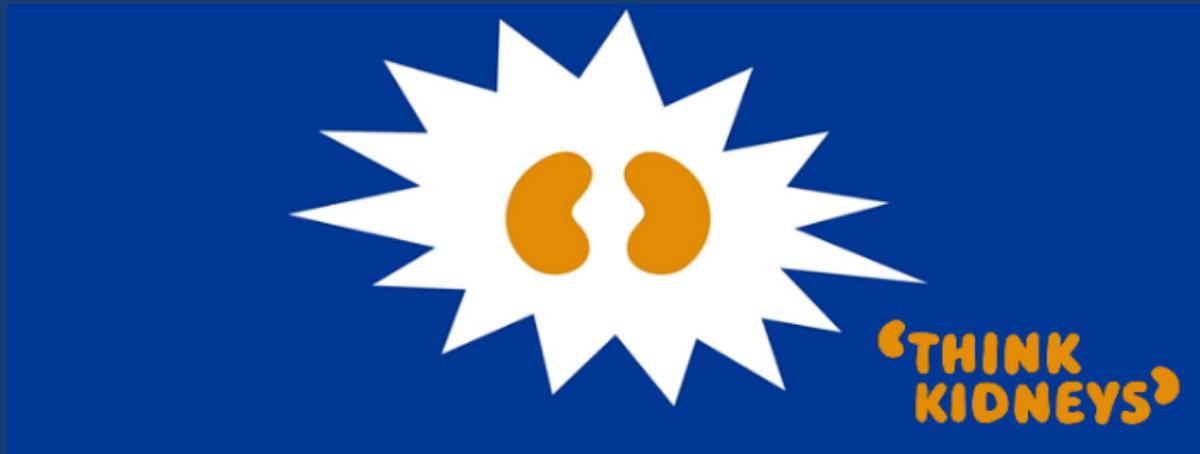




Self-management support for people with chronic kidney disease



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The University of Manchester

tom.blakeman@manchester.ac.uk



NIHR Acknowledgement & Disclaimer



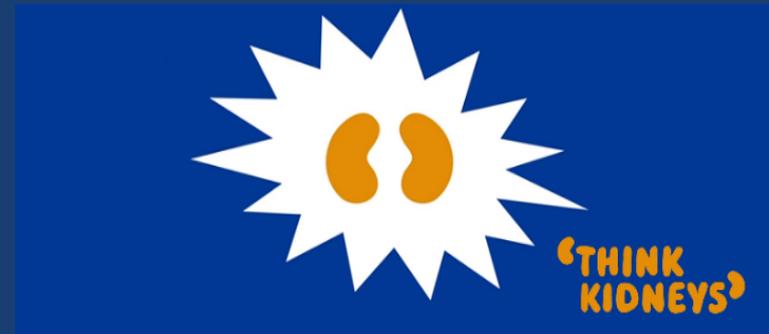
‘This research was supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (NIHR CLAHRC Greater Manchester). The views expressed in this article are those of the author(s) and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care.’



NIHR Acknowledgement & Disclaimer



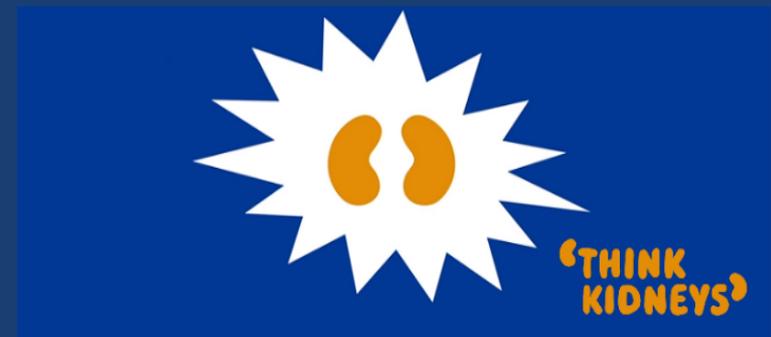
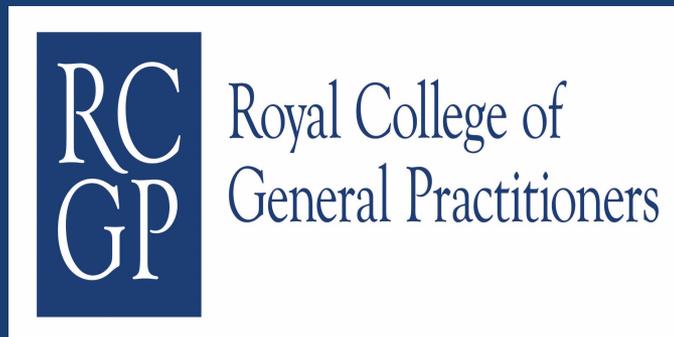
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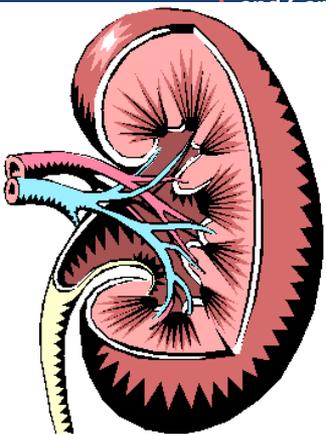


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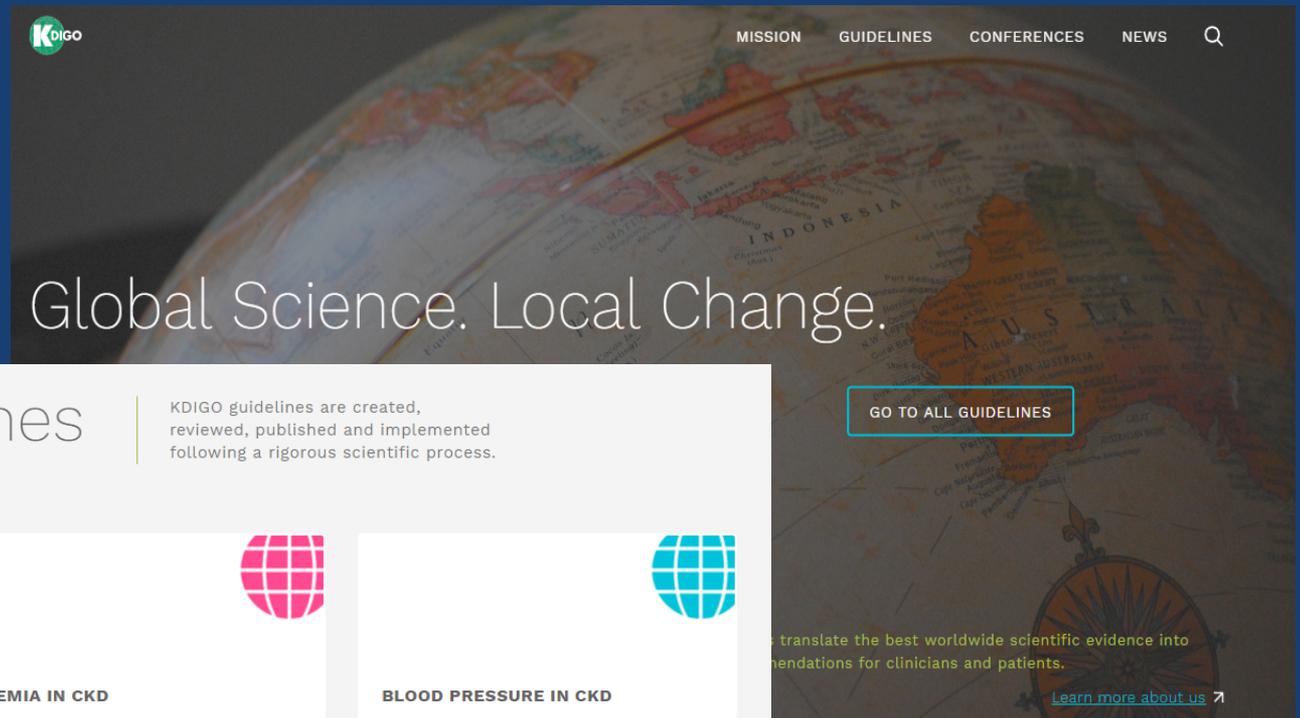
Outline: Placing kidneys in context

- Understanding and addressing a knowledge gap
- Diagnosis and management of CKD in the UK
- CKD self-management support in the context of general vascular health
- Acute Kidney Injury as an exemplar to improve systems of care for people with complex health and social needs



**‘THINK
KIDNEYS’**

New international classification systems: Kidney Disease: Improving Global Outcomes



KDIGO Guidelines

KDIGO guidelines are created, reviewed, published and implemented following a rigorous scientific process.

