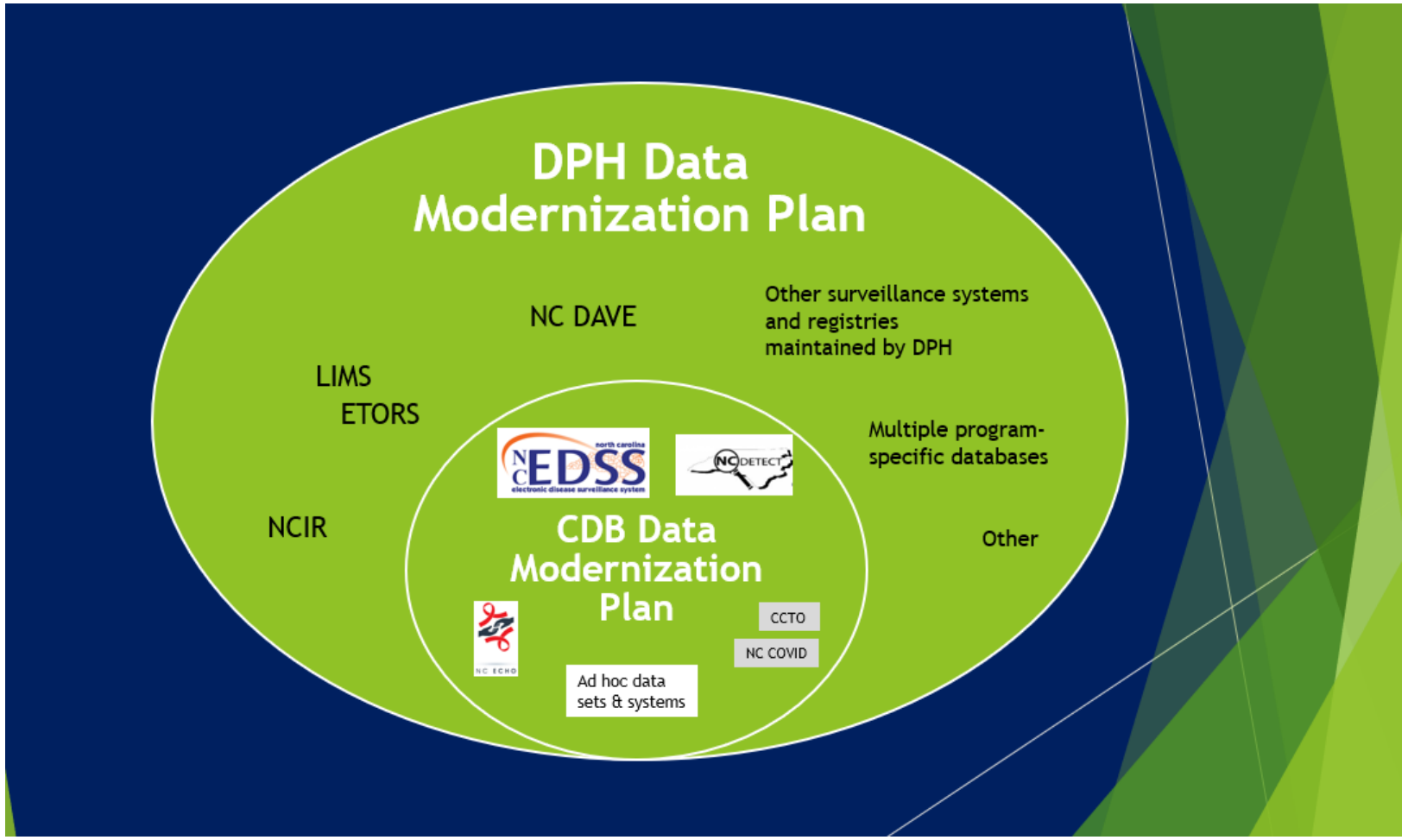
Overview of Communicable Disease Branch (CDB) DMI Plan

FOR DISTRIBUTION

version date: February 14, 2024



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

Note:
The CDB Data Modernization (DMI) Plan is a deliverable under the CDC *Building Epidemiology and Laboratory Capacity* (ELC) cooperative agreement.

