KQuIP/UKRR Regional Day

Yorkshire & Humber

6th July 2017

National Coal Mining Museum, Wakefield

Session C – 18.15-21.30

THINK KIDNEYS

KQuIP

KQuIP/UKRR Regional Day
Yorkshire & Humber

6th July 2017 – 18.15-18.35

Research and the UK Renal Registry

Fergus Caskey

THINK KIDNEYS

KQuIP

The UK Renal Registry and Research

Dr Fergus Caskey
Consultant Nephrologist, North Bristol NHS Trust
Honorary Senior Lecturer, University of Bristol
Medical Director, UK Renal Registry

UKRR-KQuIP Regional Meeting, Wakefield July 2017

Hypothesis generating prior work

- **Equity of access & outcomes** – Dr Uday Udayaraj PhD
  - Attainment of standards & access to transplantation; ethnicity
- **Access to transplant waiting list** – Dr Rommel Ravanan
  - BMJ paper and supporting case for ATTOM
- **Centre performance: structure & process** – Dr Alex Hodsman PhD
  - Mixed methods in CKD MBD; clinical practices and performance
- **Regional variation** – Dr Clare Castledine PhD
  - Access to RRT & home dialysis; practice patterns; multi-level modelling
- **Hospital episode statistics** – Dr Retha Steenkamp PhD
  - Development and validation of prognostic models
- Hospital episode statistics – Dr James Fotheringham PhD
  - Adjustment for casemix; early PD failure; long break on HD

HIGH IMPACT PAPER

SUPPORT NIHR GRANT APPLICATION

SUPPORT NIHR GRANT APPLICATION

SUPPORT NIHR GRANT APPLICATION

UKRR: old and new data

New UKRR, renal IT systems, 2016

Haemodialysis Peritoneal dialysis Kidney transplantation	Demographics Case-mix Laboratory data
Acute dialysis	
CKD 4/5 in 2y care	

Paper & electronic, 2015
(TP CKD National Programme)

PROMs & PREMs Activation

Direct from labs, 2015
(AKI National Programme)

AKI in 1y & 2y care	

RESEARCH WITH UKRR

Observational data & novel statistics

Randomised trials

- Individual
- Cluster

Real-world data: novel statistics

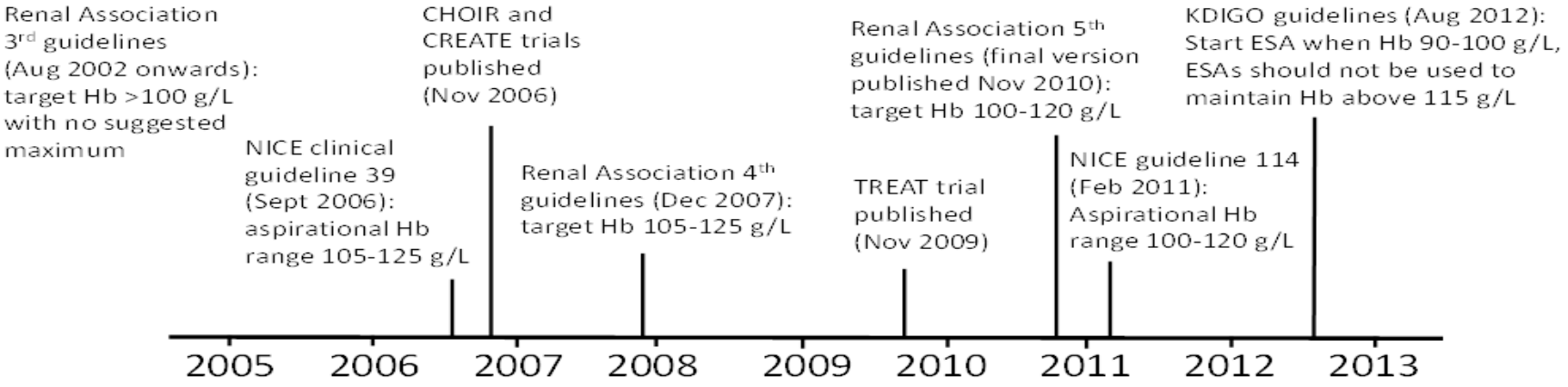
Gain experience with **Marginal Structural Modelling**

- NIHR post-doctoral fellowship
  - Dr Kate Birnie, statistician, University of Bristol

Erythropoiesis Stimulating Agents

ESAs (EPO) , with IV iron, are the main treatment for anaemia in patients with CKD.

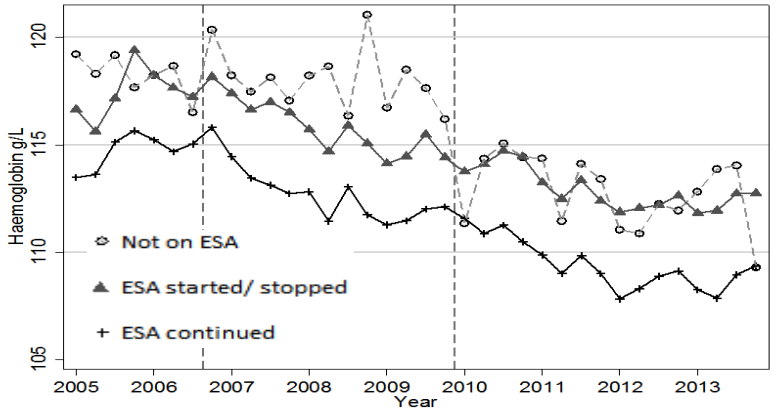
Although observational studies suggest better outcomes for patients who achieve higher haemoglobin (Hb) levels, RCTs comparing higher and lower Hb targets have led to safety concerns over higher targets, and to changes in treatment guidelines.



Erythropoiesis Stimulating Agents

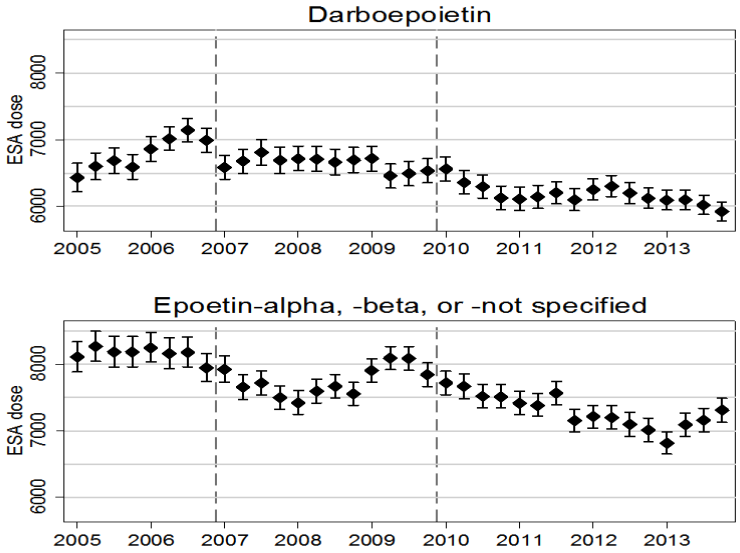
Quarterly data from 2005-2013
28,936 haemodialysis patients reported to the UK Renal Registry.
Trends over time (in relation to the Renal Association guideline) in:

- ESA use and average dose
- Hb
- Ferritin



Mean Hb over time in all HD pts,
by ESA status

NHS
National Institute for Health Research



(Biosimilars)

North Bristol NHS Trust

University of BRISTOL

Erythropoiesis Stimulating Agents

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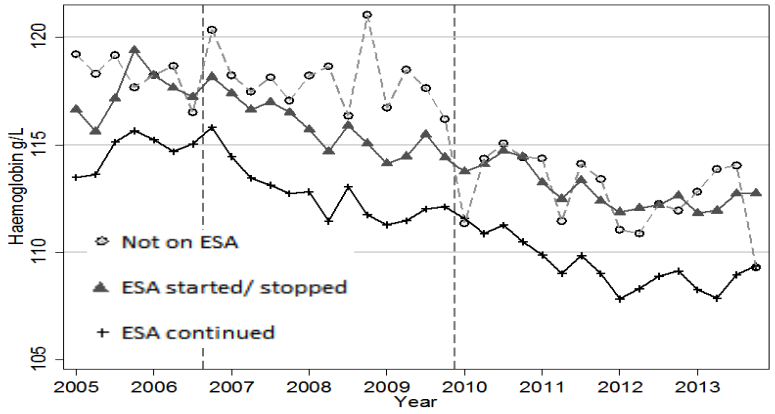
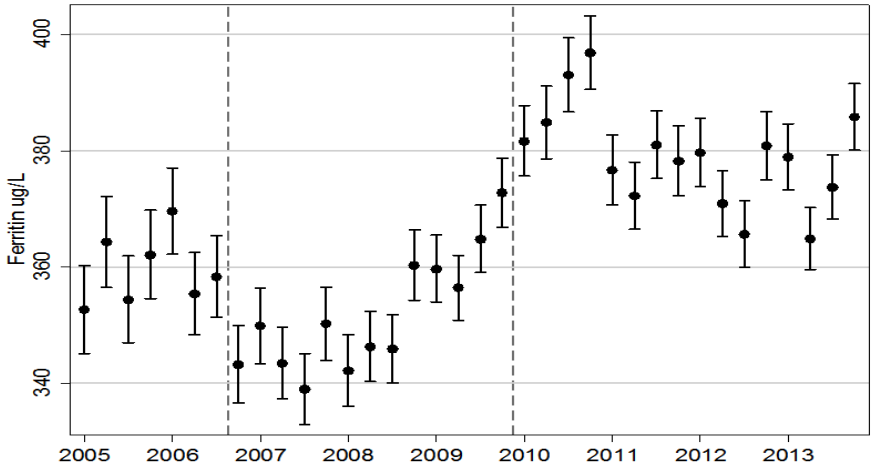
NHS National Institute for Health Research



Mean Hb over time in all HD pts, by ESA status

Ferritin levels (reflecting iv iron use)



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Erythropoiesis Stimulating Agents

Plans for marginal structural modelling

- Agree the hypothetical RCT that we want to emulate with observational data

  Correcting anaemia in HD patients to a target haemoglobin of 120-140 g/L confers survival benefit compared to a target of 100-120 g/L if combined with a dosing strategy that restricts use of erythropoiesis stimulating agents (ESAs) to patients with a high erythropoiesis sensitivity index .

- All data (i.e. all lab values, not just one quarterly value)
- Inverse probability of treatment weighting
- Time varying exposure and confounding
- Analysis will be a pooled logistic regression model (equivalent to a Cox model, but using discrete time intervals).

In preparation…

Randomised controlled trials

Efficient trial design: “registry trials”

Rely on UKRR/ linkage to Hospital Episode Statistics for outcomes:

- SIMPLIFIED – Dr Thomas Hiemstra (Cambridge) & co-investigators
  - ~~Cholecalciferol vs placebo to reduce all cause mortality in dialysis patients~~
- H4RT – Dr Fergus Caskey (Bristol) & co-investigators
  - High-volume HDF vs high-flux HD to reduce non-cancer mortality or CV/ infection-related mortality

Secondary use of UKRR for outcomes/ modelling

- BISTRO – Prof Simon Davies (Stoke) & co-investigators
  - Use of bioimepdance to preserve residual renal function in incident HD patients
- Prepare for Kidney Care – Dr Fergus Caskey (Bristol) & co-investigators
  - Prepare for renal dialysis vs prepare for responsive management in frail older people with CKD5

= £7m funding from NHS National Institute for Health Research

H4RT – a registry trial

The High-volume HDF vs High-flux HD Registry Trial

HDF: evidence of effectiveness

H4RT
The High-volume Haemodiafiltration vs High-flux Haemodialysis Registry Trial

The current UK Renal Association guideline states:
"Haemodiafiltration would be the preferred mode of [dialysis] if it was shown in randomised controlled trials to provide better patient outcomes than high flux haemodialysis. Evidence level 2C" (MacTier 2009)

Systematic reviews:
Susantitaphong, NDT 2013
Mostovaya, Sem Dial 2014
Nistor, AJKD 2014
Wang 2014, AJKD 2014
Nistor, Cochrane 2015

"May reduce…" "Inconclusive"

But these are post-hoc analyses

RCT	Convection vol. (L/ treatment)	HR (95% CI)
ESHOL (9) (n=906)	<23.1	0.90 (0.61-1.31)
	23.1-25.4	0.60 (0.39-0.90)
	>25.4	0.55 (0.34-0.84)
Turkish HDF Study (10) (n=782)	18.8	1.10 (0.68-1.76)
	20.3	0.54 (0.31-0.93)
CONTRAST (11) (n=714)	<18.18	0.80 (0.52-1.24)
	18.18-21.95	0.84 (0.54-1.29)
	>21.95	0.61 (0.38-0.98)

Table 1. The importance of HDF volume: all-cause mortality stratified by convection volume. Post-hoc analyses of the three main RCTs (7). HR = hazard ratio; CI = confidence interval.

