Renal patients' perspectives on medication supply, prescription management, and waste reduction strategies

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Effective medication management is crucial for renal patients, given the complexity of their treatment regimens and the potential for medication wastage. This study explores the experiences of renal patients, focusing on the challenges and solutions related to medication supply, wastage, and patient education.

An online listening event was conducted with renal patients, including those who have undergone dialysis and kidney transplants. The discussions highlighted several key issues: the difficulty in managing repeat prescriptions, the wastage of medications due to dosage changes, and the challenges faced by patients living in rural areas. Patients shared their experiences with the NHS App for ordering prescriptions, the recycling of blister packs, and the communication gaps between hospitals, clinics, and GP surgeries.

One significant finding was the high level of medication wastage during the initial post-transplant period, as dosages were frequently adjusted. Patients also reported issues with receiving duplicate medications upon discharge from the hospital, leading to unnecessary stockpiling and wastage. For instance, one patient mentioned, "When I was discharged from hospital after my transplant, your medication is going up and down (sometimes weekly) and I was changing dosages a lot and a lot of wastage happened then" (Participant 3). Another patient echoed this sentiment, stating, "There is a huge wastage of medication when trying to get your correct dosage sorted" (Participant 4).

The study suggests that better coordination between healthcare providers and improved patient education could mitigate these issues. Patients emphasised the importance of communication, with one noting, "It's more really about communication between hospital, clinic and GP surgery and how the information filters through" (Participant 1). Another patient highlighted the benefits of the NHS App, saying, "I think it's brilliant and really easy to use. It comes up with a list of my prescription medications and I can tick off which ones I want" (Participant 3).

The insights gathered from this event have informed several recommendations to enhance medication management for renal patients. These include the implementation of smaller initial medication supplies post-transplant, the use of digital tools for better prescription management, and the establishment of recycling programs for medication packaging. Additionally, fostering better communication between healthcare providers and patients is essential to ensure that medication regimens are accurately followed and wastage is minimised. For example, one patient suggested, "If you had one of these [recycling programs] at the hospitals where patients could bring the blister packs back, then this would help with recycling" (Participant 4).

This study underscores the importance of patient-centered approaches in medication management and highlights the need for ongoing dialogue between patients and healthcare providers to address the unique challenges faced by renal patients. By focusing on sustainability and reducing medicine waste, these efforts contribute to the NHS net zero target and promote a more environmentally responsible healthcare system.

The hidden inequality: Prescription Charges impacting access for kidney transplant recipients across the UK - A retrospective multi-centre audit

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Introduction

Kidney transplantation is the gold standard treatment for kidney failure, but recipients rely on medication to maintain transplant function and quality of life. Poor adherence can lead to worse outcomes, transplant loss, and, in severe cases, death.

Background

In the UK, NHS care is free, but medications incur a fixed-fee charge per item. Some patients are exempt from charges due to age, benefits, or long-term conditions, but solid organ transplant recipients are not. In devolved nations (Northern Ireland, Scotland, and Wales), there are no prescription charges. In England patients can choose to buy a prepayment certificate, though for many this is still unaffordable. Patients receiving home-delivered medications do not pay charges, because these routes lack infrastructure to collect a charge. However, those using hospital or community pharmacies must pay or prove exemption.

Although schemes like the low-cost HRT prepayment certificates exist, no equivalent exists for transplant recipients. Kidney Care UK and the National Kidney Federation report that transplant patients “feel discriminated against”, with some skipping or reducing medication to save costs, increasing the risk of rejection and graft loss.

Methods

The UK Renal Pharmacy Group (UKRPG) research group developed a 12 point data collection tool to determine route and length of supply for immunosuppression and supportive therapies (e.g. antibiotic/viral prophylaxis, GI protection). Respondents were also asked if they have been asked by patients to help rationalise supplies, if prescription charges were subsidised by the trust and for general comments.

The survey was sent to the UKRPG’s online WhatsApp community, comprising 160 renal pharmacists in UK referring and transplanting renal centres over a two week period.

Results

29 units responded (69% transplanting Vs 31% referring centres). Most units maintained immunosuppression supplies long term but very few subsidise prescription charges (see figure 1).

Immunosuppression is largely supplied via homecare (45%) without a means to collect charges which likely under-represents the difficulty patients face paying for their medicines. 45% of immunosuppression is supplied directly by Trusts or community pharmacies and 10% combine both.

Non-immunosuppression is largely supplied via non-homecare routes (97%) and charges would be collected unless patients are exempt.

52% of respondents stated they had been asked by patients which medication they could “do without” but 97% of those surveyed would support a revision to the exemption classification, with the majority (69%) supporting transplantation as an exemption.

Other improvements suggested include the introduction of a low cost certificate, akin to the HRT certificate (25%) or use of pre-payment certificates (6%) but charges are only collected in England.

Conclusions

Devolved nations offer wholesale free prescriptions. Whilst other schemes aim to reduce financial barriers to care, transplant recipients in England are disadvantaged and face costly prescription charges. This can lead to reduced medication adherence for critical medications, poorer patient outcomes, and higher healthcare costs due to the need for rejection and graft failure treatments.

Audit to investigate haemoglobin levels following switch of ESA brand for haemodialysis patients.

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Introduction

Anaemia is a common complication in Chronic Kidney Disease (CKD). Erythropoietin stimulating agents (ESAs) such as Eprex (epoetin alfa) are used to manage haemoglobin (Hb) anaemia of CKD.. As part of a cost-savings initiative in June 2023 we switched haemodialysis patients on Eprex to Retacrit (epoetin zeta). Retacrit is a biosimilar of Eprex and evidence suggests pharmacologically as efficacious . This switch had taken place successfully in an American renal site with no safety signals and anecdotal data from a UK site. This audit aims to evaluate the clinical impact of the ESA switch investigating into the haemoglobin stability, dosing patterns and the requirement for dose adjustments.

Objectives

- To determine whether ESA brand switching impacted Hb levels and compromised patient safety

Method

The Trust switched all haemodialysis patients from Eprex to Retacrit in June 2023. Patients were switched dose for dose if their Hb was in range and if Hb was out of range a dose adjustment was made at the time. Patients had their Hb measured at their scheduled routine blood testing post-switch and the consultant in charge of the patient would optimise the dose if required at that point. We analysed data using the electronic renal system for the patients in a single dialysis unit. The patient's weekly Eprex dose pre switch and weekly Retacrit dose at the point of switch were recorded. Hb was recorded for two months pre and two months post switch.

Results

112 haemodialysis patients were included in this audit. Table 1 illustrates the level of adherence to set standards pre and post-switch.

Discussion

The findings from this audit demonstrate that brand switching did not compromise Hb stability. The average Hb remained virtually identical pre-switch (108.36 g/L) and post-switch (108.12 g/L) suggesting the pharmacological efficacy of Retacrit is comparable to Eprex and more importantly across sampled population caused no significant harm. Adherence to standard 3 was illustrated through the results of the Hb range becoming tighter post-switch compared to pre-switch. The narrower range could have been attributed to the dose adjustments made at the point of dose switch (42/112 (37.5%)) coinciding with the overall average weekly dosing of Retacrit (11,015 IU) compared to Eprex (10,970 IU) being higher. Further investigations would be needed to determine whether dose adjustments did tighten the range. There was non-adherence to standard 1 as the number of patients outside of NICE CKD guidance Hb level (100-120 g/L) range rose from 32.1% to 37.5%. This relatively small increase post-switch isn't truly indicative of introduction of Retacrit; there are several factors to consider that may have influenced Hb.

Overall, it is evident that the switch from Eprex to Retacrit was a success in the Trust as patient safety wasn't compromised. This audit provides further evidence to wider Trusts to consider ESA alternatives as a cost-savings strategy and potentially improve clinical outcomes for haemodialysis on ESAs as demonstrated in this cohort.

Optimisation of medications to delay the progression of chronic kidney disease and improve cardiometabolic risk factors in a holistic, person-centred multimorbidity pharmacist-led clinic

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Introduction

Early intervention to modify blood pressure (BP), lipid management and glycaemic control can slow chronic kidney disease (CKD) progression and avoid the requirement for renal replacement therapy (RRT). The combination of renin-aldosterone angiotensin system inhibitors (RAASi) and sodium-glucose co-transporter 2 inhibitors (SGLT2i) can delay progression to end-stage kidney disease by up to 15 years. NICE recommends the use of RAASi, SGLT2i and statins for people living with CKD, with the addition of finerenone for people living with proteinuric diabetic kidney disease.

At the current rate of dialysis growth, London will exceed its capacity for RRT by 2036. South East London (SEL) data shows that only 50% of people with CKD are on optimised medications to delay disease progression. 33% of people with proteinuric CKD are not on RAASi; 33% of people with CKD have uncontrolled BP and 25% are not on lipid lowering therapy.

Multimorbidity pharmacists are integral to enhancing care for these patients by providing holistic management in a shared decision-making approach focusing on medicines optimisation using evidence-based medicine, structured diet/lifestyle advice and addressing polypharmacy to improve outcomes that align with the NHS 10-year plan to transition from sickness to prevention.

Methods

A multimorbidity pharmacist-led CKD medicines optimisation clinic concordant with local and national guidance was implemented in a London hospital in January 2025. Patients seen in consultant-led nephrology clinics were referred as clinically appropriate; referrals for patients with an estimated glomerular filtration rate less than 20ml/min, pregnant or breastfeeding were rejected. Comprehensive consultations were carried out to review co-morbidities, observations, blood test results, medications, diet and lifestyle, with a treatment plan agreed jointly with the individual. Data was collected for each patient, including number of contacts with the pharmacist, medication interventions (categorically grouped in initiation, optimisation and deprescribing), education or counselling intervention (including diet and lifestyle) and referrals to specialist teams.

Results

Data was collected for 18 clinics (January to July 2025), 54 patients were seen in clinic with a total of 100 patient contacts. A total of 190 interventions were made with 51% (97/190) related to medications. 92% (89/97) of the medication interventions were related to CKD, cardiovascular disease and diabetes management. 26% (23/89) of these interventions were for the initiation/management of finerenone, 24% (21/89) for RAASi initiation/optimisation, 21% (19/89) for lipid management (initiation/optimisation of statins and ezetimibe), 20% (18/89) for BP management (out of which 50% (9/18) were deprescribing anti-hypertensives), 6% (5/89) for SGLT2i initiation and 6% (5/89) for diabetes management. 8% (8/97) of medication interventions were classed as other (not related to CKD, cardiovascular disease or diabetes management).

The remaining interventions comprised 11% (10/93) for referrals to specialist teams, 44% (41/93) for medication counselling, 43% (40/93) for diet/lifestyle advice and 2% (2/93) for other non-pharmacological interventions.

Discussion

Multimorbidity pharmacists are transformational in supporting the sustainability of the NHS by optimising medications for patients with CKD and cardiometabolic risk factors to delay disease progression, promote medicines safety and efficiently deliver holistic, person-centred care encompassing pharmacological and non-pharmacological approaches.

Chronic kidney disease management and prescribing patterns in UK primary care: a cross-sectional analysis using Clinical Practice Research Datalink

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Introduction:
Chronic kidney disease (CKD) affects over 10% of adults in the UK, representing a major driver of cardiovascular morbidity and mortality. Uncontrolled albuminuria increases the risk of end-stage kidney disease (ESKD) and substantially increases cardiovascular risk, with 40-50% of individuals with ESKD dying from cardiovascular complications such as stroke and heart failure. Guidelines highlight early pharmacological interventions to slow CKD progression and mitigate cardiovascular complications. Two cornerstones of treatment are renin-angiotensin-aldosterone system inhibitors (RAASis), which reduce albuminuria and regular blood pressure (BP), and statins, which lower cardiovascular risk regardless of baseline lipid profile. Optimal BP management is also central to improving outcomes. However, evidence suggests inconsistent uptake of these therapies in real-world practice. Improving care pathways is vital to addressing these gaps. This study aimed to examine prescribing patterns and BP control among individuals with CKD in UK primary care using routinely collected data.

Methods:
A cross-sectional analysis of 50,000 adults from Clinical Practice Research Datalink (CPRD) Aurum was conducted. CKD was defined by either a diagnostic code for CKD, or the presence of two abnormal biochemical results recorded at least 90 days apart: estimated glomerular filtration rate <60 mL/min/1.73 m2 or urinary albumin-to-creatinine ratio (uACR) ≥3 mg/mmol. Primary outcomes were at least two prescriptions of RAASis and statins six months before the index date, and BP control (<140mm/Hg) 12 months before the index date. Univariable and multivariable logistic regression examined demographic and clinical covariates associated with each outcome. Missing uACR data were addressed using multiple imputation, under the assumption of data were missing at random. Analyses were performed at a 5% significance level.

Results:
2,405 individuals meeting pre-defined criteria for CKD (Stages 3A-5) between 2011 and 2020, with mean age of 72.7 years and 58.1% female (Table 1). Just over half (55.5%) had CKD coding. Despite universal statin eligibility in this population, only 26.6% were prescribed one. Due to 59.7% missing uACR data, 4.8% met RAASi eligibility and 14.6% received treatment. BP control was achieved in 52.8% of the study cohort. CKD coding status was a strong predictor across all three outcomes (Figure 1), with those with a CKD code more likely to receive a RAASi (adjusted odds ratio [aOR] 1.38; 95% confidence interval [CI] 1.07–1.77) and a statin (aOR 1.41; 95% CI 1.15–1.72), and were more likely to achieve adequate BP control (aOR 1.33; 95% CI 1.12–1.58). Multimorbidity significantly increased odds of treatment uptake (Figure 2), with individuals with both diabetes and hypertension more than three times as likely to receive RAASis (aOR 3.62; 95% CI 2.53–5.18) or statins (aOR 3.45; 95% CI 2.60–4.58). Age-dependent effects were observed in statin use, with those aged 60-70 more likely to receive a statin. Some gender disparities were evident, with women associated with poorer BP control (aOR 0.78; 95% CI 0.58–0.93).

Conclusion:
Challenges persist in CKD coding and albuminuria testing, which limit opportunities for risk-stratified care and contribute to the underutilisation of available interventions. Targeted interventions should focus on individuals with CKD without diabetes to ensure equitable management.

Effectiveness and patient satisfaction of a pharmacist-led secondary care hypertension clinic in East Kent Hospitals (EKH)

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Introduction

Secondary-care hypertension clinics in the UK are largely provided by doctors. Existing literature has demonstrated benefits of primary-care pharmacist-led hypertension interventions, but little is known regarding the pharmacist's role in secondary-care settings.

EKH hypertension clinic referral criteria align to NICE hypertension guidelines and BIHS position statements. This service evaluation compares efficacy, patient satisfaction and cost-effectiveness provided by an advanced prescribing pharmacist (P) vs. a consultant nephrologist (N).

Methods

Retrospective extraction of demographic, administrative and clinical data for new referrals seen during 2023 (n=134). Patients who did not attend follow-up appointments, died or switched clinicians were excluded from effectiveness analysis. Separately we distributed patient feedback surveys from Oct 2024 through June 2025. Data were collated and analysed using Microsoft Excel, and results are presented as descriptive statistics.

Results

Referral for investigation (aged <40 or other reason, n=80): P more likely to organise endocrine tests (99.3% vs. 75.7% for N), and imaging (42.2% vs. 35.1% for N). Secondary cause identification was 2.2% vs. 5.4% for P and N respectively.

Referral for uncontrolled, resistant or drug-intolerant hypertension and followed up to discharge (n=35): mean clinic BP from baseline to discharge -11.4/6.4 mmHg (P) vs. -6.4/2.8 mmHg (N); average home BP -16.8/5.0 mmHg (P) vs. -20.1/7.0 mmHg (N). BP control at discharge was 80% (P) and 88% (N). The average number of antihypertensive medications prescribed remained unchanged from referral to discharge (3.2 for P, 2.8 for N) with treatment intensity score changes of -0.2 for P and +0.05 for N.

Median number of appointments and staff costs per completed episode were 3 and £267.61 for P (n=52) vs. 2 and £339.70 for N (n=52).

Conclusion

Pharmacist-delivered specialist hypertension clinics demonstrate comparable efficacy and patient satisfaction to consultant-delivered services while offering greater cost-effectiveness. These findings support integration of prescribing pharmacists into secondary-care hypertension services.

A clinical audit to review the adherence to Trust policy for prescribing and monitoring of vancomycin, gentamicin and amikacin in inpatients receiving haemodialysis

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Introduction

Over the past several years, it has become common practice to administer intravenous antibiotics during haemodialysis sessions, due to ease of administration as well as monitoring in these high-risk patients. It is widely recognised that antibiotic prescribing is commonly influenced by an individual clinician's preference and experience and this variation in dosing can lead to risk of therapeutic failure, toxicity, and antimicrobial resistance when suboptimal dosing regimens are prescribed[2]. In order to mitigate this, Trust policies have been formulated using a range of resources in order to enforce the best prescribing practice in relation to both efficacy and toxicity[1].