CDB DMI Plan Assumptions

- The focal points for the plan are the primary data systems within the Communicable Disease Branch (e.g., MAVEN (NC EDSS/COVID) and NC DETECT) along with other systems where potential connections will be explored (e.g., ETOR/Star LIMS, Death Registry/Other Vital Events, and Immunization Registry).
- The plan milestones are intended to go beyond the focus of systems, and address delivery of end products resulting from DMI-based strategies as well as workforce needs.
- The plan should be viewed as a dynamic (as opposed to a static) document.
- Additional edits to the plan may occur as part of the review (Phase 3) and approval (Phase 4) stages of our approach.
- Some of the supplemental information associated with the milestones could not be determined during the milestone refinement stage (Phase 2). It will be added when additional details are known.
- Revisions to some of the supplemental information are expected especially when we enter the monitoring stage of our approach (Phase 5).
- Some milestones may not be achieved (for various reasons). These will be documented in the plan.
- New milestones may get added over time.

Vision Statement and Guiding Principles

Vision Statement (as of 1/2/24)

Create a shared DMI vision and future-state plan to:

- *modernize and connect data systems to enable interoperability, advanced analyses, and timely dissemination while improving real-time data-driven decision making within public health programs administered by the Communicable Disease Branch/Epidemiology Section and the State Laboratory of Public Health,*
- *strategically align internal (i.e., Division, Section, and Branch level) and external (i.e., CDC) data modernization efforts, and*
- *inform the development of the ELC Workforce Development Plan.*

Guiding Principles (as of 1/2/24)

- *Useable information to help control disease outbreaks for staff and public*
- *A better experience for public health workers*
- *Increased efficiency, reduced paper/time wasting*
- *Innovation and increased effectiveness*

CDB Data Modernization Initiative (DMI) Plan Goals

	Goals	*The "How"*
Goal 1 – *Address Health Inequities*	***Accelerate data into action to identify and address health inequities***	*By improving demographic and SDOH data availability*
Goal 2 – *Modernize Systems*	***Modernize core foundational IT systems and IT architecture to support scalable, flexible, and timely access to data, systems, and services in the public health ecosystem***	*By assessing the value of available tools such as cloud computing and adding capacities such as electronic case reporting (ECR)*
Goal 3 – *Connect Systems*	***Connect core foundational IT systems and IT architecture to support scalable, flexible, and timely access to data, systems, and services in the public health ecosystem***	*By developing new electronic linkages to key systems such as the Immunization Registry, Vital Records, SLPH LIMS, and the HIE*
Goal 4 – *Enhance Data Sharing*	***Enhance data quality, sharing, and interoperability allowing for timely electronic, automated, and reporting to public health partners***	*By increasing data availability via NC EDSS and downloadable data, and increasing data types and sources delivered by ECR and other electronic means*
Goal 5 – *Advance Data Visualization*	***Advance data visualization, forecasting, & predictive analytics to translate public health data into actionable decision-making***	*By increasing data sharing via rapid generation of webpages for outbreaks, increased data sharing in dashboards, and equity reports*

Goal 1 *Address Health Inequities*

At A Glance

Quick Stats

- 8 milestones
- 3 milestones with a top 10 priority ranking across all plan milestones

Content Summary of Milestones

- 2 milestones addressing data quality i.e., completeness
- 2 milestones enhancing robustness of publicly available data (e.g., adding demographics or denominators)
- 2 milestones exploring linkages to other datasets
- 1 milestone expanding ability to identify people who may have resource needs and improve access to care
- 1 milestone enhancing outbreak reporting and detection especially in more at-risk settings

Goal 1 *Address Health Inequities*

Accelerate data into action to identify and address health inequities

Milestone Index	Milestone	Key Contact(s)
1A*	**By 3/31/24, include basic demographic data into public health facing dashboards (e.g., NCD3).**	*Jennifer Stewart and Anna Cope*
1B	**By 3/31/24, create a plan for a report that identifies people with >1 communicable disease, to identify people who may have additional needs and improve access to care.**	*To be determined and Jennifer Stewart*
1C	**By 6/30/24, assess the possibility of implementing use of congregate care setting from DHSR phone numbers to identify outbreaks of some diseases.**	*To be determined, Outbreak team*
1D	**By 4/30/24, identify and enhance Social Determinants of Health (SDOH) data components variables and evaluate what data is available for linkage at the case level.**	*Jennifer Stewart and Lana Deyneka*
1E*	**By 6/30/24, improve completeness of ethnicity and race data (i.e., reduce percentage of persons with missing data) within NC EDSS and NC COVID including improved capability to capture patients who identify more than one race.**	*Jennifer Stewart*

