

UX RESEARCH FINDINGS & DESIGN RECOMMENDATIONS

Clinical Microbiology Setup & Resulting

Wireframe Evaluation (Round 1)

PRODUCT

Clinisys Laboratory Solution (CLS)

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RESEARCH METHOD

Moderated Usability Testing

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01 Overview

This first round of usability testing evaluated the low-fidelity wireframes for the Clinical Microbiology Setup & Resulting workflow. The study focused on validating proposed workflows, information architecture, terminology, and navigation before investing in high-fidelity prototype development.

Participants completed representative microbiology scenarios while providing feedback on workflow alignment, usability, and laboratory-specific processes. The sessions identified opportunities to improve terminology, workflow completeness, information architecture, and visibility of critical specimen information. The findings established the design priorities that guided development of the interactive prototype evaluated during the second round of usability testing.

02 Study Snapshot

DETAIL	DESCRIPTION
Project	Clinical Microbiology Setup & Resulting
Evaluation	Wireframe Evaluation (Round 1)
Research Method	Moderated Usability Testing
Participants	5 Clinical Microbiology client representatives
Session Length	Five 60-minute individual sessions
Format	Remote, one-on-one
Prototype	Low-fidelity wireframes
Primary Focus	Workflow concepts, information architecture, terminology, and usability

03 Study Details

The evaluation consisted of moderated usability testing sessions using low-fidelity wireframes. Participants completed representative Clinical Microbiology workflows while thinking aloud and discussing how the proposed concepts aligned with their existing laboratory processes.

The sessions focused on validating workflow concepts rather than interface interactions, allowing participants to provide feedback on information architecture, terminology, navigation, and workflow completeness before higher-fidelity designs were created.

Research Method

- **Method:** Moderated usability testing
- **Prototype:** Low-fidelity wireframes
- **Session Length:** 60 minutes
- **Participants:** 5 client representatives
- **Format:** One-on-one remote sessions
- **Approach:** Scenario-based workflow walkthroughs

04 Participants

Five Clinical Microbiology professionals representing client laboratories participated in the evaluation. Participants had extensive experience performing routine microbiology workflows and provided feedback based on current laboratory practices, workflow expectations, and operational requirements.

05 Research Objectives

- Validate the proposed Clinical Microbiology workflow.
- Evaluate worklist navigation for single-piece and batch workflows.
- Assess specimen setup and plate configuration workflows.
- Evaluate observation and sub-plate workflows.
- Validate the proposed information architecture.
- Identify terminology, workflow, and usability issues before prototype development.

06 Tasks Evaluated

Participants completed representative workflow scenarios including:

- Navigating the microbiology worklist.
- Locating work using barcode scanning.
- Configuring specimen setup.
- Reviewing automatically configured plates.
- Adding or removing plates.
- Creating observations.
- Creating sub-plates.
- Navigating the material hierarchy.
- Reviewing batch-resulting concepts.

07 Key Findings

KF-01

Shared Terminology Did Not Match Clinical Laboratory Expectations

● HIGH

OBSERVATION

Participants experienced confusion with several system terms that differed from terminology commonly used in Clinical Microbiology laboratories.

EVIDENCE

Participants questioned terminology including:

- Backlog
- Aliquot
- Matrix

Participants suggested terminology such as:

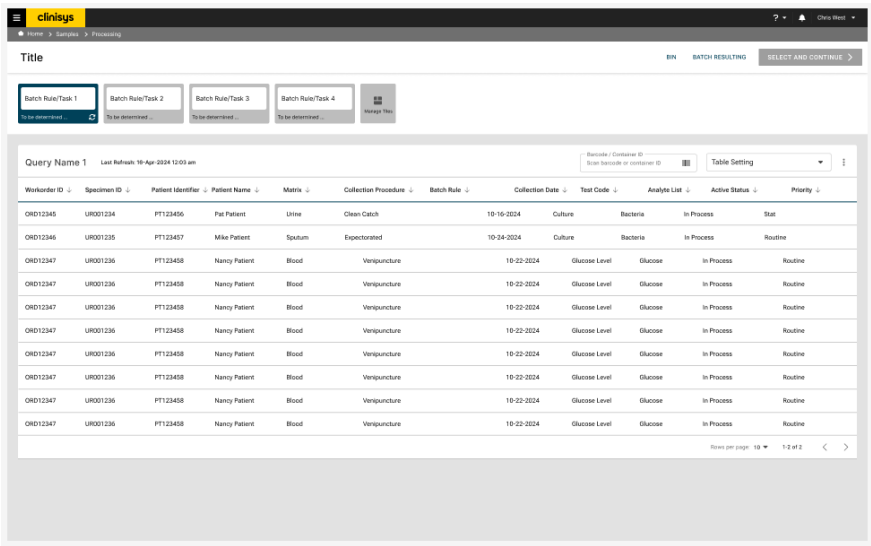
- Pending List
- Order ID
- Plates

IMPACT

Unfamiliar terminology increases cognitive effort and slows task completion, and is likely to require additional onboarding or documentation for users to reach proficiency with the platform.

