



# Participation Rates and Emergency Medicine Provider Perceptions Of an Error Reporting System with User-Centered Design

Fairbanks RJ, Squires M, Nobay F, Grams K, Tuttle D, Davis CO, Shah MN  
University of Rochester, Rochester, NY



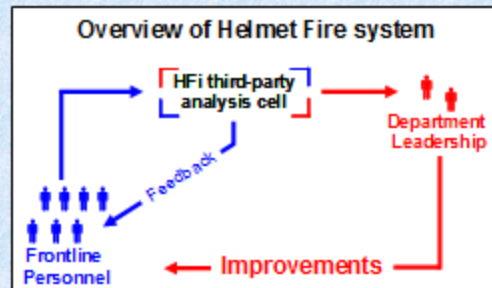
UNIVERSITY OF ROCHESTER  
MEDICAL CENTER

## Objectives

To compare physician participation rates between a newly designed event reporting system and the current hospital system, and to research provider perceptions of these systems.

## Background

- Event reporting (adverse event & near miss) is known to lead to safety improvements
- Participation rates among physicians is almost non-existent nationally; 2% at best
- Helmet Fire, Inc (HFi) System
  - error/hazard reporting system designed using human factors principles
  - designed for ease of use (easy access, intuitive interface, touch-screen data entry)
  - provides weekly feedback to staff (hazard alerts, trend reports, etc)



## Methods

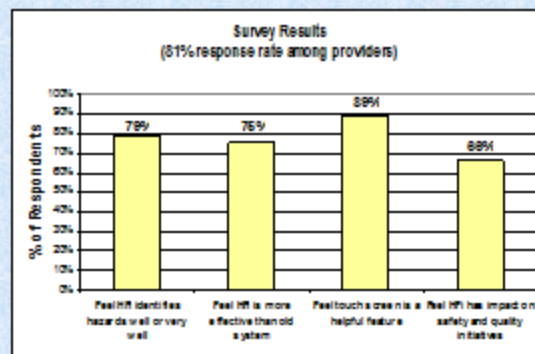
- 4-month pilot of new HFi system
- Examine usage by attendings, residents, PAs
  - compared reporting rates of HFi to existing system during same period one year prior
- Survey instrument piloted, refined and then administered to all EM providers to assess:
  - "old" verses "new" system awareness
  - motivating factors
  - barriers to participation
  - perception of value

## Results

- Reporting Rate Analysis
  - 299 events reported during 4-month HFi pilot compared to 5 events reported in the 24 months preceding
  - adjusted by patient volumes, rates of 1098 vs. 3 per 100,000 visits
  - time on task to submit report:
    - mean 2:37 / median 2:02 minutes
    - range 0:08 to 16:39 minutes
- Survey Analysis
  - all 45 EM attendings, 36 residents, and 10 PAs received electronic surveys
  - 81% survey return rate

## Results

- Survey Analysis (cont)
  - 71% reported using HFi once every several shifts or more
  - 62% of respondents reported no knowledge of the previous system or how to access it
  - 75% of respondents thought HFi was a more effective reporting system compared to other systems
  - 51% of respondents felt their concerns expressed via HFi were addressed
  - 87% believed it took them less than 3 minutes to enter a report on HFi system



## Discussion

- The Helmet Fire system pilot resulted in a dramatic increase in hazard reporting in the ED
- The human factors principles built into the HFi system likely contribute to an increase in participation
  - active feedback loop, short session times, convenient access, intuitive interface, touch-screen data entry
- This suggests that barriers to event reporting in the ED can be overcome by easy to use systems with feedback

## Limitations

- HFi trial was limited to one academic ED
  - further study in additional departments is needed to determine generalizability of HFi
- HFi pilot was conducted over a short period of time
  - 20 minute overview presentation given at start of HFi, no similar at start of historical control period
  - further study is needed to determine if the increase in event reporting is sustainable
- Only attendings, residents, physician assistants studied
  - further study should include nurses, techs, etc.

## Conclusions

An error reporting and analysis system developed using human factors principles led to a dramatic increase in provider participation rates. Reasons seem to be related to ease-of-use and frequent feedback. Further study is necessary to determine if the increase is sustainable and generalizable across different ED environments.