Methodology

All haemodialysis patients prescribed vancomycin, gentamicin or amikacin during inpatient admission over a 6-month period from 01/11/24 to 30/04/25 were flagged. Patients under 18-years-old, receiving prophylactic doses post line insertion, receiving doses intraperitoneally, on CVVHDF in ITU or transplant patients no longer receiving haemodialysis were excluded. The patients were then systematically reviewed by a pharmacist.

Results

265 individual prescribed administrations were flagged. These were then combined into complete antibiotic courses, exclusions removed, and adherence of 66 remaining prescription courses reviewed according to Trust policy.

For vancomycin, 39 prescription courses were flagged; 77% of patients received a loading dose, and of these 87% received the correct loading dose based on actual body weight (67% of total cohort); 77% received the correct maintenance dose; 100% of patients received a trough vancomycin level prior to subsequent doses and 100% received a review by a renal doctor; 72% of prescriptions were reviewed by a pharmacist.

For gentamicin, 24 prescription courses were flagged; 58% received the correct maintenance dose; 100% of patients received a trough gentamicin level prior to subsequent doses and 100% received a review by a renal doctor; 50% of prescriptions were reviewed by a pharmacist.

For amikacin, 3 prescription courses were flagged; 67% received the correct maintenance dose; 100% of patients received a trough amikacin level prior to subsequent doses and 100% received a review by a renal doctor; 33% of prescriptions were reviewed by a pharmacist.

Discussion and conclusion

The data collection took place over a 6-month period in order to provide a longitudinal assessment of prescribing. Assessment of adherence to the 'pharmacist review' standard was more challenging, as dialysis prescriptions fire onto the drug chart as 'once only' doses and are removed once administered, therefore they may no longer be available for pharmacists to mark as 'verified'.

This audit has highlighted areas of good practice, for example ensuring trough levels are taken prior to further doses, as well as ensuring that all dialysis patients have their antibiotic treatment reviewed by a member of the renal team.

It has also highlighted areas for improvement, namely omission of loading doses, incorrect loading doses, and incorrect maintenance doses. This lack of adherence may lead to issues such as supratherapeutic levels (toxicity), subtherapeutic levels (therapeutic insufficiency), or antimicrobial resistance. Further investigation into these prescriptions is warranted to ascertain whether any of these issues occurred and lead to potential harm in these patients.

The role of integrated multi-specialist pharmacists in the delivery of a multi-LTC cardiovascular-renal (kidney)-metabolic model of care in London, UK

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Introduction

Significant health inequalities exist in South East London (SEL) with a high burden of cardiorenal metabolic (CRM) diseases, associated with premature mortality. Pharmacists deliver holistic, person-centred care by optimising medications, addressing polypharmacy and improving adherence, traditionally working within a single specialty.

Our aim was to embed two multi-specialist pharmacists (MSPs) into an integrated CRM model of care in SEL that aligns with the NHS Long Term Plan to support transition from sickness to prevention through integrated neighbourhood team working; deliver targeted CRM education and training (E&T); improve patient outcomes through evidence-based treatment optimisation and promote medicines safety.

Methods

From November 2024, two MSPs were appointed in a SEL integrated CRM model of care across primary and secondary care. The MSP role involves optimising CRM risk factors in secondary and intermediate care patient facing clinics; providing specialist E&T to healthcare professionals (HCP) and supporting complex case management through integrated multidisciplinary team meetings (MDTs) across the care interface.

MSPs implemented service improvement projects in secondary care using electronic searches to identify suitable patients. Firstly, a novel pathway was developed to discharge patients with stable CKD stage 3 (CKD3) and/or type 2 diabetes (T2D) to primary care using MDT support. Secondly, patients with low renal clearance at high risk of hypoglycaemia (eGFR 10-20 ml/min, HbA1c less than 58 mmol/mol, taking insulin and/or sulfonylureas) were identified and interventions to reduce the risk of hypoglycaemia recorded.

Results

MSPs completed 161 holistic patient reviews across 30 clinics from January to July 2025, making 156 medication interventions to optimise CRM risk factors and 146 dietary and lifestyle interventions.

From November 2024 to August 2025, MSPs delivered 8 clinical education sessions to primary care teams reaching 628 attendees; discussed over 150 complex patient cases at 50 MDTS, and from June 2025, established a monthly cross-site, multispecialty E&T programme for secondary care pharmacists across SEL.

In trust A and B, a total of 70 and 45 patients with stable CKD3 were identified respectively, of which 36% (25/70) and 20% (9/45) are in the process of being discharged to primary care with MDT support. Trust C identified 29% (10/35) patients with CKD3 and T2D with a HbA1c less than 69 mmol/mol as being suitable for discharge to primary care with MDT support.

Trust A and B identified 59 patients with low renal clearance at high risk of hypoglycaemia, with 59% (35/59) of patients contacted, 24% (14/59) failed contact (these patients had letters sent to their GP) and 17% (10/59) not contacted as no intervention required. For those contacted, treatment was de-escalated in 11% (4/35) of patients, 49% (17/35) of patients were educated on how to adjust insulin doses as needed, 91% (32/35) of patients were provided with education on hypoglycaemia and 31% (11/35) had other interventions provided.

Discussion

MSPs have a key transformative role in providing integrated and comprehensive care to patients with multiple long-term conditions, to optimise patient outcomes and shift from a reactive to preventative care approach, aligning with the NHS Long Term Plan.

Improving chronic kidney disease care in south east London: a proactive, integrated and holistic model of care

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Introduction

South East London is ethnically diverse (47.2% non-White), with high levels of socioeconomic deprivation. One third of the population (650,000) are living with a long-term condition (LTC) and over 26,000 have two or more cardiorenal metabolic LTCs. However, CKD is often missed or mis-coded with local registers capturing only half the expected prevalence. People with un-coded CKD have double the mortality rate of their counterparts. Early identification and medicines optimisation with ACEi/ARBs and SGLT2 inhibitors can improve clinical indicators and delay the need for dialysis by over 15 years, improving both patient outcomes and NHS sustainability.

Our aim was to build a person-centred, holistic, horizontally and vertically integrated model of care for people with multiple LTCs, and effectively use data and risk stratification to improve early identification of CKD and optimisation of modifiable risk factors.

Methods

To develop an integrated model of care, six project sites were identified, one within each SEL borough, across 4 acute hospitals and 72 GP practices. These borough-based Integrated Neighbourhood Teams (INTs) used a validated risk stratification tool (APL-Renal) to identify patients at risk of CKD. Patients were triaged into pathways for targeted optimisation ("long list") or complex case management ("short list"), supported by primary care, community teams, specialist consultants and multi-specialty pharmacists. Evaluation assessed differences between participating and non-participating practices across a range of quantitative clinical data, using a difference-in-difference method with Z-scores to test the significance of observed changes. Complementary staff and patient surveys were undertaken in participating practices to capture experiential insights.

Results

CKD prevalence increased by 3.9% in participating sites compared to 3.3% in non-participating sites). Statistical testing indicated this difference was not significant (Z-score 0.9466), meaning the improvement may still reflect natural variation or recognise that there are other push factors to increase CKD prevalence across SEL.

Among patients with CKD and diabetes, prescribing of SGLT2 inhibitors displayed a statistically significant (Z-score 2.2144) increase of 13.9% at participating sites (compared to 8.3% in non-participating sites), aligning with best practice and supporting delayed progression to dialysis.

We observed an improvement in blood pressure control for 'long-list' patients (from 76.6% to 79% achieving treatment target), however this was not statistically significant (Z-score 0.6715).

Non-elective admissions in 'long-list' patients saw a statistically significant decrease of 20 to 7 per 100 patients (Z-score 7.97). Renal/cardiology/diabetes outpatient attendances also saw a statistically significant decrease (Z-score 3.5774) from 36 to 22 per 100 patients.

Patients reported feeling better supported and more involved in decisions about their care and 95% of patients would recommend the service to others. Staff reported improved collaboration, holistic care, and job satisfaction with many viewing it as a more sustainable method of working.

Discussion

A proactive, risk-stratified and integrated care model can significantly improve early detection and optimisation for CKD, helping to delay disease progression and reduce reliance on specialist services. This model shows promise in addressing health inequalities, reducing NHS pressures across the system by streamlining care pathways and supporting sustainable, personalised care for patients.

A service evaluation of anti-Xa measurements in patients with kidney impairment in a tertiary centre

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Background: Pre-emptive dose reduction of low-molecular weight heparins (LMWHs) is often utilised in those with renal impairment to prevent bioaccumulation. We describe the association of a pre-emptive dose reduction of dalteparin and its effect on anti-Xa range. We also correlated anti-Xa values with clinical outcomes.

Methods: We undertook a service evaluation of patients with renal impairment (eGFR < 30 ml/min/1.73m2) receiving therapeutic dose dalteparin. Demographic and clinical variables such as age, sex, weight, creatinine clearance (Cockcroft-Gault), dalteparin dose and frequency were recorded. Anti-Xa monitoring includes both peak and trough levels. Trough anti-Xa levels are drawn immediately before the third dalteparin dose using a chromogenic assay, with a target of less than 0.25 U/mL for twice daily dosing. Peak levels are measured four hours after the third dose, in accordance with local monitoring practice. Major bleeding (fatal bleeding, critical site bleeding, Hb drop > 20 g/L, or transfusion of ≥ 2 units) and clinically relevant non-major bleeding (CRNMB, not meeting the major bleeding definition but requiring medical intervention by a healthcare professional, leading to increased level of care, or prompting an evaluation) were defined by ISTH criteria. All cause mortality was assessed through three months post initiation. Bleeding and thrombosis events were noted while the patient was on dalteparin. A multivariate Cox proportional hazards model was employed to assess the relationship between anti-Xa levels and the incidence of bleeding and mortality.

Results: A total of 103 patients were identified over a two-year period. Seventy-eight (75.7%) had anti-Xa monitoring done. Trough anti Xa distribution was within target in 58 (75.6%). Patients on dialysis had a higher incidence of bleeding (19 vs 12, p < 0.05). Weight ? 55kg vs > 55kg (p = 0.729) and BMI ? 18 vs > 18 (p = 0.519) were not correlated with bleeding events. There were no thrombotic events while on dalteparin.

Bioaccumulation of dalteparin, defined as a subsequent trough anti-Xa level exceeding 0.25 U/mL in patients whose initial trough level was ≤ 0.25 U/mL, was observed in 12 patients. Three of whom were on dialysis. The median time to bioaccumulation was 19 days.

Patients with bleeding had significantly higher median anti Xa trough (0.26 vs 0.13 U/ml, p < 0.01). The same was not found in median anti Xa peak (0.39 vs 0.36 IU/ml, p = 0.436). In multivariate Cox models, only anti Xa trough remained an independent predictor of bleeding (OR = 1.47 per 0.1 U/ml, 95 % CI: 1.05-2.15; p < 0.05). No predictors of mortality were identified.

Conclusion: In this report, trough anti Xa measurement of dalteparin independently predicts bleeding in patients with renal impairment. Patients receiving dalteparin, particularly for longer durations, may be at increased risk of accumulation-related bleeding. Further prospective, larger studies are warranted to validate these results before it can be universally recommended in clinical practice.

K-FiT: A novel weight loss programme to enhance access to transplantation for patients living with end-stage kidney disease and obesity

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Introduction:
Obesity is one of the greatest public health challenges of the 21st century. In patients with end-stage kidney disease(ESKD), obesity poses additional challenges particularly for those needing transplantation.
Patients living with obesity have increased risk of perioperative complications and may have worse outcomes. There is no consensus on the degree of obesity above which the risk of perioperative complications outweigh the benefit, and obesity is often the sole barrier to kidney transplantation.
The Royal Free London have developed, to our knowledge, the first weight management programme combining psychology, dietetics, physiotherapy and pharmacology to treat this ever increasing population.

Method:
K-Fit employs An MDT approach, integrating psychology, dietetics, physiotherapy, and pharmacology.
Patients have set weight or waist-to-height ratio targets for transplant list activation.
Patients are initially assessed by the MDT to assess suitability and ensure obesity is the sole barrier to transplantation.
Patients follow a rotating schedule with a dietitian, physiotherapist, and pharmacist monthly for 6-12 months.
Semaglutide is prescribed for up to 1 year to support weight loss.
Weight, BMI, Duke Activity Status Index(DASI), handgrip and waist circumference are assessed at regular intervals.

Results:
31 patients are currently progressing through the programme, 12 have been discharged due to non-attendance or adherence. We report on 17 patients who have reached 6 months. Results demonstrate improvements in weight(kg), waist to height ratio, Duke Activity Status Index(DASI), physical activity and handgrip. 11 patients have met their target weight and have been activated, and 2 have been transplanted.
Conclusion:
K-Fit demonstrates that a structured, MDT led programme combining psychological support, dietary interventions, physiotherapy, and pharmacology can significantly enhance access to kidney transplantation for ESRD patients living with obesity, and can offer a viable alternative to bariatric surgery. In a 6 month period 11 patients have met their target weight and have been activated on the Tx wait list with many more heading towards the same goal. We have also shown that GLP-1 agonists are a promising and safe weight loss tool for ESRD patients.

Finerenone in diabetic kidney disease: a retrospective review of kidney function, potassium and proteinuria in a chronic kidney disease medicines optimisation clinic in secondary care

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Introduction

Finerenone is a novel non-steroidal mineralocorticoid antagonist recommended by NICE in 2023 for treating stage 3 and 4 chronic kidney disease (CKD) with proteinuria (urinary albumin-creatinine ratio (uACR) equal to or greater than 3 mg/mmol) associated with type 2 diabetes (T2D) in addition to standard of care treatment with renin-aldosterone angiotensin system inhibitors (RAASi) and sodium-glucose co-transporter 2 inhibitors (SGLT2i).

The FIDELIO-DKD study demonstrated that finerenone in combination with RAASi/SGLT2i reduced risk of kidney failure, death from renal causes and a sustained decrease of at least 40% in the eGFR from baseline by 18% compared to patients with diabetic kidney disease and proteinuria treated with only RAASi/SGLT2i. Finerenone also reduced the risk of myocardial infarction, nonfatal stroke, death form cardiovascular causes and hospitalisation for heart failure by 17% compared to placebo in patients with diabetic kidney disease and proteinuria (FIGARO -DKD).

The use of finerenone is inequivalent across South East London with a lack of local data regarding hyperkalaemia, tolerability and efficacy limiting its use. This review aims to evaluate these factors in a retrospective approach to encourage prescribing more widely.

Methods

Data was collated and reviewed retrospectively for patients with proteinuric diabetic kidney disease (eGFR greater than or equal to 20 ml/min and uACR greater than or equal to 3 mg/mmol) optimised on RAASi/SGLT2i (as per tolerability), attending a specialist nurse/pharmacist led CKD medicines optimisation clinic at 3 hospital sites across one trust between July 2024 to August 2025. Demographic characteristics of patients (age and gender) and primary clinical results were collected at baseline, as well as changes in the eGFR (using CKD-EPI 2009 formula), serum potassium levels and uACR during follow up at 1, 3 and 6 months.

Results

In total, 100 patients with proteinuric (uACR greater than 3 mg/mmol) diabetic kidney disease (eGFR greater than 20ml/min with T2D) were initiated on Finerenone at three London hospitals in a CKD medicines optimisation clinic by a specialist renal nurse/pharmacist between July 2024 to August 2025. 71% (71/100) of the population were male and the median age was 68 years. At the point of review, 81% (81/100) of the population had follow up data at 1 month, while 49% (40/81) had data at 3 months and 22% (18/81) at 6 months. The average changes from baseline of eGFR, serum potassium levels and uACR for each cohort during follow up is shown in Table 1. At 6 months there was an overall improvement in kidney function (average eGFR increase of 5 ml/min) and proteinuria (average reduction in uACR of 52.8 mg/mmol) with no change in serum potassium levels.

9% (9/100) of patients had discontinued treatment with 44% (4/9) related to hyperkalaemia (notably all of these patients had a history of hyperkalaemia) and the rest had treatment discontinued as a result of other adverse effects.

Discussion

Real world practice indicates that treatment with finerenone and standard of care medications (RAASi/SGLT2i) is safe, effective and well tolerated in patients with proteinuric diabetic kidney disease.

