

INTRODUCTION

Multidisciplinary Chronic Kidney Disease (CKD) Clinics were established to offer support from other disciplines to monitor and delay progression in conjunction with the Nephrologist. Most CKD clinics followed patients with CKD stage G3 and G4 as a homogeneous group with the assumption that everyone had similar rates of progression with scheduled visits and lab investigations based on the stage of the disease.

Clinicians recognize that not all patients progress at similar rates to kidney failure and treatment and follow up needs vary. Identifying the patients at highest risk can lead to better utilization of resources. The Kidney Failure Risk Equation (KFRE) identifies patients at different risks of progression to kidney failure in each stage of the disease.¹

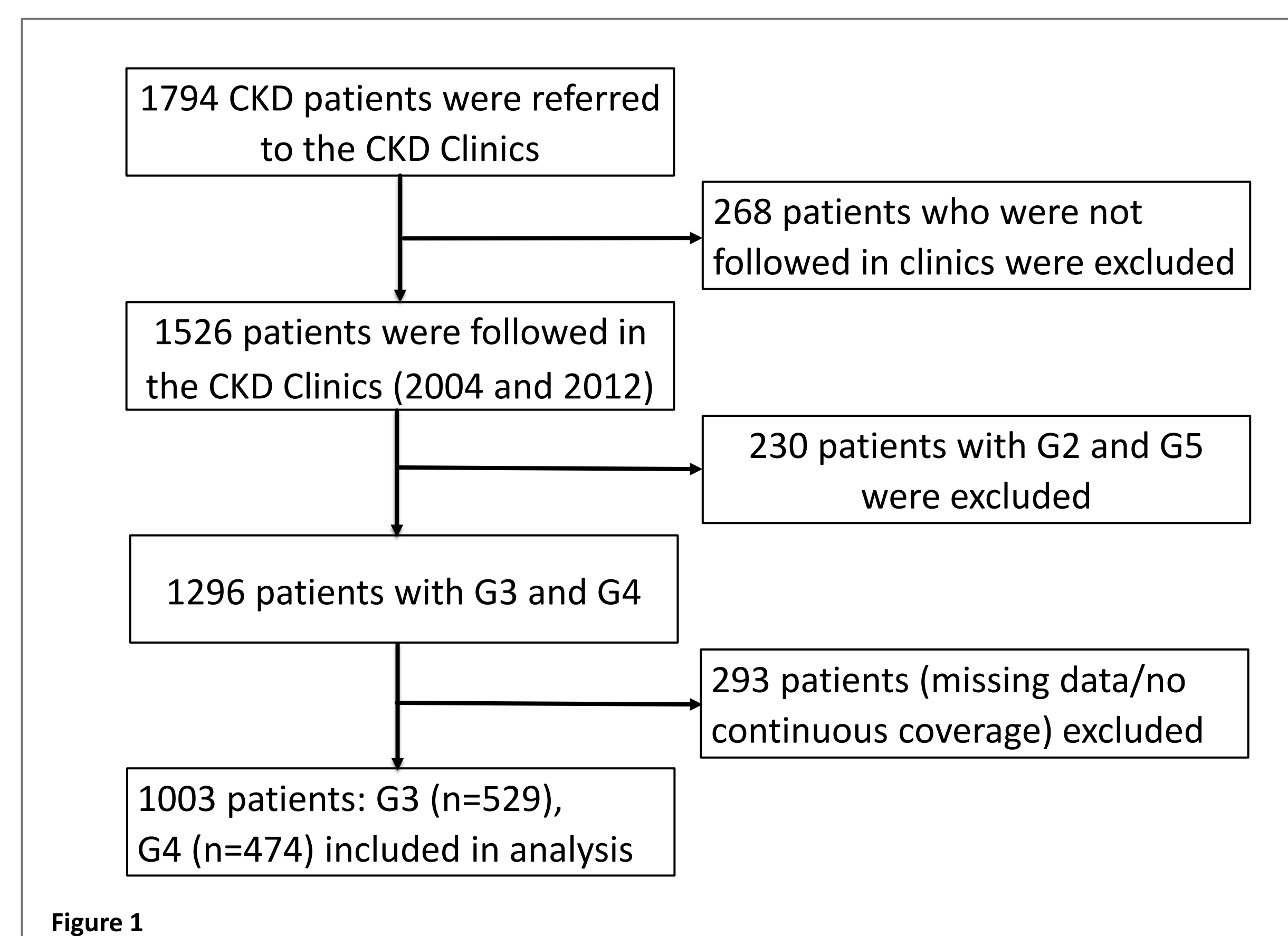
Objective:

To examine resource utilization and costs based on the *risk of progression* by KFRE (i.e. not based on the *stage* of CKD).

METHODS

Design:

- Retrospective cohort study on adults with CKD stages G3 and G4 in two Multidisciplinary CKD Clinics in Saskatchewan, Canada.
- Data collected Jan 2004 – Dec 2012. Patients were followed for 5 years (**Figure 1**)
- Patients stratified by risk of progression to kidney failure (low, medium, high-risk) as defined by the 8-variable KFRE¹ (**Figure 2**).