ACUTE KIDNEY INJURY (AKI)

ANEMIA IN CKD

BLOOD PRESSURE IN CKD

CKD EVALUATION AND MANAGEMENT

CKD-MINERAL AND BONE DISORDER (CKD-MBD)

DIABETES AND CKD

New global classification systems and guidelines



Chronic Kidney Disease CKD 2002

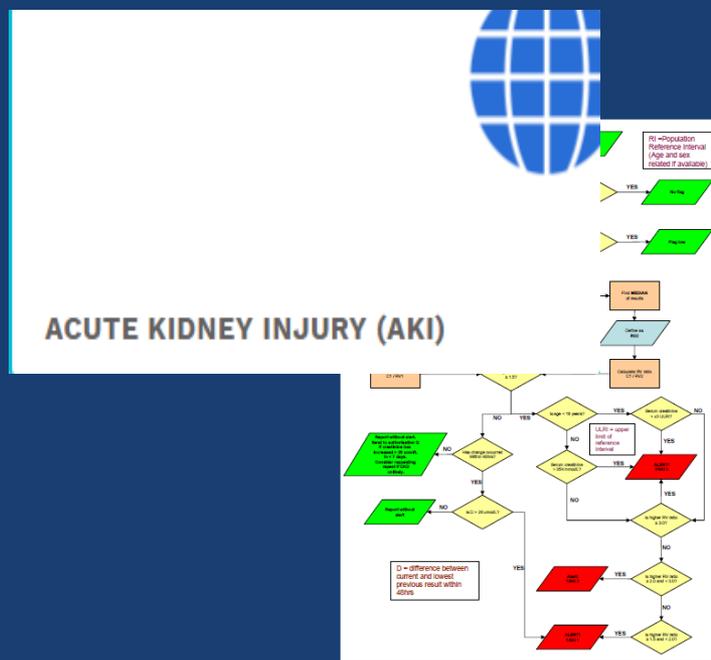
Acute Kidney Injury AKI 2012



CKD EVALUATION AND MANAGEMENT

GFR categories (mL/min/1.73 m²), description, and range

GFR categories (mL/min/1.73 m ²), description, and range	Proteinuria (mg/mmol), description					
	A1	A2	A3			
G1	≥90	Normal and high	<3	1	2	3
G2	60-89	Mild reduction related to normal range for a young adult	<3	1	2	3
G3a	45-59	Mild-moderate reduction	1	1	2	3
G3b	30-44	Moderate-severe reduction	≤2	2	3	3
G4	15-29	Severe reduction	2	3	3	3
G5	<15	Kidney failure	3	3	3	3



Diagnosis and Nosology



‘Classification systems both structure and constrain the world they describe: they act as the lens of perception, as the mediator of experience, as the conceptual framework through which medical reality is stabilised and maintained.’

David Armstrong, *Social Science & Medicine*, 2011

Navigating the challenge of 'Too much medicine'

Maximise utility of CKD & AKI as drivers to improve:

- Quality and Safety
- Health outcomes

AND

Minimise burden for patients, carers and professionals:

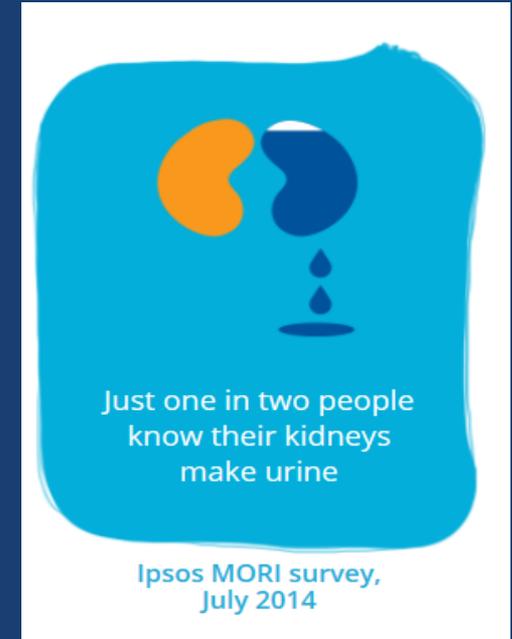
- Treatment Burden
- Workload Burden



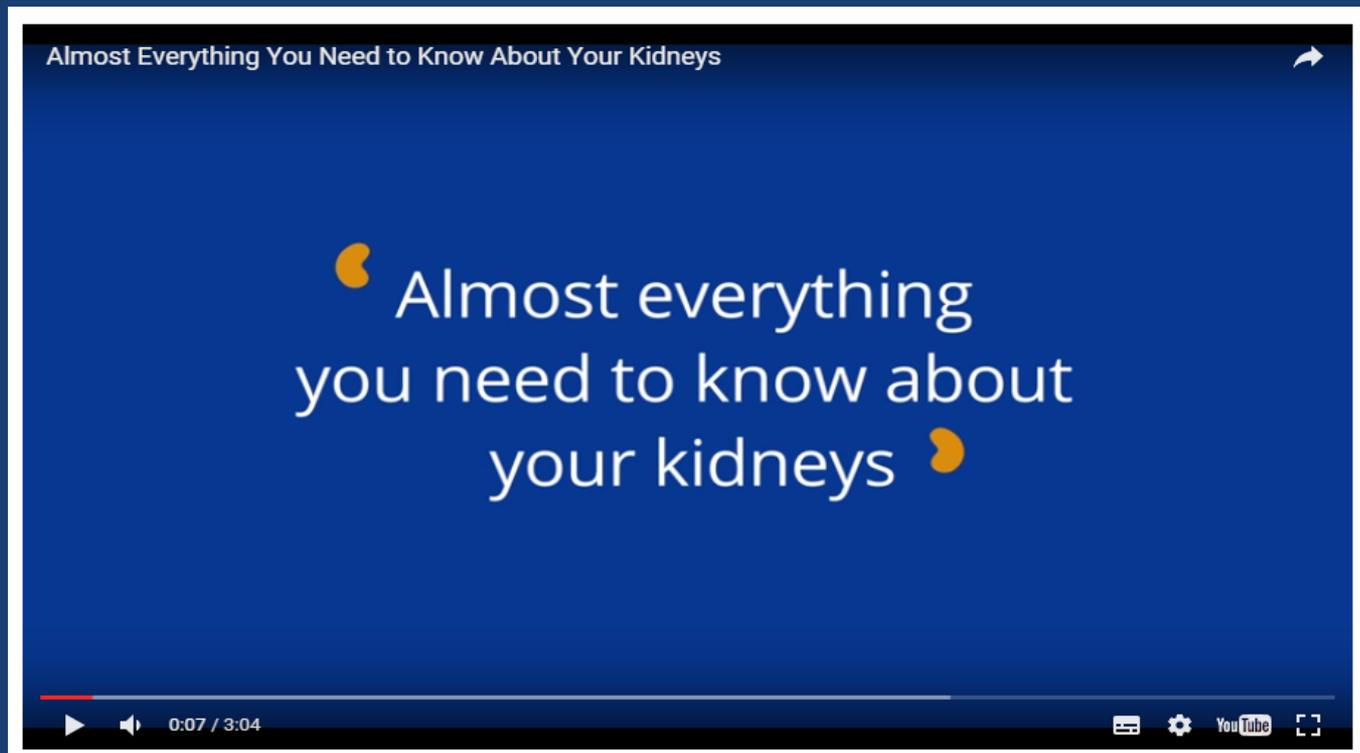
Think Kidneys: Understanding and addressing a knowledge gap

People don't have a comprehensive understanding of:

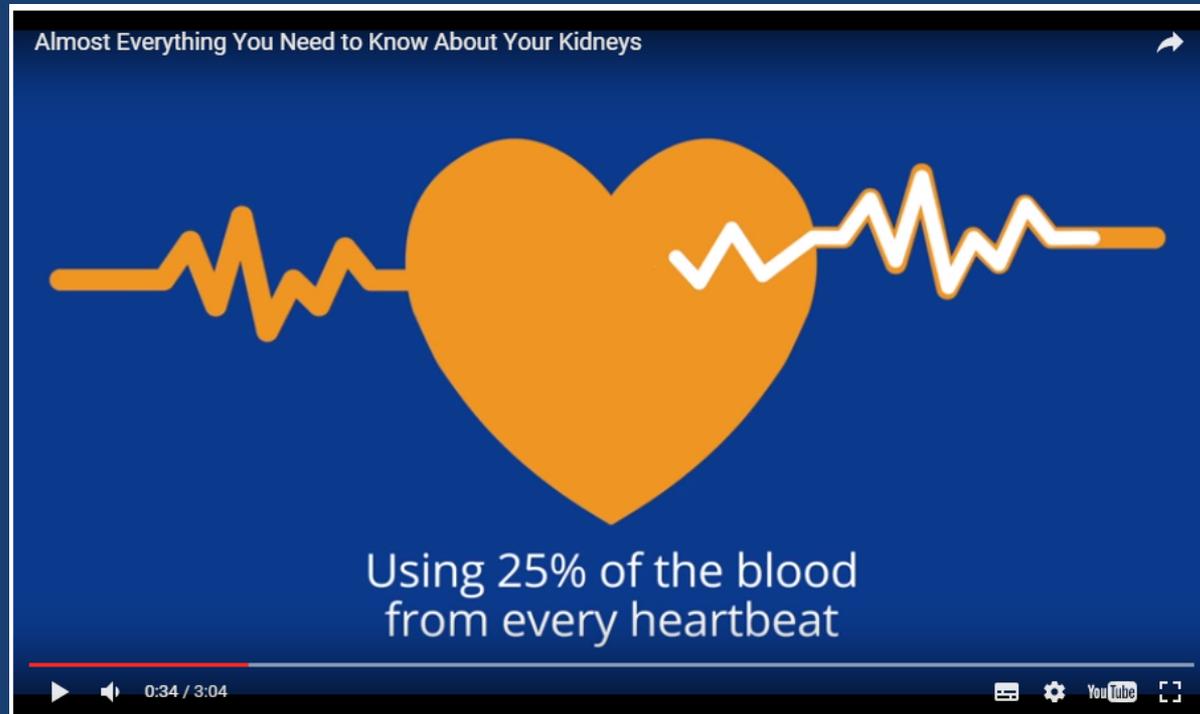
- what their kidneys do,
 - how to keep them healthy
 - what acute kidney injury is
- Only 51% of the population know that kidneys make urine
 - Only 12% of participants thought that the kidneys had a role to play in processing medicines



