
55007	Brook Park	524	29.0%	11.4%	39.5%	67.9%	65.6%	62.7%	24.6%	26.5%
55008	Cambridge	3,307	30.5%	12.4%	40.9%	70.2%	68.9%	62.0%	26.3%	23.7%
55009	Cannon Falls	1,633	25.6%	7.3%	36.0%	64.8%	63.5%	56.0%	23.3%	21.5%
55011	East Bethel	1,719	26.0%	8.2%	34.0%	66.3%	64.1%	52.4%	19.8%	21.4%
55012	Center City	369	23.4%	6.8%	30.0%	62.3%	62.4%	-	17.3%	19.8%
55013	Chisago City	1,361	25.2%	8.3%	32.6%	67.5%	67.4%	55.2%	23.5%	19.7%
55014	Lino Lakes	4,419	26.0%	7.8%	33.8%	67.8%	66.2%	58.2%	23.3%	20.0%
55016	Cottage Grove	5,623	26.2%	8.4%	34.3%	67.6%	65.8%	53.9%	22.9%	18.8%
55017	Dalbo	142	26.2%	-	36.2%	73.7%	66.3%	-	25.7%	20.9%
55018	Dennison	188	24.9%	8.3%	31.5%	65.7%	61.0%	-	-	22.1%
55019	Dundas	323	24.3%	8.3%	31.1%	62.6%	62.5%	-	17.5%	17.8%
55020	Elko New Market	433	22.3%	5.8%	28.8%	60.2%	57.5%	71.9%	23.6%	14.5%
55021	Faribault	5,129	25.8%	8.3%	34.0%	66.9%	65.4%	52.9%	19.8%	19.7%
55024	Farmington	4,092	25.7%	8.2%	32.7%	66.7%	63.8%	59.1%	20.9%	17.0%
55025	Forest Lake	4,462	25.7%	8.1%	34.5%	65.9%	63.8%	61.6%	21.8%	20.6%
55026	Frontenac	93	19.7%	-	25.0%	60.2%	58.9%	-	-	18.3%
55027	Goodhue	423	23.3%	5.6%	31.3%	66.1%	65.5%	67.7%	22.7%	15.4%
55029	Grandy	14	16.2%	-	-	-	-	-	-	-
55030	Grasston	308	30.2%	10.0%	39.0%	80.2%	77.2%	72.5%	24.1%	24.3%



# Uses of the MN APCD

## Patterns of Opioid Prescribing in Minnesota: 2012 and 2015

### Focus

Opioid prescription patterns among Minnesotans with private or public insurance coverage