Peters SA. NDT 2015

H4RT – a registry trial

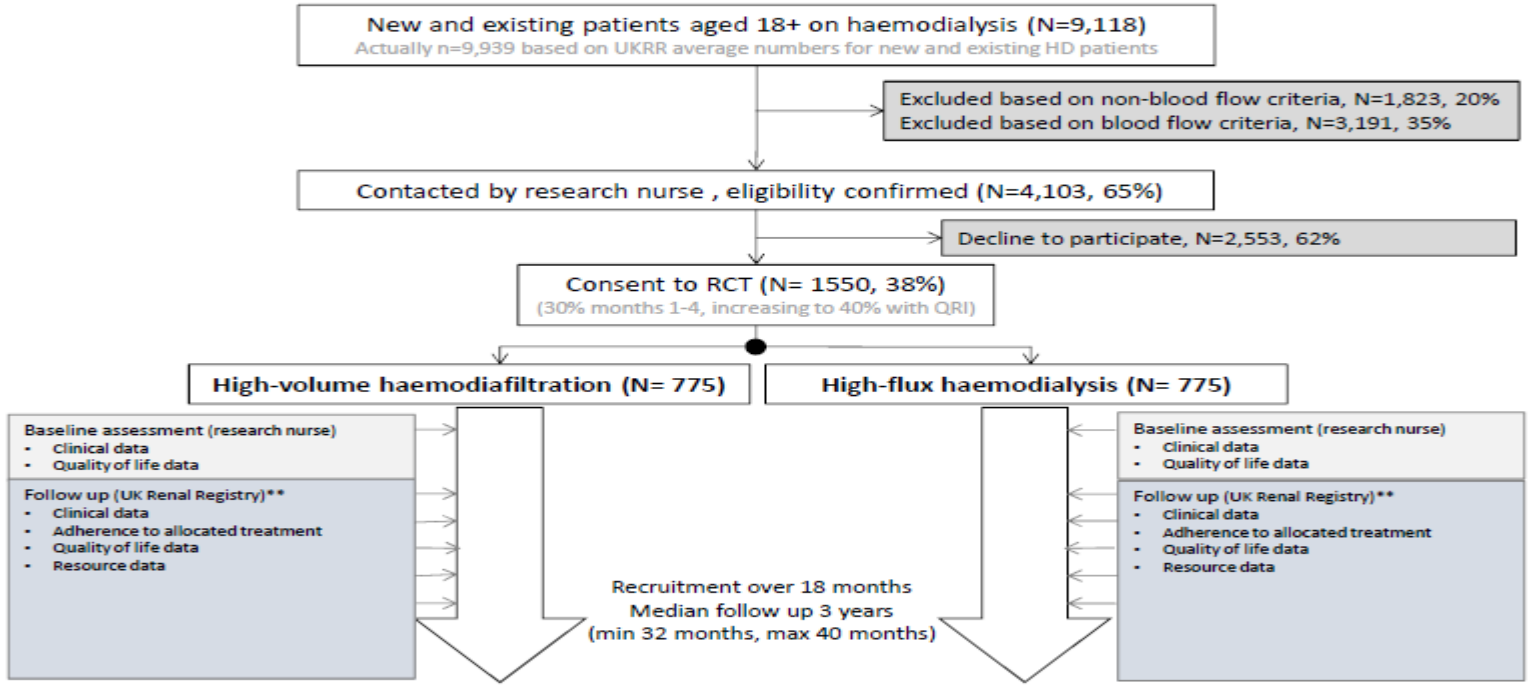
H4RT
The High-volume Haemodiafiltration vs High-flux Haemodialysis Registry Trial

Aim:
To establish the effectiveness and cost-effectiveness of high-volume HDF compared with high-flux HD in adult patients with ESKD on maintenance thrice weekly in-centre HD.

Design:
A non-blinded, randomised, parallel group, controlled trial comparing high-volume HDF (aiming for 21+L of substitution fluid) against high-flux HD, randomised 1:1 and stratified by site, age (18-64 and 65+) and residual renal function (urine volume <100mL/day and 100+mL/day).

H4RT – flow diagram

H4RT
The High-volume Haemodiafiltration vs High-flux Haemodialysis Registry Trial



Nurse

Digital

Recruiting sites now and patients from November 2017!

North Bristol NHS Trust

University of Bristol

Cluster randomised trials

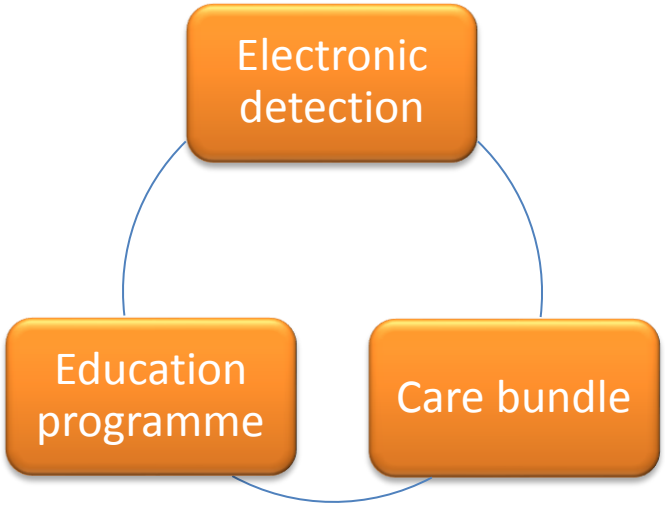
Tackling AKI

“Complex intervention”
- e-alerts
- an education programme
- a care bundle

Developed in one hospital
Results promising
- ~20% reduction in AKI mortality

Extend to 5 hospitals as a Quality Improvement initiative
- 60,000-200,000 admissions/ yr

Aim: To reduce AKI-associated 30-day mortality



Led by Dr Nick Selby, Derby
Funded by the Health Foundation

Tackling AKI

A “stepped wedge cluster randomised trial”

	Dec-14 to Feb-15	Mar-15 to May-15	Jun-15 to Aug-15	Sep-15 to Nov-15	Dec-15 to Feb-16	Mar-16 to May-16	Jun-16 to Aug-16	Sep-16 to Nov-16
Frimley Park	0	0	T	1	1	1	1	1
Bradford	0	0	0	T	1	1	1	1
Ashford and St Peters	0	0	0	0	T	1	1	1
Leeds General	0	0	0	0	0	T	1	1
Leeds St James	0	0	0	0	0	0	T	1
Period	1	2	3	4	5	6	7	8

Primary outcome - mortality at 30 days

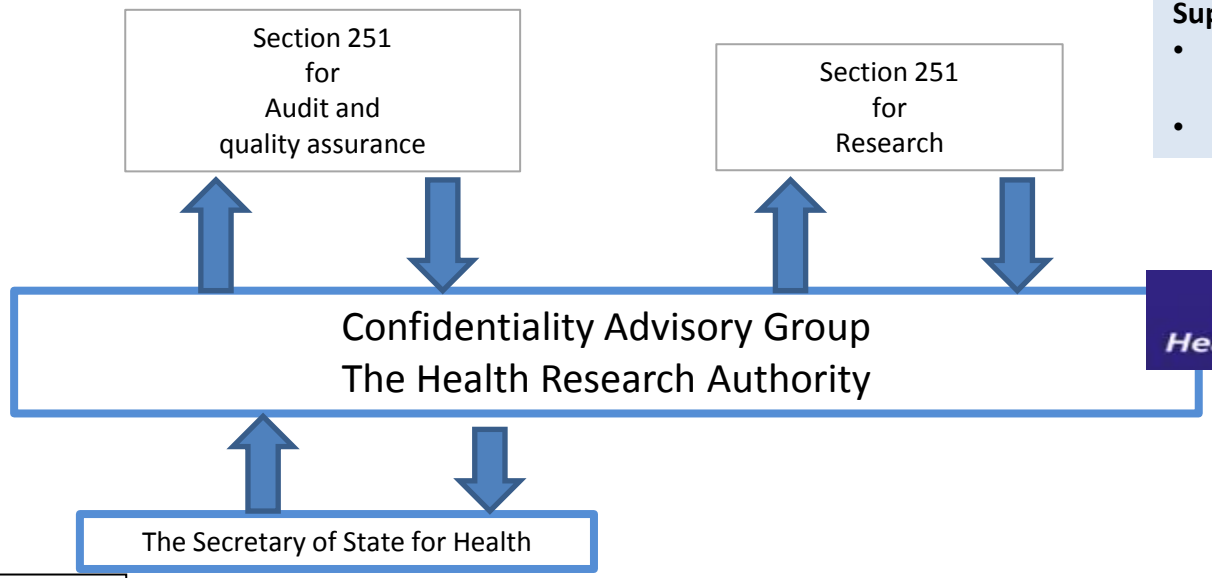
Power based on:

- AKI incidence of 2.5% of admissions
- 30-day mortality rate after AKI of 16%
- Power 80%, alpha 0.05, ICC between 0.01-0.2

We would be able to detect a decrease in mortality from 16% to 12.8%. (equating to around 300 fewer deaths each year for the total of the 5 units).

Results due Summer 2017!

Information governance



Support to:

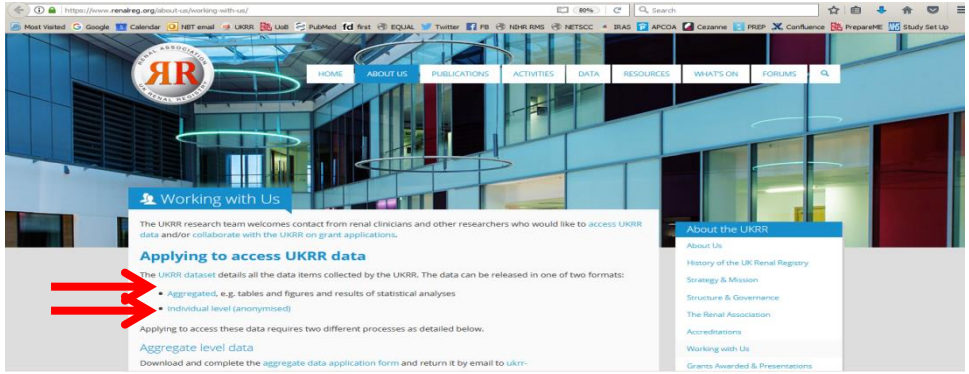
- Collect identifiable data without individual consent
- Link to other specific databases

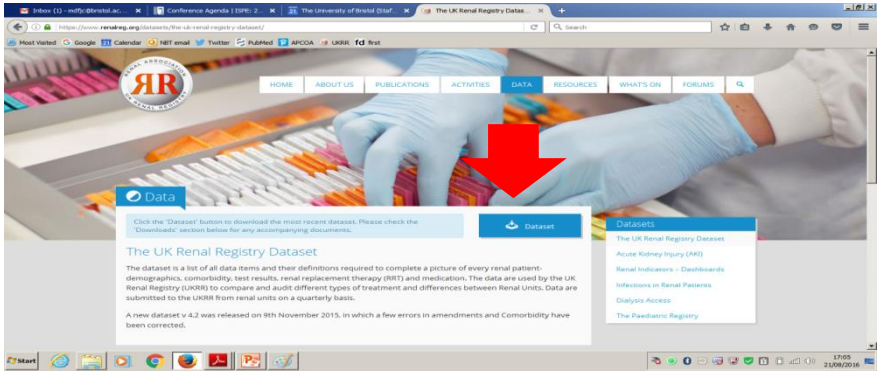
NHS
Health Research Authority

North Bristol NHS Trust

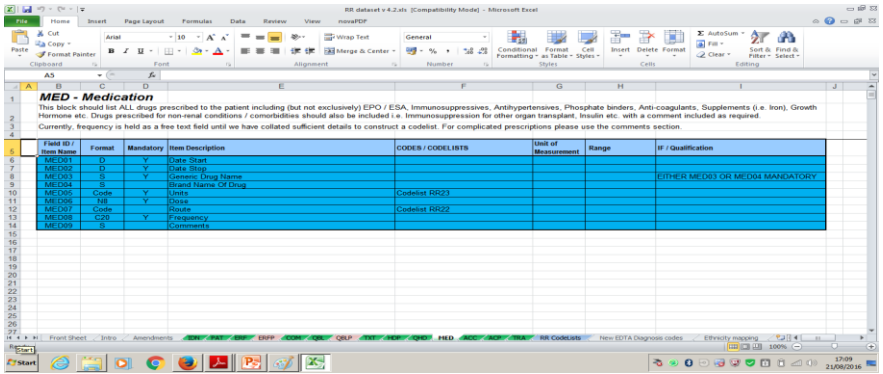
University of BRISTOL

Access to UKRR data

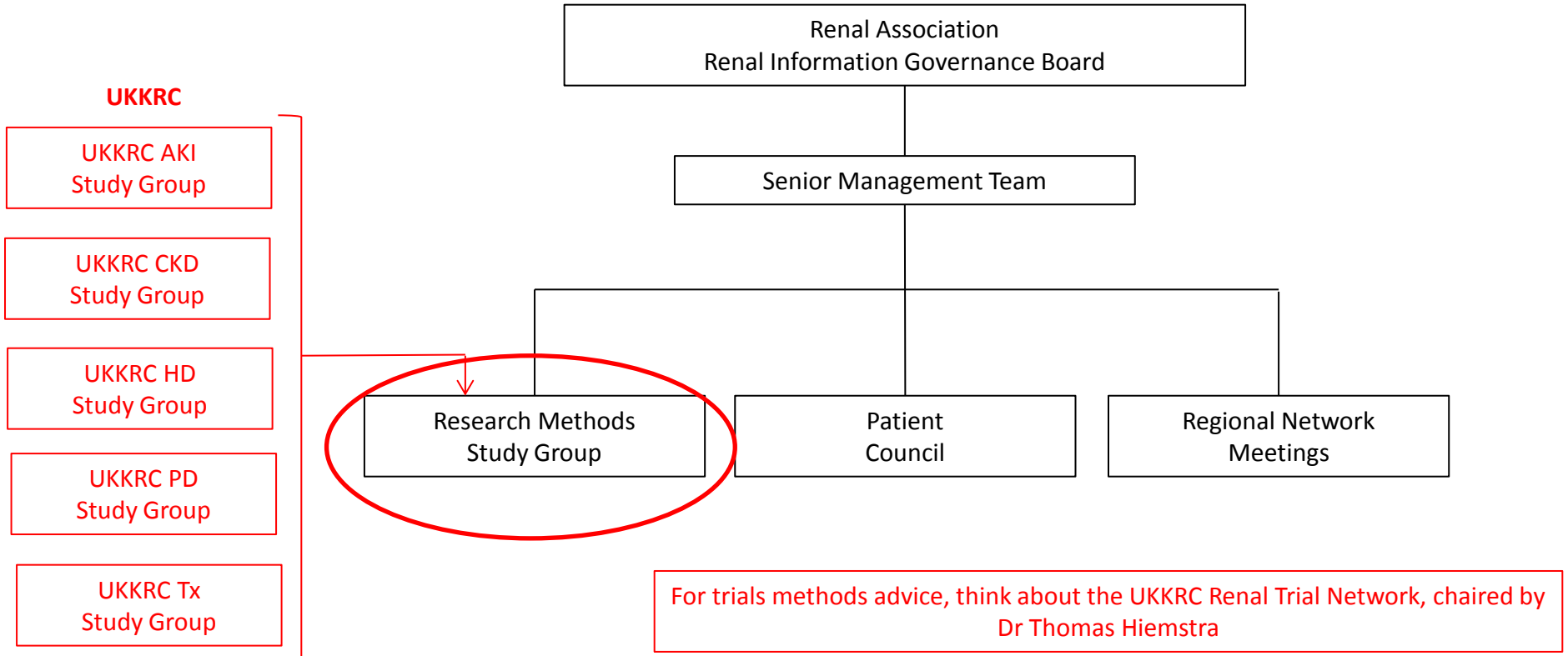




Dr Katharine Evans
Research Development Officer
ukrr-research@renalregistry.nhs.uk



