

# The Case of the Curious QC: Web-Based Interactive Learning



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**Keywords:** Quality Control (QC), Interactive Learning, Biomedical Science Education, Critical thinking in QC

## **Background**

Understanding and investigating Quality Control (QC) and External Quality Assessment (EQA) data is vital in clinical laboratories. However, traditional teaching methods often lack engagement for undergraduate and postgraduate students, and so an important area of biomedical practice can become overlooked in student learning and understanding.

**Aim:** To develop a fictional, web-based interactive case study to support biomedical science education of QC.

## **Methods/Tool Design**

- "Choose-your-own-adventure" narrative web app was produced: <https://claireprice.github.io/The-Case-of-the-Curious-QC/> (figure 1)
- Users act as a Biomedical Scientist responding to an ALT QC failure in a fictional laboratory
- Branching decisions include:
  - Levey-Jennings chart trends
  - Westgard rule violations
  - Reagent lot checks
  - EQA performance reviews
- Mock visuals were created to supplement the story:
  - Simulated QC charts
  - Reagent lot comparison data
  - Fictional EQA report
  - QC investigation flowchart
- Web-app and source code available for download
  - Creative Commons Non-Commercial Attribution License
    - This web-app is free to use for education purposes, and the source code can be altered to suit the users needs, with relevant citation (Price, 2025)

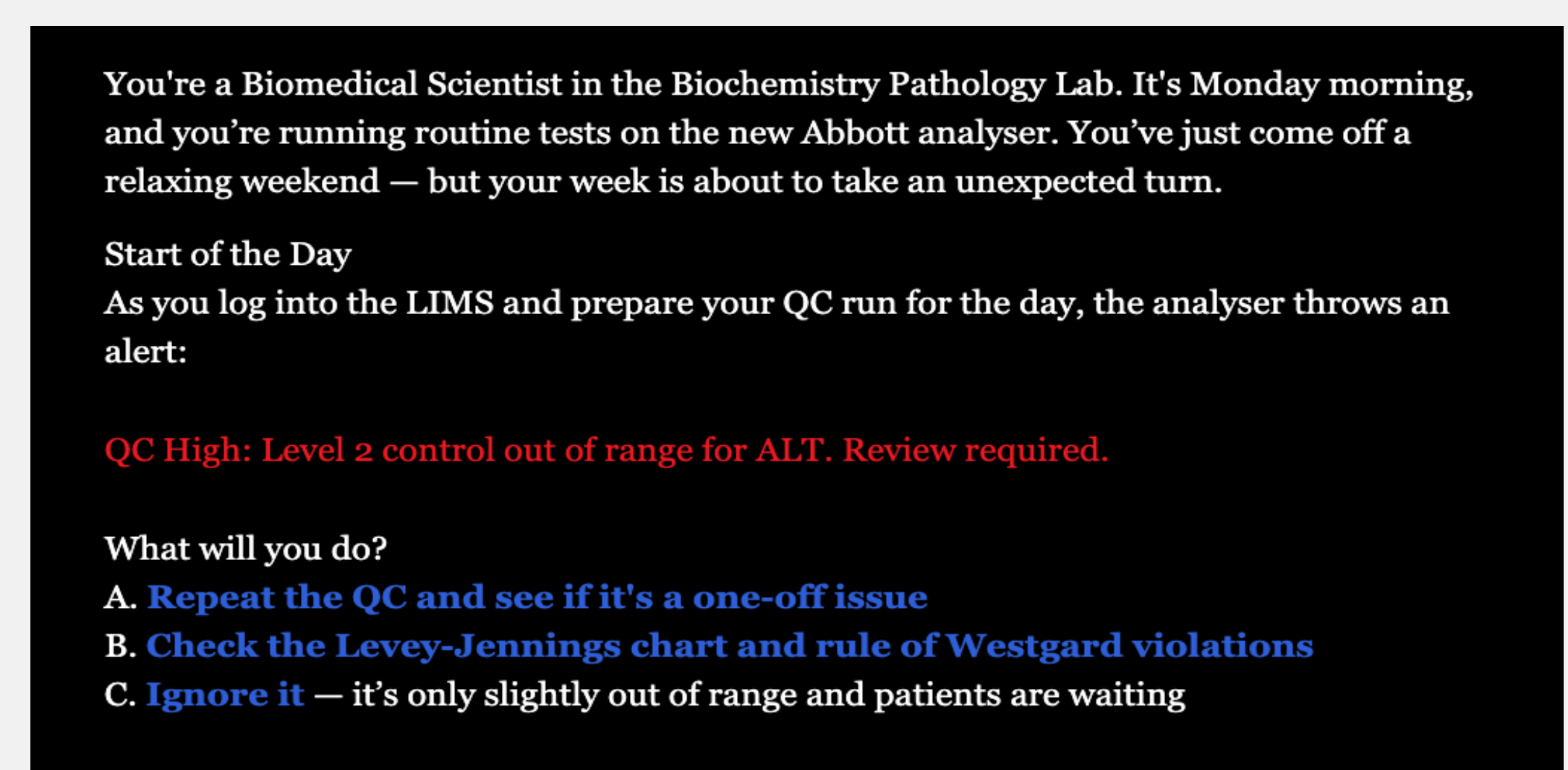


Figure 1 – Start screen for The Case of the Curious QC

## **Initial Findings**

- Informal testing with academics and practitioners
- Participants informed it was a fictional training
- Positive feedback:
  - Improved understanding of QC principles
  - Enhanced knowledge of engaging, relevant, and adaptable
  - Described as engaging, relevant, and adaptable
- Formal student testing is planned

## **Significance & Future Work**

- Low-cost, flexible tool for QC/EQA education
- Encourages critical thinking and active learning
- Potential wider applicability for CPD and lab-based training
- Next steps:
  - Formal evaluation
  - Scenario expansion

## **Acknowledgements**

I would like to thank every who tried out the web app and provided me with invaluable feedback.

## **Reference**

Price, C. L. (2025). Liver and Let Die: Interactive Biochemistry Game (v1.0.0). Zenodo. <https://doi.org/10.5281/zenodo.15546321>

Try it for yourself!



<https://claireprice.github.io/The-Case-of-the-Curious-QC/>