

Overview

The New Jersey Department of Health (NJDOH), Public Health and Environmental Laboratories (PHEL), with the help of a summer 2024 intern from Boston University, conducted a Data Modernization survey to assess the level of knowledge and experience of PHEL scientific staff members in the areas of programming languages, data analysis/management/visualization, statistical analysis tools, coding, and artificial intelligence.

One hundred, forty-five (145) personnel were surveyed; 103 responses were received and 98 were included in the analysis. Apart from the Informatics team within the Public Health Laboratory Services, and the Data Management and Analysis team within the Environmental Chemical Laboratory Services, all staff reported limited subject matter knowledge.

Based on these results, a PHEL Data Modernization Task Force comprised of representatives from the following program areas was formed: Virology, Microbiology, Newborn Screening, Inorganics, Organics, Biomonitoring and Blood Bank Improvement Services. These program representatives were charged to work alongside Advanced Informatics Subject Matter Experts (SME) to identify use cases for data modernization applications in each of the Service Areas and make recommendations regarding a training plan.

Methodology

- **We anticipated this need and secured resources with ELC Supplemental COVID funds.**
- **Civil Service ALL ACCESS passes** to thousands of online courses, including courses in computer languages, statistics, and AI
- **Membership with the AMIA** (American Medical Informatics Association), which includes many learning opportunities
- **Paid internships**
- **Subject Matter Experts** - Hired four Informatics fellows and an Advanced Informatics Program Manager to join Bio informaticists – LEAD THE TASK FORCE



DM TASK FORCE DESCRIPTION

CHARGE:

Determine data management and analysis training needs for PHEL scientific and technical staff to enable effective and efficient technical operations:

- *Improve quality by reducing risk for data errors*
- *Decrease analysis time and improve analysis functions*
- *Improve data visualization*
- *Decrease repetitive manual tasks, freeing scientific staff time for developmental work*

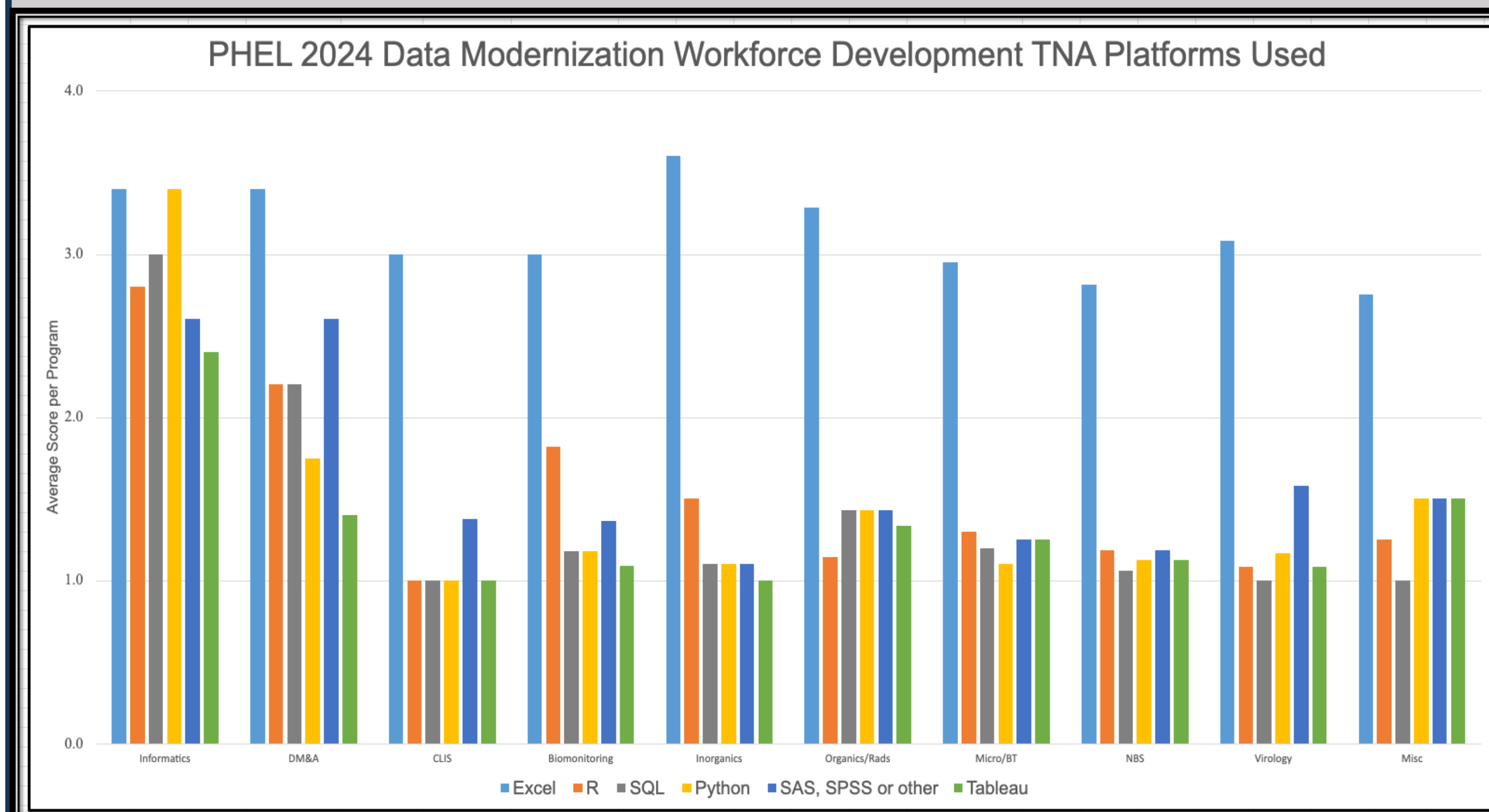
DELIVERABLE: Written report to Directors to include examples of use cases, training needed to accomplish continued improvement, and training recommendations by June 1, 2025

