A Journey Through the Hidden Depths of Onco-Nephrology

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The Christie NHS Foundation Trust
Wednesday 23rd November 2016

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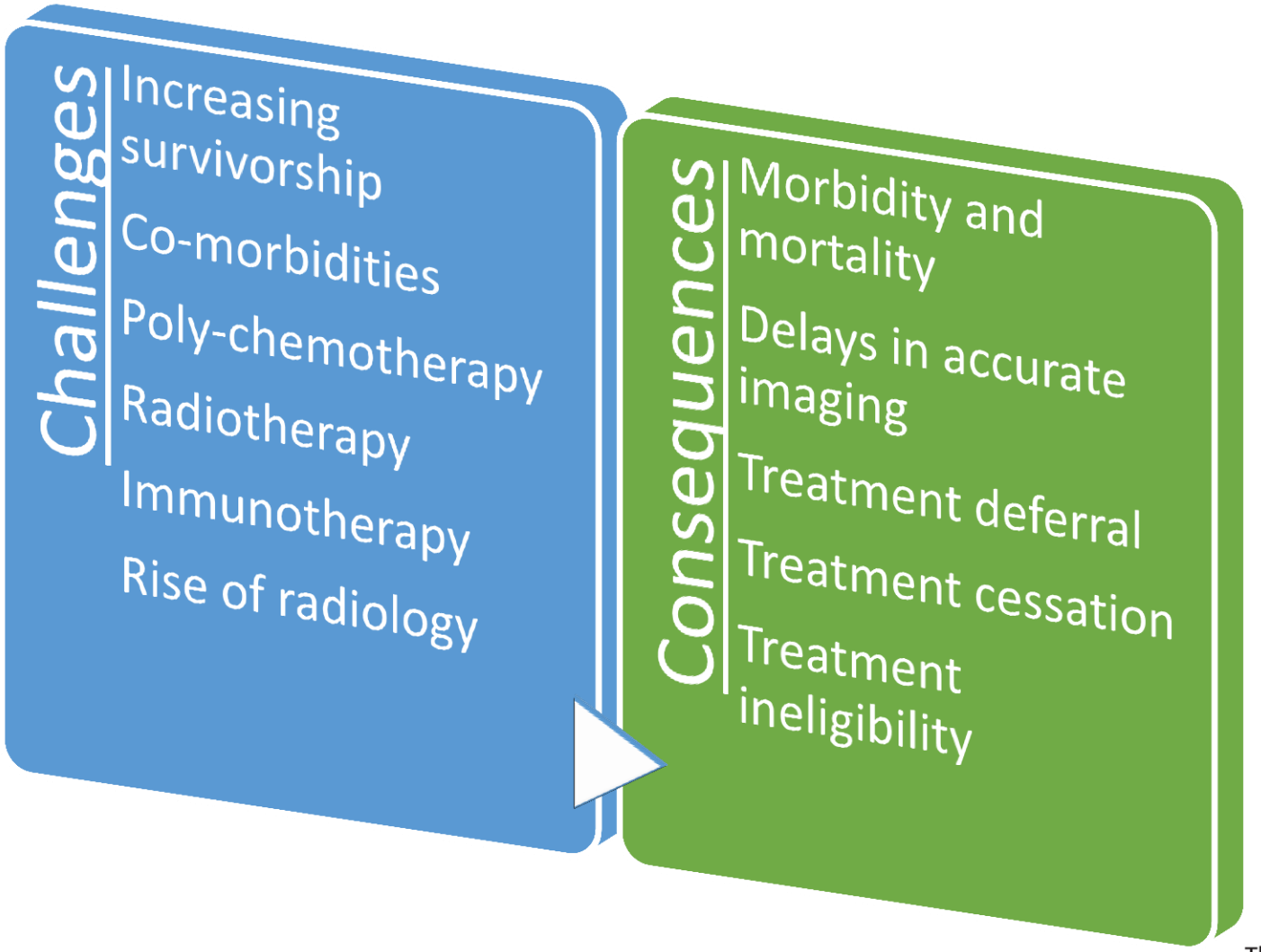
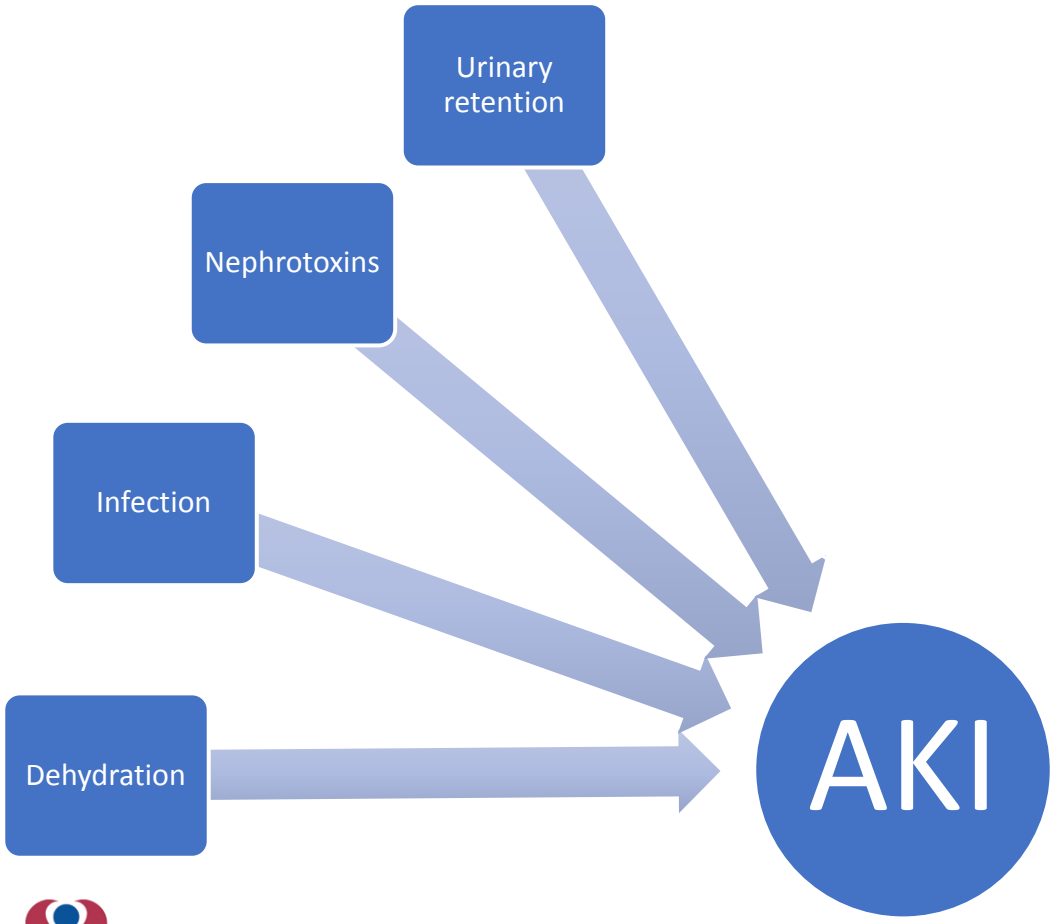
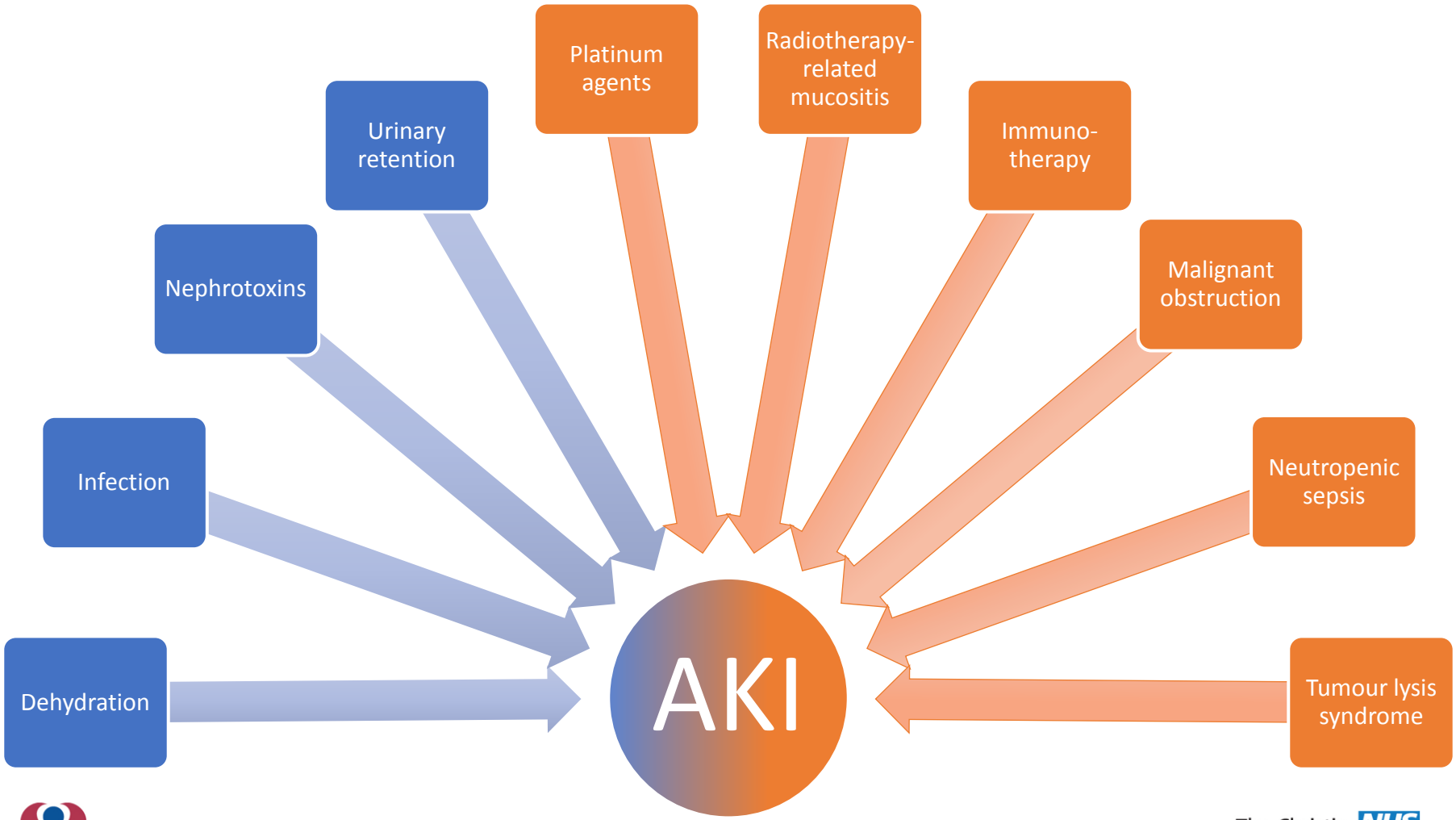
The Challenges of Modern Onco-Nephrology



