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

Developing combined resources for improved CKD detection and management in primary care

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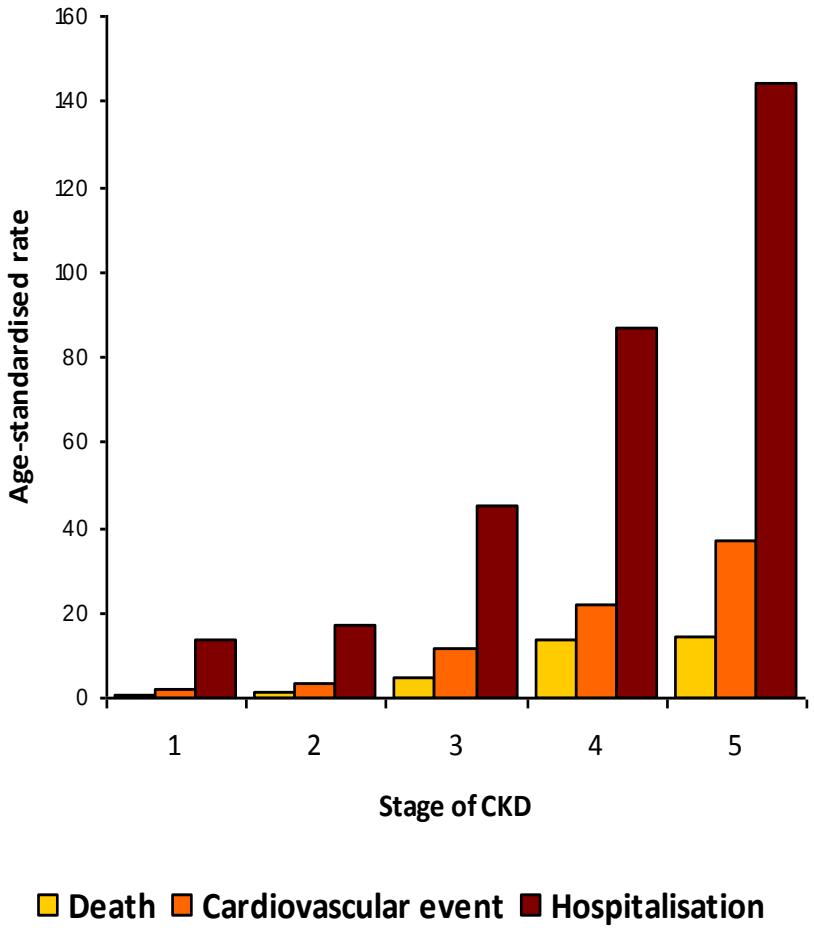
Chronic Kidney Disease (CKD)



- Affects about 6% of adults in the UK
- May progress to end stage renal failure, requiring transplant or dialysis
- Greatly increases a person's risk of suffering a stroke, heart attack or death

- **BUT** often undiagnosed and poorly managed

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LNR & GM CLAHRC CKD Projects

- **LNR** and **GM** areas identified an approximate 2-2.5% prevalence gap.

- In **LNR**, a cluster randomised controlled trial is being performed in 48 practices in Northamptonshire looking into the feasibility of a nurse led targeted prevention programme for CKD.

- In **GM**, two 12-month quality improvement projects led to improvement of CKD risk factors in 30 GP practices and a CKD Improvement Guide was developed. Implementation was supported with workshops, WebEx sessions, and regular site visits.

PSP-CKD

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PSP-CKD

- Aims of the project were;
  - To determine whether reinforcement of best practice in the management of key aspects of CKD care improves clinical outcomes
  - To improve coding of CKD and prevalence on chronic disease registers
  - To increase interest in and capacity for primary care research in Northamptonshire
  - To implement and evaluate a new model of partnership working between primary and secondary care
- To achieve this a robust data extraction tool applicable to all GP computer systems was required, capable of;
  - Identifying un-coded patients
  - Assessing accuracy of existing coding
  - Risk stratification
  - Providing a practice audit
  - Referral management