PROJECT MANAGER: Workforce Development Manager

PROJECT TEAM: * Informatics SMEs and Selected Program Staff

*Task force members always composed of experts

Results



1

ASSESS
Staff DM
Knowledge

2

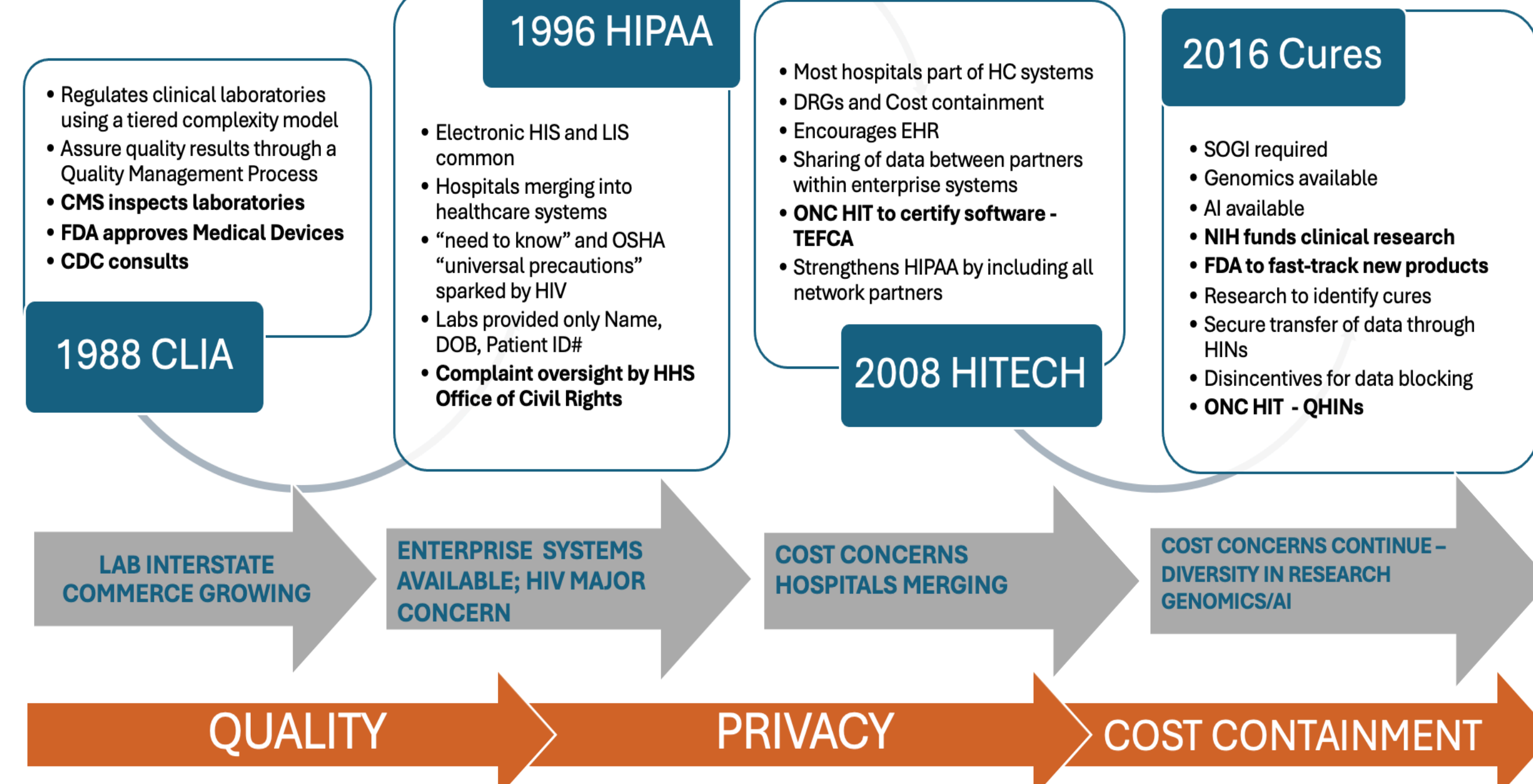
SHARE
Current DM
Projects

2024 PHEL Data Modernization Task Force Presentation Schedule		
Date	Speaker	Title
November 14 1 – 2 PM PHEAL Auditorium	Susan Mikorski, M.Ed., MT(ASCP)SM, CPM Outreach and Workforce Development Manager	PHEL Data Modernization Workforce Task Force Goals and Objectives – Task Force Kick Off
	Dr. John Favate, PhD Research Scientist, Informatics Fellow	Automating Repetitive Spreadsheet Operations for Materials Management
	Dr. Joel Studebaker, PhD, Informatics Fellow Aaron Preidel, MS, Microbiologist	Automating the Transfer of Data from PCR Instruments to an Online Database
November 22 1:30-2:30 PM PHEAL Auditorium	Dr. Chang Ho Yu, PhD, Program Manager Colleen Donohue, Health Data Specialist ECLS Data Management and Analytics	Leveraging Programming and Data Modernization: New Jersey Department of Children and Families' Children Drinking Water Project
	Dr. Byoung Jeong, PhD Research Scientist, Bioinformatics Program	Improved Genomics Data Flow and Data Management
December 5 11AM – 12N PHEAL Auditorium	Asala Hassan, PhD candidate Research Scientist, Informatics Fellow	Automating Data Entry: Transforming Excel Workflows with a Modern GUI Solution
	BJ Ochal, MSIT, LIMS Manager	Data Modernization- Not just Bells and Whistles
December 12 2 – 3 PM PHEAL Auditorium	Dr. Nicholas Palmateer, PhD Research Scientist, Bioinformatics	Designing and Building AI Products and Services
	Gabriel Jastrzebski, IT/Business Major, NJIT	From DNA to Dashboard: Visualizing COVID 19 Genomic Data
	Ula Schlitt, MS, Research Scientist Bioinformatics	PHEL AMR Database - Making Antimicrobial Sequencing Data Easily Accessible
December 16 3 – 3:30PM PHEAL Auditorium	Satyam Patel, MBS, Research Scientist Outreach and Workforce Development	Cobots in the Workplace