*Denotes that the milestone was ranked in the top 10 of all plan milestones by members of the plan development working groups when asked during the ranking process: *Please think about priorities in terms of our mutual capacity to accomplish them (do we have DPH staff to accomplish the task, are there likely to be partners/LHDs who would be willing to collaborate/test), the impact of the process, and whether there are other processes that have to be accomplished prior*

Goal 1 *Address Health Inequities*

Accelerate data into action to identify and address health inequities

(continued)

Milestone Index	Milestone	Key Contact(s)
1F	**By 7/31/24, link NC DETECT data sources to increase data richness and improve surveillance (using secure data linkages between NC DETECT ED and OEMS data feeds to allow aggregate analyses of health inequities).**	*Lana Deyneka (DETECT)*
1G	**By 12/31/24, quantify completeness (e.g., percentage of individuals without missing values) for demographic data as eCR and other streams improve our data quality.**	*Jennifer Stewart and new eCR supervisor*
1H*	**By 12/31/24, develop a plan for incorporating CDC's Social Vulnerability Index (SVI) metric as part of public facing dashboard(s).**	*To be determined*

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Goal 2 *Modernize Systems*

At A Glance

Quick Stats

- 8 milestones
- 3 milestones with a top 10 priority ranking across all plan milestones

Content Summary of Milestones

- 1 milestone providing high level summary of planned upgrades to systems including identification of systems that have potential for migration to a cloud-based environment
- 1 milestone exploring spatial analytics
- 1 milestone expanding auto-populating content of case reports
- 1 milestone improving outbreak tracking
- 2 milestones exploring use of texting for case outreach
- 1 milestone automating ELC grant deliverable reporting
- 1 milestone expanding automation for interstate notification

Goal 2 — *Modernize Systems*

Modernize core foundational IT systems and IT architecture to support scalable, flexible, and timely access to data, systems, and services in the public health ecosystem

Milestone Index	Milestone	Key Contact(s)
2A*	**By 6/30/24, create a high-level document that describes planned systems upgrades (including which can be migrated to cloud-based platforms and barriers that prevent it).**	*Leads from all sections*
2B*	**By 10/31/24, develop space-time analytics to enable spatial linkage between data sources, and guide action on gaps in geographical coverage.**	*Neha Shanker*
2C*	**By 8/31/24, expand automated mapping of additional fields from electronic initial case reports (eICRs) in NC EDSS.**	*Karla Norsworthy*
2D	**By 12/31/24, upgrade tracking of outbreaks for select diseases (i.e., food borne, measles) in NC EDSS based on input from subject matter experts.**	*To be determined*
2E	**By 4/30/24, pilot texting based on gonorrhea records from the COVID-19 Community Team Outreach Tool (CCTO).**	*Erika Samoff/Jennifer Stewart/new NC EDSS manager*

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Goal 2 *Modernize Systems*

Modernize core foundational IT systems and IT architecture to support scalable, flexible, and timely access to data, systems, and services in the public health ecosystem

(continued)

Milestone Index	Milestone	Key Contact(s)
2F	**By 12/31/24, use info from the CCTO gonorrhea pilot to create capacity for texting from surveillance records in NC EDSS.**	*Erika Samoff/Jennifer Stewart/new NC EDSS manager*
2G	**By 1/31/24, develop and implement more automated process(es) of calculating quarterly measures for ELC grant deliverables.**	*Michelle Cummings/Karla Norsworthy/Jennifer Stewart*
2H	**By 12/31/24, work with internal IT partners to begin process of triggering interstate notification within NC EDSS.**	*NC EDSS manager/Christy Crowley/Karla Norsworthy*

