Nightingale
Smart monitoring, safer care

European Commission

Joined up care in the hospital

Nightingale: Clarifying and Communicating Risk, Monitoring and Alerting Deterioration

John Welch
Critical Care Outreach
London

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13th International Conference on Rapid Response Systems & Medical Emergency Teams

Chicago, IL, USA

May 11-12 2017

THE CHIC

THE UNIVERSITY OF CHICAGO BIOLOGICAL SCIENCES

iSRRS

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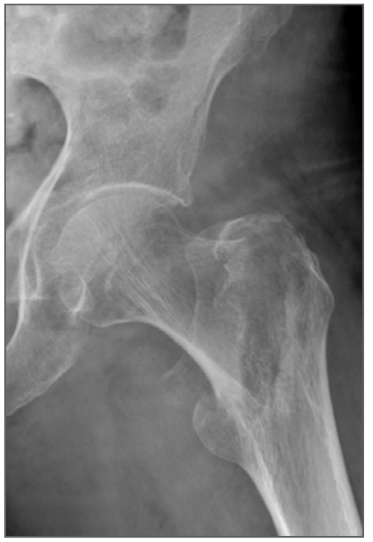
91 year old hip fracture

European Commission

- Thursday - fall, hip fracture ⇒ ED ⇒ Surgical Assessment Unit
- Friday - ⇒ Theatre (hemi-arthroplasty) ⇒ ICU
- Saturday - ICU ⇒ ward
- Sunday - on ward
- Monday - on ward: cardiac arrest



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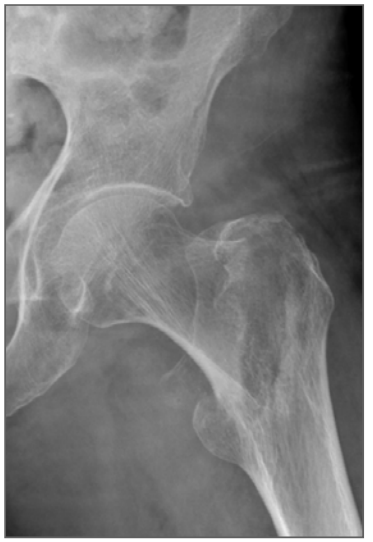
Background

- ↑ confusion, ↓ memory
- hypertension, atrial fibrillation; heart failure
- peripheral vascular disease
- gastritis
- bilateral knee replacements



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Prognosis

- ≅5% of hip fractures die within 30 days …
- Probability male aged 91 will die before reaching 92 = 0.18
- add in long term conditions, frailty …

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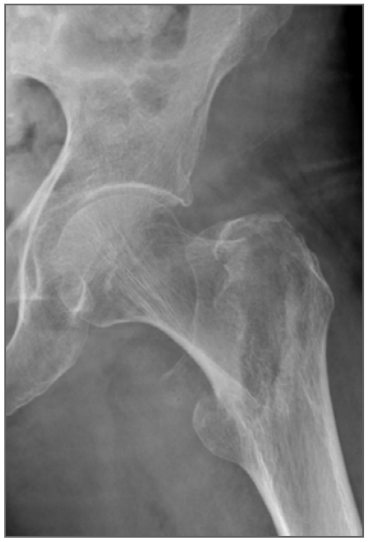
Friday

- Surgery: "straightforward"
- 1L iv crystalloid given
- Operation started 12.15, in ICU by 14.00
  - @ 15.00: Ur 11.8, Cr 129, K 4.1
- Post-op fluid balance: + 1223 mL to midnight



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Saturday – on ICU

- 06.30: routine morning bloods- Ur 14.1, Cr 161, K 4.6
- 08.59 - "PLAN: ready for ward" "monitor for any signs of sepsis"

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91 year old hip fracture

Saturday – on ICU

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- 08.59 - "PLAN: ready for ward" "monitor for any signs of sepsis"

Vital Signs	08.00	12.00
Temperature	36.4	35.9
Pulse	83 (AF)	79 (AF)
Respirations	37 (?)	21
BP	123/54	93/47
O_2 Sats	100 (on 3L O_2)	99 (3L O_2)

91 year old hip fracture

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91 year old hip fracture

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- 06.30: routine morning bloods- Ur 14.1, Cr 161, K 4.6
- 08.59 - "PLAN: ready for ward" "monitor for signs of sepsis, AKI"

Vital Signs	08.00	12.00
Temperature	36.4	35.9
Pulse	83 (AF)	79 (AF)
Respirations	37 (?)	21
BP	123/54	93/47
O_2 Sats	100 (on 3L O_2)	99 (3L O_2)

- daughter "*he's more confused than usual*"
- physio "*unable to follow commands*"

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Saturday afternoon, Sunday, Monday – on ward

- Saturday - observations: 16.00 17.00 21.30
- Sunday - observations: 06.00 10.20 (pulse 138*)

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- Saturday - observations: 16.00 17.00 21.30
- Sunday - observations: 06.00 10.20 (pulse 138*)
  16.25 (pulse 144*) 20.45
- Monday - observations: 08.00 (pulse 135*) 10.20 (pulse 144*)

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- Sunday - observations: 06.00 10.20 (pulse 138*)
  16.25 (pulse 144*) 20.45
- Monday - observations: 08.00 (pulse 135*) 10.20 (pulse 144*)
- CARDIAC ARREST @ 11:15 (bloods: Ur 24.5, Cr 258, K 7.2)

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What could be better?!

