

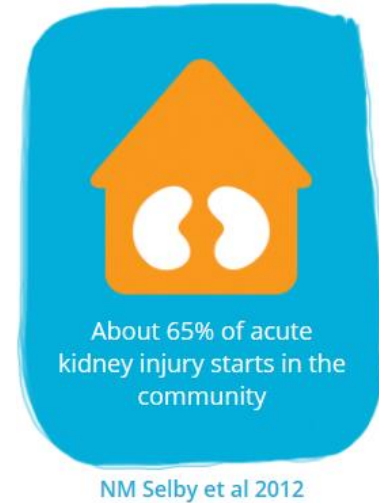
# The Importance of AKI

James Tollitt

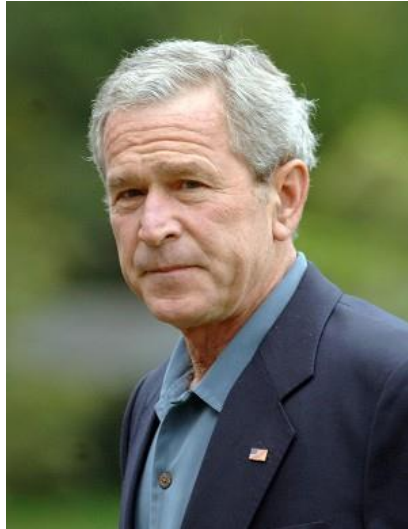
Renal Specialist Trainee

Salford Royal NHS Foundation Trust

- Why is AKI important?
- What do we define as AKI?
- What do patients think kidneys do?
- What are we doing locally?



# Who is most at risk on arrival in SRFT A&E?



- George
- 86 year old man
- Crushing chest pain and ECG changes consistent with a large heart attack.



- Julia
- A slim 56 year old,
- Long standing diabetes, has not been feeling right - the GP did a blood test and her serum creatinine is 456  $\mu\text{mol/L}$ .

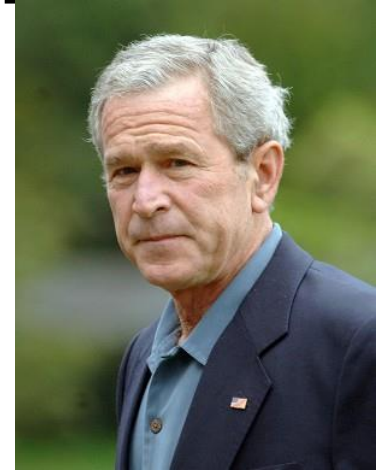
Collaboration for Leadership in  
Applied Health Research and Care  
(CLAHRC) Greater Manchester



Q. Suggest mortality risks for both patients

# Who is at greatest risk?

- For George, his risk of death is 32.2%
- For Julia, her risk of death is 53.1%



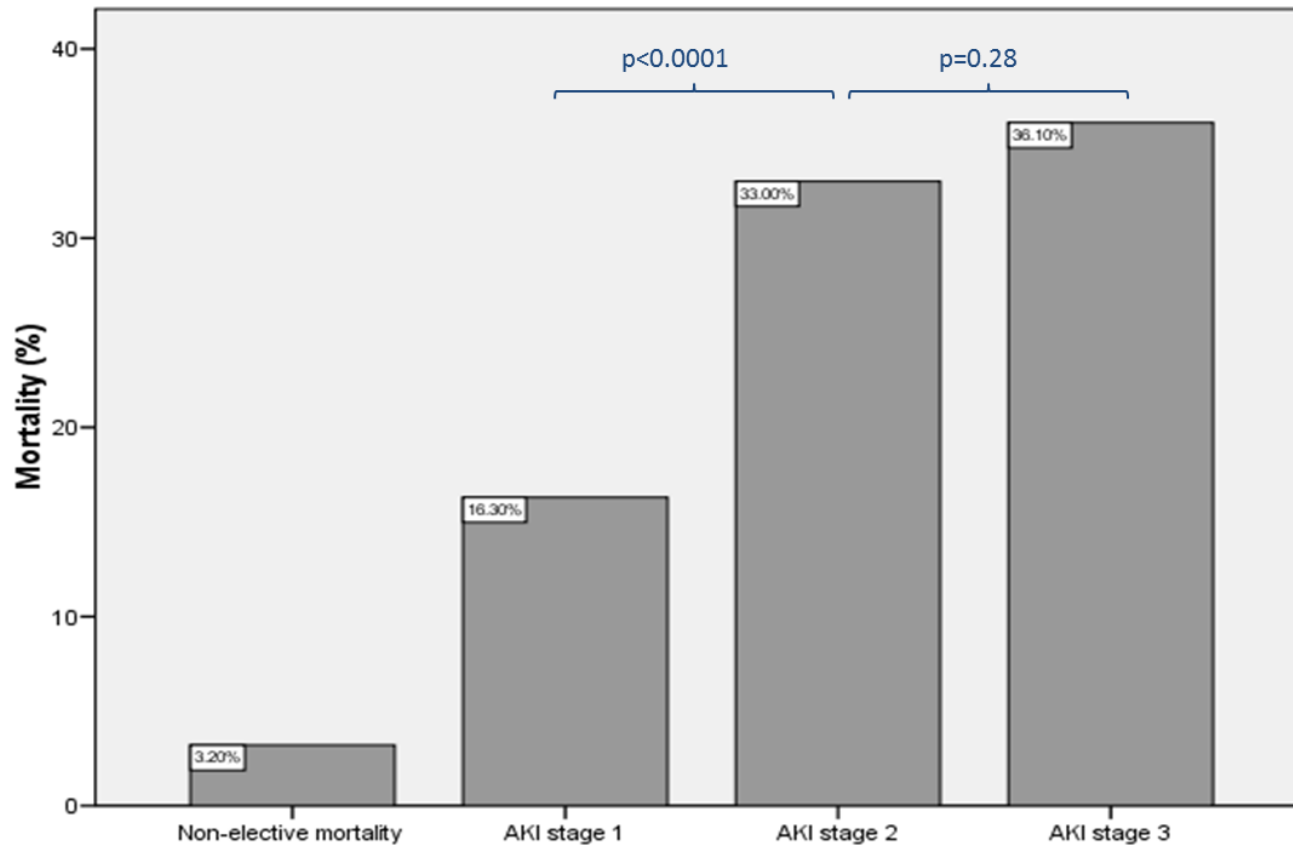
Number of patients per  
annum sustaining each  
stage of AKI in 1000-  
bedded hospital

# AKI Staging

AKI stage	Serum Creatinine criteria	
1	SCr increase $\geq 26 \mu\text{mol/L}$ <u>or</u> SCr increase $\geq 1.5\text{-}2$ fold from baseline	2727
2	SCr increase $\geq 2\text{-}3$ fold from baseline	782
3	SCr increase $\geq 3$ fold from baseline <u>or</u> SCr increase $\geq 354 \mu\text{mol/L}$ <u>or</u> initiated on RRT (irrespective of stage at time of initiation)	636
		<b>total 4145</b>

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Applied Health Research and Care  
(CLAHRC) Greater Manchester

## In Hospital Mortality



- In Salford Royal in December 2014
  - 30 patients with AKI3
  - 12 patients died (40%)





# AKI Publications

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### 1,000 patients a month are dying in hospital from 'avoidable' kidney problems caused by dehydration

- Acute kidney injury (AKI) causes up to 40,000 excess deaths every year
- New report warns this figure is FIVE times higher than originally thought
- Severe dehydration is one of main causes of the condition

By ANNA HODGEKISS  
PUBLISHED: 00:15, 22 April 2014 | UPDATED: 08:41, 22 April 2014

Share | 119 View comments



## Adding Insult to Injury

A review of the care of patients who died in hospital with a primary diagnosis of acute kidney injury (acute renal failure).

**NICE** National Institute for Health and Care Excellence

## Acute kidney injury

Prevention, detection and management of acute kidney injury up to the point of renal replacement therapy

Issued: August 2013

NICE clinical guideline 169  
[guidance.nice.org.uk/cg169](http://guidance.nice.org.uk/cg169)

# Key Findings

National Confidential Enquiry into Patient Outcome and Death



- Only 50% of AKI care considered good
- Poor assessment of risk factors
- Unacceptable delay in recognition of post-admission in AKI in 43%
- 22% patients died with a primary diagnosis of post-admission AKI which was predictable and avoidable
- Complications missed (13%), avoidable (17%) or badly managed (22%)



For more information, please visit  
[www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)

# Acute Kidney Injury: NICE Guidance – who are vulnerable?



The screenshot shows the NICE website header with the logo and navigation links. Below the header is a search bar and a navigation menu. The main content area features a large image of a woman in a hospital bed being attended to by a healthcare professional. To the left of the image, there is text announcing new guidance for acute kidney injury, stating it could save thousands of lives and millions of pounds. Below this text are links to read the news, watch a video, and view the guideline.

NICE National Institute for Health and Care Excellence

Home News Get involved About NICE

Find guidance NICE Pathways Quality standards Into practice QOF

New guidance for Acute kidney injury could save 1,000's of lives and save the NHS millions of pounds

It's a condition that affects 1 in 6 people who are admitted to hospital.