Aetiology


Urinary retention
Nephrotoxins
Infection
Dehydration
AKI

Aetiology


Platinum agents
Radiotherapy-related mucositis
Urinary retention
Immuno-therapy
Nephrotoxins
Malignant obstruction
Infection
Neutropenic sepsis
Dehydration
AKI
Tumour lysis syndrome

Acute Kidney Injury (AKI) at The Christie

- The Christie NHS FT
  - Largest single site cancer centre in Europe treating more than 44,000 patients per year
- 18 months ago, new Acute medicine role appointed
  - *"As a Consultant treating acutely unwell patients, I have worked with an expert team to develop guidelines for staff and patients in the treatment of acute kidney injury (AKI),"* – Dr Al-Sayed

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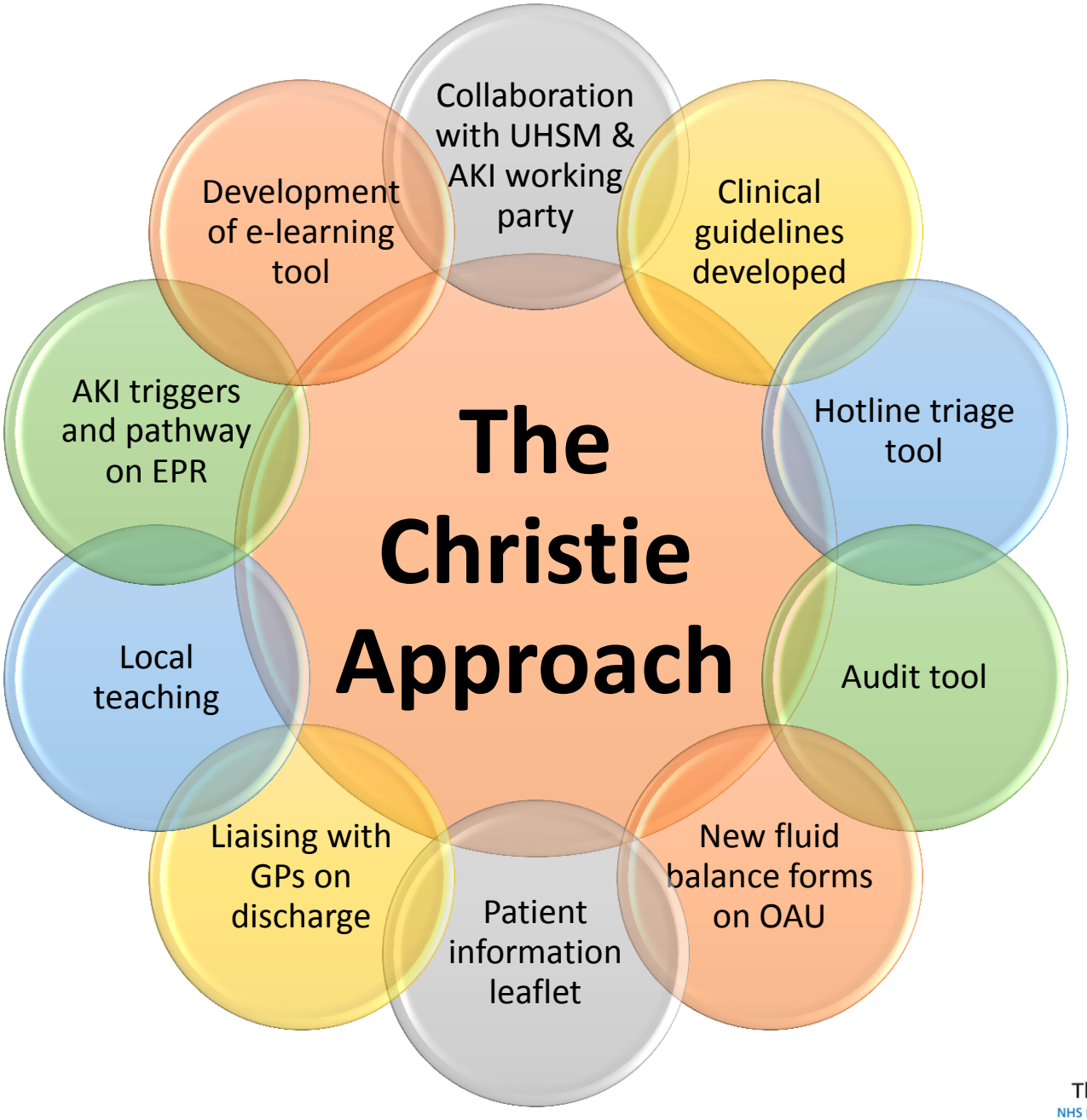
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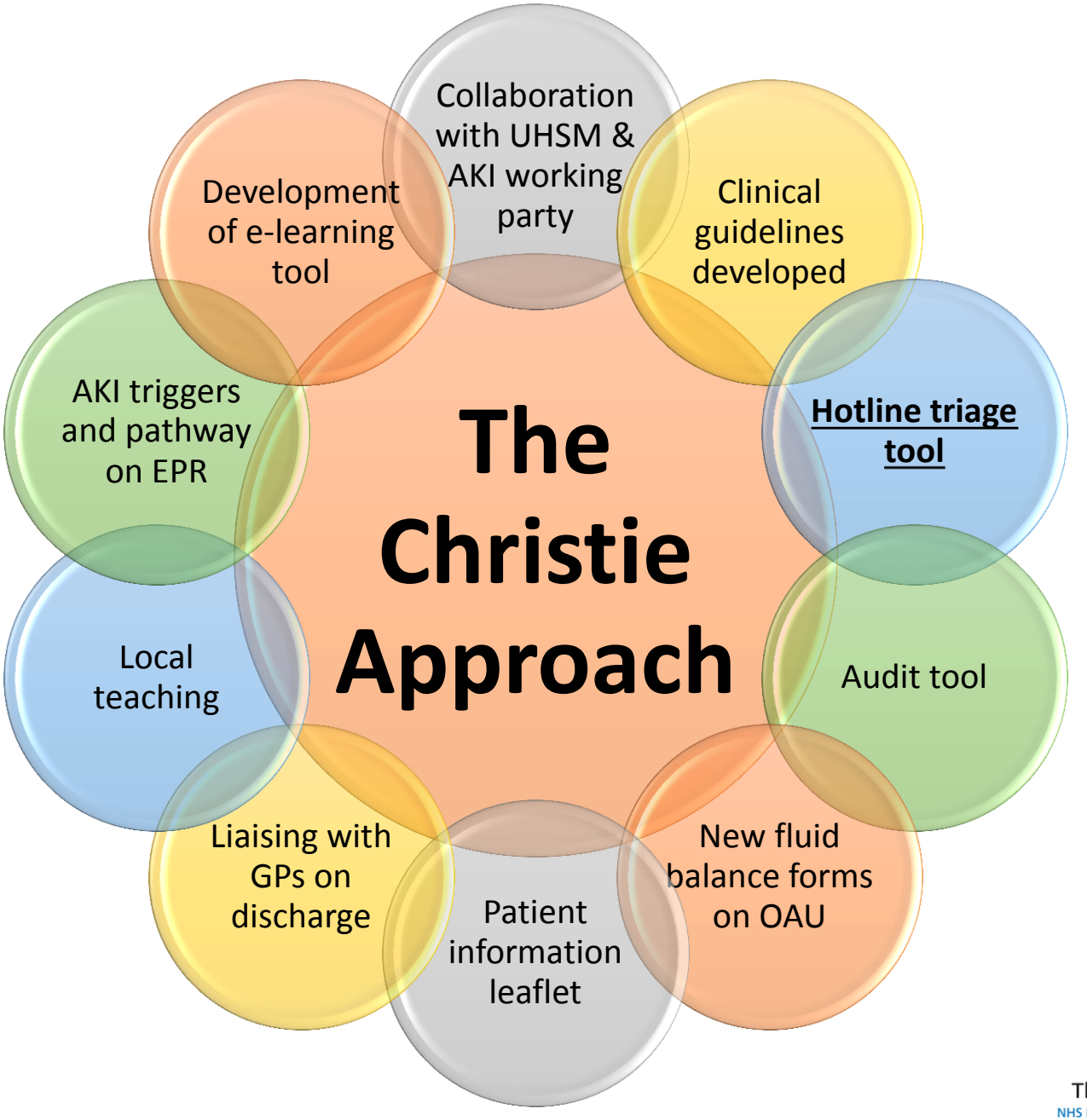
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Telephone triage for patients with suspected AKI

