Supplementary Material

An evaluation of general practice nurses' knowledge of chronic kidney disease risk factors and screening practices following completion of a case study-based asynchronous e-learning module

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Table S1. Knowledge evaluation instrument with item difficulty and discrimination scores

Table S2. Learner satisfaction with asynchronous e-Learning instrument

Table S1. Knowledge evaluation instrument with item difficulty and discrimination scores

Item	Item difficulty	Item discrimination

1*. In Australia the most common factor that leads to the need for dialysis or kidney transplant is:
  a) Diabetes
  b) Hypertension
  c) Glomerulonephritis
  d) Hypovolaemia and dehydration
	69.33	61.50

2*. Ms Jones is a 65 year old Aboriginal woman. She weighs 80Kg, her BMI is 31kg/m^2 and she has a history of diabetes, hypertension, smoking and chronic obstructive pulmonary disease (COPD). Which of the following should be considered as risk factors for CKD for Ms Jones? (Click all that apply)
  a) COPD, diabetes and age
  b) Weight, age and Aboriginal or Torres Strait origin
  c) Smoking, diabetes and hypertension
  d) COPD, smoking and diabetes
	34.90	41.87

3*. What are the risk factors for CKD? (Click all that apply)
  a) Age > 60 years
  b) Aboriginal or Torres Strait origin
  c) Male gender
  d) Smoking
  e) Excessive alcohol intake
  f) Diabetes Mellitus
  g) Hypertension
  h) Obesity
  i) Age > 50 years
  j) Established cardiovascular disease
  k) Excessive NSAID use
  l) Family history of CKD
  m) A history of Acute Kidney Injury (AKI)
	9.90	16.97

4*. Harold is a 63-year-old gentleman with a history of hypertension, type II diabetes mellitus and coronary artery disease. His BMI is 34kg/m^2 and he presents to your practice complaining of an exacerbation of his gout. He consumes approximately six units of alcohol per week and is a non-smoker. From this example what risk factors does Harold have that predispose him to CKD?
  a) His age
  b) Hypertension
  c) Type II diabetes mellitus
  d) Coronary artery disease
  e) A BMI of 34kg/m^2
  f) Gout
  g) Alcohol consumption
  h) His smoking status
	7.07	13.98

Item	Item difficulty	Item discrimination

5*. Which of the following risk factors indicate the need to perform an initial kidney health check? (Click all that apply)
    a) Sedentary lifestyle
    b) History of dementia
    c) Chronic smoker
    d) Presence of cardiovascular disease
	33.96	42.87

6^. Today you are reviewing Ms Laurie Jones. Ms Jones presents to your practice with flulike symptoms. Ms Jones is a 32 year old indigenous woman well known to your practice. She has been a 'pack a day' smoker since she was 16. Her father recently received a kidney transplant after being on haemodialysis for four years.
If you were to screen Ms Jones for kidney disease, which of the following are considered 'best practice' for screening? (Click all that apply)
    a) Urine dipstick for proteinuria
    b) Blood Glucose Check
    c) Weight and BMI
    d) Urine albumin-creatinine ratio
    e) ECG
    f) Bladder scan
    g) Blood Pressure
    h) Blood test for eGFR
	9.90	13.95

7^. Australian best practice guidelines for the detection of albuminuria include (Select one only):
    a) Urine albumin-creatinine ratio to test for albuminuria
    b) Urine dipstick for microalbuminuria
    c) 24 hour urine test for protein to determine degree of kidney disease
    d) Urine dipstick to test for proteinuria
	76.88	67.49

8^[a]. Certain clinical scenarios may lead to possible unreliable or misleading eGFR results. These include: (Click all that apply)
    a) Acute changes in kidney function
    b) High muscle mass
    c) Presence of chronic liver disease
    d) High-protein diet
    e) High-fat, low carbohydrate diet
    f) Older age
	2.83	4.00