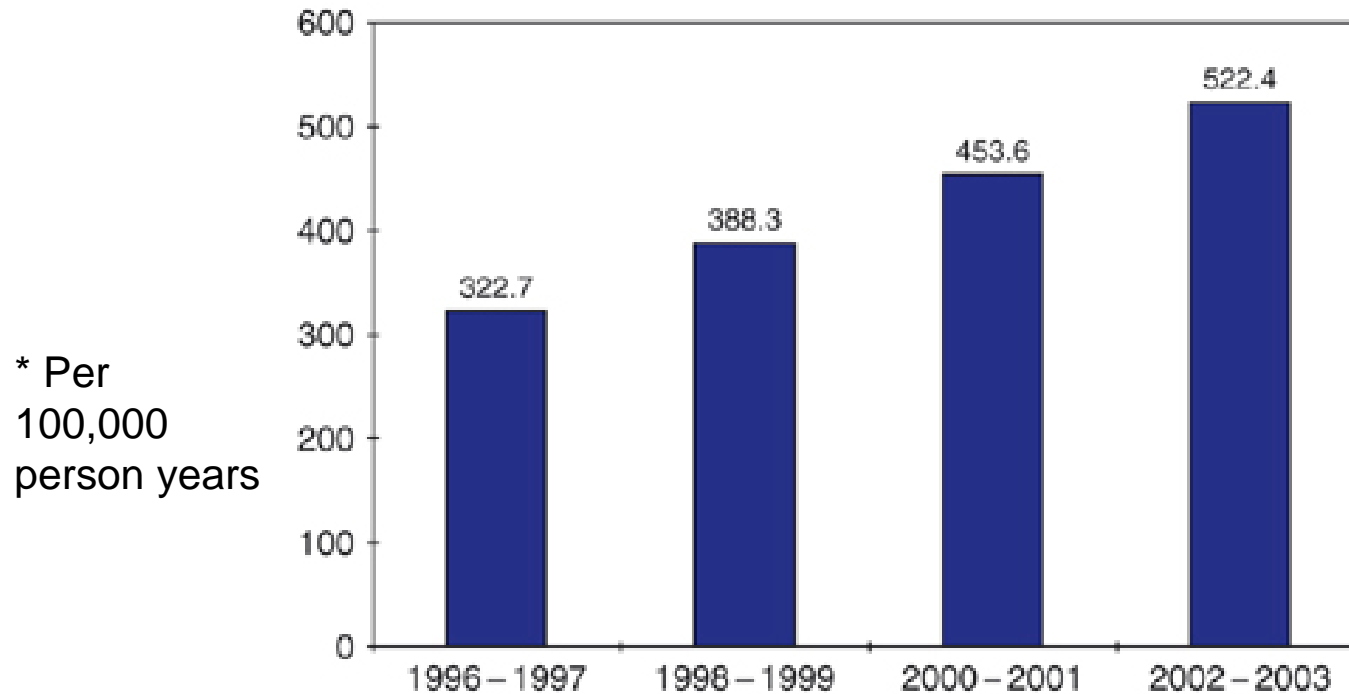
[Read the news and watch a video](#)

[View the guideline](#)

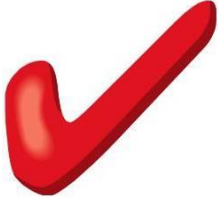

- Elderly
- Socially isolated
- Cognitive impairment
- Multimorbidity
- eGFR <60 (CKD)
- Past history of AKI
- Heart failure
- Diabetes
- Liver disease
- Hypovolaemia
- Use of drugs/agents with nephrotoxic potential (NSAIDs, ACE Inhibitors, ARBs, diuretics, aminoglycosides, contrast)
- Risk of urological obstruction

For more information, please visit  
[www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)

# Incidence of AKI is increasing



Hsu CY et al. *Kidney International* (2007) **72, 208**

- Why is AKI important? 
- What do we define as AKI? 
- What do patients think kidneys do?
- What are we doing locally

# QUICK KIDNEY QUIZ!!

What proportion of general public know that kidneys make urine?

1. 100%
2. 78%
3. 66%
4. 60%
5. 51%

**‘THINK  
KIDNEYS’**

# QUICK KIDNEY QUIZ!!

What proportion of general public know that kidneys make urine?

1. 100%

2. 78%

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4. 60%

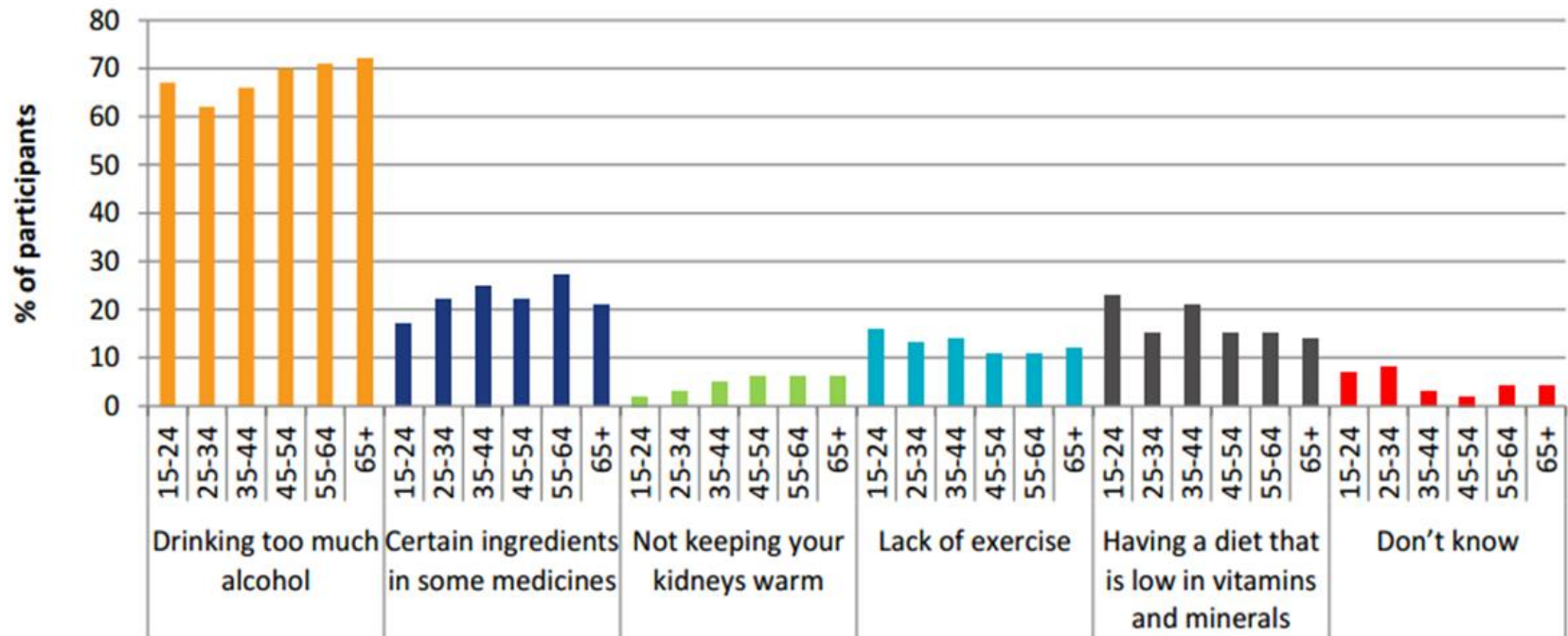
**5. 51%**

‘THINK  
KIDNEYS’



# ‘THINK KIDNEYS’

## What people think are dangers to the health of kidneys, by age group



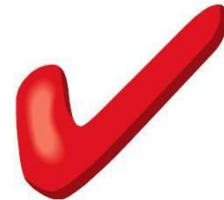
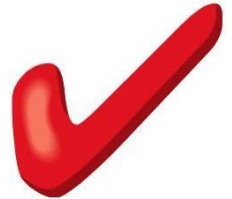
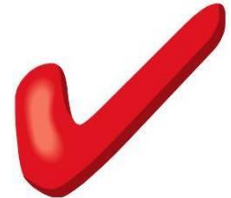
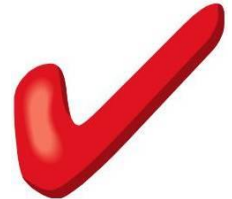
Danger to kidney health by age group



# In addition locally

- SRFT AKI Quality Improvement Project
- ‘SPARC’ – Salford Partnership for Advancing Renal Care – starting with SRFT nephrologists visiting practice for case based discussions post AKI
- Lab AKI alerts to primary care 2015
- Salford CCG – LTC Locally commissioned service – CKD is a named LTC
- National CQUIN – improved information on discharge summaries

- Why is AKI important?
- What do we define as AKI?
- What do patients think kidneys do?
- What are we doing locally?



# Take Home Messages

- 1) AKI has high mortality
- 2) AKI incidence is increasing
- 3) 65% AKI is community acquired
- 4) Patient knowledge of kidneys is poor
- 5) Collaborative approach to patient education is required

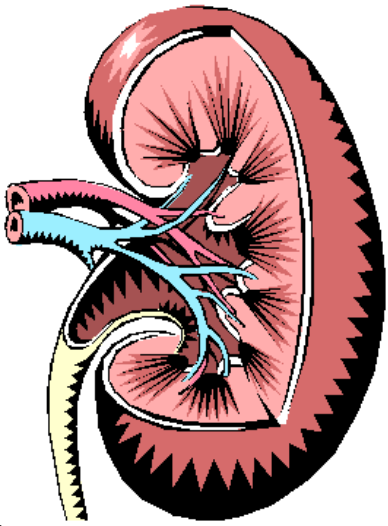


# Optimising Kidney Health in the Community

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Dr Tom Blakeman

GP & Clinical Lecturer in Primary Care  
NIHR CLAHRC for Greater Manchester  
tom.blakeman@manchester.ac.uk



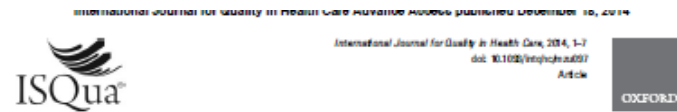
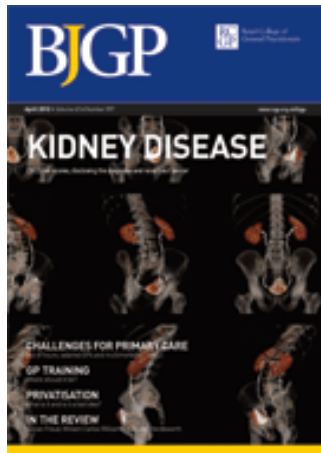
## Outline: Making kidney health meaningful

Might be worth thinking about the kidneys when....