Automated paediatric eGFR across a children's hospital - observational cohort study

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Objective
Creatinine results need transforming into estimated glomerular filtration rate (eGFR) to be useful clinically: for medication adjustments, to monitoring kidney deterioration, and to communicate severity of chronic kidney disease to families. This is standard practice in adult primary and secondary care.

In 2019 our children's hospital adopted electronic patient records (EPR). If a height is available within previous three months this automatic generates eGFR calculation using the Bedside Schwartz formula 2009 which is internationally most recognised and accepted for paediatric use. Clinicians view is as Figure 1 and graphs can be instantly generated. We studied its utility.

Design, setting, patients
Observational, electronic medical record enabled study of creatinine measurements at our hospital of children ≥12 months and <16 years between January 2022 and May 2023. Low eGFR was defined as <90 ml/1.73m2/min.

Results
41 286 creatinines were measured and height available so auto-generating 28 107 (68%) eGFR in 5264 children. 57% in-patient or emergency care episodes, remainder out-patients.
22% of eGFR measures were low with 3349 (12%) 60-89 and 2271 (10%) <60 ml/1.73m2/min. Low eGFR were most prevalent in nephrology (77%), intensive care (19%) and cardiology/cardiac surgery (17%) encounters (table).

Analysis of patients with ≥3 eGFR measurements found significantly more patients with initial low eGFR had greater fluctuations (+/- >10 ml/1.73m2/min) than normal eGFR patients, 175/250 (70%) vs 258/1213 (21%) ($p < 0.00001$). Figure 2 Sankey diagram shows variation over follow up period by starting eGFR.

Conclusion
With EPR it is feasible to auto-generate paediatric eGFR to create a similar tool as used in adult patients for monitoring kidney impairment. Fluctuations in eGFR were common especially with lower starting eGFR.

The NHS 10 year plan will transition all patients onto EPR with an ambition of cross readability across platforms, healthcare settings and geography. Automated eGFR in children will improve prescribing safety and monitoring of acute and chronic kidney impairment wherever they are being treated.

Service users review of the home delivery service for immunosuppression provided by Leicester

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Introduction: Patients with a renal transplant under the care of the university hospitals of Leicester receive their transplant medications through a home delivery service after month four of their transplant. It is an in-house home delivery service whereby their prescription is arranged by the Kidney pharmacy team and dispensed by the trusts outpatient pharmacy (trust med pharmacy) and delivered by external drivers. We deliver the medications as they are unable to receive their immunosuppression medications from their local pharmacy as they are hospital only medications. Their clinic appointments get further apart meaning needing more medications in-between appointments therefore we aim to supply 5 months' supply at a time.

Aim: To understand service users' opinions regarding the home delivery service and see what improvements can be made

Objectives:

- To understand what service users think of the service
- To see from a patients point of view if there are any improvements to be made.

Method

To collect this data we made a simple questionnaire asking patients their overall opinion of the service, what we do well and what could be improved. We sent this out to all our patients who we were able to contact through accurx

Results

We sent the survey out to 905 patients and received 214 responses (23.6% sample size)

What you think about the service

Very good	200
Good	6
no answer	6
satisfactory	2
Poor	0

What do you think works well with the service?

Communication	41
Convenient	7
Delivery	34
Everything	45
organised/ efficient	89
Simplicity	10
Staff	37

What can we do to improve the service?

Nothing	178
Deliver to safe space	2
Delivery date/times	4
Delivery note	2
Notification/delivery times	13
TMP staffing/ waiting time	3
other	4

Conclusion

The results show that the home delivery service for immunosuppression medications in the University Hospitals of Leicester has received overwhelmingly positive feedback from renal

transplant patients, with 200 patients rating the service as "very good." Key strengths identified include the service’s efficiency, organization, communication, and staff professionalism. While the majority of patients felt no improvements were necessary, a small number had suggestions related to delivery notifications and timing. Overall, the results are really encouraging and show that the service is making a positive difference

Maribavir use in managing cytomegalovirus infection among kidney transplant recipients

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Background
Refractory CMV is defined as an infection that does not respond well enough to usual treatments, suspecting resistance (an increase in 1 log10 or "persistence" of <1 log10 change in CMV viral load after 2 weeks of therapy). Refractory CMV encompasses CMV infection which is resistant (either suspected or confirmed) to first line treatments, with UL97 gene mutations being resistant to valganciclovir and ganciclovir. Previous options to treat these strains of CMV are limited to intravenous therapies, which often require an inpatient stay and can be nephrotoxic, requiring close monitoring with careful dose adjustments. UL54 gene mutations confer multidrug resistance, limiting therapeutic options further.
Maribavir is an oral antiviral for treatment for refractory CMV infection following solid organ or haematopoeitic stem cell transplantation, approved by NICE in January 2023.

Methods
Members of the UK Renal Pharmacy Group compiled real-world data for patients who have received maribavir in the UK prior to January 2025.

Results
Eight UK centres reported maribavir use in 18 patients, succeeding inadequate response to first line therapies. 12 patients (67%) successfully cleared CMV but reactivated following treatment cessation. Six patients required maribavir re-initiation with one of these patients requiring 3 courses. In total 25 courses of maribavir were completed. Table 1 outlines the details of the total treatment courses.

Conclusions
Maribavir is an effective and well tolerated oral option to treat refractory CMV in an outpatient setting, avoiding the associated costs of hospital facilities and reducing the need for nephrotoxic or myelotoxic alternatives.
The average treatment duration reflects reports from the SOLSTICE trial, however real-world data highlights high reactivation rates post treatment, and strengthens the importance of close PCR monitoring following treatment cessation.
Reported adverse effects were similar to the trials, but demonstrates the need for pre-emptive tacrolimus dose alterations to avoid toxicity and its associated nephrotoxicity.

Lymphocyte depletion post alemtuzumab administration in imlifidase enabled transplants; a UK wide case series

Mrs Sara Perkins[1], Mrs Andrea Devaney, Dane Howard
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Introduction:

Imlifidase is NICE approved for desensitisation treatment in highly sensitised adult kidney transplant patients with a positive crossmatch against an available donor.
Imlifidase temporarily cleaves human IgG sub-classes, providing a short window for kidney transplantation in highly sensitised patients, otherwise unlikely to receive a kidney.
High-quality, large-scale trials are lacking, resulting in uncertainty around optimal induction immunosuppression, particularly around timing of induction agents which are also inactivated by imlifidase.

We reviewed 4 imlifidase-enabled kidney transplants performed in three transplant units in 2024 and shared learning from using alemtuzumab induction.

Case presentation:

Patient A (Trust 1):
A 56-year-old male, second transplant (February), end of chain altruistic offer via deceased donor list, MM 1-2-1
Patient B (Trust 2):
A 47 year old male, third transplant (June), end of chain altruistic offer via deceased donor list, MM 0-2-1.
Patient C (Trust 1):
A 34-year-old female, third transplant (July), deceased donor transplant (DBD), MM 0-1-0.
Patient D (Trust 3):
A 52-year-old female, first transplant (October), deceased donor transplant (DBD), MM 2-2-0.

All four patients received induction with alemtuzumab (timing attenuated based on experience) and centre specific intensified triple therapy (IV/PO corticosteroids, mycophenolate mofetil and tacrolimus (target trough was 8 -14ug/L)).

Outcomes:

At day 28, 3 out of 4 patients remained in-patients and two were dialysis independent (patient A & C), see figure 1 for timeline.

Discussion:

This series highlights the evolution of imlifidase-enabled kidney transplants. Timing and choice of induction therapy remains unclear, due to variability in imlifidase's half-life and its effect on cleaving IgG based products. Imlifidase has a half life of 60-238 hours (mean 89) and the manufacturers data recommends an extended dose interval between imlifidase and other IgG based products, including commonly used induction therapies.

The need for intense clinical scrutiny and prompt immunosuppression adjustments according to clinical circumstance are essential. Early biopsy proven, T-cell mediated rejection (TCMR) was seen in 3 out of 4 cases, and one case was treated for suspected rejection so future strategies will need to

address this. This may include; administering alemtuzumab prior to imlifidase, a second, later dose of alemtuzumab, or alternative agents like eATG.

Protocolised biopsies and/or Tcell subset monitoring could inform earlier decision making and machine perfusion technology may give greater flexibility around critical timing of therapy. All these must balance the risks of ischaemic time, immunosuppressive burden, and long-term outcomes.

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Evaluating Clinic Effectiveness South-East London (CESEL) Guideline Compliance for Type 2 Diabetics with Chronic Kidney Disease (CKD) in South-East London

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Aim: To assess compliance with CESEL guidelines, identify key treatment gaps and explore barriers limiting optimal CKD management in patients with CKD and Type 2 Diabetes Mellitus (T2DM) at Guy's Nephrology Clinic, focusing on Renal- angiotensin- aldersterone system inhibitors (RAASi) and SGLT2i optimisation, and finerenone eligibility.

Objectives:

1. To evaluate compliance with CESEL guidelines for RAASi and SGLT2i therapy in patients with CKD and T2DM

2. To assess current use and optimisation of finerenone, and identify patients eligible for initiation

3. To explore barriers to optimal therapy through review of electronic health records (EHR) and London Care Record (LCR).

Background:

CKD affects ~ 10% of the global population, and when combined with T2DM, significantly increases the risk of cardiovascular events and kidney failure. Disease progression can be delayed through evidence-based pharmacological treatments, following a stepwise approach recommended by CESEL. Finerenone is licensed for Diabetic Kidney Disease (DKD) G3-4 with albuminuria, and listed as Amber-2 rated in South-East London (SEL), requiring specialist initiation and monitoring for six-months

Methodology:
Audit Standards were derived from CESEL guidelines, which are locally adopted at Guy's and St Thomas' NHS Trust (GSTT).

Retrospective data was collected for all current renal clinic patients between Oct 2023 and Jan 2025. Inclusion criteria were T2DM, CKD G3-4 (eGFR 25- 59mL/min), ACR >3 mg/mmol, K+ ≤ 5mmol/L. Exclusion data were Transplantation, Dialysis, Supportive Care and Deceased patients.

Statistical analysis tools used to assess optimisation trends and identify factors influencing RAASi, SGLT2i and finerenone use.

Results:
Primary review (n=128) included all eligible patients, secondary review excluded Heart Failure (HF) patients (n=112), to focus on finerenone eligibility.

The audit showed high levels of RAASi use (82.8%) and dose optimisation (85.8%), acceptable SGLT2i use (70.3%) and high proportion of patients eligible for finerenone treatment.

Lack of documentation was a common barrier to not achieving full compliance with the standards. However, 13.3% of patients were not prescribed therapy by primary care following clinic recommendations, highlighting the need for stronger communication pathways.

At the time of audit, no patients on finerenone

Patients with Stage 3b CKD were most likely to be optimised. Patients with CKD G4, optimisation was more variable suggesting more cautious prescribing.

A significant association was found between patient location and optimisation. This may reflect study limitations, including inability to access LCR for out of area patients, leading to under-documentation.

50.9% of patients were eligible for finerenone initiation, reflecting the gap between guideline expectations and practical challenges of initiating newer therapies in real-world setting

Conclusion:
While RAASi and SGLT2i use was encouraging, the gap between finerenone eligibility and initiation highlights missed opportunities, driven by documentation gaps and poor cross-sector communications.
Finerenone had recently been recommended by NICE and added to CESEL at the time of data collection, therefore widespread implementation cannot be expected due to recent local formulary approval and ongoing pathway integration.

A repeat audit is recommended following wider finerenone rollout; and system-level improvements such as EPIC-based prompts and shared-care documentation could enhance treatment optimisation.

Iron kinetics and factors associated with anaemia in haemodialysis patients

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Introduction

Anaemia is a common complication in chronic haemodialysis (HD) patients. It is multifactorial in origin and primarily due to reduced erythropoietin production, absolute or functional iron deficiency, impaired bone marrow responsiveness to erythropoietin, or blood loss. Key management strategies include the administration of erythropoiesis-stimulating agents (ESA) or hypoxia-inducible factor prolyl hydroxylase inhibitors (HIF-PHI), supplementation of iron, and improving dialysis adequacy to reduce bone marrow hyporesponsiveness. Despite following a proactive intravenous (IV) iron infusion protocol, a significant proportion of our HD patients remain anaemic. This study aimed to assess iron kinetics and identify factors associated with lower haemoglobin (Hb) levels in chronic HD patients.

Methods

In this retrospective, cross-sectional study, we evaluated 1,100 chronic HD patients from 14 satellite units. All units followed a proactive IV iron therapy protocol adapted from the PIVOTAL trial. Data on demographics, clinical characteristics, dialysis-related parameters (dialysis vintage, vascular access, URR, and eKt/V), and laboratory values (Hb, TSAT, ferritin, red cell distribution width, CRP, PTH, ALP, vitamin B12, and folate were collected). Following initial analysis, patients were grouped based on Hb levels into below standard (<100 g/L), within standard (100–120 g/L), and above standard (>120 g/L). Standard statistical analyses, including ANOVA and multiple linear regression, were performed to identify factors associated with Hb levels.

Results

Among the 1,100 chronic haemodialysis patients, 58.5% were male, with a mean age of 61 years. The ethnic distribution included Asian or Asian British (36.5%), Black (30%), and White (21%). The most common primary renal diseases were diabetic nephropathy and hypertensive nephropathy, with comorbidities of diabetes (45%), hypertension (65%), and ischaemic heart disease (30%). Figure 1 shows the distribution of Hb levels, TSAT, ferritin, and RDW across 14 satellite dialysis units. 35.32% of patients had Hb < 100 g/L, 52.42% had Hb within the range of 100–120 g/L, and 12.25% had Hb > 120 g/L. Mean ferritin, TSAT, and RDW were 772 µg/L, 28%, and 16%, respectively.

Patients with Hb < 100 g/L required ESA doses of 3.31 kg/month and had CRP levels of 16.06 mg/L, while ferritin showed a decreasing trend with increasing Hb levels, 837.62 µg/L for Hb <100 g/L, 754.62 µg/L for Hb 100–120 g/L, and 692.19 µg/L for Hb >120 g/L. TSAT and RDW values were consistent across groups. Multivariable regression identified ESA dose per kg per month ($p < 0.001$), CRP ($p < 0.001$), and ferritin ($p = 0.001$) as significant predictors of Hb levels.

Discussion

Despite proactive anaemia management, a significant proportion of haemodialysis patients remain below target Hb levels. Raised ferritin, increased RDW, and consistently low TSAT (mean 28%) suggest functional iron deficiency, where iron stores are adequate but poorly utilized. Elevated CRP and higher ESA requirements in patients with Hb <100 g/L indicate chronic inflammation and ESA resistance, likely mediated by elevated hepcidin. Treatment strategies to improve inflammation,

optimise iron utilisation, and tailor ESA therapy are essential. The use of HIF-PHI which has shown to improve iron homeostasis and its anti-inflammatory mechanism could improve anaemia outcomes in selected patients in this population.

Exploring Patient Views on the Implementation of Pharmacogenetic (PGx) Testing to Support Tacrolimus Prescribing in Adult Renal Transplant Recipients - An Explorative Qualitative Pilot Study

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Background/Aims:
Pharmacogenomic (PGx) testing has the potential to personalise medication regimens by considering genetic differences, particularly for renal transplant patients taking tacrolimus, an immunosuppressant with a narrow therapeutic window. Despite its potential benefits, little is known about patients' views on using PGx testing in this clinical setting. This study explores renal transplant patients' understanding, attitudes, preferences, and perceived barriers regarding PGx testing, acting as a pilot to inform future research and assess methodological feasibility.

Methods:
Qualitative data were gathered through focus groups with renal transplant patients from a large UK renal transplant unit. Participants were recruited via postal invitations and clinic discussions, with 10 consenting and 8 attending virtual focus groups on Microsoft Teams. Discussions were recorded, transcribed, and analysed using reflexive thematic analysis, guided by the Health Belief Model. This study received full ethical approval from the University of Bradford Research Ethics Committee and was reviewed and approved via the Integrated Research Application System (IRAS).

Results:
Participants were generally positive about PGx testing, recognising its potential to personalise tacrolimus dosing, reduce side effects, and stabilise drug levels. They acknowledged genetic differences in tacrolimus metabolism and saw PGx as a way to prevent frequent dose adjustments and lower the risk of organ rejection. Emotional stress from fluctuating tacrolimus levels and multiple dose changes was a key concern with current practice. Trust in healthcare professionals, especially doctors and pharmacists, strongly influenced participants' willingness to adopt PGx testing. Concerns about genetic data complexity and privacy posed notable barriers. Patients preferred PGx testing to be integrated into routine care alongside blood tests, avoiding added treatment complexity. The study also highlighted digital exclusion as a challenge for recruiting older patients in future research in this area.

