# Some is Better than None - Expanding Syndromic Programs in State, Territorial, and Local Public Health Agencies

## 1:15PM EST | November 17th, 2021 | 2021 SyS Symposium

Moderator: Anna Frick, MPH – State of Alaska Section of Epidemiology

Presenters:
Beda Mundo, AA Liberal Arts, BS Health Studies – Commonwealth HealthCare Corporation
Nate Wright, MPH – Minnesota Department of Health
Jacob Hojnacki, MPH – Coconino County Health and Human Services
Sam Packard, MPH – Coconino County Health and Human Services

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Council of State and Territorial Epidemiologists

Beda Mundo, AA Liberal Arts, BS Health Studies

Commonwealth HealthCare Corporation, Saipan, MP

CSTE

# Some is Better than None

## Expanding Syndromic Programs in State, Territorial, and Local Public Health Agencies

***"Use of technology innovation to expand use of data for public health action in the Commonwealth of the Northern Mariana Islands (CNMI)"***

# Background

1. Commonwealth of the Northern Mariana Islands (CNMI)
    - A chain of 14 islands
    - 3 main inhabited islands: Saipan, Tinian, and Rota
    - Population estimated at 51,659
    - Closest neighbor: Guam, 135 miles to the south-west, the southernmost island of the Marinas archipelago
    - Geographically located near Philippines (1,600 miles to the west), Japan (1,500 to the north), and Hawaii (4,000 miles to the east). U.S. mainland some 6,000 miles distant.

2. Commonwealth HealthCare Corporation (CHCC)
    - Lead public health agency and also operates the sole territorial hospital and Emergency Department (ED)
    - CHCC Epidemiology & Laboratory Capacity (ELC) team leads data modernization efforts including the use of syndromic surveillance data to drive public health action.

# Syndromes

- **Influenza-Like Illness** (ILI)
  - representing respiratory diseases such as influenza,
- **Diarrhea** (DIA)
  - representing typically gastrointestinal diseases,
- **Prolonged Fever** (PF)
  - representing diseases including severe ILI, arboviral diseases, leptospirosis, mumps
- **Acute Fever and rash** (AFR)
  - representing diseases such arboviral diseases, measles, leptospirosis

# Previous Syndromic Surveillance System

- (7) Sentinel Sites

- Paper-based Reporting System
  - Manual reports were sent by clinics and sentinel sites
  - Manual logbook in the ED for reporting needs
  - Disadvantages:
    - Time-Consuming
    - Incomplete data
    - Inaccurate data
    - Not real-time
  - Gaps: Lack of electronic data acquisition

# Expanding Syndromic Surveillance System

- (7) Sentinel Sites --> (8) Sentinel Sites

- On December 2020, ELC shifted from paper-based reporting to fully electronic data extraction using Electronic Health Record (EHR) Resource Patient Management System (RPMS) with completed process by May 2021.
  - ICD-10 diagnosis code
  - Clinical visit chief complaint
  - SAS 9.1 analysis
  - Advantages:
    - Reduced burden of manual reporting from clinics
    - More cases captured
    - Accuracy

# Expanding Syndromic Surveillance System

- Results
  - All 6 CHCC Sentinel Sites no longer manually report syndromic indicators and total encounter data
  - Standardized data entry processes
  - Sharing steps with internal population health programs
  - Increased sensitivity and robustness of our syndromic surveillance reporting
    - Immediate impact has resulted in an increase in compliance with reporting among providers.
    - Shift in provider documentation in EHR of complete chief complaint for capture of syndromic indicators

- Next Steps
  - Dashboard data visualization
  - Online data submission form for sites and automated visualization for stakeholders.
  - Additionally, CHCC will leverage this foundation to support onboarding of CDC NSSP BioSense.

Nate Wright, MPH
Minnesota Department of Health

CSTE

DEPARTMENT OF HEALTH

# Building from the ground-up:

## Rapid expansion of syndromic surveillance as part of the Minnesota Department of Health's COVID response

**Nate Wright**

Epidemiologist Supervisor
Drug Overdose Epidemiology & Syndromic Surveillance Unit
Injury and Violence Prevention Section

**Syndromic Surveillance Symposium**
**November 17, 2021**

# Presentation Outline

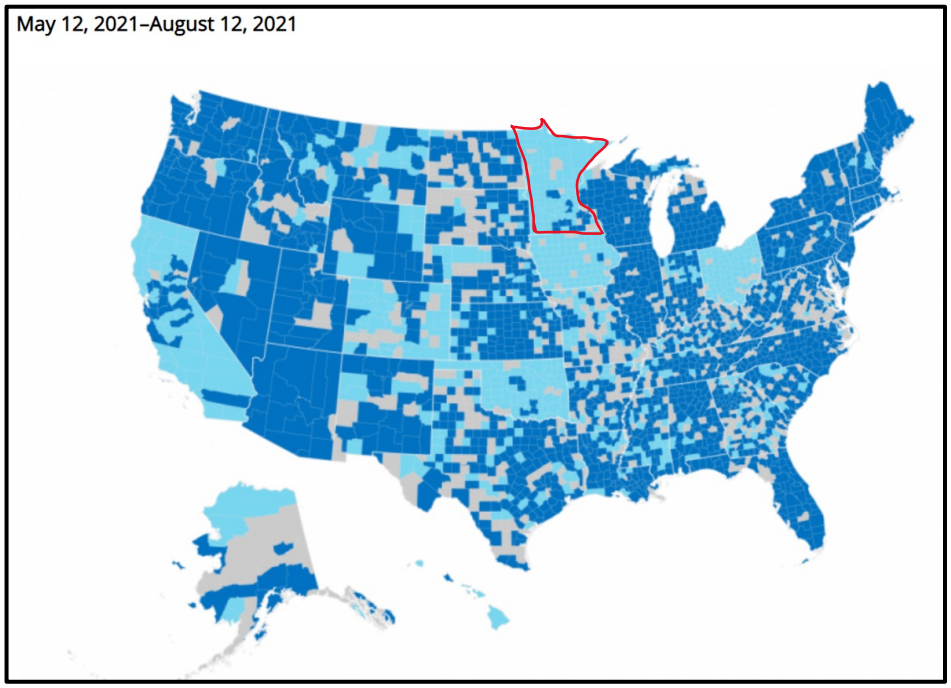
- Provide the historical context of syndromic surveillance in Minnesota
- Demonstrate how we capitalized on previous work and existing infrastructure
- Highlight the use and dissemination of syndromic surveillance data
- Show plans for development, growth, and expansion

# Key Takeaway

- Minnesota's syndromic surveillance is a tale of:
  - Partnerships
  - Preparation
  - Perseverance
- All in order to be ready to respond and capitalize on the COVID-19 pandemic.

# HISTORICAL CONTEXT

# Syndromic Surveillance in Minnesota

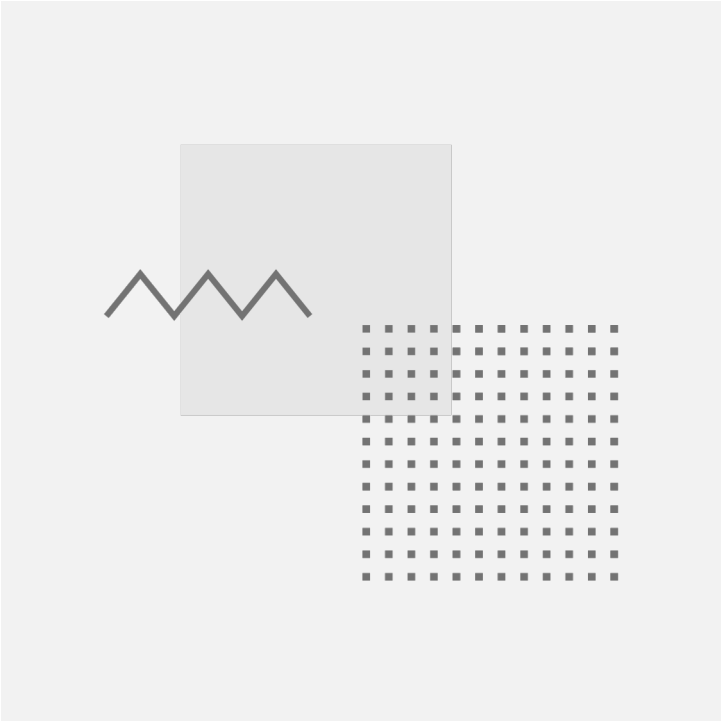



Source: https://www.cdc.gov/nssp/participation-coverage-map.html

- Minnesota is a gap in the map of syndromic surveillance coverage.
- We have lagged other jurisdictions in the implementation and use of syndromic surveillance

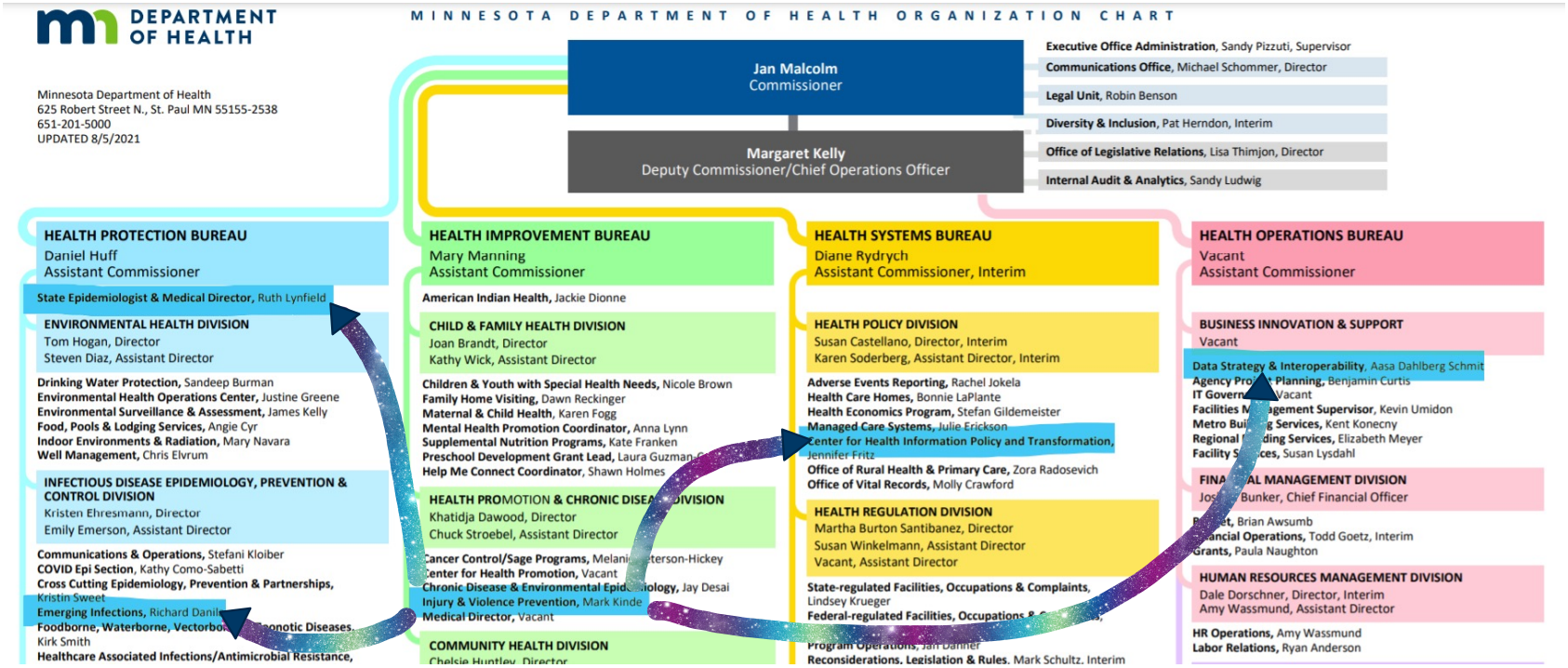
# Pre-COVID Environment

- The initial system was put in place over ten years ago
  - It continues to operate, but in only two hospitals
  - Data do not conform to current standards
- Despite efforts to improve and enhance the data, progress was slow
- Then COVID-19 emerged
  - This demonstrated the importance of a robust system
  - MDH looked to rapidly implement a SyS system to monitor timely trends in COVID-19



