CRISP as a Public Health Utility after COVID-19

Agenda

- Overview of tools built for COVID-19 support

- Vaccine Tracker as a Gap-In-Care tracking tool

- Moving beyond COVID with Data Insights

- Priorities for 2022

CRISP Services

1. **POINT OF CARE: Clinical Query Portal & In-context Information**
   - Search for your patients' prior hospital records (e.g. labs, radiology reports, etc.)
   - Monitor the prescribing and dispensing of PDMP drugs
   - Determine other members of your patient's care team
   - Be alerted to important conditions or treatment information

2. **CARE COORDINATION: Encounter Notification Service (ENS)**
   - Be notified when your patient is hospitalized in any regional hospital
   - Receive special notification about ED visits that are potential readmissions
   - Know when your MCO member is in the ED

3. **POPULATION HEALTH REPORTS: CRISP Reporting Services (CRS)**
   - Use Case Mix data and Medicare claims data to:
     - Identify patients who could benefit from services
     - Measure performance of initiatives for QI and program reporting
     - Coordinate with peers on behalf of patients who see multiple providers

4. **PUBLIC HEALTH SUPPORT:**
   - Deploying services in partnership with Maryland Department of Health, DC Department of health, and West Virginia Bureau of Public health
   - Enabling researchers to appropriately access aggregated data and manage cohort studies
   - Housing the Prescription Drug Monitoring Program (PDMP) for Maryland

5. **PROGRAM ADMINISTRATION:**
   - Making policy discussions more transparent and informed
   - Supporting Care Redesign Programs

> Core HIE services are incorporating COVID-19 data for existing use cases with minor enhancements

> Reports are deployed with new data sources including real-time ADTs and labs

> CRISP as a data source and technology integrator

Key COVID Support Initiatives

1. Sharing case data from the Maryland Department of Health (MDH) to downstream users:
   - Initiating Contact Tracing with feed to MD COVIDLink
   - Notifying EMS of transmission risks, alerting providers of positive patients regardless of testing site
   - De-duplicating and cleaning vaccine registration lists
2. Receiving data from hospitals and providers to share with local health departments, MDH, and CDC:
   - Point of care test results from skilled nursing facilities, practices, schools, and other sites
   - Survey data from hospitals and skilled nursing facilities
   - Patient characteristics (co-morbidities, race, ethnicity) from claims and clinical data
3. **Central source for up-to-date data and reports**
   - Secure reporting dashboards with lab results, case files, survey data and surge counts
   - Remdesivir administration, monoclonal antibody infusions, and vaccinations
   - Test results going to Universities, agreement executed with Baltimore City Public Schools
4. Technology integrator for statewide response needs:
   - Developed and operating lab orders, scheduling, and workflow software for state-run testing sites
   - Reusing referral tools to allow community referrals for monoclonal antibody infusions
   - Enabling centralized surge response through hourly ICU bed occupancy by hospital and alternative care site

Vaccine Tracker Demonstration

CRISP | **VACCINE DATA SERVICE**

*Connecting **Providers with Technology** to Improve Patient Care*

Panel / Practice: Demo Practice-1 [Practic ▼] [Apply]

👤 Horrocks, David | ↪ Logout

Vaccination data from ImmuNet available through **01/13/2021**
ENS Panel Subscription data available through **01/07/2021**

📄 Excel Export

◀ Navigation
◀ Chronic Conditions

Patient Name	Vaccine Status	First Dose Vaccine Date	Second Dose Vaccine Date	Age ↓	Chronic Condition Count	First Dose Vaccine	Second Dose Vac
CHEUNG, JONATHAN	Not Vaccinated			79	3		
ARMSTEAD, CHLOE	1 Dose Received	01/04/2021		79	5	Moderna - COVID-1...	
BACA, DONNA	Not Vaccinated			79	2		
KRUEGER, CAROL	1 Dose Received	12/18/2020		78	0	Moderna - COVID-1...	
WHATLEY, JAMES	1 Dose Received	12/24/2020		78	3	Moderna - COVID-1...	
MCGUIRE, WAYNE	Not Vaccinated			77	7		
GONZALEZ, ROSALYN	1 Dose Received	12/18/2020		77	6	Moderna - COVID-1...	
HAMILTON, MARISA	Not Vaccinated			76	2		
SPIESS, CHRISTOPHER	Not Vaccinated			76	3		
REYNA-RODRIGUE, MELISSA	Not Vaccinated			76	3		
PROUDFIT, CHRISTINE	1 Dose Received	01/02/2021		75	0	Moderna - COVID-1...	

