Using Mobile Phones to Monitor Newborn Jaundice

BiliCam

Bilirubin

- High bilirubin levels yellow the skin
- Common: visible in 84% of newborns
- Extreme levels lethal, but treatable
- Every newborn tested

Technology

- Current testing methods
  - TSB
  - TcB

Constraints via UI

Image Processing

Bilirubin Estimation

Evaluation

- Clinical Study
- 100 newborns
- Ground Truth: TSB (blood draw)
- Control: TcB

Results

- BiliCam
  - 0.85 rank order correlation
  - 2.0 mg/dl mean error

- TcB
  - 0.92 rank order correlation
  - 1.5 mg/dl mean error

Bilirubin Level Reference Chart

BiliCam

0.85 rank order correlation
2.0 mg/dl mean error

TcB

0.92 rank order correlation
1.5 mg/dl mean error

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