

# Optimizing Multitrauma CT within Emergency Department workflow



Emergency situations  
requires emergency  
solutions

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## Efficiency in trauma

Quality

Efficiency = \_\_\_\_\_

Time

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# Mathematical question

$$\text{Efficiency} = \frac{\text{Quality}}{\text{Time}}$$

New CT (fast 64 slices, new workflow features, better quality images)

Better spatial resolution  
Faster reconstructions

Q => ++(+)

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Look trough more images (more algo)

Look at all projections independently

Use basic reviewing tools

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non optimized multitrauma management

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**Conclusion: TIME !**

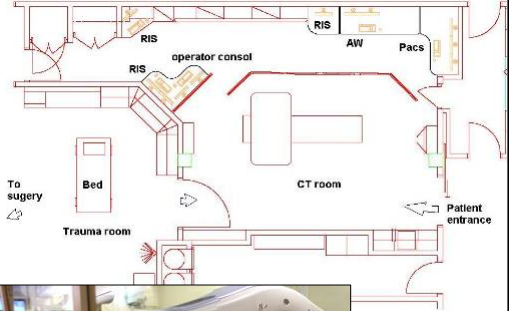
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# Trauma “time study”

- Karolinska University Hospital, Solna
- Trauma Center Level 1  
1200 trauma patients/year (1, 2, 3), 700 trauma 1 or 2 last year
- GE LightSpeed 16 dedicated to trauma unit
- September-December 2005

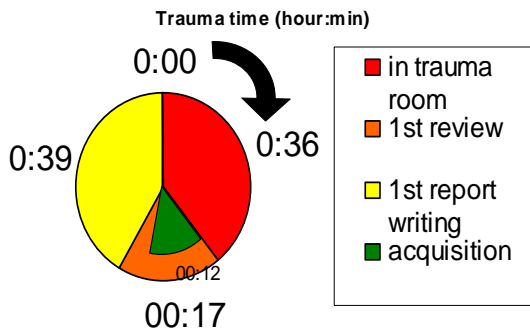


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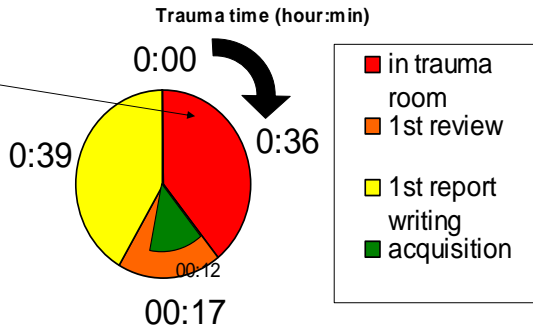
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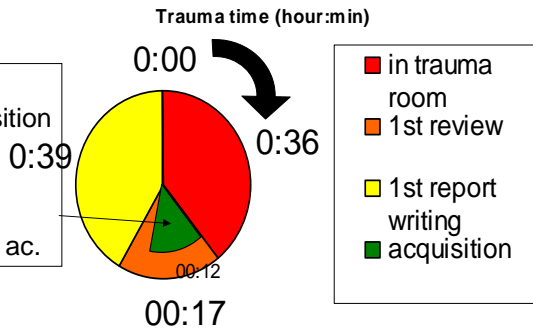
# Trauma “time study”

Arrival in trauma room  
Ambulance report  
ATLS procedure  
Chest-Pelvic X-ray  
Abdomen US  
Preparation  
Transportation to CT  
Installation on CT

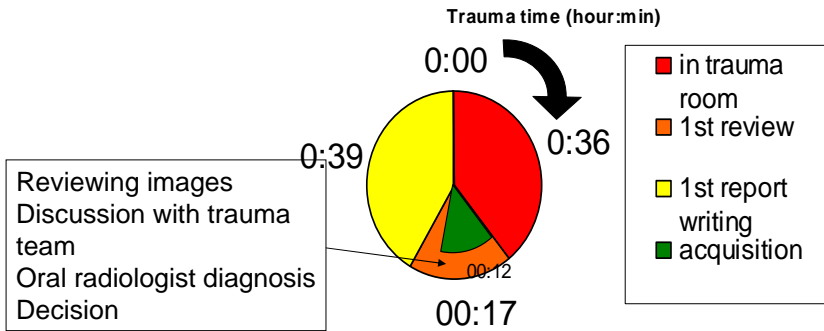


# Trauma “time study”

Scout  
Head sequential acquisition  
Neck helical ac.  
Raise arms  
Inject contract  
Chest-Abdomen-Pelvis ac.



