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

Chronic Kidney Disease/Hypertension project

Central Manchester CCG
Hulme, Moss Side and Rusholme Locality

April 2013 to March 2014

Contents

Executive Summary

- A chronic kidney disease (CKD)/Hypertension project was established in April 2013 involving seven practices in the Hulme, Moss Side and Rusholme locality of Central Manchester CCG. The project was conducted over a 12 month period and aimed to increase the prevalence of CKD and also to improve the management of CKD.
- The IMPAKT™ CKD tool, consisting of a series of MiQuest queries, was installed at each practice providing two lists of patients; list one to verify the existing register and list two to identify patients who may have CKD but were not coded as such.
- CLAHRC practice nurse secondees visited practices and supported them throughout the project; offering advice on register work and also on implementing systems and protocols within the practice.
- Two education events were provided; one for practice nurses and one for GPs. In addition, on-going education was provided on a one to one basis during the practice nurse facilitation visits if required.
- The QICKD modelling tool was used to estimate the target prevalence for each practice.
- Objective one was to halve the gap between recorded and estimated prevalence with practices needing to find a total of **128** new patients to reach this target. At the end of the project, this figure was exceeded with **188** patients being identified, achieving **147%** of the target.
- Baseline prevalence was **1.52%** (**665** CKD patients) at the end of the project this increased to **1.94%** (**853** patients).
- **Six** out of the **seven** practices achieved objective one. However the practice that did not achieve this objective was in the unusual position of being required to reduce their CKD register which may have contributed to this.
- Objective two was for 75% of CKD patients to be tested for proteinuria and managed to NICE recommended blood pressure guidelines. Collectively, the seven practices achieved this objective with a combined percentage of **76%** of CKD patients having blood pressures to target. Individually **five** of the **seven** practices achieved this objective.
- Overall practices were successful in testing CKD patients for proteinuria with a combined percentage of **91%** of patients tested.
- For all seven practices, **92%** of CKD patients without proteinuria had blood pressures to NICE target compared to only **45%** for CKD patients with proteinuria. The number of patients with proteinuria in each practice was low but the problem of managing blood pressure in this cohort of patients has been highlighted in all phases of the CLARHC CKD projects.
- Recommendations to continue to improve CKD management and sustain the work already done in the Hulme, Moss Side and Rusholme locality are: to re-run IMPAKT™ on an annual basis, practices to attend an annual case study based CKD/Hypertension education event, to provide practices with the opportunity to be involved in the outcomes of previous CLARHC

projects and in collaboration with medicines management, publish an article in the CCG bulletin to reinforce the importance of the management of CKD patients with proteinuria.

1 INTRODUCTION

The CKD/Hypertension improvement project was a piece of work established in partnership with Central Manchester CCG and the Ascertainment, Early Diagnosis and Optimisation of Long Term Conditions Group in 2013 to improve the quality of service and care for people with CKD.

CKD is common, harmful and treatable. It affects about 6% of adults (stages 3-5) in the UK and greatly increases a person’s risk of suffering a stroke, heart attack, renal failure or death[1]. A 2003 retrospective analysis of all patients newly diagnosed with CKD in Southampton found that 35% died after five years, 46% of which were cardiovascular related[2]. However, diagnosing the condition early and managing patients’ wellbeing is important for their health; a study in Lincolnshire that identified and subsequently treated 483 CKD stage 4 and 5 patients estimated that in doing so they had prevented a total of 28 deaths[3]. Earlier identification and treatment to slow disease progression resulted in an estimated saving of 97 dialysis years over five years; a projected cost of £2.7m.

Although the figures above suggest CKD is a strong indicator of vascular events, research has shown that there is a sizeable confidence gap in not only the diagnosis, but the general management of CKD patients in comparison with other, more established chronic disease pathways, for example, diabetes[4]. This results in a lack of clarity on how to provide best care for CKD, variation in practice and patients not being told about their diagnosis or called in for regular review.

The current spend on CKD and related problems represents a large financial burden for the NHS. Programme budgeting data from the Department of Health showed that NHS expenditure on renal problems was £1.34billion in 2008/09[5]. In a report published by NHS Kidney Care in 2012, it was estimated that in 2009/10 approximately 95% of spend on renal problems is within secondary care, and 5% in primary care. This proportional split is representative across England[6].

The NIHR Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester has collaborated with groups of GP practices across Greater Manchester over the past three years to deliver 12 month improvement projects, to enable practices to increase prevalence of early CKD and support them to improve the management of hypertension in these patients.

These projects aimed to improve the identification and management of early stage kidney disease in primary care to tackle the recognised translation gap between evidence and practice. This is evident in the number of undetected cases of CKD in practice registers (comparing QOF data with research data on expected prevalence) and a confidence gap amongst primary care clinicians in the diagnosis and management of CKD, especially in comparison to other vascular conditions with more established management pathways.

