Question: Is the WIISARD-enabled disaster response system better than the conventional paper-based disaster response?



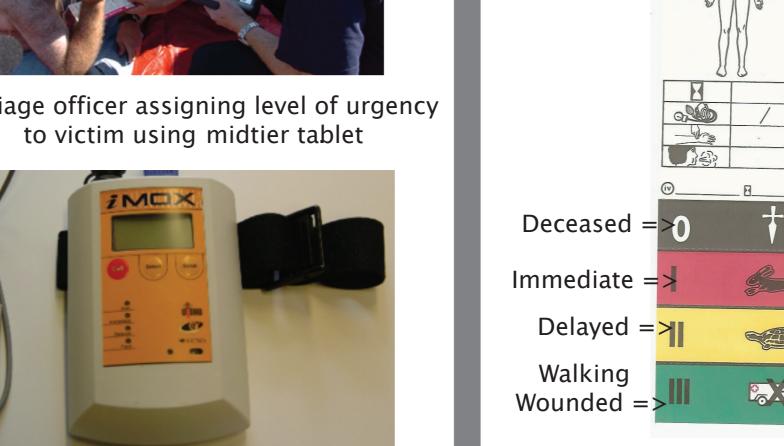




Bird's eye view of medical response from 5th floor of Atkinson Hall.

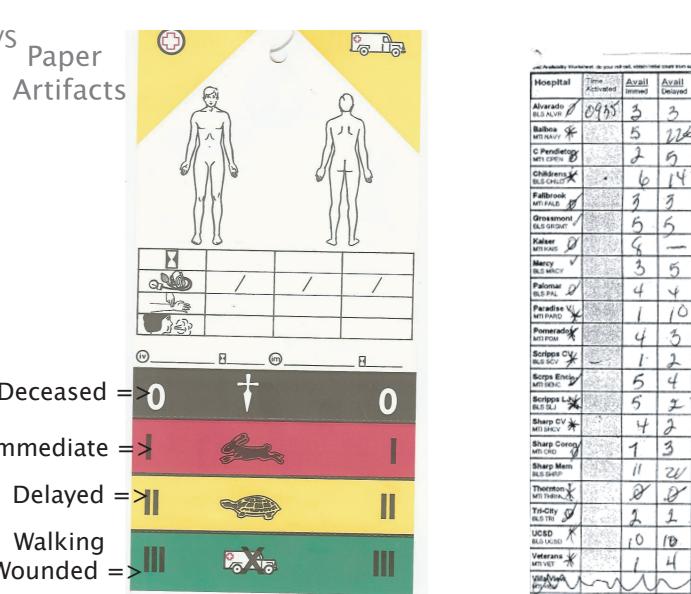


Triage officer assigning level of urgency

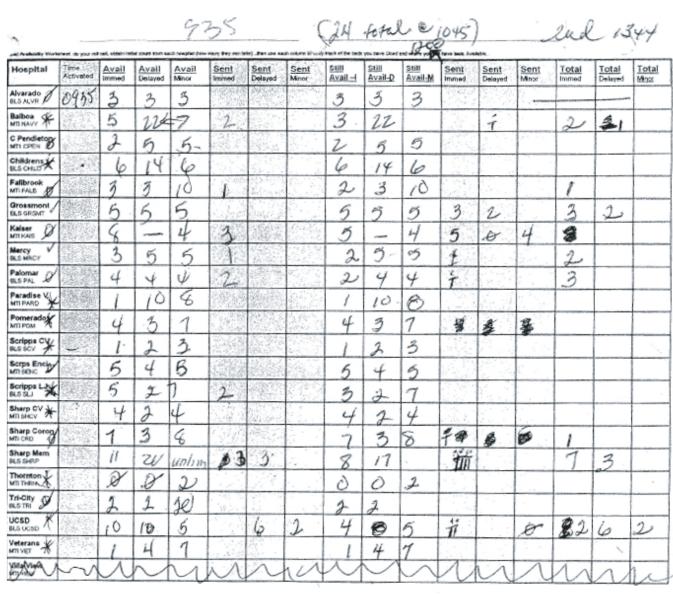


Devices

Non-supervisor responders use aPDA to Patient identification and individual info is atient vitals are monitored through use stored on a wireless-enabled. Etag of a Pulse-Ox attached to their finger.



Like an Etag, patient information is written on a paperpatient triage tag while triage tabs are ripped off leaving triage status remaining.



