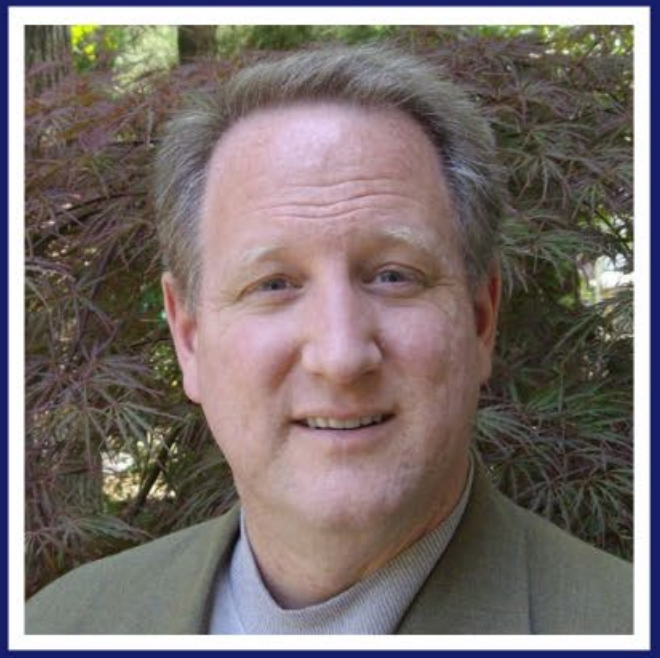
EXECUTIVES FOR HEALTH INNOVATION

What the Pandemic Exposed and Taught Us About Our Public Health System

@eHealthDC



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Allscripts

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Richard Hornaday
Director Solutions Engagement
February 23, 2022

