Understanding Opioid Overdose and Mental Health Through a Public Health Dashboard: A Qualitative Evaluation of mHOPE

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INTRODUCTION

- The opioid overdose epidemic remains a major public health challenge in the United States.
- Opioid-related harms vary across race, geography, age, socioeconomic status, and housing stability.
- The opioid overdose epidemic also intersects with the broader mental illness epidemic, making it important to understand patterns across both health outcomes.
- Public health dashboards can make complex health data more accessible by combining datasets with interactive maps, trends, and visualizations.
- Existing opioid dashboards may be limited by geographic coverage, available datasets, or lack of contextual information.
- mHOPE was developed to expand knowledge of the opioid overdose crisis, mental health epidemic, and their intersection by integrating multiple sources of public health data.

Objective

- Evaluate the usability, clarity, accessibility, and effectiveness of data presentation within the mHOPE dashboard.
- Identify how user feedback can improve the dashboard's ability to communicate complex public health information.
- Examine whether users can effectively navigate, interpret, and apply the information presented.

METHODS

Study Design

- Qualitative quality assurance/quality improvement (QA/QI) evaluation
- Focused on identifying opportunities for future dashboard improvement.

Participants

- 6 public health researchers

Recruitment

- Purposive recruitment of public health researchers
- Snowball recruitment through professional contacts

Semi-structured interviews

- 2 interviews conducted in person
- 4 interviews conducted via Zoom
- Interviews lasted approximately 35–55 minutes

Dashboard Activities

Participants were asked to:

1. Browse the dashboard and explore its different sections.
2. Find a 2024 provisional overdose rate for a familiar county.
3. Compare 2026 travel/commute time to opioid treatment centers between two counties.
4. Compare opioid overdose and depression prevalence using maps and a scatterplot.
5. Export data from the dashboard.

RESULTS

- Used Rapid Qualitative Analysis (RQA) due to the six-week project timeline.
- A cross-participant matrix was used to identify recurring patterns.
- Emerging themes were compared across participants.
- Findings were used to develop recommendations for future dashboard improvements.

Theme	Main finding	Recommendation
Value & Potential	Integrated datasets were highly useful	Preserve cross-dataset functionality
Usability	Navigation and organization could be clearer	Simplify information architecture
Accessibility	Technical language created barriers	Add plain-language explanations
Data Transparency	Users wanted more context	Clarify sources, definitions, and missing data
Visualizations	Maps were a strength; some visuals needed refinement	Improve interactivity, labels, and interpretation

