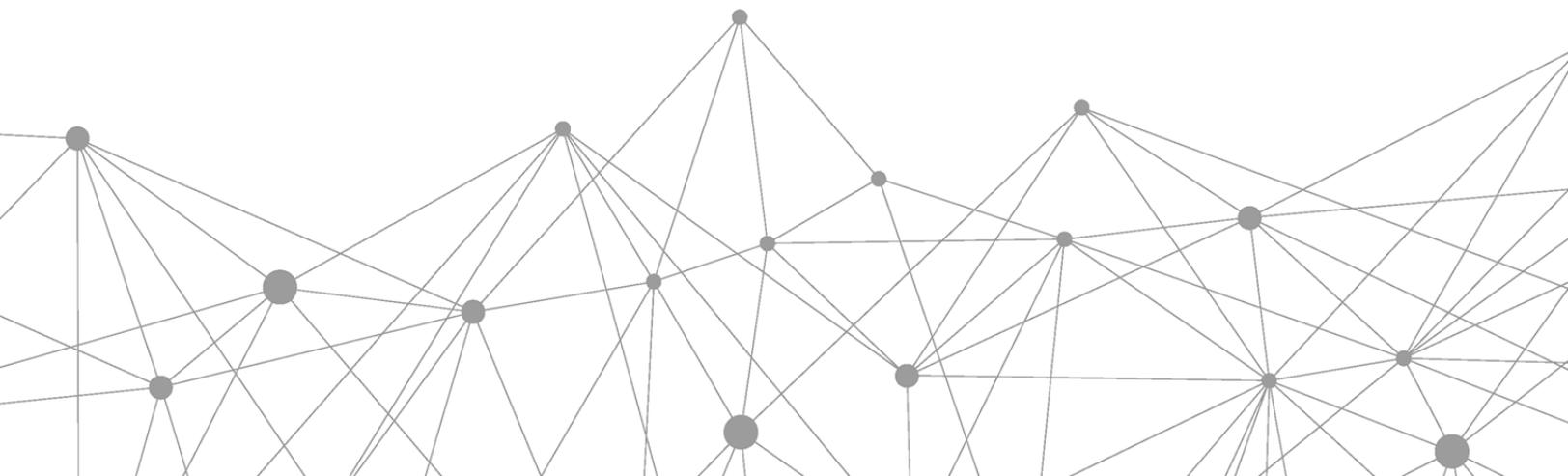


**DATA AGGREGATION AND VISIBILITY TO  
SUPPORT PANDEMIC MANAGEMENT:  
INTEROPERABILITY IN THE CLINICAL ENVIRONMENT**



**MARCH 2020**



**CONTEXT**

Novel coronavirus COVID-19 is increasingly stressing the American healthcare system and will continue to do so in unforeseen ways. Patient monitoring – from initial screening through positive diagnosis, treatment, monitoring, and recovery – must continuously adapt and evolve to meet the changing needs of improving outcomes and helping to save lives.