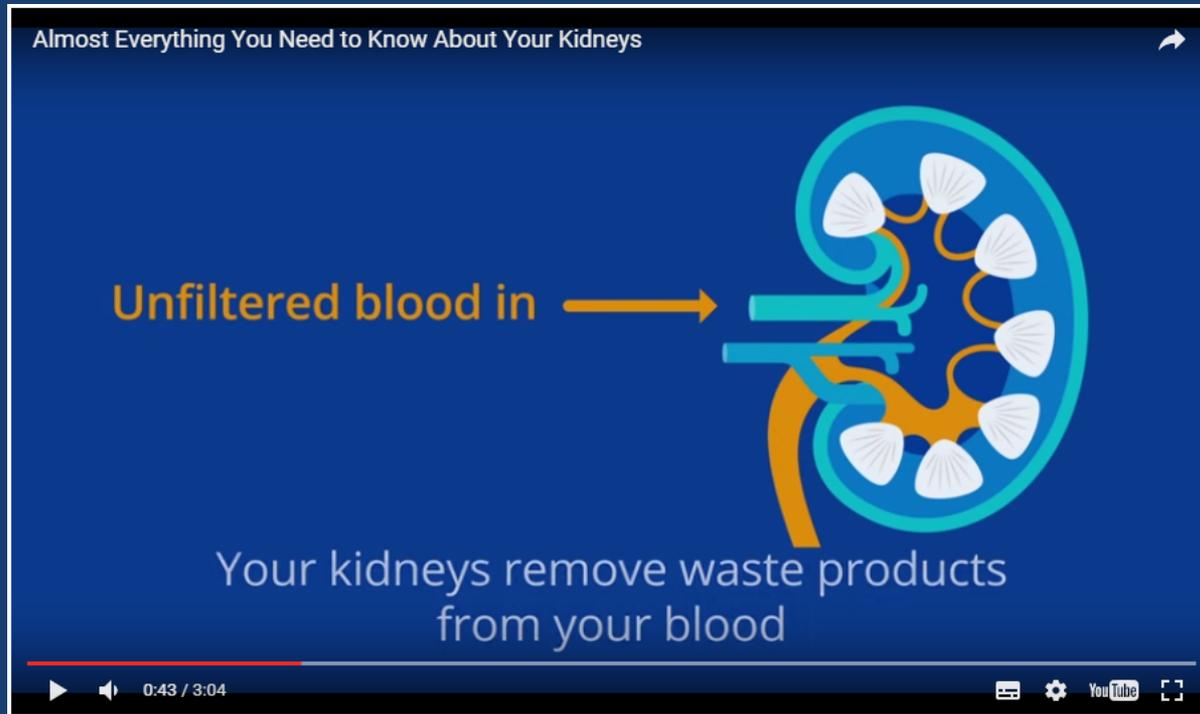
Think Kidneys Public Campaign 2016



Think Kidneys Public Campaign 2016



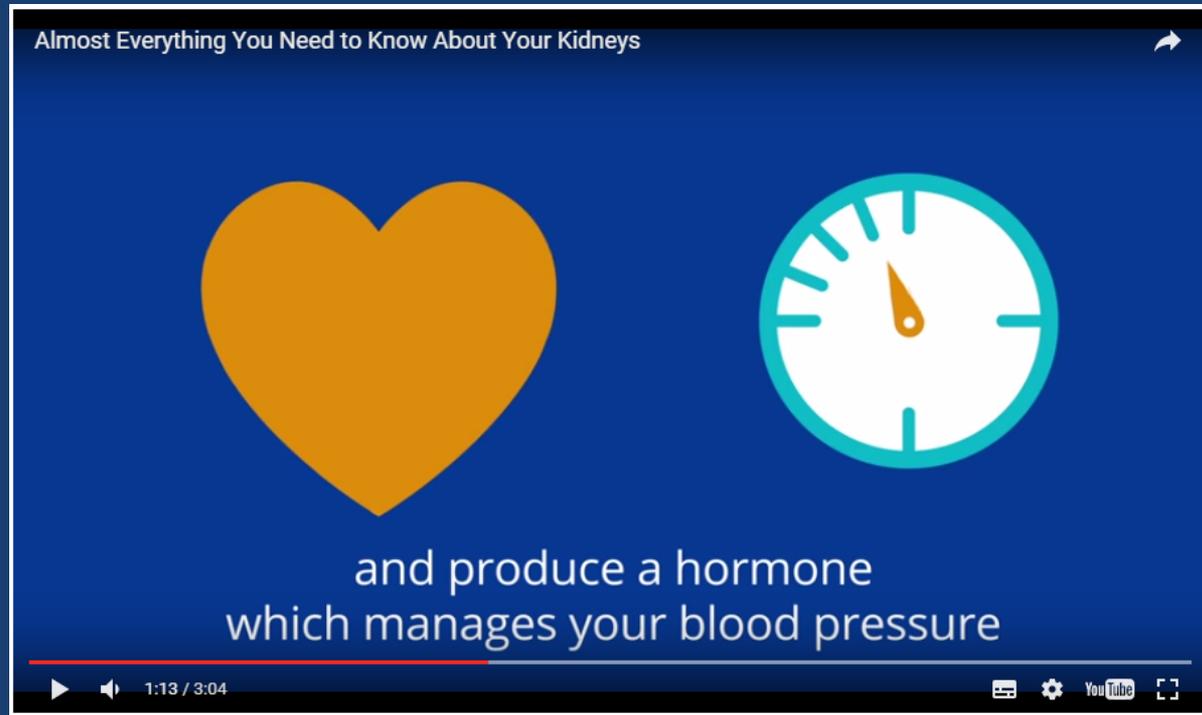
Think Kidneys Public Campaign 2016



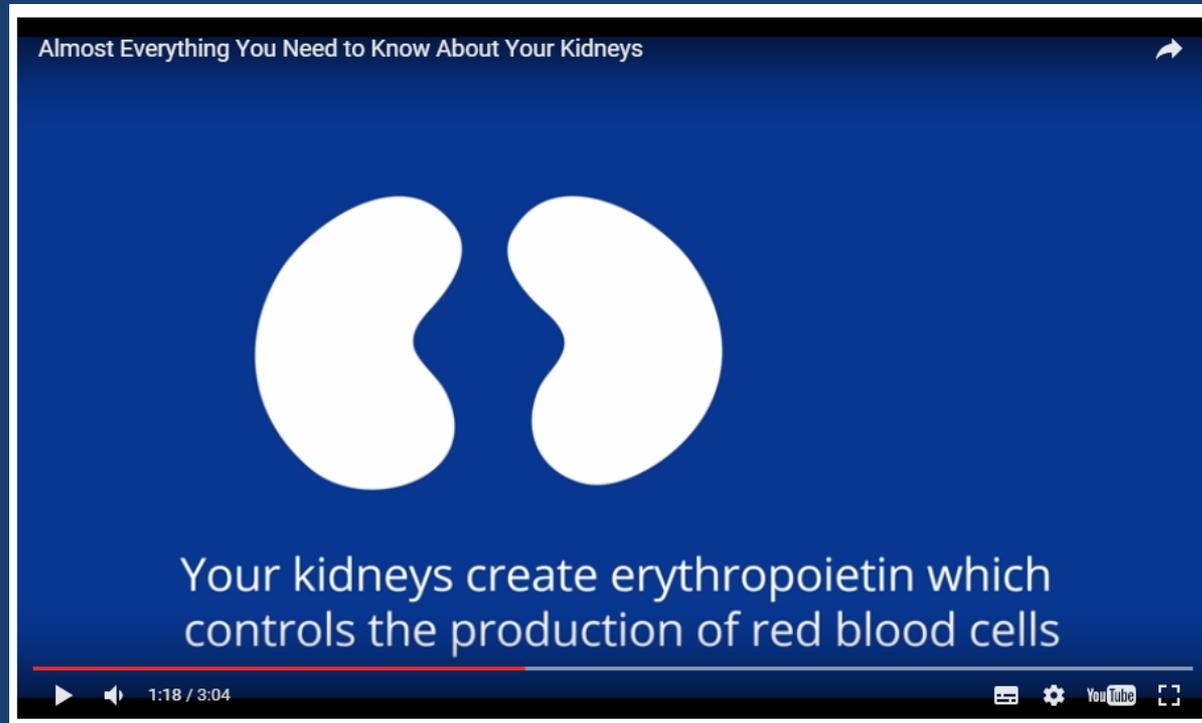
Think Kidneys Public Campaign 2016



Think Kidneys Public Campaign 2016



Think Kidneys Public Campaign 2016



Think Kidneys Public Campaign 2016



Think Kidneys Public Campaign 2016



Think Kidneys: Public Campaign 2016

Almost Everything You Need to Know About Your Kidneys

Added: 18/07/2016 in [Videos](#) • Share this on - [Facebook](#) / [Twitter](#) / [Linked In](#)

Animated Infographic for the Think Kidneys Public Campaign, July 2016

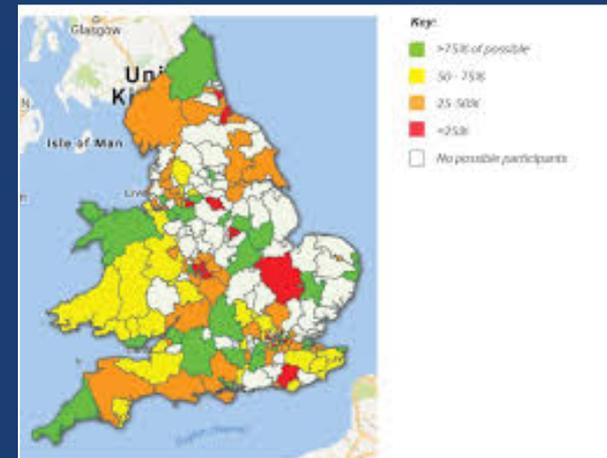




Kidneys in the context of a single disease framework

Diagnosis and management of CKD in UK primary care

A brief history...

