

## Q Kidney Risk Calculator- Useful Tool in Hospitals and Community

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Submitted: 08 Nov 2020; Accepted: 16 Nov 2020; Published: 23 Nov 2020

### Abstract

A kidney health check was conducted over a day in two private hospitals (Peninsula Private Hospital and Beleura Hospital) in 2017. 243 participants enrolled in this study. The study population were mobile inpatients, members from the public and health workers (nurses, doctors, allied health workers and administrative staff).

**Method:** A Q risk calculator was used to assess the risk of developing moderate and severe chronic kidney disease (eGFR < 60 ml/min) and end stage renal failure over the next 5 years. All participants consented prior to being involved in the study.

**Results:** The majority was aged 65 to 75 years old (aged population). 18% of the participants were diabetic, 18% had cardiovascular disease, 37% were hypertensive, 5% were smokers, 28% of the participants were overweight and obesity was seen in 25%.

Diabetic females are five times higher risk than non-diabetic females in developing chronic kidney disease stage 3 and 4. Male diabetics are three times more at risk than non-diabetic men in developing moderate to severe chronic kidney disease. However diabetic men are five times higher risk than normoglycaemic men in progressing into end stage renal failure

Females with cardiovascular disease are five times higher risk than women with no cardiovascular disease in developing moderate to severe chronic kidney disease. Men with cardiovascular disease are three times higher risk than men with no cardiovascular disease in developing moderate to severe chronic kidney disease. Hypertensive women are ten times higher risk than normotensive women in developing moderate to severe chronic kidney disease. Interestingly hypertensive men are four times higher risk than normotensive male in developing end stage renal failure

Obese men are three times higher risk than normal weight men in developing moderate to severe chronic kidney disease. Underweight females are three times at risk than normal weight females in developing moderate and severe chronic kidney disease.

**Summary:** Qrisk questionnaire is a quick and easy tool to assess risk of developing chronic kidney disease. Participants with diabetes, hypertension and cardiovascular disease have a higher risk of developing moderate and severe chronic kidney disease over the next 5 years. Overweight (body mass index 25 to 29.99), obese patients (body mass index more than 30) and interestingly underweight females with body mass index 18.5 or less have a higher risk of developing moderate and severe chronic kidney disease.

### Introduction

World kidney day is held in March every year from 2015 to 2019 in the private hospitals based in Mornington Peninsula and Frankston suburbs in Victoria, Australia. The population in Frankston is approximately 160000 and the Mornington Peninsula has 170000. Interestingly 15 % of the population consists of elderly above 65 years old. The aim of this annual kidney event is to create awareness of kidney health to the local community in addition to analyse the elderly population (above 65 years old) here who

made up 30% of the dialysis population in these areas. We hope to detect patients with early kidney disease and hence to delay the progression of chronic kidney disease in patients in these suburbs. Hopefully this will help to reduce the number of patients requiring dialysis or transplant in the future. This, in return, will help to save money for dialysis programme which takes up a good proportion of hospital's revenue.

Q kidney risk calculator was used to calculate the risk of developing

moderate and severe kidney disease over 5 years and also the likelihood of requiring dialysis or transplant. The calculated value is in percentage (maximum is 100 %). The Q kidney risk formula is based on sex, age, ethnicity, smoking status, diabetes, heart failure, peripheral vascular disease, high blood pressure requiring treatment, rheumatoid arthritis, systemic lupus erythematosus, history of suffering from heart attack, angina, stroke or transient ischemic attack, history of having kidney stones and family history of kidney disease.

We calculated the body mass index, height and weight of each participant on the event day. We also measure the blood pressure of each person that consented to the Q kidney risk questionnaire. A kidney health check was conducted over a day in two private hospitals (Peninsula Private Hospital and Beleura Hospital) in 2017. 243 participants enrolled in this study. The study population were mobile inpatients, members from the public and health workers (nurses, doctors, allied health workers and administrative staff).

**Method:** A Q risk calculator was used to assess the risk of developing moderate and severe chronic kidney disease (eGFR < 60 mls/min) and risk of end stage renal failure requiring dialysis or kidney transplant over the next 5 years. All participants consented prior to being involved in the study.

**Results:** The majority was aged 65 to 75 years old (18 % of study group) and above 75 years old (22 % of study participants). This represents an aged population. 18% of the participants were diabetic, 18% had cardiovascular disease, 37% were hypertensive, 5% were smokers, 28% of the participants were overweight and obesity was seen in 25%.

Diabetic females are five times more higher risk than non-diabetic females in developing moderate and severe chronic kidney disease (stage 3 and 4). Male diabetics are three times more at risk than non-diabetic men in developing moderate to severe chronic kidney disease. However diabetic men are five times higher risk than normoglycaemic men in progressing into end stage renal failure.

Females with cardiovascular disease are five times more higher risk than women with no cardiovascular disease in developing moderate to severe chronic kidney disease. Men with cardiovascular disease are three times higher risk than men with no cardiovascular disease in developing moderate to severe chronic kidney disease. Hypertensive women are ten times higher risk than normotensive women in developing moderate to severe chronic kidney disease.

Interestingly hypertensive men are four times higher risk than normotensive male in developing end stage renal failure. Obese men are three times higher risk than normal weight men in developing moderate to severe chronic kidney disease. Underweight females are three times at risk than normal weight females in developing moderate and severe chronic kidney disease. Male smokers and ex male smokers are more likely to develop moderate and severe

kidney disease compared to non male smoker. Female smokers also have higher risk of having moderate and severe kidney disease compared to non female smokers.