Conclusion:
This pilot study reveals both enthusiasm for PGx testing's benefits and concerns about data privacy and communication. It underscores the need for clear guidance from healthcare professionals and seamless integration into care along with considerations for patients psychological wellbeing when assessing the impact that pharmacogenomics can bring to the setting of renal transplantation. Findings will inform larger studies, with a focus on improving inclusivity through mixed recruitment methods.

A retrospective multi-centre audit on efficacy and safety outcomes of difelikefalin use

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Introduction:
Chronic kidney disease associated pruritus (CKD-aP) that is moderately or extremely bothersome is seen in approximately 40% of patients on haemodialysis1. Opioid receptors are known to modulate itch signals and inflammation, with kappa opioid receptor activation reducing itch and producing immunomodulatory effects. In CKD, the mu receptors become overactive, while there is a reduction in kappa receptors. This imbalance is thought to contribute to CKD-aP. Difelikefalin is a peripherally restricted and selective kappa opioid receptor agonist, licensed for treatment of moderate-to-serve pruritus associated with chronic kidney disease (CKD-aP) in adults on haemodialysis. It has low central nervous system penetration and has not been known to have an addictive properties. In May 2023, the NICE recommended difelikefalin for treating moderate to severe pruritus, defined using the Worsening Itch numerical rate scale (WI-NRS), in adults with chronic kidney disease (CKD) having in-centre haemodialysis.

The aim of this audit was to look at real-world data from haemodialysis patients prescribed difelikefalin from the participating UK renal centres. This was to understand its current use, itch assessment as well as efficacy and safety outcomes which are an area of current interest to both clinicians and patients.

Methods:
The UK RPG research group collaboratively developed a data collection tool which included demographic and clinical indices. These include age, ethnicity, sex, difelikefalin dosing, serum phosphate level, urea reduction ratio (URR), itch assessment at baseline and follow-up, concurrent treatments for CKD-aP, treatment interruptions and adverse events.
Each renal centre undertook a local audit of current practice and anonymised data were pooled for analysis. All incident difelikefalin initiations were captured and included.

Results:
Seventy-six patients from eleven UK renal centres were included with a median follow-up of 3 months (interquartile range [IQR] 2 - 5). WI-NRS itch scores was the most common assessment tool used (51%), while some units used the 5Ditch score (9%). 3 units had not assessed itch intensity using a score before initiation of treatment at all. Difelikefalin was effective as shown by 3 or more-point improvement in baseline WI-NRS score in 19 patients out of 44 patients with an initial baseline itch score (43%) at 3 months follow up. Baseline phosphate levels were not raised and supports the hypothesis that phosphate does not correlate with itch. Forty patients (53%) reported that the CKD-aP affected their sleep and quality of life. Few concurrent medicines for CKD-aP were stopped following the difelikefalin initiation, with the exception of antihistamines. Overall adverse effect rates were similar or lower than those published in the manufacturers licensing datasheet.

Conclusion:
In our real-world data, there is a considerable proportion of patients who did not receive a baseline WI-NRS assessment, rendering the sample size too small to analyse and to provide adequate statistical power. Larger sample sizes, with more fully documented WI-NRS assessments are needed for future observational studies. Our audit reflects the need for more data on efficiency, quality of

life outcomes, impact on sleep and other related issues associated with CKD-aP which could be done by development of a registry.

Adult Outpatient Parenteral Antimicrobial Therapy in Haemodialysis (HD-OPAT) – A review into the renal pharmacist input to the HD-OPAT service at GSTT

Miss Sophie Green[1], Carolyn Hemsley[1], Rajeni Thangarajah[1], Linda Ross[1]
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Introduction: HD-OPAT (haemodialysis outpatient parenteral antimicrobial therapy) enables IV antibiotics to be administered during dialysis, allowing early discharge and care closer to home for stable patients. OPAT services are linked to improved patient experience and cost-efficiency and supports NHS operational priorities around stewardship and patient flow1. At GSTT a formalised HD-OPAT service was introduced in 2016 following gap analysis and review against the British Society of Antimicrobial Chemotherapy (BSAC) and British Infection Association (BIA) guidance on OPAT2,3. All patients receiving HD-OPAT (covering 7 satellite units and approx. 800 eligible patients) are reviewed on referral and discussed at weekly MDT attended by nephrology and infection consultants and pharmacists to review progress, course length and assess for complications.

Aims: Review the renal pharmacist role in the current HD-OPAT service.

Method: A retrospective review was conducted using local databases and e-prescribing system EPIC to identify HD-OPAT patients over six months (Oct 2024–Apr 2025). The renal pharmacist's responsibilities were defined and time commitment estimated based on local experience. For ongoing cases, April was used as the stop date; for long-term patients already on therapy, the start date was set at October. Recommendations from the 2018 review were revisited.

Results: 34 patients were referred and accepted onto HD-OPAT during the 6-month period, with 3-12 patients under the service at any one time. Total pharmacist time was 131 hours (average 5.5 hours/week), varying with patient enrolment. Prescribing was primarily renal pharmacist led (81%), with contributions from the renal medical team (17%) and infection team (2%). A total of 42 antibiotics were prescribed (vancomycin most commonly, n=16) with an average course length of 5 weeks. 55% of antibiotics required therapeutic drug monitoring (TDM), all managed by pharmacists – 71% by renal pharmacy. Average pharmacist time per patient was 0.8 hours/week, equating to up to 9.6 hours/week of independent prescribing pharmacist time when at peak capacity, freeing up physician time. Limitations include reliance on estimated time data and a 6-month review period, since which service demand has increased.

Discussion: The review highlights the significant contribution of renal pharmacists to the HD-OPAT service, particularly in prescribing and TDM. The service benefits from strong multidisciplinary collaboration. The 2018 recommendations were partially addressed. Implementation of EPIC at GSTT in 2023 has improved stewardship, remote prescribing and referrals and resolved issues surrounding documentation, and database access. However, some quality improvement actions have been identified, including the need for a formal HD-OPAT policy, a referral pathway, and improved patient engagement. Current service capacity requires 5–9 hours of prescribing pharmacist time weekly, with potential for expansion. However, growth is limited by available pharmacist time. Additional roles, such as a joint renal-infectious diseases pharmacist could be explored to release renal consultant time and capitalise on pharmacist expertise in prescribing in dialysis.

Recommendations: A review mapping the service to BSAC/BIA GPRs is advised. Locally, development of a formalised HD-OPAT policy and referral pathway is recommended. A comprehensive 10-year review of patient outcomes is planned to establish the need for governance framework and inform service development.

A Service Evaluation of Pre-Transplant Patients' Medication Needs: Implementation of an Innovative Pharmacy Technician–Led Service During the Transplant Listing Period

Mrs Helen Brown[1]
[1]Leeds Teaching Hospital

Background

Medicines optimisation is a patient-centred approach that ensures the right patient receives the right medication at the right time, improving outcomes, minimising risks, and supporting shared decision-making. Traditionally, medication reviews in secondary care are conducted only at the point of hospital admission, often resulting in complex medicines reconciliations and interventions during a stressful period for the patient. Earlier intervention in the pre-transplant period may help reduce this burden. While several service reviews describe pharmacist-led approaches, there is limited literature exploring the role of the wider pharmacy multidisciplinary team.

Aim

To evaluate the medication and adherence issues faced by patients prior to kidney transplant listing.

To assess whether such reviews and interventions fall within the professional scope of pharmacy technicians.

Method

A pilot study was undertaken at one of the UK's largest kidney transplant centres between 1/6/2025 and 31/8/2025. A medication barrier questionnaire, designed to identify patients requiring intervention, was incorporated into the standard transplant registration process and administered by the transplant coordinator nursing team. Completed questionnaires were reviewed by a pharmacist and pharmacy technician, who determined whether an intervention was required and by whom.

Patients identified as needing support were contacted either at home or during a subsequent outpatient clinic appointment. A full medication history was taken, appropriate interventions implemented, and an agreed personalised medication action plan documented in the patient's hospital record. This record would then be available when the patient is admitted for transplant. Interventions were delivered by pharmacy technicians where appropriate, with escalation to a pharmacist if required.

Results

Of 23 patients listed for deceased donor transplantation during the pilot, 9 (39%) required intervention. Of these 9 interventions, 8 (88%) were successfully completed and implemented by pharmacy technicians with only 1 patient (12%) requiring pharmacist escalation (Table 1).

Conclusion/Discussion

This pilot demonstrates that pharmacy technicians are well-placed within the multidisciplinary team to deliver the majority of pre-transplant medication interventions. With appropriate training and governance, they can effectively identify, manage, and escalate issues when necessary.

Early identification and resolution of medication concerns ensured patients felt informed, empowered, and engaged in their care, with clear action plans in place ahead of surgery. Wider

implementation of this service to include the living donor programme and transplant centre referring units, has the potential to reduce medication non-adherence and post-transplant readmissions.

Audit of initial findings from a switch from Advagraf ® to another once daily tacrolimus in two hospitals in the East of England

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Introduction

Transplanting centres in the East of England historically used the Advagraf® brand of tacrolimus for renal transplant patients. Following a change in contract prices, a project was undertaken to switch patients in a controlled manner from Advagraf ® to either Dailiport® or Envarsus®, mirroring a previous nationwide switch from Prograf® to Adoport®1. Initial results were reviewed to identify any emerging patient safety concerns. Two Hospitals had switched 60 patients between them from the start of the project to 31.8.25.

Methods

Staff were identified and trained to undertake the project. A procedure and patient information resources were generated and shared throughout the region. Patients were approached in transplant clinics and counselled on the switch. Patients who agreed to switch were advised to start the new brand of tacrolimus 14 days before their next tacrolimus level blood-test. The patients were then followed up in their subsequent clinic appointment. Those switching to Envarsus® were advised to switch to 70% of their current tacrolimus dose in accordance with the SmPC2.

The 60 patients who have been switched were pooled into a single data set. Data were gathered for the tacrolimus brands, doses, and levels both pre and post switch.

Results

Of the 60 patients analysed, 42% of patients were female, with a mean age of 56.5 years (min-max = 28-77).

Pre and post switch tacrolimus levels were compared using a two-tailed dependent samples t-test. For Envarsus®, the pre-switch tacrolimus levels (M = 6.05, SD = 1.36) compared to the post-switch levels (M = 7.81, SD = 2.50) indicate that there was statistically significant increase post-switch t(12) = 2.85 p= .015.

For Dailiport®, the pre-switch tacrolimus levels (M = 8.16, SD = 3.56) compared to the post switch levels (M = 8.67, SD = 3.17) indicate there was no statistically significant change in level t(37) = 1.20 p= .238.

In both cases, patients who were non-compliant or with any non-trough tacrolimus level (n=9) were excluded from analysis.

Two patients switched back from Dailiport® to Advagraf® due to side effects, one patient developed a tremor but continued Dailiport® with monitoring. No Envarsus® patients were switched back, however 50% (95%CI 23.8-76.2) required a dose adjustment to achieve appropriate levels compared to 8.7% (95%CI 0.6-16.8) for Dailiport®.

Discussion

Initial results identified that in patients switched to Envarsus® the post-switch levels were significantly higher than expected, which informed the decision-making process for future dose conversions. Overall the initial data suggests that the switch has been safe and well tolerated.

Frequency of erythropoietin-stimulating agent administration and effectiveness in maintenance haemodialysis: a single-centre prospective cohort analysis

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Background
Erythropoiesis-stimulating agents (ESAs) are central to anaemia management in individuals with end-stage kidney disease undergoing maintenance haemodialysis. While thrice weekly administration of short-acting ESAs remains standard of care in the UK, it requires substantial nursing time, and carries environmental and economic burdens. With increasing focus on sustainable healthcare delivery such as Green Nephrology, there is a paucity of data to inform the effectiveness of once weekly short-acting ESA. This study hypothesised that reducing ESA administration to once weekly may be safe, effective, and potentially more resource-efficient. The primary aim was to evaluate the effectiveness of epoetin zeta (Retacrit) following a dosing frequency change from thrice to once weekly in a prevalent haemodialysis cohort.

Methods
A prospective cohort analysis was conducted using routinely collected data from the Cerner electronic patient record at a single haemodialysis unit, part of the Oxford Kidney Unit. All adults (n = 50) undergoing maintenance haemodialysis were reviewed for suitability of ESA frequency change in multidisciplinary review. Data on demographics, dialysis modality, baseline haemoglobin (Hb), and ESA dosing were included. The primary outcome was Hb response following the ESA frequency change using pairwise Wilcoxon signed-rank test and Bonferroni correction. Descriptive statistics summarised baseline characteristics in Table 1. Secondary outcomes included Wilcoxon signed-rank test to assess ESA weekly requirement and Poisson regression to assess dose-dependent association between total weekly ESA dose and dose adjustment. Analyses were performed using Stata version 18.

Results
Forty individuals were included (mean age 59.2 years, 72.5% male, 57.5% White). Most individuals dialysed thrice weekly (92.5%), with a median baseline Hb of 109.5 g/L and weekly ESA dose of 12,000 units (interquartile ranges [IQR] 6,000–18,000) (Table 1). Median Hb levels were 109.5 g/L in June (baseline), 112.5 g/L in July (month of intervention), and 109.5 g/L in August. No statistically significant changes in Hb were observed across timepoints (June vs July p=0.42; July vs August p=0.90; June vs August p=0.75; all non-significant after Bonferroni correction) (Table 2). ESA weekly requirement did not change significantly (Wilcoxon signed-rank test, p=0.45). Figure 1 illustrates stable Hb distribution across the study period. Poisson regression showed no evidence of a dose-dependent association between ESA frequency change and Hb response (RR 1.02, 95% CI 0.97–1.06, p=0.48).

Discussion
This preliminary analysis suggests that reducing ESA administration from thrice to once weekly in haemodialysis is safe and maintains stable Hb, with no statistically significant difference in response compared to the conventional regimen. To our knowledge, this is the first real-world study exploring short-acting ESA administration frequency in a maintenance haemodialysis cohort. Results should be interpreted cautiously due to the small sample size, which may limit statistical power and increase risk of type II error, and the lack of covariate adjustment in statistical models. Nonetheless, the implications of these findings extend beyond clinical effectiveness. Potential benefits also include reduced nursing workload and pharmaceutical waste, and support for more sustainable “Green

Nephrology" practices. Larger studies with longer follow-up are required to confirm generalisability and to evaluate cost-effectiveness and environmental impact.

Intravenous immunoglobulin for BK virus in kidney transplantation: a UK-wide retrospective case series

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Background:
BK polyoma virus (BKPyV) nephropathy causes premature allograft failure. Evidence for use of intravenous immunoglobulin (IVIG) for BKPyV infection in kidney transplant recipients is limited. This retrospective case series describes the UK experience of IVIG use in BKPyV

Methods:
Cases were identified via the NHS IVIG database (Medical Data Solutions and Services - MDSAS) where IVIG approvals are recorded. Centres retrospectively compiled anonymised data for relevant patients and contributed data for patients meeting inclusion criteria not identified through the initial search

Results:
25 patients (21 adult, inc. 1 SPK & 1 SIK, and 2 paediatric) from 11 UK centres received IVIG for BKPyV from 2013-2024. Lymphocyte-depleting induction used in 32% patients. Median time to BKPyV 104 days (range 28-1736). At diagnosis, 52% patients were receiving triple immunosuppression and 32% calcineurin inhibitor and anti-proliferative. All underwent immunosuppression reduction following BKPyV detection. Median time from BKPyV to IVIG administration 124 days (range 32-611). Following treatment, 32% patients cleared BK. There were 2 deaths and 7 allograft failures (28%) in the 6 months following IVIG. BK nephropathy contributed to 6/7 (86%) allograft failures. Adult patients with preserved allograft function who completed 6 months follow up had overall unchanged function with pre-treatment creatinine mean 187.1±68.8µmol/L and 6 months creatinine 205.9±95.5µmol/L (p=0.92). There was no difference in eGFR at diagnosis vs. at IVIG treatment, or at 3/6 months after IVIG (Fig. 1a). Including grafts that failed as eGFR=5ml/min shows ongoing deterioration despite IVIG (Fig. 1b, p=0.04)

Conclusions:
This multi-centre case series demonstrates no clear benefit of IVIG as an adjunctive therapy for BKPyV. Most patients failed to clear BKPyV and no improvement in graft function was seen. This data does not support IVIG use as a treatment for BK virus in kidney transplant patients. Further work to define the place of IVIG in BKPyV therapy is needed.