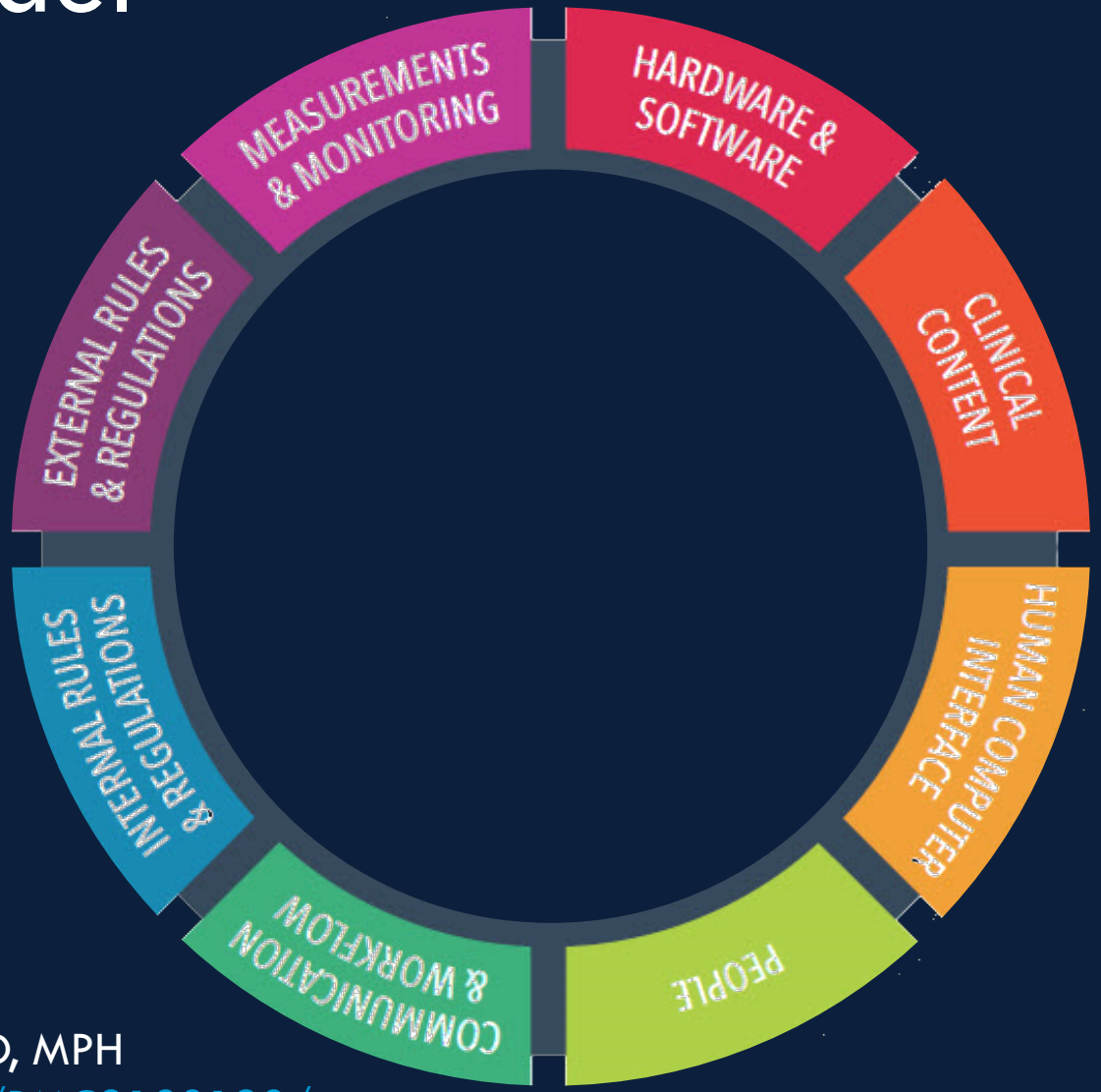
Allscripts / All possible

Background

- Who is Richard
  - Systems Engineer
    - Looks at “big picture”
    - Attempt to optimize across multiple (ideally *all*) related subsystems

“If You Fail to Plan, You Are Planning to Fail”
“An ounce of prevention is worth a pound of cure.”
— Benjamin Franklin

Socio-Technical Model



Dean F. Sittig, PhD and Hardeep Singh, MD, MPH
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3120130/

What is Public Health IT Infrastructure

- A system
  - Subsystems = patchwork of “purpose-built” systems – each serving a single need

  BUT…
  - These “purpose built” systems were not designed to be part of an overall system
    - limited (in many cases, no) formal requirements for these systems to interact
  - These “purpose built” systems were not designed to be extensible beyond their single purpose
    - This applies not only to the products, but also the staff who operate them (people are also part of the system)

How did we end up in this situation?

- Its complicated…

- Likely Factors:
  - **Funding**: tied to a very specific item (e.g., specific disease conditions)
    - Drives a purpose-built" solution to just that specific item
    - Inherently reactive
      - Must first have the "specific item" well understood and defined to drive the funding (which drives the development…)
  - **Fragmented regulatory and legal environment**
    - Requires/drives additional complexity
      - While systems are not designed for extensibility, some level of extensibility or customization is a presumed requirement due to the extensive variation amongst various jurisdictions
  - **Fear of complexity**

Impacts

- Flexibility & “Time to Market”
  - Lack of focus on extensibility made existing systems too slow, too costly (often both) to be useful for emergent needs such as COVID
  - Purpose-built systems – despite their limitations, drive large lead times
- Costs
  - Even a simple system is known to likely incur additional costs due to customizations.
  - These customizations often are estimated to be equal to or larger than the cost/effort of the base system

  Vendors have extensive competing priorities; costs with unclear benefit are difficult

COVID – the exposer of all weaknesses

- No generic infrastructure:
  existing infrastructure being geared to purpose-built systems
  - Difficult to provide the data that was requested
    In addition, the data that was needed was constantly evolving
- Systems were not built for exploratory data capture
  - Necessary data capture often had to revert to manual data capture
    - extensive impact on the resources within healthcare
      at a time when they were already over-extended due to the clinical needs
    - drove ad-hoc transmission methods such as email or even Fax
      - Lacking common templates for data input,
        this then drove an extensive COVID-specific infrastructure to
        collect and transpose data within the governmental agencies
      - This drove errors and contributed to delays in evolving our understanding the disease