### Summary

Qrisk questionnaire is a quick and easy tool to assess risk of developing moderate and severe chronic kidney disease and risk of developing end stage renal disease requiring dialysis or renal transplant. Participants with diabetes, hypertension and cardiovascular disease have a higher risk of developing moderate and severe chronic kidney disease over the next 5 years. Overweight (body mass index 25 to 29.99), obese patients (body mass index more than 30) and interestingly underweight females with body mass index 18.5 or less have a higher risk of developing moderate and severe chronic kidney disease. We also noted that male smokers and female smokers are more likely to develop moderate and severe kidney disease compared to non smoker.

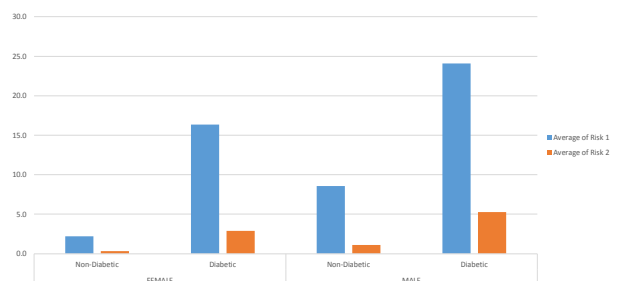
**RISK 1** – risk of developing moderate and severe chronic kidney disease

**RISK 2** – risk of developing end stage renal disease requiring dialysis or kidney transplant

### Demographic 2017

AGE RANGE	<25	25-34	35-44	45-54	55-64	65-74	75+	Na	Grand Total
Female	7	13	18	23	32	27	26	25	171
Male	0	2	2	5	5	17	28	13	72
<b>TOTAL</b>	<b>7</b>	<b>15</b>	<b>20</b>	<b>28</b>	<b>37</b>	<b>44</b>	<b>54</b>	<b>38</b>	<b>243</b>

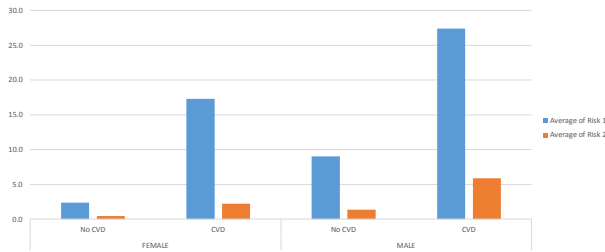
Averages of Risk (Diabetes and Non-diabetes)  
March 2017



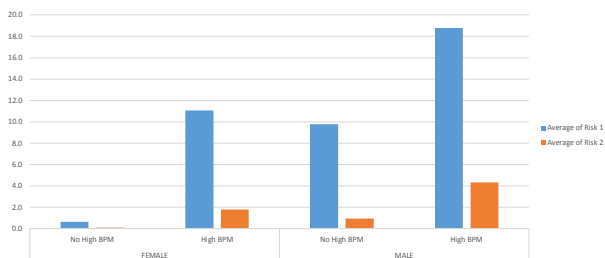
**RISK 1** – risk of developing moderate and severe chronic kidney disease

**RISK 2** – risk of developing end stage renal disease requiring dialysis or kidney transplant

Averages of Risk (Cardio Vascular Disease)  
March 2017



Averages of Risk (High Blood Pressure)  
March 2017

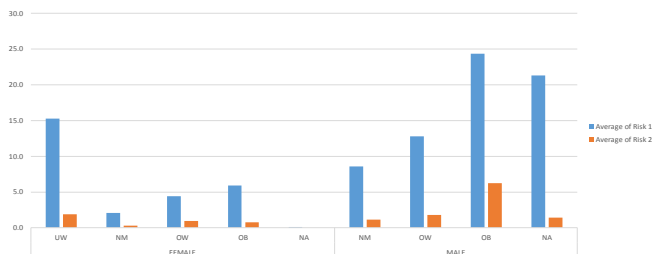


**RISK 1** – risk of developing moderate and severe chronic kidney disease

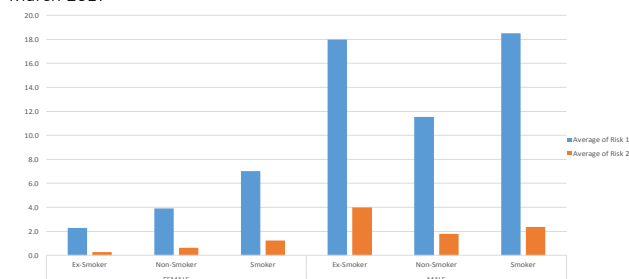
**RISK 2** – risk of developing end stage renal disease requiring dialysis or kidney transplant

Averages of Risk (Underweight, Normal, Overweight, Obese)  
March 2017

UW-Underweight BMI<18.5  
NM-Normal BMI 18.5-24.9  
OW-Overweight BMI 25-29.9  
OB-Obese BMI 30+



Averages of Risk (Ex-Smoker, Non-Smoker, Smoker)  
March 2017



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**Citation:** Alinda Sze Fung Chiu (2020) Q Kidney Risk Calculator- Useful Tool in Hospitals and Community. *Journal of Medical & Clinical Research* 5(10):269-271.

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