- Maintaining Vascular Health
- Managing Acute illness & Vulnerability

**‘THINK  
KIDNEYS’**

# Kidney Health: Salford - Driving quality improvement



Gaffney et al. BMC Family Practice 2014, 15:196  
http://www.biomedcentral.com/1471-2296/15/196



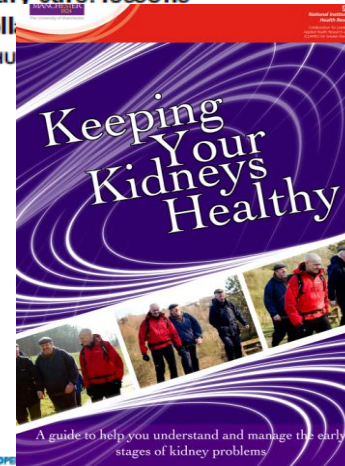
RESEARCH ARTICLE

Open Access

Article  
**Improving the identification and management of chronic kidney disease in primary care: lessons from a staged improvement collaboration**  
GILL HARVEY<sup>1,2</sup>, KATHRYN OLIVER<sup>3,4</sup>, JOHN HULL<sup>5</sup>, KATY ROTHWELL<sup>6</sup>, and JANET HEGARTY<sup>6</sup>

Predictors of patient self-report of chronic kidney disease: baseline analysis of a randomised controlled trial

Hannah Gaffney<sup>1</sup>, Thomas Blakeman<sup>1</sup>, Christian Blickem<sup>1</sup>, Ann Rahena Mossabir<sup>1</sup>, Peter Bower<sup>2</sup>, Caroline Gardner<sup>3</sup>, Victoria Lee<sup>4</sup>  
A guide to using IMPAKT™ to improve diagnosis and care for people with chronic kidney disease



Editorials

**Acute kidney injury in the community:**

why primary care has an important role



**Effect of Information and Telephone-Guided Access to Community Support for People with Chronic Kidney Disease: Randomised Controlled Trial**

Tom Blakeman<sup>1,2</sup>, Christian Blickem<sup>1,2,3</sup>, Anne Kennedy<sup>2,4</sup>, David Reeves<sup>5</sup>, Peter Bower<sup>6</sup>, Hannah Gaffney<sup>7</sup>, Caroline Gardner<sup>8</sup>, Victoria Lee<sup>9</sup>, Praksha Jariwala<sup>10</sup>, Shoba Dawson<sup>11</sup>, Rahena Mossabir<sup>12</sup>, Helen Brooks<sup>13</sup>, Gerry Richardson<sup>14</sup>, Eldon Spackman<sup>15</sup>, Naylo Vasiliev<sup>16</sup>, Carolyn Chew-Graham<sup>17</sup>, Anne Rogers<sup>18</sup>

<sup>1</sup>NIHR Collaboration for Leadership in Applied Health Research (CLAHRC) Greater Manchester, Centre for Primary Care, Institute of Population Health, University of Manchester, Manchester, United Kingdom, <sup>2</sup>NIHR CLAHRC Wessex, Health Science, University of Southampton, Highfield Campus, Southampton, United Kingdom, <sup>3</sup>NIHR School for Primary Care Research, Centre for Primary Care, Institute of Population Health, University of Manchester, Manchester, United Kingdom, <sup>4</sup>Centre for Health Economics, University of York, Heslington, York, United Kingdom, <sup>5</sup>Primary Care & Health Services, University of Leeds, Leeds, United Kingdom

*"UK general practice is in a unique position to tify people at increased susceptibility to AKI and ress potentially modifiable exposures."*



Non-disclosure of chronic kidney disease in primary care and the limits of instrumental rationality in chronic illness self-management

Clavin Daker-White<sup>1,2</sup>, Anne Rogers<sup>3</sup>, Anne Kennedy<sup>4</sup>, Thomas Blakeman<sup>5</sup>, Christian Blickem<sup>6</sup>, Carolyn Chew-Graham<sup>7</sup>

<sup>1</sup>NIHR Greater Manchester Primary Care Patient Safety Transformation Research Centre, Institute of Population Health, Wellman Building, The University of Manchester, Oxford Road, Manchester, M13 9PL, UK



# What is high quality care?

- Accessible
- Clinically effective
- Patient-centred
- Safe
- Efficient
- Equitable

Campbell, Roland & Buetow,  
Social Science & Medicine, 2000

US Institute of Medicine



# Achieving High Quality Care: AKI - a driver of Quality across the NHS?

High quality care for all,  
now and for future generations



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- › November 2014
- › October 2014
- › September 2014
- › August 2014

Measure, educate and manage better:  
Challenges of Acute Kidney Injury – Richard  
Fluck





 Visit **NHS Choices**  
for patient

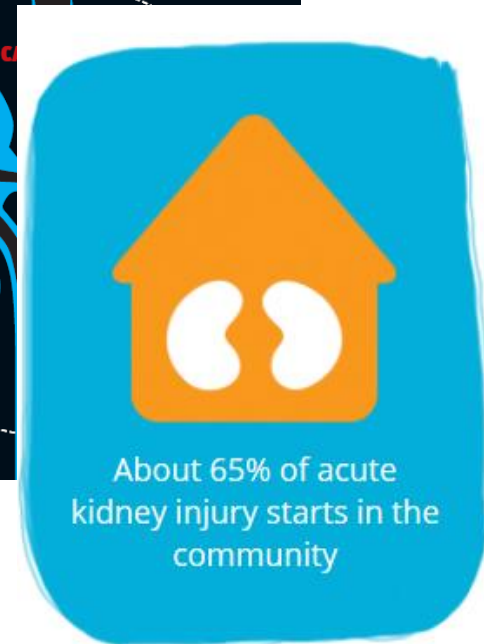
*'If we can get it right for AKI, we will get basic care right  
across the NHS.'*

Professor Donal O'Donoghue  
BBC, 2013



# Acute Kidney Injury

- Common
- Harmful
- Costly
- Potentially Avoidable

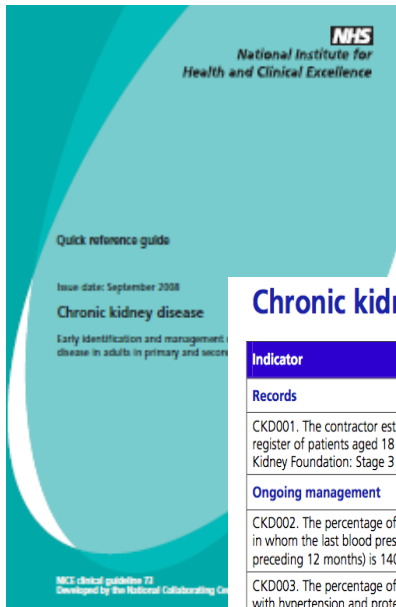


NM Selby et al 2012

# Making Kidney Health Meaningful: A need to broaden & tailor conversations?

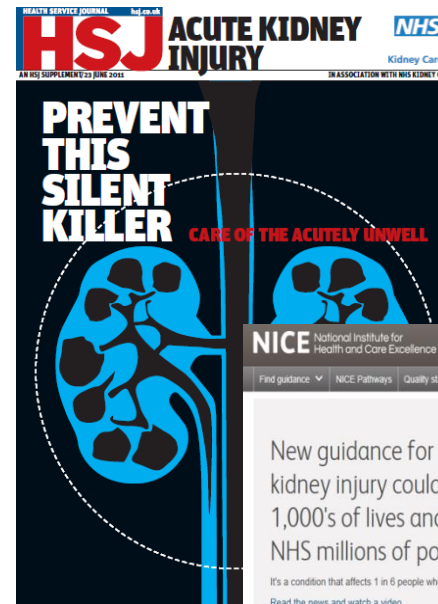
Kidneys in the context of  
Supporting Vascular Health

Kidneys in the context of  
Managing acute illness



## Chronic kidney disease (CKD)

Indicator	Points	Achievement thresholds
<b>Records</b>		
CKD001. The contractor establishes and maintains a register of patients aged 18 or over with CKD (US National Kidney Foundation: Stage 3 to 5 CKD)	6	
<b>Ongoing management</b>		
CKD002. The percentage of patients on the CKD register in whom the last blood pressure reading (measured in the preceding 12 months) is 140/85 mmHg or less	11	41-81%
CKD003. The percentage of patients on the CKD register with hypertension and proteinuria who are currently treated with an ACE-I or ARB	9	45-80%
CKD004. The percentage of patients on the CKD register whose notes have a record of a urine albumin:creatinine ratio (or protein:creatinine ratio) test in the preceding 12 months	6	45-80%



# Kidneys in the context of supporting vascular health & Preventing renal disease progression

# NICE Guidance: Management of chronic kidney disease in primary care

## Chronic kidney disease

Issue date: September 2008

### Early identification and management of chronic kidney disease in adults in primary and secondary care

Stage	GFR	Description
1	90 or over	Normal or increased GFR, with other evidence of kidney damage
2	60–89	Slight decrease in GFR, with other evidence of kidney damage
3A	45–59	Moderate decrease in GFR, with or without other evidence of kidney damage
3B	30–44	
4	15–29	Marked decrease in GFR, with or without other evidence of kidney damage
5	Under 15	Kidney failure

\* Stage 3 chronic kidney disease has been divided into 3A and 3B to help clinicians manage the condition more effectively.