# EXISTING PARTNERSHIPS AND INFRASTRUCTURE

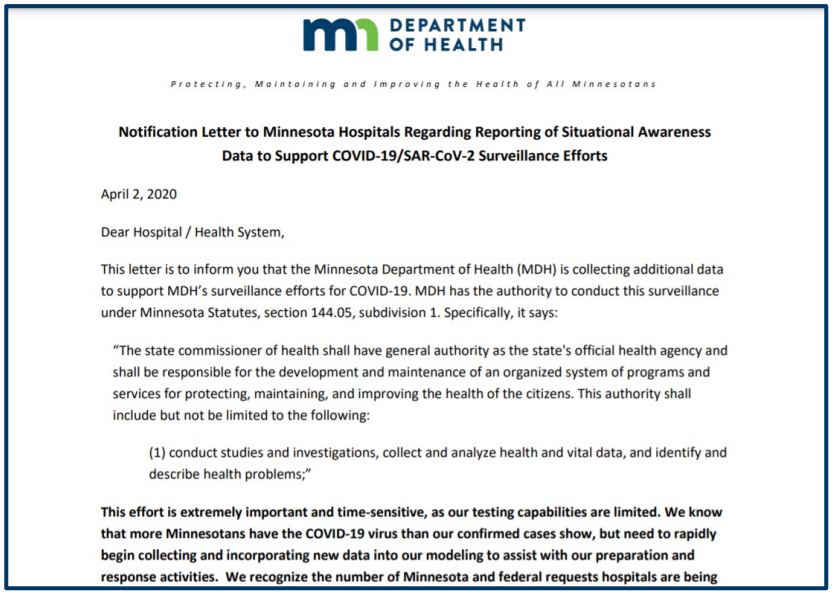
# Existing Partnerships within MDH



# Existing Data Connections with Health Systems

AUDACIOUS INQUIRY EAS Encounter Alert Service™

KOBLEMINNESOTA Connecting Healthcare



DEPARTMENT OF HEALTH

*Protecting, Maintaining and Improving the Health of All Minnesotans*

**Notification Letter to Minnesota Hospitals Regarding Reporting of Situational Awareness Data to Support COVID-19/SAR-CoV-2 Surveillance Efforts**

April 2, 2020

Dear Hospital / Health System,

This letter is to inform you that the Minnesota Department of Health (MDH) is collecting additional data to support MDH's surveillance efforts for COVID-19. MDH has the authority to conduct this surveillance under Minnesota Statutes, section 144.05, subdivision 1. Specifically, it says:

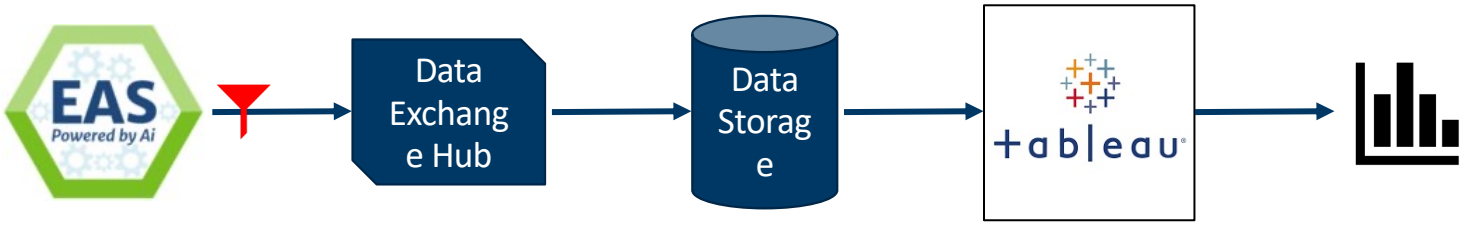
"The state commissioner of health shall have general authority as the state's official health agency and shall be responsible for the development and maintenance of an organized system of programs and services for protecting, maintaining, and improving the health of the citizens. This authority shall include but not be limited to the following:

(1) conduct studies and investigations, collect and analyze health and vital data, and identify and describe health problems;"

**This effort is extremely important and time-sensitive, as our testing capabilities are limited. We know that more Minnesotans have the COVID-19 virus than our confirmed cases show, but need to rapidly begin collecting and incorporating new data into our modeling to assist with our preparation and response activities. We recognize the number of Minnesota and federal requests hospitals are being**

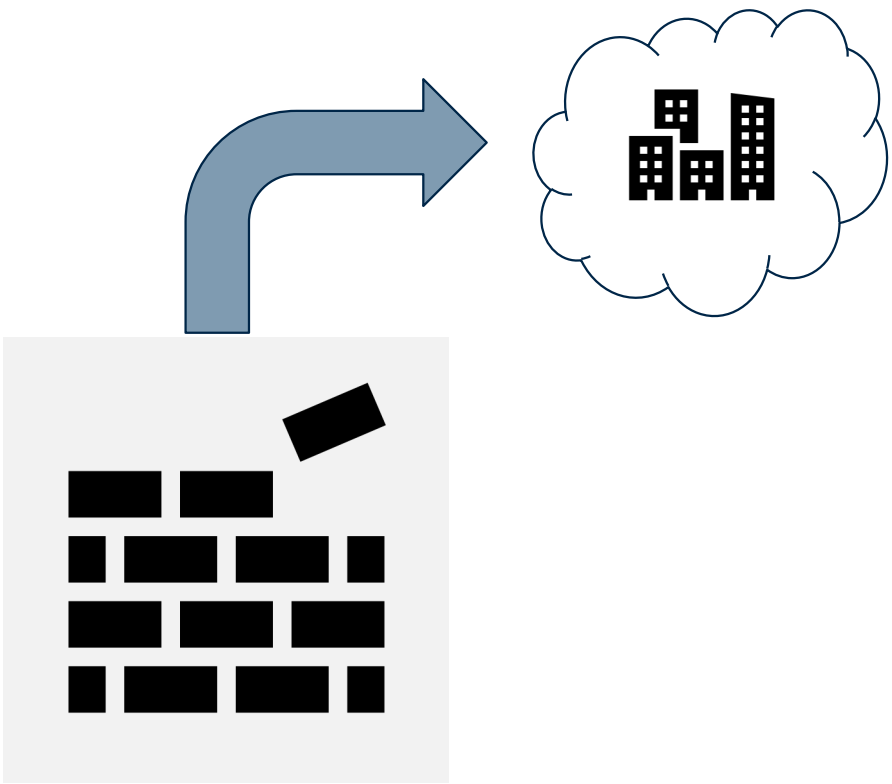
- ADT feeds were operating to support encounter alerting
  - Specific to Medicaid population through MN DHS
- With this in place, we could quickly expand
  - Beyond Medicaid
  - To all hospitals
  - And supported by Commissioner Memo

# Build Internal Systems to Receive, Store, and Analyze Syndromic Surveillance Data




- Quickly built internal MDH infrastructure to receive, process, store, and analyze data to inform trends in COVID-19
  - Data ONLY for COVID-19 and related visits
- From this data source, reports were quickly produced and shared
  - Internally (e.g., Weekly Epi Report)
  - Externally (e.g., Governor's Report, MDH Weekly Web Report).

# Recap of Current Syndromic Surveillance System



- SyS was rapidly developed that complemented COVID-19 surveillance
- Added health conditions to filter
  - Drug overdose
  - Mental Health
- Participated in mortality data pilot with CDC NSSP
- Laid foundation for continued work

# DEVELOPMENT, GROWTH, AND EXPANSION

# Pilot Health Systems Sending Data to NSSP

- Four health systems are in pilot stage of implementation
  - Various stages: Production, validation, testing
  - Various levels of experience with syndromic surveillance
- Evaluating processes for how data are shared with MDH and CDC
- Receiving feedback on work effort and data elements from pilot sites

# Where We are Headed with Syndromic Surveillance

- Declared readiness for Promoting Interoperability program
  - A remaining gap for public health reporting
  - Developing data spec and resources for onboarding
- Learning from others that have gone before
  - Benefit of one of the remaining jurisdictions without SyS
- Growing SyS user base
  - Developing dissemination strategies and sharing data
  - Providing education on this new data source

# Conclusions and Key Takeaways

- Partnerships, preparation, and perseverance
  - Internally and externally
- Silver-lining of the pandemic
  - It may have been years (YEARS) to develop syndromic surveillance system otherwise
- Paving the way for modernized public health surveillance and related program efforts
  - e.g., traumatic brain injury/spinal cord injury

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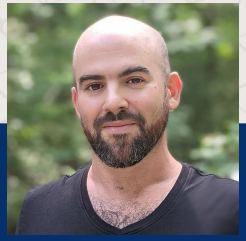
# Thank you!

**Nate Wright**

Nate.Wright@state.mn.us



Jacob Hojnacki, MPH & Sam Packard, MPH
Coconino County Health and Human Services

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COCONINO COUNTY ARIZONA
Health & Human Services

# Are Five Hospitals Better Than One? A Comparison of Single-Site Versus Regional Data to Provide Syndromic Surveillance For COVID-Like Illness In Coconino County, Arizona

Jacob Hojnacki, MPH
Sam Packard, MPH
CCHHS Epidemiology

10/28/2021

# Coconino County

- Second largest county in the US by land mass
- Population ~150,000
- Geographic and demographic diversity
- Historic and current home to tribal nations

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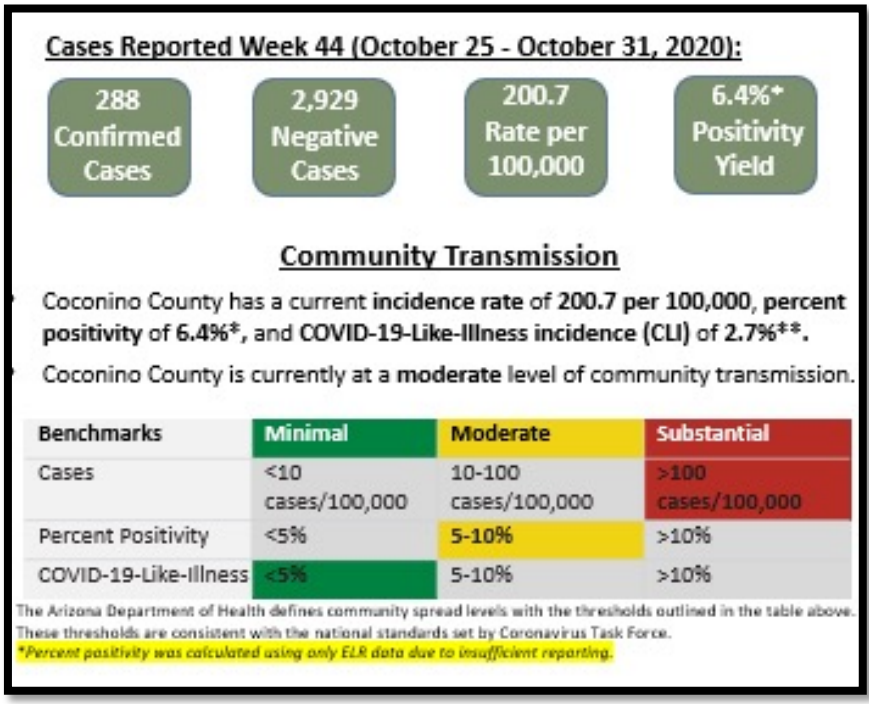
# COVID-19 Surveillance

- Weekly surveillance metrics used to categorize level of community transmission:
  - % Positive PCR tests
  - Confirmed Cases per 100,000
  - % Hospital visits with Covid-Like Illness
    - NSSP BioSense/ESSENCE



**Cases Reported Week 44 (October 25 - October 31, 2020):**

| 288 Confirmed Cases | 2,929 Negative Cases | 200.7 Rate per 100,000 | 6.4%* Positivity Yield |
|---|---|---|---|

**Community Transmission**

Coconino County has a current **incidence rate** of **200.7 per 100,000**, **percent positivity** of **6.4%***, and **COVID-19-Like-Illness incidence (CLI)** of **2.7%****.