This report presents the results of the CKD/Hypertension project conducted in the Hulme, Moss Side and Rusholme locality of Central Manchester CCG from April 2013 to March 2014.

2 CKD/HYPERTENSION IMPROVEMENT PROJECT

2.1 Background

In the majority of cases, CKD can be managed routinely in primary care. CKD became part of the Quality and Outcomes Framework (QOF) in 2006, with NICE CKD guidelines released in 2008. These two factors supported an increase in the understanding and diagnosis of CKD in primary care, but research suggests that a significant number of CKD patients remain undiagnosed.

Central Manchester CCG QOF data for 2012/13 reports 3,539 recorded cases of CKD in Greater Manchester with a prevalence of 2.1%[7]. A recent study[8] estimated national prevalence for CKD to be 5.4%. However, as 5.4% is considered to be an overestimation for Manchester due to its younger population to determine a more accurate figure the QICKD modelling tool was used which is based on the age/sex profiles of each practice.

In terms of NHS expenditure, the total spent on renal problems for Manchester PCT in 2012/2013 was £17,916,000. Of this, £431,000 (2.4%) was in primary care, £16,072,000 (89.7%) was in secondary care, £1,177,000 (6.5%) being spent in the social care sector and the remaining £236,000 (1.3%) in community care *(Figure 2)*. Although these figures represent Manchester PCT as a whole, they support the fact that renal problems pose a significant financial challenge to the NHS[9].

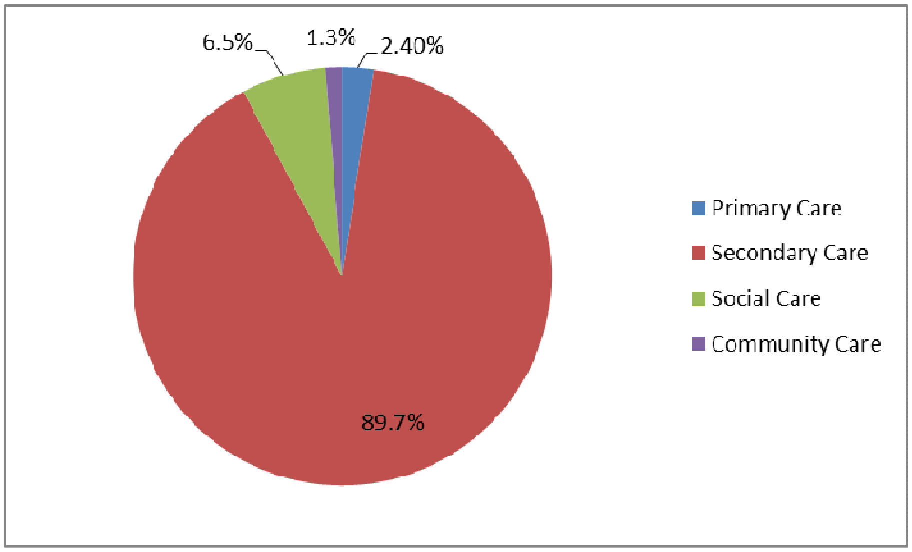

Figure 2 illustrates the percentage of the total expenditure for Manchester PCT on renal problems for 2012/2013

The CKD/Hypertension Project was initiated to help address some of the problems outlined above. The introduction of CKD registers in primary care became mandatory with QOF helping to address some of the problems of late presenters in secondary care with end-stage kidney disease. However, the figures above highlight the importance of improving the early identification of CKD and reinforcing better management of the disease.

With confidence being recognised as a problem area in the management of CKD, this project aimed to raise the profile of CKD and to provide primary care teams with the knowledge and skills to diagnose patients more accurately and provide their patients with the information required to self-manage their condition.

2.2 Project Aims and Objectives

The CKD/Hypertension project was commenced in Central Manchester CCG in 2013 with the overarching aim of improving the quality of management and care for people with CKD. The associated objectives were:

- To halve the gap between recorded and estimated prevalence on practice registers.
- For 75% of CKD patients to be tested for proteinuria and managed to NICE blood pressure targets at project close.

2.3 Project Design

The CKD/Hypertension project consists of a series of interlinked activities: installation of the IMPAKT™ CKD audit tool, register verification and case finding, clinical education sessions, on-going facilitation support and a final project data count. Figure 3 below provides an overview of the process. A more detailed discussion of each component is then provided.