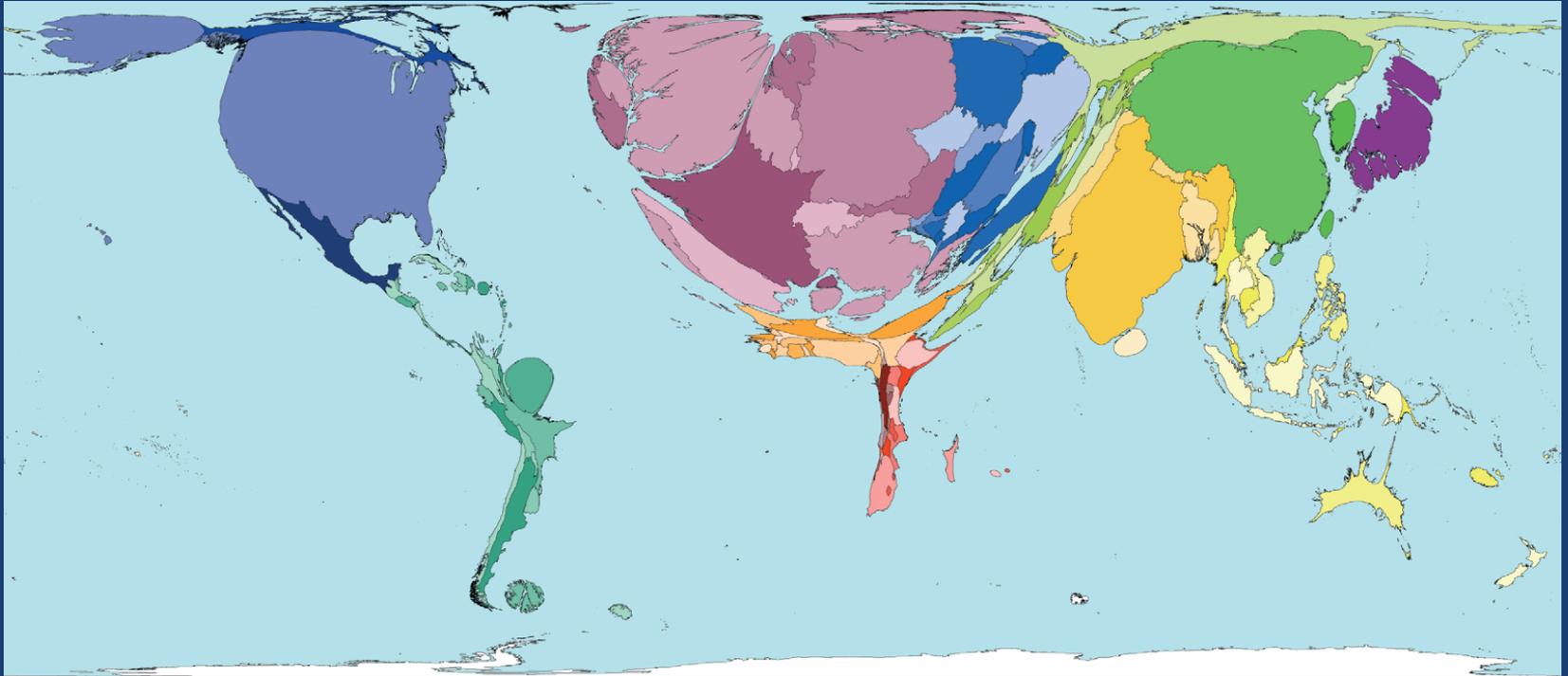


Greater Manchester: 21st Century



Where is Manchester?

The Wealth of the World in 1900



www.worldmapper.org

Where is Manchester?

At the heart of the Industrial Revolution 1750-1850



Manchester: Early 19th Century 'The World's First Industrialised City'



“Radical & Repressive”

Manchester 1819

At the heart of political & welfare reform



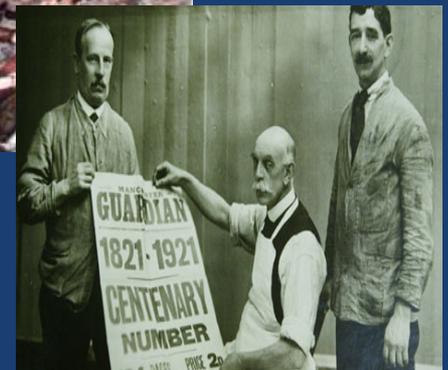
‘The Peterloo Massacre’

Manchester 1819

At the heart of political & welfare reform

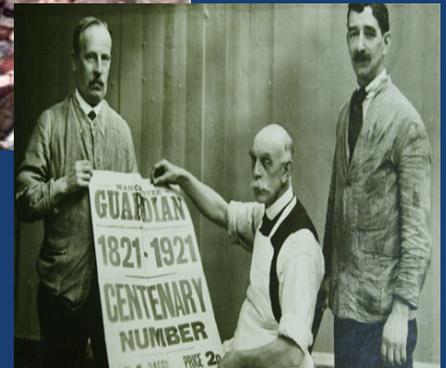
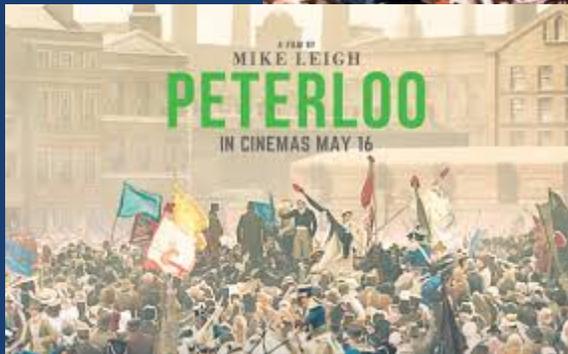


‘The Peterloo Massacre’



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At the heart of political & welfare reform

