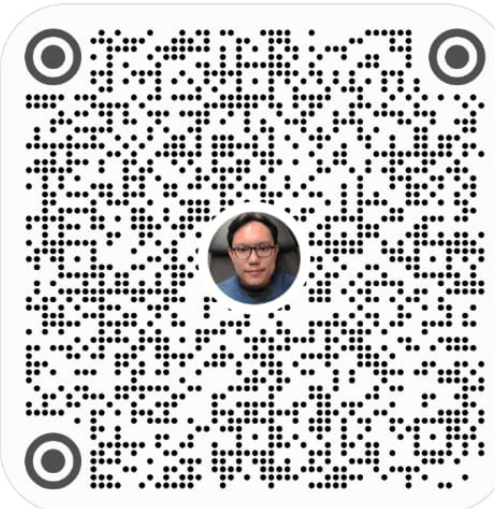


Automated Kidney Failure Risk Equation (KFRE) Reporting and Its Influence on Physician Practice in a Tertiary Private Hospital in Kuala Lumpur

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Background

The prevalence of chronic kidney disease (CKD) in Malaysia is reported to be 15.5%. The 2024 KDIGO CKD guidelines recommend screening at-risk patients using estimated glomerular filtration rate (eGFR) and urine albumin-to-creatinine ratio (UACR). The guidelines also emphasize CKD progression risk estimation to improve quality of care. The Kidney Failure Risk Equation (KFRE) provides 2-year and 5-year probabilities of developing kidney failure for patients with CKD stages 3 and 4, and has been validated in more than 30 countries. Incorporating KFRE reporting into clinical workflows may help guide early intervention and treatment optimization.

Results

A total of 139 KFRE reports were generated during the study period, of which 64 patients with CKD stages 3 and 4 fulfilled the inclusion criteria. Demographic data is shown in Table 1.

Nephrologists ordered the majority of tests (48.4%), followed by endocrinologists (39.1%).

Medication use included ACEi/ARBs (51.6%), SGLT2 inhibitors (64.1%), mineralocorticoid receptor antagonists (7.8%), and GLP-1 receptor agonists (14.1%).

Following KFRE implementation, 40 patients (62.5%) had medication optimization compared with 24 patients (37.5%) who remained on the same regimen ($p = 0.384$).

CKD Stage 3 patients with higher KFRE scores were more likely to undergo optimization, though not statistically significant.

Methods

An automated KFRE reporting system was implemented at Pantai Hospital Kuala Lumpur in May 2024 for patients with CKD stages 3 to 5 who underwent eGFR and UACR testing on the same day. A retrospective review of health records from May 2024 to April 2025 was conducted to evaluate whether automated KFRE reporting influenced physician practice. Data collected included demographics, blood pressure, medication type and number, medication optimization, and nephrology referrals.

Variable	n (%) or Median (IQR)
Age (years)	66.5 (56.3–75.0)
eGFR (mL/min/1.73 m ²)	42.0 (30.0–51.0)
KFRE 2-year risk (%)	0.8 (0.23–4.43)
KFRE 5-year risk (%)	3.1 (0.93–16.05)
UACR (mg/g)	24.7 (6.23–95.6)
Sex	
Male	44 (68.8)
Female	20 (31.3)
Race	
Chinese	29 (45.3)
Malay	19 (29.7)
Indian	11 (17.2)
Others	5 (7.8)
Comorbidities	N (%)
Diabetes Mellitus	52 (81.3)
Hypertension	49 (76.6)
Ischaemic Heart Disease	22 (34.4)
Hyperlipidaemia	41 (64.1)
Glomerulonephritis	5 (7.8)
Other Diseases	12 (18.8)
CKD Stage	
Stage 3	50 (78.1)
Stage 4	14 (21.9)

Table 1. Demographic data

Conclusion

Automated KFRE reporting improved CKD care by facilitating disease detection, medication optimization, and appropriate nephrology referrals among both nephrologists and non-nephrologists. Larger, multicentre studies are warranted to validate these findings and further improve CKD management in Malaysia