Figure 1: Renal function to 6 months post IVIG treatment for BK virus in adult kidney transplant patients; (a) excluding failed grafts; (b) failed grafts included as eGFR=5ml/min

Peritoneal Dialysis-associated Peritonitis Infections at Guy's and St Thomas's NHS Foundation Trust – a review of cases in 2024

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Introduction: In 2021, the national report for renal medicine: Getting It Right First Time (GIRFT) programme recommended home dialysis therapies including peritoneal dialysis (PD) should be offered to improve quality of life and cost-efficiencies[1]. This recommendation was reflected in the 2024 Darzi report which recommended the promotion of care closer to home for those with long-term conditions[2].

A 2023 review of PD patients under GSTT found that the most common reason for transfer to haemodialysis was infection including PD peritonitis – 41% of all PD catheter removals from 2018-23 were a result of infections[3]. The ISPD recommends the average peritonitis infection rate to be <0.4[4]. This review was conducted to evaluate PD-peritonitis incidences in the year 2024 as an extension of the 2023 audit.

Aims: (1) To identify the numbers of PD-associated peritonitis infections and outcomes in 2024 and infection rate (2) To review the causative organisms, treatment and adherence to local guideline (3) To identify areas for clinical practice improvements and education as part of quality improvement.

Method: The e-prescribing system EPIC was utilised to collate data of all confirmed PD-associated peritonitis infections in the year 2024. These patients were each reviewed retrospectively to confirm causative organisms, treatment received and treatment outcomes. This was assessed against local guidance. Rate of PD-peritonitis was calculated (number of episodes per patient year) as per the Renal Registry[5].

Results: There were 13 confirmed peritonitis cases in 2024 (70 GSTT patients on PD in total in 2024). The rate of PD peritonitis was calculated at 0.22 number of episodes per patient years for GSTT cohort. Of these, 10 cases were treated – defined as a resolved infection and patient remaining on PD. 3 cases resulted in removal of the PD catheter and subsequent progression to haemodialysis. The causative organisms were reviewed and of these cases, 54%(n=7) were gram-positive cocci, 26%(n=4) gram-negative and 20%(n=2) had no growth. 100% of cases were treated appropriately with empiric intra-peritoneal antibiotics (vancomycin + gentamicin/ceftazidime) as per local guidance and treatment reviewed appropriately when cultures available.

Discussion: A target of a rate below 0.4 PD-peritonitis episodes per patient year is recommended by the ISPD 2022 guidelines[4]. The PD peritonitis rate in 2020 in England was 0.38 episodes per patient year5 (0.54 in GSTT[3]). In 2023 the rate in GSTT had decreased to 0.4[3]. Peritonitis rate in 2024 has decreased again to within ISPD recommendations at 0.22. This may be due to improved training of aseptic technique, increased PD clinic assessments and referrals or improved adherence with local infection prevention guidance. Review of current practice and training protocols are recommended to maintain the rate of PD-peritonitis within the ISPD recommendations and to decrease the numbers of patients requiring PD-catheter removal in order to maintain care at home.

All peritonitis cases were treated appropriately as per local guidance, however, comprehensive review of causative organisms inclusive of the existing data from 2019-2024 is needed to assess empiric antibiotic recommendations in the GSTT guideline for the treatment of PD-peritonitis infections and update local guidance.

What is the effect of transplantation on QTc amongst patients receiving tacrolimus therapy?: Preliminary Results

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Introduction: Patients with end stage kidney disease (ESKD) requiring transplantation often experience other issues such as structural heart disease, electrolyte disturbances and impaired drug clearance. Each of these factors can contribute to pathological lengthening of the time it takes for the cardiac ventricular myocardium to activate and recover, represented by prolonged QTc on electrocardiography, increasing risk of life-threatening arrhythmias. It is therefore important to understand what effects transplantation and associated immunosuppressive drugs have on QTc in order to allow appropriate management of individual patients' QTc and cardiac risk profiles.

Tacrolimus is the first-line calcineurin inhibitor prescribed to renal transplant patients as part of a standard immunosuppression protocol. Existing studies into tacrolimus' effect on QTc suggest it lengthens QTc however study sample sizes have been limited. Moreover, the question of tacrolimus' effect on QTc is confounded by the multitude of factors influencing QTc which also tend to be relevant in ESKD. Indeed, another study has found QTc shortening post-transplant. Hence, further research is warranted to further clarify effects of transplantation in the context of tacrolimus therapy.

The aim of this study is to determine what effect transplantation had on QTc for patient's who received tacrolimus therapy.

Methods: A retrospective study of patients who had kidney transplants at Queen Elizabeth University Hospital between 01/07/2018 and 01/07/2023 compared patients' QTc prior to and following tacrolimus therapy (a minimum of 5 days following tacrolimus initiation to ensure therapeutic levels). Pre and post-tacrolimus QTcs, according to Bazett's formula, were compared to establish what happened to QTc following transplantation.

Patients with prolonged QTc (>450 in males and >460 in females) prior to and following tacrolimus therapy were identified and examined in more depth to determine patient demographics and risk factors for QTc prolongation. Risk factors examined from around the time of the relevant abnormal ECGs (within 2 days for bloods, within 24 hours for medications and closest echocardiogram) included administration of other QTc prolonging drugs, disturbances in potassium, magnesium and adjusted calcium and presence of structural heart disease on echocardiogram).

158 of 271 patient's examined, thus far, were excluded (included n =113) for the following reasons; Those already on tacrolimus therapy for indication other than prior renal transplant (n= 1), second transplant (n=114) as likely to already be on tacrolimus, patient's not taking tacrolimus at 3 months post-transplant (n= 2), those who did not have pre-tacrolimus ECGs available on clinical portal (n= 8) and those who did not have post-tacrolimus ECGs available on clinical portal (n=33).

Results: Preliminary results from the patients examined to date shows a slight shortening in QTc following transplantation and tacrolimus therapy. On average, the manually calculated QTc was shorted by 13 milliseconds following tacrolimus therapy. 35% of patients had prolonged QTcs prior to tacrolimus therapy (21% of females and 45% of males) compared to 27% of patients who had prolonged QTc following tacrolimus therapy (21% of females and 32% of males).

Case Report: Two patients treated with Obinutuzumab for SLE with active lupus nephritis at Guy's and St Thomas's NHS Foundation Trust

Miss Sophie Green[1], Dr Heather Brown[1], Linda Ross[1]
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Introduction: Systemic lupus erythematosus (SLE) is an autoimmune disease. Clinical presentations can include manifestations in the kidneys, referred to as lupus nephritis (LN) that can progress to end stage renal disease. Treatment with immunomodulatory drugs can induce remission and slow progression to ESRD and improve quality of life. 9 of 10 cases are female and the majority are diagnosed between 20-40 years old[1]. Current treatment for SLE with active grade 4 LN as per KDIGO 2024 guideline includes glucocorticoid therapy and either Mycophenolate, cyclophosphamide, belimumab or calcineurin inhibitor plus Mycophenolate[2] - options which pose fertility risks. In these instances, rituximab can be considered and is often used. Some patients develop reactions to rituximab and belimumab. Furthermore, non-response to rituximab/belimumab can occur following antibody development, preventing B-cell depletion. Switching to an alternative anti-CD20 therapy, such as Obinutuzumab, can restore clinical response. Previous multicentre studies found switching to obinutuzumab following non-response to rituximab restored clinical response and lowered disease scores in SLE, demonstrating efficacy in a cohort left with few treatment options[3],[4].

Case reports: At GSTT, two patients were treated with Obinutuzumab for lupus nephritis.

Patient 1: A 35-year-old female diagnosed with SLE in 2013 developed a reaction to rituximab therapy in 2016. After diagnosis of active grade 4 nephritis in 2021, rituximab was re-trialled in February 2022 but resulted in a reaction. In May 2022 obinutuzumab was administered (1g infusion, repeated after 2 weeks). Urine protein creatinine ratio (UPCR) reduced from 539mg/mmol to 139mg/mmol post-infusion, with clinical improvement. She remained in remission until early 2025 when symptoms and proteinuria recurred (UPCR increased from 32.4mg/mmol in January to 148.4mg/mmol in June). Obinutuzumab was administered in July 2025 (same dosing schedule) with no adverse effects.

Patient 2: A 57-year-old female diagnosed with SLE in 2007 was switched to belimumab in 2016 following a reaction to rituximab. Renal biopsy in early 2025 confirmed active class 4 LN despite belimumab therapy. Obinutuzumab was commenced to induce remission (1g infusion, repeated after 2 weeks). UPCR reduced from 626.3mg/mmol pre-infusion to 44.5mg/mmol post-infusion with marked clinical improvement.
Both patients tolerated obinutuzumab well with no adverse effects. Monitoring followed hospital protocol, including 15-minute observations throughout the infusion and 30 minutes post-infusion.

Discussion: These case reports demonstrate the safety and efficacy of obinutuzumab as a treatment option for lupus nephritis in patients unable to receive rituximab, presenting an alternative treatment option for patients with minimal options due to reactions and safety concerns, particularly in females of child-bearing age. Given this is the majority of affected patients, this option should be further studied to assess safety and efficacy. At the time of writing, the NICE TA to support Obinutuzumab use in LN is in development. Obinutuzumab was used off-label and was internally funded in these cases. As SLE is a rare disease and non-response to rituximab represents a small population group, it is difficult to demonstrate statistical significance with this population size. Therefore, these case reports are a welcome demonstration of the safety and efficacy of this treatment option.

Use of Cystatin-C to measure renal function in a patient with low muscle mass

Hayley Wells[1], Miss Sophie Green[1]
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Introduction: Exogenous compounds, e.g. inulin and iohexol, are thought to be the gold standard for measuring renal function[1]. However these tests are expensive and measure a single point in time so in practice estimating glomerular filtration rate (eGFR) using serum creatinine (sCr), a biomarker from the breakdown of muscle, is the central for monitoring renal function.

The historical standard for calculating eGFR using creatinine is the Cockcroft and Gault (C&G) equation developed in 1976 and since then further equations have been developed; MDRD and CKD-EPI. These equations were not developed for predicting renal drug clearance but have been applied with data that supports good correlation particularly with C&G. However there are known limitations of these creatinine based equations eg. pregnancy, altered fluid balance and extremes of muscle mass.

Cystatin C (cysC) is a protein released from all nucleated cells at a constant rate which is filtered in the glomerulus then catabolised in the proximol tubule so like creatinine also inversely correlated with GFR. CysC is less affected by age, race, muscle mass and protein intake than creatinine and the KDIGO 2024 update recommends considering cysC measurement to calculate eGFR in patients with extremes of body habitus, although this is not yet widely measured in practice[2]. CysC is influenced by corticosteroid use, high CRP and rapid cell turn over e.g. in malignancy. Small studies have suggested cycsC is considered to have improved accuracy of calculating eGFR in patients with DMD (Duchenne Muscular Dystrophy)[3].

Case: Patient 1 was a 46 year old British-Indian male (height: 165cm, weight 71kg, BSA 1.75m2) admitted electively for review of tracheostomy due to ongoing issues with tracheostomy leak and high secretion load. Past medical history included DMD, cardiomyopathy, respiratory failure requiring long term tracheostomy ventilation, type 2 diabetes mellitus, dysphagia requiring a RIG and 24 hour care. Figure 1 includes blood results and demonstrates wide variations in estimation of renal function using cysC compared with more familiar estimations such as Cockcroft and Gault.

Discussion: It is accepted that serum creatinine cannot be used to monitor renal function accurately in patients with low muscle mass such as those with DMD but this case highlights that in practice cysC can be used and may give a more accurate estimation of glomerular filtration rate and renal function.
More experience is needed using cysC to estimate renal function but this offers an alternative method in patients with extremes of muscle mass. Increasing availability of testing and turnaround times of cysC assays wouuld need to be supported, it is noted that cysC assay reagents generally cost more.
To utilise cysC for estimating renal function, new drug dosing new algorithms would need to be developed. There is data that using cysC in acutely unwell ICU patients could result in decreasing antibiotic doses by up to 50%[4]. Pharmacists are key stakeholders to further research using cysC to estimate renal function for drug dosing adjustment[5].

Hormone Replacement Therapy and Venous Thromboembolism Risk in the Peri-Operative Setting: A Living Kidney Donor Case Report

Miss Aisha Riaz[1]
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Introduction

Menopause is the permanent cessation of menstruation which affects all women. Up to 80–90% report some symptoms, with 25% describing them as severe and debilitating. Symptoms may include hot flushes, night sweats, disturbed sleep, anxiety, joint pain, and vaginal or urinary issues. Hormone replacement therapy (HRT) is first-line treatment. Peri-operative HRT is often withheld due to concerns about venous thromboembolism (VTE). Oral combined HRT increases VTE risk and is typically stopped 4–6 weeks before major surgery, whereas transdermal and vaginal preparations avoid first-pass metabolism and therefore have less effect on coagulation factors. The VTE risk associated with transdermal and vaginal HRT at standard therapeutic doses is no greater than baseline population risk.

This case report highlights the management of HRT in a kidney donor with menopausal symptoms. It emphasises the importance of individualising care, improving understanding of HRT use, avoiding unnecessary discontinuation, and optimising symptom control during the peri-operative period.

Case Presentation

A 55-year-old Caucasian female presented as a planned directed living kidney donor for her son. She was reviewed at the pharmacist pre-assessment transplant clinic in March 2025. Her past medical history included four pregnancies and a history of smoking; she had quit 25 years earlier. She was using a hormone replacement pellet implant in her thigh, sourced from Barbados, replaced every three months and last changed in January 2025. The pellet contained oestradiol 25 mcg (Dermestril Septem) and progesterone 100 mg (Susten), but it was unlicensed and unavailable in the UK. She remained symptomatic and expressed concern about managing her HRT in preparation for surgery.

Limited UK data exist for pellet implants and risk of VTE. One centre reported using implants, noting that residual estradiol release could persist for up to 18–24 months with six-monthly implants. Thrombosis and gynaecological specialists at our hospital were also consulted.

Results

The patient received standard VTE prophylaxis (seven days of post-operative enoxaparin for kidney donation), without extended prophylaxis. Post-operatively, her implant was removed and switched to oestradiol gel and oral progesterone at night, with additional testosterone 2% gel to aid symptom control. She tolerated this regimen until returning to Barbados.

Discussion and Conclusion

This case demonstrates that peri-operative HRT can be safely managed through individualised risk–benefit assessment with careful consideration of VTE prophylaxis. A multidisciplinary approach may reduce unnecessary HRT discontinuation in kidney donors and recipients in the peri-operative period. Clearer guidance is needed to support patients and clinicians in managing HRT in the renal transplant population.

Use of Kinpeygo for the Treatment of IgA Nephropathy in the Transplant Population in Cardiff.

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Introduction

Budesonide (Kinpeygo®) is the first drug to be granted a licence for the treatment of primary IgA nephropathy, receiving NICE TA approval in Dec 2023.

Prior to its approval, management of IgA nephropathy focussed on preserving kidney function via:

- Lifestyle modification.
- Optimised blood pressure control.
- Reducing proteinuria with ACEi/ARB and SGLT2i therapies.

Local guidelines for the use of Kinpeygo® were developed. These aimed to combine the NICE TA (using uPCR of >150mg/mmol as a surrogate biomarker of kidney disease progression) as well as evidence from the NefIgArd study, limiting its use to patients with an eGFR 35 to 90ml/min, which we extended to 25ml/min. Patients were required to be on ACEi/ARB/SGLT2i therapies for at least 3 months prior to commencing therapy. The aim of this study was to assess the response to treatment and incidence in side effects when used in patients with IgA recurrence post kidney transplantation.

Methods

Once patients were initiated on Kinpeygo®, monitoring of their urine PCR, creatinine and eGFR took place at baseline and months 1, 3, 6 and 9 into treatment. Data were extracted from our VialData renal recording system.

Results

So far, eight transplant patients have undergone treatment with Kinpeygo®. All but one patient met the guideline criteria prior to starting treatment, however this patient was already on treatment with unlicensed Budesonide (Entocort®). One transplant patient was excluded from this study, as they have only received one month of treatment at time of data collection.

Of seven patients, two had treatment discontinued. The first had an early drop in their uPCR, but by month 3 the uPCR had risen over baseline level. This patient was switched to prednisolone treatment and has now commenced on Sparsentan . The second has experienced a complex infective episode leading to transplant failure and returned to haemodialysis.

Of the five remaining patients, two elected to stop treatment because of constitutional side effects . Neither experienced a consistent drop in PCR but maintained a stable eGFR before they ceased treatment.

The three other patients all completed a 9-month course.

One, as described above, was converted from Budesonide (Entocort®) to Budesonide (Kinpeygo®). Their eGFR was stable and uPCR remained low throughout the course (PCR 40 to 34).