Access to Methods Advice



For trials methods advice, think about the UKKRC Renal Trial Network, chaired by Dr Thomas Hiemstra

In conclusion

- Exciting new opportunities for using real life data to:
  - Study the effectiveness of medication

- Important to:
  - Obtain funding to do it properly
  - Understand the available data and its quality
  - Understand the legal / information governance process
  - Work with experts in causal modelling and novel statstics
  - Learn about strengths and weakness of novel statistics
  - Consider the role of pragmatic, registry trials

Acknowledgements

Thank you to all the UK renal units for providing data to the UK Renal Registry.

Current developments at the Registry are only possible thanks to the work of all many people…

Studies cited in detail today:

- Dr Kate Birnie – MRC-funded post-doctoral fellowship
- Dr Nick Selby – Tackling AKI

Thank you for your attention!

@UKRenalRegistry
@fjcaskey
www.renalreg.org

North Bristol NHS Trust

University of Bristol

KQuIP/UKRR Regional Day
Yorkshire & Humber

6th July 2017 – 18.35-18.50

The Learning to Make A Different QI Programme

Emma Vaux

THINK KIDNEYS

KQuIP

ACADEMY OF MEDICAL ROYAL COLLEGES

Royal College of Physicians
Setting higher medical standards

Get the QI habit
Get the leadership habit

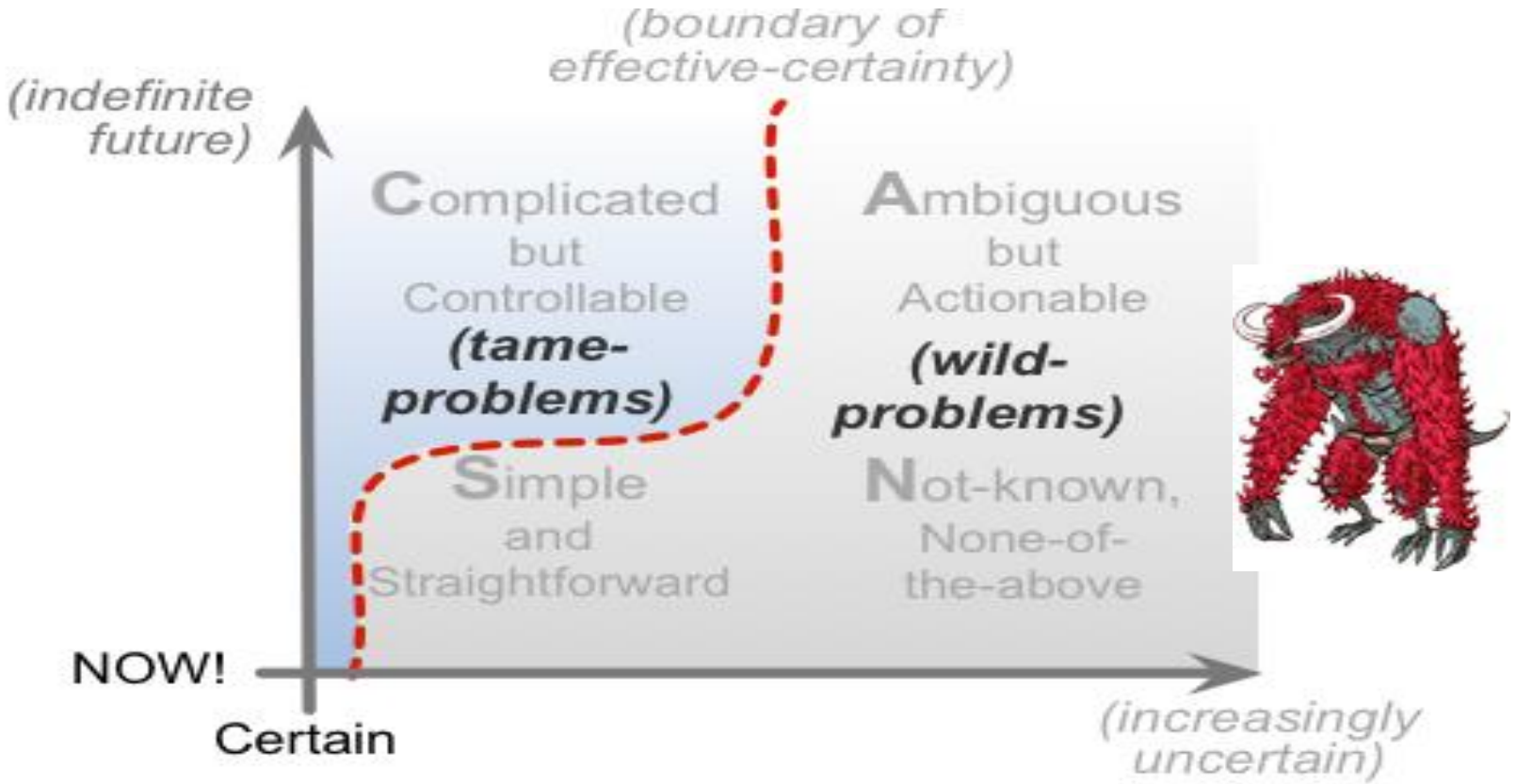
"Excellence is not an act, but a habit."

Aristotle

Dr Emma Vaux

Emma.vaux@royalberkshire.nhs.uk

@VauxEmma


(boundary of effective-certainty)
(indefinite future)
Complicated but Controllable (tame-problems)
Ambiguous but Actionable (wild-problems)
Simple and Straightforward
Not-known, None-of-the-above
NOW!
Certain
(increasingly uncertain)

The Health Foundation
Inspiring Improvement

The measurement and monitoring of safety

Drawing together academic evidence and practical experience to produce a framework for safety measurement and monitoring

Spotlight
April 2013

The Keogh Mortality Review

A promise to learn – a commitment to act

Improving the Safety of Patients in England

National Advisory Group on the Safety of Patients in England

House of Commons
Public Administration Select Committee

Investigating clinical incidents in the NHS

Sixth Report of Session 2014–15

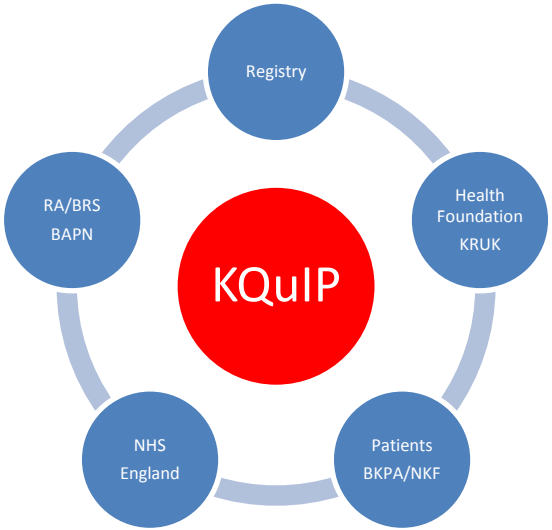
Report, together with formal minutes relating to the report

Ordered by the House of Commons to be printed 24 March 2015

HC 886
Published on 27 March 2015
by authority of the House of Commons
London: The Stationery Office Limited
£0.00

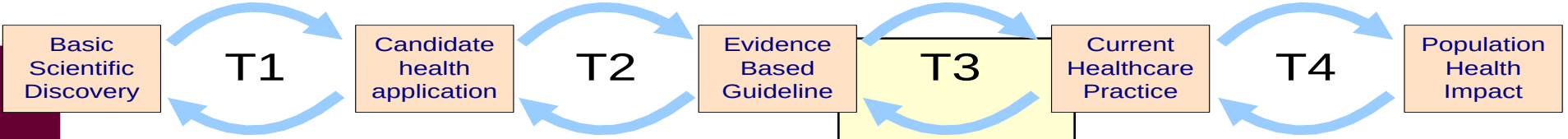
A quality improvement programme for chronic kidney disease

National CKDAudit



RENAL ASSOCIATION
UK RENAL REGISTRY

Translational Research



- Phase 1 & 2 clinical trials
- Observational studies

- Phase 3 clinical trials
- Meta analyses
- Guideline development

- Practice-Based research
- Dissemination research
- Implementation research

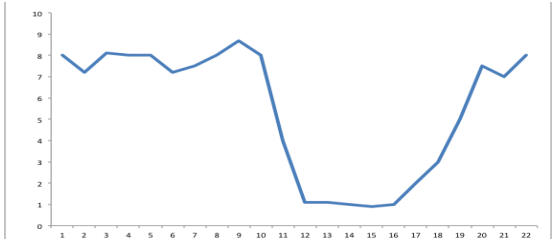
- Epidemiological studies
- Outcomes research
- Population monitoring of mortality, morbidity, benefits & risks

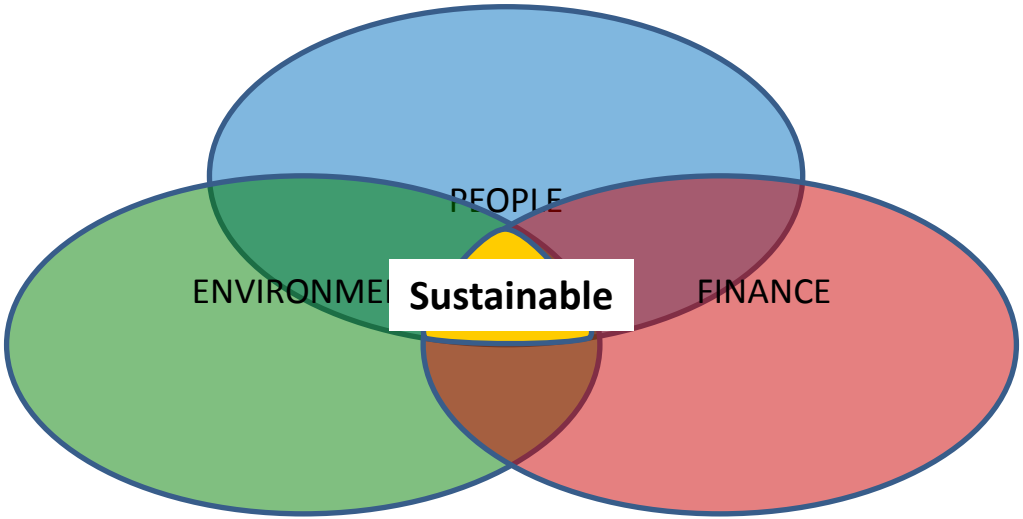
Quality Improvement is a T3 enterprise

Westfall, J. M., J. Mold, et al. (2007). "Practice-Based Research--"Blue Highways" on the NIH Roadmap." JAMA 297(4): 403-406.