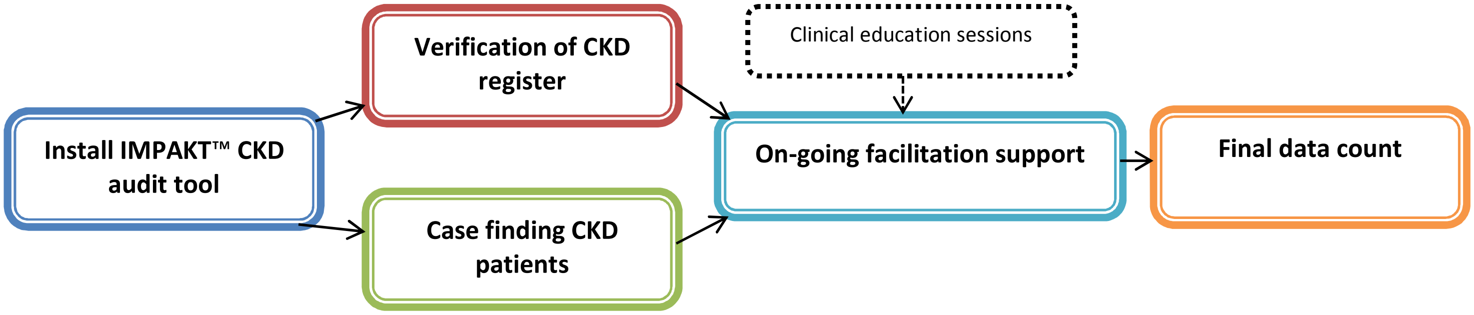

Figure 3 Design of CKD/Hypertension project

2.3.1 IMPAKT™ CKD Audit Tool

IMPAKT™ CKD is a MiQuest based audit tool that extracts data from primary care clinical systems. The tool was installed at each practice by the clinical services unit (CSU) data quality managers. Two lists of patients were produced; the first list identified all patients coded with CKD, including recommendations for patients who may have been coded in error and also those with inaccurate coding in relation to stage of CKD. The second list identified those patients not on the CKD register, but who had recorded eGFRs indicative of chronic kidney disease requiring further investigation. To support the installation of the IMPAKT™ tool, the IMPAKT™ CKD improvement guide was also provided. This document contained useful resources such as CKD Read codes, protocol examples and templates of invitation letters to use when recalling patients for diagnostic tests.

2.3.2 Register Verification and Case Finding

At the initial meeting each practice was asked to select an improvement team. This team included a mix of staff disciplines, usually involving a lead GP, practice nurse and admin team member. A CLAHRC nurse facilitator met with each practice on a regular basis to facilitate the register validation and case finding process; in most cases this was with the practice nurse. The frequency of visits was between four and six weeks dependent upon the progress of each practice and staff availability. These visits were used to establish small tests of change using the Plan, Do, Study, Act (PDSA) improvement methodology.

Each practice worked through the lists of patients generated by the IMPAKT™ tool. To validate the existing CKD register, case find and improve blood pressure management the following actions were required:

- Requests were made for further diagnostic tests, if they were necessary.
- Patients coded as CKD in error were removed from the register.
- CKD stage coding was updated where necessary based on latest eGFR data for each recorded CKD patient.
- All CKD patient records were checked to ensure they had an ACR test within the last 15 months.
- Patients with proteinuria were identified (based on ACR testing) and coded accordingly.
- CKD protocols were updated and developed.
- Patients were given their CKD diagnosis and their modifiable risk factors were reduced.

Similarly, those patients found to have eGFRs indicative of CKD, but were not coded on the register were investigated in order to diagnose or exclude CKD.

2.3.3 CKD/HTN Workshops

Two education sessions were provided: one aimed at practice nurses and one for GPs. These were used as a forum for teams to share any problems they were experiencing and to share any good practice. They also provided an opportunity for teams to direct specific questions to a renal specialist and feedback progress on their work.

2.3.4 Final Data Count

At the end of the project a final data count was performed at each practice. This involved manually checking the clinical system for the number of patients on the CKD register with blood pressures to NICE targets and who were also tested for proteinuria.