# Trauma “time study”

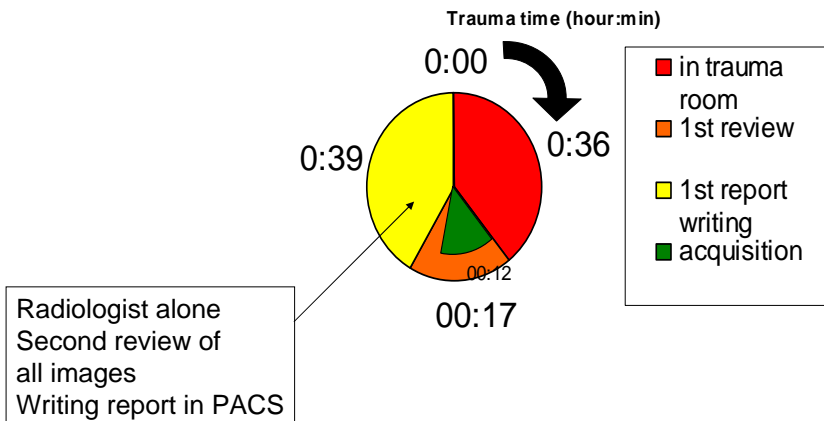


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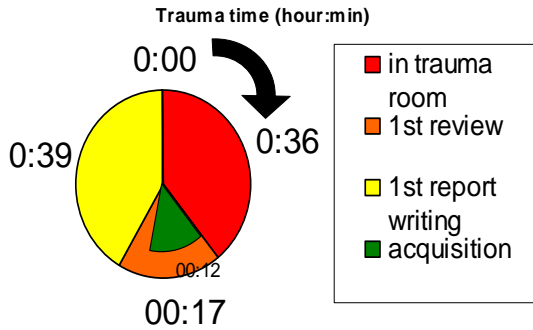


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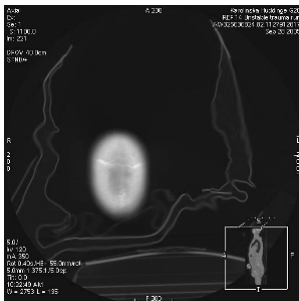
# Trauma "time study"



**Radiologist's total occupation time = 1h32min !**

## Possible improvements

- In the trauma room:
  - Decide to go faster on the CT
  - Decide to go straight to CT

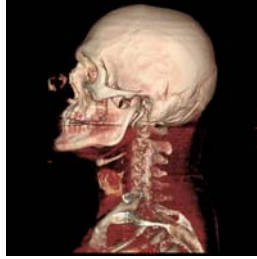


# Possible improvements

- Acquisition:

We know:

Loss of time=  
set parameters  
& raise arms



Solution: minimize series by  
grouping body parts



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# Possible improvements

- Post-processing
  - Set standard ways of reviewing the images
  - Create dedicated layouts corresponding to trauma injuries that would be loaded automatically

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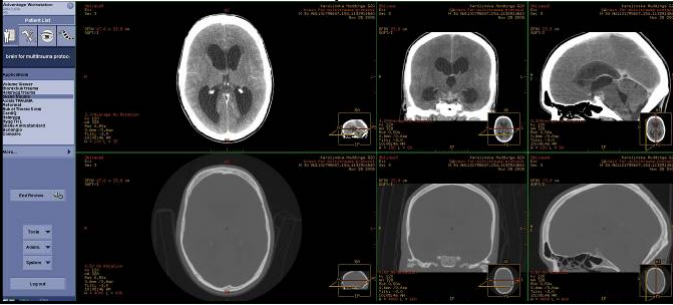
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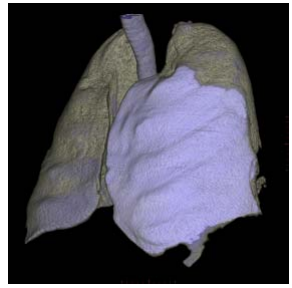
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# Possible improvements



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Thanks



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