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Acute Kidney Injury

huw masson

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What is AKI?

- Acute Kidney Injury
- Stages 1-3
- Underlying Cause

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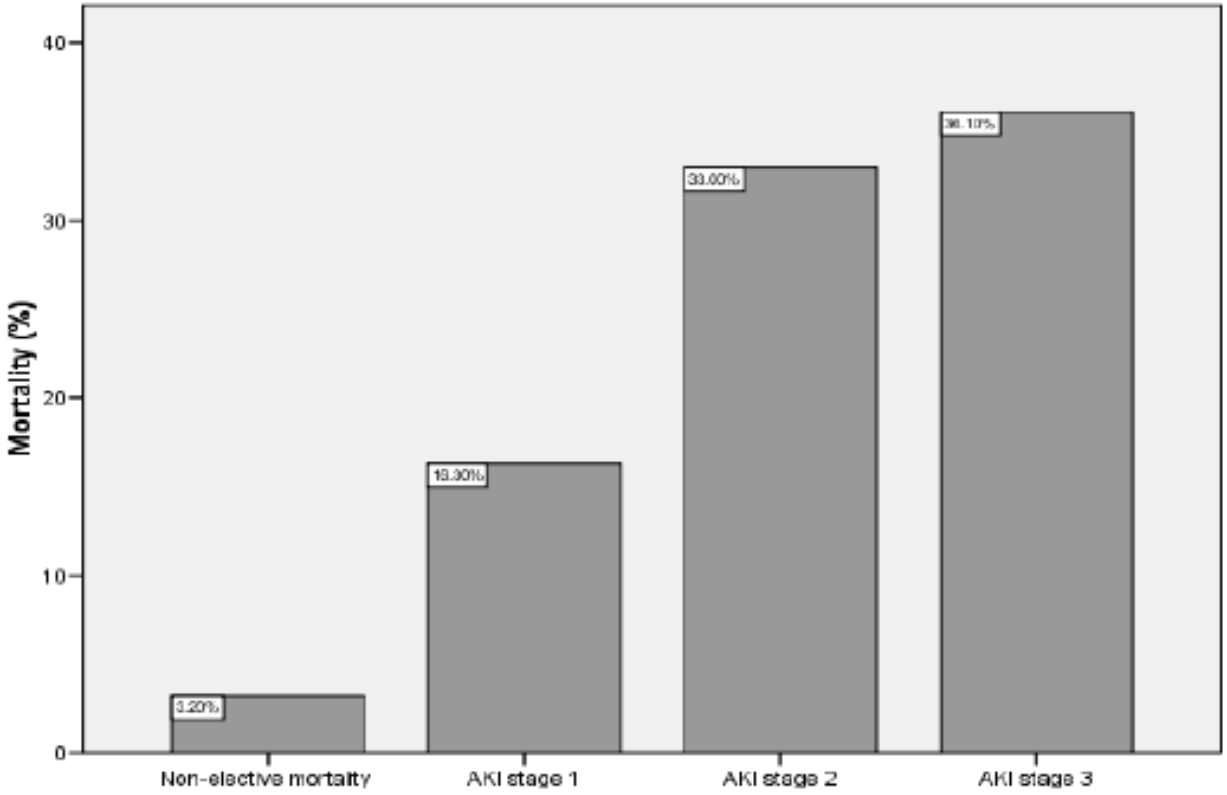
Why is it important?

- Mortality



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Why is it important?

- Cost to *NHS*
- £434-620 million/yr

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Why is it important?

- NCEPOD
- Frequent missed opportunities
- Frequent delayed recognition
- <50% get ‘Good Care’

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Why is it important?