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Register Validation

Patients not coded as CKD

Identifier	CKD confirmed by existing eGFR data?	Suggested Classification	Evidence: Latest eGFR<60	Evidence: Proteinuria
	eGFR data confirms CKD3 at least	CKD Stage 3A	57 on 07/02/2012	ACR <30mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A	48 on 01/02/2012	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A	51 on 09/01/2012	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A	49 on 13/01/2012	ACR <30mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	49 on 22/01/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	52 on 22/01/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 22/01/2008	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	55 on 10/11/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 20/11/2007	ACR
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	56 on 30/08/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	56 on 09/11/2009	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	53 on 08/01/2008	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	59 on 08/04/2011	ACR <30mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	59 on 06/04/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 16/09/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 14/08/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	59 on 03/03/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	53 on 14/03/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 02/03/2009	PCR <50mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 22/09/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	59 on 08/09/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	52 on 07/06/2011	ACR <30mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 13/03/2007	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 30/11/2010	ACR <30mg/mmol
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 02/03/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	55 on 01/11/2010	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	53 on 10/01/2012	No proteinuria data
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	54 on 17/02/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 06/09/2011	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	58 on 26/02/2008	without proteinuria on dipstick
	eGFR data confirms CKD3 at least	CKD Stage 3A but later eGFRs exist over 6	57 on 25/06/2007	without proteinuria on dipstick

Accuracy of existing CKD coding

Identifier	Coded Classification	Classification by latest data	Evidence: Latest eGFR<60	Evidence: Proteinuria
	CKD stage 5	CKD Stage 4	16 on 03/01/2012	without proteinuria on dipstick
	CKD stage 3B	CKD Stage 4	23 on 11/11/2011	without proteinuria on dipstick
	CKD stage 4	CKD Stage 4	18 on 27/01/2012	without proteinuria on dipstick
	CKD stage 4	CKD Stage 4	29 on 20/09/2011	ACR <30mg/mmol
	CKD stage 5	CKD Stage 4	23 on 15/12/2011	ACR <30mg/mmol
	CKD stage 4	CKD Stage 4	23 on 22/09/2011	ACR <30mg/mmol
	CKD stage 4	CKD Stage 4	29 on 09/06/2009	PCR <50mg/mmol
	CKD stage 4	CKD Stage 4 equivocal proteinuria	24 on 17/01/2012	+ protein on dipstick
	CKD stage 4	CKD Stage 4 with proteinuria	16 on 15/07/2011	PCR >=50mg/mmol
	CKD stage 4 with proteinu	CKD Stage 4 with proteinuria	27 on 09/05/2011	PCR >=50mg/mmol
	CKD stage 4	CKD Stage 4 with proteinuria	29 on 20/09/2011	ACR >=30mg/mmol
	CKD stage 4	CKD Stage 4 with proteinuria	28 on 25/11/2011	+++ protein on dipstick
	CKD stage 3	CKD Stage 5	5 on 12/07/2011	without proteinuria on dipstick
	CKD stage 4	CKD Stage 5	14 on 06/06/2011	ACR <30mg/mmol
	CKD stage 4	CKD Stage 5 with proteinuria	12 on 17/01/2012	ACR >=30mg/mmol
	CKD stage 4	CKD Stage 5 with proteinuria	13 on 03/11/2011	ACR >=30mg/mmol
	CKD stage 3	Not enough eGFR data to confirm sta	59 latest<60 on 11/11/2011	
	CKD stage 3	Not enough eGFR data to confirm sta	56 latest<60 on 17/01/2007	
	CKD stage 3A	Not enough eGFR data to confirm sta	59 latest<60 on 23/01/2012	
	CKD stage 2	Not enough eGFR data to confirm sta	57 latest<60 on 31/07/2006	
	CKD stage 3A	Not enough eGFR data to confirm sta	51 latest<60 on 22/12/2011	
	CKD stage 3	Not enough eGFR data to confirm sta	33 latest<60 on 19/05/2009	
	CKD stage 3	Not enough eGFR data to confirm sta	36 latest<60 on 29/01/2010	
	CKD stage 3	Not enough eGFR data to confirm sta	58 latest<60 on 16/01/2007	
	CKD stage 3	Not enough eGFR data to confirm sta	42 latest<60 on 25/05/2011	
	CKD stage 3	Not enough eGFR data to confirm sta	56 latest<60 on 10/07/2006	
	CKD stage 3	Not enough eGFR data to confirm sta	53 latest<60 on 17/07/2006	
	CKD stage 3	Not enough eGFR data to confirm sta	53 latest<60 on 15/11/2006	
	CKD stage 2	Not enough eGFR data to confirm sta	54 latest<60 on 03/09/2007	
	CKD stage 3	Not enough eGFR data to confirm sta	59 latest<60 on 12/01/2007	