RECOMMENDATION

Evaluate opportunities to adopt Clinical Microbiology terminology where feasible or provide configurable terminology. If shared platform terminology is required, support adoption through onboarding and documentation.



KF-02

Laboratory Roles Perform Distinct Workflow Responsibilities

● HIGH

OBSERVATION

Participants described receiving, specimen setup, incubation, and resulting as distinct workflow responsibilities performed by different laboratory roles.

EVIDENCE

Receiving and setup were consistently described as separate activities with minimal overlap.

IMPACT

Designing around a single end-to-end user risks a workflow that does not match how laboratories actually divide these responsibilities, which could reduce efficiency for role-specific users.

RECOMMENDATION

Design workflows that support role-specific responsibilities rather than assuming a single user performs the complete end-to-end workflow.

The wireframe displays a clinical microbiology workflow interface. At the top, a header bar includes the 'clinisys' logo and navigation links for 'Home', 'Samples', and 'Microbiology'. Below the header, a patient information section shows details for 'Kennsington, Willamena Kennsington' (DOB: 14-Dec-1993, Female) at 'Raleigh Medical Center' (MHS: 12345678, Encounter Number: 6543656, Billing Account Number: 934890420, Encounter Type: Inpatient, Encounter Location: 7 North (7N)).

The main content area is divided into two panels. The left panel, titled 'Materials', shows a list of materials for 'Lab ID: 12345'. The materials include 'A Urine' (UR001235, In-Progress), 'A1 Blood Agar (BAP)', 'A2 MacConkey Agar', and 'A3 Gram Stain'. The right panel, titled 'A3 Gram Stain', shows 'Task Details' for the current task. It includes a 'Current Task Name' field, a 'Search Analyte' dropdown, and a table with columns for 'Analyte', 'Status', 'Comments', 'CC', 'Amount', and 'Text'. The table contains four rows of data, all with 'Analyte' in the 'Analyte' column and 'OK' in the 'Status' column. Below the table, there is an 'Additional Information' section with a 'Name of Comments Template' dropdown, an 'ADD' button, and two text input fields labeled 'Field 1' and 'Field 2'. At the bottom, there is a 'Bin' field with a value of '1' and a label 'Microbiology Incubation Rack (101010)'.

KF-03

Critical Laboratory Workflows Were Missing

• HIGH

OBSERVATION

Participants identified several workflows that were not represented within the proposed design.

EVIDENCE

Missing workflows included:

- Setup time tracking
- No-growth resulting
- Mixed flora workflows

IMPACT

Without these workflows, the design does not yet reflect the full range of scenarios laboratories encounter in routine production use, which could require rework later in development if not addressed now.

RECOMMENDATION

Incorporate these workflows into future design iterations before development.

KF-04

Plate Management Should Primarily Be System Driven

• MEDIUM

OBSERVATION

Participants preferred automatic plate generation based on backend configuration rather than manually adding plates.

EVIDENCE

Users indicated that manual plate management should only occur in exceptional circumstances and should be controlled through permissions.

IMPACT

Unnecessary manual plate management increases workload and introduces opportunities for error; keeping it exceptional and permission-controlled reduces that risk.

RECOMMENDATION

Maintain automatic plate configuration while supporting optional user modifications through configurable permissions.

KF-05

Personalized Worklists Added Meaningful Workflow Flexibility

● LOW

OBSERVATION

Participants responded positively to the ability to create personalized worklists directly from the backlog.

EVIDENCE

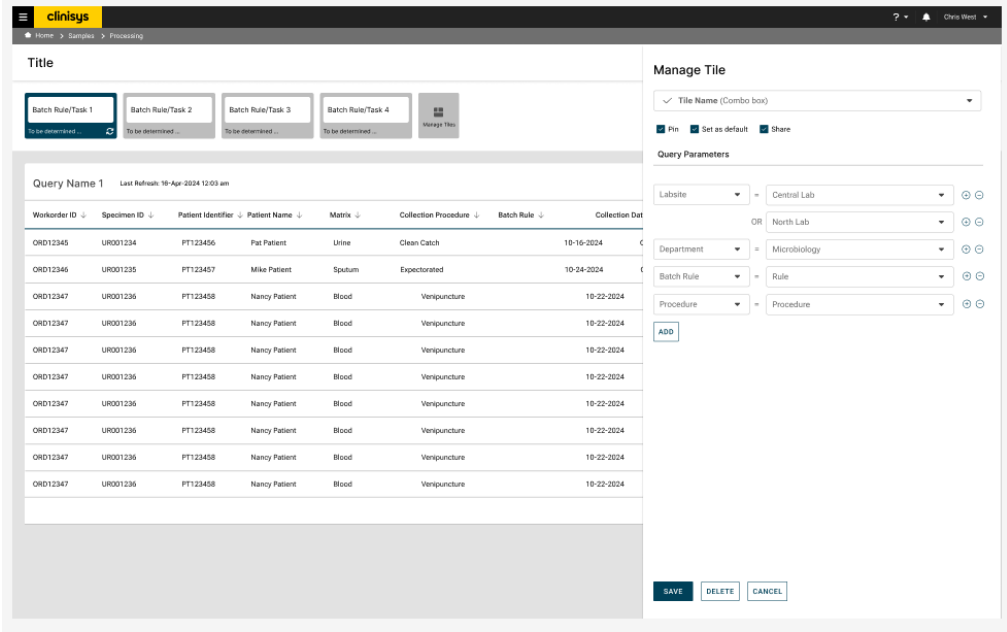
Users appreciated being able to organize pending work according to their own priorities instead of relying solely on predefined worklists.