The second had a pronounced drop in uPCR within the first month of treatment (PCR 357 to 97) and remained stable at a PCR of 65 at month 6. The patients eGFR remained within the patient's pre-treatment range.

The last has had a less sustained drop in uPCR (PCR 821 to a low at 5 months of 319 but has since risen to 432). This patients eGFR was less stable (eGFR 39 to 34).

Discussion

This small population of transplanted patients receiving Kinpeygo® have had a wide range of responses to treatment. Further investigation is required to understand patient response to treatment and the reliability of uPCR as a marker for disease control.

Tirzepatide prescribing in patients living with chronic kidney disease: an observational study.

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Glucagon-like polypeptide 1 (GLP1) and glucose insulinotropic polypeptide (GIP) receptor co-agonist, tirzepatide, has recently been approved by NICE for weight management in people living with obesity in addition to glycaemia control in those living with type 2 diabetes (T2DM) and obesity. Emerging data from the SURPASS-4 study suggests GLP1-receptor agonists are effective at improving renal and cardiovascular outcomes including albuminuria and estimated glomerular filtration rate (eGFR) decline in those with T2DM and chronic kidney disease (CKD) (Heerspink et al. 2022). It is likely that tirzepatide will be used increasingly in patients living with CKD, and so we identified patients living with T2DM and CKD prescribed tirzepatide in the general nephrology clinic and assessed the impact of the drug on core metabolic and renal outcomes in a real-world setting. Methods Patients with T2DM, obesity (BMI >27) and CKD from any cause were commenced on 2.5 mg a week of tirzepatide (Mounjaro). Demographic data including age, sex, underlying cause of kidney disease and medication co-therapy were collected. Patients were assessed every 4-8 weeks and if stable, the tirzepatide dose was uptitrated in line with recommendations. To evaluate the impact of tirzepatide prescription on metabolic and kidney outcomes over time, weight (kg), eGFR (ml/min/1.73m2), glycated haemoglobin (Hba1c; mmol/mol), urinary albumin:creatinine ratio (uACR; mg/mmol), and venous bicarbonate (HCO3; mmol/L) were collected at 4-8 weekly intervals.

Optimising High-Risk Immunosuppressive Therapy in Glomerulonephritis: A Specialist Renal Pharmacist-Led Approach to Safety and Cost-Effectiveness

Miss Katerina Adamou[1], Miss Chiara Vaccarone[1]
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Optimising High-Risk Immunosuppressive Therapy in Glomerulonephritis: A Specialist Renal Pharmacist-Led Approach to Safety and Cost-Effectiveness

Katerina Adamou, Chiara Vaccarone - Senior Specialist Renal Pharmacists

Background
Patients reviewed at the Royal Free Hospital NHS Foundation Trust 'nephrotics' clinics including Systemic Lupus Erythematosus (SLE), Vasculitis, IgA Nephropathy and Glomerulonephritis, often require complex treatments and high-cost immunosuppressive therapy. Whilst these therapies are effective, they come with significant risks of toxicity, adherence challenges and funding implications. On reviewing high-cost and high-risk medicines, it was noticed that some of this patient cohort was slipping through the net, having significant financial implications on the renal division. Renal specialist pharmacists who are experts in renal medications are perfectly placed to deal with these challenges.

Aim
A pilot specialist renal pharmacist-led glomerulonephritis clinic was developed to optimise care for patients with autoimmune kidney diseases. The aim was to evaluate the impact of a pharmacist-led glomerulonephritis clinic on patient safety, education and cost-savings within the renal division.

Methods
The pharmacy team liaised with the divisional clinical director and lead clinic nurse to ensure that there was a room available to conduct the clinic. A meeting was held with key stakeholders to discuss how the clinics would operate and to outline the roles and responsibilities of the pharmacy team. Pharmacists conducted dedicated clinics where they prescribed and clinically screened all medications for this patient cohort. Additionally, they delivered counselling on high-risk medicines, provided patients with tailored patient information leaflets, attended multidisciplinary team (MDT) meetings, and completed funding applications for high-cost drugs both inside and outside of clinic.

Results
To date the specialist pharmacy clinic has shown improvements in prescribing practices, an increase in compliance following patient education sessions and an increase in NHSE/ICB reimbursement for high-cost drugs.

Firstly, through taking responsibility for the care of this patient cohort, it has been highlighted that many patients have received multiple doses of high-cost medicines without appropriate funding procedures in place.

Secondly, we have asked patients and the medical team to fill in a satisfaction survey and our role has proven to be very appreciated and received very positive feedback.

Finally, so far, excellent feedback on this service has been provided by the consultants involved in the clinic and we are working to permanently embed pharmacy within this service.

Conclusion

Renal pharmacists are experts in renal medications and the preliminary results from this new pharmacist led clinic clearly show that pharmacists can provide an invaluable role providing benefits for patients, clinicians and the wider health service.

The role of Intravenous Etelcalcitide in Haemodialysis Patients with mid-range serum Parathyroid Hormone levels

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Background: Secondary hyperparathyroidism (sHPT) is a frequent complication in haemodialysis patients and is associated with all-cause mortality, cardiovascular morbidity and mortality, and bone fractures. Clinical trials have demonstrated the efficacy of etelcalcitide in treating sHPT; however, concerns about hypocalcemia remain, underscoring the need for more real-world data to guide clinical practice. This study provides a real-world perspective on the role of etelcalcitide in optimising metabolic outcomes and symptom management in patients with sHPT and mid-range serum parathyroid hormone (PTH) levels receiving haemodialysis at Northwick Park Hospital dialysis unit in London.

Method: A retrospective review was conducted of adult haemodialysis patients with sHPT receiving etelcalcitide between December 2023-2024. All patients were either unsuitable for or declined parathyroidectomy. Dose and duration of etelcalcitide, changes in laboratory parameters, and adverse events were recorded. The primary outcome was the change in serum PTH levels at the end of data collection compared with baseline pre-treatment levels.
Results: 49 patients were included in the study. The median duration on renal replacement therapy was 5.0 years (interquartile range, IQR 3-9), and the median duration on etelcalcitide was 1.0 years (IQR 0.9 – 2.0). Patients were either calcimimetic naive(73.5%) or switched from oral cinacalcet(26.5%). 47 patient (95.9%) had pre-treatment serum PTH levels less than 300 pmol/L. The median starting dose of etelcalcitide was 7.5mg per week and was titrated as required in increments of 2.5 – 5mg.
The median percentage reduction in serum PTH from pre-treatment levels to December 2024 was 73.4% (IQR 36.9 – 85.9), from a median of 130.0 pmol/L (IQR 95.6 – 180.0) to 38.3 pmol/L (IQR 17.2 – 77.8). Linear regression analysis revealed no significant difference when stratified by duration on etelcalcitide (p=0.13), initial etelcalcitide dose (p=0.90), prior calcimimetic use (p=0.14), or baseline PTH levels (p=0.28). Of the 29 patients who had been on etelcalcitide for more than 1 year, 26 achieved greater than 30% reduction in PTH levels from baseline. 14 patients who had been on etelcalcitide for more than 2 years achieved a median reduction of 47.2% (IQR 24.9 – 68.8) in alkaline phosphatase (ALP) levels, from a median ALP of 223.0 IU/L (IQR 152.0 – 396.0) to 115.0 IU/L (IQR 89.5 – 148.5).
While 17 patients (34.9%) developed hypocalcemia of less than 2mmol/L, none were reported as symptomatic. 10 patients (20.4%) had interruptions to Etelcalcitide administration due to hypocalcaemia or over-suppression of PTH levels.

Conclusion: Etelcalcitide is an effective and safe option to improve biochemical parameters of sHPT in our dialysis population. Although hypocalcemia was common, close monitoring with prompt corrective intervention i.e. increase in calcium supplementation or active vitamin D, or dose reduction and discontinuation of etelcalcitide where necessary, ensured that this did not cause significant morbidity. Our results indicate that etelcalcitide is effective for patients with mid-range PTH levels of less than 300pmol/L. The improvement in ALP levels suggests a reduction in bone turnover after treatment with etelcalcitide. Further study is needed to evaluate whether this translates to longer-term improvement in mortality, morbidity, and patient-reported outcomes in sHPT.

Difelikefalin for the management of severe pruritus in a hospital-based haemodialysis population: a Quality Improvement Project

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Discussion: 39.78% of our prevalent hospital-based haemodialysis patient population report severe itch (defined as a score of greater than or equal 7 in the WI-NRS scale) refractory to alternative therapies (creams, phosphate binders etc). These patients were eligible for difelikefalin therapy as recommended by NICE. The drug manufacturer advises trialling the drug for 12 weeks but 88.88% of our patients experienced a significant improvement in symptoms at just 8 weeks. Only 1 patient complained of side effects (diarrhoea) which the authors do not believe was related to difelikefalin administration. Difelikefalin proved beneficial and easy to use in our local population. Reported side effects were minimal. We feel confident prescribing the drug to eligible patients and would encourage our colleagues in other hospital-based haemodialysis units to do the same.

Patients with chronic kidney disease undergoing hospital-based haemodialysis often experience significant itching, which affects their sleep, mood, and quality of life. Difelikefalin, a selective κ-opioid receptor agonist, has been recommended by NICE for treating moderate to severe pruritus in these patients. With no local experience of the drug, a Quality Improvement project was initiated at Hammersmith Hospital to assess its effectiveness.
Methods: 93 haemodialysis patients were screened for pruritus using the Worst Itch Numeric Rating Scale (WI-NRS). Patients with severe itching (WI-NRS ≥ 7) were offered difelikefalin therapy at a dose of 0.5 micrograms per kilogram of dry body weight, three times per week for 8 weeks. They were informed about possible side effects and their response to the drug was reassessed at 8 weeks. Those who benefited (improvement of ≥ 3 points on WI-NRS) could continue the treatment.
Results: Out of 93 patients, 37 (39.8%) reported severe itching and were offered difelikefalin. 12 patients did not proceed with the therapy due to various reasons, and 10 no longer experienced severe itching at the time of intervention. 2 patients declined the therapy. 13 patients commenced treatment, and 9 completed 12 weeks of therapy. 8 of these 9 patients reported significant improvement in symptoms by 8 weeks, with 2 experiencing complete resolution. 7 patients reported improved sleep and mood, while 1 patient reported improvement in sleep only. One patient reported no change in symptoms due to poor compliance with dialysis.
Discussion: Difelikefalin proved beneficial for 88.88% of patients who completed 8 weeks of therapy, with minimal side effects. The drug was effective and easy to use, and the authors recommend its use in other hospital-based haemodialysis units.

Improving diabetes care in people on dialysis; an integrated care board initiative

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Background

The prevalence of individuals with both diabetes and end-stage kidney failure (ESKF) requiring dialysis is rising annually and is recognised as a Public Health Emergency in the UK. Diabetes is the leading cause of ESKF, and Northwest London (NWL) has the highest estimated number of people with diabetes across the London region, alongside some of the highest rates of ESKF nationally. Managing diabetes in this population is complex, with increased risks of mortality, cardiovascular disease, infections, fluid overload, dialysis-related complications, and poor mental health. Engagement with diabetes care is often limited due to the burden of thrice-weekly dialysis. Poor glycaemic control before kidney transplantation is also associated with worse post-transplant outcomes. Current diabetes care frequently falls short of national standards, underscoring the critical need for risk reduction strategies and improved, integrated care pathways.

Aim

To improve outcomes for people with diabetes on dialysis and reduce risk of complications
To improve kidney transplant outcomes where appropriate

Methods

As part of this quality improvement project funded by NHS England, the role of two specialist diabetes-renal specialist practitioners was established. A systematic review and assessment of people on dialysis across NWL was conducted by the specialist practitioners between May 2024-May 2025, which comprised of 9 in-centre dialysis units, 1 home haemodialysis service, and 1 peritoneal dialysis service. Individuals were then discussed within a multidisciplinary team of 1 diabetes and 2 renal consultants and a highly specialist diabetes renal nurse. High-risk individuals were identified and personalised care pathways were developed.

Results

A total of 1,612 individuals receiving dialysis were assessed across 11 dialysis units, with 723 identified as having diabetes and reviewed at the dialysis unit. Of these,118 (16.3%) people were supported with adjustments in medication, including dose optimisation and deprescribing. Referrals for other care processes were also made.

Educational packages on post-transplant diabetes management were developed for individuals on dialysis and made available multiple languages (including English, Arabic, Gujarati, Hindi, Punjabi, Somali, and Tamil). Training was provided to dialysis nurses on diabetes management to increase awareness. Excellent feedback was received from people with diabetes on dialysis, as well as healthcare professionals.

Conclusion

The first year of this quality improvement project demonstrates the feasibility of providing in-centre diabetes care to people on dialysis, and has the potential to significantly improve outcomes for people on dialysis through a collaborative, multidisciplinary approach. Continued implementation and refinement of the programme are essential—particularly to optimise kidney transplantation—and offer a scalable model that could be adopted across the UK.

Implementation of a pathway for the prevention and treatment of urinary tract infections post renal transplant: a practice development project

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Background: Urinary tract infections (UTIs) represent the most common infection following renal transplantation due to immunosuppression and surgical factors (Santos and Brennan, 2025). Reported prevalence ranges from 7-80% in the first year first-year post transplantation with associated risks associated risks including bacteraemia, sepsis, allograft loss and mortality (Hollyer & Ison, 2018; Santos & Brennan, 2025). However, patients may also experience asymptomatic bacteriuria (ASB) and international guidance emphasises the importance of distinguishing this from symptomatic UTI, as ASB should not be universally treated in the renal transplant cohort (WHO, 2025; European Association of Urology, 2025). Current recommendations for ASB and UTI management in this cohort suggest that the focus should be on antimicrobial stewardship (WHO, 2025), prevention and non-pharmacological strategies (Goldman & Julian, 2019). Locally, there is subjective variation in management of UTI and ASB across the transplant unit, and it is unknown whether national guidelines are being followed. There is a need for a structured, evidence-based pathway for UTI prevention and management in our renal transplant patients.
Aim: To implement a pathway for treatment and prevention of UTI in renal transplant patients using practice development methodology. Specific objectives were to collect baseline data on UTI incidence and management, identify and engage stakeholders to assess current practice and achieve consensus to develop and implement the pathway.
Methods: Emancipatory practice was demonstrated using the Integrated-Promoting Action on Research Implementation in Health Services (I-PARIHS) framework (Harvey & Kitson, 2016) to emphasize facilitation as the active mechanism for integrating innovation and provide a robust framework to allow for stakeholder engagement. Baseline data were collected and used to assess current local practice. Stakeholder analysis (NHS Horizons, 2024) was undertaken to identify key stakeholders. Audit findings were presented during stakeholder meetings. and used to inform collaborative development and implementation of the pathway.
Results: 388 clinic appointments were audited. 37 urine cultures were sent in total, 17 by doctors and 20 by allied health care professions (AHPs). A higher percentage of cultures were sent by AHPs (70%, n=14) vs doctors (24%, n=4) for asymptomatic patients. No asymptomatic patients were treated by doctors, however 37% (n= 5) of asymptomatic patients in the AHP were treated for ASB. Data was presented stakeholder meetings. I-PARIHS principles were then used to present collected data to stakeholders and co-develop a robust treatment pathway which was subsequently approved in local governance meetings.
Conclusion: This project aimed to address the management of UTIs post-renal transplant through the development and implementation of a consensus-based, evidence-informed pathway. By integrating the use of local data with practice development methodology using the I-PARIHS framework (Harvey & Kitson, 2016) the project enabled development of a treatment pathway. It is hoped this will improve clinical outcomes, support antimicrobial stewardship, and strengthen patient-centred care in renal transplantation. Further audit is required to evaluate the impact on local practice and clinical outcomes.

Quality Improvement & Cost Saving Project for Immunosuppression Delivery Service

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Abstract – Quality Improvement & Cost Saving Project for Immunosuppression Delivery Service

A quality improvement and cost-saving project is currently underway at Guy's Hospital to align with the NHS net zero plans to reduce carbon footprint and create a more sustainable and efficient medicines delivery service for transplant patients receiving immunosuppression from the Tunbridge Wells Kidney Treatment Centre.

The project aims to reduce delivery costs, improve turnaround times, and enhance the overall patient experience. The current external provider, charges high fees for both ambient and fridge medication deliveries, with an average turnaround of 7–10 days. A review of the process highlighted excessive variation, delays, and waste, prompting a need for standardisation and streamlining.

Objectives

Achieve significant cost savings for the Trust to re-invest into patient care.

Simplify and standardise the prescribing and delivery process.

Offer patients more choice in how they receive their medicines.

