The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lieutenant Governor

MARYLOU SUDDERS
Secretary

MONICA BHAREL, MD, MPH
Commissioner

Tel: 617-624-6000
www.mass.gov/dph

July 2, 2020

Steven T. James
House Clerk
State House Room 145
Boston, MA 02133

Michael D. Hurley
Senate Clerk
State House Room 335
Boston, MA 02133

Dear Mr. Clerk;

Pursuant to Chapter 93 of the Acts of 2020, otherwise known as H.4672, An Act addressing COVID-19 data collection and disparities in treatment, please find enclosed a report from the Department of Public Health entitled, *"Chapter 93 of the Acts of 2020 Legislative Report"*.

Sincerely,

Monica Bharel, MD, MPH
Commissioner
Department of Public Health

Charles D. Baker
Governor

Karyn Polito
Lieutenant Governor

Marylou Sudders
Secretary

Monica Bharel, MD, MPH
Commissioner

Chapter 93 of the Acts of 2020

Legislative Report

July 2020

Massachusetts Department of Public Health

(this page has intentionally been left blank)

Overview of Current COVID-19 reporting in Massachusetts

This overview frames the multiple data reporting streams related to understanding the extent and differential impact of COVID-19 in Massachusetts. While the primary epidemiologic dataset is testing and case reporting through DPH's core disease surveillance system, MAVEN, meeting the requirements of Chapter 93 in turn relies on submission of data from laboratories, clinical providers and institutions, long-term care facilities, correctional facilities, and city/town clerks. These data streams and related data collection and reporting systems, including their relative current capacity to provide all elements the Department of Public Health is charged to report under Chapter 93, are detailed below.

COVID-19 data flow into MAVEN

The Department of Public Health (DPH) maintains the Massachusetts Virtual Epidemiologic Network (MAVEN), a secure, web-based, electronic disease surveillance system. It collects and prioritizes infectious disease data from multiple sources, including laboratory results, clinical case reports, and epidemiologic investigations, to track and case manage over 90 reportable infections and associated human illnesses. Evidence of cases of a reportable disease, such as COVID-19, is collected by the Department and entered into MAVEN from multiple sources, including reports from providers, local boards of health (LBOH) and laboratories. LBOH have direct access into MAVEN to view and enter cases in their jurisdiction. This permits bidirectional information sharing between the Department and LBOH. Certain information required to be reported immediately to the LBOH of the city/town where the case is diagnosed or the suspect case is identified.[1] For those who live in long-term care facilities, the location of their residence is what is reported in the MAVEN system; for most this will be the city/town where the facility is located, but for others it may be their official residence that is in another municipality.

As discussed in more detail below, laboratories are required to report certain infections including the SARS-CoV-2 virus, which causes COVID-19, directly to DPH.[2] These laboratory reports are the **primary way** data on COVID-19 come into MAVEN. Cases of probable COVID-19 may also be reported following a positive antibody result and determination of appropriate symptoms and exposure history by a diagnosing clinician.