DIARRHOEA

Initial Assessment

Always review last U&E results in patient electronic notes

Questions:

- What chemotherapy is the patient on and when was the last treatment/tablet?
- Are they receiving radiotherapy and when was their last treatment?
- Number of recent episodes?
- How often do the bowels usually move?
- How many stools a day is the patient passing or how much stoma output is there above normal amount?
- Are stools/stoma output formed, loose or watery? Any faecal incontinence or urgency? Nocturnal movements?
- Is there any abdominal pain e.g., cramping pains coming in waves?
- For how many days has the patient had diarrhoea? Is it interfering with activities of daily living?
- Are they able to eat and drink normally? Are they passing plenty of clear urine?
- Do they have any other chemotherapy related toxicities, e.g. mouth ulcers, N/V, red hands/feet, stomatitis, mucositis?
- Any recent antibiotics or recent hospital admissions?
- Have they taken any laxatives or anti-sickness medication **or** any anti-diarrhoeal medication in the last 24 hours? What?

Advice:

If taking Capecitabine chemotherapy follow the Capecitabine management protocol

Grade 1 (Green)	Grade 2 (Amber)	Grade 3 (Red)	Grade 4 (Red)
Increase to 2-3 bowel movements a day over pre-treatment baseline or mild increase in stoma output	Increase of 4-6 bowel movements a day over pre-treatment baseline, moderate increase in stoma output. Moderate cramping Nocturnal stools	Increase of 7-9 bowel movements a day over pre-treatment baseline or incontinence. Severe increase in stoma output. Severe cramping Nocturnal stools Interfering with ADL	Increase to > 10 bowel movements a day over pre-treatment baseline and/or grossly bloody diarrhoea and/or need for parenteral support

DRUGS - NB. Has the patient had a platinum based chemotherapy?
Is the patient taking:

- NSAIDs e.g. Diclofenac, Ibuprofen
- ACE inhibitors e.g. Ramipril, Lisinopril.

NB if patient taking any of the above drugs advise to **omit** until management plan agreed**.**

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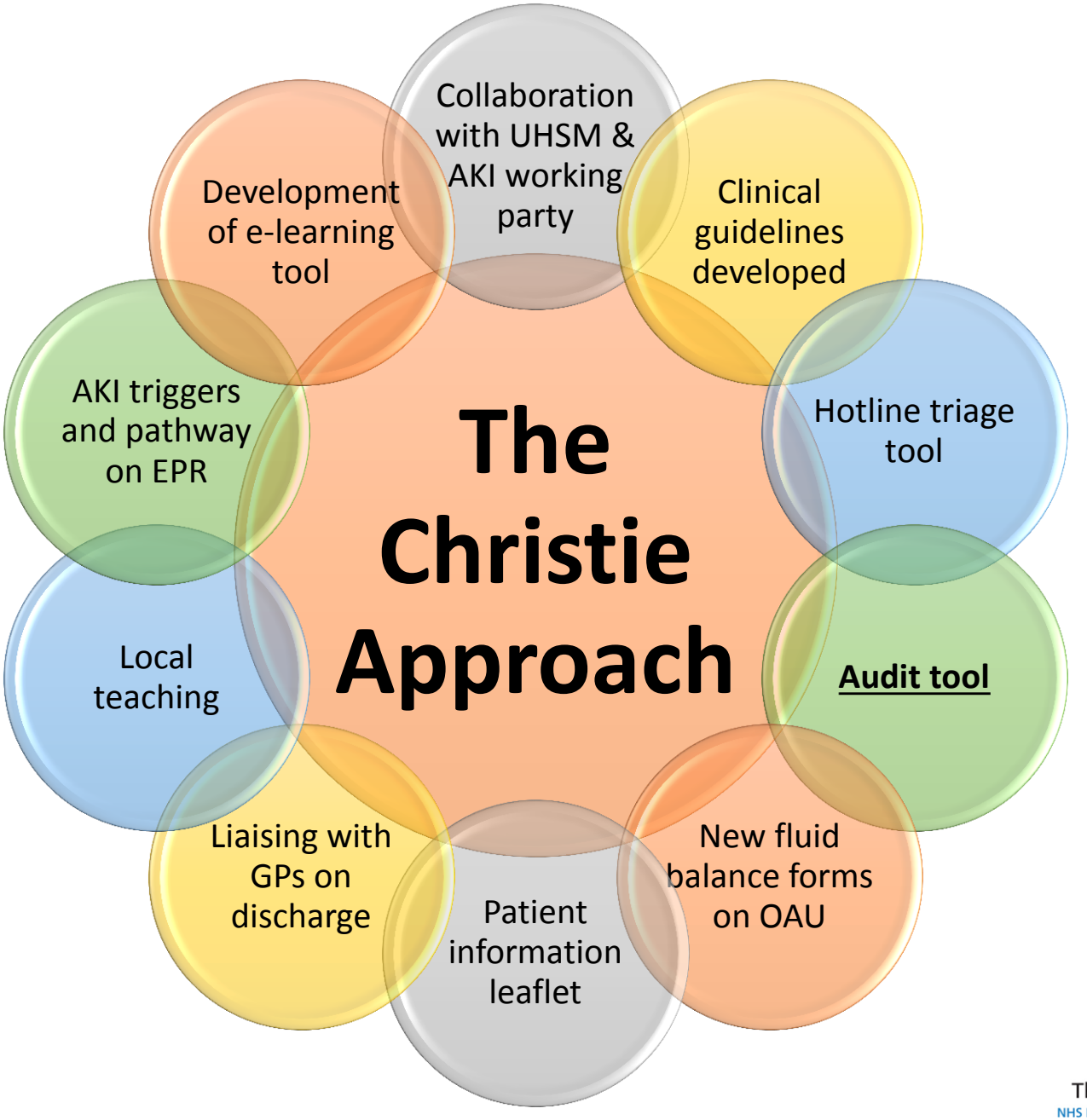

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Affix patient sticker here (form to be retained in notes)