2.3.5 Project Timeline

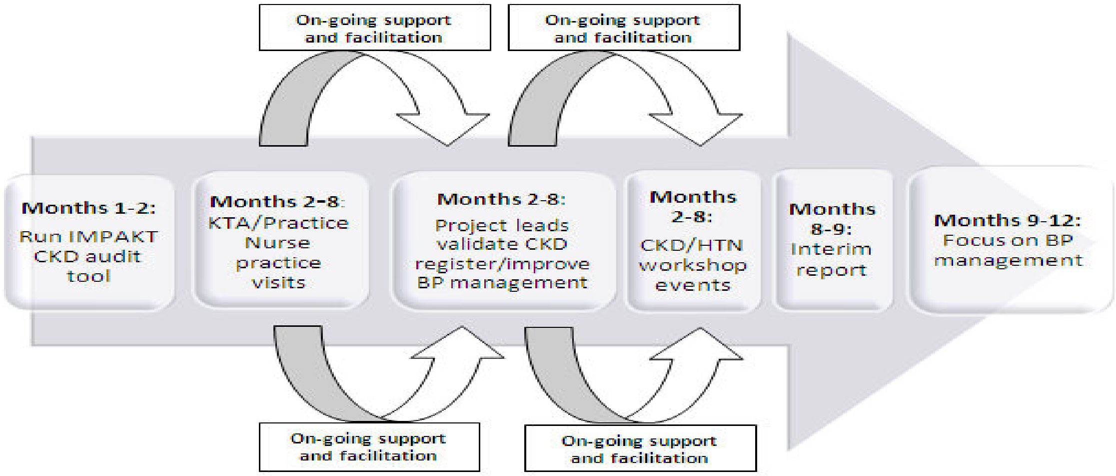

Figure 4 shows an overview of the project timescales

2.3.6 Participating GP Practices

All eight practices in the Hulme, Moss Side and Rusholme locality were originally recruited to the project. However, one practice withdrew at the beginning of 2014 therefore the data presented in this report is from seven practices. Baseline data was collected in relation to register size and input into the QICKD CKD modelling tool to estimate the target prevalence for each practice. The overall baseline prevalence was **1.52%** with a target prevalence of **1.81%**. Collectively, the seven practices needed to identify a total of **128** patients to halve the gap between recorded and estimated prevalence. Table 1 provides a breakdown of baseline and estimated prevalence per practice.

Practice	Baseline Population 18+	Baseline prevalence	Baseline CKD register	Target prevalence	Target CKD register	Patients to find
Dr. Ahmed	2288	3.32%	76	2.93%	67	-9
Dr. Hussain	1764	2.38%	42	3.23%	57	15
Robert Darbishire MP	16104	1.19%	191	1.44%	232	41
Cornbrook Medical MP	8026	1.26%	101	1.43%	115	14
Wilmslow Road	3226	1.43%	46	2.42%	78	32
The Arch	9982	1.65%	165	1.80%	180	15
The Whitswood	2476	1.78%	44	2.58%	64	20
Total	**43866**	**1.52%**	**665**	**1.81%**	**793**	**128**

Table 1 displays baseline data and prevalence target modelling using QICKD

Percentages for objective 1 have been rounded up or down to two decimal points

3. Results

3.1 Objective 1

Objective 1 was to halve the gap between the recorded and the estimated CKD prevalence. To meet objective 1, the seven practices were required to find a total of **128** patients. This was accomplished in month six with **195** patients recorded on the CKD registers. At the end of the project there were **188** patients on the combined CKD registers, achieving **147%** of the target of patients to find. The verification of the CKD registers was an on-going process with practices adding and removing patients throughout the project which is why there is a reduction in the final number of patients. *(See Figure 5)*

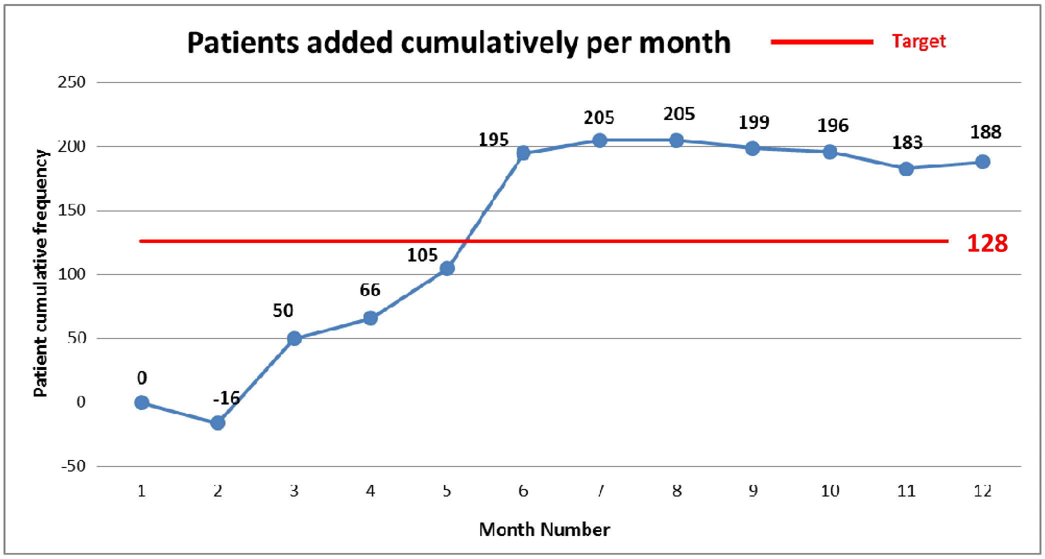

Figure 5 shows the cumulative frequency of patients added to the CKD register per month. Highlighted in red is the target for all the practices combined in order to meet objective 1.