CRISP
SHARED SERVICES

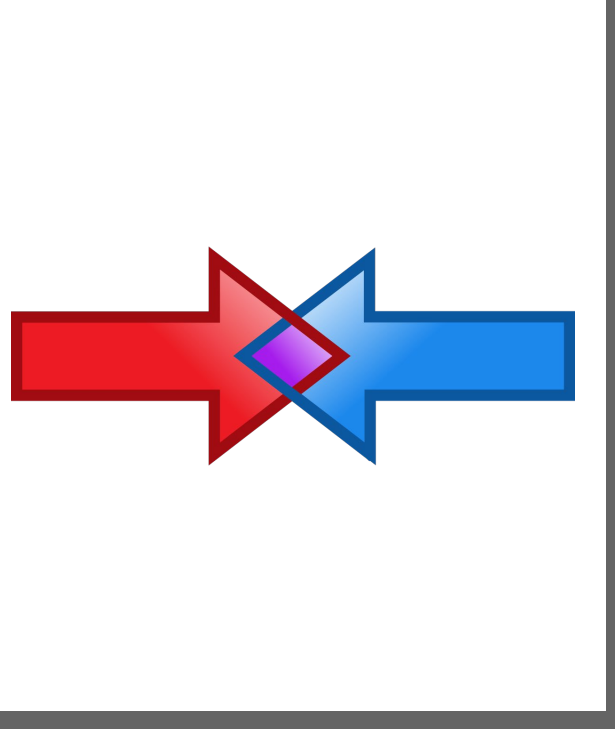
HIEs & COVID

EHI

David Horrocks

What does a Health Data Utility (HDU) do?

1. **An HDU combines data to enhance data**
2. **An HDU delivers data back to clinicians in the field**
3. **An HDU supports public health interoperability projects**



What characteristics make an HDU work?

HDUs should be:

- Statewide, or matching the jurisdiction of the public health agency
- Officially designated through a method of the state's choosing
- Non-profit or independently governed state entities, broadly governed by a mix of public sector and private sector health leaders
- Connected to all important healthcare providers, especially hospitals
- Receiving some data by mandate or via the department of health
- Held to a high level of security and patient privacy protections

Examples of what a PHDU can do

- ✓ Enhance the race and ethnicity data on reportable COVID cases, from low accuracy to over 90% accuracy
- ✓ Deliver school absentee data to a student's treating pediatrician
- ✓ Improve situational awareness of respiratory infection trends in a region, with ambulatory encounter data and not just hospitalizations
- ✓ Notify emergency department clinicians of a patient's prior diagnosis of a drug resistant infection
- ✓ Analyze COVID breakthrough infections, matching chronic conditions flags to reported cases among those previously vaccinated
- ✓ Inform prescribing clinicians when a patient has previously experienced an overdose

By combining existing data sets, these real-world examples are achieved without adding any new reporting burdens to healthcare providers.

More examples of what a PHDU can do

- ✓ Calculate changes in rates of preventative healthcare services during a pandemic, by neighborhood and by demographic
- ✓ Alert EMS personnel regarding an infectious disease diagnosis for a recently served patient
- ✓ Maintain an up-to-date directory of organizations registered to provide certain services
- ✓ Operate a behavioral health bed registry which publishes real time bed availability to referring clinicians
- ✓ Provide immunization reports to individual practices, showing patient-by-patient immunization status in the state's immunization registry to support outreach
- ✓ Rapidly stand-up clinician referral and scheduling tools for state managed services such as COVID testing, immunization, or infusion centers

Even for tactical projects which might be done otherwise, a state's partnership with a PHDU can bring technical knowhow to bear more quickly.

Hospital Volume Trend - MD | Hospital Volume Trend - DC

Hospital Volume Trend Lines

This report presents the percent change in volume of inpatient (IP) admissions and emergency department (ED) visits for the state and individual hospitals relative to their volume in the selected baseline year.