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Ongoing management and case finding

	175		16		238		111		11		531			82	
	Diabetic		**Urinary outflow tract obstruct**		**Cardiovasc Disease**		**Smoker**		**Black / Asian Ethnicity**		**Ranked by combined risk score**			**On NSAID**	
	Identifier		Identifier		Identifier		Identifier		Identifier		Identifier	Score		Identifier	Code
6													7		j22a.
7													7		j282.
8													6		j282.
9													6		j22y.
10													6		j2bx.
11													6		j282.
12													6		j282.
13													5		j22e.
14													5		j282.
15													5		j2c2.
16													5		j2c2.
17													5		j22o.
18													5		j22o.
19													5		j2n3.
20													5		j28Y.
21													5		j2c1.
22													5		j2c2.
23													5		j2c1.
24													5		j22e.
25													5		j282.
26													5		j2c2.
27													4		j282.
28													4		j2n3.
29													4		j282.
30													4		j281.

CKD Audit Data

Practice Code	C12345		All these patients have either eGFR <60 or other code indicating renal impairment				
Date of data extraction	20120217						
Total population over 17 at this date	8968						
Registers and process measures							
	CKD1	**CKD2**	**CKD3**	**CKD4**	**CKD5**	**Uncoded**	**RRT**
Number with at least 1 eGFR<60 (uncoded) or coded CKD (excluding RRT)		30	335	21	3	248	11
Observed % prevalence for population over 17	0.0	0.3	3.7	0.2	0.0	2.8	0.1
Exp % prev >17 adj by age /sex (CKD3-5 only)			5.7	0.3	0.1		
Patients with coded CKD diagnosis->	**Diabetes**	**No Diabetes**	**Proteinuria**	**No Proteinuria**	**Unassessed**		
Number with coded CKD (any stage)	117	272	46	257	86		
% of population over 17 with coded CKD	1.3	3.0	0.5	2.9	1.0		
Blood Pressure	**Diabetes**	**No Diabetes**	**Proteinuria**	**No Proteinuria**	**Overall**		
Number with BP recorded in last year	115	253	43	249			
% with BP recorded in last year	98.3	93.0	93.5	96.9	75.1		
Number treated to target using latest BP in last year	35	165	13	162			
% BP treated to target	29.9	60.7	28.3	63.0	45.0		
Proteinuria and ACE/ARB usage							
Number of DM with ACR recorded ever; No DM ACR/PCR recorded ever	114	200					
% with proteinuria assessed ever	97.4	73.5					
Number of DM ACR>2.5 m, >3.5 f; No DM (ACR>70/PCR>100 OR ACR>30/PCR>50 & HBP)	36	9					
% prev microalbuminuria in diabetes / ACE/ARB Rxable proteinuria in non-diabetes	30.8	3.3					
Number on ACE/ARB in above groups	24	6					
% on ACE/ARB in above groups	66.7	66.7					
Last eGFR done within recommended time frame	**CKD1**	**CKD2**	**CKD3**	**CKD4**	**CKD5**	**Uncoded**	
CKD1,2 in last 12m, Uncoded / CKD3A/B in last 6m, CKD4 last 3m, CKD5 in last 6w		6	131	7		33	
% of each CKD group with eGFR done within recommended time frame	#DIV/0!	20.0	39.1	33.3	0.0	13.3	
NSAID usage in CKD (NOT recommended!)	**CKD1**	**CKD2**	**CKD3**	**CKD4**	**CKD5**	**Uncoded**	
Number on NSAID		4	38	1		39	
% of each CKD group on an NSAID	#DIV/0!	13.3	11.3	4.8	0.0	15.7	