Hosptial coordinator (MICN) tracks bed availability using this MICN Data Sheet

#### Data Gathered at the Drill: Computer Logs of Paper Artifacts Bird's Eye Video **Device Activity**



record task-relevant patient information.

**Timing Mats** 



Video of Supervisors (Triage, Treatment, Transport, & MedCom)



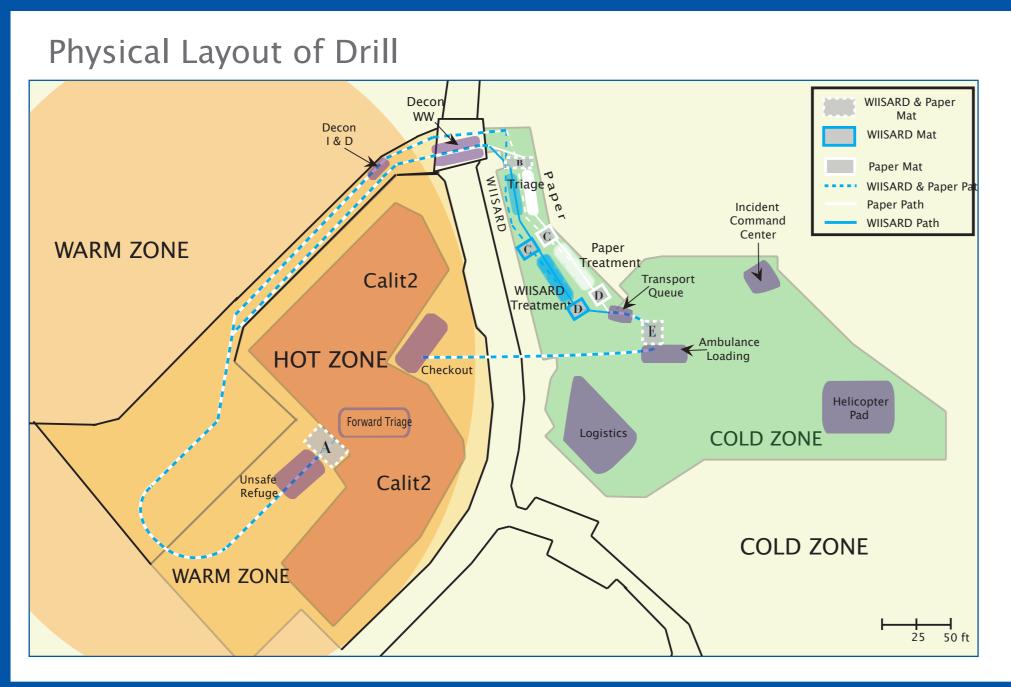
Ethnographic Observation of Supervisors & MICN

