



# Project Plan Presentation

## Electronic Laboratory User's Guide 2.0

The Capstone Experience

Team Henry Ford Innovations

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*From Students...  
...to Professionals*

Fall 2025

# Project Sponsor Overview

- 110 years old
- Leader in healthcare innovation
- Committed to research
- Millions served annually



**HENRY FORD HEALTH®**



# Project Functional Specifications

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- Catalog of tests
- Expand on last semester's work
- Bring the eLUG to all mobile devices
- Integrate with existing systems

# Project Design Specifications

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- Modernize appearance
- Consistent with HFH brand
- Keep proven components
- Mirroring of LIS
- Large scale expansion of catalog
- Admin panel for LIS



# Screen Mockup: Home (Browser)

The mockup shows a web browser window with the address bar displaying 'lup.hfa.org'. The page features the Henry Ford Health logo and a navigation menu with links to Home, Reference, Contact, and Admin Panel. A dark blue header bar contains dropdown menus for Administrative Info, Tissue/Cytology Lab Specimens, Blood/Body Fluid Lab Specimens, Forms and Supplies, and Result Reporting. The main content area is titled 'Welcome to the Pathology Lab User's Guide' and includes a search bar, a dropdown for 'Performing Lab', and a 'Search' button. On the right, there are two sidebars: 'Test Catalog Changes' with a list of months from March 2025 to June 2024, and 'Latest Lab Newsletter' with a 'Read Newsletters' link.

Electronic Laboratory User's Guide

Henry Ford Health  
Innovations

Home Reference Contact Admin Panel

Administrative Info ▼ Tissue/Cytology Lab Specimens ▼ Blood/Body Fluid Lab Specimens ▼ Forms and Supplies ▼ Result Reporting ▼

## Welcome to the Pathology Lab User's Guide

We are pleased to present the *Laboratory User's Guide (eLUG)*. The purpose of the guide is to provide information about our laboratories and a comprehensive test catalog with information regarding specimen collection and handling.

We value your suggestions and look forward to working with you. Please feel free to call us or members of our **Laboratory Customer Service Center** at (313) 916-LABS (5227), if you need assistance.

In the event of a Downtime, test requisitions can be found [here](#).

Search (Test Code, Name, or Alias): Performing Lab:

Search... Select Lab... Search

### Test Catalog Changes

- March 2025
- February 2025
- January 2025
- December 2024
- November 2024
- October 2024
- September 2024
- August 2024
- July 2024
- June 2024
- [View More...](#)

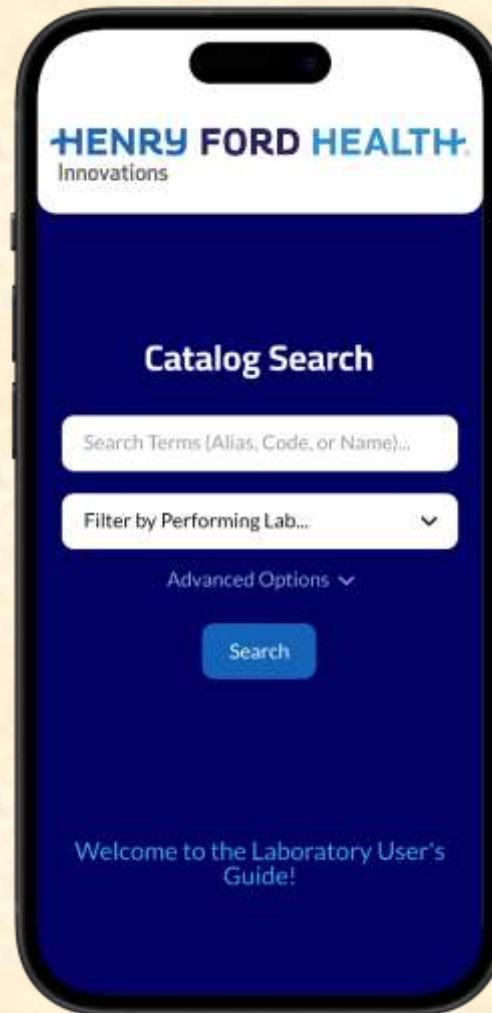
### Latest Lab Newsletter

Stay updated with the latest news and updates from the Department of Pathology and Laboratory Medicine.