Date of admission	
Time	
Dr(grade)/ANP	
Pt referred from	
Hospital number	

AKI risk recognition tool and preventative care bundle

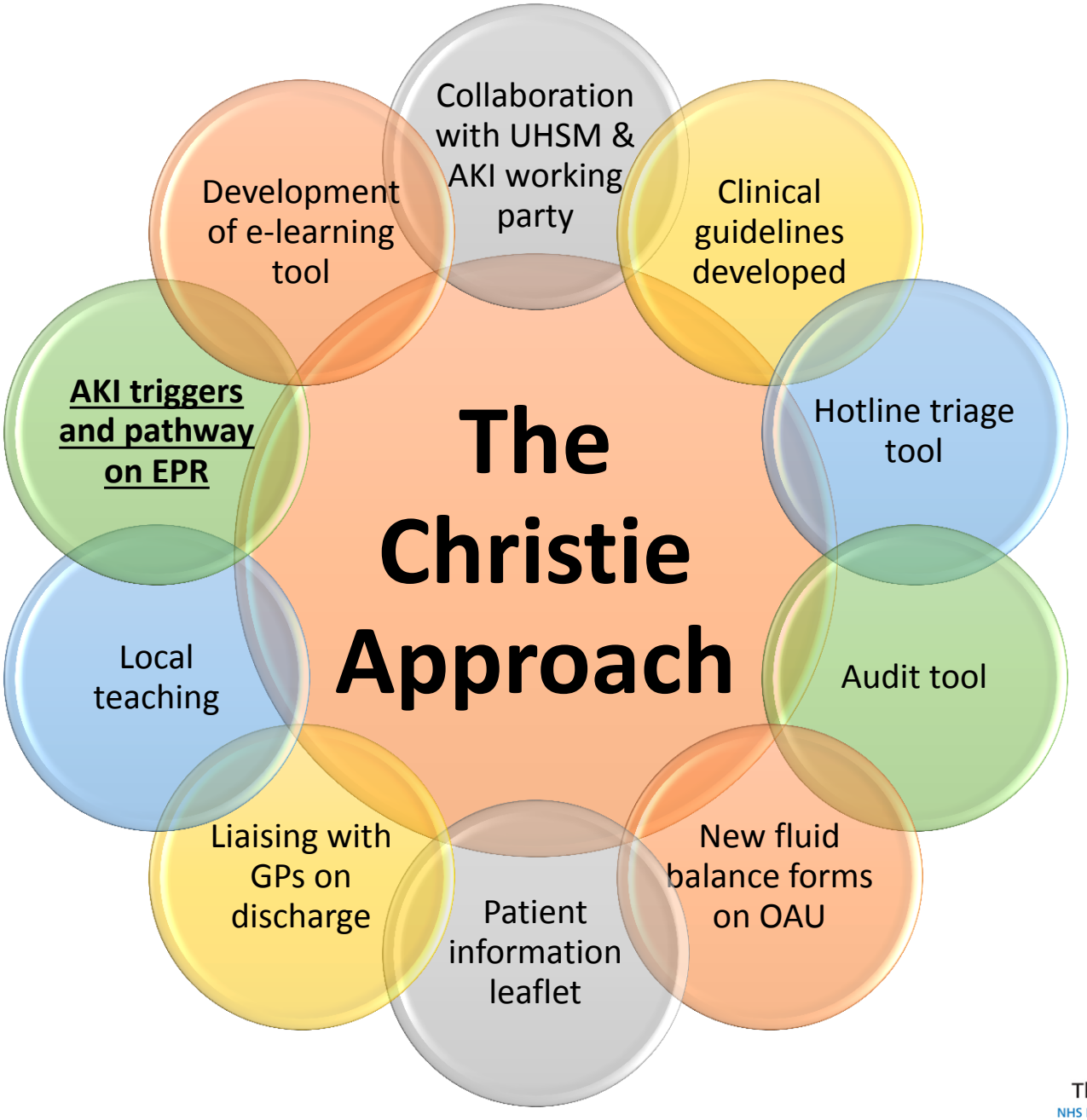
ADULTS AT RISK (any of the following):	Tick
CKD (eGFR <60ml/min	
Heart failure	
Chronic Liver Disease (Cirrhosis)	
Diabetes	
Previous AKI	
Oliguria (urine output < 0.5ml/kg/hr)	
Reduced/impaired conscious level (GCS)	
Hypovolaemia	
Symptoms/history of urological obstruction	
Sepsis	
Deteriorating MEWS	

	Tick
Nephrotoxic drugs including :	
Iodinated contrast agents in last 14 days	
Platin chemotherapy within 30 days	
Non-platin chemotherapy in last 30 days	
ACE inhibitors	
NSAIDS	
Diuretics	

If patient is at risk of developing AKI or has established AKI commence the following measures:	Tick
- **Fluid balance and daily weight charts initiated**	
- **Urinary** catheter considered (or used)	
- **Correct hypovolaemia** (see NICE guidance for fluid management)	
- **Regular biochemistry** (Compare admission creatinine with baseline)	
- **Urine dipstick & analysis**	
- **Stop nephrotoxic medications**	
- **Review acid/base balance**	
- **Seek senior input (Acute Physician/Critical Care)**	
- **Ultrasound KUB within 24 hours if kidney function not improving**	
- **Cause of AKI (if established):**	
- **Seek renal opinion if the cause of AKI is not apparent and/or the patient is deteriorating to the point they require escalation of care**	
AKI diagnosis communicated to GP on discharge	
Patient information leaflet offered upon discharge	

Classification of AKI

AKI Stage	Serum Creatinine criteria	Tick	Urine output criteria	Tick
1	Rise of ≥26.5µmol/l or 1.5-2 fold increase from baseline		<0.5 mls/kg/hr for 6 hours	
2	>2-3 fold increase from baseline		<0.5 mls/kg/hr for 12 hours	
3	>3.0-fold from baseline OR serum creatinine ≥354 µmol/l with an acute increase of at least 44 µmol/l OR need for RRT		<0.5 mls/kg/hr for 24 hours or anuria for 12 hours or need for RRT	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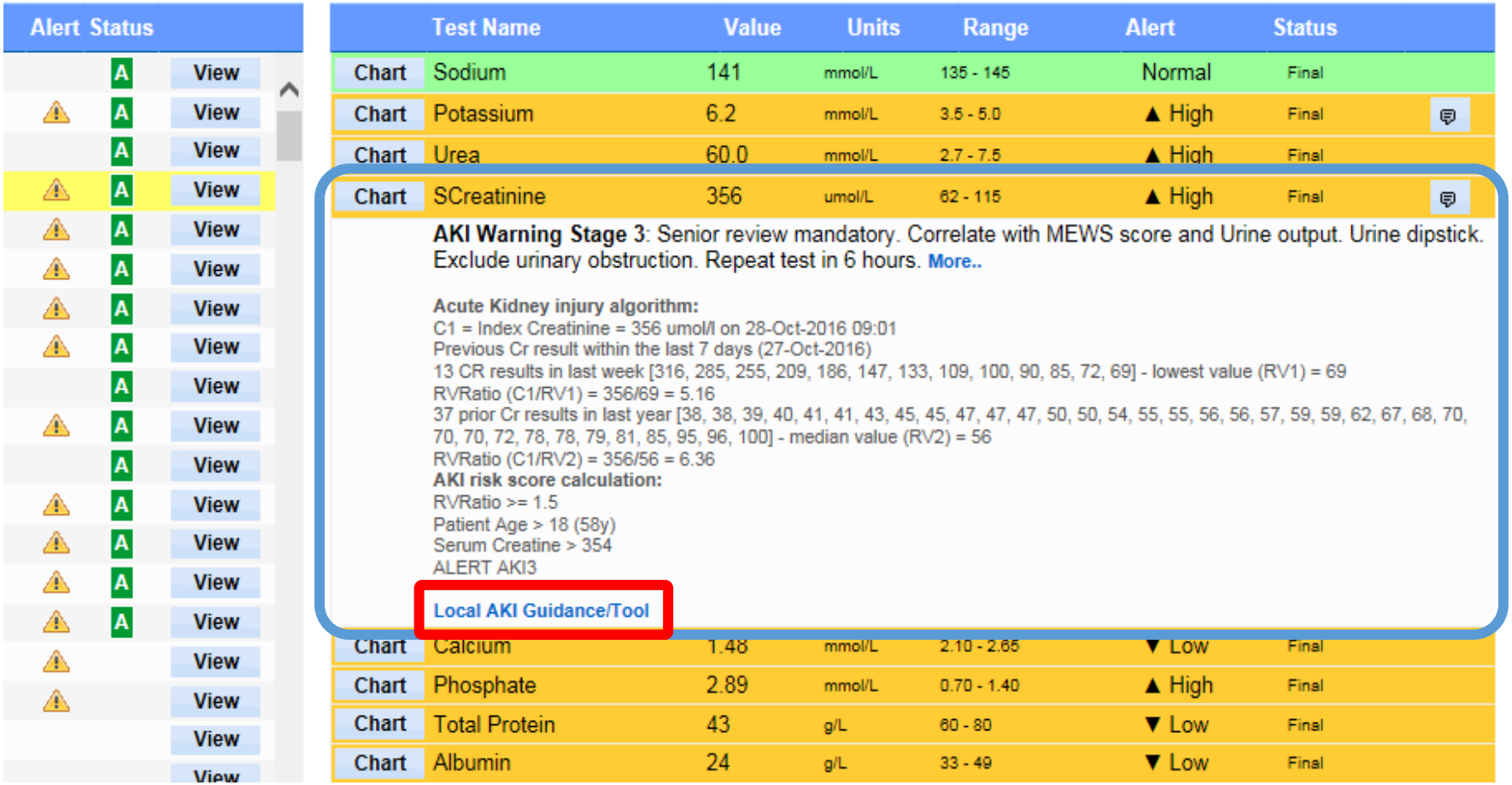
AKI e-Alerts and Triggers



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Patient Menu
Patient Forms
Clinical Notes
Lab Results

AKI identification and risk

* Date and time of assessment: 18-Nov-2016 14:17

Serum creatinine: This is the most recent result reported. If blank, there are no results within 3 days

Date: View Results

Risk factors and present AKI status

* AKI present: Is there evidence of AKI

○ Yes ○ No ○ Not yet known

* AKI risk factors (chronic): Complete on admission, change as necessary.