Public Health: Maryland Department of Health Collaborations

Prescription Drug Monitoring Program

➤ PDMP data available to providers and dispensers along side clinical data

➤ Close partnership with Behavioral Health Administration to support the continued development of the program and services

➤ Maryland Mandatory Registration and Use

Population Health Reports

➤ Geographic mapping for public health officials of hospital encounters, and when married to HSCRC claims data, specific conditions

Meaningful Use

➤ CRISP facilitates public health reporting and attestation for hospitals and providers

Support of State Medical Examiner and Fatality Review Teams

➤ CRISP serves as a source of clinical information in death investigations

Disease Investigation

➤ Public Health Investigators utilize CRISP for Reportable Disease Investigation
  ➤ Demonstrably more efficient and richer data source for hospital-reported conditions than previous methodology

➤ HIV Care Reengagement
  ➤ Alert DHMH when HIV positive individuals encounter health system
  ➤ Reconnect individuals to treatment and individuals who never learned status

Oz System

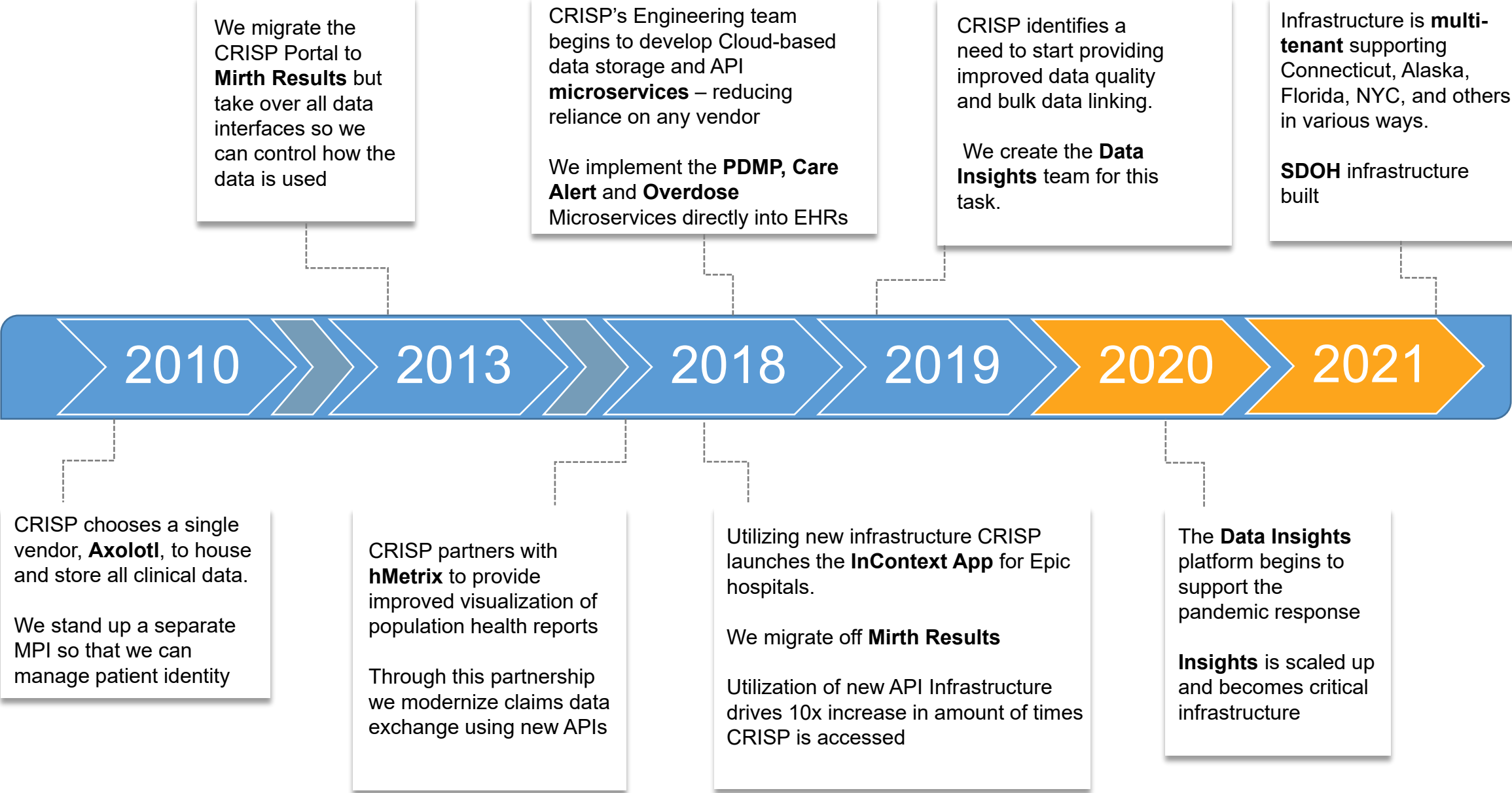➤ Newborn alerting, to facilitate mandatory hearing screening