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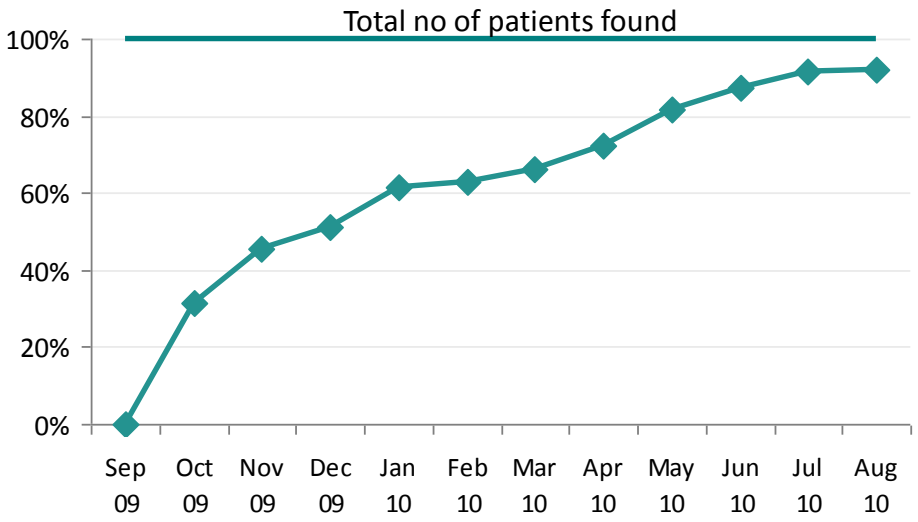
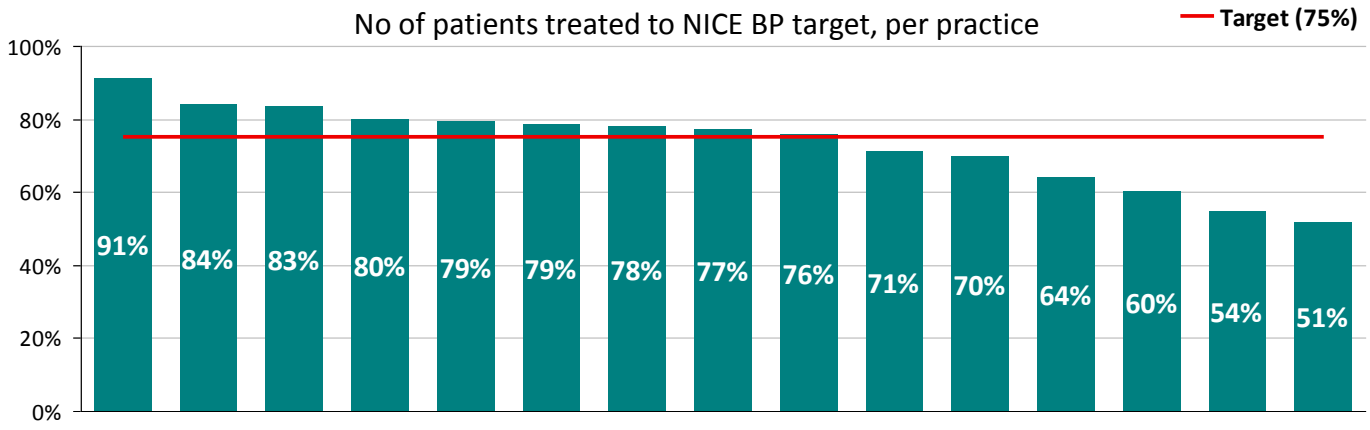
The GM CLAHRC CKD Collaborative

The GM CLAHRC CKD Collaborative was a 12 month improvement project, which had two aims:

1. **Halve the prevalence gap**
2. **Ensure that 75% of all patients are treated to the NICE recommended blood pressure targets**





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THE GM PROJECT APPROACH:

- The second GM CKD Improvement Project had two new resources to aid effectiveness and efficiency:
- LNR CLAHRC's audit tool
- GM CLAHRC's Improvement Guide;
  - Detailing the benefits to your practice
  - What steps can you take to achieve change and improvement?
  - Developing a practice protocol
  - Validating your existing register
  - Optimal management of CKD patients
  - Encouraging patients to get involved and self-manage
  - Ensuring improvements are sustained