Khoury, M. J., M. Gwinn, et al. (2007). "The continuum of translation research in genomic medicine: how can we accelerate the appropriate integration of human genome discoveries into health care and disease prevention?" Genet Med 9(10): 665-74

Building sustainability into quality improvement





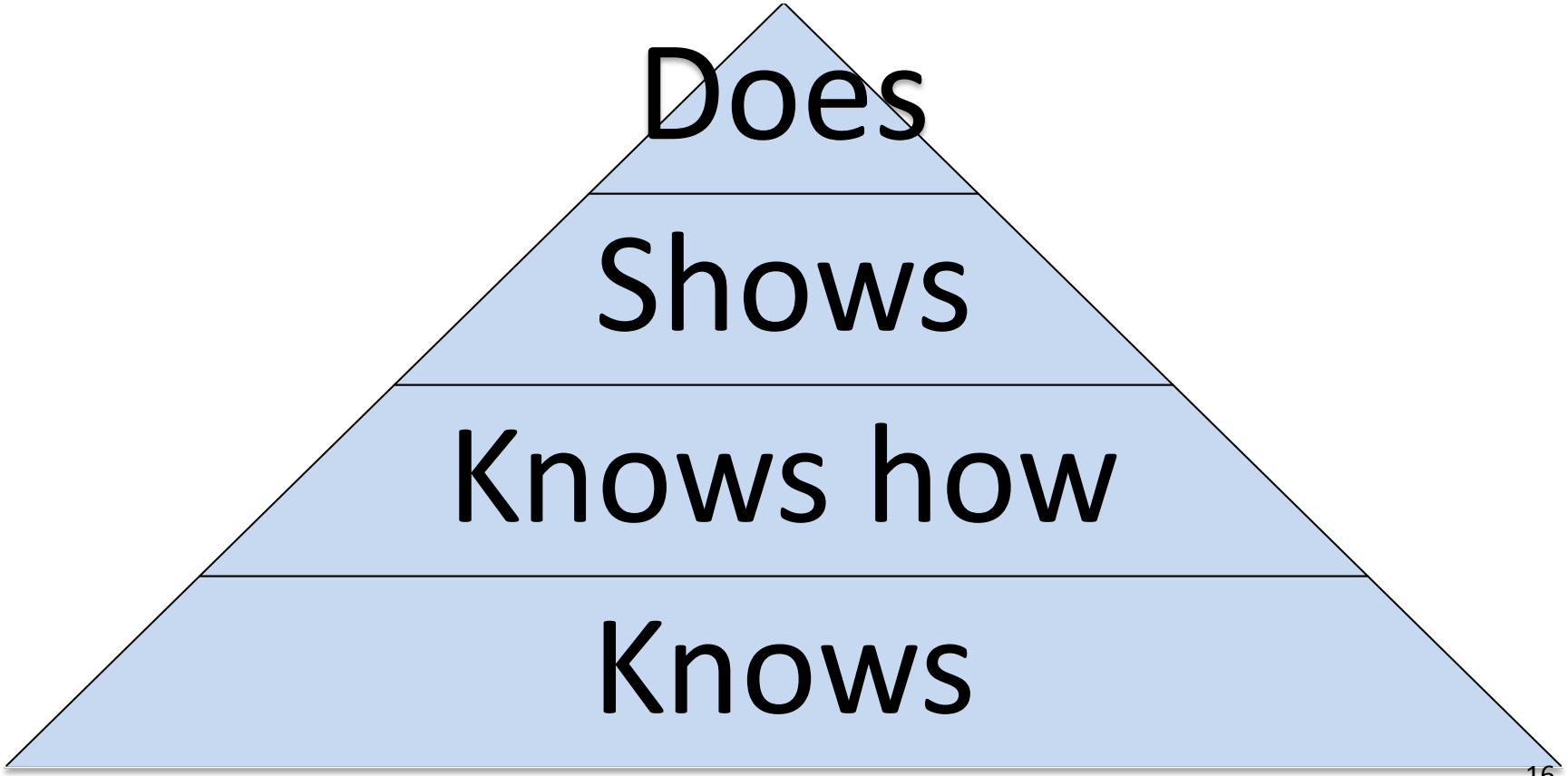
$$\text{VALUE} = \frac{\text{Outcomes for patients \& populations}}{\text{Environmental + Social + Financial impacts (the “triple bottom line”)}}$$

Mortimer F, Isherwood J, Wilkinson A, Vaux E (2017) *In press*

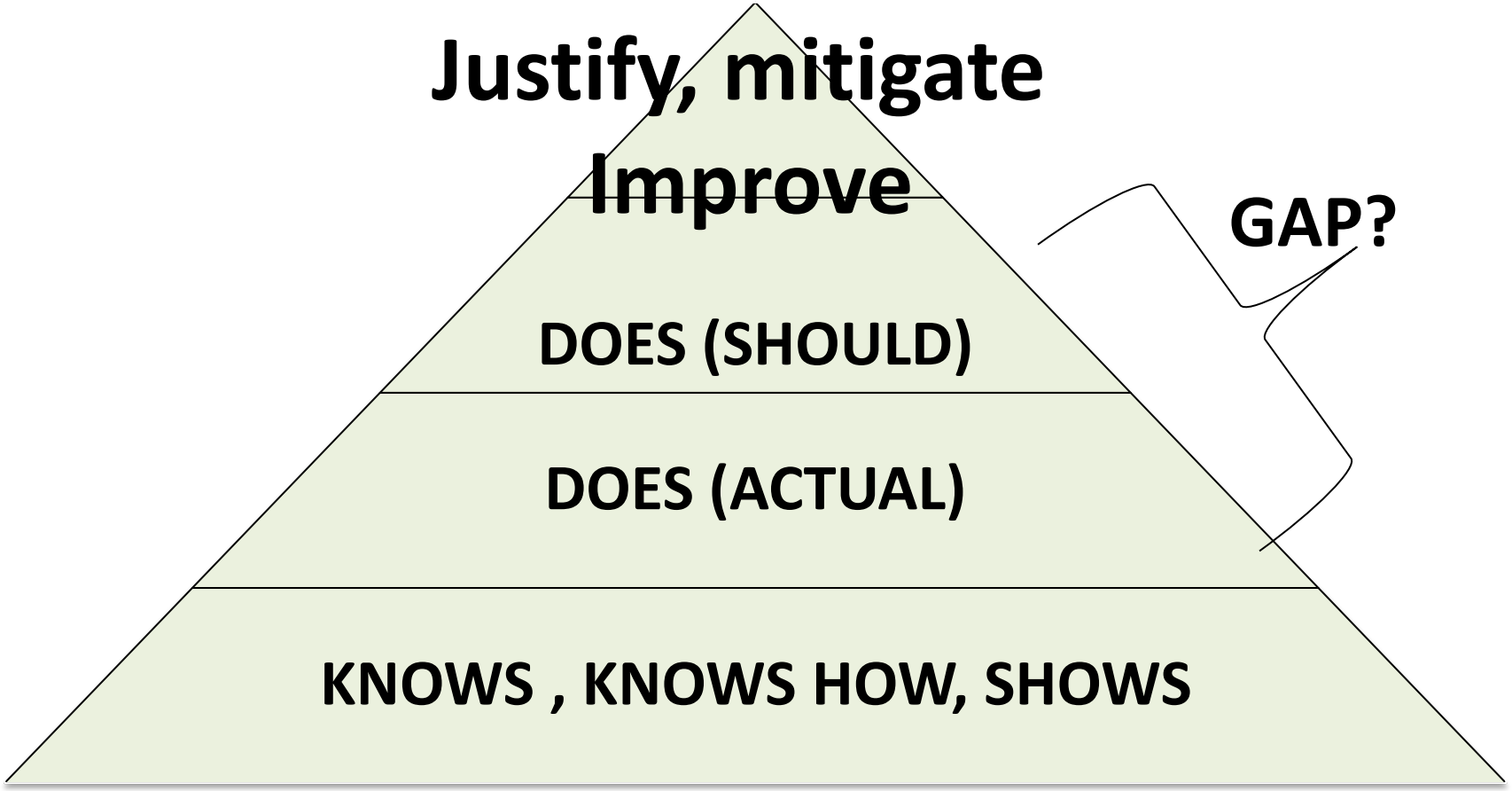
“The standard you walk by is the standard you accept”


Professional knowledge
Professional skills
Health promotion and illness prevention
Research and scholarship
Professional values and behaviours
Leadership and team working
Education and training
Patient safety and quality improvement
Safeguarding vulnerable groups

Miller's triangle of clinical competence



Adapt Miller's triangle of clinical competence



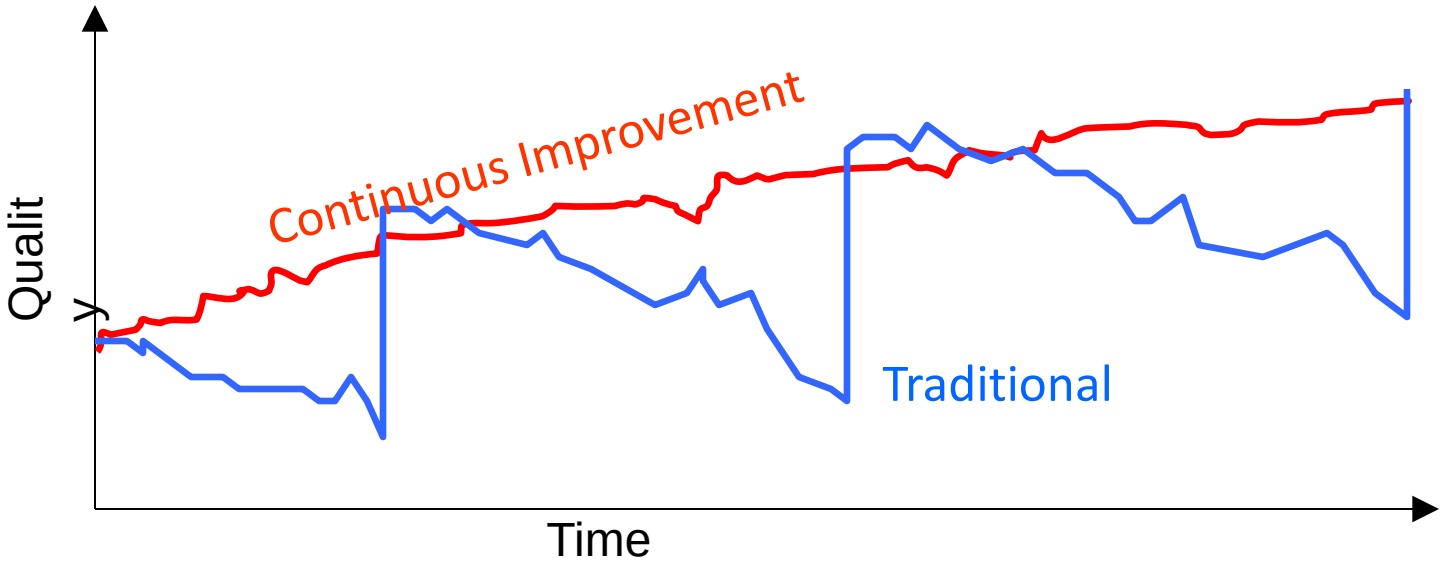
Vaux, 2016

On our own we didn't do anything….
so we formed a committee ….
and still didn't do anything…..

Quality Improvement – training for better outcomes

Key findings from the report
March 2016

Clinical audit as continuous improvement



Quality

'Patient care that focuses on safety, effectiveness and patient experience'

Quality improvement education

Develops our capability and resilience to put quality improvement into action through acquisition, assimilation and application of:

- Knowledge in improvement science, systems and measurement
- Skills in managing complexity, leading change, learning and reflection, and ensuring sustainability
- Training in human factors that impacts those capabilities
- Involvement of patients throughout the process

Systems thinking

Influencing

learning

creativity

Resilience

Managing complexity

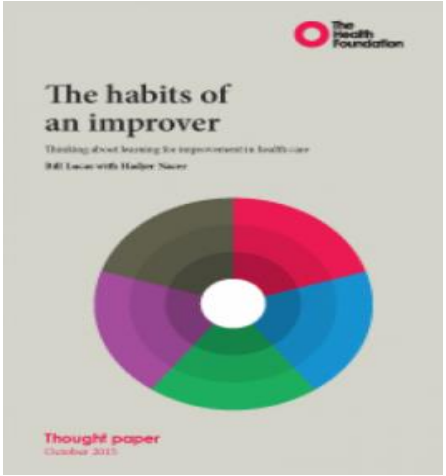
Leading change

Learning & reflection

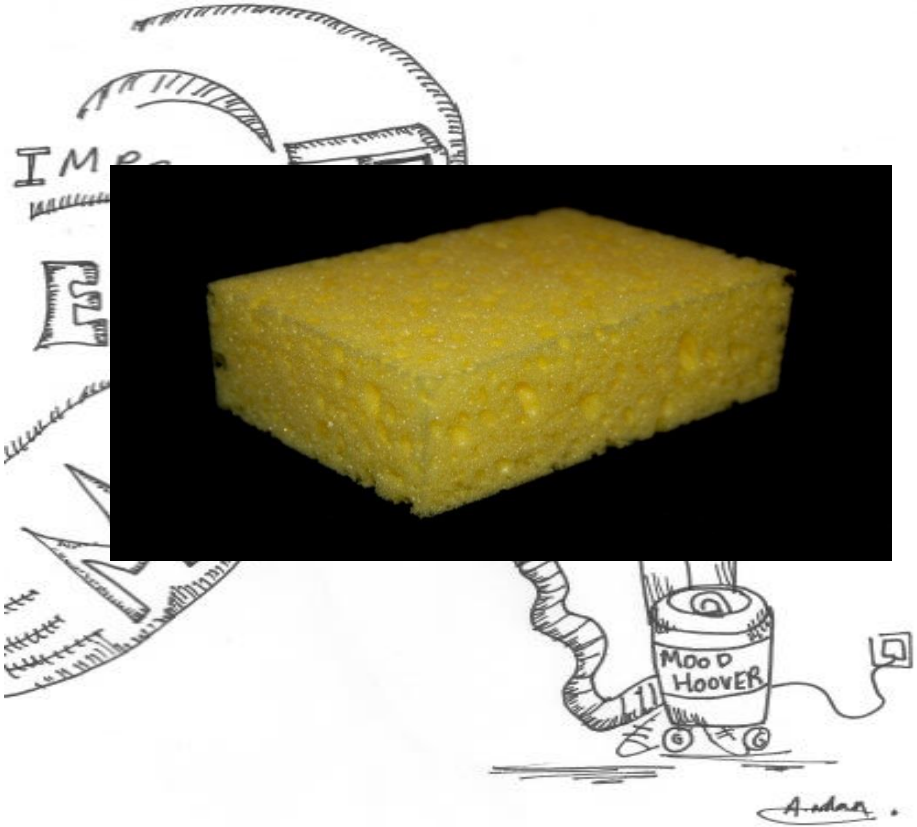
knowledge

Human factors

sustainability




But... why???
it WILL NEVER WORK!
PROJECT X
A. Nolan


MOOD
HOOVER


"Buzz word, Jargon, Really Long acronym, and then Jargon, Awesome Project, Patients!
eh?
A-Adam

Faculty of **Medical Leadership** and **Management**

1. SELF

Doctors must know and understand themselves, their impact on others and be constantly striving to improve. They must be resilient and consistently demonstrate the energy, drive and motivation to lead and work with others for consistently high and improving standards, and thereby improved quality of care for patients in all its dimensions (experience, effectiveness, safety).