NICE clinical guideline 73

Developed by the National Collaborating Centre for Chronic Conditions

# NICE Guidance: Management of chronic kidney disease in primary care

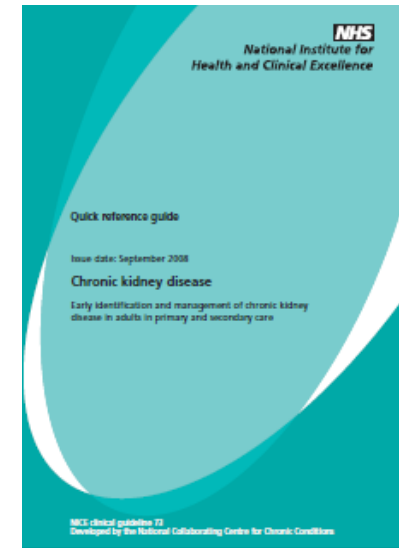
~5-6% population have CKD stages 3-5

Exists with other conditions:  
Hypertension, IHD and diabetes

CKD is an independent risk factor for  
cardiovascular disease

Discussion of CKD as a platform to support:

- BP Control
- Lifestyle change
- Medicines management



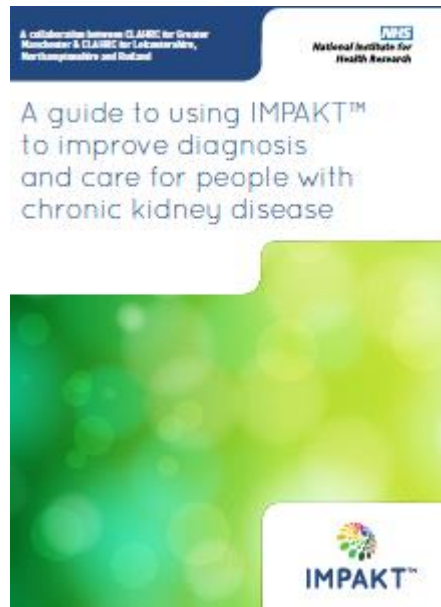
# The Quality & Outcomes Framework: CKD & a focus on vascular health

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<http://bma.org.uk/practical-support-at-work/contracts/independent-contractors/qof-guidance>

# CKD in the context of Vascular Health: Identification & management in general practice

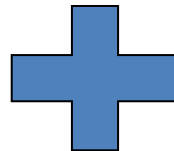
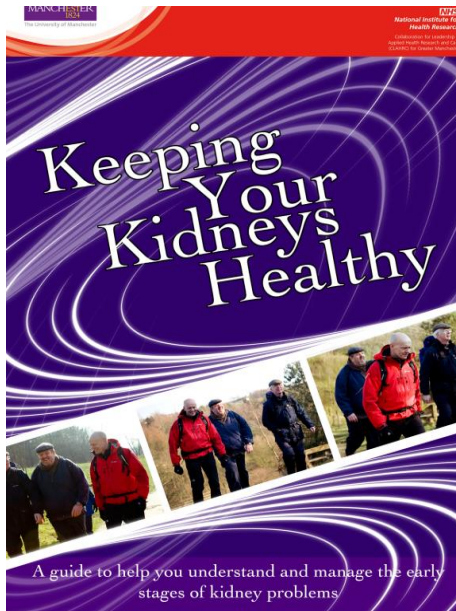


- Diagnose 'missing' cases of CKD
- Manage and stratify risk of progressive CKD
- Manage BP and proteinuria

<http://www.impakt.org.uk/>



# CKD in the context of Vascular Health: Bringing Information & Guided Help Together



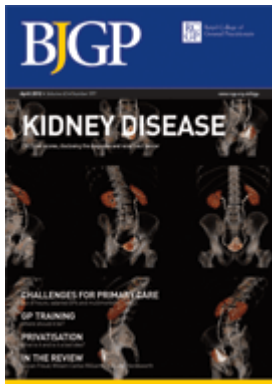
<http://www.plansforyourhealth.org/>





Why bother with the elderly?

# A key tension: Identifying & discussing Kidneys in older people & patients with stage 3A



*'... if you've got CKD or you're young and you've got proteinuria, definitely that is a really important thing to hammer in. But yeah, 80/90 year olds, I wouldn't suggest we're probably discussing it, if they've got a mild CKD3.'* (GP06)

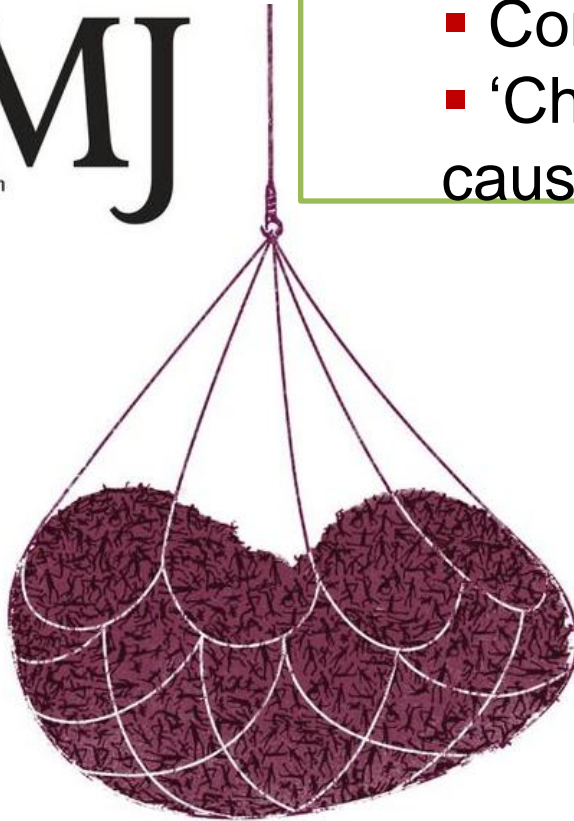
# Framing Kidney discussions: 'Nothing to worry about'

*'I try and reassure them at the beginning that there isn't anything actually to worry about....  
....But just to let them know, I feel that they should know that they're on a register and tell them not to worry. If there's anything to worry about we'll let them know.'* (nurse 11)



**BMJ**  
3 August 2013 | bmj.com

- Concerns about over diagnosis
- 'Chronic' 'disease' labelling may cause unnecessary anxiety



Is the definition of chronic kidney disease catching too many people?

## Doctor, doctor: Chronic kidney disease and anxiety

Dr Tom Smith

The Guardian, Saturday 7 August 2010

Will I need dialysis and a kidney transplant? Plus, I'm anxious about anxiety



Photograph: Aaron Tilley for the Guardian

# Acute Kidney Injury (AKI) National Programme

Understanding what the public know about their kidneys and what they do

Findings from Ipsos MORI survey – July 2014  
| Version 0.1

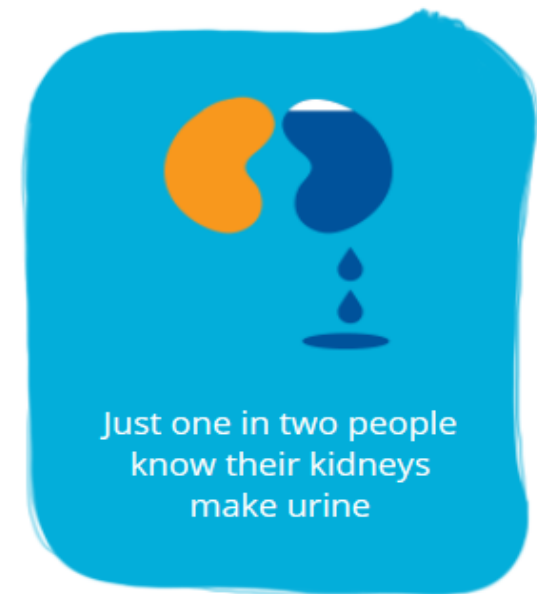
21.01.2015



# Minding the Gap: Headline findings

## People don't have a comprehensive understanding of

- what their kidneys do,
  - how to keep them healthy
  - what acute kidney injury is
- Only 51% of the population know that kidneys make urine
  - Only 12% of participants thought that the kidneys had a role to play in processing medicines



Ipsos MORI survey,  
July 2014

‘THINK  
KIDNEYS’





# National Acute Kidney Injury (AKI) Programme

**‘THINK  
KIDNEYS’**

# Structures & Processes $\longrightarrow$ Outcomes

## AKI: A Driver of Quality across the NHS?



**NHS England Patient Safety  
Steering Group**

**AKI National Programme  
Board**

**Risk**

**Education**

**Detection**

**Intervention**

**Implementation**

**Measurement**




# Learning from Case Studies: <http://www.thinkkidneys.nhs.uk>



[About](#) [Case studies](#) [Latest](#) [Resources](#) [Forum](#) [Contact](#) 

The NHS campaign to improve the care of people at risk of, or with, acute kidney injury



In the UK up to 100,000 deaths each year in hospital are associated with acute kidney injury. Up to 30% could be prevented with the right care and treatment

[://www.thinkkidneys.nhs.uk/](http://www.thinkkidneys.nhs.uk/)



One in five people admitted to hospital in the UK each year as an emergency has acute kidney injury



Just one in two people know their kidneys make urine



About 65% of acute kidney injury starts in the community

# Structures & Processes Outcomes

## AKI: A Driver of Quality across the NHS?

Doing the basics well in primary care:

- Review appointments
- Managing urgent care
- Post discharge care

### Editorials

#### Acute kidney injury in the community:

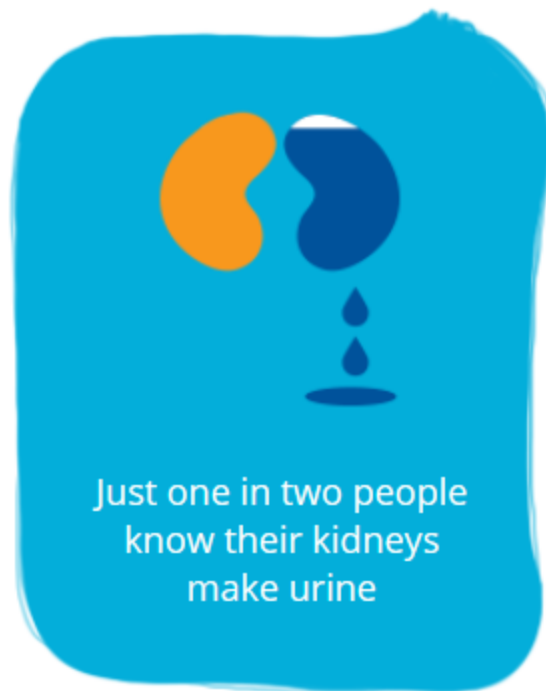
why primary care has an important role

#### REASONS FOR FOCUSING ON ACUTE KIDNEY INJURY

There is mounting evidence that awareness of kidney function is central to the delivery of safe and clinically-effective care, in terms of preventing both cardiovascular events, and progression to established renal failure, with significant impacts on quality of life and healthcare expenditure.<sup>1,2</sup> However,

*"... UK general practice is in a unique position to identify people at increased susceptibility to AKI and address potentially modifiable exposures."*