Coconino County is currently at a **moderate** level of community transmission.

| Benchmarks | Minimal | Moderate | Substantial |
|---|---|---|---|
| Cases | <10 cases/100,000 | 10-100 cases/100,000 | >100 cases/100,000 |
| Percent Positivity | <5% | 5-10% | >10% |
| COVID-19-Like-Illness | <5% | 5-10% | >10% |

The Arizona Department of Health defines community spread levels with the thresholds outlined in the table above. These thresholds are consistent with the national standards set by Coronavirus Task Force.

**Percent positivity was calculated using only ELR data due to insufficient reporting.*

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# COVID-Like Illness Surveillance

Data for %CLI metric were obtained using NSSP ESSENCE. Two options were available to query CLI data:

1. "Single Site" Query
   Data from a single hospital serving a relatively small portion of the county

2. "Northern Arizona Region" Query
   Aggregated data from 5 hospitals, mostly in bordering counties

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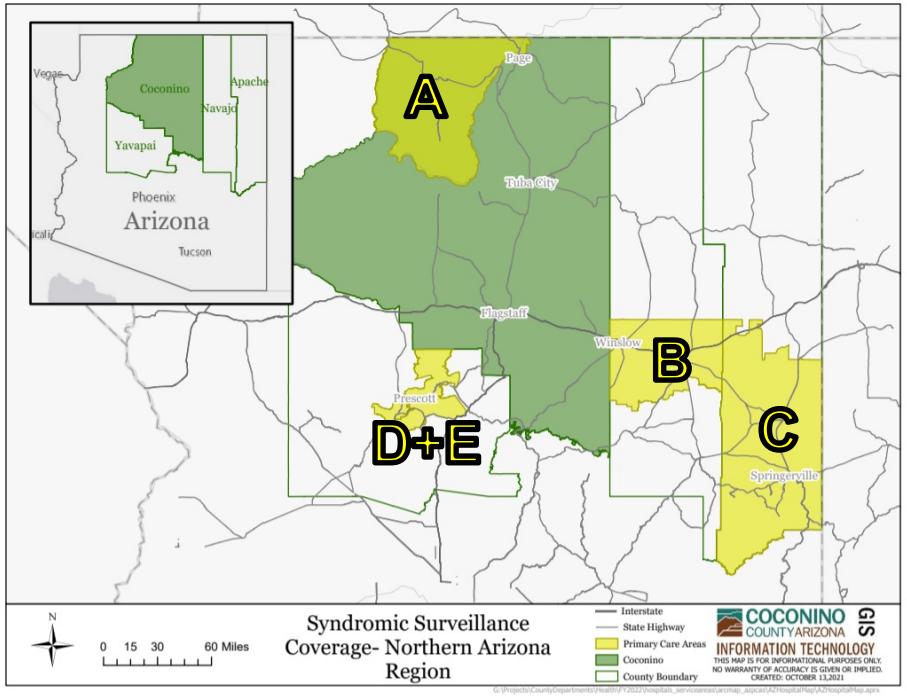
# COVID-Like Illness Surveillance

| Hospital | County | Single Site | NAR |
|---|---|---|---|
| A | Coconino | X | X |
| B | Apache | | X |
| C | Navajo | | X |
| D | Yavapai | | X |
| E | Yavapai | | X |

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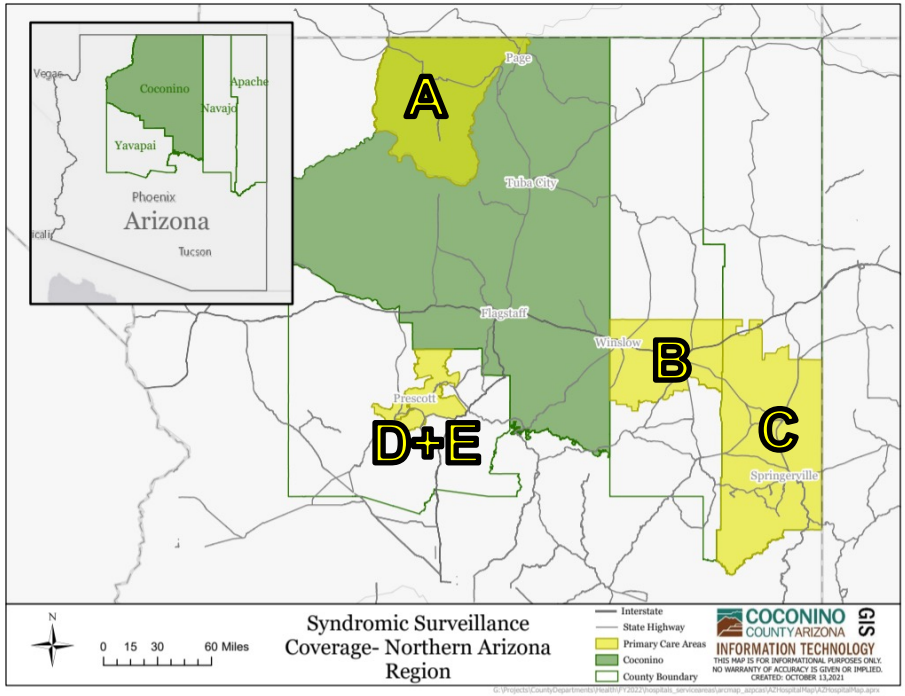
# COVID-Like Illness Surveillance

Potential Issues

- Single Site Data
  - Serves relatively small and demographically distinct part of the county population

- Northern Arizona Region Data
  - Mostly represents communities outside county boundaries

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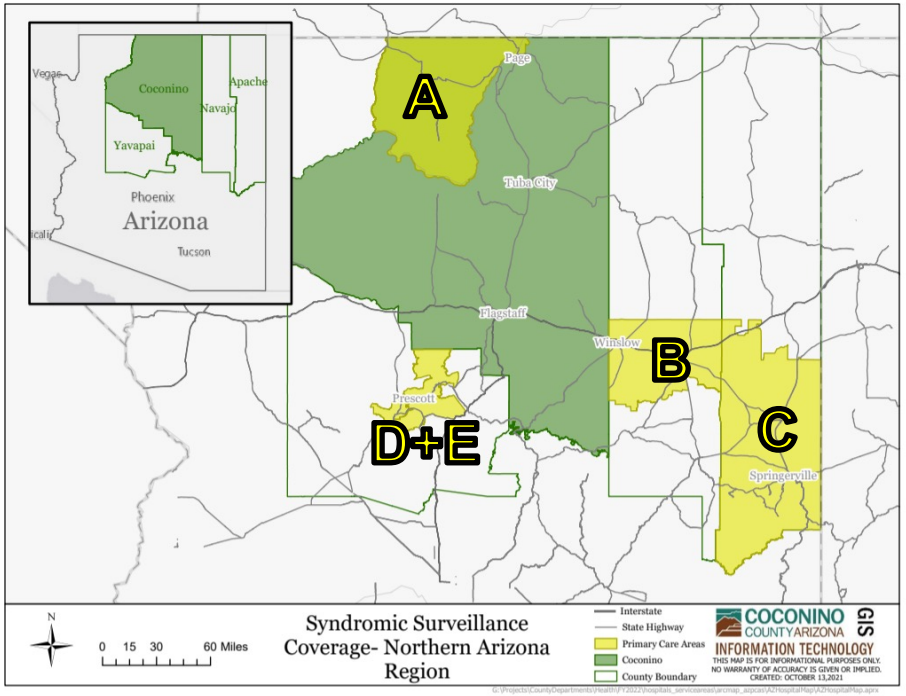
# COVID-Like Illness Surveillance

- Analytical Question:

Which data query (single-site vs Northern Arizona Region) was more representative of county-level trends of COVID-19 disease transmission and hospitalization?

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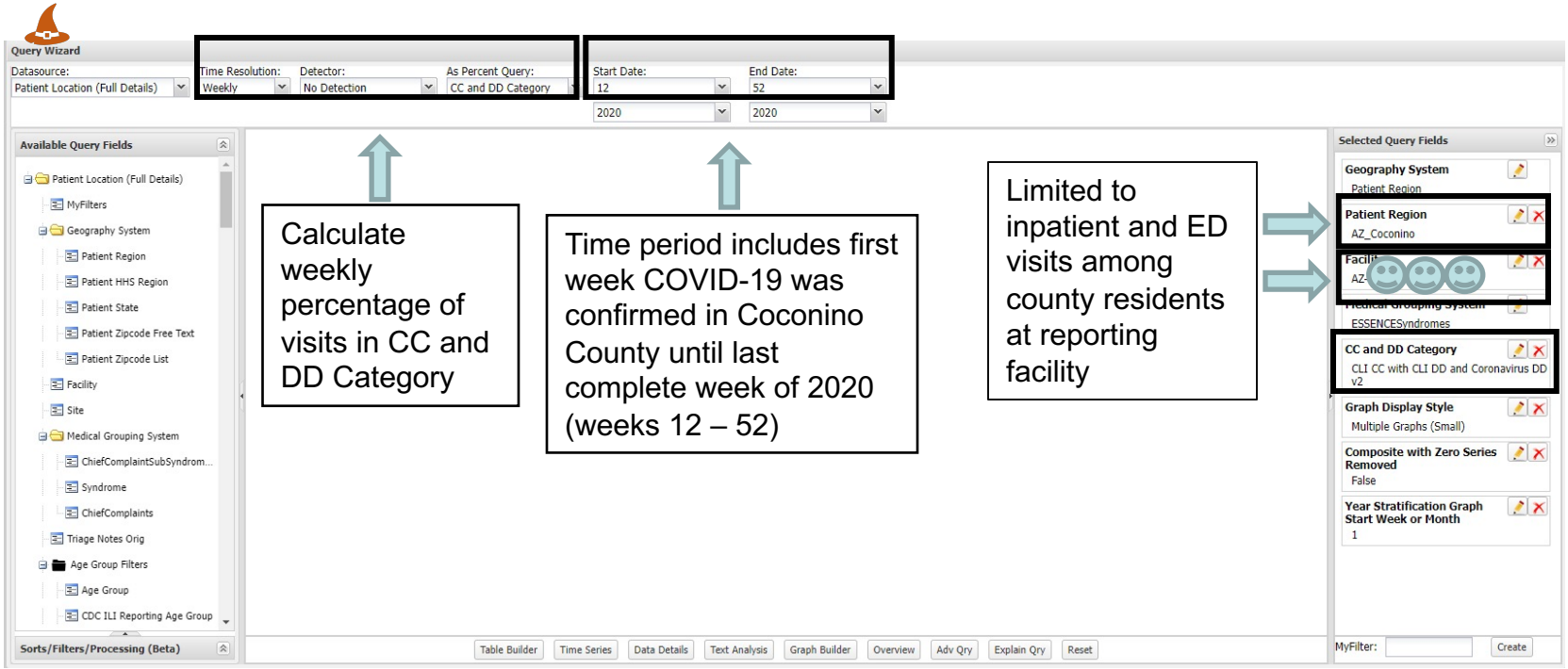
# Methods Overview

- Retrospective analysis conducted August – September 2021
  - Data from March – December, 2020
- Finalized Hospital Discharge Data (HDD) served as a representative source of COVID-19 hospitalizations in Coconino County hospitals
- Both sources of CLI data (Single Site and Northern Arizona Region) were compared to HDD to determine whether there were differences in how the data sources tracked with county-level trends of COVID-19 hospitalizations.