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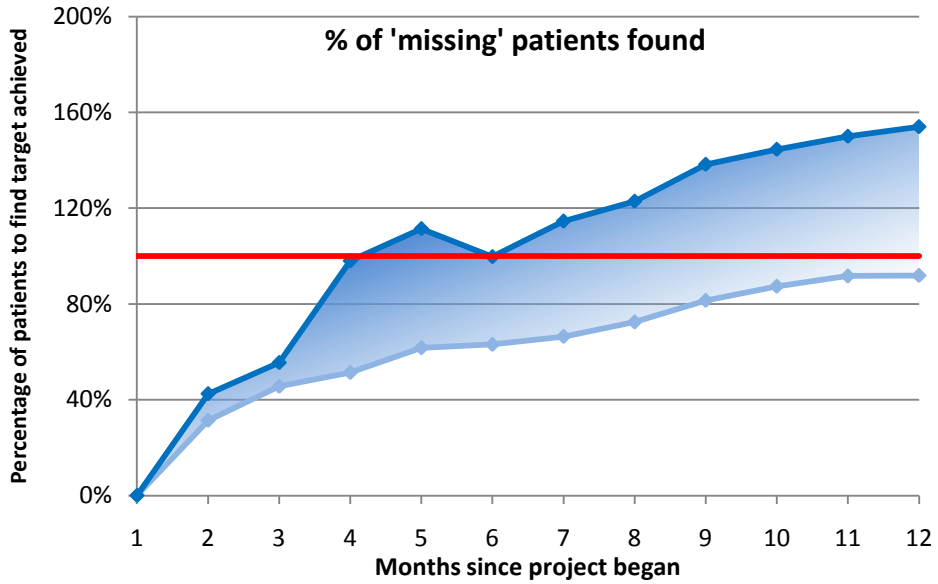
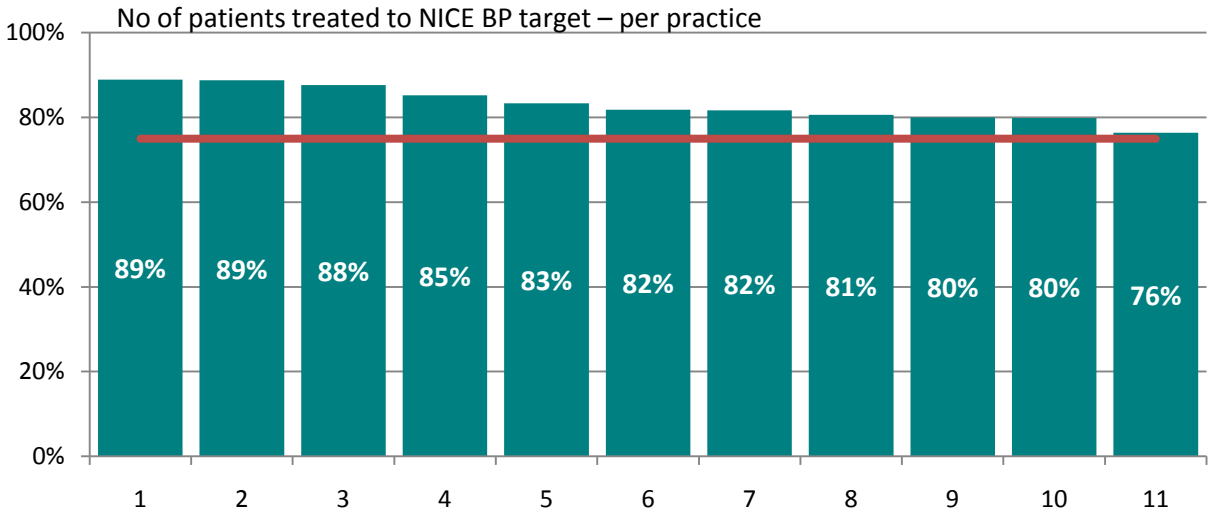
GM CKD Phase 2: Utilising new resources





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Ongoing improvements.