- ☐ No chronic risk factors
- ☐ CKD (eGFR less than 60ml/min)
- ☐ Heart failure
- ☐ Liver disease
- ☐ Diabetes
- ☐ Previous AKI
- ☐ Chronic neurological or cognitive impairment
- ☐ History of urological obstruction

* AKI risk factors (acute): Present now

- ☐ No acute risk factors
- ☐ Oligouria
- ☐ Acute neurological or cognitive impairment
- ☐ Hypovolaemia
- ☐ Nephrotoxic drugs (include iodine containing contrast)
- ☐ Symptoms or new urological obstruction
- ☐ Sepsis
- ☐ Deteriorating EWS

Initial management

* Renal management plan: Mark all completed or planned

- ☐ Fluid balance and daily weight charts requested
- ☑ Correction of hypovolaemia
- ☐ Regular haematology and Christie profile planned
- ☑ Urine dip requested
- ☐ Nephrotoxic medications reviewed
- ☐ Review of acid/ base balance

* Actions taken and plan

* Senior doctor aware: Has a senior doctor on the team or on call team been made aware of the findings and actions?

- ☐ No senior review required
- ☐ No senior review yet
- ☐ Registrar
- ☐ Consultant

Submit

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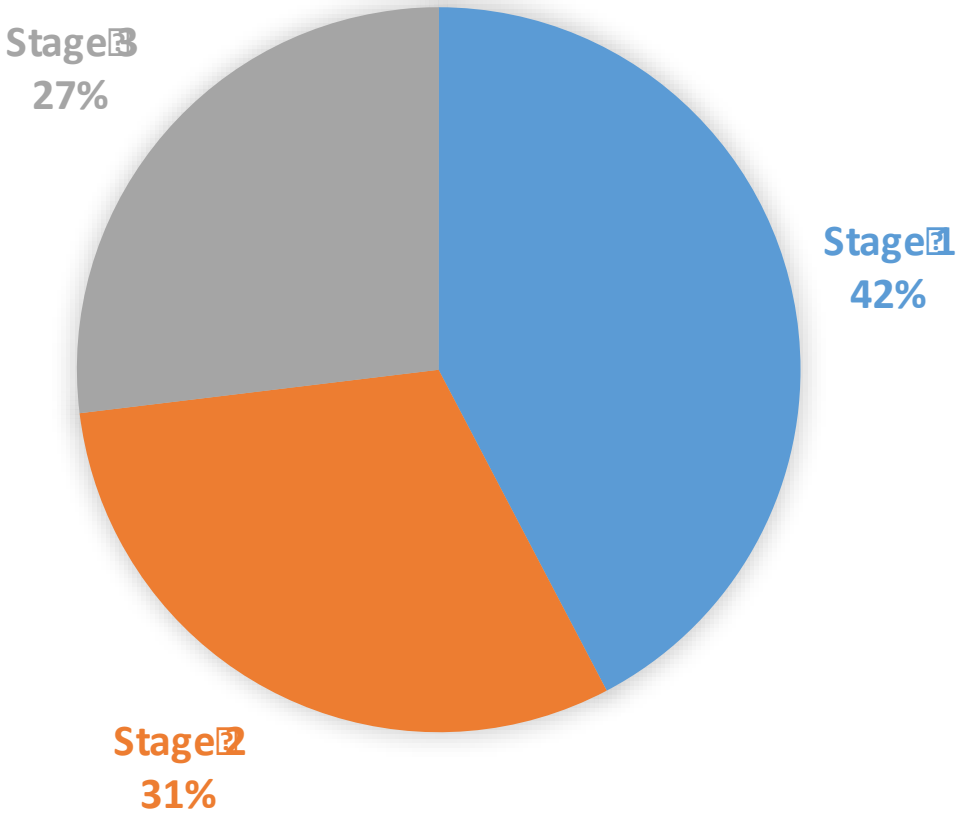
AKI Incidence by Stage (inpatients only)



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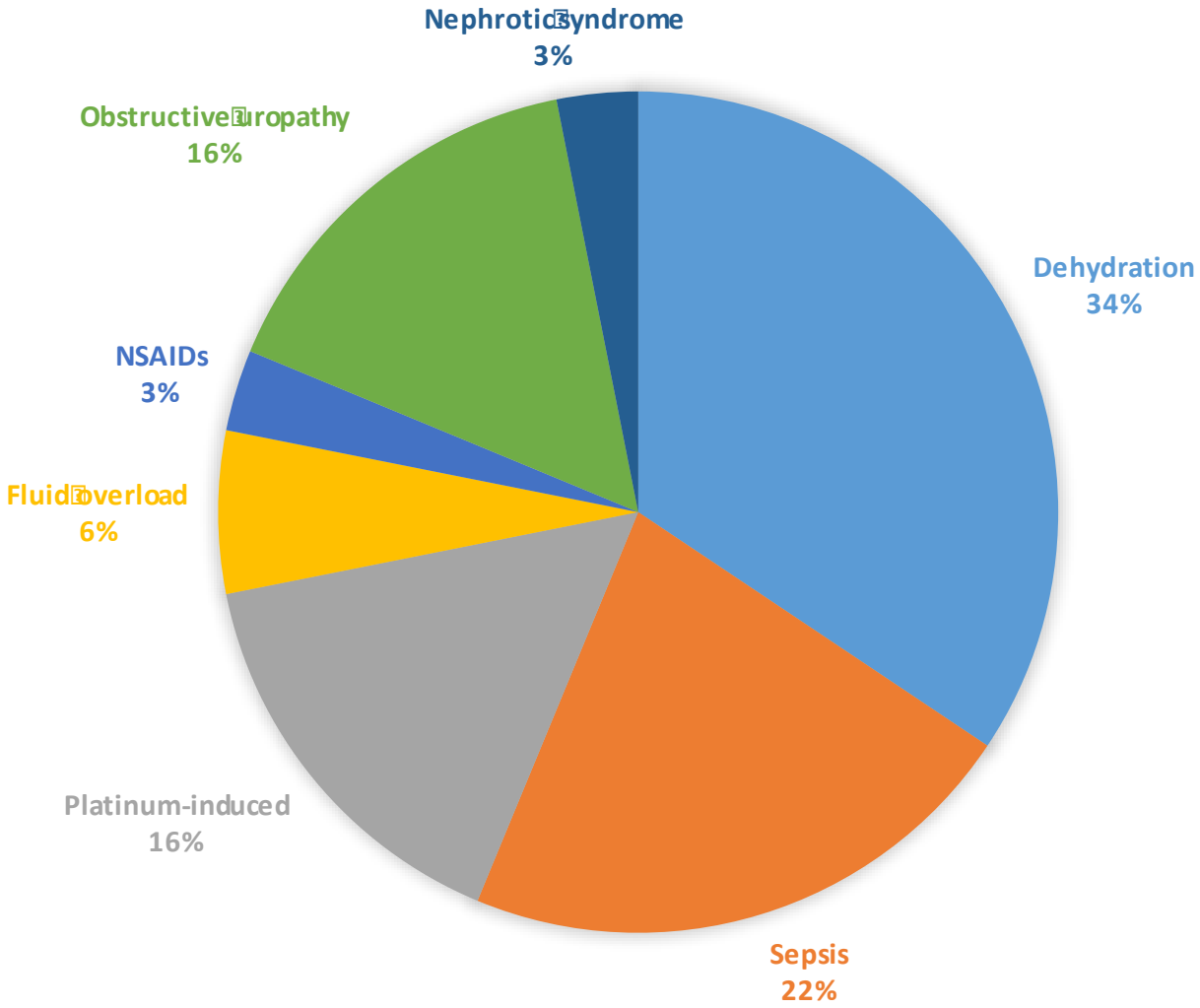
AKI Aetiology in Oncology Patients