SELF-AWARENESS AND SELF-DEVELOPMENT

a) Demonstrates a clear people and patient-centred approach, considering the impact of their

PERSONAL RESILIENCE, DRIVE AND ENERGY

h) Takes full accountability for actions

2. TEAM PLAYER / TEAM LEADER

The effective medical leader has a sophisticated knowledge of establishing and leading teams and how to get the best out of them. Equally they know when to lead and when to follow. They are robust defenders of fairness and justice and strive constantly to create to optimal environment for colleagues to give of their best in the drive for improved clinical care.

EFFECTIVE TEAMWORK

a) Fully participates in multi-disciplinary teams in order

CROSS-TEAM COLLABORATIONS

m) Identifies opportunities for collaboration and partnership, connecting people with diverse perspectives and interests

3. CORPORATE RESPONSIBILITY

The effective medical leader understands and contributes positively to the strategic direction and operational delivery of the organisation in which they work. They espouse and practice the seven Principles of Public Life[ii] and Good Medical Practice[x]. They can successfully navigate the competing demands between the needs of the individual and the needs of the population. Furthermore, they can successfully balance their role in day to day delivery with a focus on anticipating future challenges a future innovation.

CORPORATE TEAM PLAYER

a) Ensures adherence to the principles of good corporate and clinical governance

b) Understands the competing

CORPORATE CULTURE, IMPROVEMENT AND INNOVATION

g) Relentlessly identifies and supports opportunities for improvement

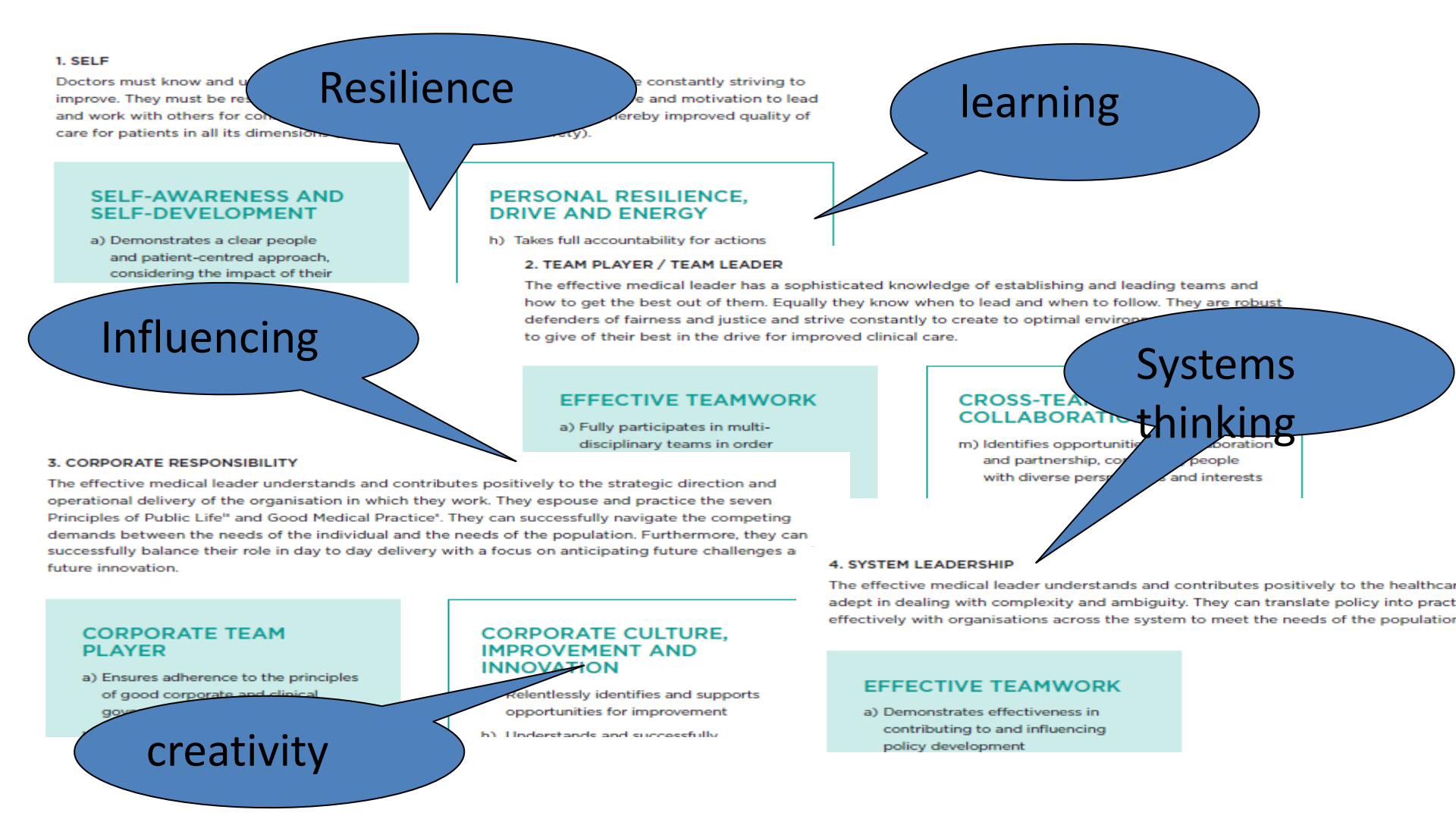
h) Understands and successfully

4. SYSTEM LEADERSHIP

The effective medical leader understands and contributes positively to the health
adept in dealing with complexity and ambiguity. They can translate policy into p
effectively with organisations across the system to meet the needs of the popula

EFFECTIVE TEAMWORK

a) Demonstrates effectiveness in contributing to and influencing policy development


1. SELF
Doctors must know and u
improve. They must be re
and work with others for co
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e and motivation to lead
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ety).
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h) Takes full accountability for actions
Resilience
learning
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gov
CORPORATE CULTURE, IMPROVEMENT AND INNOVATION
Relentlessly identifies and supports opportunities for improvement
h) Understands and successfully
creativity
EFFECTIVE TEAMWORK
a) Demonstrates effectiveness in contributing to and influencing policy development

ACADEMY OF MEDICAL ROYAL COLLEGES

Our approach

HSC Health and Social Care

NHS Health Education England

NHS Education for Scotland

GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

The Health Foundation Inspiring Improvement

The Foundation Programme

Royal College of Nursing

The Royal College of Midwives

NHS Employers

FACULTY OF PUBLIC HEALTH

MAKING PEOPLE COUNT FUTURE FOCUSED FINANCE

BMA

Medical Schools Council

Royal College of Obstetricians and Gynaecologists

Setting standards to improve women's health

The Royal College of Anaesthetists

ASI ASSOCIATION FOR THE STUDY OF MEDICAL EDUCATION | GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

RCS ADVANCING SURGICAL STANDARDS

RCGP Royal College of General Practitioners

Royal College of Physicians Setting higher medical standards

Faculty of Medical Leadership and Management

JRCPTB Joint Royal Colleges of Physicians Training Board

The Faculty of Intensive Care Medicine

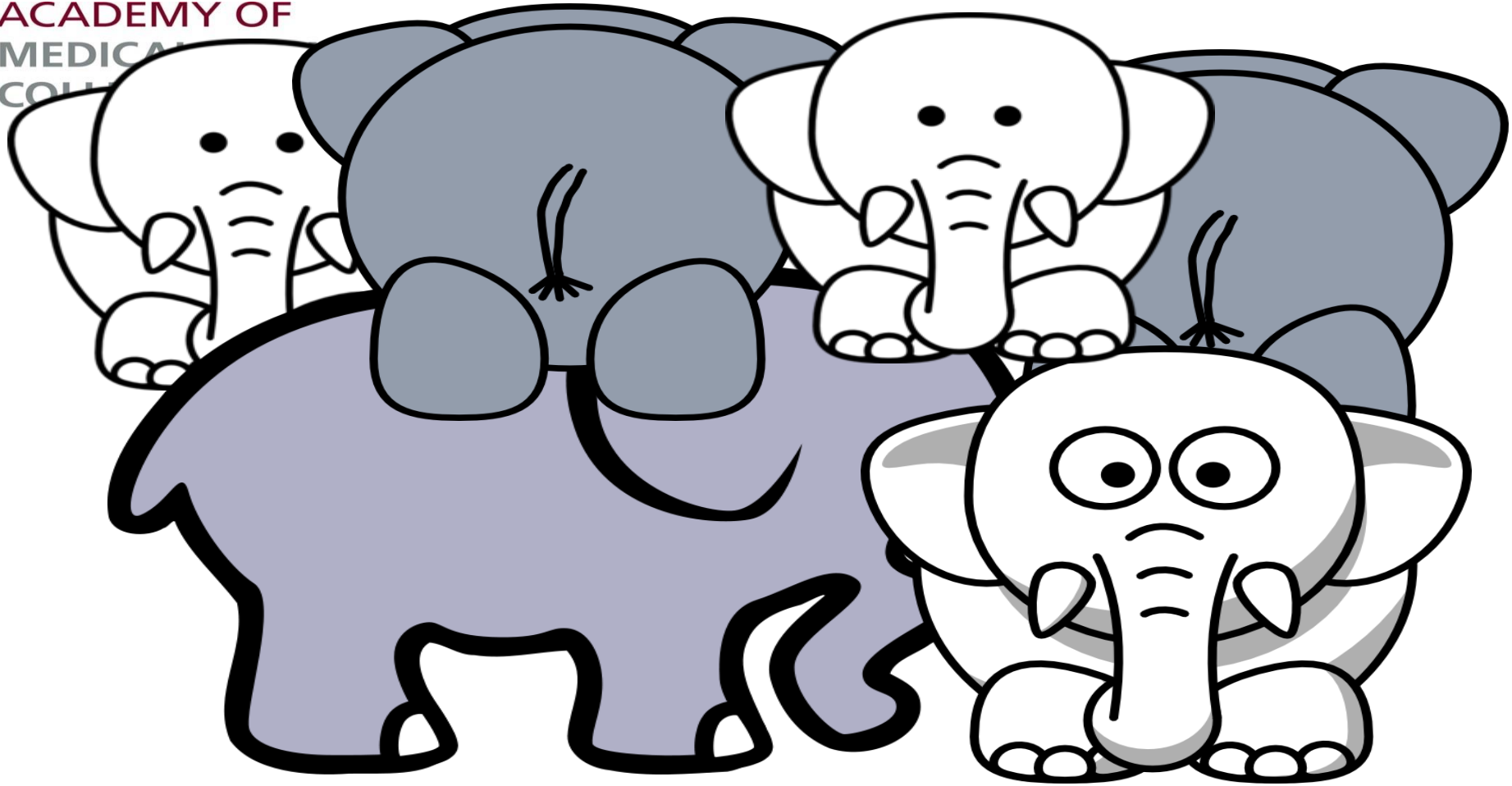
Council of Deans of Health

COPMeD CONFERENCE OF POSTGRADUATE MEDICAL DEANS OF THE UNITED KINGDOM

NHS Improving Quality

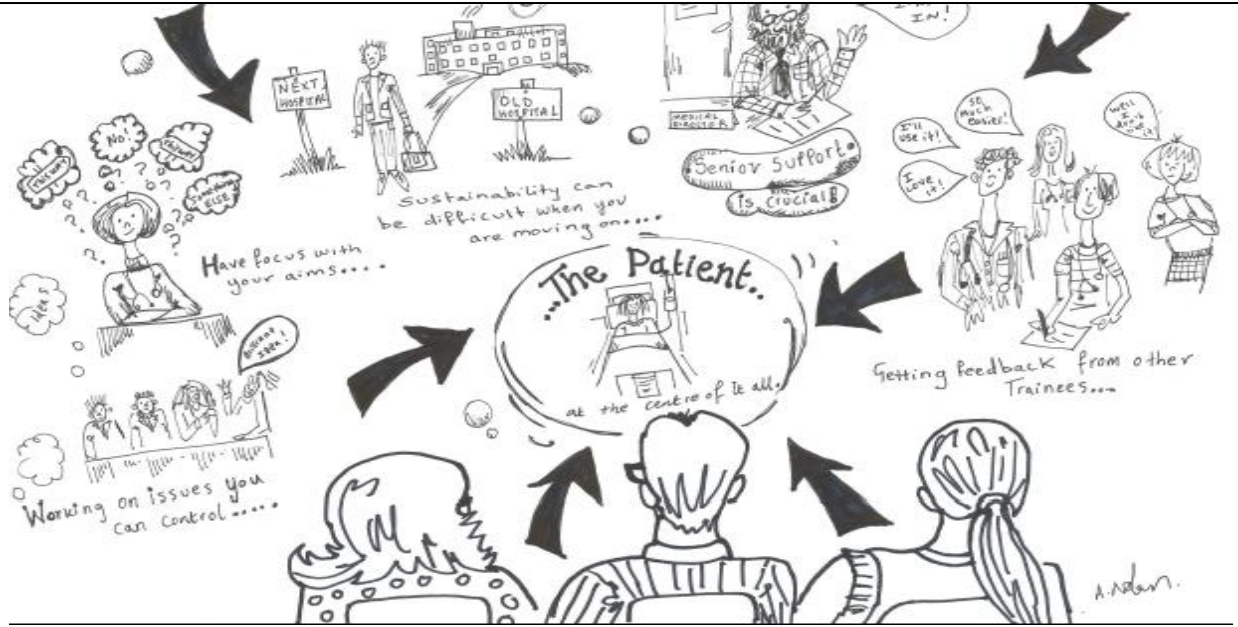
Key recommendations

ACADEMY OF
MEDICA
COLL



"We should start with the patient. It is important that quality improvement starts with what is important and not with what is easy to address"

Patricia Peattie, Chair Academy Patient Lay Group



Special thanks..... Clare Owen, Ross Scrivener, Julia Taylor, Ed Prosser-Snelling, Rose Jarvis

@VauxEmma

KQuIP/UKRR Regional Day
Yorkshire & Humber

6th July 2017 – 18.50-19.40

Presentation of regional projects

THINK KIDNEYS

KQuIP

Improvement Academy

Part of the **Yorkshire & Humber AHSN**

DDIP: Diabetes & Dialysis Improvement Project

Dr Nicole Williams – ST7 Renal medicine
Dr Mark Wright – Renal Consultant
Dr Michael Mansfield – Diabetes Consultant
St James' University Hospital, Leeds

6th July, 2017

Yorkshire & Humber partners
Academic Health Science Network

Our problem and aim (1)

- It has been noted that there is a persistent cohort of haemodialysis patients on inpatient wards with diabetic foot complications

- Dialysis patients are almost three times more likely to have an amputation than a non-dialysis dependent diabetic patient

- Two-thirds of diabetic HD patients die within two years of an amputation

Pernat *et al.,* (2016)BMJ Open Diabetes Research & Care

Our problem and aim (2)

- Our aim:
  - To improve the care of heamodialysis patients with diabetes to see if we can reduce the number of foot complications

What we did (1)

- A questionnaire to the heamodialysis patients to find out about
  - Diabetes education
  - Foot care & complications
  - Eye care & complications

- 94 completed questionnaires (185)
  - 30 patients had a foot complication related to diabetes

What we did (2)

- Introduced a DDIP proforma
  - Reminder for foot check/eye checks
  - Contact details for patients' diabetes care
  - Contact details for patients' podiatry service

- Talks about DDIP at HD study days attended by nurses and CSWs

DDIP Diabetes & Dialysis Improvement Project.