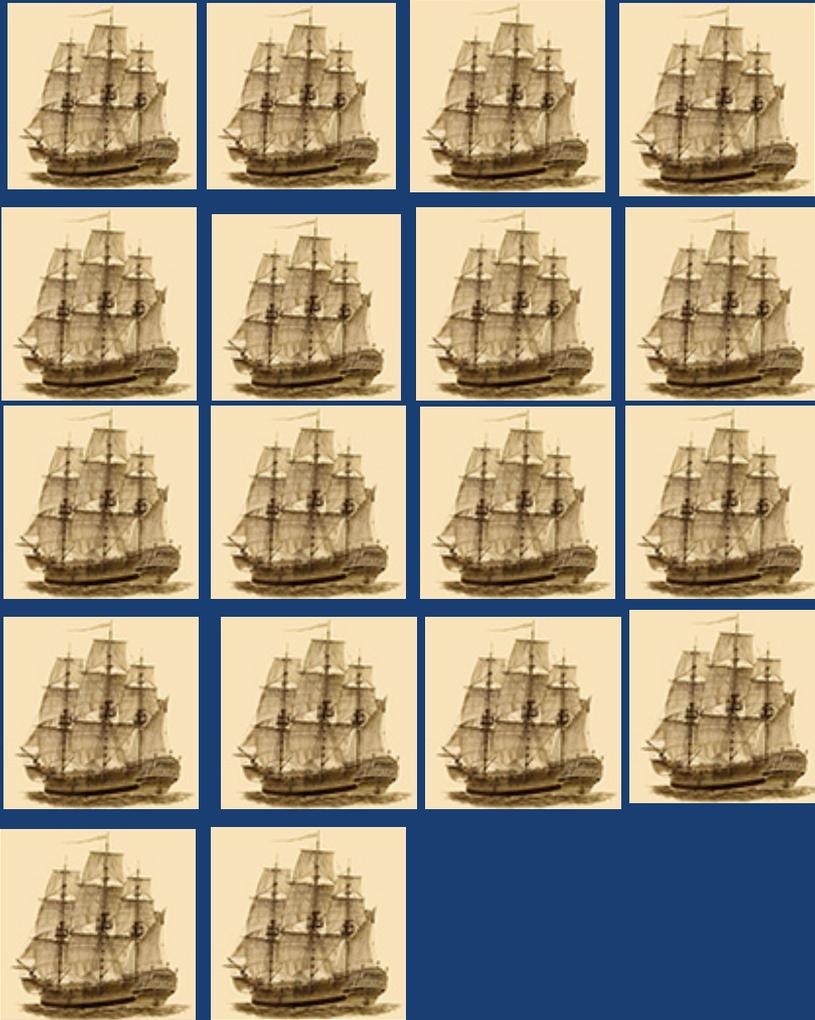


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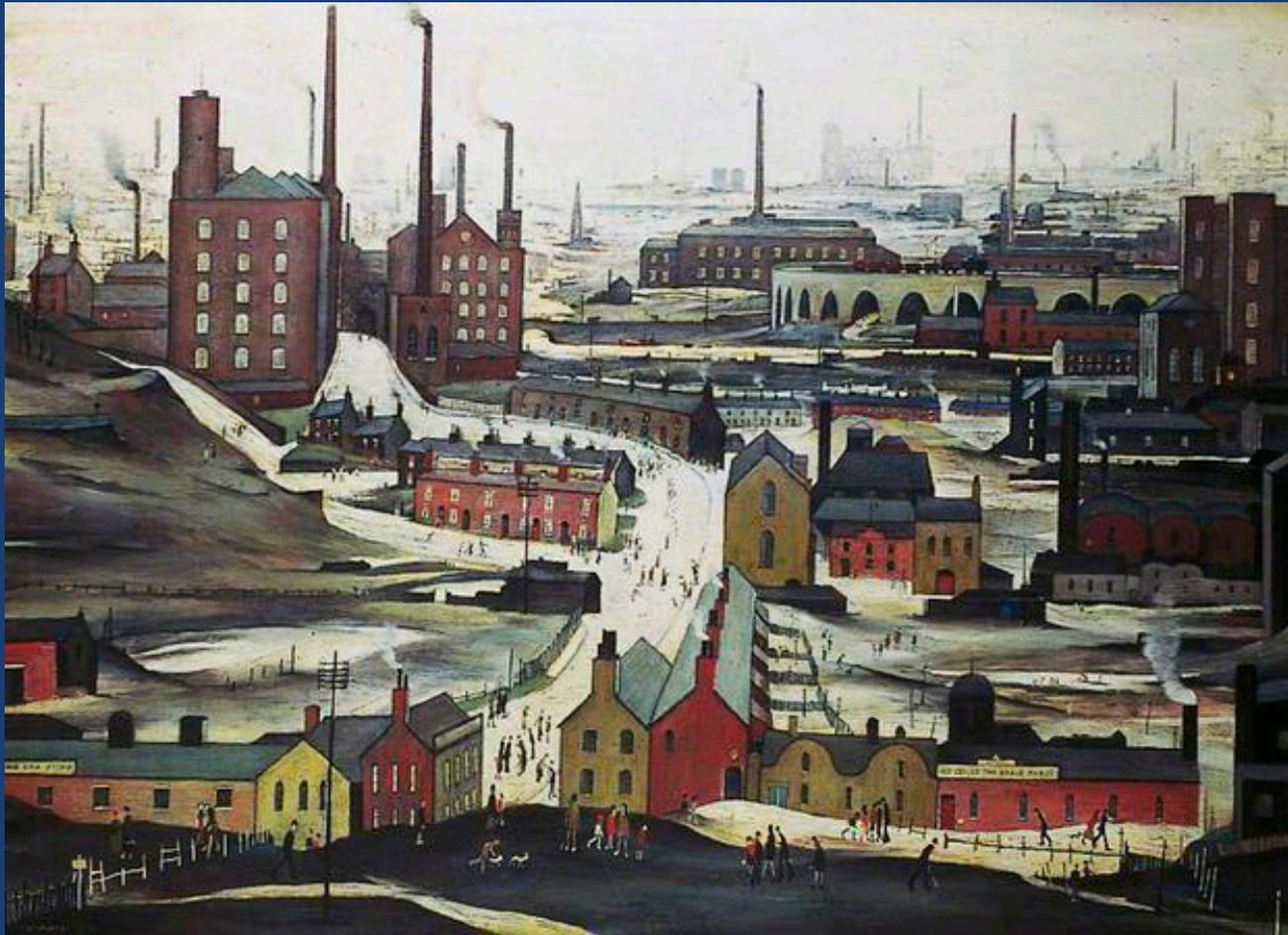
Sydney 1819



Sydney 1819



'Dirty Old Town' Salford, Manchester: Mid 20th Century



Greater Manchester in the 21st Century: Areas of 'worst health' in Britain

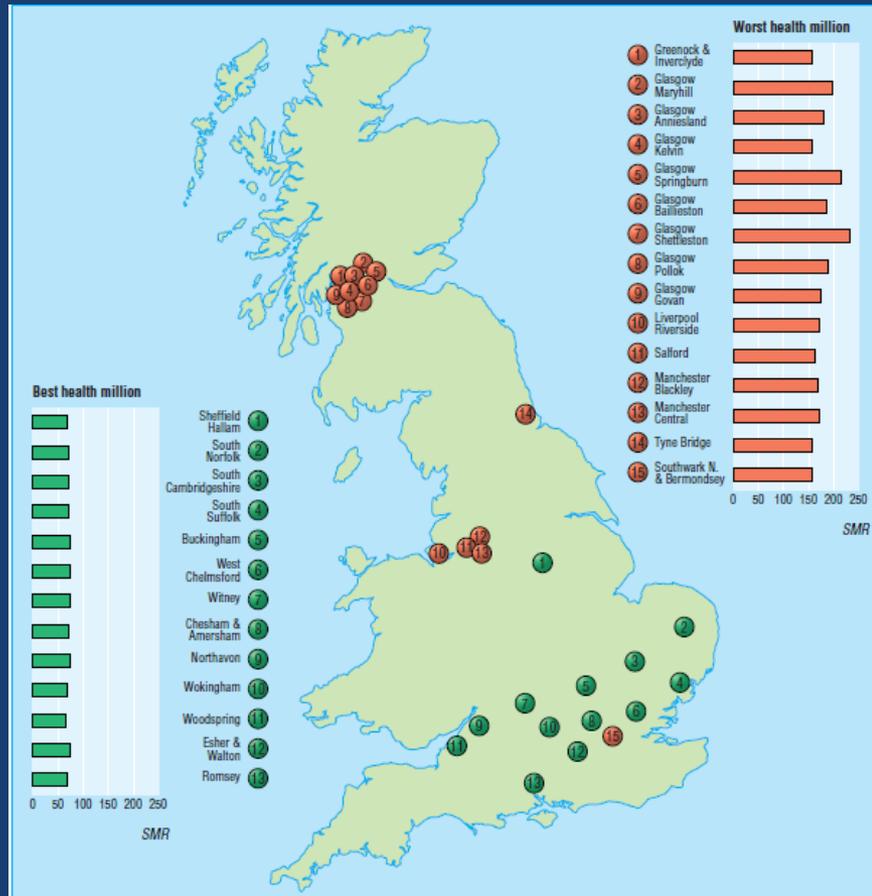


Fig 1 Mapping the best and the worst health in Britain.³ The areas (parliamentary constituencies) containing the million people with the highest and lowest premature mortality (standardised mortality ratios (SMR) for deaths under 65 years of age) in Britain, 1991-5. (Average standardised mortality ratio for England and Wales=100)



1948

The Birth of the National Health Service



Nye Bevan
Secretary State for Health
Manchester,
5th of July 1948

Principles:

Universality, Equity & Quality

- Everyone eligible for care
- Free at the point of delivery
- Care based on clinical need, not ability to pay
- Services financed from central taxation

1948 - present UK General Practice

- Independent Contractors to the NHS
- Official Gatekeepers to services
- Electronic Patient Medical Records (100%)
- Range of Practice sizes
- Practice Team: GPs, nurses, health care assistants, practice pharmacists, social prescribing link workers...
- Funding includes:
 - Capitation Fee (List size: ~1700 Patients per GP)
 - Payments for quality of care for people with long-term conditions
 - Increasing focus on frailty
 - New Contract 2019: focus on Integrated Care Systems and QI



A shift in the global burden of disease → Chronic Illness Care

Global Health Metrics



Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017



GBD 2017 Causes of Death Collaborators*

Summary

Background Global development goals increasingly rely on country-s progress. To meet this need, the Global Burden of Diseases, Injuries, global, regional, national, and, for selected locations, subnational c 1980. Here we report an update to that study, making use of newly av: provides a comprehensive assessment of cause-specific mortality for 2 1980 to 2017.

Methods The causes of death database is composed of vital registrati police, and surveillance data. GBD 2017 added ten VA studies, 127 country-years, and an additional surveillance country-year. Expansion: in 18 additional causes estimated for GBD 2017. Newly available data countries—Ethiopia, Iran, New Zealand, Norway, and Russia. Deaths a (ICD) codes for non-specific, implausible, or intermediate causes of c redistribution algorithms that were incorporated into uncertainty es developed for GBD, including the Cause of Death Ensemble model (C specific death rates for each location, year, age, and sex. Instead of GBD 2017 independently estimated population size and fertility rate then calculated as the sum of each death multiplied by the standard lif are age-standardised.

Lancet 2018; 392: 1736–88
This online publication has been corrected. The corrected version first appeared at thelancet.com on November 9, 2018, and further corrections were made on June 20, 2019

*Collaborators listed at the end of the paper
Correspondence to: Dr Gregory Roth, Institute for Health Metrics and Evaluation, Seattle, WA 98121, USA
rothg@uw.edu