- Early Recognition
- Early Treatment
- Save Lives
- Save Millions

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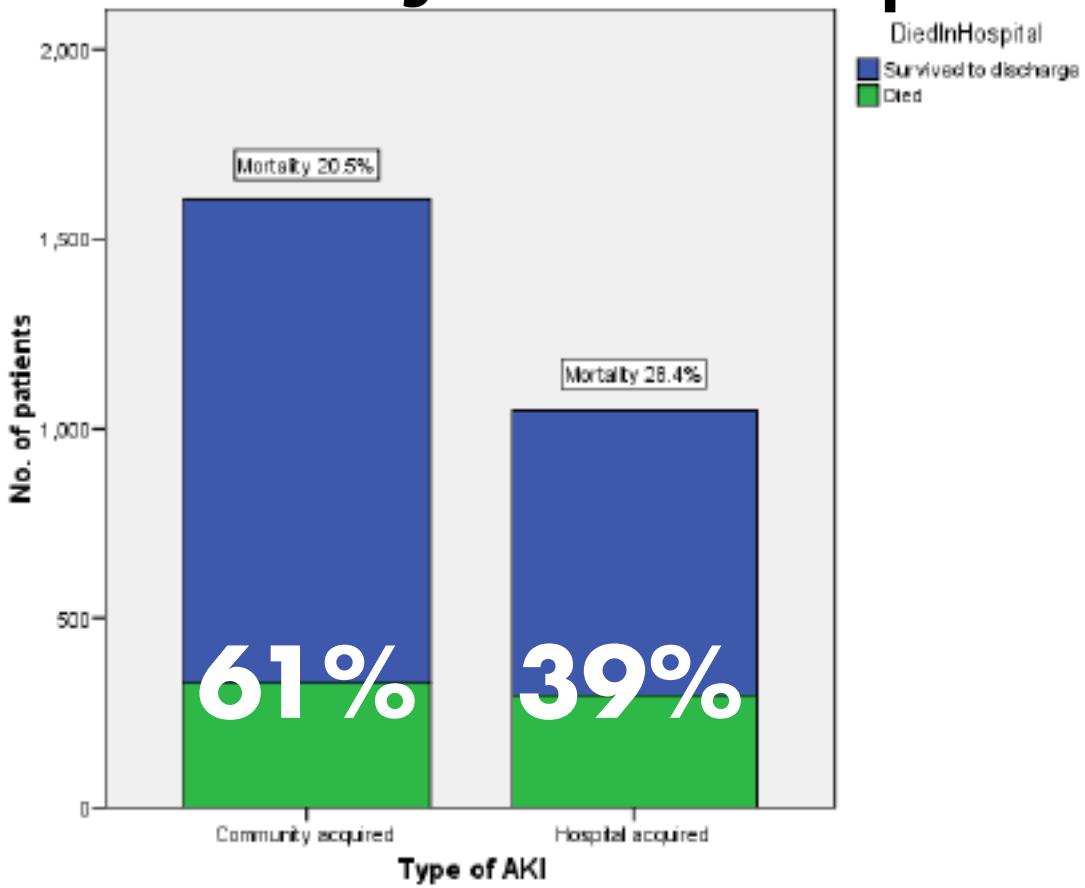
Where ?

- Community vs. Hospital



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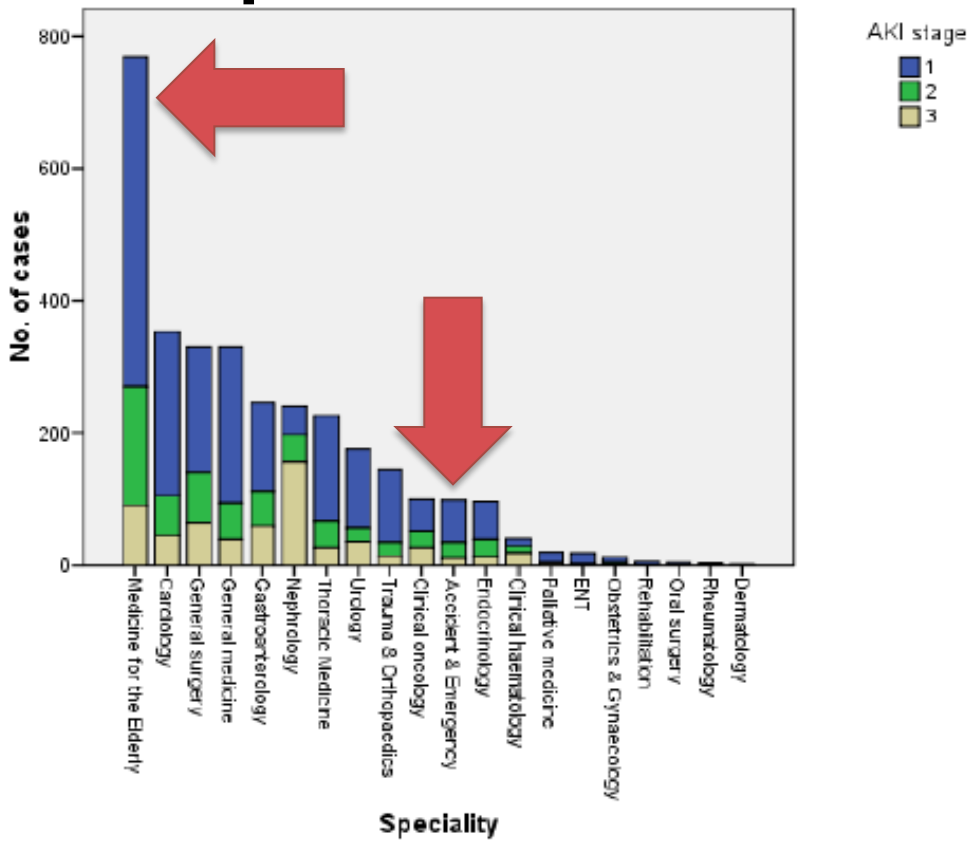
Where ?