Reduce workload for both the Homecare and Renal Pharmacists.

Methodology

Define:
The Trust incurs substantial costs outsourcing prescriptions, while patients face long waits for delivery. The system lacks consistency and efficiency.

Measure:
Focusing on a cohort of 160 patients, each delivery costs ~£43.10. A more cost-effective model was identified using Boots Uxbridge, which delivers via Royal Mail (£5) or Boots courier (£15 within 40 miles). This shift could result in savings of £38.10 per delivery.

Analyse:
Analysis revealed that variability in prescription routing — due to multiple provider options — led to delays and higher costs. Prescribers' requirement for ink signatures (often while off-site) added to the bottlenecks. These inefficiencies burdened the Homecare and Renal Pharmacy teams and led to urgent deliveries at additional cost.

Improve:
To address this, we began switching all 160 patients to the Boots Uxbridge service. Prescribers received targeted training to reduce errors and standardise prescription routing. Coordination with Boots ensures workflow remains manageable and stock levels are maintained.

Control:
To sustain improvements, we monitor uptake and proactively address any issues with Boots, prescribers, and patients. As of now, 60% of patients (96 out of 160) have been successfully

transitioned, with ongoing support in place for Boots and Trust staff. Clear communication pathways and data sharing are being used to support long-term success.

Interim Results & Impact

To date, the switch has resulted in savings of £38.10 per patient per delivery, equating to £114.30 per patient annually. With 96 patients already transitioned, this generates an annual saving of approximately £10,972 for the Trust.

The project has also:

Reduced pressure on the Renal Pharmacist and Homecare teams.

Delivered environmental benefits through reduced paper and ink usage.

Supported economic sustainability in line with the Trust's five-year plan.

We are now preparing to expand the initiative across other kidney treatment centres and to include fridge-line items. With a wider rollout, the potential for both cost and quality improvements is substantial.

Education of Health Professionals in Primary Care to Increase Uptake of urine Albumin: Creatinine monitoring and identification of Chronic Kidney Disease.

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Introduction

Evidence strongly supports medications, such as ACE-inhibitors, ARBs and SGLT2-inhibitors, used to reduce the excess cardiovascular and slow decline of kidney function associated with chronic kidney disease (CKD). However, effective management requires identifying patients through regular serum creatinine and urine albumin-creatinine ratio (uACR) testing. NICE recommends annual testing for at-risk groups. Locally, uACR screening rates were low, consistent with national CVD Prevent data.

To our knowledge, no existing training focuses on improving CKD screening and identification for non-clinical staff. Countywide CKD training was delivered during protected learning time, prompting requests for tailored in-practice sessions and the development of further training.

Methods

Informal discussions with lead clinicians identified screening as a priority topic to support CKD identification before addressing management. A senior clinical pharmacist with a CKD special interest developed a one-hour, in-practice session focused on screening and identification.

The training used a visual slide deck and props (e.g., a sieve for Bowman's Capsule, glitter water for protein in blood). Sessions were for clinical and non-clinical staff. The PCN serves ~67,000 patients and constitutes five practices in moderately deprived areas (IMD decile 4/5) where diabetes and hypertension prevalence exceed national averages (8.1% vs 7.7% and 15.1% vs 14.8%, respectively).

Results

Training sessions were delivered between September 2024 and April 2025 to 74 staff over 6 sessions. The largest staff group trained were GPs with 25 GPs, followed by non-clinical staff, of which 16 were trained. The proportion of staff trained by their roles is shown in Figure 1.

Biochemistry data from May 2024 and May 2025 showed a relative increase of 35% in uACR tests across the PCN (567 to 765), compared to a 15% increase across the ICB (2,682 to 3,075). As shown in Figure 2, all practices improved testing rates of uACR Practice 1 had the smallest increase but the highest baseline. Serum creatinine testing showed a modest decline.

Discussion

The training provision coincides with increases in uACR testing across the PCN, outperforming the wider ICB where similar training was not delivered. This suggests a positive impact of targeted education on CKD screening and highlights the value of practical, in-person sessions tailored to local needs.

While creatinine testing showed a modest decline, baseline rates were already high, so minimal change was expected. Although population growth may have contributed, the disproportionate rise in uACR testing indicates a genuine shift in clinical behaviour. Improved uACR testing also enables better risk stratification using tools such as the Kidney Failure Risk Equation (KFRE). Earlier identification and risk stratification support timely medicines optimisation, particularly the initiation of ACE-inhibitors, ARBs, and SGLT2-inhibitors in higher-risk patients.

These findings reinforce the importance of prioritising CKD screening in primary care education and suggest that simple, engaging training formats can be effective across multidisciplinary teams.

Further work

Following staff training, it became clear that improving test uptake also requires public engagement. To support sustainable change, targeted CKD education sessions are being developed for community groups, alongside continued staff training focused on risk factors and screening pathways.

Optimising Immunosuppressant Transition Strategies: Population Pharmacokinetic Analysis of Tacrolimus to Sirolimus Conversion in Renal Transplantation

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Background: Tacrolimus remains a cornerstone immunosuppressant in kidney transplantation; however, long-term use is associated with nephrotoxicity and metabolic complications. In those affected, an alternative agent, sirolimus, may be appropriate, though the optimal conversion protocol remains unclear. Current conversion strategies are based primarily on empirical experience rather than quantitative pharmacokinetic evidence, potentially resulting in periods of inadequate or excessive immunosuppression. Therapeutic drug monitoring provides only retrospective guidance during this critical transition, while both drugs exhibit narrow therapeutic windows and significant inter-patient variability influenced by factors such as age, haematocrit, and CYP3A5 polymorphisms. The hypothesis was that population pharmacokinetic modelling could identify conversion strategies that minimise periods of under- or over-immunosuppression while accounting for patient-specific characteristics and clinical outcomes.

Methods: This retrospective service improvement project examined kidney transplant recipients who switched from tacrolimus-to-sirolimus between March 2007 and January 2024. Comprehensive clinical data was collected from electronic hospital databases including demographics, conversion strategies, therapeutic drug monitoring levels, and laboratory parameters. Population pharmacokinetic models were developed to characterise drug concentration profiles and identify factors influencing tacrolimus and sirolimus dosing requirements. Covariates including age, sex, time since transplant, and haematocrit were evaluated in the model using a stepwise approach, based on statistical significance and physiological plausibility. After establishing the final model, six different conversion strategies were simulated, including standard overlap protocols, loading dose approaches, and immediate switching scenarios.

Results: Forty-five kidney transplant recipients underwent tacrolimus-to-sirolimus conversion. The most common strategy involved initiating sirolimus while reducing tacrolimus maintenance dose by 50% for 5-7 days, though substantial protocol heterogeneity was observed. One-compartment models best described both drugs' pharmacokinetics. Age significantly influenced both tacrolimus (1.65% clearance decrease per year) and sirolimus (0.95% decrease per year) disposition, while haematocrit affected sirolimus clearance (4.1% decrease per percentage point increase). Pre-conversion tacrolimus dose strongly correlated with sirolimus maintenance requirements ($r=0.622$, $p<0.001$), likely reflecting shared metabolic pathways (Figure 1). Combined drug exposure correlated with alanine aminotransferase elevation ($r=0.536$, $p=0.004$). Mean estimated glomerular filtration rate improved by 4.59 mL/min/1.73m² post-conversion ($p<0.001$) (Figure 2), with expected haematological changes including 13.9% reduction in white blood cells and 19.2% decrease in platelets. No acute rejection episodes occurred during the first month post-conversion. Simulations identified two optimal strategies: standard overlap (50% tacrolimus reduction with concurrent sirolimus initiation) and abbreviated overlap with loading doses, both maintaining adequate immunosuppression while minimising excessive exposure (Figure 3).

Conclusion: These findings support current practice while suggesting optimisation opportunities. Population pharmacokinetic modelling provides a quantitative framework for individualising tacrolimus-to-sirolimus conversion. Sirolimus doses should be adjusted for age and haematocrit while being guided by pre-conversion tacrolimus requirements. Conversion protocols should consider immunologic risk with comprehensive therapeutic drug monitoring before and after conversion. This

model-informed approach enables safer, individualised transitions and supports development of evidence-based dosing tools for immunosuppressant transitions in renal transplantation.

Optimising Antimicrobial Therapy in Haemodialysis: A Case Study Using Oritavancin and Pristinamycin

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Introduction

As antimicrobial resistance (AMR) increases and treatment options narrow, clinicians are increasingly turning to less commonly used antibiotics. However, many of these agents lack pharmacokinetic data in patients with end-stage renal failure (ESRF), particularly those receiving haemodialysis. This creates significant challenges for renal pharmacists and the wider multidisciplinary team (MDT), who must carefully assess pharmacokinetic and pharmacodynamic factors to ensure safe and effective prescribing.

This case study outlines the management of a patient with severe AMR and systemic bacteraemia of unknown origin, where conventional antibiotics were no longer viable. A tailored dosing approach was developed through collaboration between microbiology, virology, nephrology, and pharmacy teams. The case highlights the crucial role of renal pharmacists in interpreting limited pharmacokinetic data and contributing to individualised treatment strategies for complex haemodialysis patients.

Discussion

The first antibiotic considered was oritavancin, a lipoglycopeptide active against Gram-positive organisms. According to the Summary of Product Characteristics (SPC), oritavancin is 85% protein bound, has no significant metabolism, and is minimally excreted unchanged via urine or faeces (1–5%). These properties suggest it is unlikely to be significantly removed during dialysis. Its long half-life supports infrequent dosing, and minimal renal clearance implies that standard dosing may be appropriate, even in ESRF. Although clinical data in this population remain limited, these pharmacokinetic characteristics justified its use without dose adjustment.

The second antibiotic considered was pristinamycin, a streptogramin with activity against Gram-positive and anaerobic organisms. As it is unlicensed in the UK, pharmacokinetic data were difficult to obtain. However, available evidence indicates a half-life of approximately 6 hours. Protein binding ranges from 40–45% for constituent 1 to 70–80% for constituent 2. The drug undergoes biliary excretion, with negligible renal clearance, suggesting dose reduction is unnecessary.

Given its half-life and the likelihood of reduced clearance in ESRF, a twice-daily dosing regimen was chosen instead of the more conventional three times daily approach. This aligns with published regimens using 50 mg/kg/day in divided doses (either BD or TDS). The second dose was administered post-dialysis to compensate for potential drug removal, especially of the less protein-bound constituent 1.

Learning Points

1) Many alternative antibiotics lack dosing guidance in haemodialysis, requiring expert interpretation of limited pharmacokinetic data.
2) Renal pharmacists are integral to designing safe, individualised antimicrobial regimens for patients with ESRF.
3) Multidisciplinary collaboration supports informed, patient-specific treatment decisions.
4) Use of unlicensed or rarely used antibiotics is feasible when guided by pharmacokinetics and clinical judgement.

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Retrospective Clinical Audit of Direct Oral Anticoagulant Use and Outcomes in Adult Patients with Acute Kidney Injury at a Large NHS Hospital Trust

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Introduction: Approximately 20% of UK emergency hospital admissions are associated with acute kidney injury (AKI); inpatient mortality is 25-30%. Use of direct oral anticoagulants (DOACs) has increased in recent years due to their ease of use and superior safety profile compared to warfarin. DOAC use and outcomes in AKI are not extensively studied, with no specific local or national guidelines. Creatinine clearance (CrCl) can be used to support DOAC dosing and review of whether a DOAC should be held during an AKI. This audit investigated adverse outcomes from DOAC prescription during AKI, and the impact of amending DOAC therapy.

Methods: A retrospective clinical audit evaluated adults prescribed a DOAC, with a community or hospital-acquired AKI, between December 2023 and February 2024. The trust's AKI nursing team identified eligible patients with a true AKI based on the Kidney Disease Improving Global Outcomes (KDIGO) criteria. Patient records were accessed through the hospital's Electronic Patient Record (EPR) system. An Excel data collection form was used, including fields for patient demographics, clinical admission details, renal function and monitoring, complications and outcomes, and discharge information. Primary care records were used to identify DOAC name, dosing, and start date. Clinical decision-making was compared against trust guidelines based on CrCl. SPSS software calculated frequencies, percentages, and Fisher's exact test ($p \leq 0.05$), examining correlations between patient groups and outcomes. The audit was registered with the trust's audit department.

Key Findings: 41 patients were included (mean age = 74.6 years) (Table 1). 22 patients were prescribed apixaban, 13 were prescribed rivaroxaban, and 6 were prescribed edoxaban. 12.2% of patients experienced major bleeding, 36.6% experienced minor bleeding, and 19.5% experienced in-hospital mortality. At peak AKI 17 patients were continued on their DOAC, with 10 of these patients having stage 2 AKI and seven having stage 1 AKI. 18 patients had their DOAC held. 44.4% of these had stage 2 AKI, and 22.2% had stage 3 AKI. 2 patients had their DOAC dose reduced, one with stage 3 AKI. 10 patients had their DOAC changed to dalteparin; 4 of these had stage 1 AKI, with the remaining patients evenly split between stage 2 and 3 AKI. 63.4% of treatments adhered to DOAC dosing guidelines. Type of DOAC and adherence of DOAC dosing to guidelines had no statistically significant impact on adverse events.

Discussion: Poor baseline renal function, and non-adherence of DOAC dosing to clinical guidelines increased risk of adverse outcomes. A larger sample size may have allowed evaluation of further adverse outcomes and made the findings more generalisable. A more extensive study needs to be completed to explore DOAC use and management in AKI stages 2 and 3 in hospital practice, to develop guidance to support clinical staff.

The Ultimate Dance Off for Renal Safety!

A Quality Improvement Project on Improving the Safety for Renal-Impaired Patients on Dalteparin

Miss Dana Qiqieh[1], Miss Olivia Kanka[1]
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Dalteparin, a low molecular weight heparin, poses bleeding risks in renal-impaired patients due to its extended half-life and concurrently suboptimal efficacy following extravagant dose adjustments. Local guidelines advocate for anti-Xa monitoring in patients with CrCl<30 ml/min to mitigate these risks. However, an institutional retrospective audit (n=67) revealed significant non-compliance: 56.5% of patients lacked initial anti-Xa levels, and only 37.8% of measurements were timely. This non-compliance correlated with bleeding events in one-third of patients, including gastrointestinal bleeds, highlighting a necessity for improved clinical practice in a vulnerable patient population that is both pro-thrombotic and at an elevated haemorrhage risk.

A quality improvement project (QIP) was initiated in May 2024, aimed to enhance dalteparin safety in patients with CrCl<30 ml/min on treatment-doses dalteparin, thereby reducing adverse events risks and mirroring standard drug therapeutic monitoring practices. The primary objective was to increase the percentage of initial anti-Xa levels measured (defined as an initial anti-Xa level after 3 consecutive doses). The secondary outcome was to ensure that these levels were measured at the correct time (defined as a trough level). The agreed target was achieving a 60% compliance rate over 4 months, providing insight into how targeted interventions can drive progress toward achieving 100% compliance.

This QIP was conducted within the Medicine Division. The project was led by me in collaboration with key stakeholders, including the advanced renal pharmacist and deputy chief pharmacist, alongside the division lead pharmacist, the EPMA Pharmacist lead, and Renal Consultants. The IHI Model, utilising PDSA cycles, guided the project. In collaboration with key stakeholders, the root causes were identified via a process map, and change strategies were refined via a driver diagram. Data were collected using a standardized form via the Trust electronic prescribing system (EPIC), with primary outcomes collected biweekly and secondary outcomes monthly. Run charts were used to analyse data, and each PDSA cycle results were reviewed with key stakeholders.

PDSA cycle 1 focused on improving awareness via educational interventions for pharmacy and medical staff. Following the cycle, the primary outcome compliance improved to above target, impacted by the “Hawthorne effect” but reducing secondary outcome compliance highlighting while measuring anti-Xa levels is crucial, it is equally important to ensure they are taken at the correct time.

PDSA cycle 2 focused on enhancing pharmacist-led interventions via an EPIC reporting tool to generate a daily list of patients on treatment-dose dalteparin within the medicine division. PDSA 2 provided a more sustainable approach, reflected in the sustained 50% result for the primary outcome and marked improvement in the secondary outcome.

To improve sustainability and compliance rate, it was agreed with stakeholders for PDSA cycle 3 to involve developing a renal dalteparin order set within EPIC, which was endorsed by EPMA lead pharmacist to automate anti-Xa level ordering.

Project challenges included inconsistent pharmacy coverage and limitations in educational outreach. The small patient cohort also limited the statistical significance of the results. Despite this, the

project provided valuable insights into leading change, improving patient outcomes, and contributing to equitable care.