	Identifier	Alert	Intervention	Referral
2		eGFR < 45ml/min | eGFR declining - expected <15 by 80yo	Check eGFR |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
3		eGFR declining - expected <15 by 80yo |	Check PCR | Check eGFR | Review NSAID use |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
4		Cardiovascular disease |	Check BP | Check eGFR |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
5		eGFR < 45ml/min | eGFR declining - expected <15 by 80yo	Check eGFR | Review NSAID use |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
6		eGFR declining - expected <15 by 80yo | Cardiovascular d	Check PCR | Check eGFR |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
7		Diabetes | eGFR declining - expected <15 by 80yo | Cardi	Check ACR | Check eGFR |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa |
8		High Chol>6mmol/l | Diabetes | eGFR declining - expected	BP-needs better control<130/80 |	Consider referral as eGFR decline >5 ml/min/1.73 m2 pa | Consider
9		eGFR < 45ml/min | ...and Hb<10.5g/dl | Proteinuria presen	Check BP | Consider ACE/ARB |	Consider referral as high ACR |
10		eGFR < 45ml/min | Proteinuria present | Diabetes | eGFR c	BP-needs better control<130/80 |	Consider referral as high ACR, unless known due to their diabetes a
11		High Chol>6mmol/l | Current smoker |	Consider ACE/ARB | Check eGFR |	Consider referral as high PCR |
12		Diabetes |	BP-needs better control<130/80 | Check eGFR |	Consider referral as high PCR, unless known due to their diabetes a
13		Diabetes | eGFR declining - expected <15 by 80yo | Cardi	BP-needs better control<130/80 |	Consider referral for better BP control |
14		High SBP>150mmHg | High DBP>90mmHg | Cardiovascul	BP-needs better control<140/90 |	Consider referral for better BP control |
15		High SBP>150mmHg |	BP-needs better control<140/90 | Check eGFR | Review NSAID u	Consider referral for better BP control |
16		High SBP>150mmHg | Diabetes | Cardiovascular disease |	BP-needs better control<130/80 |	Consider referral for better BP control |
17		eGFR < 45ml/min | High DBP>90mmHg | Diabetes |	BP-needs better control<130/80 |	Consider referral for better BP control |
18		eGFR < 45ml/min | Diabetes | Urinary outflow obstruction |	BP-needs better control<130/80 | Review NSAID use |	Consider referral for better BP control |
19			BP-needs better control<140/90 | Check eGFR | Review NSAID u	Consider referral for better BP control |
20		High SBP>150mmHg | Cardiovascular disease |	BP-needs better control<140/90 | Check eGFR |	Consider referral for better BP control |
21		High SBP>150mmHg |	BP-needs better control<140/90 | Check eGFR |	Consider referral for better BP control |
22		Diabetes | Cardiovascular disease | Current smoker |	BP-needs better control<130/80 |	Consider referral for better BP control |
23		eGFR < 45ml/min | High SBP>150mmHg | Diabetes | Card	BP-needs better control<130/80 |	Consider referral for better BP control |
24		Diabetes | Cardiovascular disease |	BP-needs better control<130/80 |	Consider referral for better BP control |
25		Diabetes |	BP-needs better control<130/80 | Check ACR |	Consider referral for better BP control |
26		eGFR < 45ml/min | High SBP>150mmHg | Diabetes | eGFF	BP-needs better control<130/80 | Consider ACE/ARB | Check eG	Consider referral for CKD 4 or 5 patients |
27		eGFR < 45ml/min | ...and Hb<10.5g/dl | Diabetes | eGFR declining - expected <15 by 80yo | Cardiovascular disease | Curren		Consider referral for CKD 4 or 5 patients |
28		eGFR < 45ml/min | Proteinuria present | Diabetes | Cardio	Consider ACE/ARB | Check eGFR |	Consider referral for CKD 4 or 5 patients |
29		eGFR < 45ml/min |		Consider referral for CKD 4 or 5 patients |
30		eGFR < 45ml/min | High SBP>150mmHg | Cardiovascular	BP-needs better control<140/90 | Check eGFR |	Consider referral for CKD 4 or 5 patients |
31		eGFR < 45ml/min | Cardiovascular disease |		Consider referral for CKD 4 or 5 patients |
32		eGFR < 45ml/min | High Chol>6mmol/l | eGFR declining - e	Check eGFR |	Consider referral for CKD 4 or 5 patients |
33		eGFR < 45ml/min | Diabetes | Cardiovascular disease |	BP-needs better control<130/80 | Check eGFR | Review NSAID u	Consider referral for CKD 4 or 5 patients |

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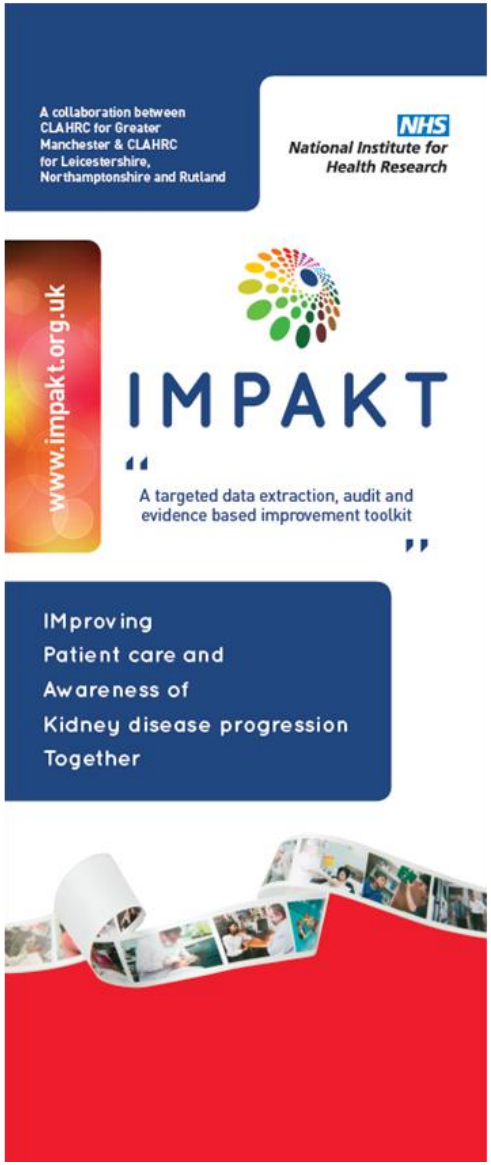