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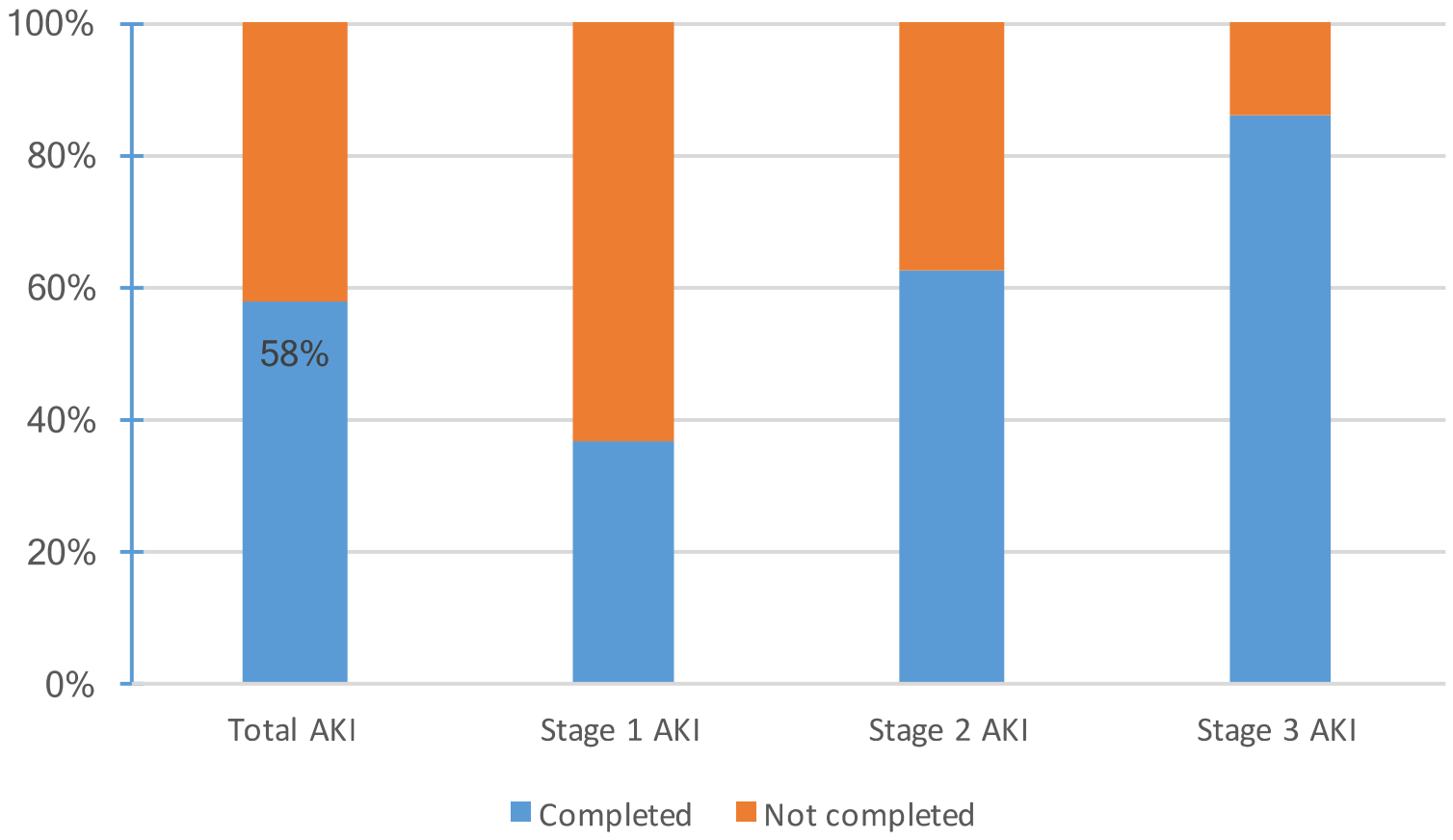
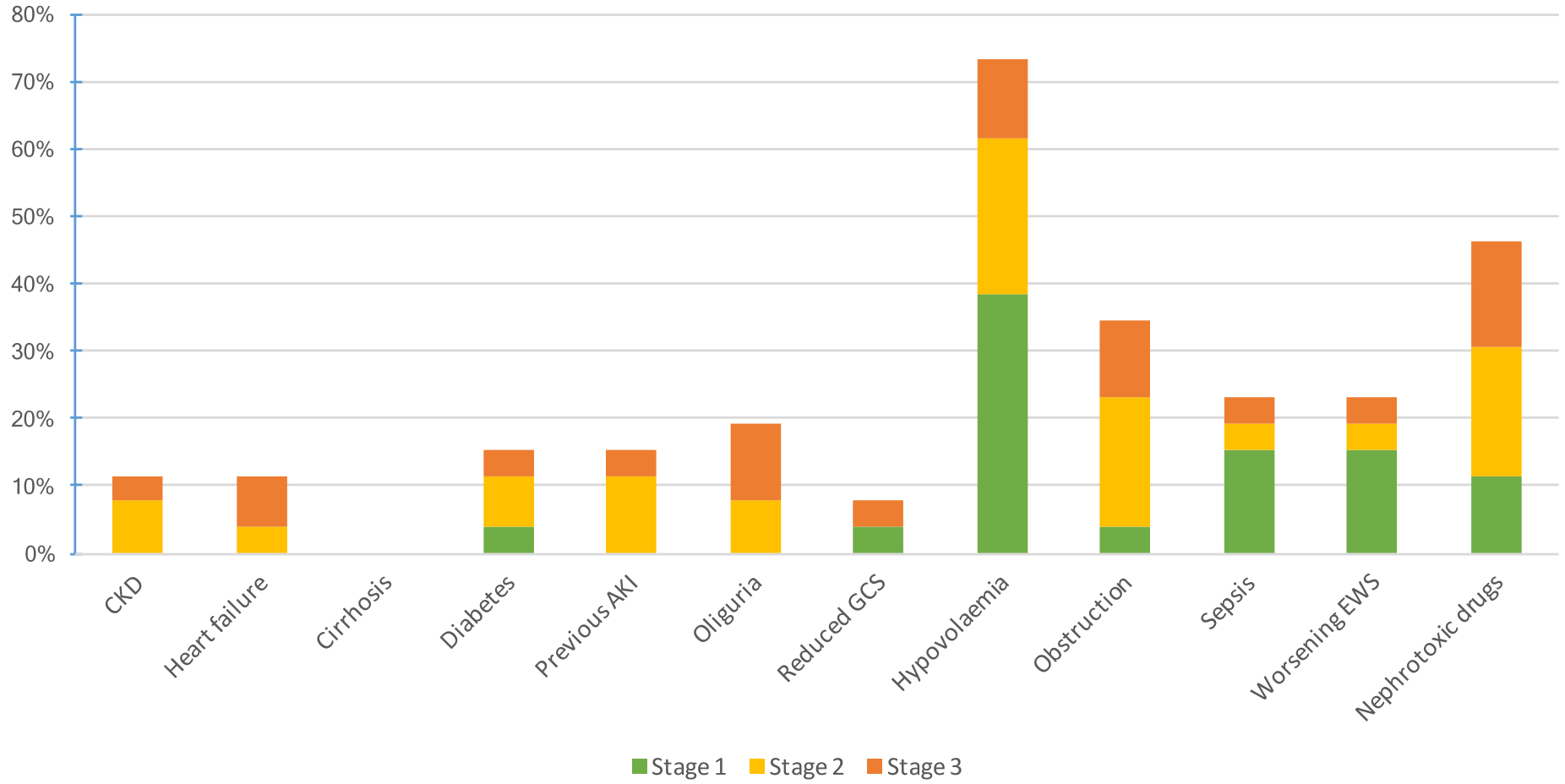
Compliance with AKI Care Bundle



