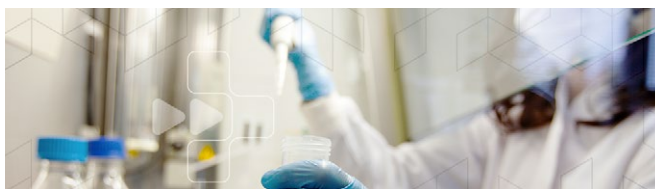# Strengthened Community Partnerships for More Holistic Approaches to Interoperability Project (CDC Foundation Interoperability Project)

"The 21st Century Cures Act requires that certified health information technology have an application programming interface (API) giving access to all data elements of a patient's electronic health record, 'without special effort'. In the spring of 2020, the Office of the National Coordinator of Health Information Technology (ONC) published a rule—21st Century Cures Act Interoperability, Information Blocking, and the ONC Health IT Certification Program—regulating the API requirement along with protections against information blocking. The rule specifies the SMART/HL7 FHIR Bulk Data Access API, which enables access to patient-level data across a patient population, supporting myriad use cases across healthcare, research, and public health ecosystems. The API enables "push button population health" in that core data elements can readily and standardly be extracted from electronic health records, enabling local, regional, and national-scale data-driven innovation."[1]

The Challenge (*Moving from a Push Model*)	**The Opportunity** (*Moving to a Flow Model*)
• All levels of public health, from the local to the national level, too often rely on cumbersome, manual methods for data collection and exchange. • Progress has been made but methods for electronic data collection and exchange still cannot be implemented at scale. • Public health is too often bypassed as a reliable source for up-to-date information. • **Push data**—Existing data streams are too often labor intensive requiring manual work, unorganized and inconsistent, and information access/availability is delayed.	• 21st Century Cures Act supports access to electronic health information like never before. • Access to richer and standardized data will be supported through a common set of required data elements known as US Core Data for Interoperability (USCDI). • Electronic health record (EHR) vendors will support providing USCDI via a required application programming interface (API), specifically the SMART/Health Level 7® (HL7®) Fast Healthcare Interoperability Resources® (FHIR®) Bulk Data Access (Bulk FHIR). • **Flow data**—Data is standardized and made available through APIs and open architectures; authorized users can fetch and receive what they need; more easily adapted and scaled as needs change.

The Goal

Public health data standards and interoperability providing access to timely, reliable and actionable information to guide, focus and evaluate the impact of public health prevention and response activities.

The Promise of Bulk FHIR

• **FHIR is becoming the common, shared language** for data coming out of EHRs, payer's claims databases and patient generated data.

• **Bulk FHIR creates a standardized way to access population data** from health systems and EHR vendors.

• **Bulk FHIR allows more efficient querying of semi-structured data** including EHR data elements and clinical notes.

• **Cumulus is the Bulk FHIR pipeline** under development that supports data analysis at the population level.

Strengthened Community Partnerships for More Holistic Approaches to Interoperability Project
(*CDC Foundation Interoperability Project*)

The CDC Foundation is partnering with public health, health care and others to define, prioritize and test ways to use Bulk FHIR to obtain and analyze population health data. Core components of the Interoperability Project include design, development and engagement efforts to support Bulk FHIR's emerging capabilities. Project activities, including Bulk FHIR development and testing, design sprints and stakeholder engagement, complement CDC's efforts to advance analytical capabilities for national, state, tribal, local and territorial public health to ensure the nation's ability to respond effectively to existing and emerging threats.

[1] Mandl KD, Gottlieb D, Mandel JC et.al. Push Button Population Health: The SMART/HL7 FHIR Bulk Data Access Application Programming Interface. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7678833/

Resources

21st Century Cures Act Final Rule
On May 1, 2020, the Office of the National Coordinator for Health Information Technology published the 21st Century Cures Act Final Rule in the Federal Register. The Final Rule provides enforceable requirements in support of one focus of the 2016 21st Century Cures Act—the interoperability (i.e., ability to easily exchange data between different technology systems) of electronic health records. These requirements standardize the ways electronic health information (EHI) is exchanged, ensure certified technology supplies secure and affordable data access, and define information blocking (i.e., deliberate action to interfere with the exchange or access to EHI) and what reasonable practices are not considered interference.
https://www.healthit.gov/curesrule/

Application Programming Interface (API)
A software interface or connection between two applications.
https://digital.gov/2013/04/30/apis-in-government/

Cumulus
A platform based on Health Level Seven International® (HL7®) Fast Healthcare Interoperability Resources® (FHIR®) that leverages bulk data to support an ecosystem for research and learning. Cumulus was developed by Children's Hospital Corporation, in collaboration with Yale University and Yale New Haven Health.
https://www.healthit.gov/topic/scientific-initiatives/leap/cumulus-universal-research-sidecar

Electronic Health Record (EHR)
An electronic record of the administrative and clinical data associated with a patient's care.
https://www.cms.gov/Medicare/E-Health/EHealthRecords

Fast Healthcare Interoperability Resources (FHIR)
An HL7 standard describing data formats and elements and an API for exchanging healthcare information.
https://www.hl7.org/fhir/

FHIR Bulk Data Access (Bulk FHIR)
A FHIR-based API designed to exchange large analytical datasets, making it easier to access data on groups, cohorts and populations.
https://www.cdc.gov/surveillance/pubs-resources/dmi-summary/overview-hl7.html

Health Level Seven (HL7) International
A standards-developing organization dedicated to describing standards for exchange of electronic health information.
https://www.hl7.org/

Substitutable Medical Applications, Reusable Technologies on FHIR (SMART on FHIR)
An FHIR-based API used to integrate EHRs with applications.
https://smarthealthit.org/

United States Core Data for Interoperability (USCDI)
A standardized set of data elements and classes used for health information exchange.
https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi

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