9^. According to best practice, the kidney health check consists of all of the following except (click all that *do not apply*)
    a) Blood pressure
    b) Urinary dipstick for protein
    c) Urinary dipstick for microalbuminuria
    d) Urine albumin-creatinine ratio
    e) Urine albumin-protein ratio
    f) Blood test for estimated Glomerular Filtration Rate
	19.81	29.98

Item	Item difficulty	Item discrimination
10^. Natasha is a new patient on your practices books. She is a 52–year-old Caucasian female with no significant medical history prior to this presentation. She presents at your practice today complaining of shortness of breath and general fatigue. You obtain the following observations and biochemistry: | Pulse: 82	Respiratory Rate: 18	Potassium: 4.2 mmol/L
BP: 154/94	Creatinine: 205 µmol/L	HCO3: 28 mmol/L

Temperature: 36.7	Urea: 17.3 mmol/L	eGFR 23 mL/min/1.73m^2 |
		
		Which of the following is the *best* measure of Ms Jones' kidney function?
		  a) Serum Creatinine
		  b) Serum Urea
		  c) eGFR
		  d) Serum Potassium
			100.94	74.02

11^[a]. Certain clinical scenarios may lead to possible unreliable or misleading urine albumin secretion results. These include: (Click all that apply)
  a) Acute changes in kidney function
  b) High muscle mass
  c) Urinary tract infection
  d) Presence of chronic liver disease
  e) Acute febrile illness
  f) High-fat, low carbohydrate diet
  g) Extreme exercise within the past 24 hours
  h) Exacerbation of gout
	5.18	10.00

12. A serum creatinine is used to calculate the eGFR. When calculating the eGFR what other factors are taken into the equation? (Click all that apply)
  a) Urea
  b) Age
  c) Gender
  d) Albumin
	24.52	33.90

* Questions assessing CKD risk factors
^ Questions assessing evidence based screening methods
[a] Questions removed prior to analysis due to poor discrimination

<20	very difficult
21-40	difficult
41-60	average
61-80	easy
>81	very easy

> .4	Very good
.3-.39	Good
.2-.29	Fair
.09-.19	Poor

Item difficulty index   Item discrimination index

Table S2. Learner satisfaction with asynchronous e-Learning instrument

Sub-scale and Items	Cronbach α
Gain attention	
1. The introductory video/s captured my attention	0.885
2. The introductory video/s provided a sound rationale for the module	
3. The introductory video/s explained how the learning objectives were relevant to my practice	
Identify goals and logical presentation of content	
4. The module/s provided clear learning objectives	0.920
5. I understood what I needed to do to complete the module	
6. The content of the module aligned with the learning objectives	
7. The resources available to me in the module assisted me to achieve the learning objectives	
8. The layout of the module/s was user-friendly	
9. The module/s provided questions that were easy to understand	
Resources and strategies to enhance content delivery	
10. The module/s enabled me to use my existing knowledge and experience as a foundation for new learning	0.909
11. The module/s utilised audio elements effectively	
12. The module/s utilised video elements effectively	
13. The module/s utilised animations and graphics effectively	
14. The module/s presented the right amount of information for the topic	
Maintain attention	
15. The module/s provided useful content	0.967
16. The module/s provided interesting content	
17. The module/s provided engaging content	
18. The module/s motivated me to learn	
19. The module/s posed questions that required me to think carefully	
20. The module/s used multimedia that maintained my interest	
Elicit performance practice	
21. The module/s offered a variety of ways to assess my learning	0.905
22. The module/s provided questions that adequately assessed my learning	
Provide informative feedback and consolidate learning	
23. The 'pop-up' boxes helped me recall important information	0.928
24. The module/s provided feedback that was beneficial to my learning	
25. The module/s provided feedback that showed me where or why my response was incorrect (if applicable)	
26. The module/s provided me with results and feedback at an appropriate time	
27. The module/s made it easy for me to evaluate my understanding of the learning objectives	
Flexible navigation and knowledge transfer	
28. The introductory/help pages gave me clear instructions about how to progress through the module/s	0.814
29. I will be able to apply what I have learned from this module/s to my clinical practice	
30. The module/s enabled me to review additional content if or when I needed to.	