

# Oregon adds automation and vaccine forecast to disease surveillance systems to improve interoperability



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CATEGORY: **Interoperable Data Systems**

To support COVID-19 vaccination roll out, Oregon Health Authority (OHA) implemented a nightly process that automatically matched COVID-19 vaccinations with newly created cases to improve the timeliness and completeness of case data. This interoperability work led to the creation of vaccine forecasts for perinatal hepatitis B cases, which improved follow-up and decreased administrative efforts. The automated vaccine matching and forecasting technology is something that can be leveraged for other vaccine preventable diseases with the right resources and staffing.

Users of Oregon's integrated disease surveillance system (Orpheus) have been able to query the Oregon Health Authority (OHA) immunization information system (ALERT IIS) to retrieve immunization histories for vaccine preventable conditions since 2016. As a person-centric system, data queried were stored regardless of whether the person was a case or contact. When the pandemic struck, OHA cleaved Orpheus into a sister application (Opera) specific to COVID-19 and the functionality to query the IIS was in place for when vaccines became available.



## The “What”

Within a few weeks of vaccine roll-out, OHA realized that human-initiated queries and storing an entire vaccine record would overburden the system. They decided to automate the query to run nightly for every newly created case (that had not been manually queried) and to store only COVID-19 vaccines. This improved both the timeliness and the completeness of data capture.

While OHA decided not to automate query for other vaccine preventable diseases (VPDs) or to restrict population of immunization data to only relevant vaccines (since in Orpheus users could have multiple VPDs and storing data at the person level is more efficient), they realized that adding vaccine forecast to cases would be useful, particularly for cases of perinatal hepatitis B. They modified the query/response type in their outgoing query by parameter (QBP) message, added a vaccine forecast table, and now store both histories and forecasts for VPDs.



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### The “So What”

Though OHA has not yet completed a formal evaluation of the results of this effort, the automation improved data capture and timeliness for COVID-19. The Authority’s perinatal hepatitis surveillance coordinator says that for Orpheus, the accuracy of data capture for forecasts has improved follow-up and decreased effort needed to ensure that infants are getting subsequent doses in a timely manner.



### The “Now What”

OHA is working to build out notifications for epidemiologists and local public health partners so they are not having to search for (run reports on) cases/contacts due for immunizations. They are still considering automation of query for VPDs in Orpheus as well as limiting storage of vaccine data that are relevant for the condition, as well as automating re-query after a forecasted date for relevant diseases.

OHA does not currently have the staffing capacity to build this functionality. Further, because they maintain multiple person registries (one for each system), coinfecting cases may cause redundant queries. They are evaluating whether to consolidate systems, switch from storage to display, or consider another option for ongoing improvements regarding this type of interoperability.

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Key contributors to this project include the OHA Immunization Program, Heather Crawford, Juventila Liko, and Tracy Little.