Goal 3 *Connect Systems*

At A Glance

Quick Stats

- 2 milestones
- 1 milestones with a top 10 priority ranking across all plan milestones

Content Summary of Milestones

- 1 milestone assessing data needs and pursuing linkages to transmit data where possible
- 1 milestone implementing real-time test orders and results to and from PH LIMS and NC HIE

Goal 3 — *Connect Systems*

Connect core foundational IT systems and IT architecture to support scalable, flexible, and timely access to data, systems, and services in the public health ecosystem

Milestone Index	Milestone	Key Contact(s)
3A*	**By 6/30/24, identify overlapping data needs and pursue linkages across data systems and then work on stepwise transmission of data (immunization, vital records, communicable disease) – aiming for electronic methods (FHIR, others) and shared services where possible.**	*Jennifer Stewart/Karla Norsworthy/Data team*
3B	**By 6/30/24, implement real-time test orders and results to and from the PH LIMS and NC HIE.**	*Robert Lanzotti*

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Goal 4 *Enhance Data Sharing*

At A Glance

Quick Stats

- 12 milestones
- 1 milestones with a top 10 priority ranking across all plan milestones

Content Summary of Milestones

- 4 milestones expanding electronic reporting (via ELR and/or eCR) capacity
- 2 milestones expanding availability of publicly available downloadable electronic data
- 2 milestones expanding availability of dataset output to LHDs via a secured connected
- 1 milestone expanding epidemiologic and analytic capacity to LHD regions
- 1 milestone expanding capability for creating custom datasets in NC DETECT
- 1 milestone expanding access to data quality reports for NC DETECT
- 1 milestone expanding data visibility (in NC EDSS) across county boundaries for LHDs

Goal 4 *Enhance Data Sharing*

Enhance data quality, sharing, and interoperability allowing for timely electronic, automated, and reporting to public health partners

Milestone Index	Milestone	Key Contact(s)
4A	**By 6/30/24, develop a plan for onboarding LHDs who are interested in automated reportable disease data transfer for people seen in their clinics via electronic laboratory or case reporting from enabled EMRs.**	*Karla Norsworthy/Michelle Cummings*
4B	**By 12/31/24, onboard 12 additional systems or facilities to send eCR data.**	*Karla Norsworthy/Michelle Cummings*
4C	**By 3/31/24, add gonorrhea and chlamydia to the diseases for which eCR is supported.**	*Karla Norsworthy/Michelle Cummings*
4D	**By 12/31/24, onboard hepatitis A and varicella for eCR.**	*Karla Norsworthy/Michelle Cummings*
4E*	**By 12/31/23, make downloadable annual and quarterly data (i.e., case counts) available by county through public dashboard.**	*Anna Cope*
4F	**By 7/31/24, add demographics to the downloadable annual and quarterly data available by county through public dashboard.**	*Anna Cope*

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Goal 4 *Enhance Data Sharing*

Enhance data quality, sharing, and interoperability allowing for timely electronic, automated, and reporting to public health partners

(continued)

Milestone Index	Milestone	Key Contact(s)
4G	By 3/31/24, identify how to automate dataset output for LHDs to sFTP site.	*To be determined*
4H	By 12/31/24, expand dataset output for LHDs to sFTP site after receiving feedback from pilot LHD.	*To be determined*
4I	By 1/31/24, offer analyzed data and data analysis support via Regional Epidemiologist(s).	*Erika Samoff*
4J	By 8/31/24, build NC DETECT Application Programming Interface to streamline provision of ED custom datasets for NC DPH and LHDs partners via API or other tools based on needs assessment.	*Lana Deyneka*
4K	By 12/31/23, continue to enhance data quality for NC DETECT data transmission by sharing and assessing NC DETECT data quality reports. Data quality reports for select data sources will be built and added to NC DETECT predesigned dashboards.	*Lana Deyneka*
4L	By 7/31/24, create plan for data visibility across county boundaries in NC EDSS (including a discussion of reports needed).	*To be determined, Jennifer Stewart*

Goal 5 *Advance Data Visualization*

At A Glance

Quick Stats

- 10 milestones
- 2 milestones with a top 10 priority ranking across all plan milestones