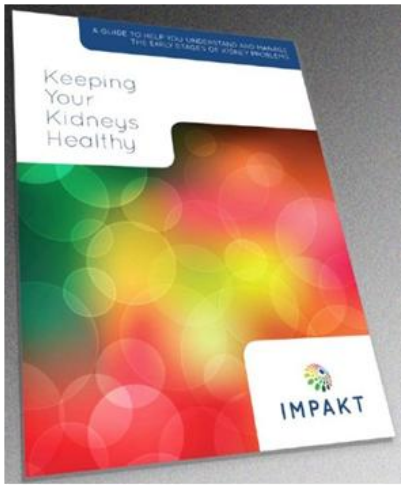

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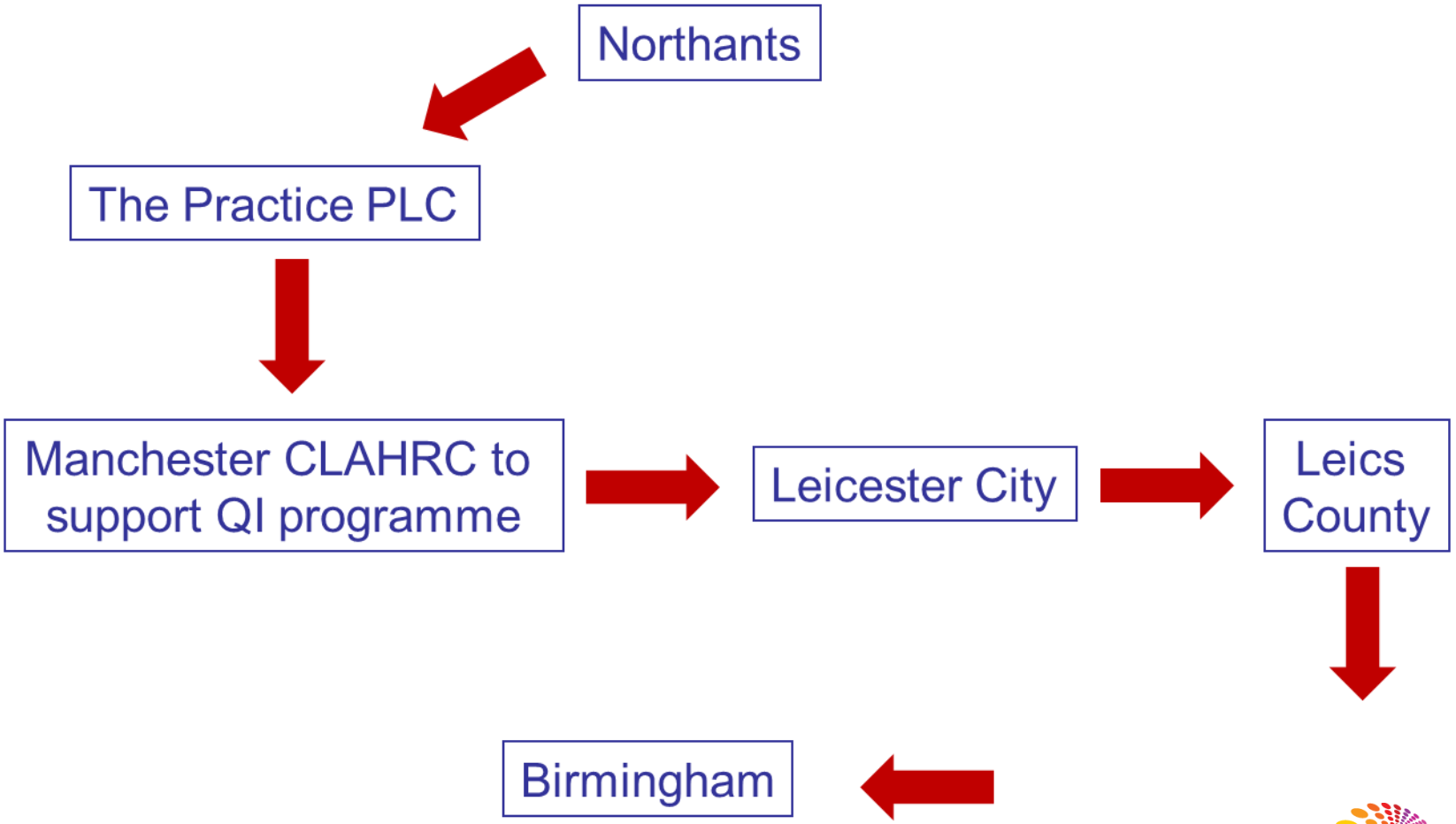