At the start of the project the CKD register total was **665** patients for the seven practices with a prevalence of **1.52%.** At project end this figure had increased to a total of **853** patients with total prevalence rising to **1.94%.** This represents an increase of **0.42%** with a percentage increase in terms of patient numbers of **28.27%** see *Figure 6*.

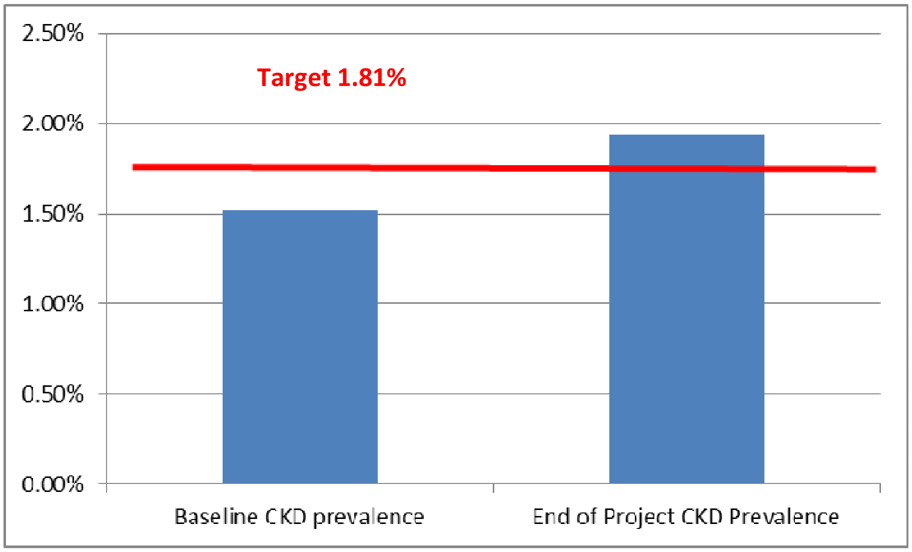

Figure 6 represents the baseline and end of project CKD prevalence for the seven practices

Figure 7 below shows the final results by individual practice with **six** out of the **seven** practices achieving objective one. Dr Ahmed's was the only practice not to accomplish this objective, achieving **93.06%** of their target. However the QICKD modelling tool identified that rather than increasing the size of their register this practice needed to reduce it by **nine** patients which may have contributed to this result.

The number of patients to be added per practice ranged from **13** patients at the Arch to **49** patients at Wilmslow Road. It is important to highlight that in order to verify their registers all practices had to also remove a number of patients who were incorrectly coded. Therefore the number of new patients identified and added is actually higher than reported. *(See Figure 7)*

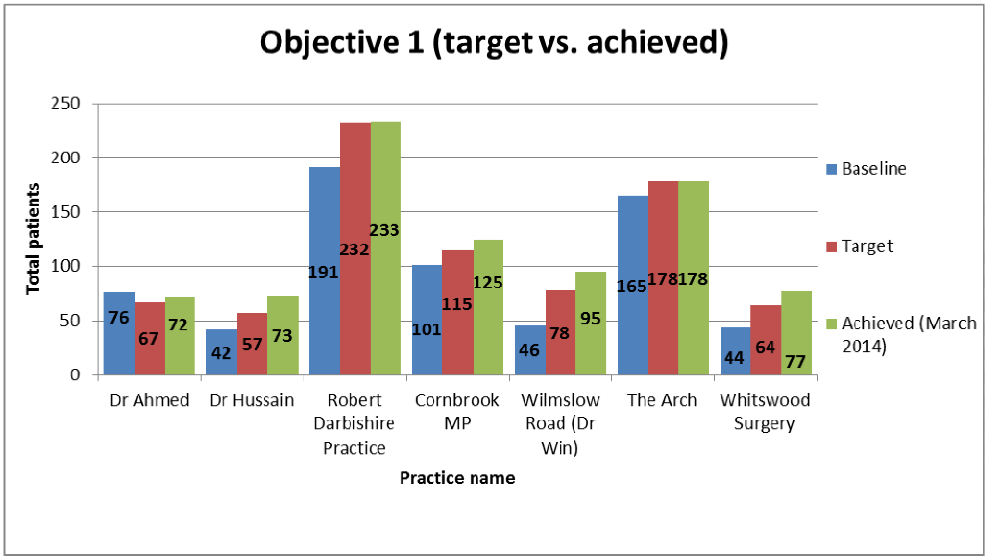

Figure 7 Breakdown per practice illustrating baseline CKD patient number, target number of patients in order to achieve objective 1 and the final number of patients on the CKD register at the end of the project

3.2 Objective 2

Objective 2 was for 75% of CKD patients to be tested for proteinuria and managed to NICE recommended blood pressure targets; ≤130/80 mmHg for patients with proteinuria and ≤140/90 mmHg for patients without proteinuria.