# Think Kidneys: A need for patient orientated interventions



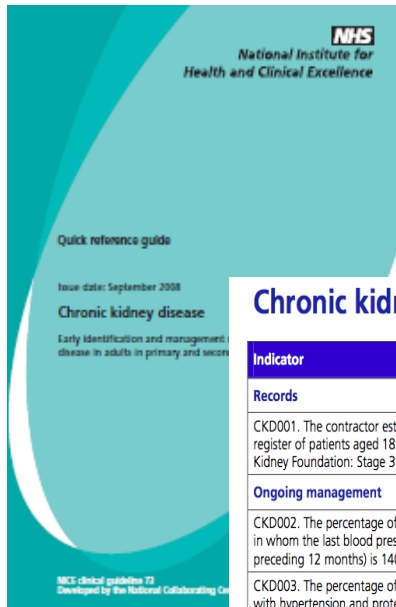
Ipsos MORI survey,  
July 2014

‘THINK  
KIDNEYS’

# Making CKD Meaningful: A need to broaden & tailor conversations?

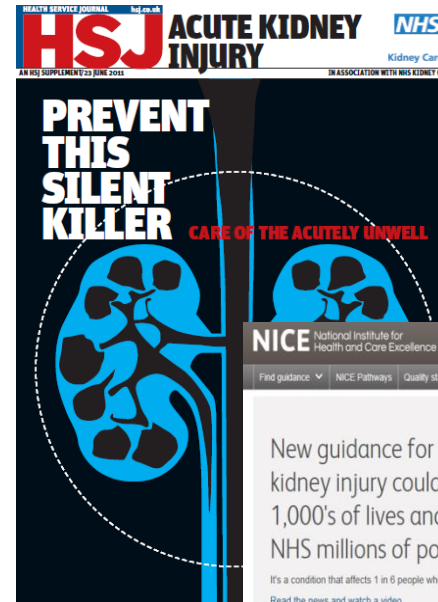
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# Kidneys in the context of acute illness & vulnerability

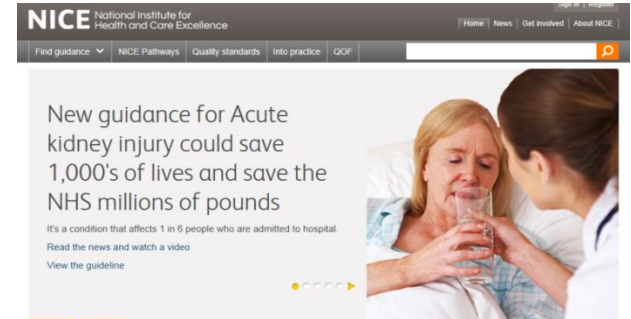
## Preventing AKI

# Addressing ‘vulnerability’

*‘Having a CKD 3 register is not necessarily there for the progressive disease or even vascular disease, it's looking at vulnerability. These patients should have a card. It should say “...Do not give me gentamicin in casualty. Do not allow me to get dehydrated...”’*  
(GP05)



# Acute Kidney Injury: NICE Guidance



‘Discuss the risk of developing acute kidney injury...with people who are at risk of acute kidney injury, particularly those who have:

- History of AKI (QS1)
- chronic kidney disease with an eGFR less than 60 ml/min/1.73 m<sup>2</sup>
- neurological or cognitive impairment or disability, which may mean limited access to fluids because of reliance on a carer.

Involve parents and carers in the discussion if appropriate.’

**NICE clinical guideline 169**  
[guidance.nice.org.uk/cg169](http://guidance.nice.org.uk/cg169)



# Acute Kidney Injury: NICE Guidance



## Monitoring and preventing deterioration in patients with or at high risk of acute kidney injury

Consider temporarily stopping ACE inhibitors and ARBs in adults, children and young people with diarrhoea, vomiting or sepsis until their clinical condition has improved and stabilised.

**NICE clinical guideline 169**  
[guidance.nice.org.uk/cg169](https://guidance.nice.org.uk/cg169)

# Acute Kidney Injury: RCPE UK Consensus 2012



Care of patients can be improved by **doing the basics well**. This includes:

- Early recognition of those at risk of AKI
- Informing patients at risk of AKI and their carers when to **temporarily discontinue** ACE inhibitors (ACEi) angiotensin receptor blockers (ARB), diuretics and non-steroidal anti-inflammatory drugs (NSAID) during acute illness.

# RPS CPPE Medicines Optimisation Briefing March 2015

- Royal Pharmaceutical Society & Centre for Pharmacy Postgraduate Education have released new guidance on AKI for pharmacy professionals
- It provides practical advice developed from NICE guidance about discussing issues around AKI with patients
- Recognises the role of pharmacy professionals in the prevention of AKI
- The focus is on prevention of illness rather than treatment

**ROYAL PHARMACEUTICAL SOCIETY**

**CPPE**  
CENTRE FOR PHARMACY POSTGRADUATE EDUCATION

## Medicines Optimisation Briefing

This briefing, unlike others in the series, focuses on prevention of illness rather than treatment: in this case, of Acute Kidney Injury (AKI). This is because if a patient has already developed AKI they are likely to be in hospital undergoing emergency treatment.

However, all pharmacy professionals in contact with patients have a role in preventing the development of AKI. This briefing gives practical advice, developed from NICE guidance, on how to discuss this issue with their patients.

**Patient experience**  
Can you explain to me how medicines that I take to protect my kidneys can harm them as well? I know it is important to drink lots of water but could I drink too much?

AKI affects one in six people admitted to hospital and is responsible for thousands of unnecessary deaths each year. Particular groups of patients are more susceptible to AKI, such as the elderly, smokers, those with chronic kidney disease (CKD), diabetes, obesity, low blood pressure, cardiac failure, existing hypertension or dehydration, a kidney transplant, or a family history of kidney disease. However, this advice applies to all people on certain medicines even if they are not in a high risk group (see below).

**Steps you can take:**

- Look for patients at high risk, the patient

**Evidence – is the medicine appropriate?**  
ACEI and ARBs are very effective in protecting the kidneys, but if patients become dehydrated they should be stopped for a short period of time. Other medicines, such as NSAIDs, should be avoided if the patient is susceptible to problems with their kidneys.

**Steps you can take:**

- Encourage patients to take ACEI, ARBs, diuretics and metformin on a regular basis but advise them that if they become dehydrated they should stop the medicine and seek medical advice. Symptoms of dehydration may include dizziness or lightheadedness, headache, tiredness, dry mouth, lips and eyes, and passing small amounts of urine infrequently (less than 3 or 4 times a day)

**Safe and effective**  
ACEIs and ARBs are very effective in protecting the kidneys, but if patients become dehydrated they should be stopped for a short period of time. This is especially the case if patients are taking other potentially nephrotoxic medicines such as diuretics and NSAIDs. The dose of metformin may need to be reduced or stopped in renal impairment.

**Steps you can take:**

- Speak to patients about their medicines, particularly those that could cause problems in someone with kidney disease. This doesn't have to be an MUR or part of the MFS.
- Explore why patients are buying NSAIDs and who they are for. For example, are they buying them for someone at home who is suffering from diarrhoea.

**Medicines optimisation as part of routine practice**  
Talk to patients about the importance of stopping medicines that could damage their kidneys when they are dehydrated. Use your regular contacts with these patients to explain to them the steps they need to take to protect their kidneys during periods of dehydration or during acute illness such as gastroenteritis.

**Steps you can take:**

- Reinid carers or family members about the importance of their role in ensuring patients are drinking plenty of fluids, particularly if the patient has neurological or cognitive impairment, or a disability that impedes them from doing that for themselves.
- If you work in a hospital ensure patients

# Next Steps: Medicine 'Sick Day Rules' to prevent AKI



Salford Royal **NHS**  
NHS Foundation Trust

**NHS**  
*Salford Clinical Commissioning Group*

**Medicine Sick Day Rules**

When you are unwell with any of the following:

- Vomiting or diarrhoea (unless only minor)
- Fevers, sweats and shaking

Then **STOP** taking the medicines listed overleaf

Restart when you are well (after 24-48 hours of eating and drinking normally)

If you are in any doubt, contact your pharmacist, GP or nurse.

# Achieving High Quality Care: AKI = a driver of Quality across the NHS

High quality care for all,  
now and for future generations



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Measure, educate and manage better:  
Challenges of Acute Kidney Injury – Richard  
Fluck

search the site

**NHS** Visit NHS Choices  
for patient

*‘If we can get it right for AKI, we will get basic care right  
across the NHS.’*