DDIP has been set up to improve foot outcomes in dialysis patients with diabetes through multi-disciplinary team care.

Patient Details/Addressograph Name..... DOB..... NHS no.....	Renal Consultant..... Dialysis Unit..... Days.....
Type of diabetes: Insulin Controlled ☐ Tablet Controlled ☐ Diet Controlled ☐	**Diabetes Medication:** ....
Diabetes care: GP ☐ Hospital Diabetes centre ☐ (Hospital Name.....) Community Diabetes centre ☐ (Centre Name.....) Other ☐	**Contact for Diabetes Care:** Name..... Tel no..... Fax no.....
Target HbA1C..... Latest HbA1c..... Date.....	**Dietician input** Yes ☐ No ☐ NB - renal dieticians may need to liase with specialist diabetes dieticians
Eye care: Date of last eye check..... Date next due..... **Retinal screen - at least annually**	Diabetic Eye Complications: ....
Foot Care: Date of last foot check..... Date next due..... **Foot check - at least six monthly**	Diabetic Foot Complications: ....

Concerns about diabetic foot complications (ulcers, infections, necrotic areas) should be referred to podiatry or the Hot Foot team.
Concerns about overall diabetic control should be discussed with the contact for diabetic care identified above.

Future Plans

- Liaison with podiatry service regarding teaching sessions for foot inspection
  - Local service has funding for education programme
  - Pilot HD unit

What we learned

- This is a long term project
  - Unlikely to see short term benefit

- Engagement of already busy nursing colleagues
  - Keen to help but other work pressures
  - Trial feasibility of introducing foot inspections

Improvement Academy

Part of the **Yorkshire & Humber AHSN**

Dialysis START programme

Liz Green – Predialysis Specialist Nurse
(on behalf of York DSP team)
York NHS Foundation Trust

6th July, 2017

Yorkshire & Humber Academic Health Science Network partners

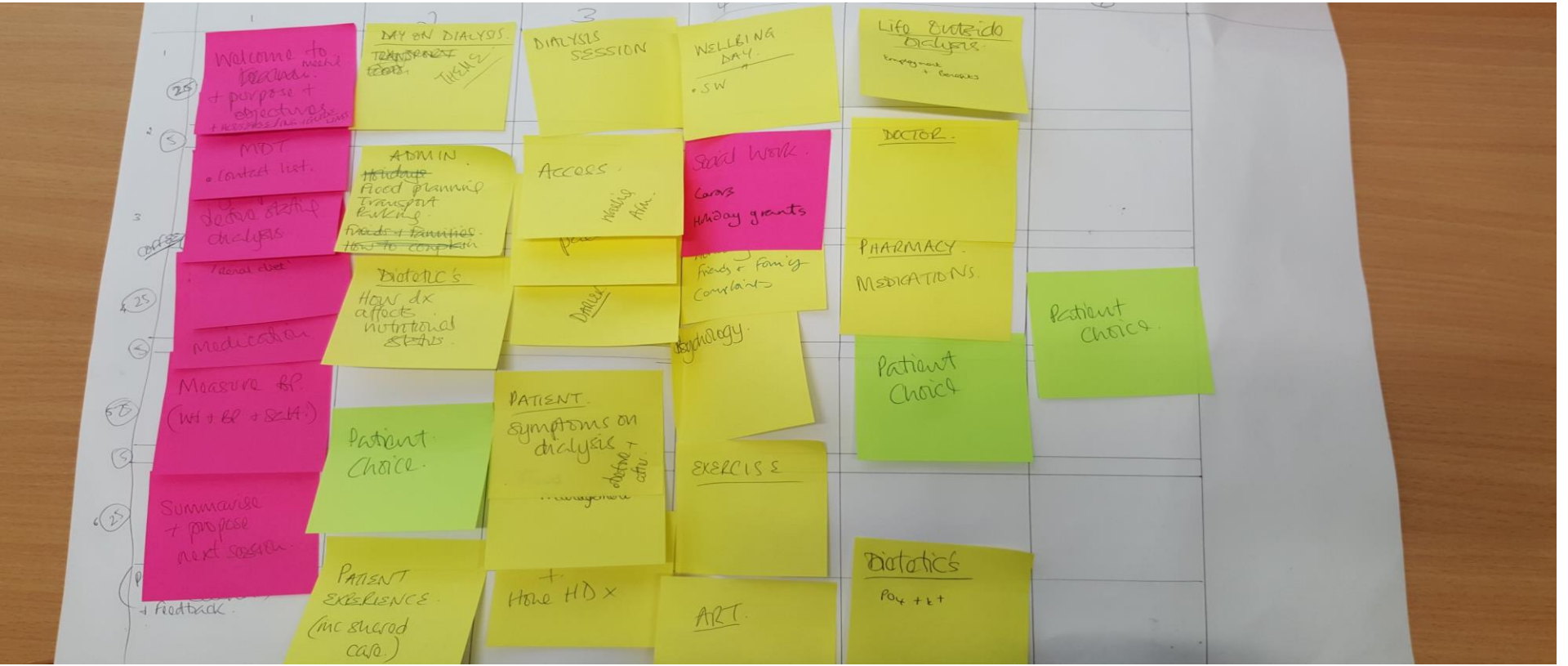
Our problem and aim

- Starting haemodialysis can be a difficult and daunting experience for patients.
- We wanted to reduce the anxiety of starting dialysis by sharing the knowledge of what happens in the dialysis unit.

What we did

- MDT members developed a plan for topics to be covered to include expert patients and group facilitator
- Each session was constructed around a theme that focussed on the patient
- In a room close to dialysis unit – over 4 weeks, 2 hours each session (started with 6 weeks – but kept patient choice sessions and expert patient)
- Used a combination of lectures, hands-on, self care (using dialysis machines and BP monitors), discussions, included breaks to promote networking

How we did it?.....


Welcome to
+ purpose +
objectives
MDT
Medication
Measure BP
Summarise
+ propose
next session
DAY ON DIALYSIS
ADMIN
Flood planning
Transport
Parking
Dietetic's
How dx
affects
nutritional
status
Patient
Choice
DIALYSIS
SESSION
ACCESS
PATIENT
symptoms on
dialysis
PATIENT
EXPERIENCE
(inc shared
care)
Home HDx
WELLBING
DAY
SW
Social Work
Carers
Holiday grants
Friends + Family
Constraints
Psychology
EXERCISE
ART
Life Outside
Dialysis
DOCTOR
PHARMACY
MEDICATIONS
Patient
Choice
Patient
Choice
Dietetics

.....How we did it

Dialysis Start – programme structure

Week 1 – **Planning for dialysis**
Introduction to the Renal (multidisciplinary) team
Symptoms pre dialysis
Renal 'diet'
Blood pressure management and self monitoring
Consideration of dialysis access

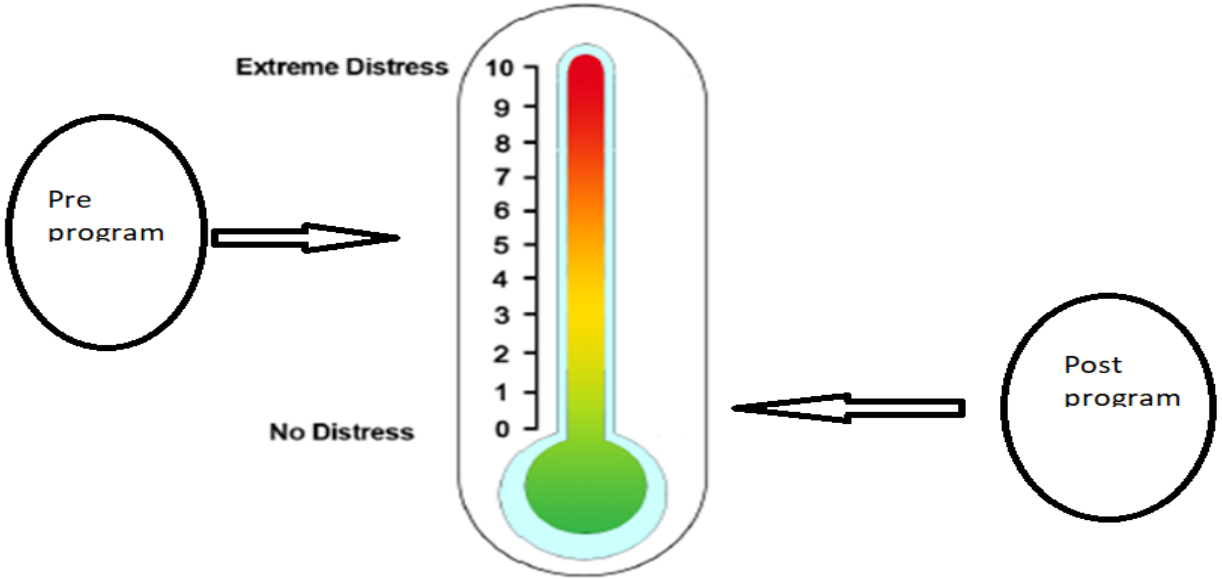
Week 2 - **A Day on Dialysis**
Renal admin – Transport to the dialysis unit, car parking and help with viewing blood results
Patient and nurse explaining what to expect on dialysis
Meet the dialysis machine

Week 3 - **Staying well on dialysis**
Going on holidays
Renal social work – benefits, carer support, grants
Exercise on dialysis
Art in the dialysis unit
Introduction to psychology service
Looking after your diet and fluid intake on dialysis

Week 4 – **Taking control on dialysis**
Sharing the Care with the dialysis team & explore Self Care
Hands on time with your dialysis machine
Pharmacy and medications
Evaluation

What we learned – patient and carer evaluation

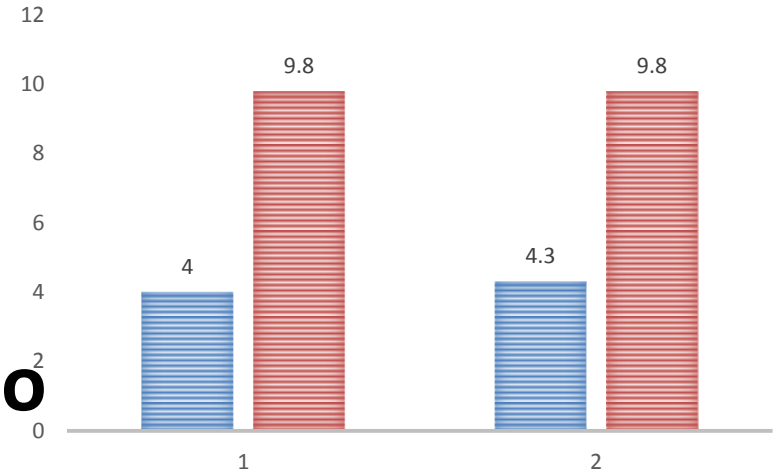
How would you rate your current level of distress related to starting dialysis? (Please circle a number that applies to you).



What we learned – patient and carer evaluation

- **Preparedness for starting dialysis**

- **Confidence in ability to cope on dialysis**



What we learned

- We feel that we have learnt that we can help patients look at dialysis in a more positive manner by taking more control of their treatment
- We have a feeling that we've delayed dialysis in this cohort of patients.

