

Translating chronic disease evidence-based guidelines into practice using an electronic technology based intervention in general practice

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WESTERN HEALTH
CHRONIC DISEASE
ALLIANCE



Western Health

Aim

To improve **translation of guidelines into practice** in a general practice setting, thereby improving the detection and management of patients who are at risk of or diagnosed with one or more of the **interrelated chronic vascular diseases:**

CKD, T2DM and CVD (CHD, IHD, PVD and HF)

Interrelated Chronic Vascular Diseases



- CKD, diabetes and CVD are interrelated chronic vascular diseases
 - Share common risk factors
 - High prevalence
 - 29% with ≥ 1 of these conditions in 2011-2012¹
 - High mortality
 - Principal or associated cause of 61% of deaths²
 - Under-recognised and under-treated in Australian general practice^{3,4,5}

¹AIHW 2014, Cardiovascular disease, diabetes and chronic kidney disease – Australian facts: Prevalence and Incidence

²AIHW 2014, Cardiovascular disease, diabetes and chronic kidney disease – Australian facts: Mortality

³Razavian et al 2012, NDT, Cardiovascular risk management in chronic kidney disease in general practice (AusHEART)

⁴Shaw et al 2012, Baker IDI, Diabetes: the silent pandemic and its impact on Australia

⁵Heeley et al 2010, MJA, Cardiovascular risk perception and evidence-practice gaps in Australian general practice (AusHEART)



General Practice in Australia

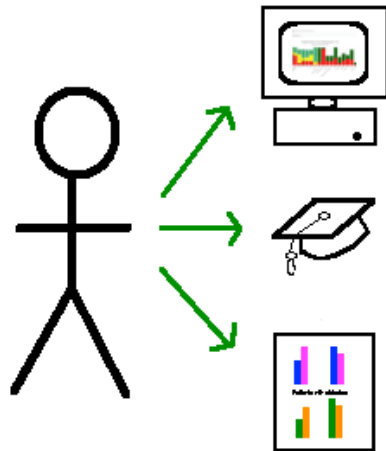
- 85% of Australians attend general practice annually¹
- >95% of general practices use computers for clinical purposes²
 - Of these > $\frac{2}{3}$ use EMR exclusively²
- Digital innovation has potential to support general practice in the detection and management of chronic disease

¹Australia's Health 2018 (AIHW, 2018)

²Britt et al 2015, General practice activity in Australia 2014-2015, Sydney University Press