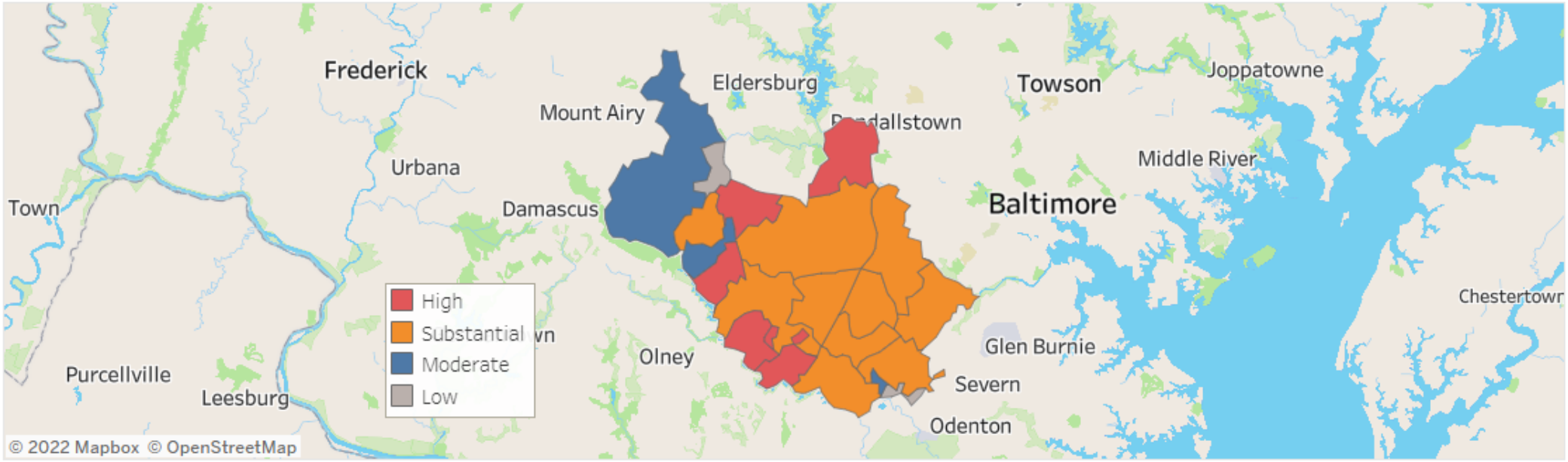
Hospital Volume is taken from the HSCRC Case Mix data when available. Real-time ADT data are used to show Hospital Volume for the most recent weeks.

Patient Type

- (•) ED
- ( ) Inpatient

County

(Multiple values)