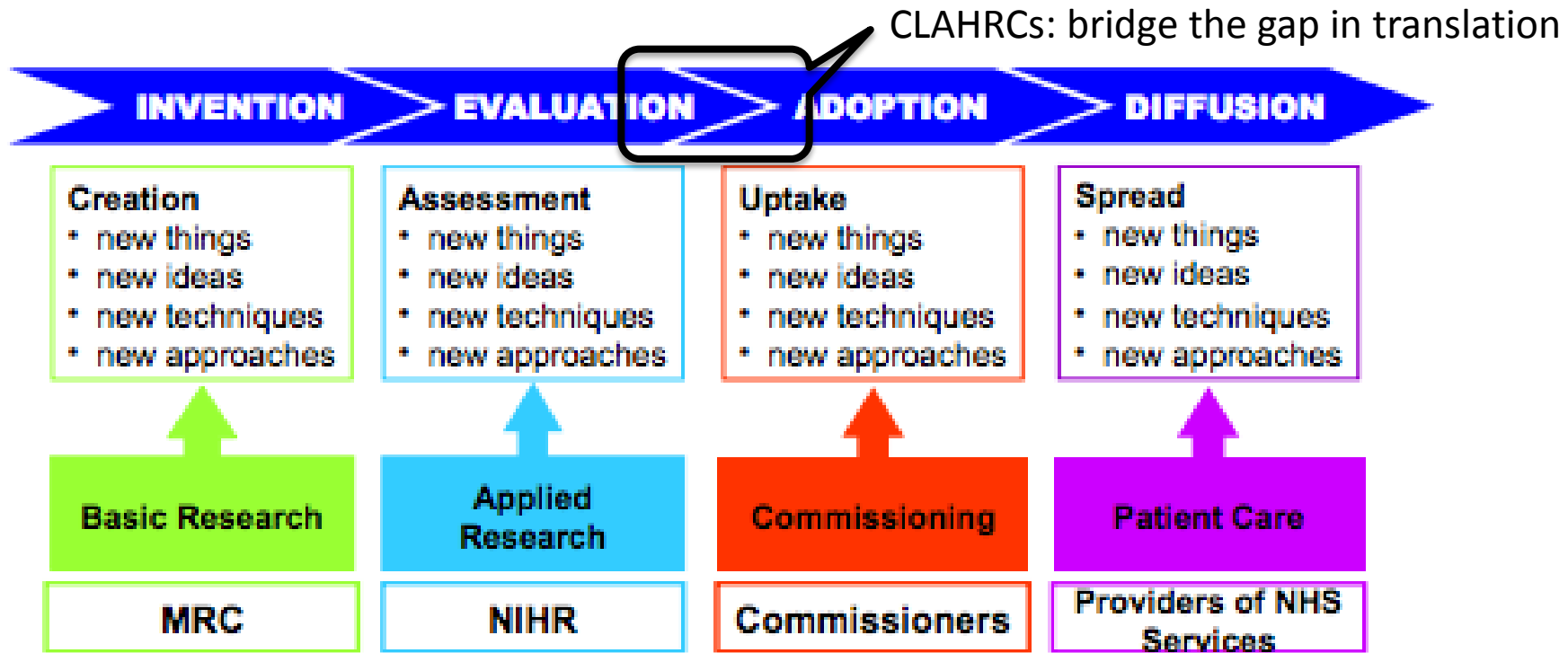
*Professor Donal O’Donoghue  
BBC 2013*

# Collaboration for Leadership in Applied Health Research and Care Greater Manchester (CLAHRC GM)

Susan Howard

(Programme Manager Kidney Health Programme CLAHRC)

# Healthcare change pathway



*“NIHR CLAHRCs address the **evaluation** and **identification** of those **new interventions** that are effective and appropriate for everyday use in the NHS and the **process of their implementation** into routine clinical practice”*



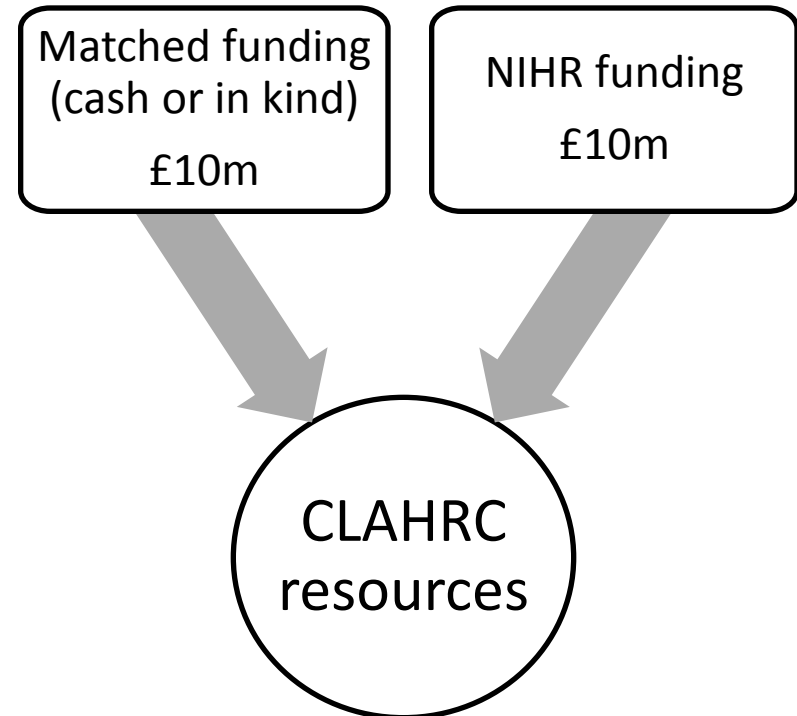
# CLAHRC who?



Partnership between providers and commissioners from the NHS, industry, the third sector and the University of Manchester

# Large scale NIHR investment

*“£124 million has been allocated to 13 new collaborations that demonstrated a substantial portfolio of world-class applied health research, particularly in research targeted at chronic disease and public health interventions, and held a track record in translating research findings into improved outcomes for patients”*



Primary  
Care

# Themes of work

Community  
Services

Stakeholder engagement

Assess and improve:

- kidney health
- access to primary care

Assess and improve:

- wound care
- end of life care

CLAHRC-funded

staff

University

NHS

External

Capacity development

Assess and improve care for people with:

• mental health issues

- stroke
- exploiting technology to improve patient care

Learning and evaluation

Patient-centred care

## Primary Care

- **NHS Salford CCG**
- NHS Salford Royal Foundation Trust
- NHS Central Manchester CCG
- NHS Eastern Cheshire CCG
- Greater Manchester CCGs Service Transformation Team
- NHS England Greater Manchester Local Area Team (LAT)
- GM Academic Health Sciences Network (AHSN)

- Manchester Mental Health and Social Care NHS Trust (MMHSCT)
- Mental Health Matters and Inclusion Matters (Merseyside)
- South Staffordshire and Shropshire Partnership NHS Trust

## Partners

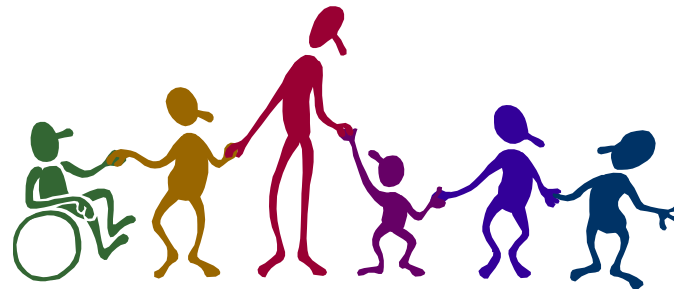
- Marie Curie
- Macmillan
- Central Manchester University Hospitals NHS Foundation Trust (CMFT)
- Salford Royal NHS Foundation Trust (SRFT)
- University Hospital of South Manchester Foundation Trust (UHSM)
- Pennine Care NHS Foundation Trust
- Heidelberg Engineering
- Arthritis UK Epidemiology Unit
- Manchester Academic Health Sciences Centre (MAHSC)
- The North of England Health e-Research Centre (HeRC)
- The Stroke Association

## Community Services

# How do we work?

Projects are carried out by:

- staff from partner organisations
- working in teams with CLAHRC staff
  - experts from the University of Manchester
  - project management and improvement specialists from the NHS



# **Introduction to the Acute Kidney Injury (AKI) Project: Role of GP Practices and Pharmacists**

Susan Howard  
(Programme Manager, CLAHRC)

Claire Vaughan  
(Medicines Management Lead, NHS Salford CCG)

# What will the project achieve?

The project aims to - implement and evaluate sick day rules cards and kidney health initiatives to reduce incidence of AKI

The key objectives are:

- To **deliver and understand the process** surrounding the implementation of sick day rules in primary care
- To inform the design of a model of care to support better **medicine management** in primary care
- To provide an estimate of the **cost benefit** of implementing sick day rules
- To provide estimates of the **effect on health outcomes**
- To provide the platform for a potential larger scale **evaluation**



# What does the project entail?

Project to implement 'sick day rules' card in primary care

Phase 1 – Distribution of the card by all community pharmacies and GP practices in Salford CCG

Phase 2 – Facilitated implementation of kidney initiatives by primary care medicines management pharmacists within 3 of the 8 localities in Salford CCG

# Sick Day Rules Card

## Medicine sick day rules

When you are unwell with any of the following:

- Vomiting or diarrhoea (unless only minor)
- Fevers, sweats and shaking

Then **STOP** taking the medicines listed overleaf

Restart when you are well (after 24-48 hours of eating and drinking normally)

If you are in any doubt, contact your pharmacist, GP or nurse

### Medicines to stop on sick days

- ACE inhibitors:      medicine names ending in "pril"  
eg. *lisinopril, perindopril, ramipril*
- ARBs:                    medicine names ending in "sartan"  
eg. *losartan, candesartan, valsartan*
- NSAIDs:                anti-inflammatory pain killers  
eg. *ibuprofen, diclofenac, naproxen*
- Diuretics:              sometimes called "water pills"  
eg. *furosemide, spironolactone,  
indapamide, bendroflumethiazide*
- Metformin:            a medicine for diabetes