# Methods

- Weekly % CLI from NSSP ESSENCE
  - Single Site
  - Northern Arizona Region
  - Time period – March 15th, 2020 – December 26th, 2020
  - Chief Complaint and Discharge Diagnosis Category
    - CLI CC with CLI DD and Coronavirus DD v2
    - Captures visits with appropriate symptom, SNOMED, and ICD-10 codes
- Weekly % COVID-19 Hospitalizations – HDD
  - % of weekly hospital admissions and ED visits with a COVID-19 diagnosis
  - County residents at county facilities
  - Time period – March 15th, 2020 – December 26th, 2020
  - COVID-19 defined by ICD-10 code ‘U07.1’ as principal diagnosis or other diagnosis

# ESSENCE Query Details – Single Site % CLI

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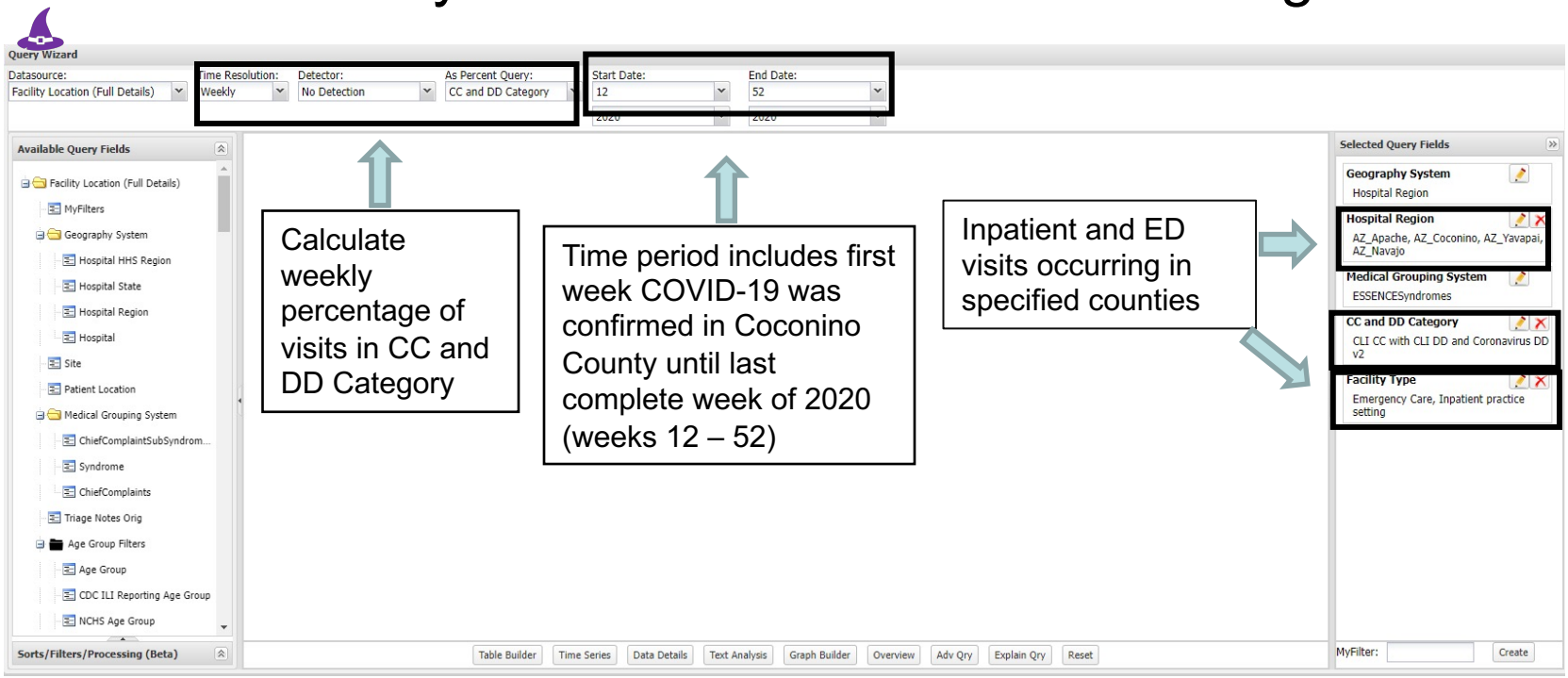
# ESSENCE Query Details – Northern Arizona Region % CLI

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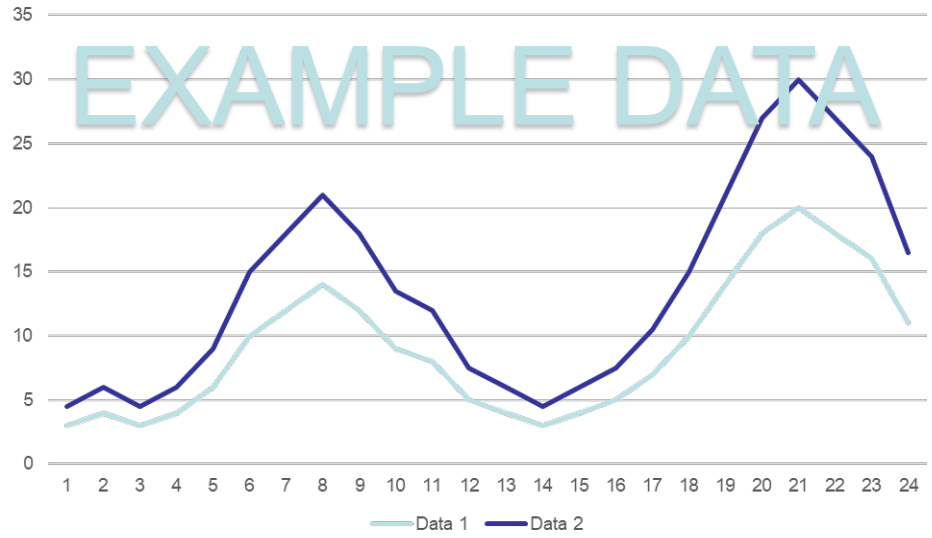
# Methods

- Pearson correlation coefficients were calculated to assess relationship between weekly % COVID-19 hospitalizations and weekly % CLI

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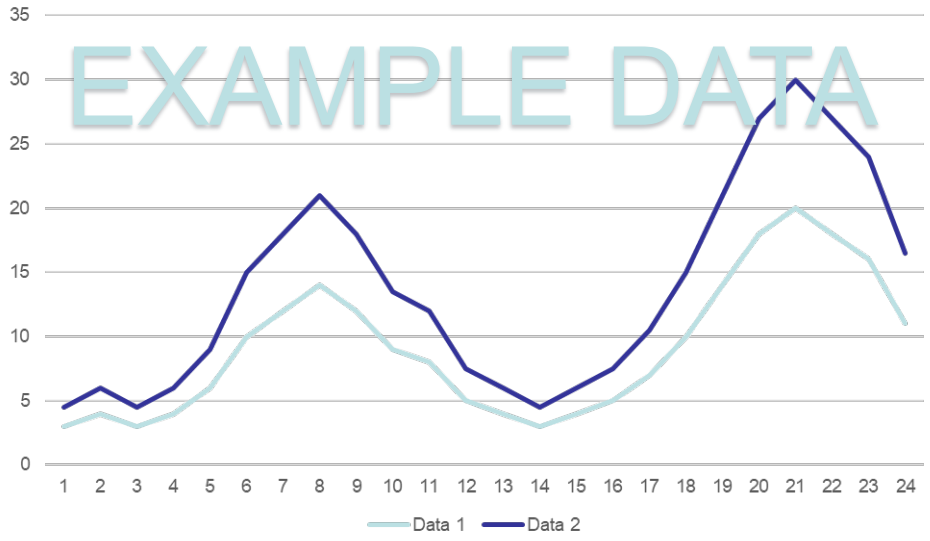
# Methods

- Correlation is helpful for SyS and HDD because we are only looking at the overall trends over time
- Not looking to assess accuracy of SyS
- Example: Simulated data

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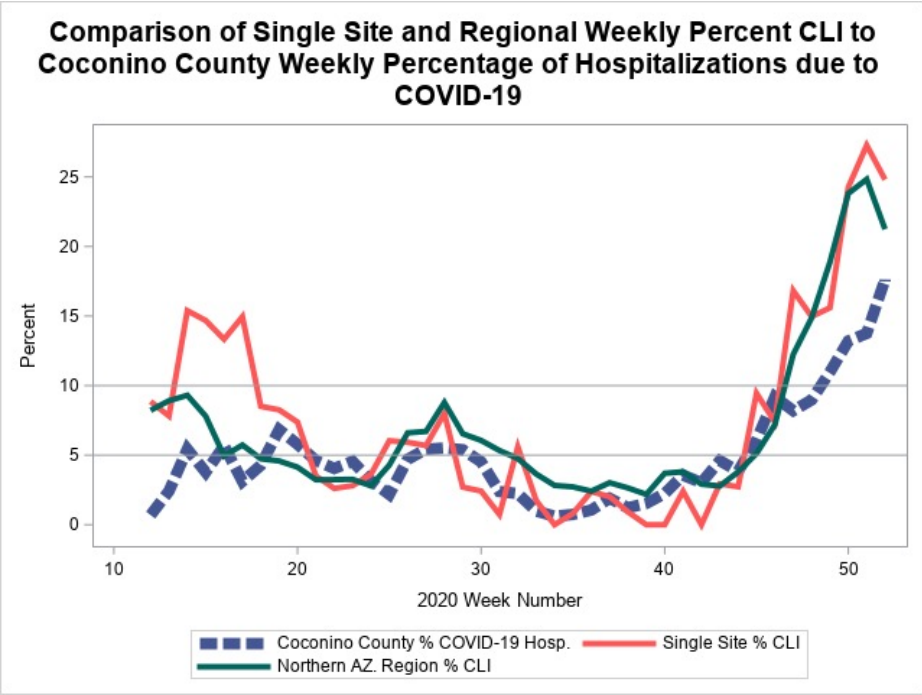
# Methods

- Analysis
  - Pearson correlation coefficients were calculated to assess relationship between weekly % COVID-19 hospitalizations (HDD) and weekly % CLI (NSSP ESSENCE)
  - Each metric was categorized based on community transmission benchmarks developed by Arizona Department of Health Services
    - Low : < 5%, Moderate: 5% - 10%, Substantial: > 10%
  - Single Site and Regional Weekly % CLI categories were compared to Coconino County's % COVID-19 hospitalizations to assess agreement

# Results




| ESSENCE Query | Correlation with HDD |
|---|---|
| Single Site | r = 0.82 |
| Northern Arizona Region | r = 0.86 |