[Read Newsletters](#)



# Screen Mockup: Home (Mobile)





# Screen Mockup: Results (Browser)

The mockup shows a web browser window with the address bar displaying 'http://hfh.org'. The page header features the 'HENRY FORD HEALTH Innovations' logo on the left and navigation links 'Home', 'Reference', 'Contact', and 'Admin Panel' on the right. A dark blue navigation bar contains dropdown menus for 'Administrative Info', 'Tissue/Cytology Lab Specimens', 'Blood/Body Fluid Lab Specimens', 'Forms and Supplies', and 'Result Reporting'. The main content area is titled 'Catalog Test Search Results' and includes an alphabetical index bar with 'E' selected. Below the index is a table with two visible rows of test results, each with a blue arrow icon in the right margin.

TEST NAME	ALIAS	CODE	PROFILE
Elm, IgE Allergen Specific	Allergen IgE, Elm, RAST	ELM Epic: LAB136028	
Electrolytes		LYT4	Sodium (NA), Potassium (K), Chloride (CL), Carbon Dioxide (CO2), and Anion Gap (AGAP)



# Screen Mockup: Details (Browser)

The screenshot shows a web browser window with the address bar displaying "lup.hfa.org". The page header features the "HENRY FORD HEALTH Innovations" logo on the left and navigation links "Home", "Reference", "Contact", and "Admin Panel" on the right. A dark blue navigation bar contains several menu items with dropdown arrows: "Administrative Info", "Tissue/Cytology Lab Specimens", "Blood/Body Fluid Lab Specimens", "Forms and Supplies", and "Result Reporting".

The main content area is titled "Sickle Cell, Prenatal Diagnosis, Chorionic Villus Biopsy". Below the title, an alias is provided: "Alias: Prenatal diagnosis CVS DNA Analysis for Sickle Cell and Hemoglobin C Disease, cytogenetics, cytogenomics". To the right of the title is a red alarm bell icon with the text "See Special Instruction".

Specimen Container	Test Code	Collect Volume	Min. Volume	Availability	Test Priority
Sterile Screw Cap Tube	CYT02100003	20 to 30 mg	<20mg may require cell culture	Monday through Friday, day shift	ROUTINE

**Special Instruction:**

Maternal blood sample (1 or 2 Lavender EDTA Tubes) is also required. Patient name, ethnicity/race, indication and accurate pedigree or clinical history, including documentation of parental hemoglobin electrophoresis results must be provided at the time of specimen submission for accurate interpretation of results.

**This test(s) requires insurance prior authorization.**

**Collection Instruction:** Specimen is collected in a syringe (transabdominal) or in a catheter (transcervical)

**Storage Instruction:** Store at ROOM TEMPERATURE

**Transport Instruction:** Transport at room temperature.

**Performing Lab:** Cytogenetics

**Turnaround Time:** 14 days

**Specimen Type:** Chorionic Villus

**Note:** This test includes direct detection of fetal sickle cell and hemoglobin C mutations and written interpretation. Fetal sickle cell and hemoglobin C analysis is used to determine the fetal status when both parents are known carriers of hemoglobin S or C, or when one