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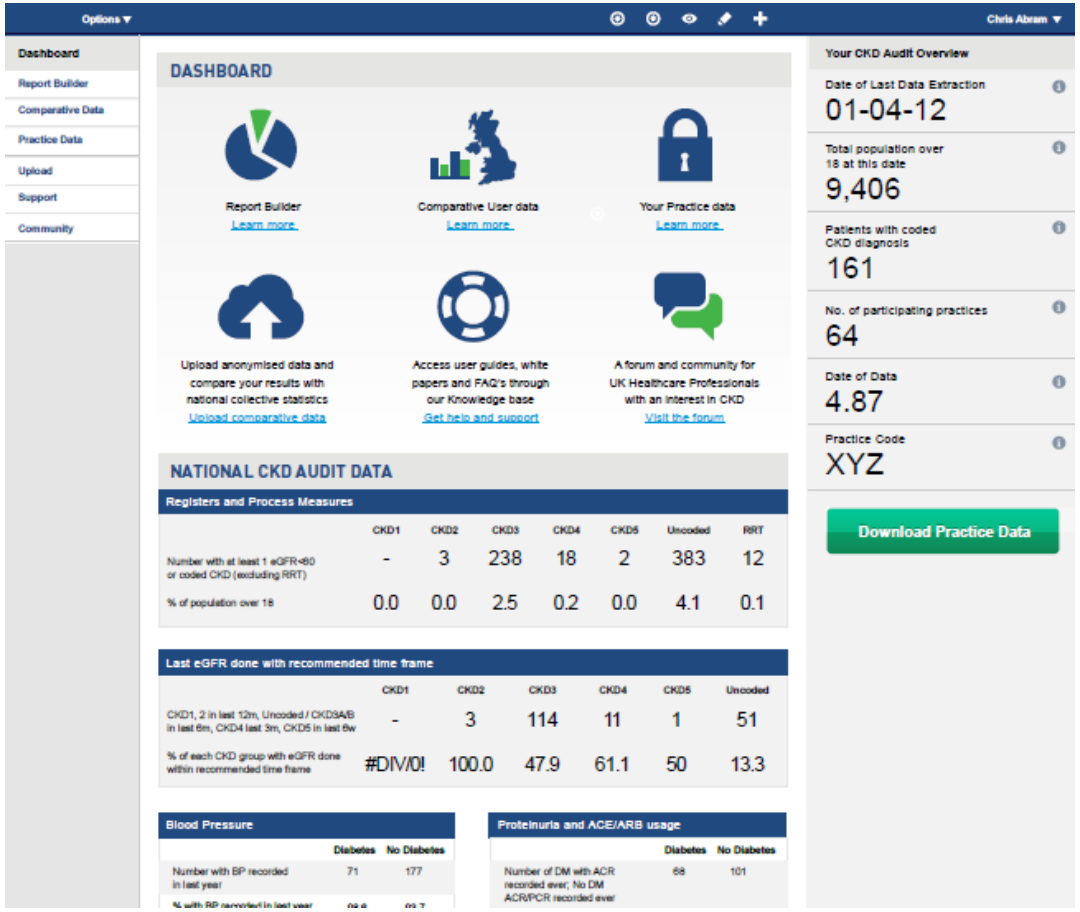
Draft screenshot of IMPAKT tool



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Further Information

www.impakt.org.uk

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