MDH Region

Central

County

Howard County

Confirmed Cases

0 293

Cases per K

0.00 14.18

Positive Test Percentage

0.00% 100.00%

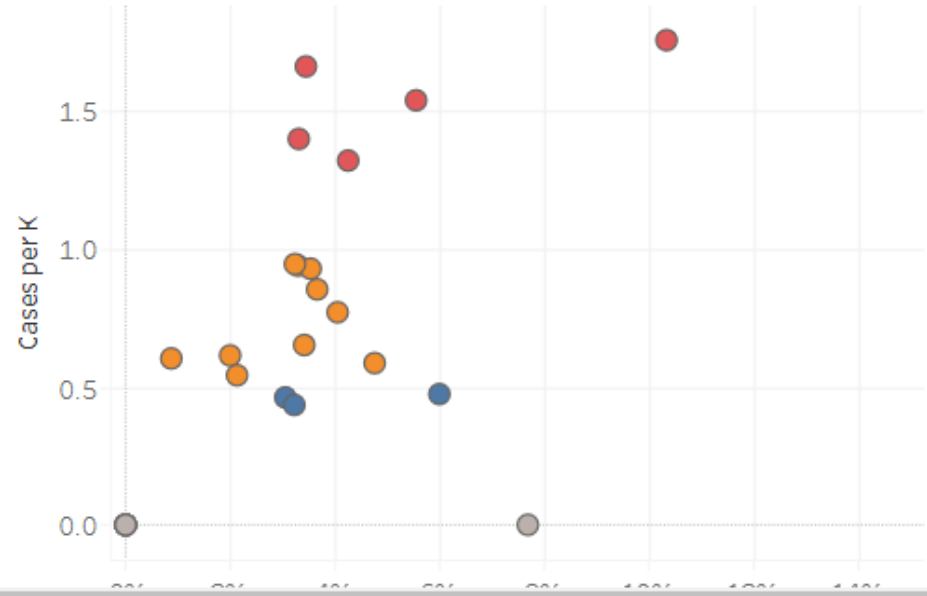
Vaccination Rate

0.00% 100.00%

Community Transmit Rate

- [x] (All)
- [x] High
- [x] Substantial
- [x] Moderate
- [x] Low

ZIP	Confirmed Cases	Cases per K	Prior Week Conf. Cases	Positive Test Percentage	Vaccination Rate
21043	40	0.85	60	3.66%	
21042	38	0.93	73	3.54%	
21044	27	0.61	42	2.00%	
21045	26	0.65	41	3.42%	
21075	25	0.77	43	4.05%	
20723	19	0.54	45	2.13%	
21046	15	0.94	18	3.30%	
21163	11	1.54	6	5.56%	
21029	10	0.94	17	3.24%	
20794	10	0.60	14	0.87%	
20759	7	1.40	8	3.31%	
20777	6	1.66	4	3.45%	



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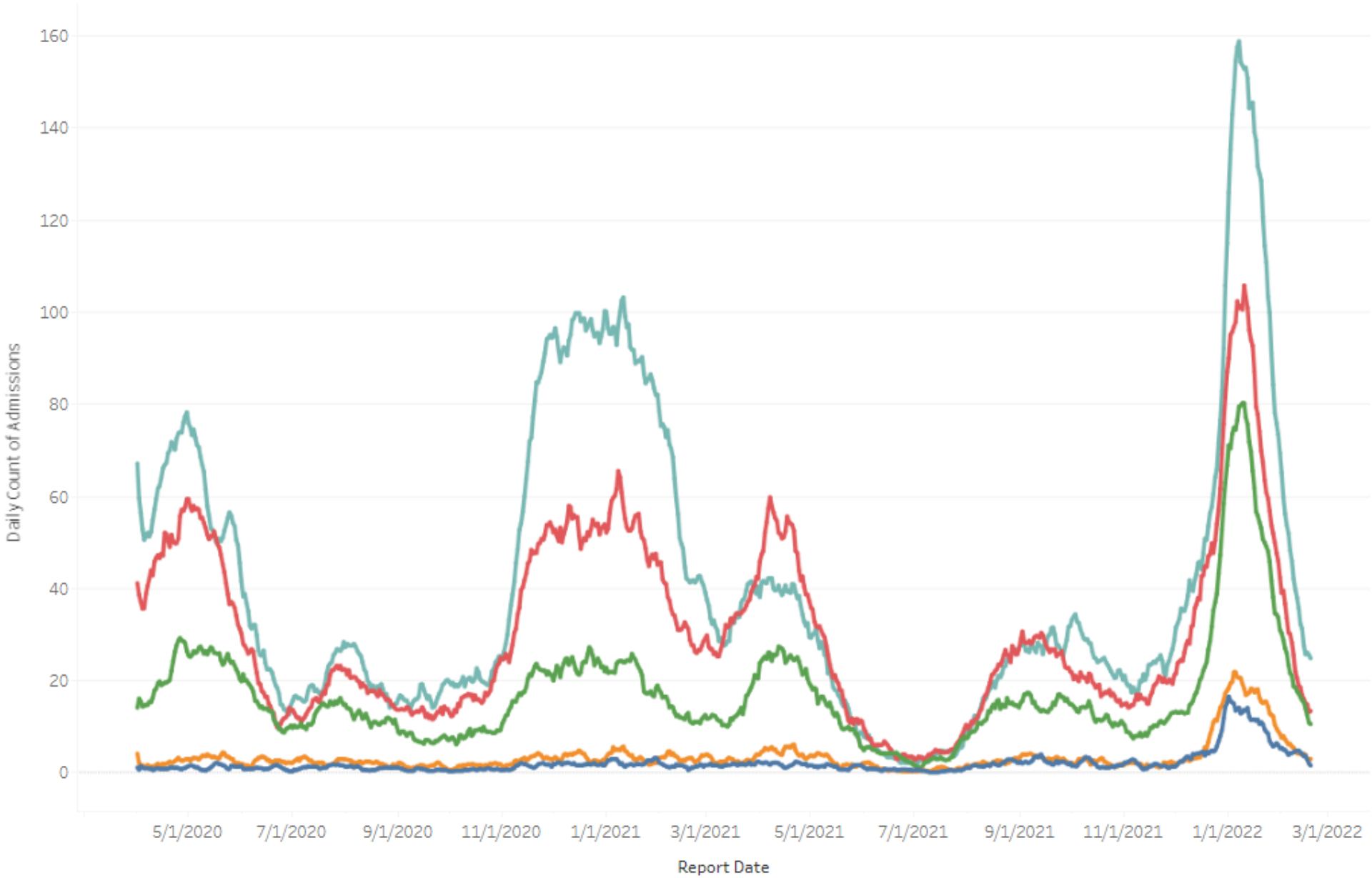
Confirmed Cases from MD