3.2.1 Proteinuria Testing

Overall, each practice was successful in testing CKD patients for proteinuria with four practices achieving over **90%**. All practices tested over **80%** of their CKD patients. Since the interim data collection in November 2013 **six** out of the **seven** practices increased the percentage of patients ACR tested. The combined percentage of patients tested for proteinuria for all seven practices is **91%.** (*See Figure 8 for percentage and Figure 9 for numbers of CKD patients tested for proteinuria*)

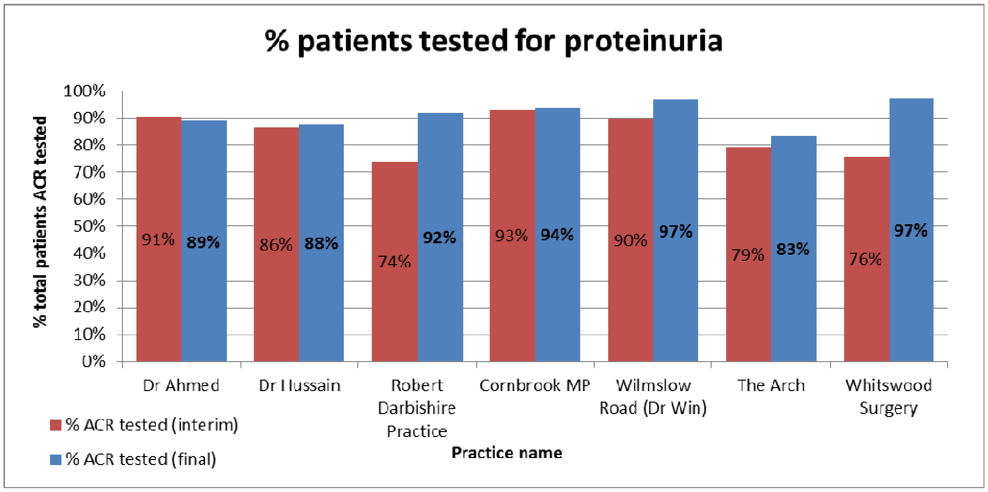

Figure 8 shows the percentage of patients on the CKD register tested for proteinuria at interim and project end

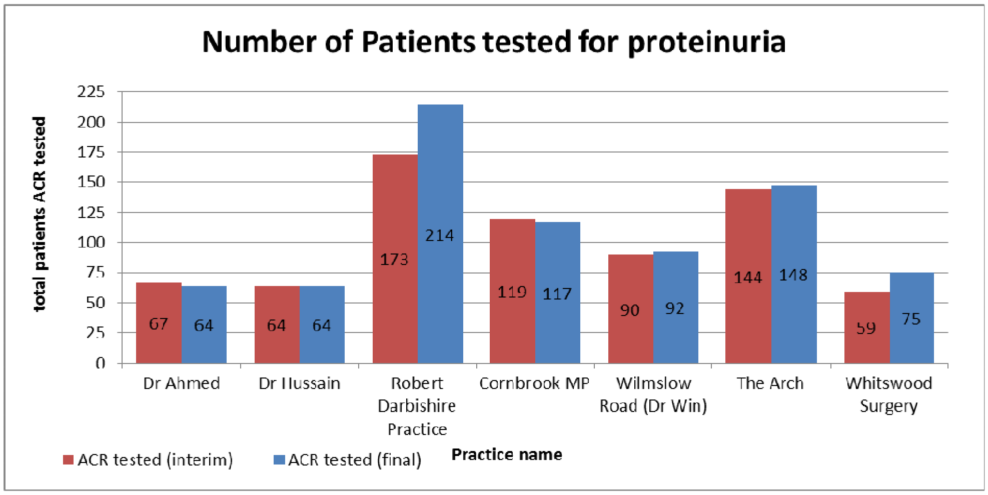

Figure 9 shows the number of patients on the CKD register tested for proteinuria at interim and project end

3.2.2 Blood Pressure to Target

NICE advises that patients should not only be tested for proteinuria every 12 months, but should have their blood pressure managed according to the result. For patients who tested positive for proteinuria, the target blood pressure is ≤130/80 mmHg. In those tested negative for proteinuria, the target blood pressure is ≤140/90mmHg. Therefore, patients needed an ACR test with the results coded and also a documented blood pressure to NICE guidelines to achieve this objective.

Collectively the seven practices achieved objective 2 with a combined percentage of **76%** of CKD patients having their blood pressures managed according to NICE guidelines. There was a large disparity between the management of blood pressure in those CKD patients with and without proteinuria. On average for all seven practices**, 92%** of patients without proteinuria had blood pressures managed according to NICE guidelines. However for those patients with proteinuria this figure is only **45%.** Although the number of CKD patients with proteinuria in each practice is low, the problem of managing blood pressure in this cohort of patients has been highlighted in all phases of the CLARHC CKD project and is something that needs to be addressed in future projects (please see recommendations).

