Designing a Real-time Radiology Workflow Monitoring Tool for Overnight Residents

Michael Cohen
Paging Doctor….

- Put yourself in the shoes of a radiology resident
- Physician - training to be a Radiologist
- Responsible for reading all cases that come in overnight
Programming in Radiology
We Work 1-1

• 1-1 with residents to design systems to assist in visualizing patient information

• Takeaway
  – Importance of data visualization in appropriate patient care and staffing
  – Specifically prevent diagnostic and communication errors
Things to Take into Account

• Used in radiology reading room
  – Darker colors are necessary

• Be able to react to a large influx of patients
  – Live updating
Measuring Case Volume

Initial – dotted line graph, lines not good assumption

Final – stacked bar graph by modality, bar graph is more accurate description
Critical Findings Dashboard

Jonathon Wagner Black

Critical Findings Notes

Called Dr. Norton in Peds with no success, also tried Dr. Sparrow.

Add Patient to Pending Critical Findings

Pending Critical Findings

- Richard Wallace
  Acc: 123131232
  Imp: Aortic bleed out eminent...
- River Stone
  Acc: 123131232
  Note: Called Dr. Marty Blatt
- Ilana Goldberg
  Acc: 123131232
  Imp: Nondisplaced fracture lateral tibial plateau, moderate join...

Night Blog

Can't believe we lost power for 15min

Post

Unrated Nights (0)

Rate Night

- Anthony
  03:00am
  Computer just crashed

- Anthony
  02:15am
  So tired, just had a coffee
FL procedure took longer than expected

Anthony
Computer just crashed

Anthony
So tired, just had a coffee
Summary

– Protect patients from harmful diagnostic errors by visualizing workload which can be immediately acted upon
  • Adding additional staffing during times of need
  • Retrospective analysis to optimize workflow
  • Triaging patients appropriately
  • Narrative reports of system failures
  • Calibrating expectations for residents