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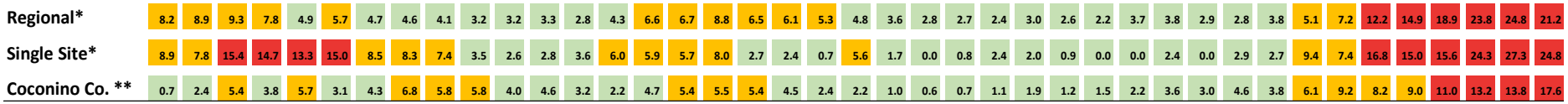
# Results

**Community Transmission Categories by Data Source - 2020 Weekly %CLI and %COVID-19 Hospitalizations**




*** Weekly % CLI from NSSP ESSENCE  ** Weekly % COVID-19 Hospitalizations from HDD**

**Community Transmission Category**

- **Low (< 5%)**
- **Moderate (5% - 10%)**
- **High (> 10%)**

**<u>Weeks 12 – 52</u>**

Single Site vs HDD: 68% (28/41 weeks)
Regional vs HDD: 71% (29/41 weeks)
Single Site vs Region: 70% (29/41 weeks)

**<u>Weeks 22 – 52</u>**

Single Site vs HDD: 81% (25/31 weeks)
Regional vs HDD: 84% (26/31 weeks)
Single Site vs Region: 84% (26/31 weeks)

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# Conclusions

1. Overall, both sources of CLI data showed similar trends, and were representative of actual % of hospitalizations with COVID-19

2. Early in the pandemic, trends in regional CLI data were more similar to actual trends in COVID-19 hospitalizations compared to those from single site
   - Stronger correlation with county COVID-19 hospitalizations
   - Better agreement when broken into transmission categories

3. For jurisdictions with limited reporting facilities, a little is enough
   - Understanding facilities' context is important
   - Single site was close to early COVID outbreak in Coconino County, using single site data only may have overrepresented transmission during this time period

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# Conclusions

4. For data sparse jurisdictions, regional metrics can be helpful and may be representative of disease transmission during infectious disease pandemics.
   - May or may not apply to county-level syndromic surveillance of other health outcomes

5. Onboarding healthcare facilities to ESSENCE provides jurisdictions with reliable and representative data for evidence-based decision making

6. This QA analysis was made possible by regional data sharing and increased staffing from supplemental COVID-19 funding

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Health & Human Services

# Discussion

National Syndromic Surveillance Program

# Community of Practice

Resources that Advance the Science and Practice of Syndromic Surveillance

## 2021

Syndromic Surveillance Symposium

Week of November 15, 2021

KAHUINA CONSULTING

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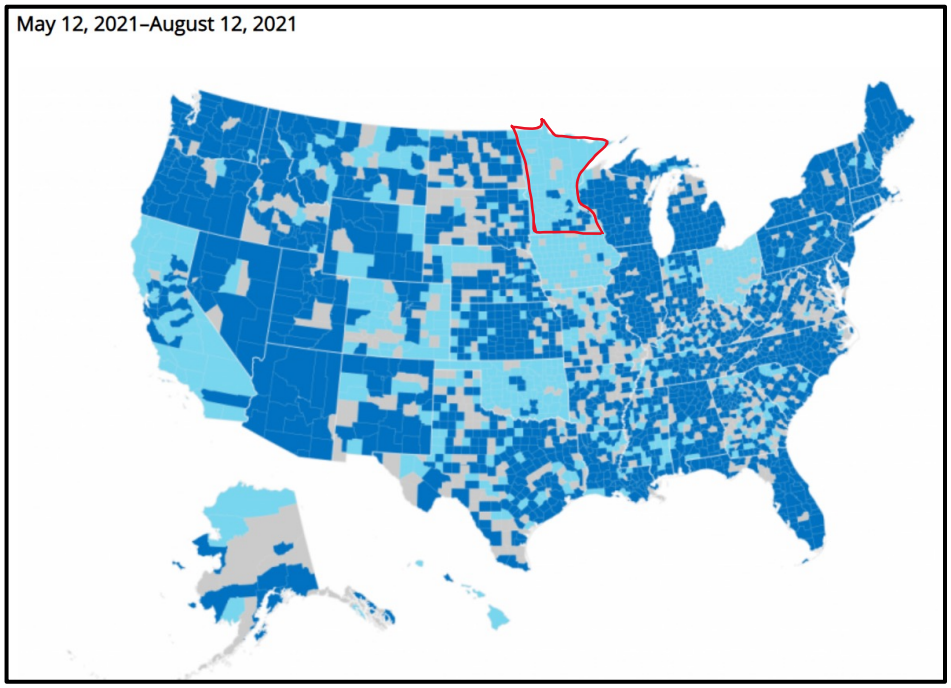


Source: https://www.cdc.gov/nssp/participation-coverage-map.html

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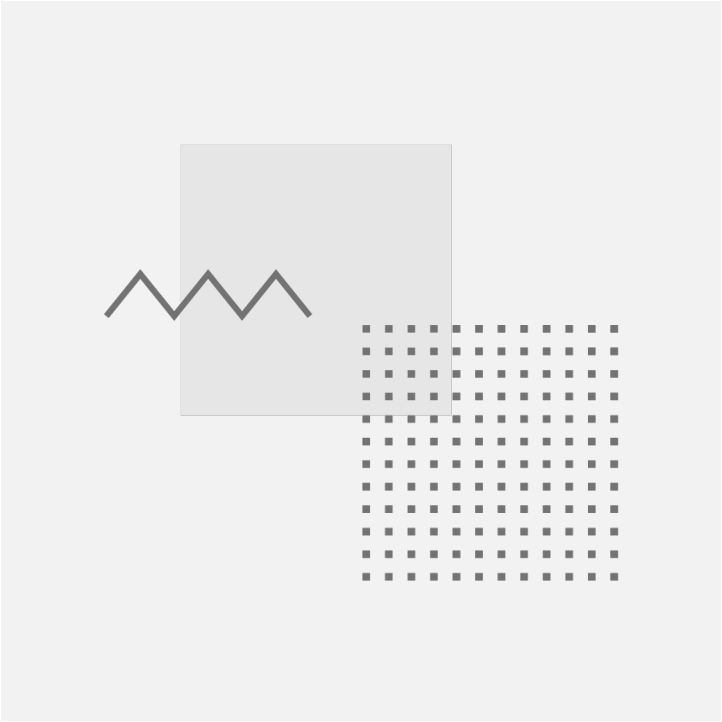
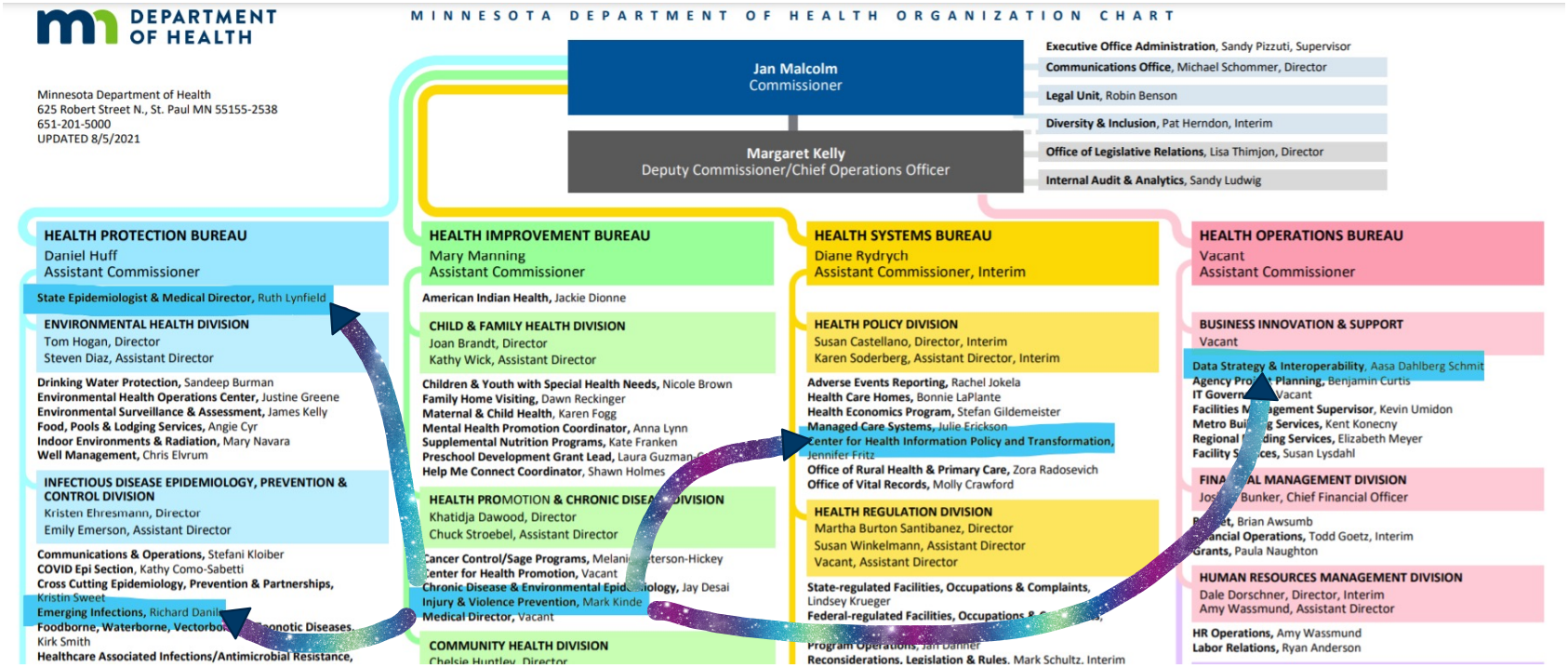


# EXISTING PARTNERSHIPS AND INFRASTRUCTURE

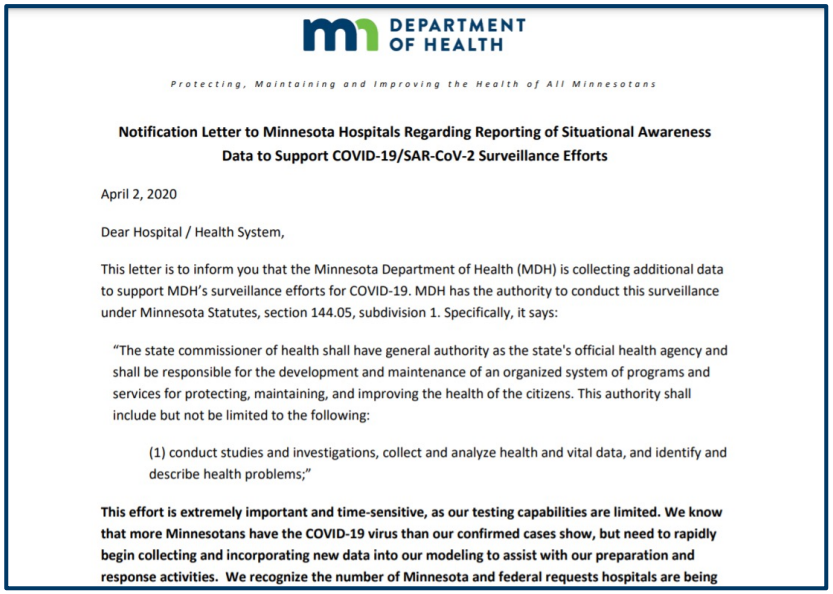
# Existing Partnerships within MDH



# Existing Data Connections with Health Systems

AUDACIOUS INQUIRY EAS Encounter Alert Service™

KOBLEMINNESOTA Connecting Healthcare



DEPARTMENT OF HEALTH

*Protecting, Maintaining and Improving the Health of All Minnesotans*

**Notification Letter to Minnesota Hospitals Regarding Reporting of Situational Awareness Data to Support COVID-19/SAR-CoV-2 Surveillance Efforts**