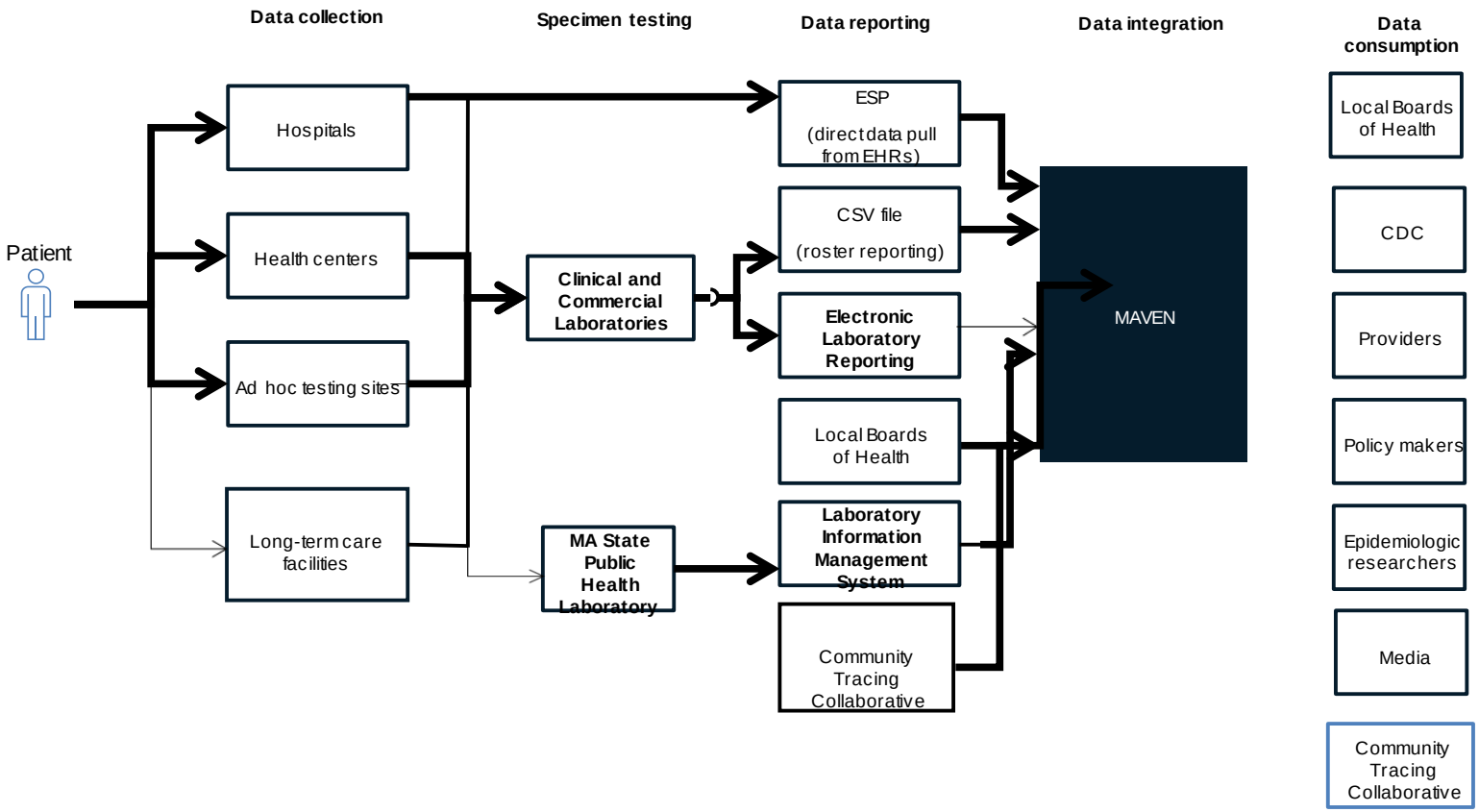
Please see below on the next page a simplified data flow chart representing the various sources of COVID-19 data into MAVEN.

---

[1] 105 CMR 300.100 Boards of health must then report to the Department, 105 CMR 300.110.

[2] 105 CMR 300.170

Primary sources of COVID-19 data entering the state MAVEN system



Reporting by Laboratories

In general, the data reporting process starts when a person with symptoms, a close contact of a known COVID-19 case, or other individual is tested at a hospital, health center, *ad hoc* test site, or at a long-term care facility or other residential setting. The majority of specimens are sent to a commercial or clinical laboratory for processing. Department regulations at 105 CMR 300.170 require laboratories to report demographic information to the Department when it is available. However, for most specimens, only those data needed to identify an individual and their care provider are entered by the ordering provider into a physical or electronic laboratory specimen submission form. Such data may be limited to the **first and last name** of the individual, their **date of birth**, their address or **city/town of residence**, possibly their **sex** and **phone number,** information about the ordering provider/facility, the test being ordered, and the specimen type. While specimen submission forms vary and are particular to the receiving laboratory, most currently do not request more information than the above. Even this limited amount of information is often incomplete when a result is reported to DPH.

All Massachusetts acute care hospital laboratories, those in most health centers, and the large commercial laboratories report positive and negative COVID-19 test results to DPH via the state Electronic Laboratory Reporting (ELR) system, which captures the patient and provider information as well as the test type and test result, and are linked to a disease event in MAVEN (a positive result with create a case; a negative result will be noted and informs total testing volume data). Some tests are reported via a manifest or roster, especially those collecting specimens for large facilities, and these require either manual entry or separate automated translation into MAVEN. Some of these manifests or rosters collect and report an equivalent or lesser amount of patient demographic information.