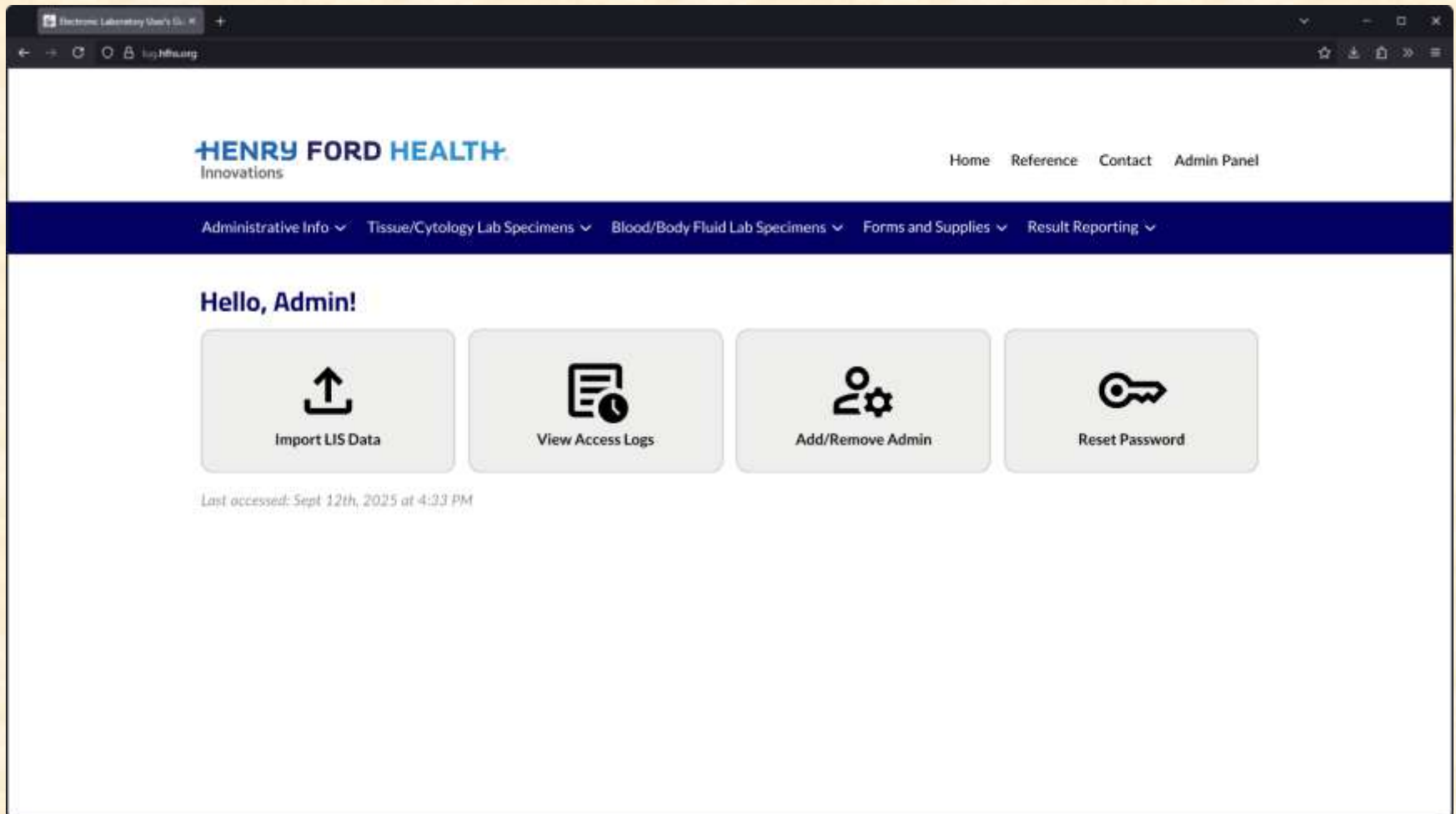




# Screen Mockup: Details (Mobile)



# Screen Mockup: Admin Panel



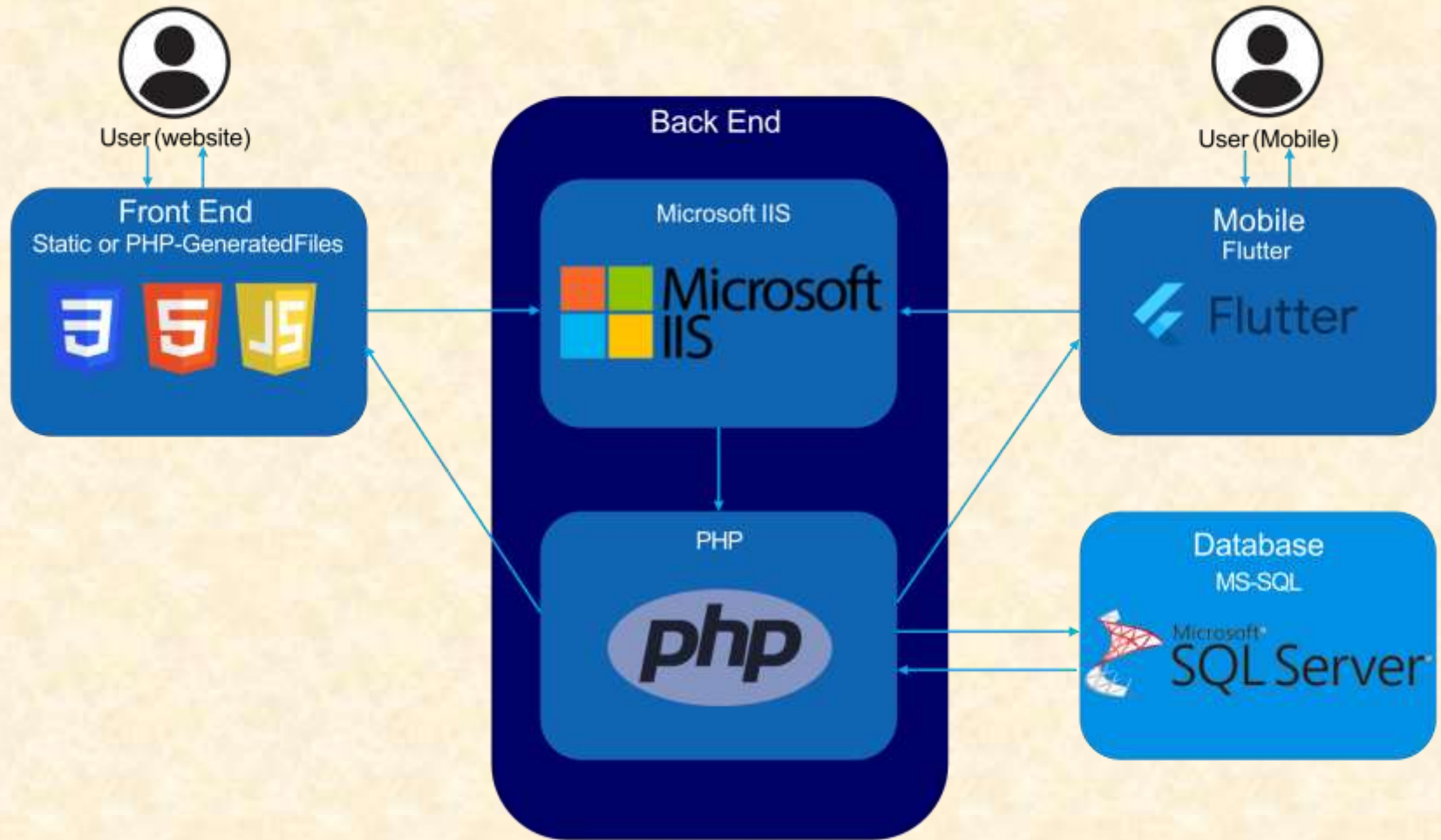
# Project Technical Specifications

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- Database
- Security
- Optimization
- Maintainability
- Cross-platform



# Project System Architecture



# Project System Components

- Hardware Platforms
  - Mobile devices
  - iMacs with Windows VM
- Software Platforms / Technologies
  - PHP
  - HTML / CSS / JavaScript
  - MS SQL Server
  - Flutter



# Project Risks

- Security
  - Vital component of any database system
  - Hash passwords, follow best practices, authentication
- Mobile App
  - Migrating from Swift to Flutter could be complicated
  - Consider design changes
- System Configuration
  - Unknown settings on target infrastructure
  - Stay backwards compatible and document thoroughly
- LIS Integration
  - No documentation/information for the LIS
  - Examine/debug the system closely





# Questions?

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