

## WCN26-6293

## CO-DESIGNING A MOBILE HEALTH APPLICATION TO IMPROVE ENGAGEMENT AND OUTCOMES IN DIALYSIS CARE: A MULTI-SITE EVALUATION IN SOUTH AFRICA



(Article No. 106028)

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**Introduction:** Chronic kidney disease (CKD) and dialysis are increasing global public health burdens, requiring complex, lifelong care. Although mHealth apps have shown value in many components of care, more data is needed to assess mental health, quality of life (QOL) and impact on costs. This study, carried out in National Renal Care (NRC) dialysis units developed a mobile health (mHealth) application with patients to support their experience on dialysis. Its aimed was to evaluate its impact on patient engagement, self-management behaviours, clinical outcomes and health related quality of life (HRQoL).

**Methods:** A mixed-methods study was conducted across 87 dialysis sites in South Africa, including 76 in-centre haemodialysis units and 11 home therapy programmes. A retrospective analysis of mobile app usage and clinical data was carried out from May 2022 to November 2024. The evaluation examined five domains: user engagement, user experience, clinical outcomes, health system integration, and adoption. Quantitative measures included app interaction, frequency, session duration and feature utilization. Clinical indicators assessed were haemoglobin, albumin, phosphate, calcium and dialysis adequacy levels (Kt/V). Patient reported outcomes were collected using the SF-36 HRQoL survey.

**Results:** A total of 3,410 dialysis patients registered on the app, representing 95% adoption in the cohort. The mean age was 57.6 years, with 60.5% male and 39.5% female. The average patient engagement score was 58.5%, with a mean session duration of 18.4 minutes. Frequently accessed features included renal-friendly recipes (24.7%), educational articles (24.7%), clinical results (16.8%) and symptom tracking (12.5%). High app users (>4 logins/month) demonstrated modest improvement in clinical and HRQoL outcomes, including a significantly higher proportion of patients achieving target albumin levels (>35g/dl; 79.8% compared to 74.2%,  $p<0.001$ ) and a higher physical composite HRQoL (74.4 compared to 70.3,  $p=0.02$ ).

**Conclusion:** This co-designed mHealth platform offered a scalable, patient-centred model that enhanced engagement and demonstrated clinical improvements. It enabled patients to be involved in their care and personalise their care experience. In particular it demonstrated improved quality of life with modest health benefits, previously not demonstrated in mHealth apps.

**I have no potential conflict of interest to disclose.**

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## WCN26-6415

## ASSOCIATION OF LOW SERUM 25-HYDROXYVITAMIN D WITH ARTERIAL STIFFNESS IN NON-DIALYSIS CKD (STAGE 3-5)



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**Introduction:** Arterial stiffness refers to arterial wall rigidity. Arterial stiffness increases in early stage chronic kidney disease (CKD), and it is a strong predictor of cardiovascular and all-cause of mortality. 25-hydroxyvitamin D 25(OH)D deficiency is quite common worldwide and in the CKD population. It has beneficial effects on blood pressure, vascular endothelial function and arterial stiffness. Research works have indicated that serum 25(OH)D is significantly lower in participants with a severe decrease in estimated glomerular filtration rate (eGFR) compared with those with normal kidney function. In addition, impaired vitamin D status, characterized by low serum 25 (OH) D levels, is independently associated with a higher prevalence of

cardiovascular disease. It is worth noting that there is limited data with regard to whether vitamin D deficiency plays an important role in arterial stiffness in patients with non-dialysis-dependent CKD especially in our country.

**Methods:** This hospital based cross sectional observational study was conducted at the Department of Nephrology in Dhaka Medical College from September 2021 to March 2023. A total 100 non dialytic CKD (Stage 3-5) patients were enrolled according to selection criteria. Patients were divided into two groups according to the serum 25(OH)Vitamin D status. The pulse wave velocity (PWV) was measured by Doppler USG. Following completion of the data collection, data analysis was done using SPSS version 26.