*Originally developed by NHS Highland*

# Phase 1

**What are we  
going to do?**

Implement and evaluate 'sick day rules'  
to reduce the occurrence of AKI

**How will we  
do it?**

Pharmacists, GPs, PNs provide cards to  
everyone on the relevant medication

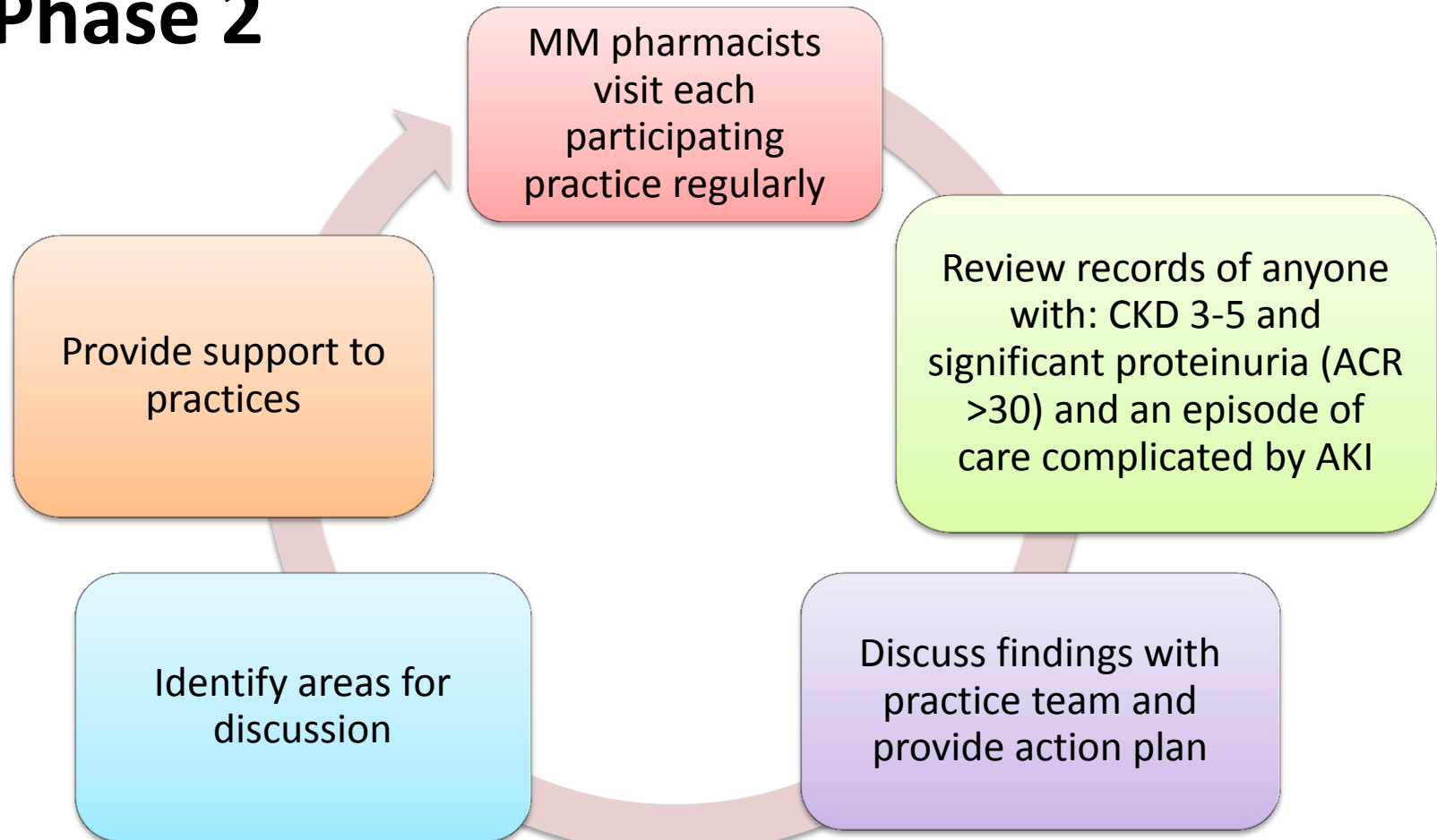
**What will it  
involve for  
you?**

To issue cards to patients in person with  
an explanation of how to use them

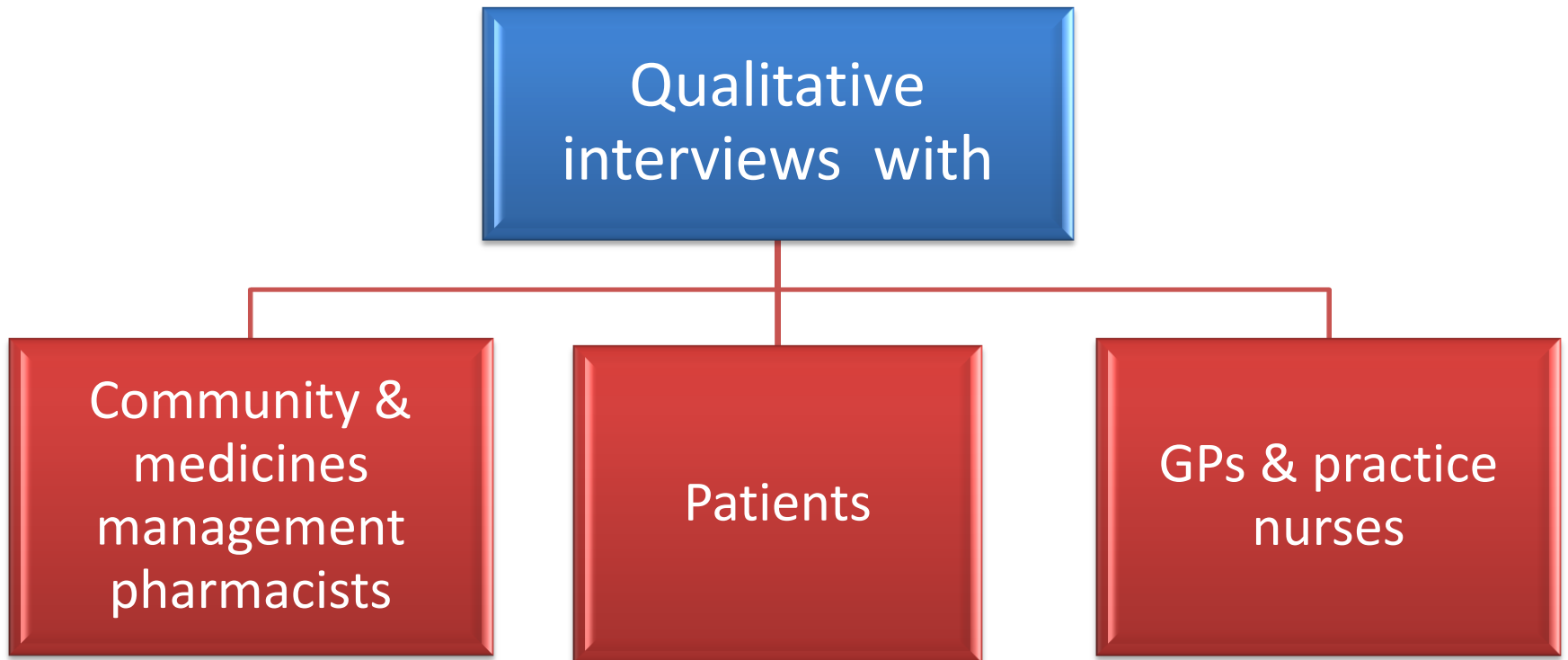
In your packs, you will find:-

1. An information sheet with full details of phase 1
2. Executive summary of the information sheets to pin up in your practice
3. Patient poster for your waiting area
4. A reference list if you would like to know more about AKI

## Phase 2



# Evaluation



Collaboration for Leadership in  
Applied Health Research and Care  
(CLAHRC) Greater Manchester

# Timeline

Activity	2014			2015												
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Project start up	x	x	x	x	x											
Educational events						x										
Phase 1 - roll out of sick day rules card						x	x	x	x	x	x	x	x	x	x	x
Training for medicines management team						x	x									
Phase 2 - facilitated implementation by MM team							x	x	x	x	x	x	x	x	x	x
Evaluation							x	x	x	x	x	x	x	x	x	x
Project close																x

For more information, please visit [www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)



**Thanks for your time**

***Do you have any questions?***

# Case Study

## Addressing AKI in the Community

Acute Kidney Injury Workshop 17<sup>th</sup>  
March 2015 Swinton Park Golf Club

# Learning from Case Studies:

## <http://www.thinkkidneys.nhs.uk>



[About](#) [Case studies](#) [Latest](#) [Resources](#) [Forum](#) [Contact](#) 

The NHS campaign to improve the care of people at risk of, or with, acute kidney injury

In the UK up to 100,000 deaths each year in hospital are associated with acute kidney injury. Up to 30% could be prevented with the right care and treatment

<http://www.thinkkidneys.nhs.uk/>



One in five people admitted to hospital in the UK each year as an emergency has acute kidney injury



Just one in two people know their kidneys make urine



About 65% of acute kidney injury starts in the community

For more information, please visit  
[www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)



# Case Study:

## Addressing AKI in the community

AB 68 year old man: Type 2 Diabetes, COPD & stage 3 CKD with no proteinuria

Multiple medicines including repeat scripts for an ACE Inhibitor and Ibuprofen (NSAID)

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Without GP assessment, leads to an unplanned hospital admission

Episode of illness complicated by AKI requiring a period of intensive care

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Hospital Discharge summary included AKI but not coded in GP records

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Neither was discontinued by the primary care team

Kidney function not rechecked post-discharge

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No temporary cessation of medicines during these episodes of acute illness



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Case discussion at weekly clinical meeting involving a Community Support Pharmacist

# Doing the basics well: What could have been done differently?

- Preventing AKI
- Detecting AKI
- Managing AKI:

## Editorials

### Acute kidney injury in the community:

why primary care has an important role

#### REASONS FOR FOCUSING ON ACUTE KIDNEY INJURY

There is mounting evidence that awareness of kidney function is central to the delivery of safe and clinically-effective care, in terms of preventing both cardiovascular events, and progression to established renal failure, with significant impacts on quality of life and healthcare expenditure.<sup>12</sup> However,

*"... UK general practice is in a unique position to identify people at increased susceptibility to AKI and address potentially modifiable exposures."*

# Preventing AKI in Primary care

- Communicate risk & consider 'sick day rules' for high risk patient groups
- When a patient at increased risk of AKI presents with an intercurrent illness, consider check renal function
- Avoid prescription of long term NSAIDs where possible, particularly in high risk patients and those with CKD
- Avoid prescribing triple combination of spironolactone, NSAID and ACEi/ARB
- Monitor renal function one week after the introduction of the following medications: ACEi/ARB; Spironolactone, Loop Diuretics (CKD)

# Detecting AKI in Primary care

When a patient at increased risk of AKI presents with an intercurrent illness, consider check renal function

No point checking kidney function if patient requires immediate admission

Taking bloods needs to support management – both in terms of detection and severity

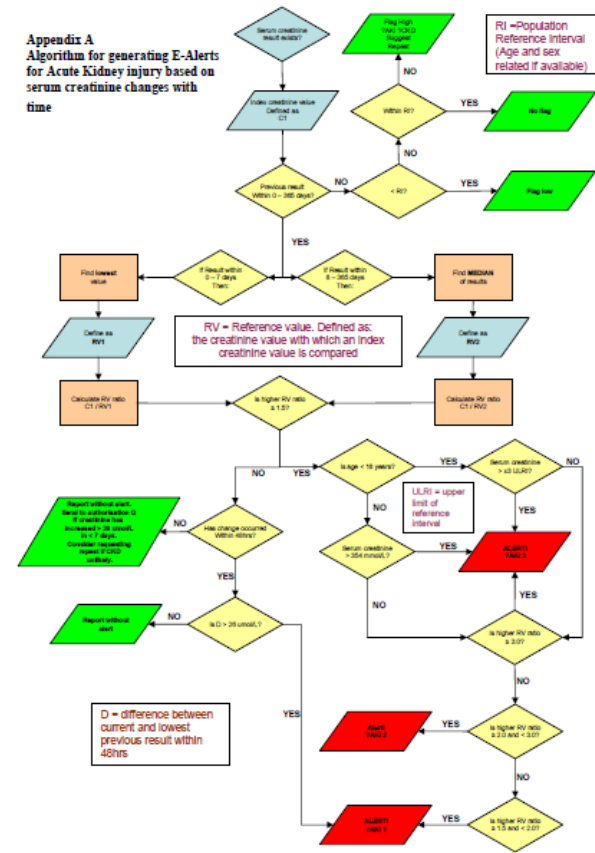
If take bloods, need timely results - Need systems in place to respond to blood results appropriately

Need to ensure coordination with Out Of Hours care – Hand over

# How to manage a patient with AKI detected in primary care

Factors to consider:

- Is this definitely AKI?
- Is the patient acutely unwell?
- How severe is the AKI?
- Think about cause of AKI: does the patient have any red flag signs for urinary obstruction or intrinsic renal disease?