**PROBLEM STATEMENT**

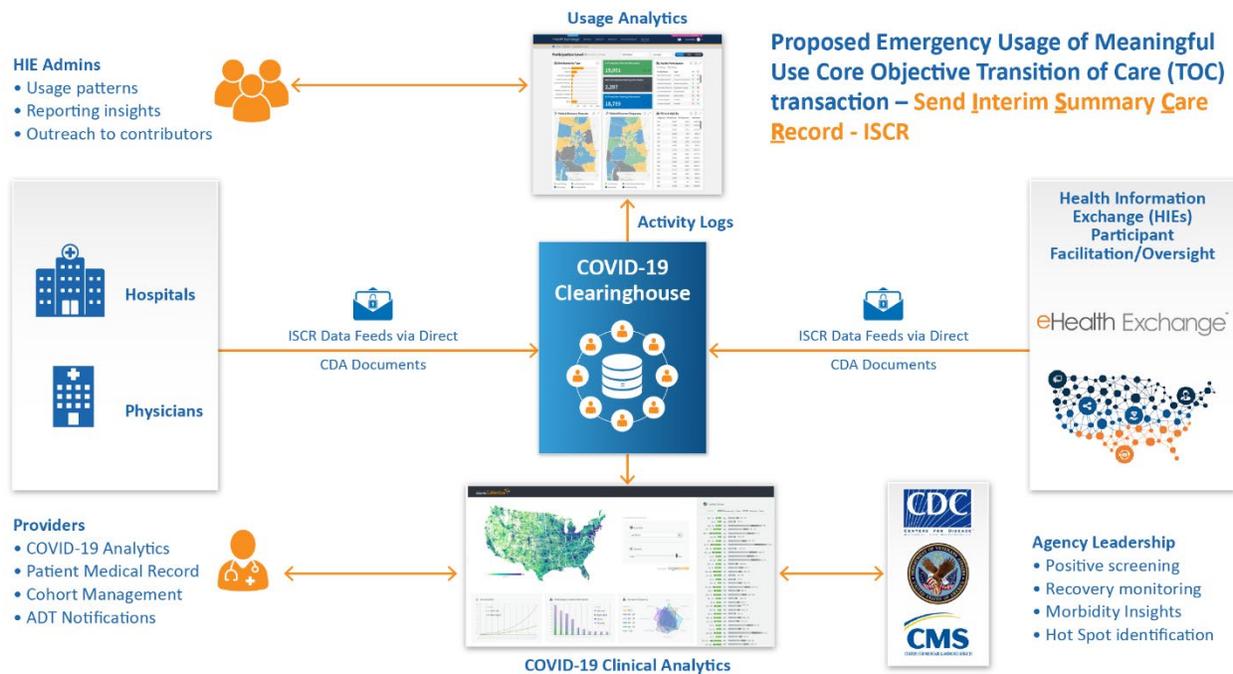
Improved COVID-19 testing, screening, diagnosis, and preexisting condition analysis can all benefit management of the current pandemic. As the number of patients and the complexity of data measurement needs increases, the ability to report accurate and timely data will become increasingly stressed.

Those charged with decision-making in response to the pandemic must be armed with timely, accurate, and comprehensive data aggregation, visualization, reporting, and analysis tools.

**SOLUTION**

The most current and comprehensive insights supporting pandemic management can be found in the clinical data already being captured and exchanged within Electronic Medical Records (EMRs), outpatient clinics, pharmacies, and Health Information Exchanges (HIEs). A summary architecture of these rapidly deployable, lightweight solution components is shown in **Exhibit 1**.

**Exhibit 1: National COVID-19 Clinical Data Clearinghouse Architecture.**



Nationwide aggregation of this data can be rapidly and simply achieved through federal mandate as follows:

- ▶ Establish a COVID-19 Clinical Data Clearinghouse, secured and managed to receive data from all systems treating COVID-19 patients
- ▶ All facilities should send meaningful-use mandated transitions of care summary documents to the COVID-19 Clinical Data Clearinghouse