April 2, 2020

Dear Hospital / Health System,

This letter is to inform you that the Minnesota Department of Health (MDH) is collecting additional data to support MDH's surveillance efforts for COVID-19. MDH has the authority to conduct this surveillance under Minnesota Statutes, section 144.05, subdivision 1. Specifically, it says:

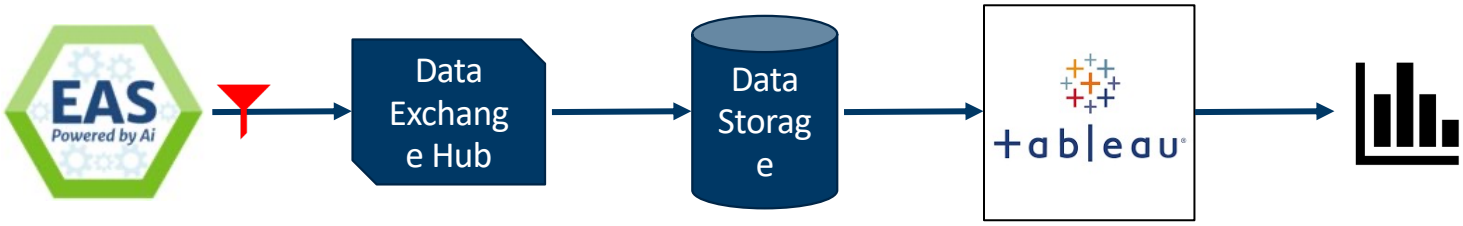
"The state commissioner of health shall have general authority as the state's official health agency and shall be responsible for the development and maintenance of an organized system of programs and services for protecting, maintaining, and improving the health of the citizens. This authority shall include but not be limited to the following:

(1) conduct studies and investigations, collect and analyze health and vital data, and identify and describe health problems;"

**This effort is extremely important and time-sensitive, as our testing capabilities are limited. We know that more Minnesotans have the COVID-19 virus than our confirmed cases show, but need to rapidly begin collecting and incorporating new data into our modeling to assist with our preparation and response activities. We recognize the number of Minnesota and federal requests hospitals are being**

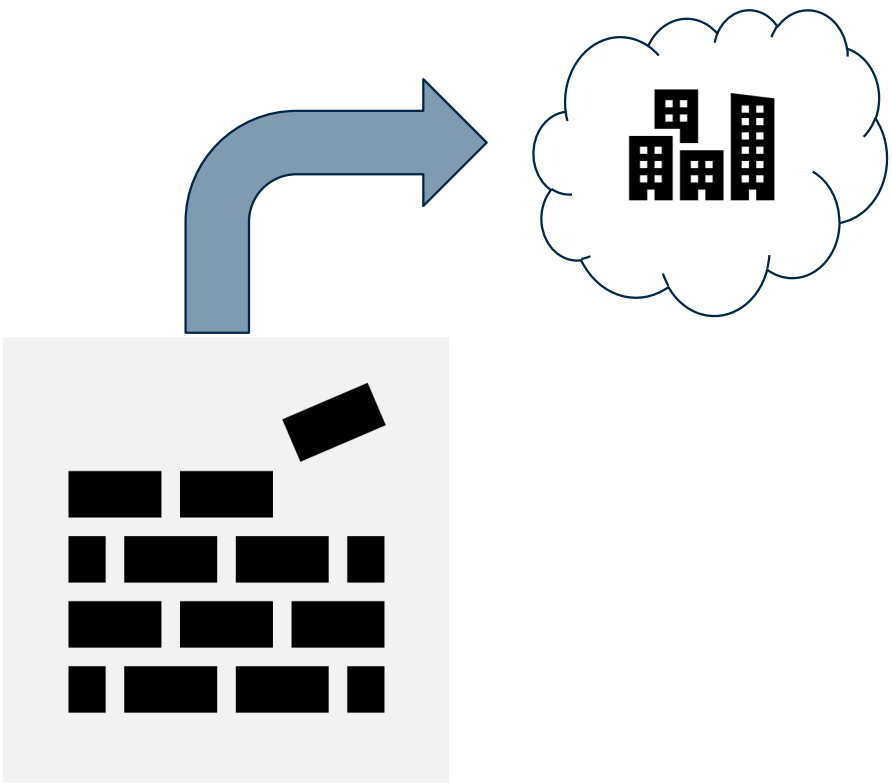
- ADT feeds were operating to support encounter alerting
  - Specific to Medicaid population through MN DHS
- With this in place, we could quickly expand
  - Beyond Medicaid
  - To all hospitals
  - And supported by Commissioner Memo

# Build Internal Systems to Receive, Store, and Analyze Syndromic Surveillance Data




- Quickly built internal MDH infrastructure to receive, process, store, and analyze data to inform trends in COVID-19
  - Data ONLY for COVID-19 and related visits
- From this data source, reports were quickly produced and shared
  - Internally (e.g., Weekly Epi Report)
  - Externally (e.g., Governor's Report, MDH Weekly Web Report).

# Recap of Current Syndromic Surveillance System



- SyS was rapidly developed that complemented COVID-19 surveillance
- Added health conditions to filter
  - Drug overdose
  - Mental Health
- Participated in mortality data pilot with CDC NSSP
- Laid foundation for continued work

# DEVELOPMENT, GROWTH, AND EXPANSION

# Pilot Health Systems Sending Data to NSSP

- Four health systems are in pilot stage of implementation
  - Various stages: Production, validation, testing
  - Various levels of experience with syndromic surveillance
- Evaluating processes for how data are shared with MDH and CDC
- Receiving feedback on work effort and data elements from pilot sites

# Where We are Headed with Syndromic Surveillance

- Declared readiness for Promoting Interoperability program
  - A remaining gap for public health reporting
  - Developing data spec and resources for onboarding
- Learning from others that have gone before
  - Benefit of one of the remaining jurisdictions without SyS
- Growing SyS user base
  - Developing dissemination strategies and sharing data
  - Providing education on this new data source

# Conclusions and Key Takeaways

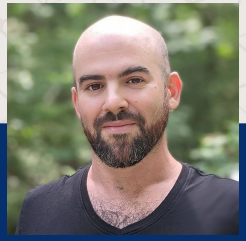
- Partnerships, preparation, and perseverance
  - Internally and externally
- Silver-lining of the pandemic
  - It may have been years (YEARS) to develop syndromic surveillance system otherwise
- Paving the way for modernized public health surveillance and related program efforts
  - e.g., traumatic brain injury/spinal cord injury

DEPARTMENT OF HEALTH

# Thank you!

**Nate Wright**

Nate.Wright@state.mn.us



Jacob Hojnacki, MPH & Sam Packard, MPH
Coconino County Health and Human Services

CSTE

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# Are Five Hospitals Better Than One? A Comparison of Single-Site Versus Regional Data to Provide Syndromic Surveillance For COVID-Like Illness In Coconino County, Arizona

Jacob Hojnacki, MPH
Sam Packard, MPH
CCHHS Epidemiology

10/28/2021

# Coconino County

- Second largest county in the US by land mass
- Population ~150,000
- Geographic and demographic diversity
- Historic and current home to tribal nations

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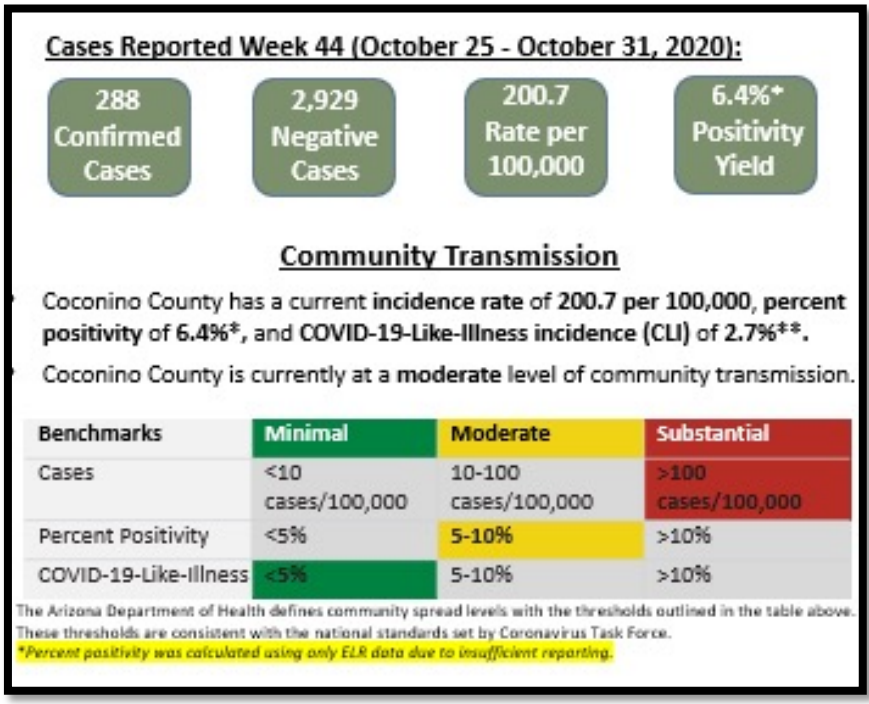
# COVID-19 Surveillance

- Weekly surveillance metrics used to categorize level of community transmission:
  - % Positive PCR tests
  - Confirmed Cases per 100,000
  - % Hospital visits with Covid-Like Illness
    - NSSP BioSense/ESSENCE



**Cases Reported Week 44 (October 25 - October 31, 2020):**

| 288 Confirmed Cases | 2,929 Negative Cases | 200.7 Rate per 100,000 | 6.4%* Positivity Yield |
|---|---|---|---|

**Community Transmission**

Coconino County has a current **incidence rate** of **200.7 per 100,000**, **percent positivity** of **6.4%***, and **COVID-19-Like-Illness incidence (CLI)** of **2.7%****.

Coconino County is currently at a **moderate** level of community transmission.

| Benchmarks | Minimal | Moderate | Substantial |
|---|---|---|---|
| Cases | <10 cases/100,000 | 10-100 cases/100,000 | >100 cases/100,000 |
| Percent Positivity | <5% | 5-10% | >10% |
| COVID-19-Like-Illness | <5% | 5-10% | >10% |

The Arizona Department of Health defines community spread levels with the thresholds outlined in the table above. These thresholds are consistent with the national standards set by Coronavirus Task Force.