Risk Factors for AKI in Oncology Patients



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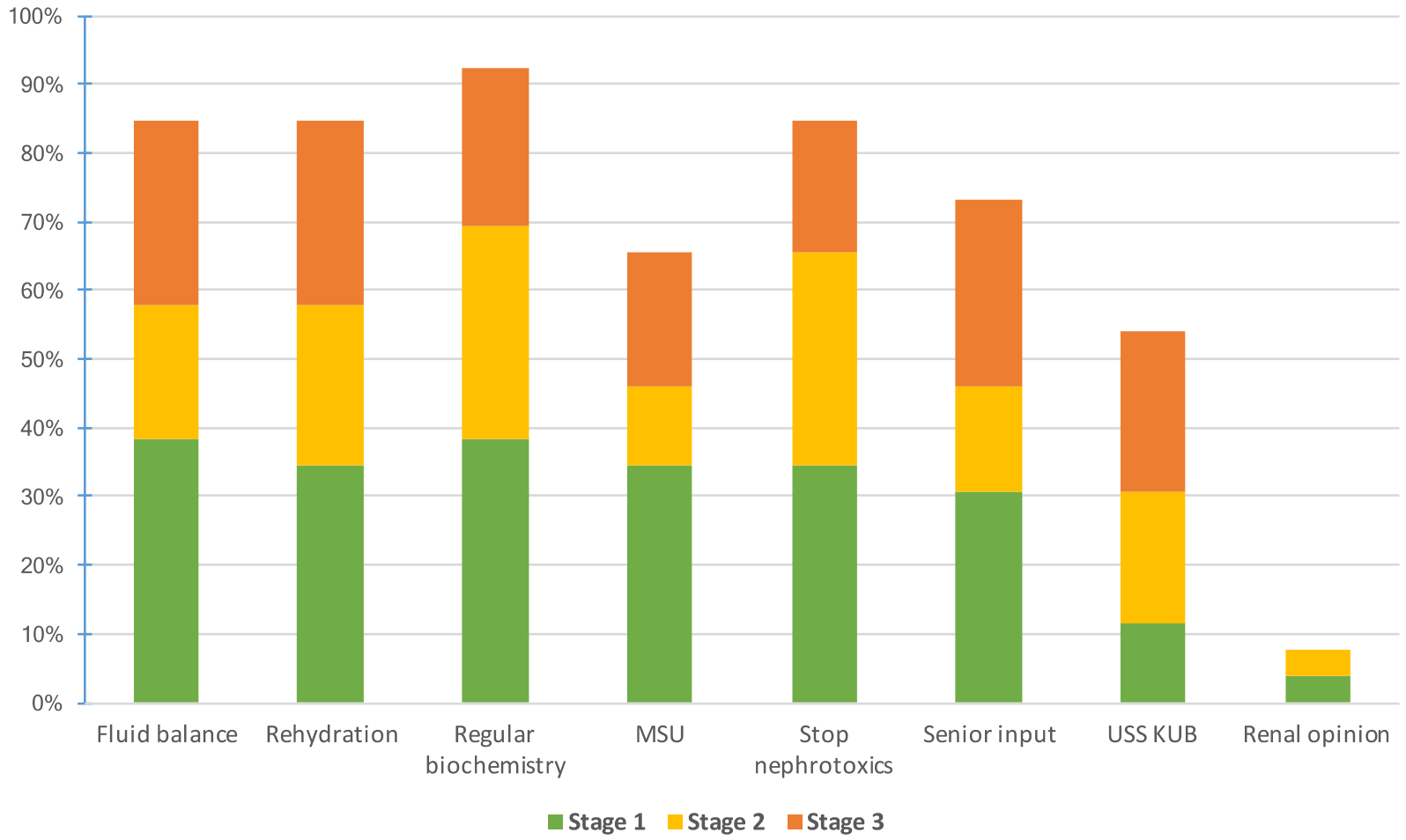
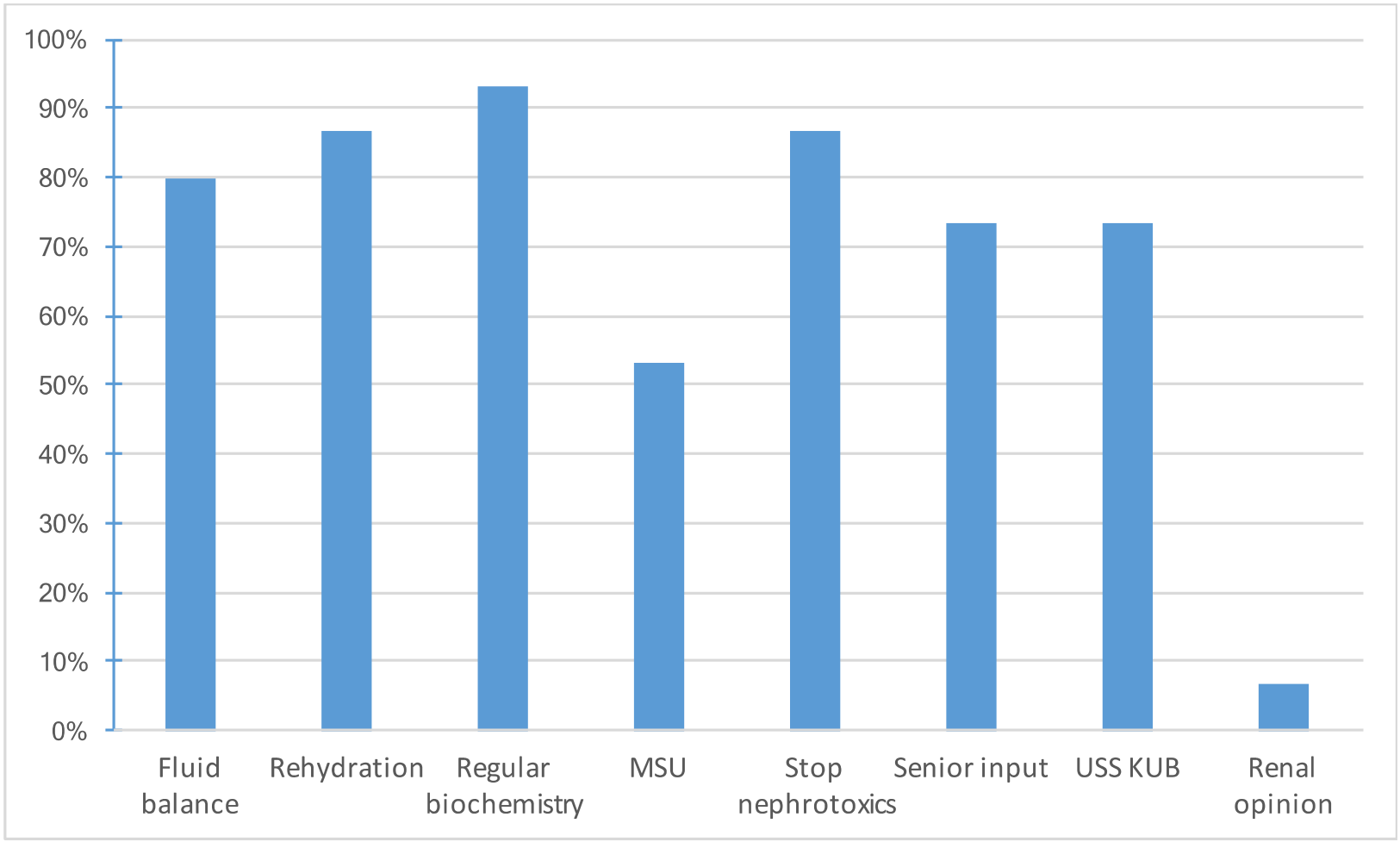
Management of AKI by stage



Management of Stage 2-3 AKI



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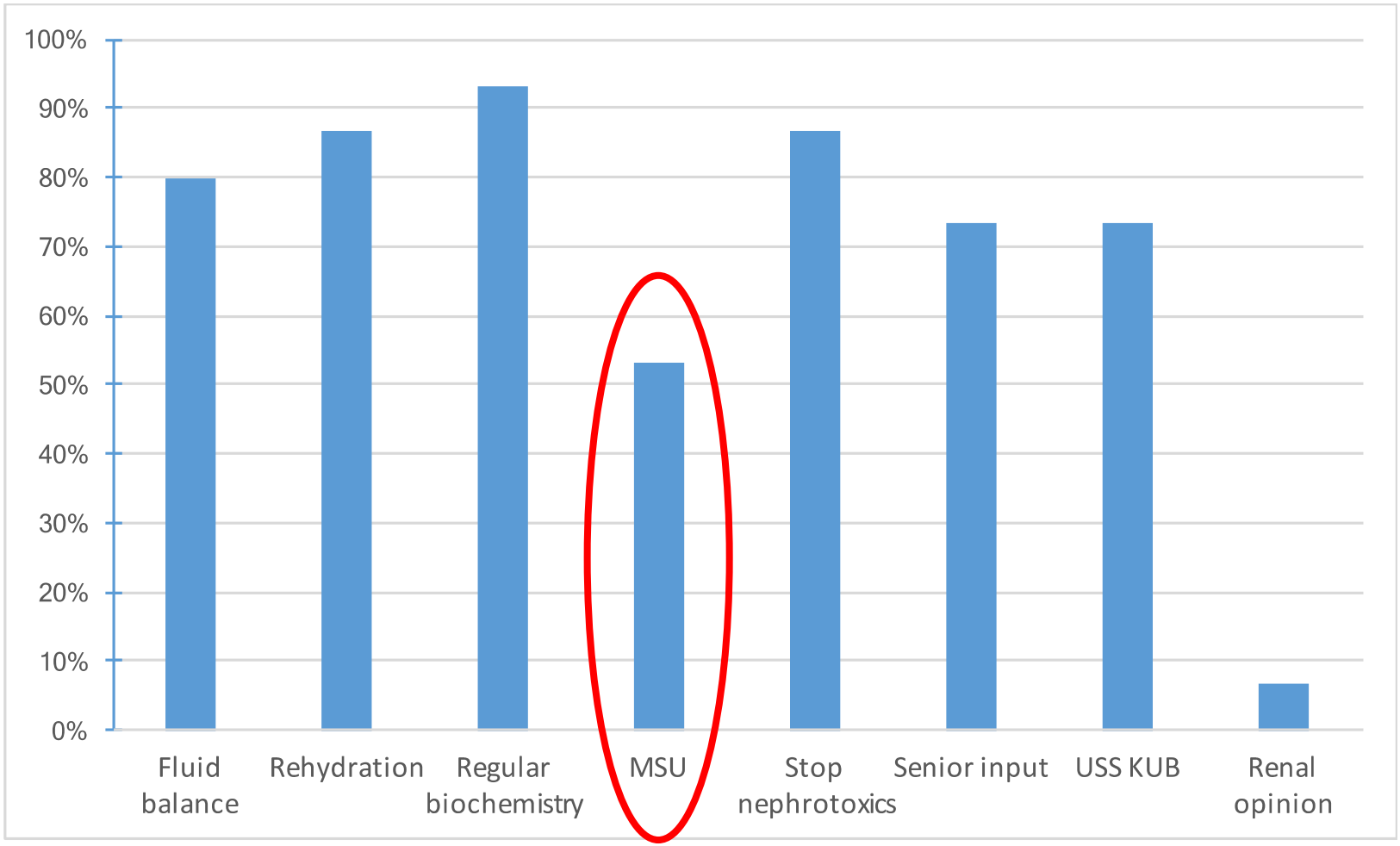