- Which Specialty?



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Signs/Symptoms

- Nausea/Vomiting
- Diarrhoea
- Dehydration
- Reduced urine output
- Confusion/Drowsiness

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At Risk Groups

- >65yrs old
- PMH: CKD, Liver, Cardiac, Diabetes
- Unable to maintain hydration
- Urinary Tract Obstruction
- ***SEPSIS***
- Medication: ACEi, ARBs, NSAIDs, Diuretics

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Stages 1-3

KDIGO staging

Stage	Creatinine	Urine Output
1	≥1.5-1.9 x baseline (7-day) OR 26.5 µmol/l increase (48hr)	<0.5ml/kg/hr for 6-12hr
2	≥2.0-2.9 x baseline	<0.5ml/kg/hr ≥12hr
3	≥3.0 x baseline OR Increase to ≥354 µmol/l OR Renal Replacement	<0.3ml/kg/hr ≥24hr OR Anuria ≥12hr

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Correct Causes

Hydration

Assess fluid status

Urea:Creatinine Ratio

- >100 indicates dehydration (OR UGIB)
- Remember: Ur is mmol/l and Cr µmol/l so devide Cr by 1000
  - (i.e. Ur 6.5:Cr 180 = 6.5/0.18 = 36.1)

IV fluid often required

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Correct Causes

Medication

Consider stopping causative drugs

- ACEi or ARBs
- Diuretics
- NSAIDs

Consider dose reduction

- opiates
- gabapentin and pregabalin
- metformin
- antibiotics (eg penicillins, vancomycin, teicoplanin)
- anticoagulants
- digoxin
- gentamicin
- SGLT2/DPP-4 (lizard spit 4 diabetes)

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Correct Causes

- Obstruction
- Consider need for Catheter
- Consider Imaging

(normally as an inpatient)

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Correct Causes

- ***SEPSIS***
- Common cause of AKI
- Antibiotics <1hr
- 500ml fluid bolus

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Complications

- Hyperkalaemia
- Acidosis
- Pulmonary Oedema

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Referral

- Stage 1(without complication)
  - Likely Home
  - Repeat U&E <72hr (via GP)
- Stage 2 or 3, Stage 1(with complication)
  - Admission to parent specialty
  - Consider Referral to Leeds Nephrology
    - Significant Acidosis (pH<7.15)
    - Hyperkalaemia ([K] >6.0)
    - Uraemic
    - Urgent Dialysis

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Transfer

- Haemodynamically stable
- pH >7.2
- [K] <6.5 & no ECG changes
- Lactate <4mmol/l

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Summary

- Look
- Recognize
- Treat

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- Look
- Recognize
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References

- NICE - Clinical guide for acute kidney injury in hospitalised patients with COVID-19 outside the intensive care unit during the coronavirus pandemic
- NICE - Acute kidney injury: prevention, detection and management
- **Use of Electronic Results Reporting to Diagnose and Monitor AKI in Hospitalized Patients**: Clin J Am Soc Nephrol 7: 533–540, April, 2012
- **Acute Kidney Injury** Best Practice Guidance: Responding to AKI Warning Stage Test Results for Adults in Primary Care