For many large health care facilities and systems, such as hospitals and health centers, the laboratory submission form is generated within the facility's Electronic Health Record (EHR). The ordering clinician may electronically select the test they want performed, and the EHR generates the laboratory submission form, pulling the patient's information from their record. Even if a laboratory submission form contains extended demographic variables, these data elements need to be present in a fixed, searchable format in the record. Oftentimes clinicians place this information (such as race/ethnicity, primary language, or occupation) in free-text "notes" sections that are generally unavailable for transmission along with the test requisition.

Data entered into MAVEN create person-based disease events, representing positive and negative COVID-19 results, and these must first be de-duplicated (some individuals may have multiple tests in the system, others are discrete individuals who may initially appear to be the same). This process involves both automated and manual processes at DPH. Once de-duplicated and validated for accuracy, these disease events enable DPH to run reports on total numbers of tests performed and total number of positive tests and with data analysis allows DPH to report out by facility or facility type (e.g. skilled nursing facilities) and by certain demographic categories. The completeness and accuracy of these reports is wholly dependent on the quality of the data collected and submitted to laboratories and reported to DPH. For example, though there has been improvement following Commissioner Bharel's April 8, 2020 Order specifying

complete data reporting, **race and ethnicity data are missing, unknown, or coded as "other" on approximately 47% of recent cases; occupation is missing on 87% of recent cases; primary language is missing on over 90% of recent cases**.

Data Gathered from Case Investigation

Additional personal and clinical information may be gathered by LBOHs or Community Tracing Collaborative staff conducting case investigation interviews, particularly about close contacts of confirmed COVID-19 cases. During these interviews there is an opportunity to collect additional demographic (race/ethnicity, primary language, occupation) and clinical data (hospitalization status), but due to the volume of COVID-19 reporting and case investigation, these additional data elements are in general incomplete or missing. Further, certain data elements required to be reported by Chapter 93, in particular **disability status**, is rarely collected by clinicians as a discrete variable—though specific disabling diagnoses may be present in the EHR—and is currently not able to be entered into MAVEN due to an absence of a disability field in the system.

Supplemental COVID-19 Data Reporting Systems

Given the importance of timely and accurate reporting of COVID-19-related deaths, DPH relies on the **Registry of Vital Records and Statistics** (RVRS) as its official source of mortality data. A daily data run is provided by the RVRS of deaths which are matched to existing MAVEN COVID-19 case records (and at times supplement those records) to determine how many cases have died. In most cases, RVRS receives information about cause of death from clinicians who certify deaths with other demographic information provided through funeral homes. Burial agents authorize disposition permits and city/town Clerks record the completed death certificates (as well as births and marriages) into the state electronic death registration system. Due to delays in certification of a death certificate, there may be a delay of several days before these records are fully completed Further, occupation—generally the **major occupation and industry** of the individual during their lifetime, not necessarily at their end of life—is provided by the "Informant", often a family member or other person familiar with the deceased. In an effort to standardize and improve the quality of occupational information, beginning with 2020 calendar year deaths the Registry began providing mortality data files to the National Occupational Mortality Surveillance (NOMS) program, which is part of the National Institute for Occupational Safety and Health (NIOSH) of the US Centers for Disease Control and Prevention. NOMS returns files coded for occupation and industry on a quarterly basis, approximately one month after the close of a quarter, and provides data quality feedback on an annual basis. To date, RVRS has received only the first quarter data on occupation, which may limit the availability of these data for current COVID-19 reporting.

The **Health Care Facility Reporting System** (HCFRS) is a secure web-based platform within EOHHS's Virtual Gateway by which licensed and/or certified health care facilities and providers use to report events required by statute or regulation. These events include serious incidents; specific to the COVID-19 outbreak, these include deaths in nursing home and rest home

residents in individuals who were presumed or confirmed to be infected with COVID-19. The reporting includes, gender, race, ethnicity, disability status, primary language, and age.

ESP (**E**HR **S**upport for **P**ublic Health) is an emergent approach to securely collecting clinical data on reportable infectious diseases from EHRs. Once installed at a clinical site, ESP searches health records for evidence of reportable infections (diagnoses, laboratory reports, medications, etc.) and sends a probable case report to MAVEN for review by state epidemiologists. A growing number of large health systems are reporting a subset of infections via ESP, and some of these have added the COVID-19 capability to assist with more complete and timely case reporting.