GBD 2017 Causes of Death Collaborators* Lancet, 2018

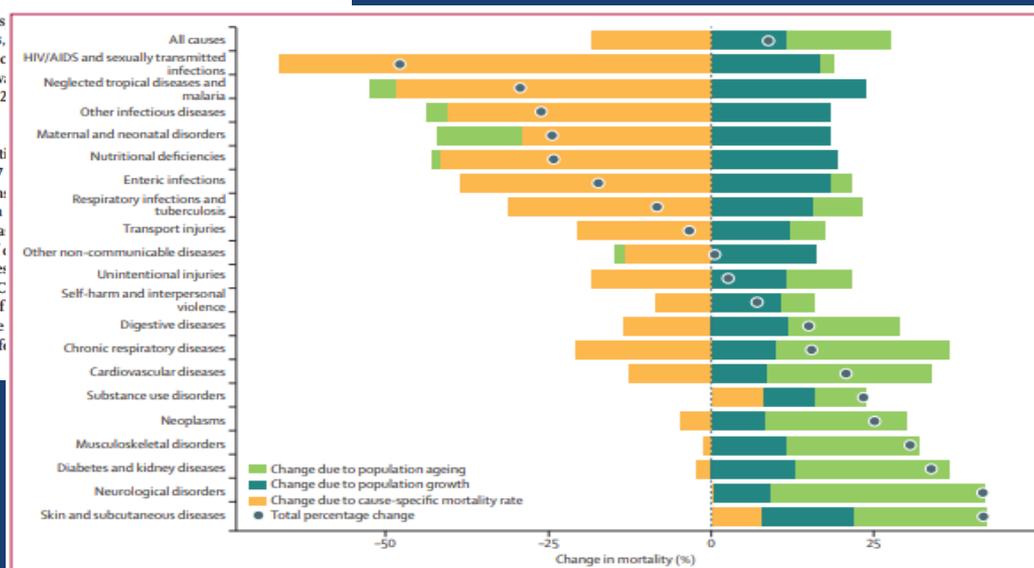
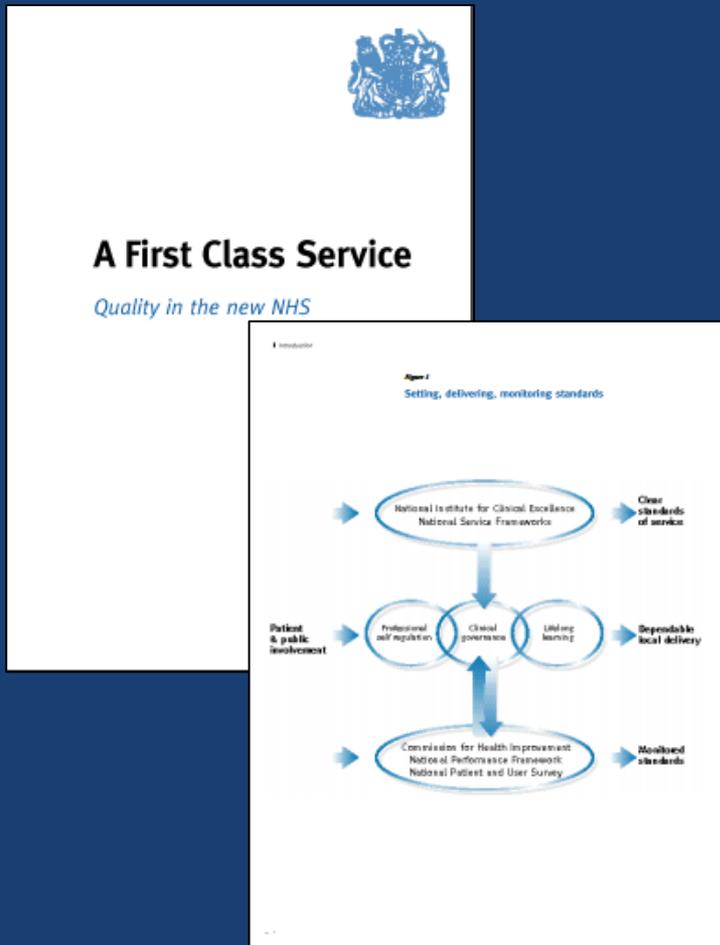


Figure 9: Percentage change in all-age mortality by Level 2 causes at the global level from 2007 to 2017, due to population growth, population ageing, and cause-specific mortality. Mental disorders, for which there were 272 deaths globally in 2007 and 327 deaths globally in 2017, are not shown separately but are included in the all-cause category.

1998 Quality in the NHS



Setting Standards

- National Institute for Clinical Excellence
→ Guidelines

Delivering Standards

- Quality & Outcomes Framework

Monitoring Standards

- Care Quality Commission

Setting Standards - NICE Guidelines: Diagnosis & Management of Chronic Kidney Disease

Chronic kidney disease

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

Issue date: September 2008

Stages of chronic kidney disease*

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.

Setting Standards - NICE Guidelines: Diagnosis & Management of Chronic Kidney Disease

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CKD EVALUATION AND MANAGEMENT

Setting Standards - NICE Guidelines: Diagnosis & Management of Chronic Kidney Disease

Chronic kidney disease

NICE Guidance 2014

Early identification of chronic kidney disease, primary and secondary



licence

Chronic kidney disease in adults: diagnosis and management

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				ACR categories (mg/mmol), description, and range		
				A1	A2	A3
				<3	3–30	>30
				Normal to mildly increased	Moderately increased	Severely increased
GFR categories (ml/min/1.73 m ²), description, and range	G1	≥90	Normal and high	≤1	1	≥1
	G2	60–89	Mild reduction related to normal range for a young adult	≤1	1	≥1
	G3a	45–59	Mild–moderate reduction	1	1	2
	G3b	30–44	Moderate–severe reduction	≤2	2	≥2
	G4	15–29	Severe reduction	2	2	3
	G5	<15	Kidney failure	4	≥4	≥4

Stages

Stage	GFR
1	90 or over
2	60–89
3A	45–59
3B	30–44
4	15–29
5	Under 15

* Stage 3 chronic kidney disease condition more effectively.

NICE Guidance: Management of chronic kidney Disease

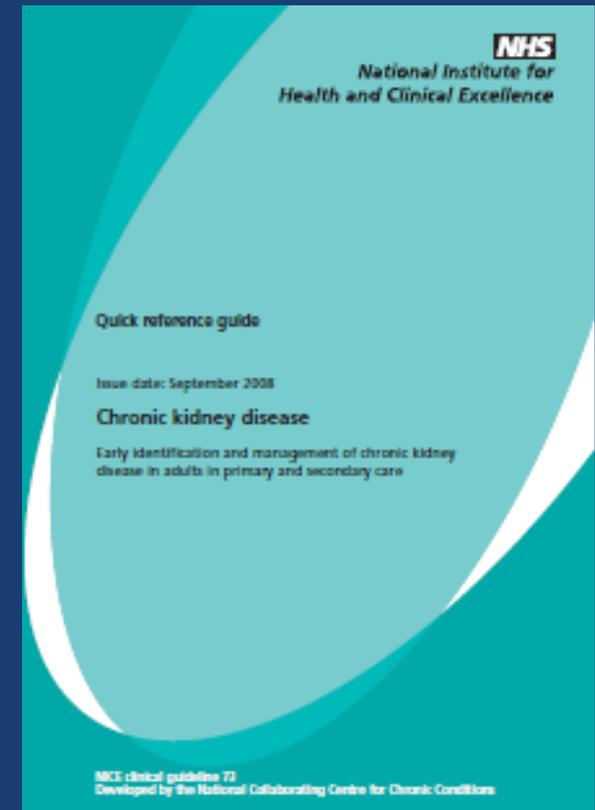
~6% population have CKD

Co-morbidity is the norm:
Diabetes and other CVD

CKD is an independent risk factor for
cardiovascular disease

Guidelines focused on vascular outcomes:

- BP Control
- Lifestyle change
- Medicines management



Delivering Standards: CKD & The Quality & Outcomes Framework (QOF)

Quality indicators assigned to a range long-term conditions:

Structures:

Disease register for patients with CKD

Process measures:

% of patients with CKD who urinary ACR test in past 12 months

Outcome measures:

% of patients with CKD in whom last BP was <140/85

% of patients with CKD who have hypertension and proteinuria and who are treated with an ACE-I or ARB

Delivering Standards: CKD & The UK Quality & Outcomes Framework

Chronic kidney disease (CKD)

Indicator	Points	Achievement thresholds
Records		
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	
Ongoing management		
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%

Each quality indicator assigned points = financial remuneration

Delivering Standards: CKD & The UK Quality & Outcomes Framework

Chronic kidney disease (CKD)

Indicator	Points	Achievement thresholds
Records		
CKD001. The contractor establishes and maintains a register of patients aged 18 or over with CKD (National Kidney Foundation: Stage 3 to 5 CKD)		
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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%

CKD in context: Improving vascular care & outcomes

Each quality indicator assigned points = financial remuneration

Is there an implementation gap? National CKD Audit for primary care



National CKD Audit

The National Chronic Kidney Disease Audit (NCKDA) focuses on the identification and management of people with CKD (Chronic Kidney Disease) in primary care.

Contact us

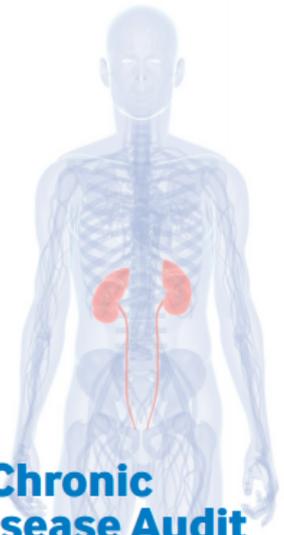
Please email

A quality improvement programme
for chronic kidney disease

National
CKDAudit

A quality improvement programme
for chronic kidney disease

National
CKDAudit



National Chronic Kidney Disease Audit

// National Report: Part 2 December 2017

Commissioned by:



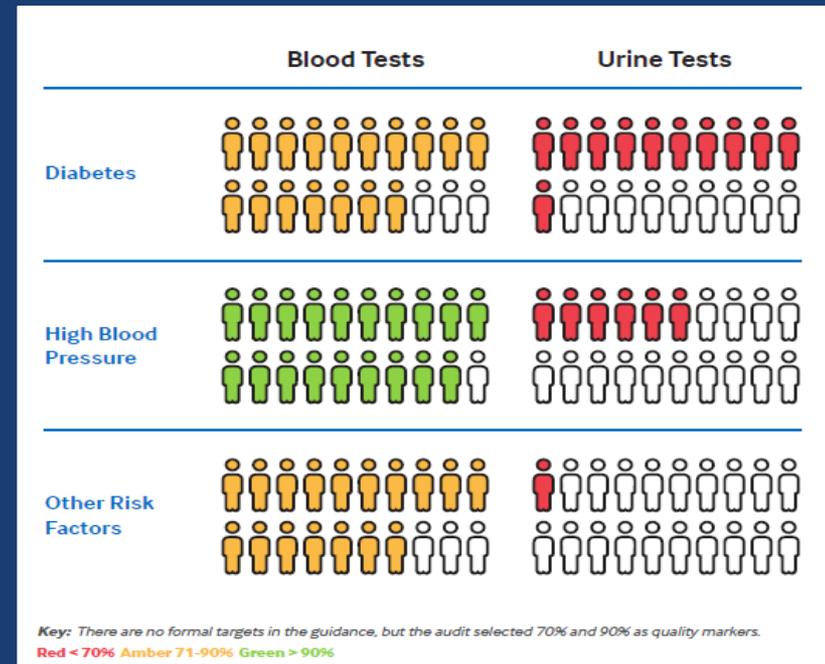
Delivered by:



2015-2016 National CKD Audit for primary care

Prevalence CKD ~5-6%

- ~3/4 people coded
- < 30% patients with hypertension had urinary ACR test



2015-2016 National CKD Audit for primary care

Blood Pressure control

18-39 years

➤ 66.9% to target

40-64 years

➤ 60.2% to target

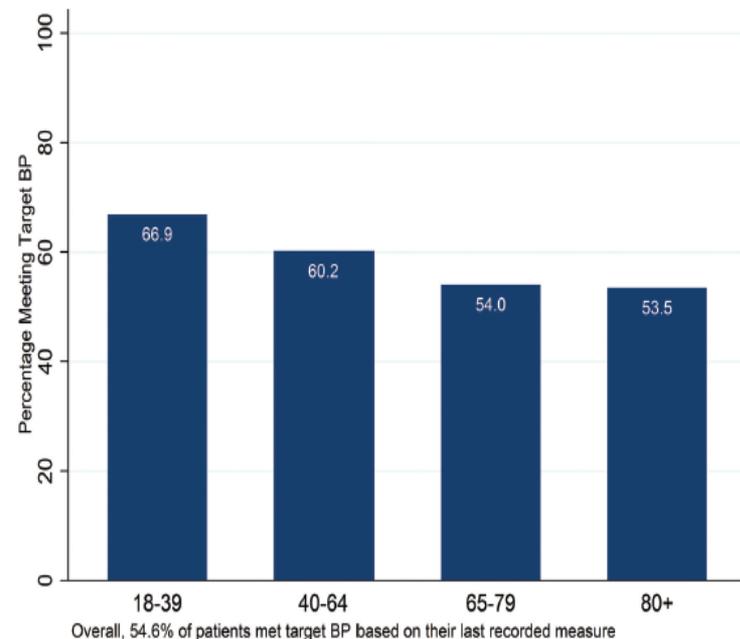
65-79 years

➤ 54.0% to target

80+ years

➤ 53.5% to target

Figure 16. Percentage of people with coded CKD meeting guideline recommended target blood pressure (both <140/90 and <130/80 mmHg targets combined), by age

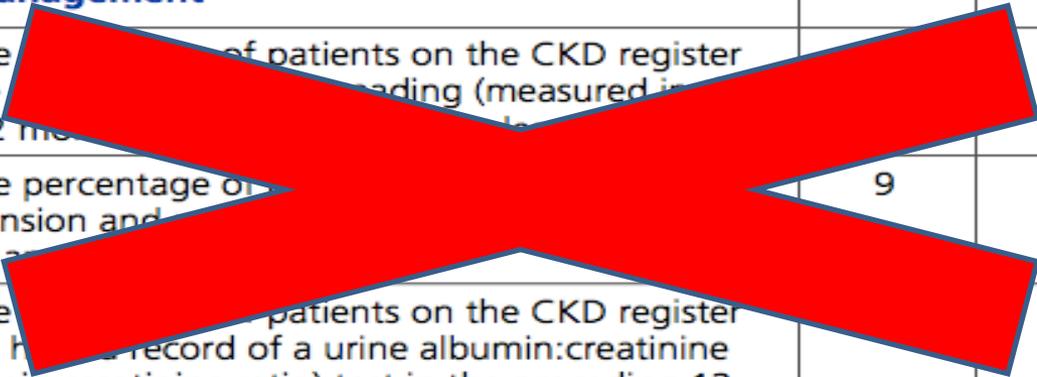


2015-

The removal of CKD Quality Indicators

Chronic kidney disease (CKD)

Indicator	Points	Achievement thresholds
Records		
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	
Ongoing management		
CKD002. The percentage of patients on the CKD register in whom the haemoglobin A1c reading (measured in the preceding 12 months) is less than 8.5%		41–81%
CKD003. The percentage of patients on the CKD register with hypertension and treated with an ACE inhibitor 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		45–80%



Competing Demands: Primary care workload 'reaching saturation point'?

'...we have negotiated that **26 CKD (chronic kidney disease) indicators will end** (the register remaining), with most of these **points transferring to the dementia domain**. This will increase the value of carrying out dementia care plans, **reflecting the greater workload for GPs in this area**'

Dr Chaand Nagpaul, 2014
British Medical Association

Articles

Clinical workload in UK primary care: a retrospective analysis of 100 million consultations in England, 2007–14

F D Richard Hobbs, Clare Bankhead, Taqir Mukhtar, Sarah Stevens, Rafael Perera-Salazar, Tim Holt, Chris Salisbury, on behalf of the Institute for Health Research School for Primary Care Research

Summary
Background Primary care is the main source of health care in many health systems, including the UK National Health Service (NHS), but few objective data exist for the volume and nature of primary care activity. With rising concerns that NHS primary care workload has increased substantially, we aimed to assess the direct clinical workload of general practitioners (GPs) and practice nurses in primary care in the UK.

Methods We did a retrospective analysis of GP and nurse consultations of non-temporary patients registered at 398 English general practices between April, 2007, and March, 2014. We used data from electronic health records routinely entered in the Clinical Practice Research Datalink, and linked CPRD data to national datasets. Trends in age-standardised and sex-standardised consultation rates were modelled with joinpoint regression analysis.

Findings The dataset comprised 101 818 352 consultations and 20 626 297 person-years of observation. The crude annual consultation rate per person increased by 10·51%, from 4·67 in 2007–08, to 5·16 in 2013–14. Consultation rates were highest in infants (age 0–4 years) and elderly people (≥85 years), and were higher for female patients than for male patients of all ages. The greatest increases in age-standardised and sex-standardised rates were in GPs, with a rise of 12·36% per 10 000 person-years compared with 0·9% for practice nurses. GP telephone consultation rates doubled, compared with a 5·20% rise in surgery consultations, which accounted for 90% of all consultations. The mean duration of GP surgery consultations increased by 6·7%, from 8·65 min (95% CI 8·64–8·65) to 9·22 min (9·22–9·23), and overall workload increased by 16%.

Interpretation Our findings show a substantial increase in practice consultation rates, average consultation duration, and total patient-facing clinical workload in English general practice. These results suggest that English primary care as currently delivered could be reaching saturation point. Notably, our data only explore direct clinical workload and not indirect activities and professional duties, which have probably also increased. This and additional research questions, including the outcomes of workload changes on other sectors of health care, need urgent answers for primary care provision internationally.

Funding Department of Health Policy Research Programme.

Lancet 2016; 387: 2323–30
Published Online
April 5, 2016
[http://dx.doi.org/10.1016/S0140-6736\(16\)00610-6](http://dx.doi.org/10.1016/S0140-6736(16)00610-6)
This online publication has been corrected. The corrected version first appeared at the-lancet.com on June 2, 2016
See Comment page 2270
Nuffield Department of Primary Care Health Sciences, Radcliffe Primary Care Building, Radcliffe Observatory Quarter, Oxford, UK
(Prof F D R Hobbs) FMedSci, C Bankhead DPHd, T Mukhtar MSc, S Stevens MSc, Prof R Perera-Salazar DPHd, T Holt PhD, and Centre for Academic Primary Care, School of Social and Community Medicine, Canynge Hall, Bristol, UK (Prof C Salisbury MD)
Correspondence to: Dr F D Richard Hobbs, Nuffield Department of Primary Care Health Sciences, Radcliffe Primary Care Building, Radcliffe Observatory Quarter, Oxford OX2 6GG, UK
richard.hobbs@phc.ox.ac.uk

Hobbs et al, Lancet 2016

Too much medicine?



Concerns about over-diagnosis

'Chronic' 'disease' labelling may cause unnecessary anxiety

Doctor, doctor: Chronic kidney disease and anxiety

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



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Too much medicine

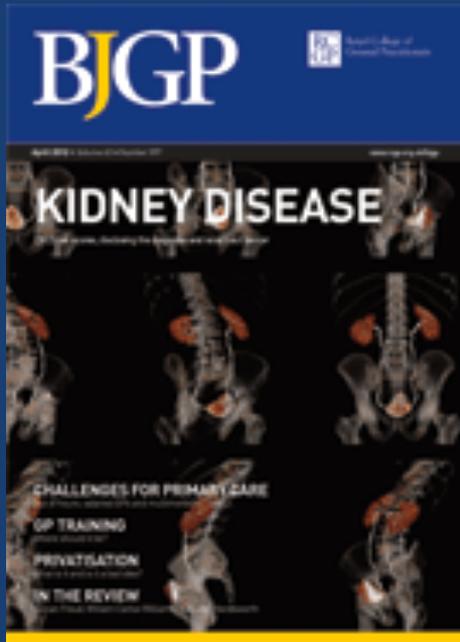




Why bother talking about
CKD with the elderly?



A key tension: Identifying & discussing CKD



'... 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)

Blakeman et al, Br J Gen Pract 2012

Normalization Process Theory:
A framework to explore everyday work

Partial disclosure: Framing CKD as ‘Nothing to worry about’

‘I try and reassure them at the beginning that there isn’t anything actually to worry about, because they think they’ve got another new condition. ..

...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)



Social Science & Medicine 131 (2015) 31–39

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journal homepage: www.elsevier.com/locate/socscimed

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

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^d NIHR Collaboration for Leadership in Applied Health Research (CLAHRC) West Midlands, Primary Care & Health Sciences, Keele University, Keele, Staffordshire ST5 5BG, UK

Delivering Standards: Limitations of a single disease framework

'...concern that the needs of the increasing population of older people with multiple complex problems were poorly served by indicators that focused exclusively on single diseases.'

