Developing a Standardised Approach to Measuring Blood Pressure at Renal Outpatient Clinics

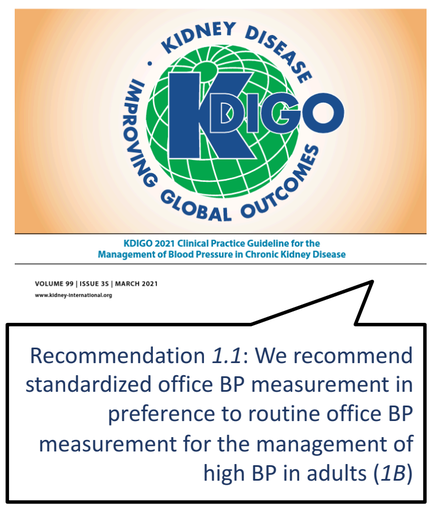
A Quality Improvement Journey

D. Earlie (ScotGEM), Dr. T. Muniraju (Consultant Nephrologist)

NHS Dumfries & Galloway
ScotGEM Scottish Graduate Entry Medicine
NHS Scotland | University of St Andrews | University of Dundee | University of the Highlands and Islands

- Background & Rationale -

- A QI project within the Renal Unit, NHS D&G
- The main drive for change was based on KDIGO Guidelines (March, 2021)
  - Key Recommendations were to have a standardised approach to BP measurement in adults >18 with CKD
  - Derived from systematic reviews of existing evidence
  - The main emphasis was on preparation procedures prior to BP measurement
- Additionally, there was a lack of current defined / standardised guidelines within the Renal Unit
- The project focused on standardising the approach to BP measurement and was based on extrapolation of RCT data to practice, this in turn:
  - Avoids over or under treatment of hypertension
  - Generally means positive aspects outweigh negative in time, burden etc by having a standard approach



Recommendation *1.1*: We recommend standardized office BP measurement in preference to routine office BP measurement for the management of high BP in adults (*1B*)

- Aims -

Developing Aims

To develop a **working NHS D&G BP Measurement guideline / SOP** for use at outpatient appointments within the renal unit at MHTC by 18-12-2022.

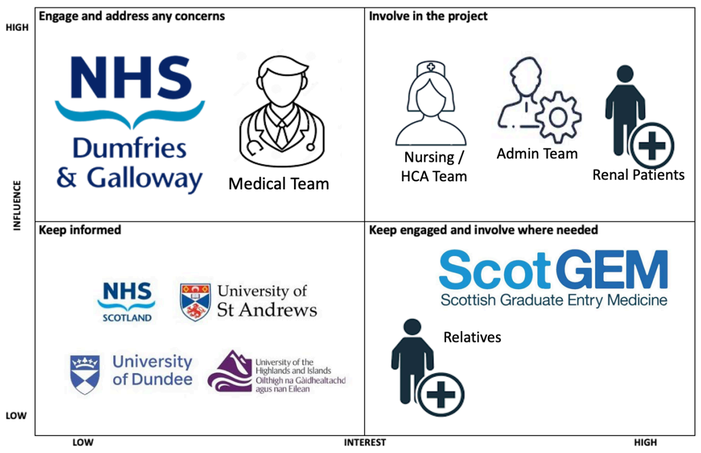
To **improve adherence** of automated blood pressure technique and accuracy to the NHS D&G BP Measurement guideline / SOP at outpatient appointments within the renal unit at MHTC to **70%** overall compliance by 18-12-2022.

- Stakeholder Engagement -

Creating Conditions

Here we present some of the instrumental QI tools that were used to drive stakeholder engagement and understand the system