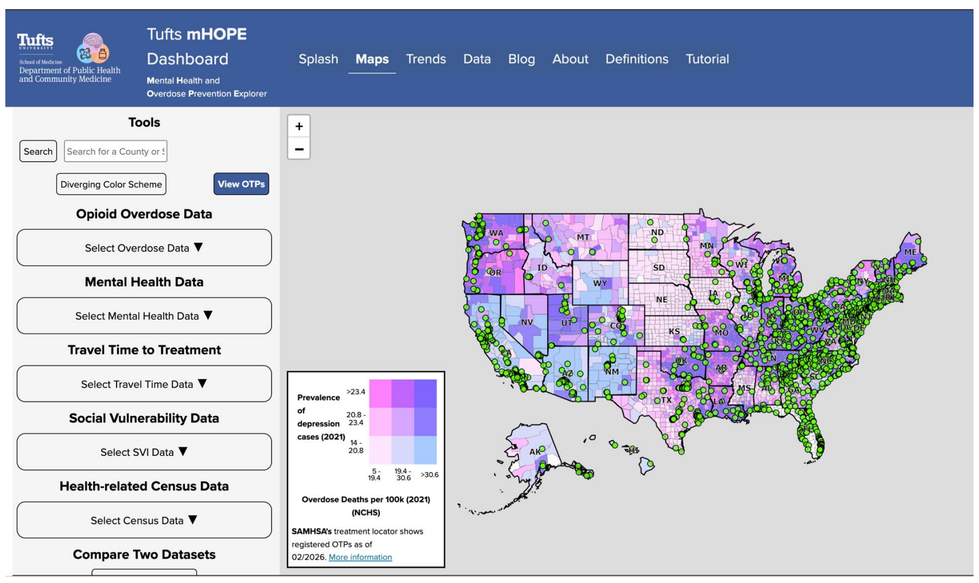

Figure 1. mHOPE Dashboard 'Maps' page.
Visualization of the maps page in the dashboard. It shows an interactive national map with options to explore opioid overdose, metal health, travel to treatment, social vulnerability, health census data, and the ability to compare two of these data sets.

Figure 2. mHOPE Dashboard 'Trends' page.
Visualization of the trends page in the dashboard. The page contains various trend graphs on overdose, treatment access, and demographic characteristics at the national, state, and county level.

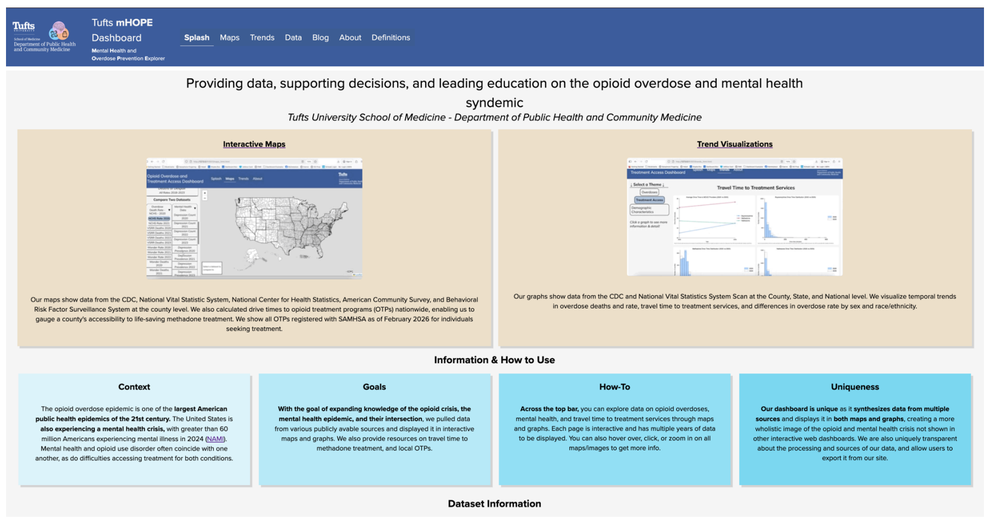

Figure 3. mHOPE Dashboard 'Splash' page
Visualization of the landing page in the dashboard. The landing page outlines context, goals, how to use, and uniqueness for the dashboard. Additionally, it has animations of the Maps and Trend tabs.

DISCUSSION

- mHOPE was viewed as a valuable tool for bringing diverse public health data together.
- Users saw particular value in geographic data, interactive maps, and data export capabilities.
- The main opportunities for improvement involved navigation, plain-language communication, data transparency, and visualization design.
- Improving these areas may help users more effectively explore the opioid overdose crisis, mental health, and their intersection.

Limitations

- Small sample size (n = 6)
- Participants had varied professional backgrounds and levels of dashboard experience.
- Single interview with each participant.
- Qualitative feedback does not provide a quantitative measure of dashboard effectiveness.
- Dashboard was still under development during the evaluation.
- Findings represent participant perceptions and may not reflect all potential end users.

CONCLUSIONS

- mHOPE has potential to serve as a centralized platform for exploring opioid overdose, mental health, treatment access, and related social and geographic factors.
- Participants valued the dashboard's integrated datasets, maps, and ability to export information.
- The evaluation identified opportunities to improve navigation, accessibility, data transparency, and visualization design.
- Incorporating user feedback through iterative evaluation can help ensure that complex public health data are presented in ways that are accessible, understandable, and useful.

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