Content Summary of Milestones

- 1 milestone~~s~~ improving accessibility (e.g., ADA compliance) for web-based content and products
- 1 milestone~~s~~ creating a standardized equity report template to elucidate inequities
- 1 milestone expanding capacity for predictive analytics and modeling via UNC partnership
- 1 milestone expanding capability to perform more detailed analyses of demographic characteristics
- 4 milestones expanding availability of data for most diseases, immunization compliance, and outbreaks
- 1 milestone expanding analytic capacity to rapidly identify changes in disease burden or distribution
- 1 milestone increasing internal capacity to maintain data dashboards

Goal 5 *Advance Data Visualization*

Advance data visualization, forecasting, & predictive analytics to translate public health data into actionable decision-making

Milestone Index	Milestone	Key Contact(s)
5A	**By 3/30/2024, develop a process to ensure compliance with ADA guidance for all data displays.**	*Caralee Sadler*
5B*	**By 1/31/25, publish an annual equity report for select diseases using disease appropriate adaptations of the equity template. Disease specific adaptations may include additional data sources such as vaccine data or syndromic data. (Interim milestone: By 3/30/2024, develop a standardized equity report template that can be routinely generated to identify and communicate health disparities).**	*Caralee Sadler*
5C	**By 6/30/2027, work with recipients of the CDC forecasting grant (UNC, Caitlin Rivers) on development of predictive analytics and modeling.**	*Aaron Fleischauer*
5D*	**By 6/30/2024, develop updated categories for sex/gender, race/ethnicity, and tribal affiliation.**	*Caralee Sadler, Erica Wilson, Erika Samoff, Jennifer Stewart*
5E	**By 1/31/24, publish quarterly data to the NCD3 dashboard for most diseases.**	*Anna Cope*

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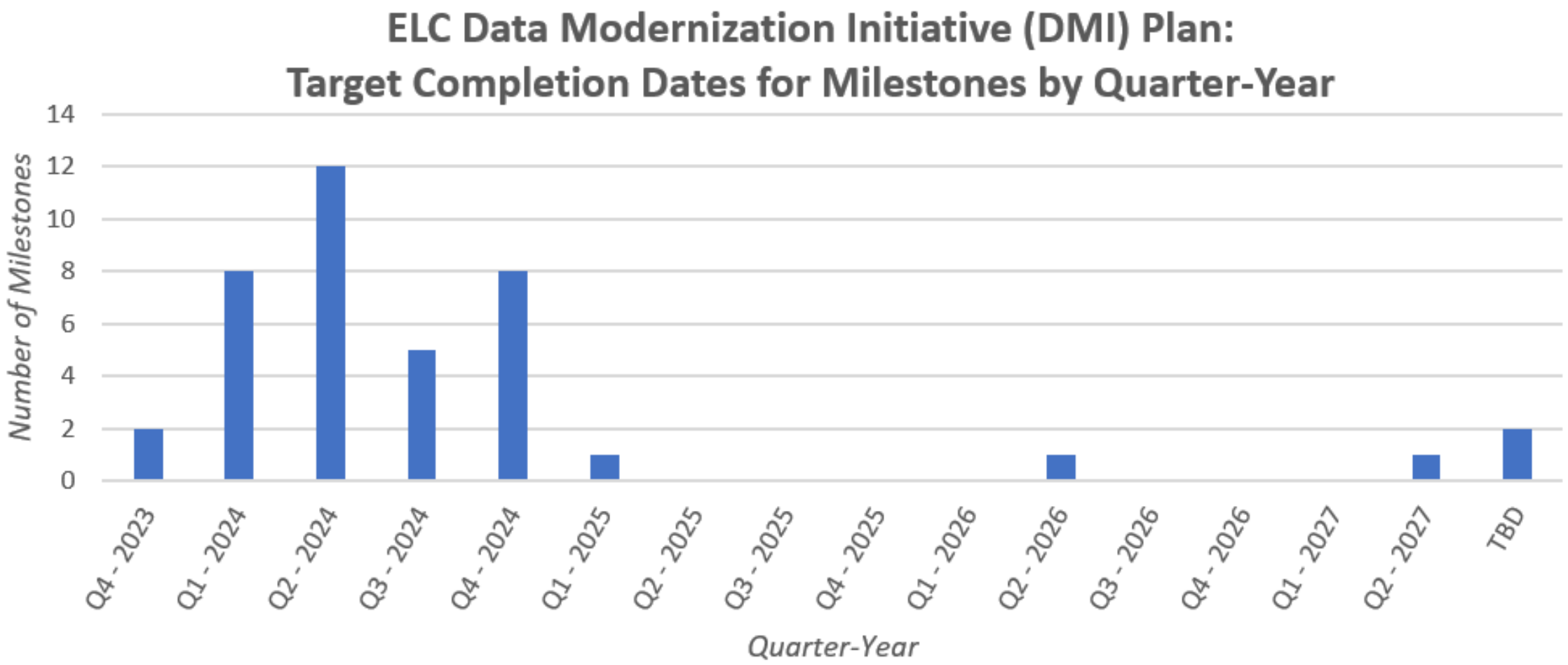
Goal 5 *Advance Data Visualization*