Kidney Failure Risk Equation (KFRE)			CKD G3	CKD G4
8 Variables • Age • Sex • eGFR • ACR • Calcium • Phosphate • Albumin • Bicarbonate	Low Risk		<5% over 5 years	<10% over 2 years
	Medium Risk		5-15% over 5 years	10-20% over 2 years
	High Risk		>15% over 5 years	>20% over 2 years

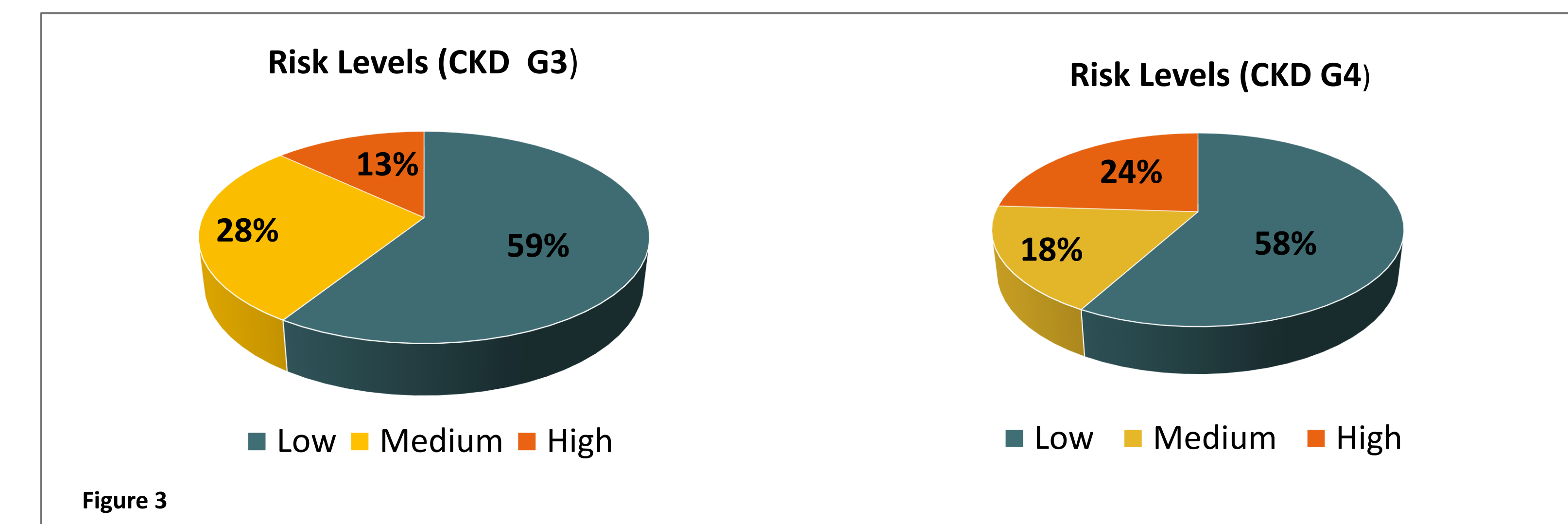
Figure 2

Primary Outcome: 5-year costs for hospital admissions, physician visits, and drugs

Statistical Analysis: Generalized linear model was used for comparison of costs, adjusted for age, sex, Charlson Index (offset variable=patient time) ($\alpha=0.05$)

RESULTS

- 1,003 adults with CKD G3 and G4 were included in data analysis.
- The mean age (SD) was 71 (13) years and 57% were male.
- Figure 3** shows % patients in each risk category by KFRE.



- Table 1** shows the results of generalized linear models.

		5-year cost of hospital admissions	5-year cost of physician visits	5-year cost of drugs
G3 n=529	High Risk	\$55,944	\$13,414	\$20,394
	Low Risk	\$36,740 <i>P=0.01</i>	\$10,370 <i>P=0.08</i>	\$14,902 <i>P=0.02</i>
G4 n=474	High Risk	\$89,265	\$23,423	\$21,853
	Low Risk	\$48,374 <i>P=0.008</i>	\$11,231 <i>P<0.001</i>	\$16,757 <i>P=0.01</i>

Table 1

CONCLUSIONS

In patients with CKD G3 and G4, the 5-year costs for hospital admission, physician visits, and drugs was higher for those at a higher risk of progression to end stage kidney disease by the Kidney Failure Risk Equation. This association was stronger for CKD G4 than CKD G3.

REFERENCE

1. Tangri N et al. A predictive model for progression of chronic kidney disease to kidney failure. *JAMA*. 2011;305:1553-9.

ACKNOWLEDGEMENTS

We would like to thank the Saskatchewan Health Authority, Saskatchewan Health Quality Council for supporting the study, and the Saskatchewan Health Research Foundation for funding.