**Percent positivity was calculated using only ELR data due to insufficient reporting.*

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# COVID-Like Illness Surveillance

Data for %CLI metric were obtained using NSSP ESSENCE. Two options were available to query CLI data:

1. "Single Site" Query
   Data from a single hospital serving a relatively small portion of the county

2. "Northern Arizona Region" Query
   Aggregated data from 5 hospitals, mostly in bordering counties

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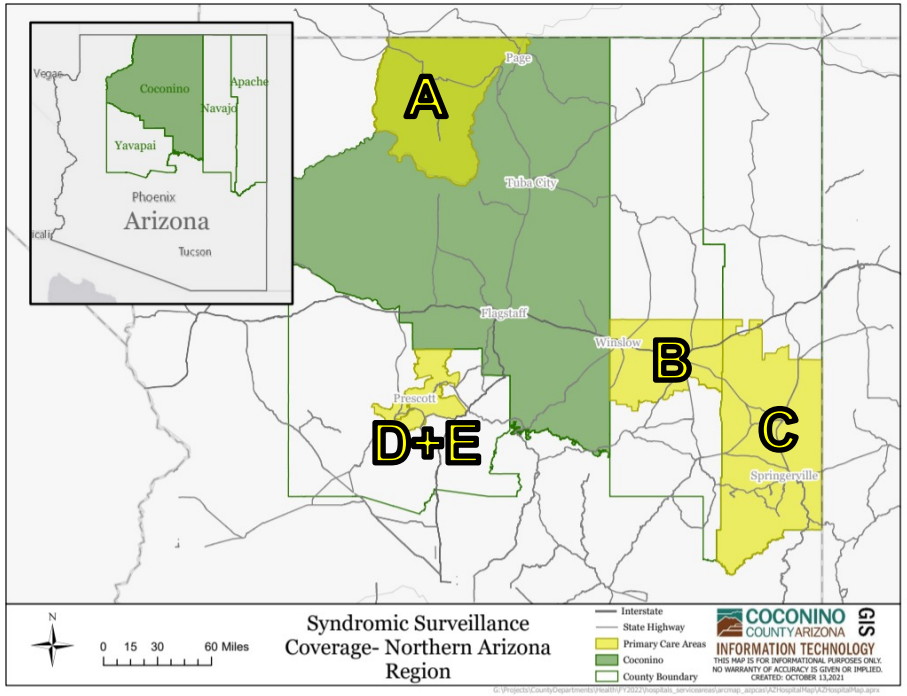
# COVID-Like Illness Surveillance

| Hospital | County | Single Site | NAR |
|---|---|---|---|
| A | Coconino | X | X |
| B | Apache | | X |
| C | Navajo | | X |
| D | Yavapai | | X |
| E | Yavapai | | X |

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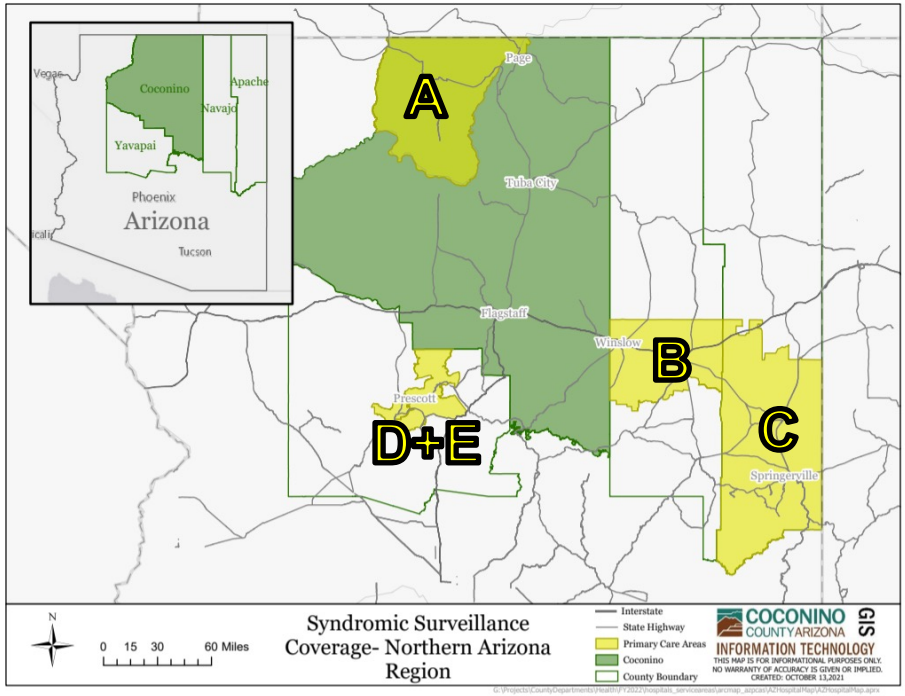
# COVID-Like Illness Surveillance

Potential Issues

- Single Site Data
  - Serves relatively small and demographically distinct part of the county population

- Northern Arizona Region Data
  - Mostly represents communities outside county boundaries

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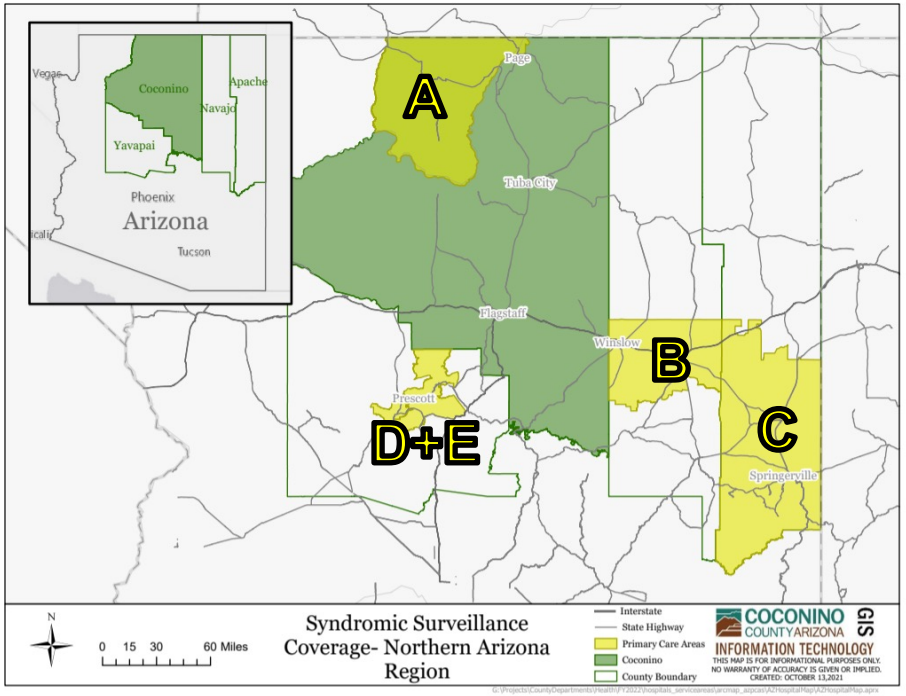
# COVID-Like Illness Surveillance

- Analytical Question:

Which data query (single-site vs Northern Arizona Region) was more representative of county-level trends of COVID-19 disease transmission and hospitalization?

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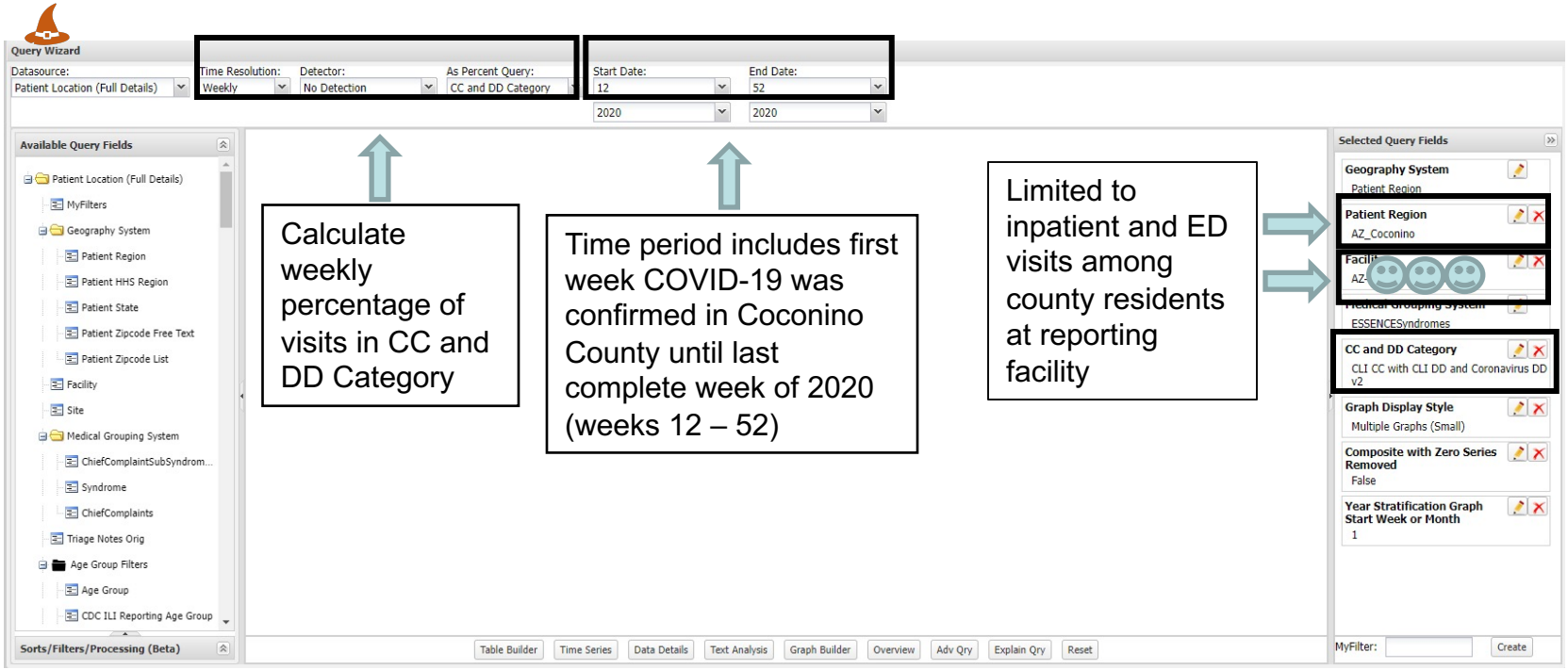
# Methods Overview

- Retrospective analysis conducted August – September 2021
  - Data from March – December, 2020
- Finalized Hospital Discharge Data (HDD) served as a representative source of COVID-19 hospitalizations in Coconino County hospitals
- Both sources of CLI data (Single Site and Northern Arizona Region) were compared to HDD to determine whether there were differences in how the data sources tracked with county-level trends of COVID-19 hospitalizations.