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- Communication of risk factors
- Flagging of hypotension, “soft signs” - ? rethink discharge
- Vital signs monitoring on ward, alerts
- Prompts regarding bloods
- Feedback loop

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Emergency Ambulatory Care

Nightingale Preventing Admissions & Enabling Patient Care at Home

Dr David Brealey
Consultant in Intensive Care Medicine London

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"HOSPITAL IS THE SAFEST PLACE TO LOOK AFTER MY PATIENTS……"

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Emergency Ambulatory Care

A Common Case

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Complicated Infection

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- 18 year old woman with urinary tract infection
- 59 year old man with diabetes & cellulitis
- 34 year old with Crohns' colitis
- 62 year old with chemotherapy-induced febrile neutropaenia

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A Common Problem

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Complex Risk Management

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PRO +

- Discreet illness
- Predictable pathogens
- Rapid improvement on appropriate therapy
- Defined pathway

CON -

- Potential for deterioration through sepsis
- May need 'source control' (multi-specialty involvement)
- Serial diagnostics & imaging required

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Emergency Ambulatory Care

A ‘Simple’ Solution

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A Nightingale System

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Assure early identification of deterioration

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Works in partnership with patient and caregivers

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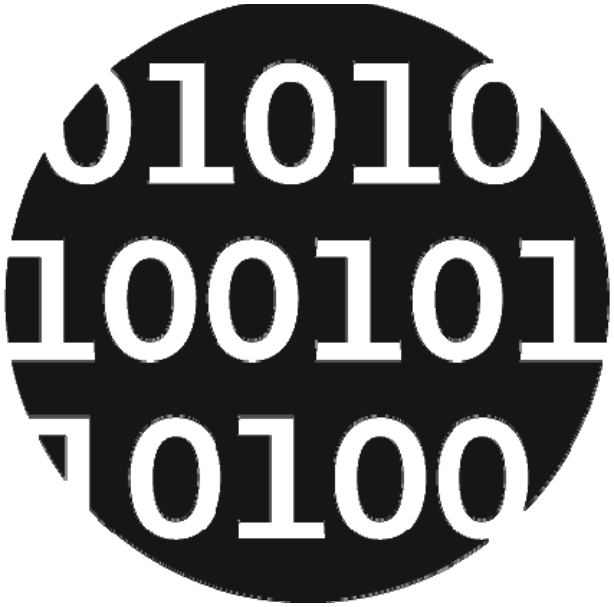

Build patient-specific risk stratification through additional information as management progresses

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Create safe triggers for patient readmission to hospital

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A 'Simple' System

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- Assure early identification of deterioration
- Integrate into protocolised diagnostics & therapeutics pathway
- Build patient-specific risk stratification through additional information as management progresses
- Create safe triggers for patient readmission to hospital

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"HOSPITAL AT HOME" IS THE SAFEST PLACE TO LOOK AFTER MY PATIENTS

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OF COURSE NOT EVERYONE SHOULD GO HOME….

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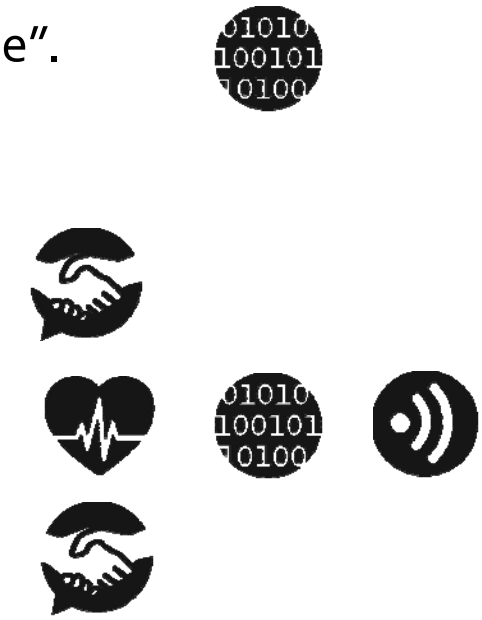
A 45 year old presents one day to the ED with pancreatitis

- 08:00 He's admitted and handed over to the medical team as being "fine".
- A junior doctor is asked to look after the patient.
- The patient is in severe pain, given some pain killers
- 11:00: Respiratory and heart rate rise (charted, but little done)
- Pain worsens



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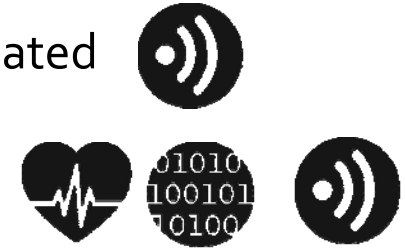
- Blood tests show significant kidney and liver problems. These are not escalated
- 17:00: Blood pressure is falling, patient is cold and clammy (shocked)
  - iv drip failing (i.e., the main means of treatment).
- Junior Doctor seeks help but her colleagues are busy, doesn't try harder
- 19:25: the patient isn't in bed. Other patients say he's gone to the toilet.
- No answer from the toilet. Patient dead on the floor.



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- He died un-noticed in one of the most advanced hospitals in the world
- The hospital, one of the best run in the NHS, had to cancel £2m of elective surgery in the last few months because of emergency admissions
- This story is is played out EVERY day in EVERY hospital across Europe and the U.S.
- I am sure everyone of you could have helped save that patient
- I am sure everyone of you could help prevent admissions and keep the surgery rolling

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With NIGHTINGALE we all have a unique opportunity to make that difference

THANK YOU

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