On an individual practice level, **five** of the **seven** practices achieved objective two with at least 75% of all CKD patients having their blood pressure managed to NICE guidelines. **It is important to highlight that this objective can be difficult to achieve, particularly in practices with large CKD registers, for example Robert Darbishire Practice, that may have large numbers of newly identified CKD patients who require coding and adding to the register. These new patients may also require ACR testing and may need treatment initiated to manage their blood pressure.**

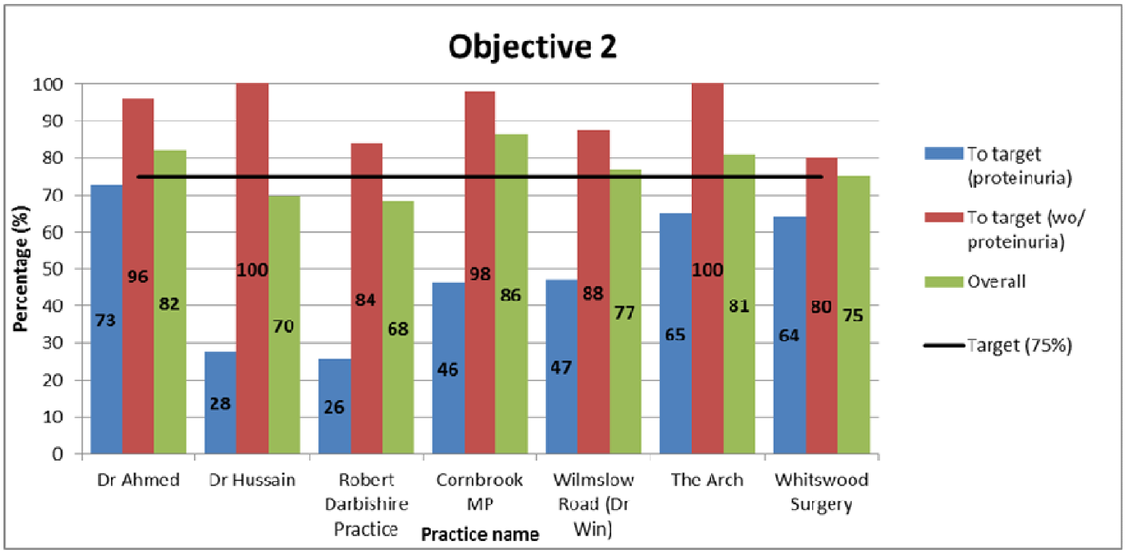

Figure 9 shows the percentage patients with proteinuria with BP to target, those without proteinuria with BP to target and the overall percentage for objective 2

3.2.3 Management of Proteinuria Patients

The number of patients with proteinuria and blood pressures managed to NICE guidelines varied between practices ranging from **26%** to **73%.** *(See Figure 9)* Overall **45%** of this patient group was being managed appropriately at the end of the project. This is broken down per practice in *Figure 10.* When compared with the interim data collection, there has been some improvement as in November 2013, the percentage of proteinuria patients with blood pressures managed to NICE guidelines ranged from **17%** to **64%** and the overall total for the seven practices was **41%.**