CAIiPR

➤ Clinical Quality Measure calculation tool for Medicaid Eligible Professionals and Hospitals, using EMR data to automate selected CQMs

ImmuNet Registry

➤ MDH ImmuNet registry data available in CRISP Clinical Portal

Evolution of the CRISP Infrastructure

We migrate the CRISP Portal to **Mirth Results** but take over all data interfaces so we can control how the data is used

CRISP's Engineering team begins to develop Cloud-based data storage and API **microservices** – reducing reliance on any vendor

We implement the **PDMP, Care Alert** and **Overdose** Microservices directly into EHRs

CRISP identifies a need to start providing improved data quality and bulk data linking.

We create the **Data Insights** team for this task.

Infrastructure is **multi-tenant** supporting Connecticut, Alaska, Florida, NYC, and others in various ways.

SDOH infrastructure built

| 2010 | 2013 | 2018 | 2019 | 2020 | 2021 |

CRISP chooses a single vendor, **Axolotl**, to house and store all clinical data.

We stand up a separate MPI so that we can manage patient identity

CRISP partners with **hMetrix** to provide improved visualization of population health reports

Through this partnership we modernize claims data exchange using new APIs

Utilizing new infrastructure CRISP launches the **InContext App** for Epic hospitals.

We migrate off **Mirth Results**

Utilization of new API Infrastructure drives 10x increase in amount of times CRISP is accessed

The **Data Insights** platform begins to support the pandemic response

Insights is scaled up and becomes critical infrastructure

The Insights Team

- **Identify and improve data that are incomplete, inaccurate or unreliable** in order to provide value to our end users and stakeholders

- **Link disparate data sets together** quickly and in large volumes to provide meaningful insights to customers that are otherwise unavailable

- **Build and maintain a data lake** so that CRISP can quickly and consistently answer large scale data questions.

- Use modern technologies like Azure, Databricks, and direct integrations. Work to eliminate flat file exchanges
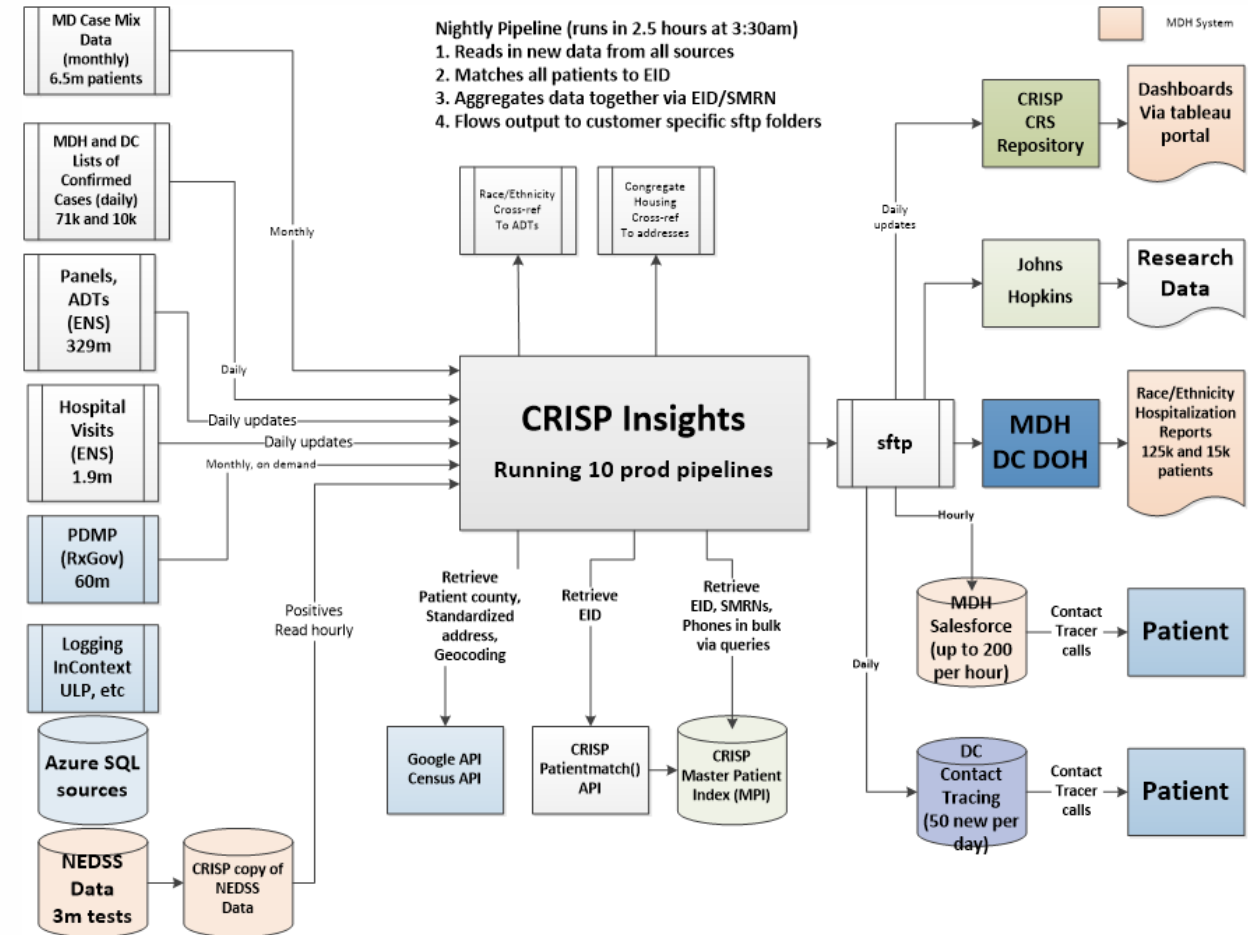
Cloud-Based Data Lake Infrastructure