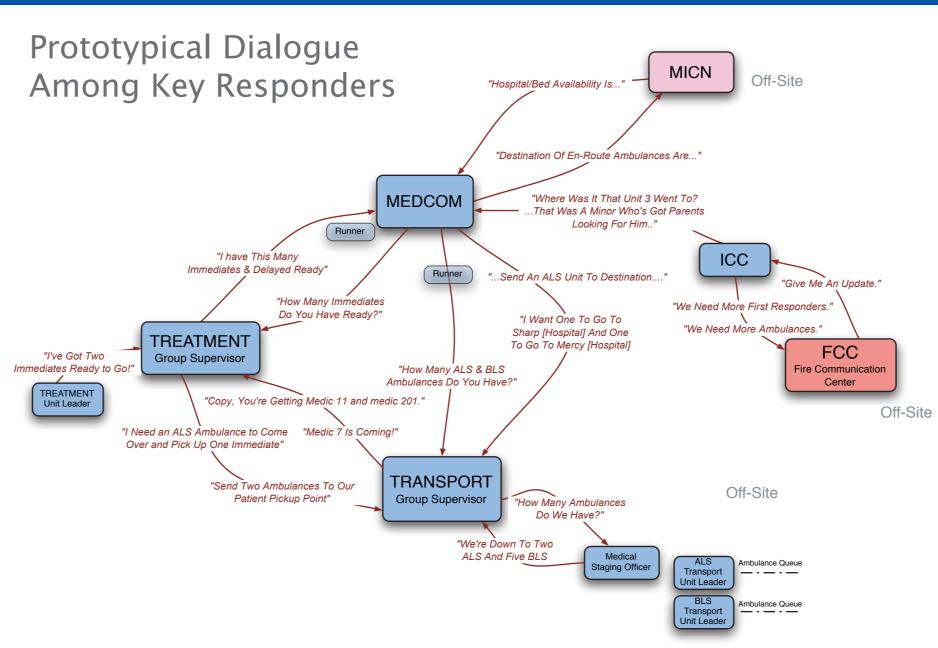


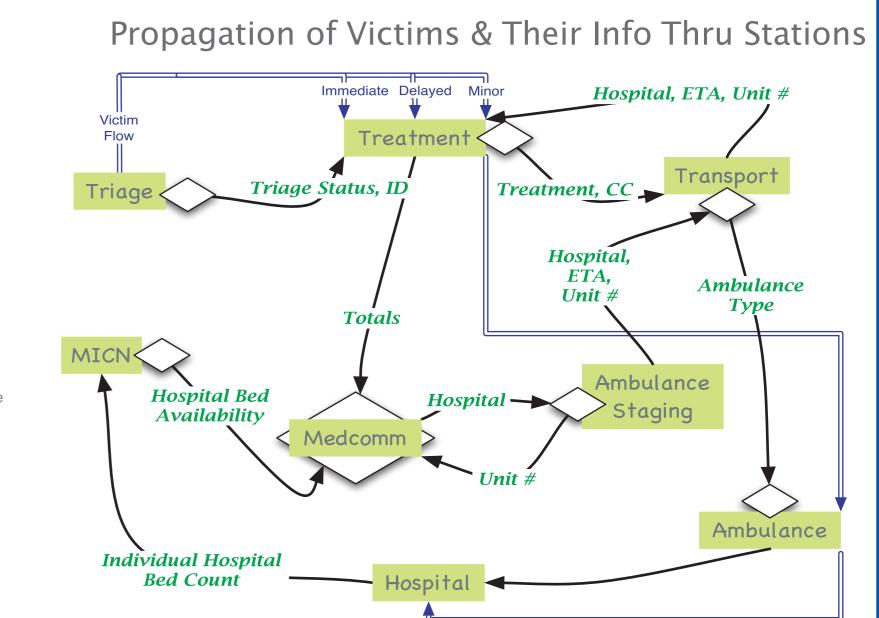
**Extended Interviews** 



Radio Logs







Victim Flow & Trajectories

# **Evaluation Design:**

- 1. Victims were divided into a Control group using classical paper technology and a Treatment group using WIISARD technology.
- 2. Response teams were divided into two: Paper & WIISARD (effort was made to train WIISARD personnel on PDAs, midtier tablets, & others
- 3. Timing mats were placed at entry and exit of each station to track victim flow.
- 4. Interviews of key responders were given on-site after drill to capture their observations and evaluation of their performance (video-taped an
- 5.a. WIISARD activity was captured through on-site video & logs at each station.
- b. Paper activity was captured through on-site video at each station and collection of all paper artifacts.





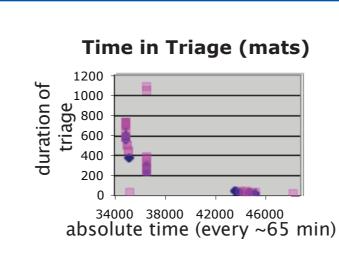
### **Treatment Victim**

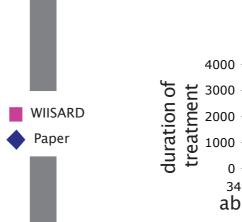
### **Evaluation Methods:**

- 1. Prior to drill, we built detailed idealized workflow, information flow, & artifact models of activity at and between key medical stations.
  - b. Treatment d. MedCom e. Ambulance Staging c. Transport a. Triage
- 2. Collect as much quantitative data as possible by using RFID technology attached to victims to track when victims move past key stations victim flow
- 3. Compare observed behavior from transcribed video with idealized models to identify discrepancies. This helps in detecting if and where errors occur & t a. Control-paper artifacts & radio logs b. Treatment-WIISARD device activity & radio logs
- 4. For each victim, create a time-based record...
- 5. Do statistical analysis to determine if and where there are meaningful differences between WIISARD and Paper.

## Initial Results:

- 1. Wiisard worked comparable speed with fewer errors
- 2. Paper system showed (but Wiisard did not):
  - a. errors of omission, misinformation, propagation of false messages
  - b. miscoordination due to radio lags, hailing failures & missed windows of opportunity causing sub optimal decisions







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- c. inability to deal with individual patients instead using categories, lead to lost patients