- Mapping -



- Ecosystem -

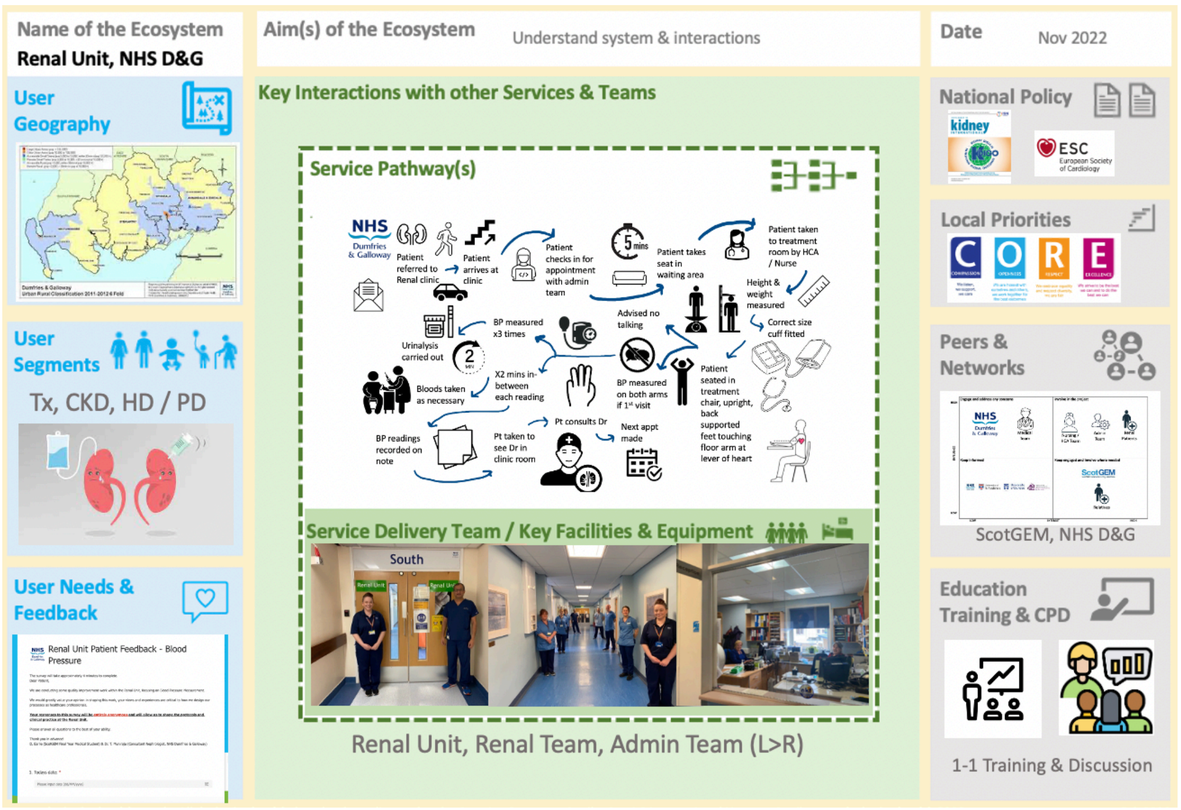
Understanding Systems

- An ariel view of the system
- Allowed for visualisation of complex relationships
- Highlighted important areas of focus for success

- 'Sales Pitch' -

Prior to the project I spent a two month clinical rotation within the Renal Unit, allowing me to get to know the team well, they know me and recognise my face! I spent lots of time with them on ward D8 & Renal Unit allowing for both early observations and the formation QI ideas

At the beginning of the QI project we had already developed some ideas. To develop these, we met with team and delivered a sales pitch of plans to improve BP and develop a SOP. One key buy in was that this was evidence based and would be designed to **work for the unit**



- Colleague & Patient Views -

Measurement

Colleagues and patients were patients surveyed for their views using Microsoft Forms, there were several iterations using a PDSA approach

Main feedback from Drs, Nursing Team & Admin Team:
- No consistent approach to BP measurement with variations in practice
- No clear guidelines in unit and info given to patients unclear
- No waiting room info and pre-clinic info

Main feedback from patients:
- No advice before clinic (i.e. wait 5mins, no coffee, empty bladder) & instructions in clinic room not consistent

- Change PDSAs -

Testing Changes

We carried out 5 PDSA (Plan, Do, Study, Act) cycles based on design info that we had ascertained from the previous QI tools and feedback, here we outline them briefly.