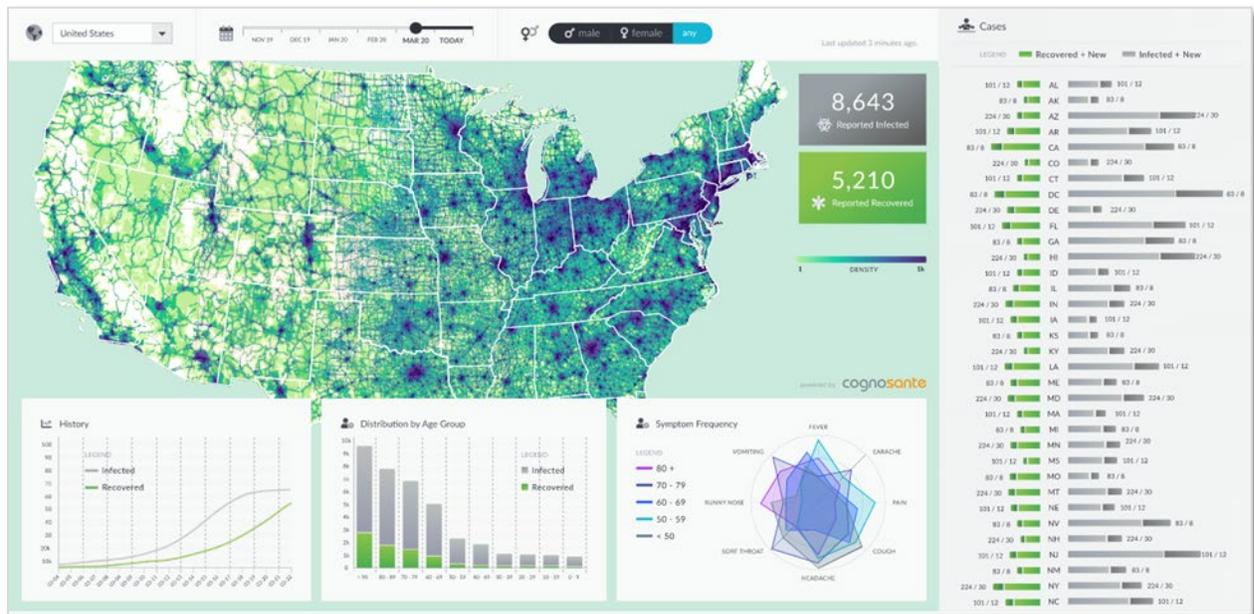
- ▶ All facilities should use the ubiquitous, lightweight, and proven DIRECT Secure Messaging protocol
- ▶ Rapidly develop tailored dashboards and visualization to summarize national data
- ▶ Supplement reporting with other self-reported facility-level data such as daily bed usage, admissions, ventilator utilization, and deaths

**Speed of Deployment**—this solution can be rapidly established and ready for use based on the following key approach requirements.

- ▶ Use DIRECT Secure Message Protocol to securely send Clinical Summary documents of affected patients diagnosed by a healthcare provider with COVID-19 symptoms
- ▶ Mandate EHR vendors to supply instructions/provide capability to send Interim Clinical Document Architecture (CDA) transactions to the Connexus Hub via DIRECT Secure Messaging based on MU TOC capability.
- ▶ Leverage HIEs, Federation of HIEs (e.g., SHIEC, eHealth Exchange Hub) to facilitate participation and to act as local hubs
- ▶ Parse CDA documents and maintain a Master Patient Index (MPI) for affected patients
- ▶ Begin data analytics based on parsed CDA data, and usage log data of participants

**Valuable and Actionable Data Visualizations**—primary access to the clearinghouse would be through rapidly-developed, deployed, and frequently updated dashboards to support the nationwide visualization of clinical information relevant to COVID-19 treatment, management, and tracking (**Exhibit 2**).

**Exhibit 2: National COVID-19 Clinical Data Dashboard (Allows drill down from National>State>County>Facility).**



## OUTCOMES

This approach to rapidly deploying and maximizing the efficacy of clinical and other self-reported facility-level data will deliver the following benefits and outcomes.

- ▶ A national solution for a secure COVID-19 clearinghouse of clinical and other relevant self-reported facility data
- ▶ The ability to receive data securely within days and deliver actionable dashboards within one (1) week
- ▶ Maximum simplicity for data contributors to submit data to a secure and private cloud location when mandated (e.g., DIRECT Secure Messaging, Secure File Transfer Protocol (SFTP), web services)
- ▶ Establishment of real-time, accurate, clinical data-centric solution for tracking COVID-19 status and impact to include pre-existing condition, age, and other demographic data analysis
- ▶ Customizable dashboards to adapt as pandemic impact changes (e.g., Weekly releases of new dashboards).

### CONTACT US TO LEARN MORE

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