**Results:** The mean age was 55.35±16.79 years in Vitamin-D deficient and 43.06±16.44 years in Vitamin-D non deficient. More than half (56.0% of patients were male in Vitamin-D deficient and 26 (52.0%) in Vitamin-D non deficient group. The mean systolic BP was 150.96±29.37 mmHg in Vitamin-D deficient and 132.13±33.16 mmHg in Vitamin-D non deficient. The mean diastolic BP was 92.5±13.2 mmHg in Vitamin-D deficient and 81.67±13.42 mmHg in Vitamin-D non deficient. The mean BMI (kg/m<sup>2</sup>) 22±3 in Vitamin-D deficient and 24±2 mmHg in Vitamin-D non deficient group. The mean e GFR was 12.53±6.3 in Vitamin-D deficient and 29.42±14.07 in Vitamin-D non deficient group. The mean Hb % was 10.2±2.4 in Vitamin-D deficient and 11.1±3.2 in Vitamin-D non deficient group. Multiple linear regression analysis: independent predictors of brachial ankle pulse wave velocity (baPWV) in non dialysis CKD. It was observed that Vit-D, age and S.iPTH were independent significant predictors of brachial ankle pulse wave velocity. Others were not significantly associated with brachial ankle pulse wave velocity (baPWV). The mean brachial ankle pulse wave velocity was 22.5±1.75 m/s in Vitamin-D deficient and 16.86±1.82 m/s in Vitamin-D non deficient. The differences of brachial ankle pulse wave velocity in stage 3A, 3B, 4 and 5 were statistically significant ( $p<0.05$ ) between Vitamin-D deficient and non deficient. The differences of brachial ankle pulse wave velocity in demographic variables (age, sex and smoking status) were statistically significant ( $p<0.05$ ) between Vitamin-D deficient and non deficient.

**Conclusion:** The study revealed the high prevalence of 25(OH)D deficiency in CKD patients. 25(OH)D deficiency is a contributing factor in the development of arterial stiffness in CKD

**I have no potential conflict of interest to disclose.**

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## WCN26-6583

## ORAL LACTOFERRIN IN ANEMIA OF CHRONIC KIDNEY DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS



(Article No. 106030)

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**Introduction:** Anemia is a prevalent and multifactorial complication of chronic kidney disease (CKD), often driven by inflammation, impaired iron metabolism, and reduced erythropoietin production. Lactoferrin, an iron-binding glycoprotein with immunomodulatory and antimicrobial properties, has demonstrated efficacy in improving iron indices in general iron deficiency anemia. However, its role in CKD-associated anemia remains inadequately characterized.

**Methods:** A systematic review and meta-analysis were conducted to evaluate the effectiveness of oral lactoferrin compared to standard-of-care therapies—including iron supplementation and/or erythropoiesis-stimulating agents—for the treatment of anemia in adult and pediatric CKD patients. PubMed, Embase, and Cochrane CENTRAL were searched through May 7, 2025. Data were pooled using a random-effects model, and heterogeneity was assessed using the I<sup>2</sup> statistic. Sensitivity analyses and trial sequential analysis (TSA) were performed to assess robustness and adequacy of cumulative evidence.

**Results:** Four studies comprising 413 participants were included in the final analysis. Lactoferrin supplementation was associated with a

statistically significant increase in transferrin saturation (MD: 8.12%; 95% CI: [0.61, 15.63]; p = 0.03), while improvements in hemoglobin (MD: 0.66 g/dL; 95% CI: [-0.06, 1.38]; p = 0.07) and serum iron (MD: 19.20 mcg/dL; 95% CI: [-4.56, 42.96]; p = 0.11) did not reach statistical significance.

**Conclusion:** Oral lactoferrin supplementation was associated with a significant improvement in transferrin saturation and a non-significant trend toward higher hemoglobin and serum iron levels in CKD-related anemia. While these findings suggest a potential role in improving functional iron availability, further well-designed trials are needed to confirm its clinical utility.

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WCN26-6658

**CHALLENGES IN BUILDING A SUCCESSFUL INFLUENZA VACCINE PROGRAM, A 2-YEAR JOURNEY**



(Article No. 106031)

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**Introduction:** Influenza vaccination has historically not been a part of vaccination strategies in Malaysia, both in the general population as well as in the dialysis cohorts. This is despite rising recognition that influenza infections have played a role in increasing hospitalizations.

Our organization in 2024 started a campaign to drive influenza vaccination across our 44 dialysis clinics spread throughout Malaysia. However, the success was muted. At the end of 2025, only a total of 16% of the dialysis population had been vaccinated. This was far below a pre-set target of 50%.