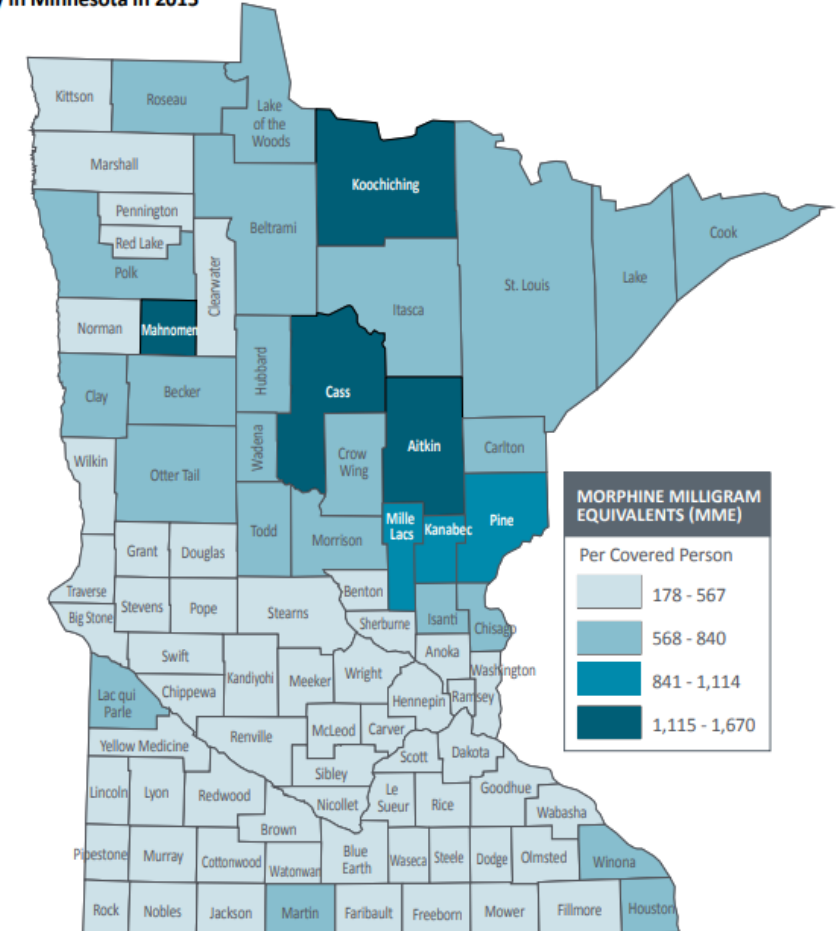
### Explores

- Opioid prescription trends by payer
- Patients' diagnoses preceding a prescription opioid fill
- Number of prescribers
- Patients' geographic location

### Data Reported By

- Duration and dose
- Age
- Insurance type
- Urban/Rural
- County

FIGURE 6: Opioid prescriptions in morphine milligram equivalents (MME) per covered person by county in Minnesota in 2015



SOURCE: Mathematica Policy Research analysis of claims and encounters data from the Minnesota All Payer Claims Database extract 20v1.

NOTE: Counties with MME per covered person at least one standard deviation (greater than 841 MME) or two standard deviations (greater than 1,115 MME) above the unweighted mean calculated among all counties in Minnesota are highlighted.

Source:

<https://www.health.state.mn.us/data/apcd/docs/opioidbrief20185.pdf>

# MN APCD Public Use Files and Dashboard



Member  
How much do Minnesotans spend on health care each year?



Diagnoses  
What are the most commonly diagnosed conditions in Minnesota?



Utilization  
In what types of settings do Minnesotans receive health care?



Services  
What are the most frequent health care services in Minnesota?



Provider Specialty  
Who provides Minnesotans with health care?



Prescription Drugs  
How much do Minnesotans spend on prescription drugs?

- MDH created MN APCD **Public Use Files (PUFs)** to make data **more accessible and easier to use**
- MDH currently offers MN APCD **PUFs in six focus areas**
- PUFs are produced **annually** and available at **no cost** through the MDH website
- Data can help you **gain a better understanding** of Minnesota's health care landscape, **support your work**, and aid **research**
- MN APCD PUF data can be accessed in an **interactive form** through a collection of **dashboards**

PUFs: <https://www.health.state.mn.us/data/apcd/publicusefiles/index.html>

Interactive Data Dashboard: <https://www.health.state.mn.us/data/apcd/publicusefiles/dashboards/index.html>

# There Are 19 Active Studies Using the MN APCD

## Legislative-Directed Activities

- Chronic conditions spending report
- Study of telehealth expansion & payment parity
- Evaluation studies on the impact of insurance mandates
- Development and dissemination of public use files and documentation

## Studies in Spending Trends & Use

- Health care spending, prices, and use in Minnesota, 2021
- Impact of COVID-19 on trends in health care & spending, 2020
- Patterns and trends in cost sharing

## Other Policy-Relevant Analyses

- Individual market premium, benefits and enrollment
- Primary care spending / investment
- Relationship of Rx price increases & health care spending

## Public Health & Disease Epi Studies

- Antibiotic use
- Medication adherence & management of cardiovascular disease risk factors
- Dementia prevalence, cost, and early detection efforts
- Cardiac rehabilitation surveillance

## Exploratory Analyses

- Smoking cessation benefit utilization
- Sickle cell disease
- Fetal alcohol spectrum disorder & neonatal abstinence syndrome
- Long COVID
- Mental health diagnoses & utilization

## Other Activities

- Ad-hoc requests for data
- Ad-hoc requests for topic review / summary
- Partnership with other APCD states to advance use and effectiveness of research



# Thank You! -- Add'l Resources

Health Economics Program homepage: MDH, [Health Economics Program](#)

MN APCD homepage: [Minnesota All Payer Claims Database \(MN APCD\)](#)

MN APCD publications: [Publications Using the MN APCD](#)

MN APCD PUFs: [Currently Available Public Use Files](#)