Piloting a Pharmacist-Led Virtual Clinic to Optimise CKD Medicines: Improving Outcomes, Reducing Delays, and Enhancing Patient Experience

Miss Charlotte Aitchison, Dr Harsha Wodeyar, Dr Daniel Kimber

Background:
A January 2023 audit of 100 CKD patients at University Hospitals of Liverpool Group (UHLG) found suboptimal use of evidence-based therapies. Only 13% were prescribed maximum-dose ACEi/ARB; among the remainder, 47% had suboptimal BP control, with no documented reason for under-dosing in 71% of patients. SGLT2i use was 11%, although 60% of untreated patients met NICE criteria. No patients received finerenone despite 19 being eligible. These findings highlighted an unmet need for medicines optimisation in CKD.

Clinic letter recommendations for medication initiation or adjustments were not consistently implemented in primary care. Around half of patients experienced waits ≥30 days or no action at all, underscoring the need for timely prescribing, improved communication, and better coordination across the secondary-primary care interface.

Project Aims:
1. Increase the uptake of guideline-directed therapies.
2. Reduce prescribing delays across care sectors.
3. Evaluate patient experience, adherence, and satisfaction.
4. Explore wider benefits, including collaboration and environmental impact.

Methods:
A pharmacist-led, protocol-driven virtual CKD medicines optimisation clinic was piloted at UHLG in collaboration with community services, delivered via clinical telehealth systems. Optimisation focused on: initiation/titration of ACEi/ARBs, SGLT2i, and finerenone; BP optimisation; and post-AKI medication re-initiation. Patients were referred at any stage of care and remained until fully optimised before discharge.

The clinic and simplified prescribing pathways supported primary care optimisation and direct pharmacist-MDT communication. To reduce implementation delays, templated EMIS clinic letters enabled rapid GP correspondence. Outcomes were captured in real time using dedicated templates, with prescribing data extracted from pharmacy IT systems.

Results:
From December 2024 to July 2025, 172 patients generated 486 clinic appointments. 69% of patients required follow-up with a median of 2 appointments per patient.

99% of patients reported good adherence and 100% rated satisfaction as 5/5. The virtual, telehealth-supported model avoided an estimated 2,739 miles of patient travel for first appointments alone. Median time from referral to first appointment and prescription was 26.5 days. Prescriptions were primarily issued at UHLG outpatient sites, with 24% directed to GPs without additional delay.

By July 2025, 79 patients had been discharged; 66 (84%) were fully optimised on maximum-tolerated, guideline-directed therapy. Reasons for non-optimisation included non-engagement, patient choice, and prolonged admission. Median time to discharge was 55.5 days.

Discussion:
The pharmacist-led virtual CKD clinic improved access to evidence-based therapies, reduced prescribing delays, and achieved excellent patient outcomes and satisfaction. Templated EMIS letters

strengthened GP communication, reducing delays in implementing recommendations and ensuring continuity of care.

The virtual model also supported the NHS Green Plan by reducing patient travel and associated carbon emissions. Telehealth delivery provided efficient, patient-centred care with greater accessibility and convenience, reduced hospital exposure, and increased emphasis on patient satisfaction. EMIS access to issue prescriptions directly to community pharmacies is expected to enhance patient experience and local access.

Simplified prescribing pathways and collaborative working promoted consistent adoption of evidence-based therapies, resource efficiency, and long-term sustainability. The model has been shared with primary care, and through the North-West Kidney Network and CORE Kidney Initiative, work is underway to scale this approach regionally.

Evaluation of Pneumocystis jirovecii (PJP) and Cytomegalovirus (CMV) Prophylaxis Duration in Kidney Transplant Recipients

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Introduction: Kidney transplant recipients face an increased risk of opportunistic infections due to the immunosuppressive medications necessary to prevent rejection of the transplanted kidney. At University Hospitals of Leicester NHS Trust (UHL), patients are routinely prescribed prophylaxis against Pneumocystis jirovecii pneumonia (PJP) with co-trimoxazole, or atovaquone if they are allergic or intolerant to co-trimoxazole or its components. This prophylaxis is typically continued for 6 months post-transplant, as this period carries the highest risk of PJP infection. Additionally, patients with donor CMV-positive to recipient CMV-negative (D+/R–) serostatus are prescribed valganciclovir for 6 months to reduce the risk of cytomegalovirus (CMV) infection. Valganciclovir is also administered to patients receiving alemtuzumab (Campath) induction immunosuppression, unless both donor and recipient are CMV-negative.

While these prophylactic treatments are crucial in preventing serious infections, prolonging their use beyond the recommended duration can increase tablet burden, elevate the risk of adverse effects such as myelosuppression and nephrotoxicity, and contribute to antimicrobial resistance.

This audit was conducted to evaluate compliance with UHL guidelines, specifically to determine whether co-trimoxazole/atovaquone and valganciclovir prophylaxis were appropriately stopped at 6 months post-transplantation.

Aim: To assess prescribing practices of co-trimoxazole/atovaquone and valganciclovir for PJP and CMV prophylaxis, respectively, in kidney transplant recipients, ensuring adherence to UHL guidelines.

Objectives: To establish whether new kidney transplant patients started on PJP and CMV prophylaxis had these medications discontinued appropriately at 6 months.

Audit Standard: All kidney transplant recipients initiated on PJP and CMV prophylaxis should have these medications stopped at 6 months, unless there is a clear clinical indication to continue.

Methodology: This retrospective audit reviewed data from January 2024 to December 2024. 57 patients were identified as having been started on co-trimoxazole/atovaquone, and 17 patients on valganciclovir, using a data collection tool developed by the Leicester Kidney Pharmacy Team. Patients who repatriated away from Leicester, deceased and those who required prolonged courses (e.g. those who had treatment for transplant rejection) were excluded from the audit. Data sources included transplant patient lists maintained by transplant coordinators, clinic letters, and a renal software system called Proton. Ethical approval was not required.

Results: Of the 57 patients on PJP prophylaxis, 13 (23%) continued treatment beyond the 6 month period. Similarly, 6 out of 17 patients (35%) prescribed valganciclovir extended beyond the recommended duration. No documented clinical reasons justified these prolonged courses.

Discussion: These findings highlight an issue with adherence to UHL guidelines regarding the duration of PJP and CMV prophylaxis. Among those on co-trimoxazole/atovaquone, 7 patients remained on treatment beyond 8 months. Possible causes include delayed or cancelled follow-up appointments, which may have led to missed medication reviews. 2 patients on valganciclovir continued treatment for over 8 months without documented reasons.

The results will be presented at the next transplant multidisciplinary team meeting to increase awareness and develop strategies to improve guideline adherence. A re-audit is planned to evaluate the impact of any changes implemented.

Evaluation of the renal pharmacist's role in the haemodialysis new starter reviews: a scoping review

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Individuals with end-stage kidney disease on haemodialysis are prone to several complications including cardiovascular morbidity, mineral bone disease, anemia, and pruritus. Additionally, they tend to experience polypharmacy, commonly defined as concomitant use of ≥5 medications. Of note, polypharmacy is associated with medication-related adverse events, increased risk of hospitalisation and poorer quality of life. This is further complicated by the frequent changes of medications when transitioning to haemodialysis. At the Oxford Kidney Unit (OKU), the haemodialysis new starter review is routinely undertaken by junior doctors. Current medicines optimisation efforts led by pharmacists are often retrospective and limited. There is also limited data to demonstrate the clinical benefits of medicines optimisation in haemodialysis patients. The aim of this service evaluation was to explore the types of pharmacist reviews required within new starter reviews and assess the feasibility of embedding a pharmacist-led medication review for all haemodialysis new starters.

Methods:
Individuals newly started on in-centre haemodialysis were identified using a clinical 'watchlist', set up on the Cerner® electronic prescribing system. The watchlist was populated by the junior doctors following the haemodialysis new starter review to enable a subsequent pharmacist medication review (Table 1)
Two specialist pharmacists were involved in this project across the two dialysis units in OKU. The medication review outcomes (changes to medications, monitoring, counselling) were documented by the pharmacist on the haemodialysis new starter review proforma. Prospective anonymised data was collected, using Excel, between 01 January and 31 March 2025. Data collected included the types of clinical pharmacy activities performed in the haemodialysis new starters, the time taken for each medication review and time to review from day of initiation of haemodialysis.

Results:
Out of the 49 haemodialysis new starters, 47 individuals were referred to the pharmacists for medication review. The average time taken for the pharmacists to conduct a new starter medication review was 35 minutes (range: 15 minutes – 50 minutes). The audit showed 34 (71%) individuals were reviewed within 2 days of the dialysis initiation (range 2-4 days). Main areas of output in medication reviews have been divided into different categories (Figure 1).
Medication education on adequate timing of medication administration and indications for newly started medications was performed in 17 (37%) individuals. The most common condition managed by the pharmacist in new starter review was anemia, as the pharmacist advised on dosing and dose adjustment of erythropoiesis-stimulating agents and intravenous iron in 45 (96%) individuals. All individuals (n=7) with failing transplant had their immunosuppressant regime adjusted following pharmacist's review, alongside consultation with the named nephrologist.

Discussion:
This scoping review elucidates the wide range of pharmacist input into the haemodialysis new starters reviews. With an ever-increasing haemodialysis dialysis population, the results highlighted the considerable amount of time required for renal pharmacists performing such reviews. Current renal workforce planning guidance produced by British Renal Society is under review, and evaluations like this provide vital information on pharmacy resources for haemodialysis multidisciplinary team. Mixed-method studies should be considered for further analysing patient outcomes and patient experiences in future research.

Educational strategies to improve the management of CKD in Primary Care

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INTRODUCTION

The management of earlier stages of chronic kidney disease (CKD) is often made more complex due to lack of clinical confidence of healthcare professionals. Alongside limited knowledge, access to support tools, competing priorities and reduced clinical confidence are all barriers faced by healthcare professionals working in primary care when diagnosing and managing people living with CKD.

In a bid to improve the management, a London based nephrology unit and integrated care board (ICB) collaborated to improve understanding and upskill clinicians in identifying, coding and managing people living with CKD stages 1-5.

METHOD

Various members within the nephrology service were job planned to support and integrate care between primary and secondary care.

The development of one single referral form

A single point of access means reduction workload in primary care. Referring clinicians are provided advice and guidance on the management of their patient, or the patient may be accepted into a nephrology clinic (community-based CKD service or appropriate secondary care clinic e.g. diagnostics, lupus etc). The consultant-led triage service of these referrals is also used to provide brief targeted education about CKD.

Development of a detailed CKD pathway

As patients with long term conditions are routinely looked after by non-medical healthcare professionals in primary care (mainly nurses and pharmacists), the CKD pathway was updated to provide the relevant support tools required by all teams to aid identification, diagnosis and management of CKD within GP practices. The pathway was built in consultation with relevant stakeholders.

An education programme to support CKD management in primary care

Nephrology have teamed up with the ICB's training hub and medications advisers to provide structural education sessions to primary care. The format of these sessions ranges from webinars, interactive Q&A sessions and presentations delivered either online or in person. The sessions are tailored to the needs of the audience to get maximum engagement.

An education programme to support patients newly diagnosed with CKD

Monthly webinars are also run by the members of the CKD team aimed at patients newly diagnosed with CKD to empower them on how to live well with CKD. The times of the sessions are varied to enable attendance by patients/ carers. Anyone can attend as long as they have been made aware of their diagnosis.

RESULTS

Local reporting data shows an improvement in number of patients coded with CKD from 2.89% (September 2024) to 3.03% (July 2025), closing the gap to national average (4.4%). Since the launch of the education sessions, an increase in the number of patients started on standard of care including statins ACEi/ ARBs and SGLT2i in primary care (figure 1) is noted.

LIMITATIONS

At present, we cannot calculate the proportion of patients coded with CKD that attended the webinars. This is mainly because presenters are bound by strict GDPR rules meaning attendees are anonymised and prior registration is not enabled.

CONCLUSION

The interventions were formalised by January 2025. While more work is needed, initial data demonstrates promising improvement CKD management within this London-based ICB.

Increased patient activation is associated with reduced healthcare utilisation post-transplant

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The Patient Activation Measure (PAM) is a validated tool to assess a patient's knowledge, skills, and confidence in managing their health. Higher levels of patient activation have been shown to be associated with improved adherence to treatment regimens, reduced healthcare utilization and hospitalization and better health related outcomes in a variety of long-term conditions including advanced CKD.

PAM has been used widely in the NHS. We aimed to determine if we could identify an association between PAM and adverse health related outcomes in our cohort of kidney transplant recipients and evaluate the utility of PAM to identify patients needing enhanced levels of monitoring, support and coaching to achieve optimal outcomes following a kidney transplant.

All transplant recipients completed the 13 question PAM as part of standard care during pharmacist delivered education after kidney transplantation and prior to discharge from hospital. PAM scores were retrospectively calculated. Un-paired t-test was used to compare the mean PAM score for English and non-English speakers.

A Kaplan-Meir survival analysis was performed to determine the relationship between PAM score and hospital admission or attendance to the Emergency Department.

A total of 98 transplant recipients had a PAM score calculated (Median score 53.2). The mean PAM score was lower if the recipient did not speak English, but not statistically significant (p=0.063). Median follow-up was 188 days.

Recipients with higher levels of activation (level 3+4) were significantly less likely to be hospitalized or attend ED than those with lower activation (level 1+2), especially in the early months post-transplant (p=0.015).

Our study is limited by a relatively small size and short duration of follow-up.

However, in common with other studies of PAM in long-term conditions, we have identified an inverse relationship between higher levels of patient activation and healthcare utilization. We believe the PAM merits further study in a larger cohort with longer follow-up to determine the association between PAM clinically relevant and patient reported outcome measures (PROMs) with the aim of personalized interventions to improve post-transplant outcomes.

Ethical approval has been applied for to permit further study within the transplant clinic setting with pharmacist interventions implemented to review how this affects PAM scores throughout patient's transplant journey.

Research Engagement and Barriers in Renal Pharmacy Practice: Insights From a UK Questionnaire Study

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Clinical pharmacists in the NHS are vital to advancing renal care and improving patient outcomes. However, the extent to which renal pharmacists engage with, perceive, and experience research in their roles remains unclear. While organisations like Kidney Research UK encourage pharmacists to access research grants, uptake has been limited, and specific barriers and enablers for renal pharmacists are not well understood. This study aimed to explore renal pharmacists' experiences, attitudes, and approaches to research, identifying opportunities to support the current and future workforce.

A qualitative questionnaire was distributed to renal pharmacists across the UK in February 2025 via the UK Kidney Association website. Questions explored research activity, training, attitudes, self-assessed skills, and perceived barriers and facilitators. Responses were analysed descriptively and thematically, focusing on patterns of engagement and variation across career stage, qualifications, and practice setting.

Twenty-six pharmacists responded, representing 16.7% of the UK renal pharmacy workforce from a broad geographical and practice distribution. Overall, 69% reported research was part of their current or previous role, though only 4% (n = 1) spent more than 25% of their time on research. Half of those devoting >10% of their time to research held or were pursuing a PhD, typically working in academia or combined academic–clinical roles. In contrast, those in secondary care roles often reported minimal protected time for research.

A third of respondents reported research being routinely discussed during annual appraisals, while 23% stated it was never addressed. Despite varied research activity, nearly all respondents used research evidence in clinical practice, showing strong commitment to evidence-based care.

Barriers to research involvement were frequently cited, with lack of time the most prominent. Funding constraints and absence of mentorship or research-designated posts were also recurrent themes, particularly among early- and mid-career pharmacists. Conversely, respondents with over 10 years' experience, particularly those holding PhDs, identified fewer barriers and were more likely to participate in advanced research activities such as clinical trial recruitment or serving as Site Principal Investigator.

38% of pharmacists reported engaging in research, most commonly through presenting findings at conferences. Those with greater research experience additionally reported activities such as securing funding and co-authoring publications.

Pharmacists were confident in literature searching and presenting but reported limited skills in acting as a Principal Investigator or navigating research processes like ethics applications and protocol writing.

This study highlighted inconsistent levels of research activity among renal pharmacists in the UK. Most pharmacists reported positive attitudes towards research and routinely implement evidence into their practice, however few participate in primary research, with activity concentrated among a small group of highly experienced or academically affiliated pharmacists. Time pressures, funding, and lack of structured mentorship were commonly cited as barriers to engagement.

Findings suggest a need for targeted strategies to build research capacity within the renal pharmacy workforce. These include embedding research discussions into appraisals, expanding mentorship opportunities, and creating dedicated research posts or protected time allocations. Strengthening research capability will not only support professional development, but contribute pharmacy led-evidence that will enhance renal healthcare.