Able to:

- Store all data contributed to CRISP
- Link across datasets
- Master data elements from multiple sources
- Curate data for use cases

Supports:

- Race / ethnicity for positive cases and individuals tested
- Identification of earliest indication of positive case for contact tracing
- Curating datasets for reports
- Hospitalizations and hospital volume

— Key Platform Components —

Ingest

Azure Data Factory

Prep & Train

Azure Databricks   HDInsight   Azure ML

Store

Azure Data Lake Storage Gen2

Model & Serve

Azure Analysis Services   Azure Synapse Analytics

CRISP Insights – what do we do?

- **Questions** we get- "Can you tell me what percentage of patients living in Alleghany County that received an Immunization from the mobile clinic in September broken out by standard age breakouts, race/ethnicity breakouts."

- Over time, that ad-hoc question can become a daily use case that is automatically generated from the DataLake as part of a **production pipeline** with updated information from the source data and sent to a target location

- Develop production code that supports multiple hourly, daily, weekly, monthly and quarterly **data pipelines** that send an updated answer to a question to a stakeholder or a partner or for CRISP use

- Many of those production pipelines then are **visualized** as CRS reports and PowerBI dashboards

- CRISP must continue to be creative and nimble to implement new ideas:
  - ➤ Established Data Sharing Agreements to allow schools and universities to share student rosters to enable contact tracing and data-driven decisions
  - ➤ Sending gaps in care alerts for child immunizations, and starting to consider how this may support future needs
- Services and reports using new data sources and methods are likely to be part of long-term offerings
  - ➤ CRISP Insights, new visit logic, and emergency management will continue
- Many opportunities for partnerships to receive new or improved data types improve HIE services and extend the value of CRISP
  - ➤ Our stakeholders will want to be thoughtful about any new data flowing in the HIE to ensure appropriate patient privacy protections and use cases

HIE Priorities for FY2022

1. Public Health
   - Continued COVID-19 vaccination efforts
   - Gaps in care and patient alerts for MCOs and providers
   - Behavioral health and SUD data exchange

2. Health Equity and SDOH
   - Referrals, screening, and program directory
   - Improved analytics and data sets

3. Data Quality, Reporting, and Insights
   - SIHIS measure calculation and presentation
   - Care redesign program reports

4. Real-Time Data for Transformation
   - Enhanced care teams, provider directory
   - Care alerts and program notifications
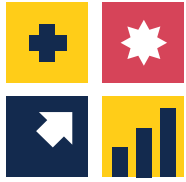
What do HIEs have to offer?