# Approach to primary care management of patient with AKI

Avoid or correct 'dehydration'

Medication review

- Consider temporary suspension of ACEi/ARB +/- diuretics
  - Consider temporary suspension of metformin (to avoid risk of lactic acidosis)
  - Stop medications such as NSAIDs
  - In the absence of an obvious cause of AKI, consider if any new drugs have been introduced that have a temporal relationship to the change in renal function: especially antibiotics and PPIs
- Early review and repeat U/Es: seek help from nephrology on call for patients who are getting worse despite the above

# Doing the basics well: Post AKI care

- Review medications
  - Consider restart medications that have been stopped during an AKI episode – check kidney function 1/52 after reintroduction
  - If drug implicated in causing AKI (e.g. PPI leading to interstitial nephritis or NSAIDS) practice records should be updated to prevent receiving in the future
- Assess the degree of renal recovery
  - Consider repeat renal function in patients who have not returned to baseline
  - If evidence of new onset CKD, then recheck proteinuria and Creatinine at 3 months
  - Consider contact nephrology for advice
- Reduce risk of further episodes of AKI
  - Communication of risk and use of sick day rules
  - Integrate read code into templates: **Patient kidney card given**
- Coding the occurrence of an AKI episodes
  - (Read codes exist for AKI 1, AKI 2, AKI 3)



# Doing the basics well: AKI Register & e-alert

EMISWeb Health Care System

Summary Consultations Medication Problems Investigations Care History Diary Documents Referrals

Export Add Sharing Summary Cardiac View Child Health Diabetic Print CR Config Browse

SCR - 294 Documents - 23 Registration - 274 (13) Lab Reports - 1 Tasks - 1 (1)

There are outstanding summary care records waiting to be sent, click to send.

Active Born: (81y) Gender: Female EMIS No.: Usual GP: (Dr) [PSS]

**Record Sharing**

There are no other organisations contributing to the Shared Record.

**Data entered by this organisation**

Implied record sharing consent operational for this patient

**Summary Care Record**

Implied consent for medication, allergies, and adverse reactions only

**Problems (83) - No Shared Data Available**

Active Problems	Onset Date
[D]Sinus bradycardia	06-Nov-2013
Acute kidney injury	28-Oct-2013
Vomiting	28-Oct-2013
Leg pain	23-Oct-2013
Atrial fibrillation	18-Oct-2013
Anticoagulant therapy	03-Sep-2013
Cataract	11-Jan-2013
Vaginal hysterectomy	16-Feb-2012
Uterovaginal prolapse, unspecified	08-Nov-2011
Chronic kidney disease stage 3A	12-Nov-2008
Cystocele without uterine prolapse	22-May-2006
Polymyalgia rheumatica	05-Sep-2003
Hypothyroidism-congen.+ acqul.	02-Feb-1999

**Medication (13) - No Shared Data Available**

**Acute**

Colecalciferol

**Repeat**

Adcal-D3 • Amiodarone • Atorvastatin • Bisoprolol Fumarate • Furosemide • Lansoprazole • Levothyroxine sodium  
Macrogol • Paracetamol • Ramipril • Warfarin Sodium • Warfarin Sodium

**Allergies (2) - No Shared Data Available**

Adverse reaction to Drugs Used In Hyperlipidaemia • Statin not tolerated

**Diary (1) - No Shared Data Available**

**Clinical Alerts**

Influenza vaccination 29-Oct-2013

**Next Appointment**

at 02-Dec-2013 10:00 02-Dec-2013

**Recent Activity (4) - No Shared Data Available**

**My Last Contact**

No contact

**Last 4 Contacts**

(Ms)		
(Dr)	BELLROOKE SURGERY	06-Nov-2013
(Dr)	BELLROOKE SURGERY	06-Nov-2013
(Dr)	BELLROOKE SURGERY	05-Nov-2013
(Dr)		05-Nov-2013

[More >>>](#)

**Health Status (8) - No Shared Data Available**

Alcohol consumption 0 U/week 04-Nov-2013

Body mass index

Never smoked tobacco

Notes summary on computer

O/E - blood pressure reading

O/E - height

O/F - weight

AKI in the last 30 days 04-Nov-2013

AKI - Needs medication review 21-Sep-2011

Urinary Albumin / Creatinine over... 19-Sep-2011

Patient appears on practice diseas... 12-Sep-2012

Patient on QOF Registers 15-Mar-2013

For more information, please visit  
[www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)

# Doing the basics well: AKI Register & e-alert

The screenshot displays the EMIS Web Health Care System interface for a patient. The patient's details are: Born: (81y), Gender: Female, EMIS No.: [redacted], Usual GP: (Dr) [redacted]. The interface is divided into several sections:

- Record Sharing:** Shows that there are no other organisations contributing to the shared record and that data entered by this organisation is operational.
- Summary Care Record:** Indicates implied consent for medication, allergies, and adverse reactions.
- Problems (83) - No Shared Data Available:** Lists active problems such as Sinus bradycardia, Acute kidney injury, Vomiting, Leg pain, Atrial fibrillation, Anticoagulant therapy, Cataract, Vaginal hysterectomy, Uterovaginal prolapse, Chronic kidney disease stage 3A, Cystocele without uterine prolapse, Polymyalgia rheumatica, and Hypothyroidism-congen.+ acqui.
- Medication (13) - No Shared Data Available:** Lists acute and repeat medications, including Colecalciferol, Adcal-D3, Amiodarone, Atorvastatin, Bisoprolol Fumarate, Furosemide, Lansoprazole, Levothyroxine sodium, Macrogol, Paracetamol, Ramipril, Warfarin Sodium, and Warfarin Sodium.
- Allergies (2) - No Shared Data Available:** Lists an adverse reaction to drugs used in hyperlipidaemia and that statins are not tolerated.
- Diary (1) - No Shared Data Available:** Shows clinical alerts for Influenza vaccination on 29-Oct-2013 and a next appointment on 02-Dec-2013 at 10:00.
- Recent Activity (4) - No Shared Data Available:** Shows the last contact as 'No contact' and lists the last 4 contacts with dates from 05-Nov-2013 to 06-Nov-2013.
- Health Status (8) - No Shared Data Available:** Lists various health status indicators like Alcohol consumption, Body mass index, Never smoked tobacco, Notes summary on computer, O/E - blood pressure reading, O/E - height, and O/E - weight.

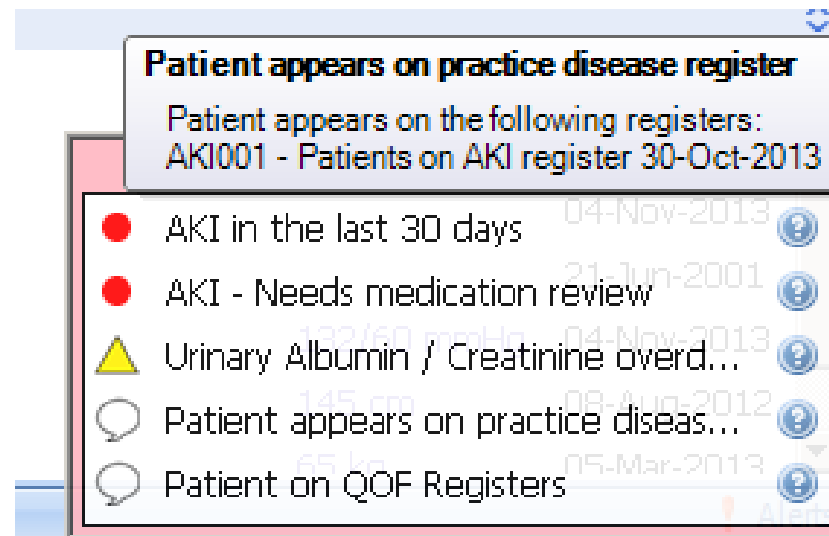
A red arrow points from the 'Last 4 Contacts' section to a pop-up alert box in the bottom right corner. The alert box contains the following information:

- AKI in the last 30 days
- AKI - Needs medication review
- Urinary Albumin / Creatinine over...
- Patient appears on practice diseas...
- Patient on QOF Registers

For more information, please visit  
[www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules](http://www.clahrc-gm.nihr.ac.uk/salford-sick-day-rules)

# Doing the basics well

## AKI Registers & e-alerts



**Patient appears on practice disease register**

Patient appears on the following registers:  
AKI001 - Patients on AKI register 30-Oct-2013

- AKI in the last 30 days 04-Nov-2013 ?
- AKI - Needs medication review 21-Jun-2001 ?
- ▲ Urinary Albumin / Creatinine overd... 04-Nov-2013 ?
- Patient appears on practice diseas... 08-Aug-2012 ?
- Patient on QOF Registers 05-Mar-2013 ?