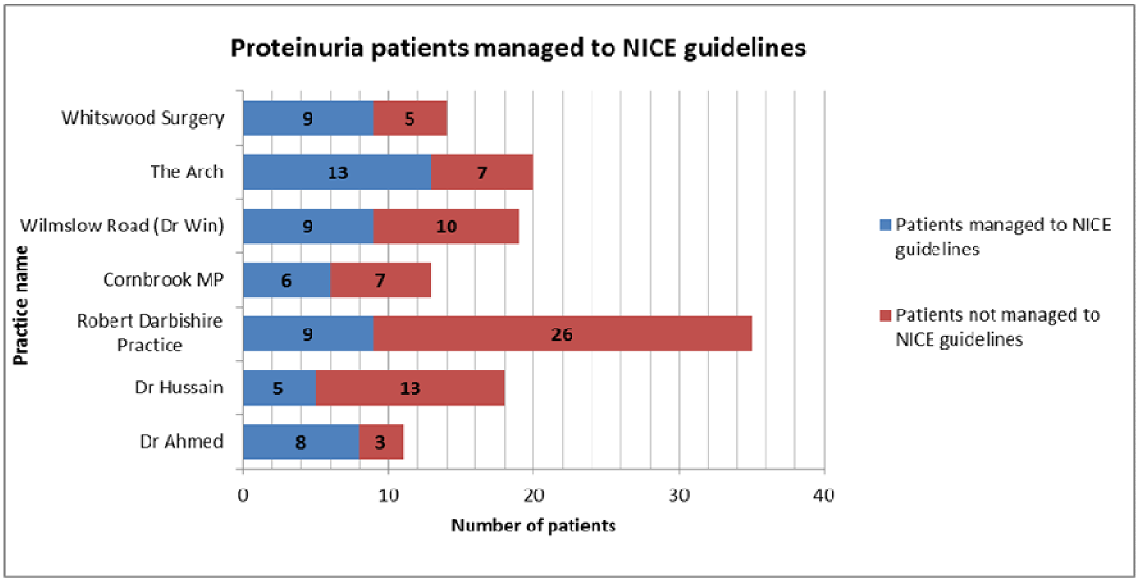

Figure 10 shows the total number of patients tested positive for proteinuria per practice. Each bar is subdivided into those managed to NICE guidelines and those not managed to NICE guidelines.

4. Conclusions

The CKD/Hypertension project in Central Manchester CCG has raised the profile of CKD and educated healthcare professionals in the importance of managing it effectively. It has achieved the main objective of identifying CKD patients who were not previously coded with CKD, leading to better care. In addition to this, it has also highlighted areas of CKD management which require improvement and could provide further work in order to ensure CKD management continues to improve and be sustained. The main conclusions which can be drawn from this project are:

- Objective 1 was achieved with the target of finding a total of **128** patients being surpassed, finding a total of **188** patients by the end of the project, an achievement of **147%** of the target.
- Objective 2 was achieved overall with a combined percentage of **76%** of CKD patients with blood pressures managed to NICE guidance.
- On an individual practice level, **five** of the **seven** practices achieved a percentage of 75% or above of CKD patients with blood pressures managed to NICE guidance.
- Management of patients without proteinuria was good with a collective total of **91%** of CKD patients being ACR tested. However the management of patients with proteinuria, to a blood pressure of 130/80 mmHg or less, requires some improvement.

5. Recommendations

The following recommendations are made in an attempt to continue to improve the management of CKD and also to sustain the progress made so far:

- It is suggested that each practice runs the IMPAKT™ CKD tool on an annual basis to maintain an accurate CKD register.
- To reinforce the importance of good management of CKD/Hypertension it is proposed that practices attend an annual education event. This could be case studies based upon difficult CKD/Hypertension patients encountered in practice.
- The practices we have worked with in this locality should be provided with the opportunity to be involved in the outcomes of two other CLARHC projects; Bringing Information and Guided Help Together (BRIGHT) and Patient Led Assessment for Network Support (PLANS). CLARHC is currently in the process of identifying the most effective way to implement these resources into practice.
- To address the problem of managing blood pressure targets for CKD patients with proteinuria, it is recommended that a joint article is published in collaboration with medicines management for the CCG bulletin to reinforce the importance of the appropriate management for this group of patients.

References

1. National Institute for Health and Clinical Excellence Chronic Kidney Disease, (2008) *National clinical guideline for early identification and management in adults in primary and secondary care*, National Institute for Health and Clinical Excellence: London

2. Drey M. Roderick P. Mullee M. et al., (2003) A population-based study of the incidence and outcomes of diagnosed chronic kidney disease, *American Journal of Kidney Disease,* 42, (4), p677–684

3. Whitfield M. and Holmes M. (2007), *A cost and clinical effectiveness evaluation of a disease management programme for Chronic Kidney Disease (CKD),* School of Health & Related Research (ScHARR) University of Sheffield, Sheffield: Sheffield

4. Tahir M.A. Dmitrieva O. De Lusignan S. Van Vlymen J. Chan T. Golmohamad R. Harris K. Tomson C. Thomas N. Gallagher H. (2011) Confidence and quality in managing CKD compared with other cardiovascular diseases and diabetes mellitus: a linked study of questionnaire and routine primary care data *BMC Family Practice* 12, 83

5. National expenditure data 2003/04 – 2010/11 (2011: Department of Health). Available online from http://webarchive.nationalarchives.gov.uk. Last accessed 11th April 2014

6. Kerr, M. “Chronic Kidney Disease In England: The Human And Financial Cost” (2012: Insight Health Economics). Available from http://webarchive.nationalarchives.gov.uk. Last accessed 25th October 2013

7. Quality and Outcomes Framework 2012/13. Available online from http://www.ic.nhs.uk/statistics-and-data-ollections/audits-and-performance/the-quality-and-outcomes-framework Last accessed 11th April 2014

8. De Lusignan S. Tomson C. Harris K. et al. (2011) Creatinine Fluctuation Has a Greater Effect than the Formula to Estimate Glomerular Filtration Rate on the Prevalence of Chronic Kidney Disease, Nephron Clinical Practice, 117, p213–224

9. 2011-2012 Programme Budgeting PCT Benchmarking Tool v1.1 (2012: Department of Health). Available online from http://webarchive.nationalarchives.gov.uk. Last accessed 11th April 2014