Roland & Guthrie, BMJ 2016



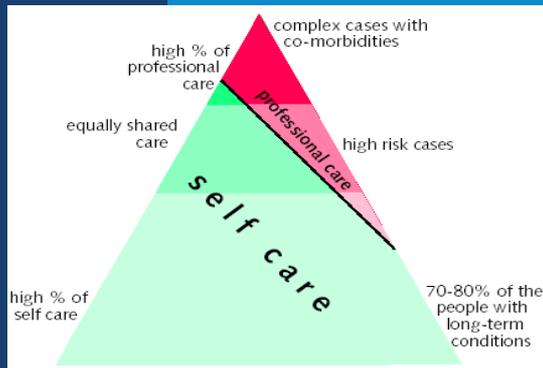
2005

Self-management support in the NHS

Supporting People with Long Term Conditions



An NHS and Social Care Model to support local innovation and integration



- Providing meaningful information
- Support monitoring & dealing with exacerbations
- Support adjustment in medication
- Improve lifestyle behaviours
- Improve access to services including peer networks and community support

Department of Health, 2005

QOF and self-management dialogue

- Difficult for SM to become a legitimate topic
- QOF templates reinforced a checklist approach
- Limited the scope for expansion of SM dialogue
- Computers: as a place of safety
- A need to maintain other relations

self-

Chronic Illness (2010) 6, 136–150

RESEARCH PAPER

Bringing self-management into clinical view: a qualitative study of long-term condition management in primary care consultations

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Received 10 September 2009, Accepted 10 October 2009

Objectives: To understand social processes underpinning support for self-management of long-term conditions in primary care.

Methods: Comparative analysis of observational and interview data concerning the management of long-term conditions in UK primary-care consultations. Analysis of recordings of primary care consultations ($n=86$) was conducted in conjunction with analysis of semi-structured interviews with health professionals ($n=17$) and patients ($n=12$) living with a long-term condition.

Results: A key finding was the infrequency with which self-management topics became legitimate objects for discussion in consultations. Analysis suggested that the maintenance of self–other relations was a prime objective for both patients and professionals, and the introduction of self-management topics threatened this process. Technology and the division of labour among primary-care professionals reinforced this tension.

Discussion: In order for self-management support to become embedded and integrated into primary care, interventions concerning long-term condition management need to take into account this tension underpinning care.

Research

Tom Blakeman, Carolyn Chew-Graham, David Reeves, Anne Rogers and Peter Bower

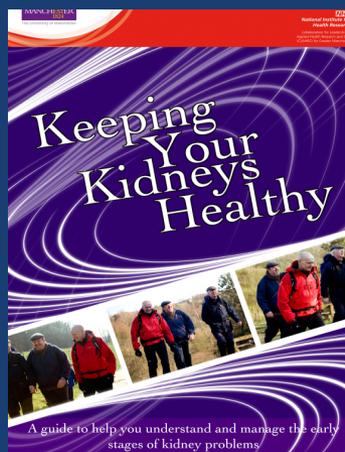
The Quality and Outcomes Framework and self-management dialogue in primary care consultations:

a qualitative study



Kidneys in the context of supporting general vascular health

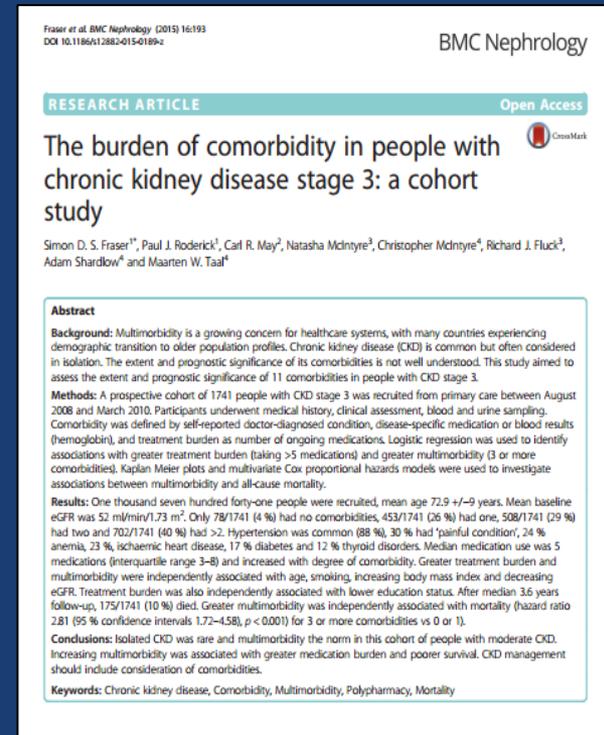
Bringing Information and Guided Health Together



CKD in Context: Living with complex health and social care needs

- CKD is common
- Isolated CKD is rare
- Multimorbidity is the norm
 - ∞ Greater medication burden
 - ∞ Poorer survival

Fraser et al, 2015
BMC Nephrology



'CKD management should include consideration of comorbidities'

CKD and Health literacy

‘Limited health literacy is common in CKD, especially among individuals with low socioeconomic status and non-white ethnicity’

Taylor et al, 2019

Article

A Systematic Review of the Prevalence and Associations of Limited Health Literacy in CKD

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Abstract

Background and objectives The self-management and decision-making skills required to manage CKD successfully may be diminished in those with low health literacy. A 2012 review identified five papers reporting the prevalence of limited health literacy in CKD, largely from United States dialysis populations. The literature has expanded considerably since.

Design, setting, participants, & measurements We used systematic review, pooled prevalence analysis, metaregression, and exploration of heterogeneity in studies of patients with CKD (all stages).

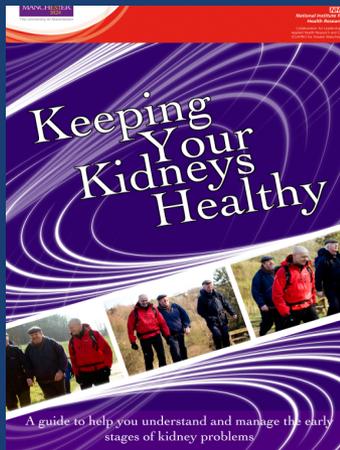
Results From 433 studies, 15 new studies met the inclusion criteria and were analyzed together with five studies from the 2012 review. These included 13 cross-sectional surveys, five cohort studies (using baseline data), and two using baseline clinical trial data. Most (19 of 20) were from the United States. In total, 12,324 patients were studied (3529 nondialysis CKD, 5289 dialysis, 2560 transplant, and 946 with unspecified CKD; median =198.5 IQR, 128.5–260 per study). Median prevalence of limited health literacy within studies was 23% (IQR, 16%–33%), and pooled prevalence was 25% (95% confidence interval, 20% to 30%) with significant between-study heterogeneity ($P=97\%$). Pooled prevalence of limited health literacy was 25% (95% confidence interval, 16% to 33%; $P=97\%$) among patients with CKD not on dialysis, 27% (95% confidence interval, 19% to 35%; $P=96\%$) among patients on dialysis, and 14% (95% confidence interval, 7% to 21%; $P=97\%$) among patients with transplants. A higher proportion of nonwhite participants was associated with increased limited health literacy prevalence ($P=0.04$), but participant age was not ($P=0.40$). Within studies, nonwhite ethnicity and low socioeconomic status were consistently and independently associated with limited health literacy. Studies were of low or moderate quality. Within-study participant selection criteria had potential to introduce bias.

Conclusions Limited health literacy is common in CKD, especially among individuals with low socioeconomic status and nonwhite ethnicity. This has implications for the design of self-management and decision-making initiatives to promote equity of care and improve quality. Lower prevalence among patients with transplants may reflect selection of patients with higher health literacy for transplantation either because of less comorbidity in this group or as a direct effect of health literacy on access to transplantation.

Clin J Am Soc Nephrol 12: 1070–1084, 2017. doi: <https://doi.org/10.2215/CJN.12921216>

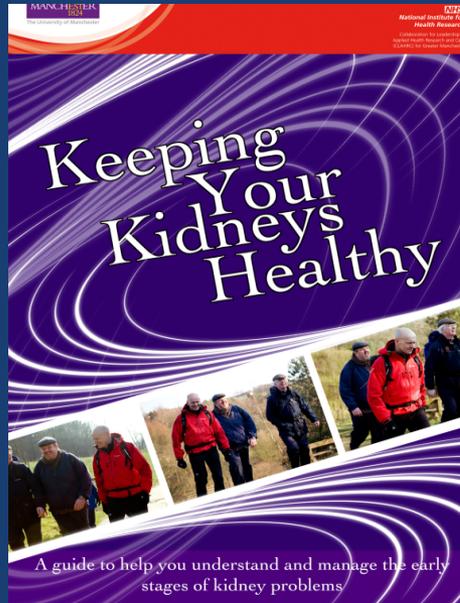
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Making kidney health meaningful: Placing CKD in a clinical and social context: Bringing Information & Guided Help Together



- Kidney Information guidebook
- PLANS: Patient-led Assessment for Network Support
- Telephone facilitation from a lay health worker

Making CKD meaningful: Placing CKD in a clinical and social context Bringing Information & Guided Help Together



Patient-Level RCT
436 Patients with Stage 3 CKD
Recruited from 24 general practices
6 month follow-up

The BRIGHT Trial Placing CKD in a clinical and social context

Results

- Maintenance of BP Control
- Modest but significant improvements
 - Quality of Life
 - Self-care activity
- But no effect on HeiQ score
'positive and active engagement in life'
- No detrimental effect on anxiety



Questions

Self-management support: Rhetoric or reality?

Are mechanisms for delivering CDM designed to embed SMS into routine practice?

A need to reframe the conversation?

Workforce: A role of social prescribing link workers/ care navigators?

What is the role of theory?

➤ NPT Burden of Treatment Theory

What is the role of PROMs

➤ Patient Activation



May et al. BMC Health Services Research 2014, 14:281
<http://www.biomedcentral.com/1472-6963/14/281>

BMC
Health Services Research

DEBATE

Open Access

Rethinking the patient: using Burden of Treatment Theory to understand the changing dynamics of illness

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