- Existing infrastructure to serve as a central hub for data reporting from providers to local, state, and federal health officials

- Direct line of secure communication to providers and hospitals throughout the region

- Impartial collaborators between state agencies and the health care community

- Proven track record of privacy and security framework

- Rapid development capabilities to quickly respond to changing health IT needs

CRISP and other mature HIEs are already serving as "health data utilities" for their states:

https://www.himss.org/resources/hies-are-vital-public-health-need-reshaping

HIEs that were already operating on a statewide level... found themselves well-positioned to play a key role in the pandemic

https://www.hcinnovationgroup.com/interoperability-hie/health-information-exchange-hie/article/21219488/the-evershifting-outlook-for-hies-shifts-once-again

A Health Policy Viewpoint

Health Affairs*

Investing In the Data Systems We Need to Create the Health System We Deserve**

"We need HIT that supports the collective work of advancing a healthier nation and promotes data liquidity for HIEs, allowing protected patient information to safely, securely, and seamlessly travel between care providers; <u>HIT that is scalable and versatile enough to support broader public health use cases and support our ability to address drivers of our health</u> (which contribute to as much as 80 percent of our health outcomes); HIT that redirects market competition from data ownership to effective data use."

Kevin McAvey, Director at Manatt Health (June 2021)

*Health Affairs is considered a leading journal of health policy thought and research
** DOI: 10.1377/hblog20210528.555489

Maryland Legislature Establishes a Health Data Utility (HDU)

▶ HB 1127 – Public Health – State Designated Exchange – Health Data Utility (2022 session)

   o Establishes an HDU operated by the State Designated Health Information Exchange, CRISP

      ▪ A robust and secure infrastructure for health data that serves as a foundation for knowledge and innovation

   o Requires CRISP to make certain information available to providers and health officials to advance disease control and health equity

   o Tasks MHCC with developing supporting regulations

▶ Legislation effective date – October 1, 2022

HDU Importance to Maryland

▶ A catalyst to improve health care delivery and public health statewide

  ○ Reduces current information fragmentation to better serve different patient populations

▶ Combines data to enhance data and support inclusive and equitable decision making

  ○ Aggregating data provides more knowledge and opportunity to better estimate the magnitude of problems, develop appropriate and timely interventions, and better monitor the effectiveness of interventions over time

▶ Supports interstate data sharing

Legislation Broadens CRISP's Electronic Health Data Suppliers

► Nursing homes to provide select data

- o EHR system integration with PointClickCare and Matrix Care, representing about 90 percent of nursing homes in Maryland (2022 target)

► Electronic Health Networks (that function as intermediaries between payers and providers) to provide electronic health care transactions (2022 target)

- o MHCC certifies electronic health networks operating in Maryland to ensure they meet standards related to technical performance and privacy and security, among other things

► Dispensers of non-controlled prescription drugs (non-CDS) required to provide certain prescription information

- o Enables access to comprehensive patient medication history when coupled with PDMP CDS data (2023 target)

Promoting Consumer Trust and Transparency

▶ HIE Consent Management Utility (CMU) – a web-based application under development by CRISP

    o A centralized registry for consumers to opt-out or back into electronic health information sharing

    o HIEs operating in Maryland (11) must integrate with the registry

▶ Modernizing HIE regulations (COMAR 10.25.18, *Health Information Exchanges: Privacy and Security of Protected Health Information*) to align with federal and State health IT policies

An Interoperability Viewpoint Across States

National Governors Association*
Designate a Health Data Public Utility to Provide Common Data Services for Statewide Data Needs

"Health data utility models are increasing popular state strategies to facilitate exchange of clinical information, improve disease surveillance, and reduce data reporting burdens. By designating a not-for-profit organization to operate a regulated network, states can make and enforce HIE policy decisions, the entity can serve the whole state, and the unified approach can reduce technical capability gaps and fragmented data."

(State Strategies to Advance Health Data Interoperability, March 2021**)

* The National Governors Association represents 55 states, territories, and commonwealths
**www.nga.org/wp-content/uploads/2021/03/State-Strategies-to-Advance-Health-Data-Interoperability.pdf

MHCC's Role in Health Information Technology

- ▶ Support diffusion of a strong, interoperable, and secure health IT ecosystem statewide
  - ○ EHRs; HIE; telehealth
- ▶ Foster innovative use cases
- ▶ Develop health IT policies and regulations with emphasis on privacy and security
- ▶ Designate a statewide HIE

The End

Questions?