Advance data visualization, forecasting, & predictive analytics to translate public health data into actionable decision-making

(continued)

Milestone Index	Milestone	Key Contact(s)
5F	**By 6/30/2024, develop a dashboard template that can be rapidly adapted for posting of emerging outbreak data.**	*To be determined, Jennifer Stewart*
5G	**By 06/30/2026 develop an aberration detection algorithm to detect spatio-temoporal clustering and demographic changes in disease incidence.**	*To be determined, Erica Wilson*
5H	**By June 30, 2024, publish annual immunization compliance data to a public dashboard.**	*Jenny Myers, Lucy Sutter*
5I	**By 1/1/2025, establish a process for the timely posting of outbreak data using a standardized outbreak template within 48 hours of standing up IMT for an outbreak response.**	*To be determined, Erica Wilson*
5J	**By 6/30/2027, have one individual from each branch/unit identified and trained in the process for updating routine dashboards and developing outbreak dashboards.**	*To be determined*

Timeline for Completing Plan Milestones



Appendix

- Five phased approached for plan development
- Detailed list of data elements in plan templated

ELC DMI Plan: Five Phase Approach (*revised 12-15-23)

			Target Timeline
Phase 1	**Plan Creation**	•Receive technical assistance via Guidehouse •Identify diverse group of key collaborators (contributors, reviewers, and approvers) from multiple areas •Select goals and create draft milestones	*7/1/23 – 7/31/23*
Phase 2	**Milestone Refinement**	•Transform milestones to "SMART" format •Use three reconfigured working groups consisting of contributors and reviewers •Kickoff meeting for Phase 2 (August 29, 8:30am)	*8/1/23* – 9/29/23*
Phase 3	**Review**	•Circulate revisions to large group (from July planning sessions) for comment and validate changes •Finalize draft plan •Informational meeting for Phase 3 (September 20, 8:00am)	10/2/23 – 11/15/23*
Phase 4	**Approval**	•Approvers review and provide feedback (11/16/23-12/4/23) •Final edits (12/15/23) and present to DPH Leadership (TBD)	*11/16/23* – 12/31/23*
Phase 5	**Monitoring**	•Conduct quarterly assessments of milestone progress •Revise as appropriate to accomplish milestones	*January 2024* – ongoing*

Informs and integrates into the overall DPH DMI Plan

Detailed List of Data Elements in the Plan Template

- Milestone Index*
- Strategic Milestone (SMART format)
- Key Point of Contact
- Do you have the staff/personnel needed to complete this activity?
- Staff/Personnel Need Description
- Technical Assistance Anticipated?
- Technical Assistance Description
- Do you have the funding needed to complete this?
- Funding Needs Description
- Barriers/Constraints (Non-Personnel Related)
- Dependencies
- Anticipated Start Date
- Anticipated End Date
- Status
- Notes
- *Priority ranking within each goal**
- *Priority ranking across all goals**
- *DPH DMI Plan Category*****

* Our planning group decided to add this data element to the original CDC/Guidehouse template

** DPH requested this to be added to indicate that a milestone aligns to a category in the DPH DMI plan