# Methods

- Weekly % CLI from NSSP ESSENCE
  - Single Site
  - Northern Arizona Region
  - Time period – March 15th, 2020 – December 26th, 2020
  - Chief Complaint and Discharge Diagnosis Category
    - CLI CC with CLI DD and Coronavirus DD v2
    - Captures visits with appropriate symptom, SNOMED, and ICD-10 codes
- Weekly % COVID-19 Hospitalizations – HDD
  - % of weekly hospital admissions and ED visits with a COVID-19 diagnosis
  - County residents at county facilities
  - Time period – March 15th, 2020 – December 26th, 2020
  - COVID-19 defined by ICD-10 code ‘U07.1’ as principal diagnosis or other diagnosis

# ESSENCE Query Details – Single Site % CLI

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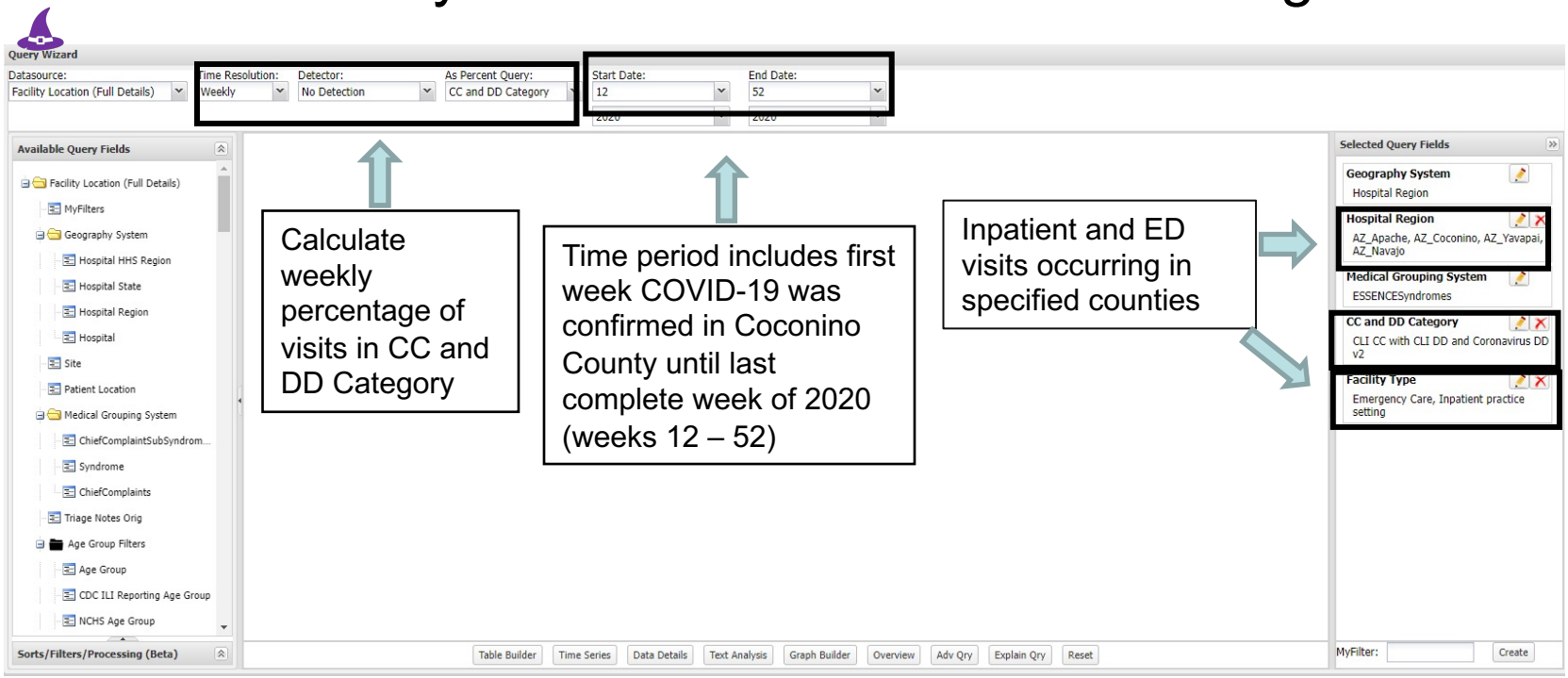
# ESSENCE Query Details – Northern Arizona Region % CLI

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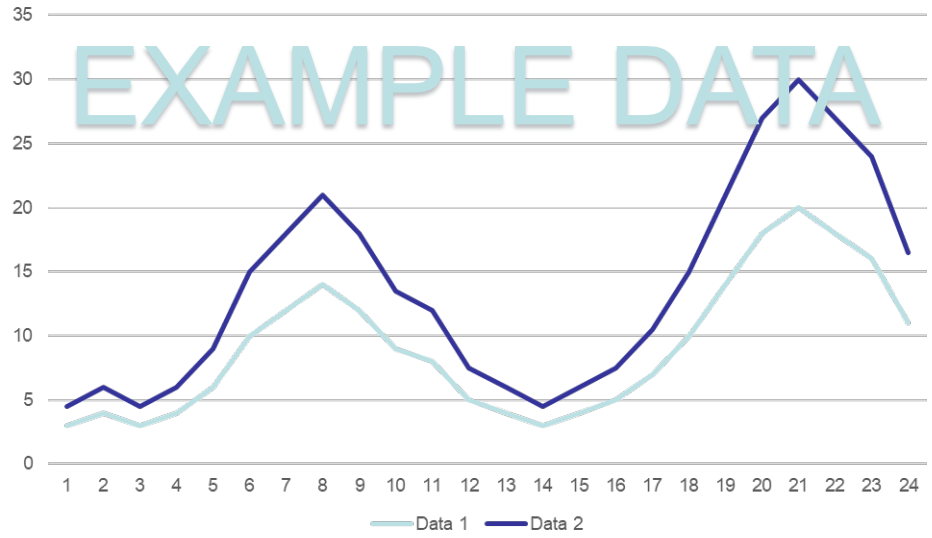
# Methods

- Pearson correlation coefficients were calculated to assess relationship between weekly % COVID-19 hospitalizations and weekly % CLI

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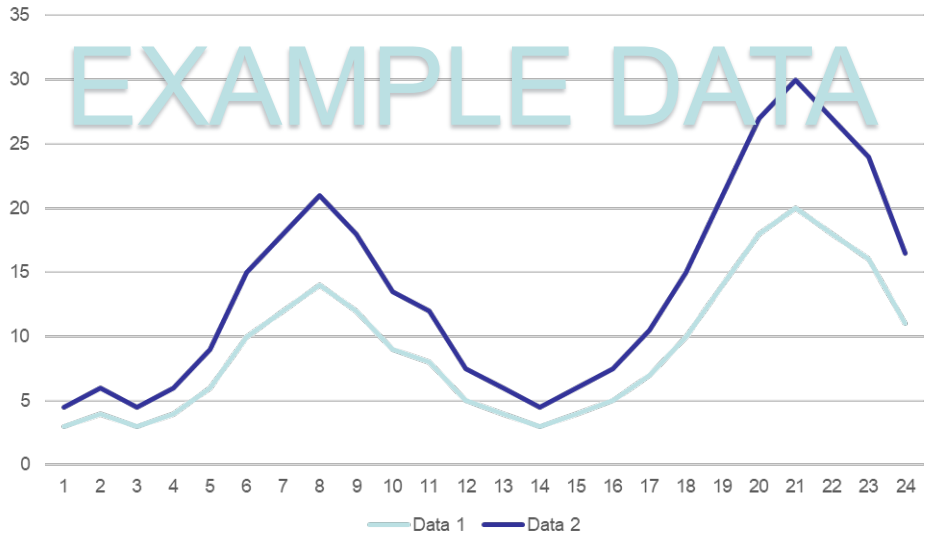
# Methods

- Correlation is helpful for SyS and HDD because we are only looking at the overall trends over time
- Not looking to assess accuracy of SyS
- Example: Simulated data

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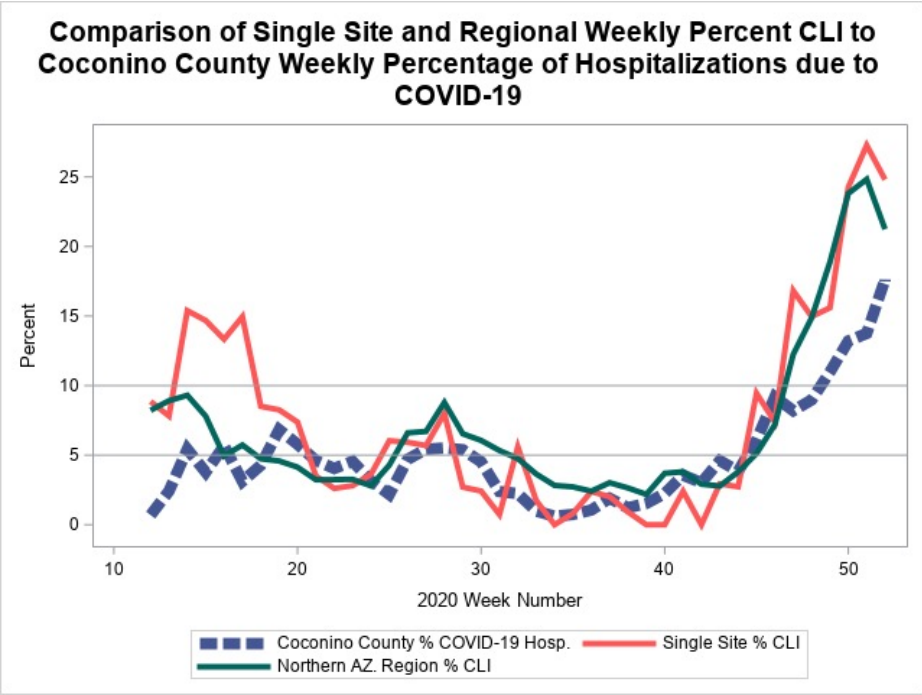
# Methods

- Analysis
  - Pearson correlation coefficients were calculated to assess relationship between weekly % COVID-19 hospitalizations (HDD) and weekly % CLI (NSSP ESSENCE)
  - Each metric was categorized based on community transmission benchmarks developed by Arizona Department of Health Services
    - Low : < 5%, Moderate: 5% - 10%, Substantial: > 10%
  - Single Site and Regional Weekly % CLI categories were compared to Coconino County's % COVID-19 hospitalizations to assess agreement

# Results




| ESSENCE Query | Correlation with HDD |
|---|---|
| Single Site | r = 0.82 |
| Northern Arizona Region | r = 0.86 |

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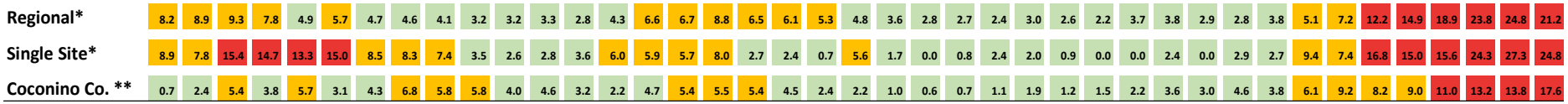
# Results

**Community Transmission Categories by Data Source - 2020 Weekly %CLI and %COVID-19 Hospitalizations**




*** Weekly % CLI from NSSP ESSENCE  ** Weekly % COVID-19 Hospitalizations from HDD**

**Community Transmission Category**

- **Low (< 5%)**
- **Moderate (5% - 10%)**
- **High (> 10%)**

**<u>Weeks 12 – 52</u>**

Single Site vs HDD: 68% (28/41 weeks)
Regional vs HDD: 71% (29/41 weeks)
Single Site vs Region: 70% (29/41 weeks)

**<u>Weeks 22 – 52</u>**

Single Site vs HDD: 81% (25/31 weeks)
Regional vs HDD: 84% (26/31 weeks)
Single Site vs Region: 84% (26/31 weeks)

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# Conclusions

1. Overall, both sources of CLI data showed similar trends, and were representative of actual % of hospitalizations with COVID-19

2. Early in the pandemic, trends in regional CLI data were more similar to actual trends in COVID-19 hospitalizations compared to those from single site
   - Stronger correlation with county COVID-19 hospitalizations
   - Better agreement when broken into transmission categories

3. For jurisdictions with limited reporting facilities, a little is enough
   - Understanding facilities' context is important
   - Single site was close to early COVID outbreak in Coconino County, using single site data only may have overrepresented transmission during this time period

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# Conclusions

4. For data sparse jurisdictions, regional metrics can be helpful and may be representative of disease transmission during infectious disease pandemics.
   - May or may not apply to county-level syndromic surveillance of other health outcomes

5. Onboarding healthcare facilities to ESSENCE provides jurisdictions with reliable and representative data for evidence-based decision making

6. This QA analysis was made possible by regional data sharing and increased staffing from supplemental COVID-19 funding

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# Discussion

National Syndromic Surveillance Program

# Community of Practice

Resources that Advance the Science and Practice of Syndromic Surveillance

## 2021

Syndromic Surveillance Symposium

Week of November 15, 2021

KAHUINA CONSULTING