PDSA 1 - BP SOP

- Based on KDIGO, ESC & AHA guidelines
- Changes based on colleague feedback
  - Verbal & Written
  - Observation
  - Checklist – MS Forms
- Will likely change with time
  - Needs to work for unit
  - Needs to be efficient
  - Needs to be practical
- Staff on the job training – in clinic
  - Walk through talk through

PDSA 2 – Waiting Room Poster

- Based on feedback
- Aim to provide pts with info prior to BP
- Aligned to guideline recommendations
- Feedback from pts – MS Forms / Written
- Admin training
- Measure via pt feedback survey

PDSA 3 – Patient Clinic Room Infographic

- Based on feedback / observations
- Easily readable
- Visual reminder
- At eye level when having BP done
- Key things for pts to do
- Team aware – to highlight
- **Pts don't always adhere**
  - Pt education - team

PDSA 4 – Medical Clinic Room Infographic

- Adapted from KDIGO
- Reminder & visual aid for team
  - Things to ask pts
  - Things to check

PDSA 5 – Clinic Proforma

- Based on feedback
- Work in progress
  - Changes based on feedback / trial run
- Currently written on SERPR / Post it notes
- Not consistent = errors
- Provides clear info
- Reminders to check
- Pre-measure checklist
- Team buy in key for success
  - Another bit of paper

For all of the above PDSAs – scan the below QR to visualise

- Results & Conclusions -

- We developed a finalised SOP, which we aim to publish on our local intranet (Beacon)
- We increased the adherence to the SOP, based on observational feedback, **from 55% to 70%** (n=12)
- We aim to eventually expand the work to outpatient departments within DGRI and eventually local GPs
- In order to sustain change we understand the importance of revesting guidelines and handing over the baton to incoming trainees to continue the work

Spread

- Reflections -

- The use of new design tools within QI was integral and key to understanding system. Ask ask questions … lots of them, it forms the basis of informed and meaningful change
- Leadership is key in driving change and steering the project in the right direction
- Being part of a team and integration is key for success
- Getting early buy in from stakeholders is instrumental
- QI is important for doctors – change starts from the ground up
- Teams know their systems best – LISTEN!
- Communication is key
  - If people don't respond, ask why? How can I help?

NHS Dumfries & Galloway

Clinical Non-Invasive Blood Pressure Measurement SOP
Electronic Machine
Renal Unit

	ACTION	Important Considerations / Notes
1.	Check equipment in working order and cleaned.	
2.	Check patient Name / DOB / CHI (min x2).	
3.	Explain procedure to patient.	
4.	Gain verbal consent.	
5.	Check contraindications (fistula, cellulitis, LN clearance and injuries to arm)	
6.	Ensure patient has been rested for 5 minutes prior to measuring BP (time in waiting area included).	
7.	Check patient has had no caffeine, smoked any cigarettes, or exercised in the last 30 minutes.	
8.	Ensure correct size cuff.	
9.	Palpate brachial arteries.	
10.	Line cuff artery marker up with brachial artery.	
11.	Ensure artery marker fits within cuff range / parameter markers.	
12.	Attach machine lead to cuff.	
13.	Position arm at level of the heart, supported.	
14.	Ensure patient is relaxed, sitting upright with back supported in the chair and legs are uncrossed.	
15.	Advise patient no talking during measurement.	
16.	Measure BP in both arms initially, proceed with arm with highest SYSTOLIC BP.	
17.	Measure blood pressure THREE times, with TWO minutes in between each reading.	
18.	Record readings appropriately.	

Scan this QR code for more information on all of the above sections

Reference:

1 Coates PT, Devuyst O, Wong G, Okusa M, Oliver J, York N *et al.* KDIGO 2021 Clinical Practice Guideline for the Management of Blood Pressure in Chronic Kidney Disease. *Kidney Int* 2021; **99**: 92.
2 British and Irish Hypertension Society. Automated BP Measurement. BIHS. https://bihsoc.org/resources/bp-measurement/measure-blood-pressure 2022.

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2. Nagaraja SP, Shenoy SV, Rao IR, Bhojaraja M V., Rangaswamy D, Prabhu RA. Measurement of Blood Pressure in Chronic Kidney Disease: Time to Change Our Clinical Practice-A Comprehensive Review. *Int J Nephrol Renovasc Dis* 2022; **15**: 1–16.
3. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ *et al.* 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2019; **74**: 1376–1414.
4. Coates PT, Devuyst O, Wong G, Okusa M, Oliver J, York N *et al.* KDIGO 2021 Clinical Practice Guideline for the Management of Blood Pressure in Chronic Kidney Disease. *Kidney Int* 2021; **99**: 92.
5. NHS D&G Website
6. NHS Tayside QuIP

Acknowledgments

To to the Renal Unit, the staff and patients involved in making this possible thank you. Special thanks to Dr. Muniraju for facilitating this QI work, your determination and desire for change is a true inspiration.