3

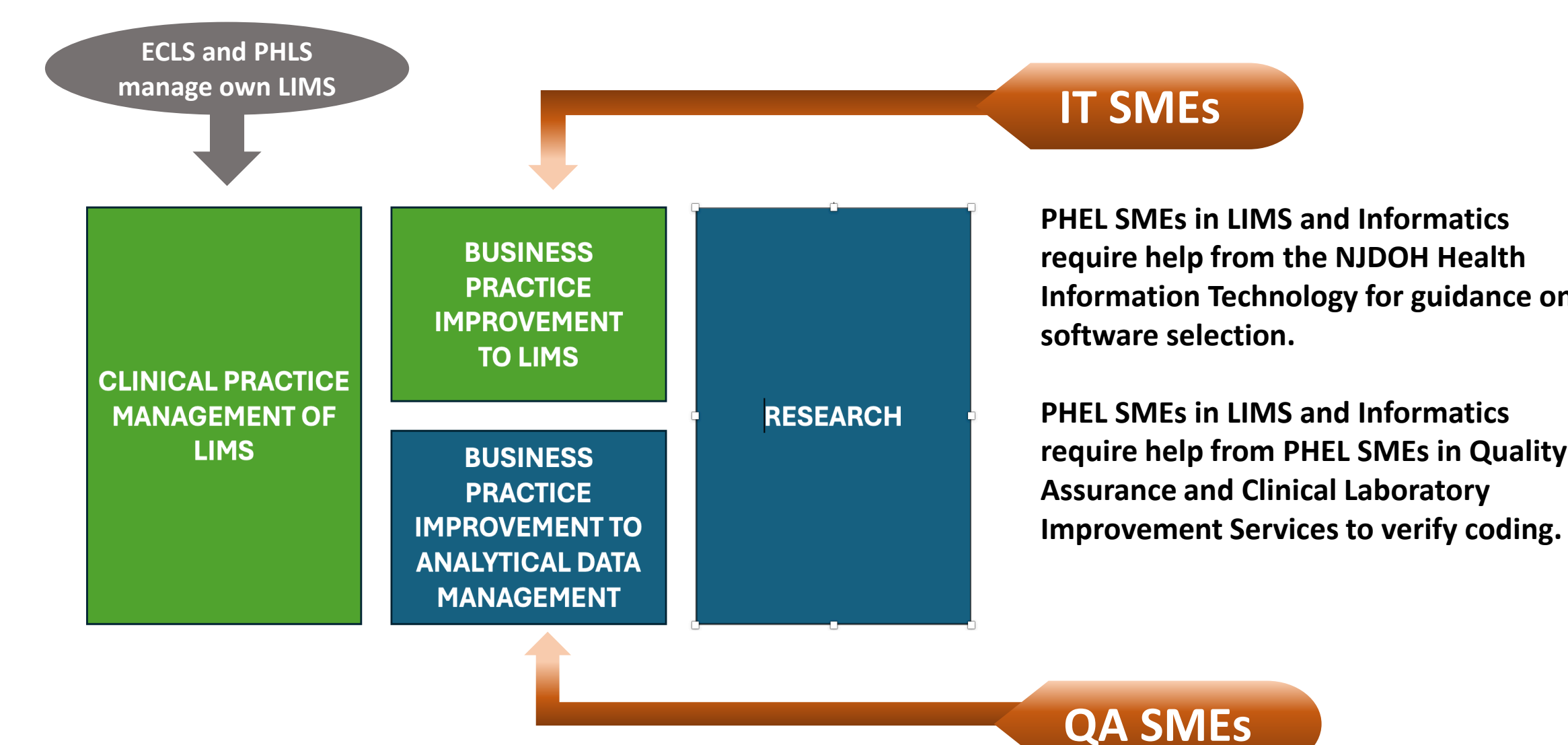
EVALUATE
Constraints to
Implement
DM Projects

Timeline



Conclusions

Improvements to Data Modernization Business Applications Require Partnerships with SMEs



Research Projects with Epidemiology, Hospitals and Academia Require Partnerships with SMEs



Enhancing Staff Skills

Once additional Use Cases are identified within each laboratory section, staff will be encouraged, through their annual performance assessment review process, to take courses within the Civil Service Commission CLIP Learning Management System to take courses Coding and AI applications, including, but not limited to Python, R, SQL, and SAS.

Next Steps

- **Document MERIT** of existing projects
- **Implement RECOMMENDED IMPROVEMENTS** to laboratory processes and procedures:
 - *QA verification procedure for coding*
 - *Implementation of Data Privacy training schedule*
- **Identify Ethics and HIT Processes**
- **Identify new use cases** in each of the Service Units – *Public Health Laboratory Services, Environmental Chemical Laboratory Services, Clinical Laboratory Improvement Services*
- **Identify courses available on our free ALL ACCESS** Civil Service Learning Management System for identified scientists. R, Python, SQL etc.

References

- <https://asa.org/quality-resources/pdca-cycle>
- <https://www.projectmanagement.com/blog-post/39020/tips-for-leading-an-effective-taskforce#>
- <https://monday.com/blog/project-management/guide-to-project-management/>
- <https://www.nj.gov/governor/news/news/562023/20231010b.shtml>
- <https://www.federalregister.gov/documents/2023/12/28/2023-28170/clinical-laboratory-improvement-amendments-of-1988-clia-fees-histocompatibility-personnel-and>
- <https://www.hipaasurvivalguide.com/hitech-regulations.php>
- <https://www.congress.gov/bills/114/congress/house-bill/34>
- <https://www.federalregister.gov/documents/2024/07/01/2024-13793/21st-century-cures-act-establishment-of-disincentives-for-health-care-providers-that-have-committed>