Calcium management following surgical parathyroidectomy

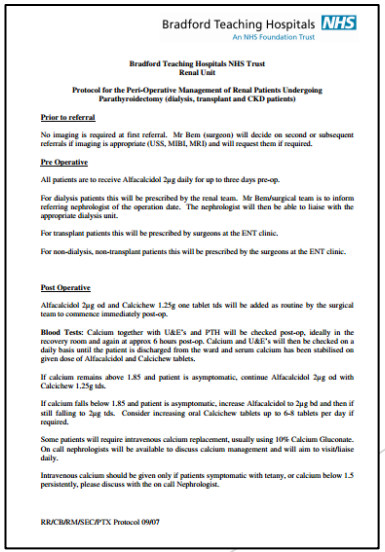
Dr Rachael Czajka, CT2, Bradford Royal Infirmary

Dr John Stoves, Consultant Nephrologist, Bradford Royal Infirmary

Background

- Hyperparathyroidism is a common complication of CKD
- Treatment options include medical and surgical management
- Parathyroidectomy may be associated with ‘hungry bones syndrome’

- Current Guidelines (2007)
  - One size fits all
  - Monitoring frequency unclear
  - Adherence unclear



Bradford Teaching Hospitals NHS
An NHS Foundation Trust

Bradford Teaching Hospitals NHS Trust
Renal Unit

Protocol for the Peri-Operative Management of Renal Patients Undergoing Parathyroidectomy (dialysis, transplant and CKD patients)

Prior to referral

No imaging is required at first referral. Mr Bem (surgeon) will decide on second or subsequent referrals if imaging is appropriate (USS, MIBI, MRI) and will request them if required.

Pre Operative

All patients are to receive Alfacalcidol 2µg daily for up to three days pre-op.

For dialysis patients this will be prescribed by the renal team. Mr Bem/surgical team is to inform referring nephrologist of the operation date. The nephrologist will then be able to liaise with the appropriate dialysis unit.

For transplant patients this will be prescribed by surgeons at the ENT clinic.

For non-dialysis, non-transplant patients this will be prescribed by the surgeons at the ENT clinic.

Post Operative

Alfacalcidol 2µg od and Calcichew 1.25g one tablet tds will be added as routine by the surgical team to commence immediately post-op.

Blood Tests: Calcium together with U&E's and PTH will be checked post-op, ideally in the recovery room and again at approx 6 hours post-op. Calcium and U&E's will then be checked on a daily basis until the patient is discharged from the ward and serum calcium has been stabilised on given dose of Alfacalcidol and Calcichew tablets.

If calcium remains above 1.85 and patient is asymptomatic, continue Alfacalcidol 2µg od with Calcichew 1.25g tds.

If calcium falls below 1.85 and patient is asymptomatic, increase Alfacalcidol to 2µg bd and then if still falling to 2µg tds. Consider increasing oral Calcichew tablets up to 6-8 tablets per day if required.

Some patients will require intravenous calcium replacement, usually using 10% Calcium Gluconate. On call nephrologists will be available to discuss calcium management and will aim to visit/liaise daily.

Intravenous calcium should be given only if patients symptomatic with tetany, or calcium below 1.5 persistently, please discuss with the on call Nephrologist.

RR/CB/BRM/SEC/PTX Protocol 09/07

Our aim

- Review data from previous results to predict which patients are most predisposed to developing hypocalcaemia post parathyroidectomy
- Establish the need for tailoring of the guideline and other interventions to minimise this risk

What we did

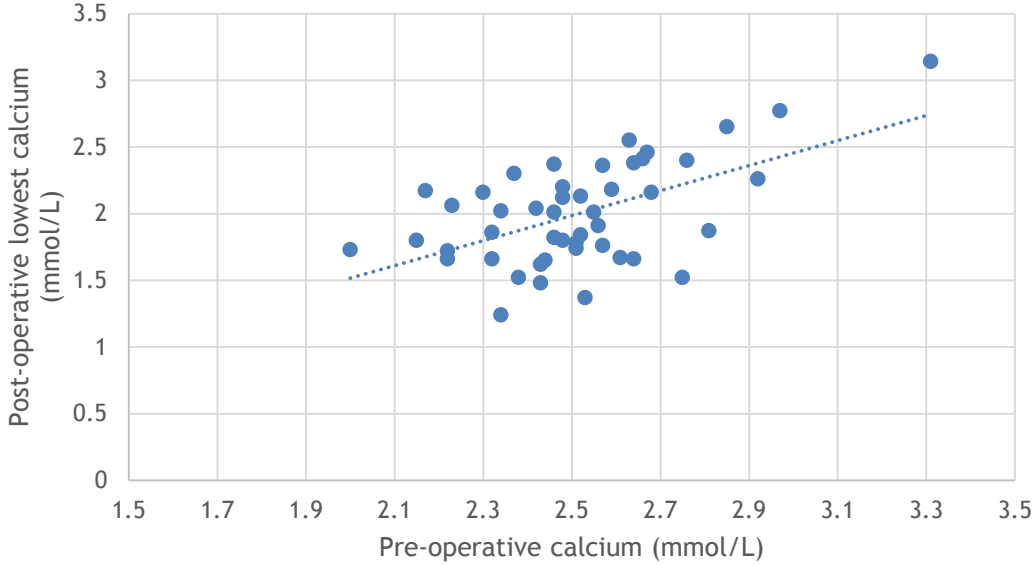
Reviewed data for all patients who underwent parathyroidectomy for hyperparathyroidism at the Bradford Royal Infirmary between 2006 and 2016

- 48 patients
- 36 haemodialysis, 4 PD, 3 pre dialysis, 5 transplant
- 24 female, 24 male
- 36 secondary, 12 tertiary

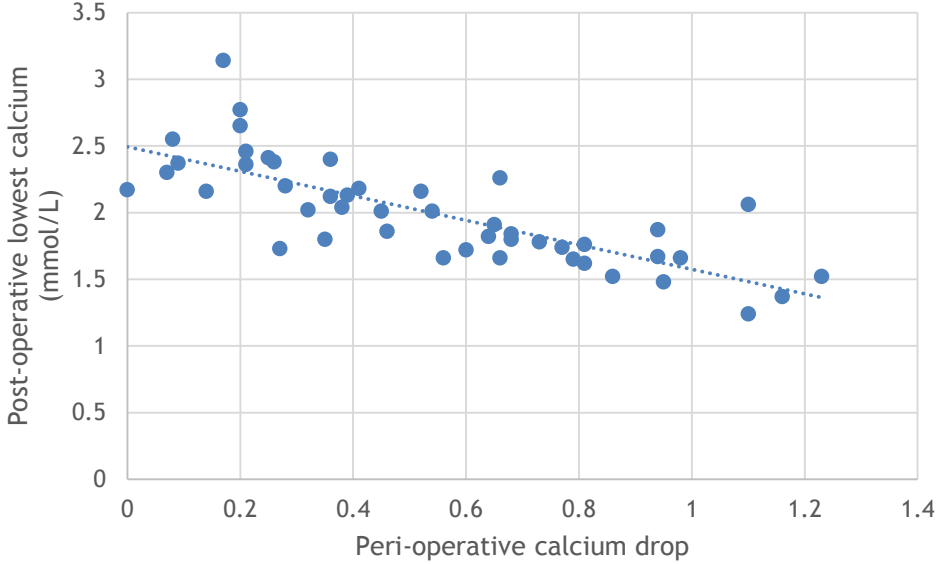
Review of pre-, peri- and post-operative, and most recent calcium, phosphate, PTH and alkaline phosphatase levels.

Results

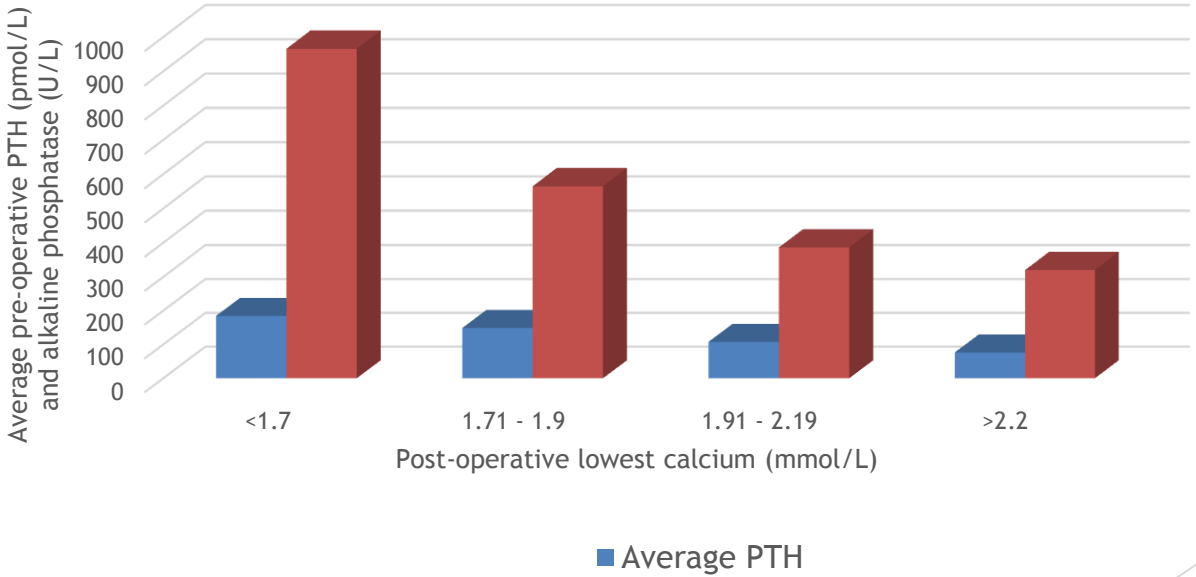
Pre-operative calcium vs *post-operative* calcium nadir



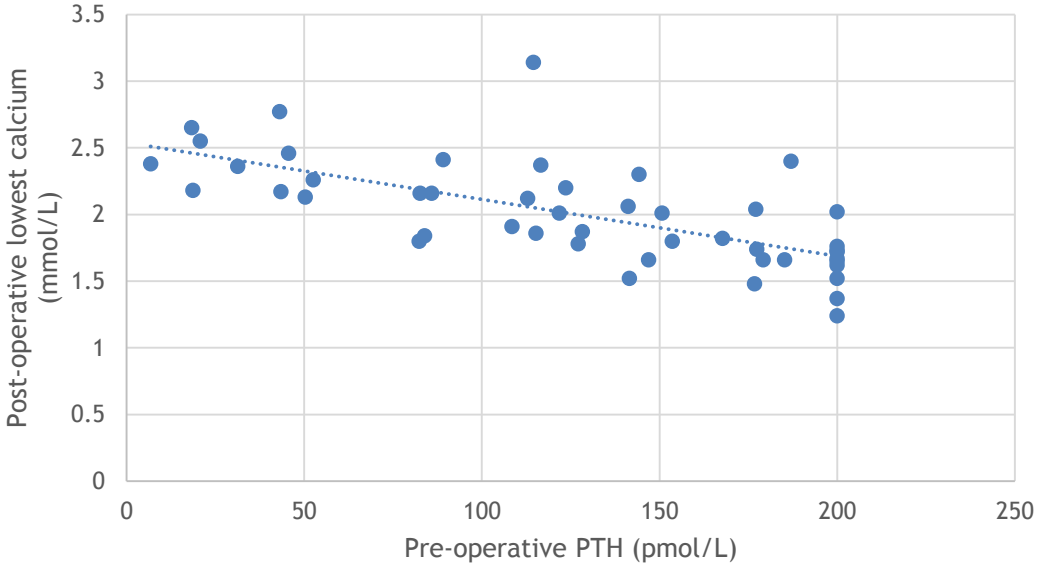
Peri-operative drop in calcium vs *post-operative* calcium nadir



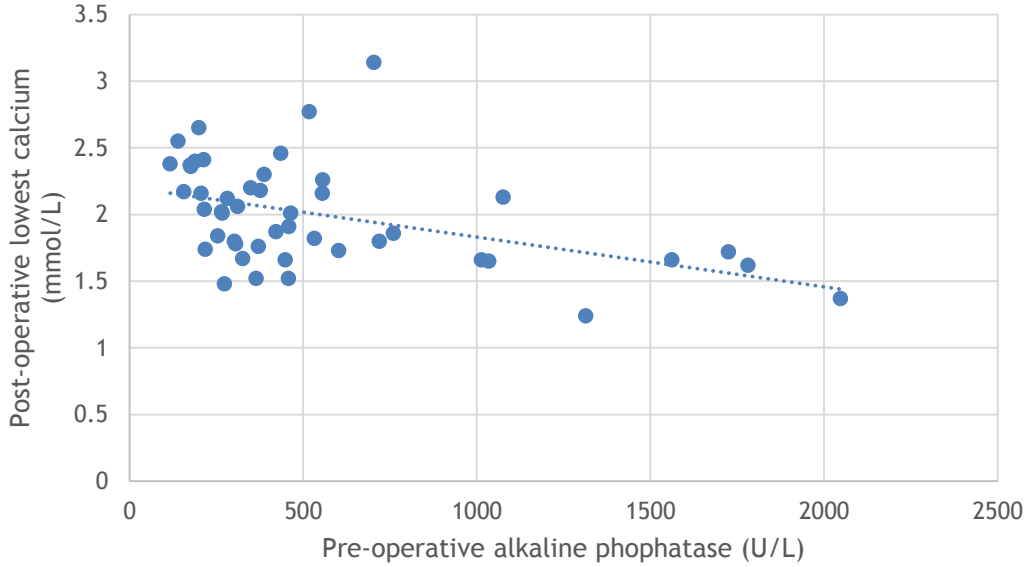
Pre-operative PTH and alkaline phosphatase vs *post-operative* calcium nadir



Pre-operative PTH vs *post-operative* calcium nadir



Pre-operative alkaline phosphatase vs *post-operative* calcium nadir



What we learned

- Higher pre-operative PTH and alkaline phosphatase levels are helpful predictors of lower post-operative serum calcium levels and peri-operative reduction in serum calcium

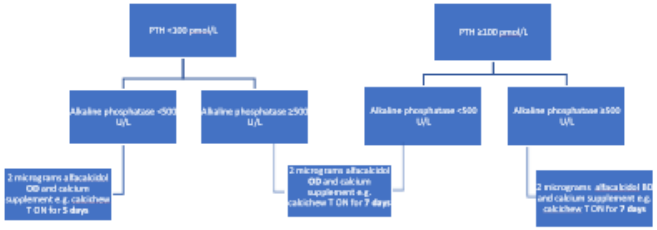
Our proposals for quality improvement

- Guideline update
  - A clearer pre-operative assessment and management plan
  - An algorithm for pre-operative calcium loading based on baseline PTH and alkaline phosphatase
  - A clearer peri- and post-operative monitoring plan
  - A clearer plan for management of post-operative hypocalcaemia
- Dedicated co-ordinator for inpatients
- Start a parathyroidectomy care bundle
- Produce an e-bundle for EPR

Guidelines for Parathyroidectomy in Renal Patients

Pre-operative

- Check baseline calcium, magnesium, phosphate, alkaline phosphatase and PTH approximately two weeks pre-op.
- Use 1.5mmol/litre calcium dialysate for all haemodialysis patients, unless Ca >3.0.
- Prescribe pre-op calcium supplementation as per algorithm using pre-op bloods.