IMPACT

Personalized worklists appear to improve participants' sense of control over their daily work, supporting continued investment in this capability.

RECOMMENDATION

Continue expanding personalized worklist capabilities, including filtering, sorting, and management features.



KF-06

Greater Context Was Needed During Resulting

• MEDIUM

OBSERVATION

Participants requested additional specimen information while performing microbiology work.

EVIDENCE

Requested information included:

- Order comments
- Special requests
- Specimen modifiers
- Wound location
- Other pending microbiology work

IMPACT

Without this information visible in the primary workspace, users must leave their workflow to retrieve it elsewhere, adding friction to time-sensitive resulting tasks.

RECOMMENDATION

Increase the visibility of contextual specimen information throughout the workflow.

KF-06

Material-Based Navigation Required User Orientation

• MEDIUM

OBSERVATION

Participants initially found the material hierarchy unfamiliar because it differed from their existing laboratory systems.

EVIDENCE

After explanation, participants understood the relationships between materials and recognized the potential value of the proposed organization.

IMPACT

Users transitioning from existing laboratory systems may need onboarding to adopt this navigation model, though the underlying structure was not rejected outright once explained.

RECOMMENDATION

Continue refining the material hierarchy while improving terminology and visual cues to reduce the learning curve.

The wireframe shows a software interface for clinical microbiology. At the top, there's a header with the 'clinisys' logo and a user profile 'Chris West'. Below the header, a navigation bar shows 'Home > Samples > Microbiology'. The main content area is divided into two columns. The left column, titled 'Materials', shows a list of materials for 'Lab ID: 12345'. The materials are: 'A Urine' (UR001235, In-Progress), 'A1 Blood Agar (BAP)', 'A2 MacConkey Agar', and 'A3 Gram Stain'. The right column, titled 'A3 Gram Stain', shows 'Task Details' and 'Additional Information'. The 'Task Details' section includes a 'Current Task Name' field, a 'Search Analyte' field, and a table with columns: 'Analyte', 'Status', 'Comments', 'CC', 'Amount', and 'Text'. The 'Additional Information' section includes a 'Template' dropdown, a 'Name of Comments Template' field, and two 'Field' inputs. At the bottom, there's a 'Bin' field and a 'Microbiology Incubation Rack (101010)' label.

08 Validated Design Decisions

Although participants identified several opportunities for improvement, the study also validated important aspects of the proposed design.

Overall Workflow Direction

Confirmed the overall direction of the proposed Clinical Microbiology workflow.

Automatic Plate Configuration

Participants supported backend-driven plate configuration.

Barcode Workflow

Barcode-driven workflow initiation aligned well with laboratory processes.

Batch Resulting Concept

Participants viewed batch-resulting as a valuable capability for improving workflow efficiency.

Material Relationships

Once understood, the proposed material hierarchy effectively communicated relationships between specimens, plates, observations, and sub-plates.

09 Prioritized Recommendations

PRIORITY	RECOMMENDATION	TIMELINE
High	Implement missing microbiology workflows	Next Design Iteration
High	Increase visibility of contextual specimen information	Next Design Iteration
High	Support role-based workflow responsibilities	Next Design Iteration
Medium	Refine terminology where possible	Product Design
Medium	Improve presentation of the material hierarchy	Prototype Iteration
Low	Introduce configurable permissions for plate management	Future Release

10 Research Impact

The wireframe evaluation established the design direction for the Clinical Microbiology Setup & Resulting workflow and identified the highest-priority opportunities for refinement before prototype development, while confirming the validated design decisions summarized in Section 08.

Design Improvements Influenced by Research

The findings directly informed the development of the interactive prototype by:

- Increasing the visibility of specimen comments and contextual information.
- Introducing personalized worklists from the backlog.
- Refining the material-based navigation model.
- Expanding workflow coverage to include previously missing laboratory scenarios.
- Improving end-to-end workflow continuity.

Outstanding Considerations

- Evaluate terminology constraints within the shared Clinical and Environmental platform.
- Continue refining the material-based navigation model.
- Validate workflow efficiency through interactive prototype testing.

11 Research Outcome

The wireframe evaluation validated the overall direction of the proposed Clinical Microbiology workflow while surfacing several substantive gaps — most notably missing workflows, mismatched terminology, and insufficient contextual information — that needed to be addressed before development, alongside more incremental refinements to navigation and structure. These findings guided development of the interactive prototype.

The resulting design improvements became the focus of the second round of usability testing, where they were further validated and refined before implementation.