Measure Description: Hospital admissions for confirmed cases of COVID-19 by admission date
Chart Type: 7-Day moving average by day of the raw count of the selected measure
Data Source: Admissions for patients on the MDH Confirmed Cases Panel identified using the ADT messages are sent to CRISP from all Maryland hospitals;
Data Available Through: 2/18/2022



- Positive Tests
- Positive Test Percent
- Confirmed Cases
- (•) Admissions
- Deaths
- Individuals Vaccinated
- Cumulative Individuals Vaccinated
- Cumulative Individuals with at least 1 Dose

Chart Type
- (•) Count
- Percent of Total
- Population Adjusted

Chart Lines
- None
- (•) Age Group
- Gender
- Race
- Ethnicity
- Region
- County

Separate Charts
- (•) None
- Age Group
- Gender
- Race
- Ethnicity
- Region
- County

Report Date
4/1/2020 — 2/18/2022

Age Group
(All)

Gender
(All)

Race
(All)

Ethnicity
(All)

Region
(All)

County
(Multiple values)

Legend
- 0 to 14
- 15 to 24
- 25 to 44
- 45 to 64
- 65+

CRISP

Vaccination data from ImmuNet available through **01/25/2021**
ENS Panel Subscription data available through **01/21/2021**
** Double click on row to edit*

Filter: Select Filter | Save Filters | Clear Filters | Excel Export

Chronic Conditions

Patient Name	Vaccine Status	Outreach Status	Notes	First Dose Vaccine Date	Final Dose Vaccine Date	Age	Chronic Condit…	First Dose Vaccine	Final Dose …
AGEE, TROYNIKA	Not Vaccinated	1st Dose Scheduled	Scheduled for 4/2			71	0		
AKHTAR, TIMOTHY	Vaccinated	Patient Reports Vacc…		12/16/2020	01/12/2021	67	2	Pfizer - COVID-19, mRNA…	Pfizer - COVI…
ALI, MIHAD	1 Dose Received	Patient Reports Vacc…		01/03/2021		64	1	Moderna - COVID-19, m…	
ANTOLIK, EVAN	Not Vaccinated	Vaccine Hesitant	Wants to talk to the …			44	0		
ATWAY, MICHELLE	Vaccinated			12/16/2020	01/12/2021	93	0	Pfizer - COVID-19, mRNA…	Pfizer - COVI…
AUBUCHON, ANNE	Not Vaccinated	1st Dose Outreach	call again later			62	0		
AUTRY, JENNIFER	1 Dose Received	Final Dose Scheduled	Appointment sched…	12/17/2020		62	5	Pfizer - COVID-19, mRNA…	
BAILEY, WILLIAM	1 Dose Received	Unable to reach Patie…	Try back on 3/3	12/17/2020		76	0	Moderna - COVID-19, m…	
BAKER, RONIA	1 Dose Received	Final Dose Scheduled	scheduled for 6/14 a…	01/03/2021		62	0	Pfizer - COVID-19, mRNA…	
BARAN, NARCIS	Not Vaccinated	1st Dose Scheduled	First Dose schedule…			64	0		
BARAN, SARAH	1 Dose Received			12/31/2020		52	0	Moderna - COVID-19, m…	

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