Post-operative

- Continue pre-operative regimen.
- Ensure cinalcalcet has been stopped.
- Blood test monitoring*
- Haemodialysis patients will need haemodialysis on day 1 post op with pre-dialysis bloods.
- Management of hypocalcaemia as below
- Review phosphate binder medication and dialysate calcium.

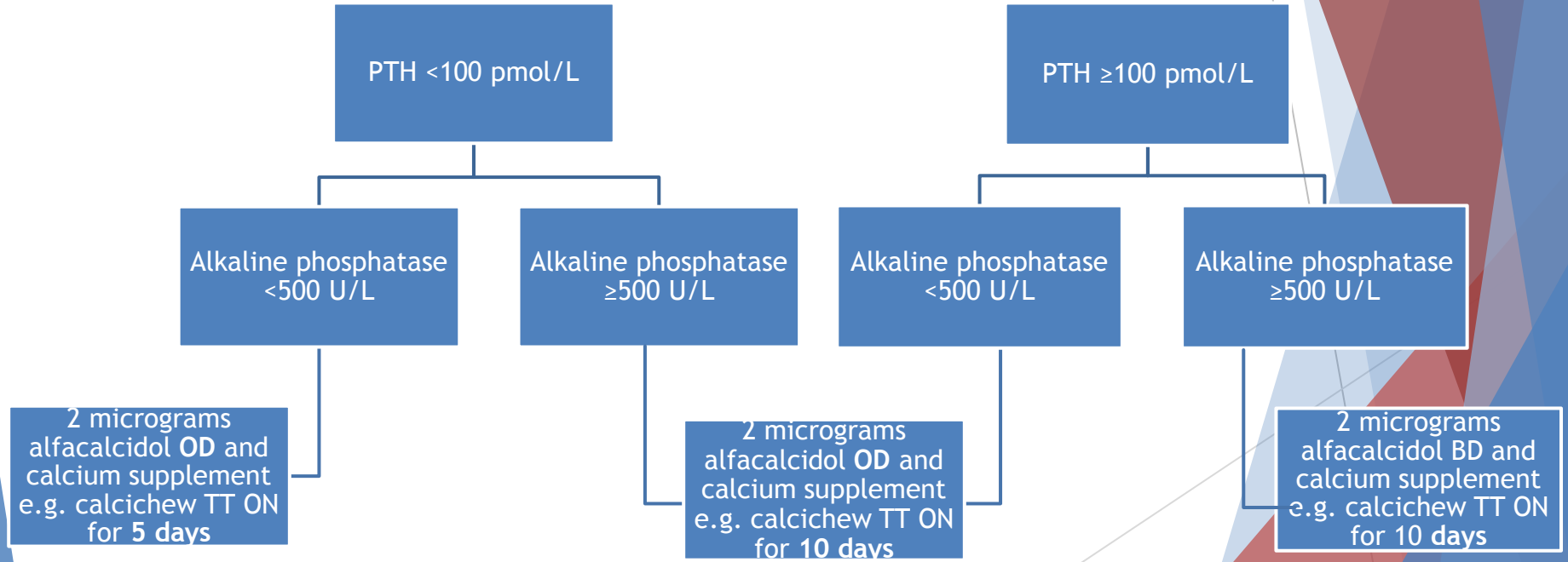
*Minimum blood test monitoring

- Immediately post op - PTH, calcium, magnesium, U&E.
- 6 hours post op - calcium, magnesium, U&E.
- 24 hours post op - PTH, calcium, magnesium, U&E.
- At least daily thereafter (according to results) until stable.

Management of hypocalcaemia

- Ca >2.0 and <3.0 and patient is asymptomatic - continue regimen but review trend of calcium.
- Ca <2.0 and patient is asymptomatic - increase frequency / dose of alfacalcidol and/or calcium supplement).
- Ca <1.8 give IV calcium as described below, increase frequency / dose of alfacalcidol and/or calcium supplement).
- Any symptomatic patient should be given IV calcium gluconate (**10ml IV calcium gluconate 10% over 30 minutes followed by continuous infusion of 40ml IV calcium gluconate 10% in 1 litre of 0.9% NaCl of 5% glucose over 4-8 hours**)

Proposed pre-loading algorithm



Summary

- Evidence suggests that the surgical parathyroidectomy pathway in Bradford can be improved
- QI project ongoing around guideline review, pathway co-ordination and pathway automation
- Measurement will include changes in structure, process and clinical outcomes

Questions and suggestions

References

- NICE: https://www.nice.org.uk/guidance/ta117
- KDOQI: http://www2.kidney.org/professionals/kdoqi/guidelines_pedbone/ref.htm#ref519
- http://bestpractice.bmj.com/best-practice/monograph/1107/treatment/step-by-step.html

Review of MSSA bacteraemias in dialysis population

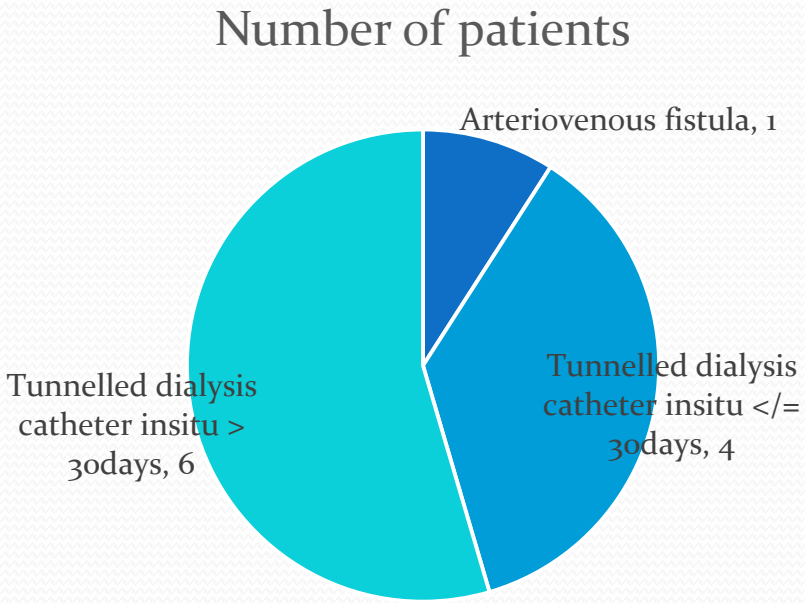
L Gullapudi, Renal Registrar

6th July, 2017

Our Problem and Aim

- Increased incidence of MSSA bacteraemia in renal unit, Newcastle.
- Root cause analysis of chronic haemodialysis pts with MSSA bacteraemia.
- Period included: May to October 2015.
- Total of 11 patients.
- Total incidence in previous year 6 bacteraemias.
- Aim is to identify the underlying cause and implement changes to reduce the bacteraemia rate

Distribution of patients



What we did

- For TDCs </= 30days old
  - Review of pre-procedure documentation and preparation
  - Recent line or skin tract infections
  - Temporary access insitu at the time of TDC insertion?

- For AVF associated bacteremia- review of buttonhole needling training documentation, use of picks, pre-needling chlorhexidine use

Continued..

- For TDCs >30days old:
  - In the 2 weeks prior to bacteraemias
    - Documentation of exit site reviews at each session
    - Documentation of aseptic precautions each session
    - Timeliness of treatment of exit site infections
    - Access dysfunction, including need specific interventions
  - Review of adherence to biopatch protocol
    - For MSSA colonised patients- after 2nd exit site infection to be routinely used

What we learned

- Nonadherence to the existing protocol of bio-patch
- Suboptimal pre-procedure preparation for the patients who undergo line insertion in interventional radiology
- Poor documentation - aseptic technique
- Suboptimal cannula care documentation
- Patients who had line exchanges over guidewire formed a significant proportion (2 out of 4) of bacteraemia in TDC <30 days group.

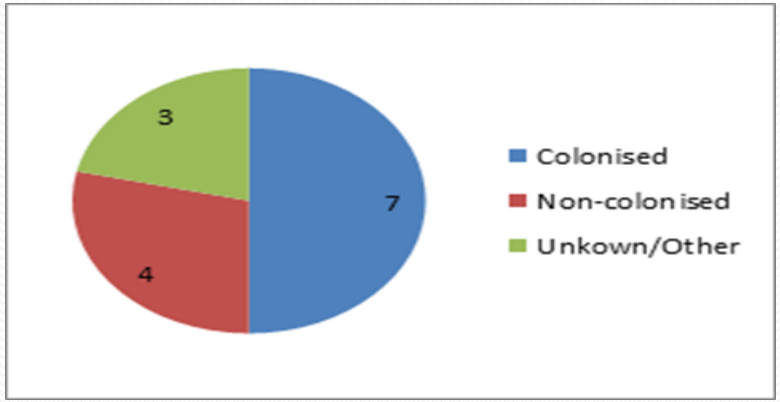
What we did

- Existing biopatch protocol simplified.
- Pre-insertion checklist standardised
- Develop Antimicrobial bundles for high risk groups
- ANTT documentation audit.
- Audit on guidewire exchanges (Oct-Dec 2015):
  - 9 procedures performed
  - In 4 patients- less risky approach could have used
  - Recommendation: Requests for guidewire exchanges should be via MDT

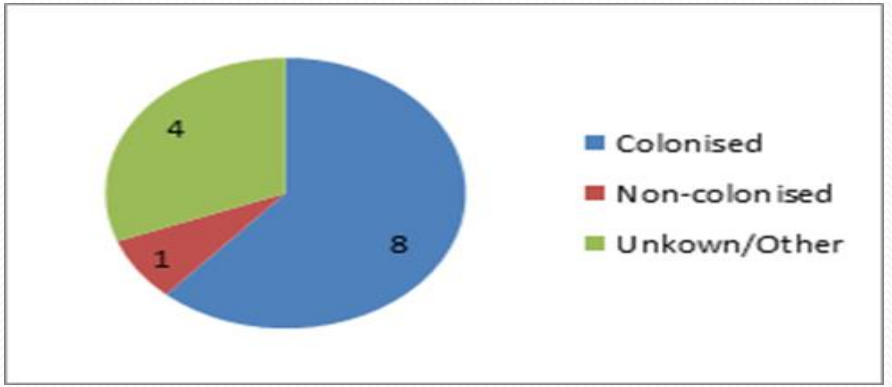
Sheffield Colonisation rates

Bacteraemia episodes according to colonisation

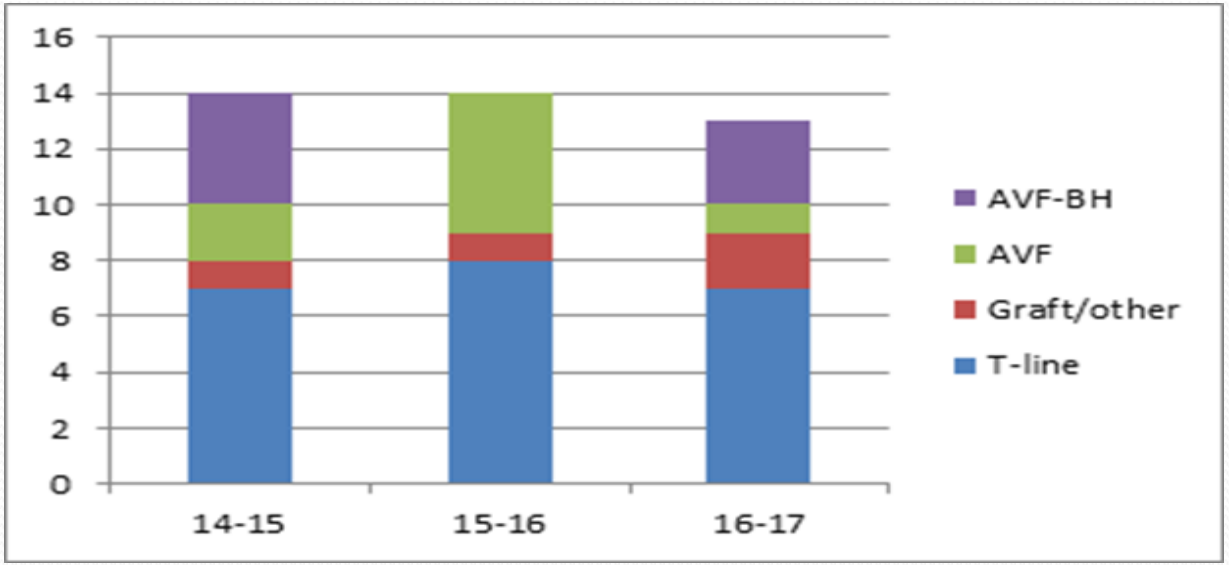
2015/16 data:



2016/7 data:



Could we limit screening to specific groups?



Thank you