A survey carried out using random sampling among patients identified a number of reasons for the low penetration rate. These were (1) Cost (Malaysia does not reimburse the influenza vaccine; therefore, all vaccinations are out-of-pocket) (2) poor awareness and knowledge of vaccine benefits (3) distrust towards vaccines

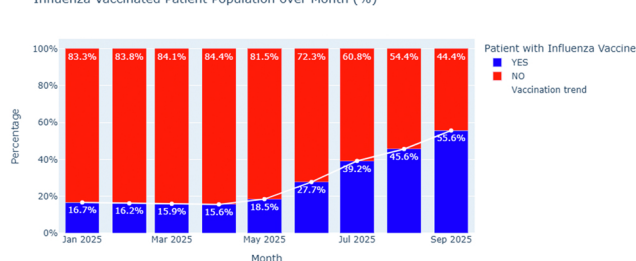
For 2025, a more ambitious goal was planned (85%). To target this goal, we devised the following:

**Methods:** A multistep program was designed to address the barriers identified above. These were as follows

1. Reduced vaccination cost by 40% compared to average market prices
2. Vaccination pamphlets detailing benefits of vaccination and risks of going without
3. Scheduled vaccination counselling by dialysis unit nurses to each patient as well as patient levels CME sessions by nursing educators on a 3-monthly basis
4. Targeted counselling by nursing educators on patients who have declined vaccination after having been approached 3 times
5. Purchased stocks of vaccines to be placed in dialysis units proactively rather than reactively
6. Vaccination activity to be done surrounding Dr rounds for maximal impact.

**Results:** The above represent our improved vaccination activity recorded from the months of January through September of 2025. Vaccination rates notably picked up after May 2025. The activity which made the most impact was linking the vaccination to the Dr rounds. Nephrologists in Malaysia do rounds on their patients on a 3 monthly basis; AThe rounds done in April/May 2025 were instrumental in driving increasing vaccination activity. This was supplemented by consistent nursing educational activities towards the patients.

Influenza Vaccinated Patient Population over Month (%)



**Conclusion:** In a vaccine resistant population, the key impact driving the take-up of vaccinations was a structured program comprised of consistent education and awareness activities which laid the foundation of acceptance to the vaccine followed by physician driven vaccination. This was able to drive vaccinations from a base level of 16% in 2024 to 55.6% in 2025.

**I have no potential conflict of interest to disclose.**

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WCN26-6753

**BUILDING A NATIONAL DECEASED ORGAN DONATION SYSTEM IN BANGLADESH: A MULTI-STAKEHOLDER WORKSHOP AND SUBSEQUENT OPO TRAINING INITIATIVE**



(Article No. 106032)

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**Introduction:** Bangladesh faces significant challenges in meeting the demand for kidney transplants due to a limited deceased organ donation (DOD) system. With a high number of daily fatalities from road traffic accidents, a significant potential donor pool exists. To address this, the Kidney Foundation Bangladesh, in collaboration with Vital link Academy and Raphael International of Seoul, Korea convened a multi-stakeholder workshop focused on building a sustainable DOD framework.

**Methods:** A two-day workshop (May 4-5, 2025) brought together nephrologists, transplant surgeons, ethicists, legal experts, and policy-makers to: (1) identify critical obstacles hindering DOD in Bangladesh, and (2) develop actionable strategies for system development. The workshop included expert lectures, interactive discussions, and collaborative vision-setting exercises. As a follow up the top 5 participants will be sent to Korea for extensive OPO training.

**Results:** Key obstacles identified include: lack of a formalized organ procurement organization (OPO), inadequate legal framework surrounding brain death declaration, social stigma and lack of public awareness, and limited funding for transplant programs. Prioritized strategies included: (1) establishing a national regulatory body for organ donation, (2) increasing public awareness and education campaigns, (3) training healthcare professionals in brain death declaration and organ donation procedures, and (4) securing dedicated financial support for transplant programs. A vision was established to increase deceased donor transplants to 20% of total transplants within three years.

**Conclusion:** This workshop represents a crucial first step in building a comprehensive and ethical deceased organ donation system in Bangladesh. The identified obstacles and developed strategies, combined with the planned OPO training in Korea, provide a roadmap for advancing the national transplantation program. Increased collaboration among all the parties and governmental financial support will boost the availability of life-saving kidney transplants for patients with end-stage renal disease.

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