WebEOC is a web-based system used by the DPH Office of Preparedness and Emergency Management (OPEM) and other state agencies. It is designed to provide real-time situational awareness and information management across multiple agencies and levels of government. Utilizing a secure, password-protected platform, WebEOC allows healthcare entities within the Commonwealth to communicate and share information at a facility, regional, or statewide level, including available bed capacity and incident-specific data. The system is generally used for emergency situations only and in the past for weather related instances or during the Boston Marathon bombing. The system has been activated during COVID-9 and it enables direct daily reporting by hospitals about suspected/confirmed COVID-19 patient census at the aggregate level. From this system, DPH is able to report daily total COVID-19 patient volumes by facility, but not additional patient-level demographic data.

Direct, supplemental reporting by and coordination with DPH/EOHHS's sister secretariats and state agencies, including the **Executive Office of Elder Affairs (EOEA)**, the **Department of Corrections (DOC)**, and the **Massachusetts Sheriffs' Association (MSA)** provide the Department with access to otherwise unavailable COVID-19 testing, resident, and staffing data in elder care as well as state and county correctional facilities.

Plans to address barriers to complete reporting on COVID-19

The Department remains committed to implementing Chapter 93 of the Acts of 2020 as well as to protecting individual privacy and confidentiality. The Department recognizes that there are several barriers that will prevent full, immediate implementation:

First, there are multiple systems that state entities use to collect data. DPH alone uses MAVEN, ELR, Vital Records and Statistics, HCFRS, WebEOC, and ESP. These systems collect different types of data based off of specific sets of criteria. The information that is received is then processed either manually or through automated means to achieve the reporting the Department does on a daily/weekly basis.

Second, some of the data requirements are not currently collected and/or need mechanisms to be developed to capture the volume of data. EOEA, DOC, and MSA are currently building data templates provided by the Department to facilitate more granular reporting of data from the

facilities under their respective jurisdictions and anticipate access to a direct-submission electronic mechanism.

Third, the data that DPH reports is only as robust as that which it receives. As mentioned above, providers and facilities do not collect all of the data elements and/or do not report this information. DPH will be drafting guidelines and potentially regulations that inform entities that they are responsible for providing this information. The Department anticipates that this is going to take time as providers and facilities develop their own processes and/or electronic reporting system. This may include the amendment of existing disease reporting regulations (e.g. 105 CMR 300) that govern the responsibilities of laboratories, clinicians, and local health departments around infectious disease reporting. It may also include the issue of specific instructive guidance on best practices for obtaining relevant health and demographic information from patients, storing these data in discrete variable formats (vs. free-text notes) in EHRs, and reporting them in a reliable and timely manner to DPH. Such guidance will likely be accompanied by structured training in the form of written documents, webinars, and in-person educational opportunities delivered by DPH's training vendors.

Fourth, as electronic systems are being developed, much of the collection of information will be done manually, which can mean the Department needing to obtain, validate, and post hundreds of documents daily. DPH is actively developing its MAVEN and ELR systems to collect, maintain, and report disability status and improve the reporting of missing variables.

Fifth, the Department is planning to update the WebEOC portal to enable an expanded level of data reporting from hospitals and other healthcare facilities, and expects to onboard additional healthcare facilities to the ESP platform to support automated and more complete clinical and demographic reporting. Please note that there are also federal reporting requirements placed on facilities with an established reporting mechanism, the National Healthcare Safety Network which could also be leveraged to capture data.

Finally, the Department notes S. 2753, *An Act to ensure the collection of COVID-19 data,* filed by the Governor on June 8, 2020, would assist in addressing implementation barriers by clarifying the terms and responsibilities contained in Chapter 93 and providing state government with specific authority to support the improvements to COVID-19 data completeness, quality, and timeliness outlined in this report.

Conclusion

The availability of new federal COVID-19 funding will support these data initiatives. Certain aspects of these data improvements will require continuing engagement with data partners and advocates to provide guidance and feedback on efforts to improve data collection and reporting to identify and eliminate health disparities around COVID-19 that affect a range of communities at elevated risk of infection, health complications, and death.