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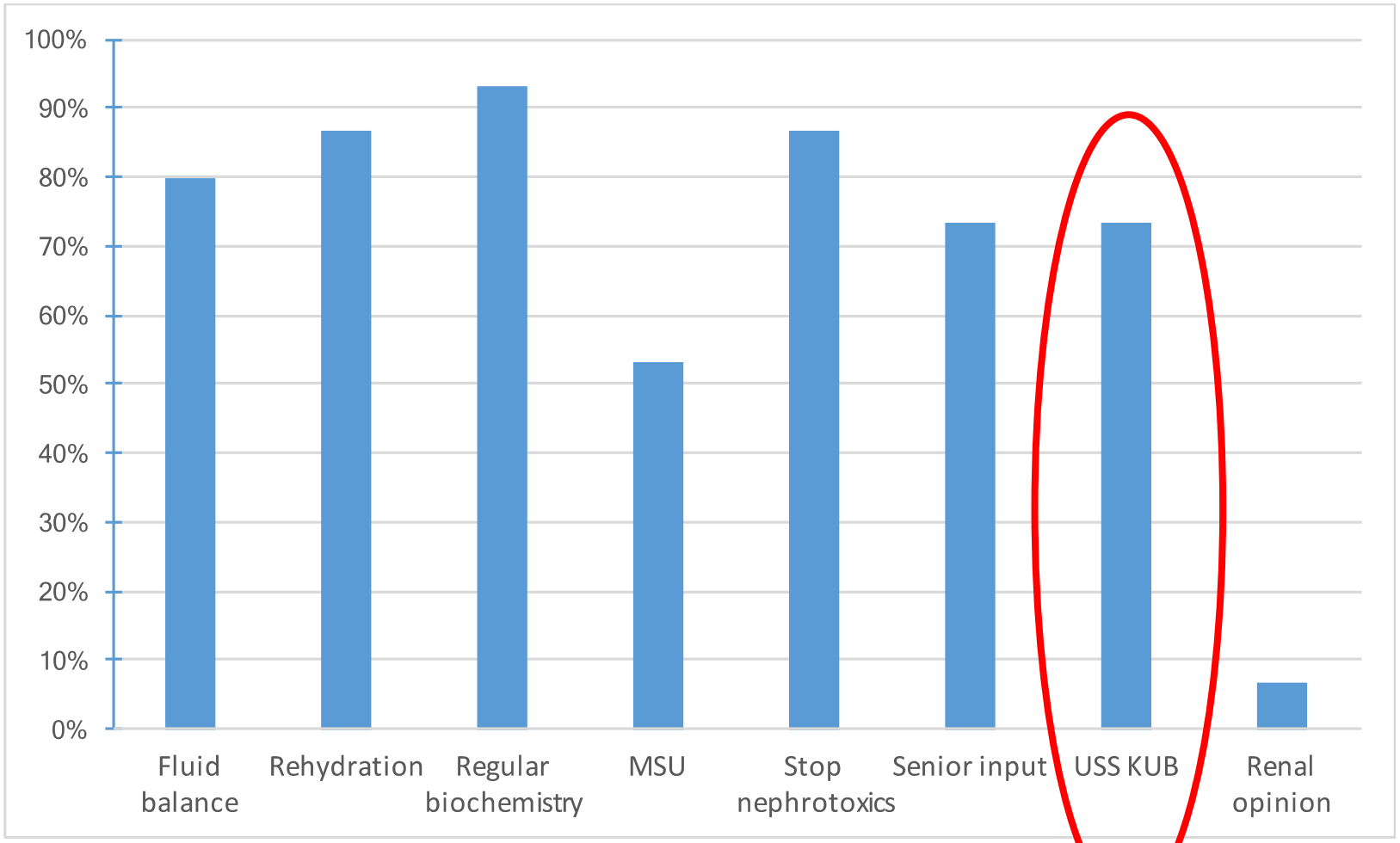

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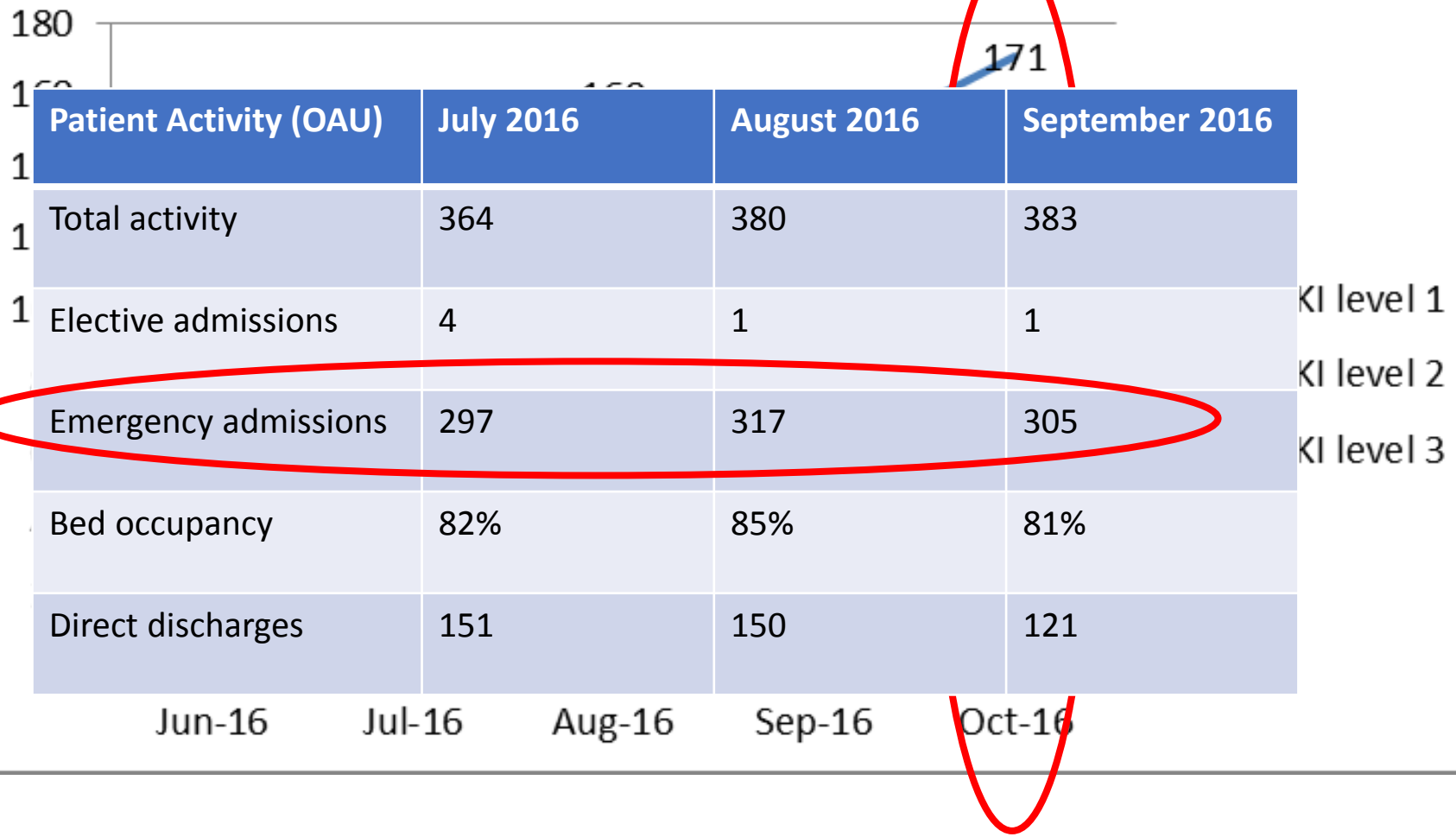
No. individual patients with AKI alerts by month



Patient Activity (OAU)	July 2016	August 2016	September 2016
Total activity	364	380	383
Elective admissions	4	1	1
Emergency admissions	297	317	305
Bed occupancy	82%	85%	81%
Direct discharges	151	150	121

Difficulties & Potential Solutions

- Data collection erratic & therefore not 100% reliable
  - EPR, e-prescribing & live dashboards are potential game changers
- Lack of human resource
  - Employing a full time AKI nurse
- AKI risk precedes SACT
  - AKI assessment needs to occur in the OPD before prescribing chemotherapy
- Multiple areas for AKI risk including surgery & haematology
  - Identify AKI champions for different clinical areas
- Lack of community integration
  - AQuA 2017

Learning Points

- AKI is common and has significant morbidity, including prolonged LOS and precluding further SACT
  - ➢Often complex aetiologies especially with emerging new therapies
- Obstruction and nephro-toxic medications potentially confer a more severe degree of AKI, albeit reversible if intervened upon early
- Greater emphasis on care bundle completion & data collection
- Immediate medicines optimisation vital
- Integrating AKI tools with other protocols is key e.g. sepsis & IV fluids
- Executive support has been crucial
- Education – PowerPoint e-learning bytes

Thank you for listening…

Any questions?

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