Chronic Disease IMPACT: Intervention Components

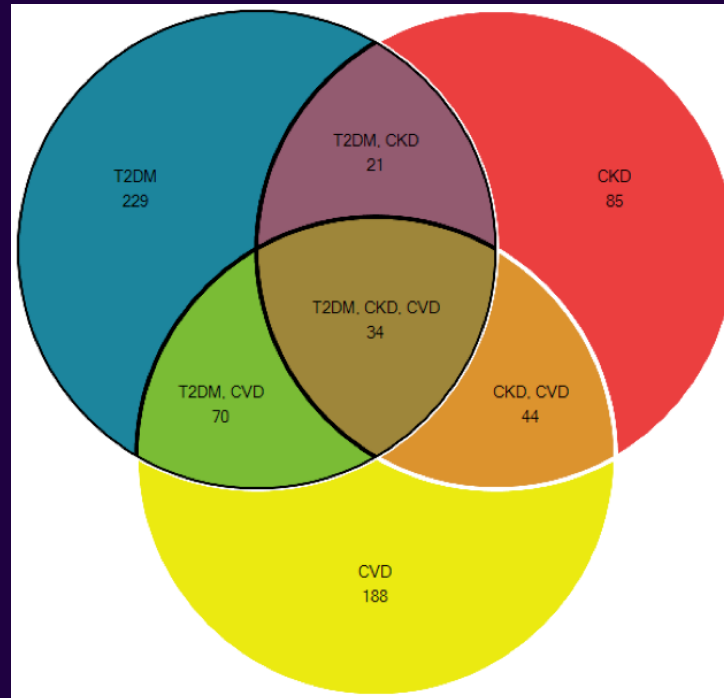


List of Patients with Undiagnosed CKD

Fred Smith	eGFR 31	uACR 19
Bob Smith	eGFR 31	uACR 32.3
Jane Doe	eGFR 32	uACR 1.3
Ella Tymms	eGFR 33	uACR 5.3
Andy Bloggs	eGFR 34	uACR 11
Diane O'Leary	eGFR 35	uACR 100.4
Edgar Jones	eGFR 36	uACR 2.1
Nancy Petit	eGFR 37	uACR 1.3
Brenda Cox	eGFR 38	uACR 1.9
Tim O'Neil	eGFR 39	uACR 15.4
Sally Jobs	eGFR 39	uACR 2.4
Dennis Baxter	eGFR 40	uACR 3.8
Kit Spelding	eGFR 41	uACR 11.3
Kylie Andrews	eGFR 42	uACR 2.1
Jo Radic	eGFR 43	uACR 1.7
Pip Langlely	eGFR 44	uACR 1.3
Delta Ford	eGFR 44	uACR 11.2
Bernie Peters	eGFR 45	uACR 1.8
Laila Knox	eGFR 45	uACR 1.6



Electronic Technology Tool

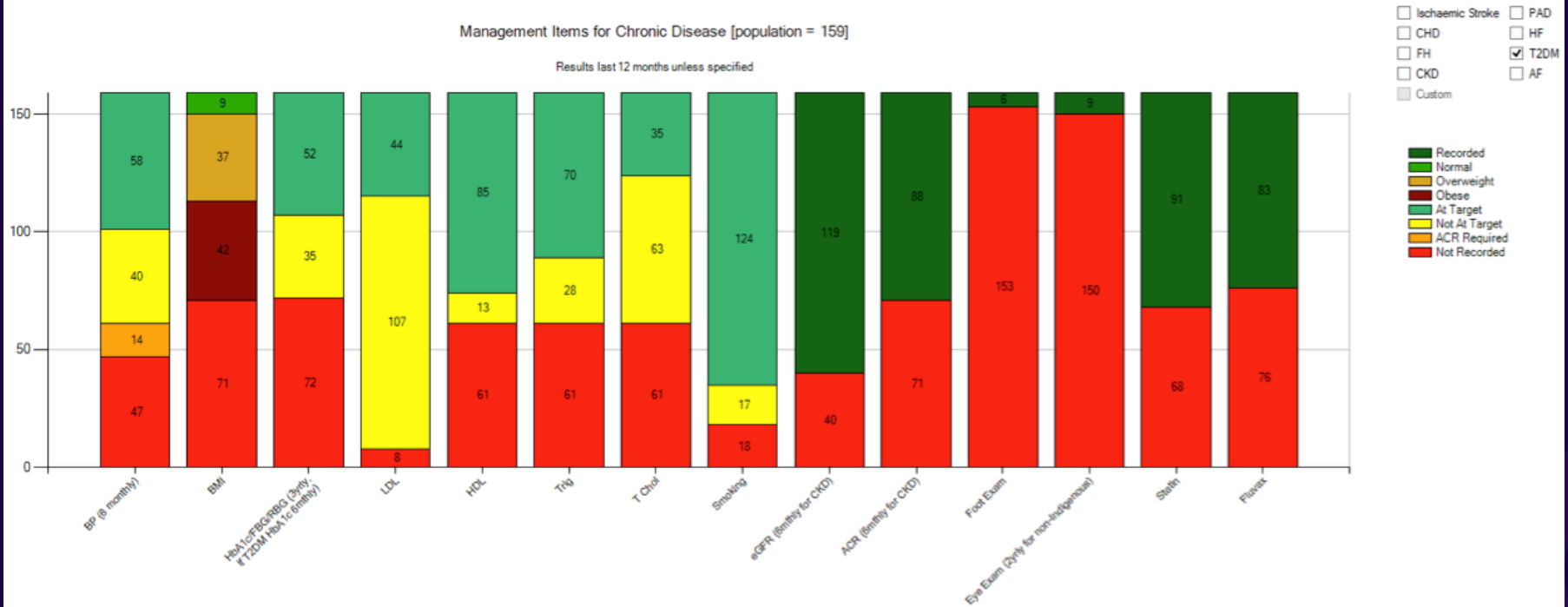




Electronic Technology Tool

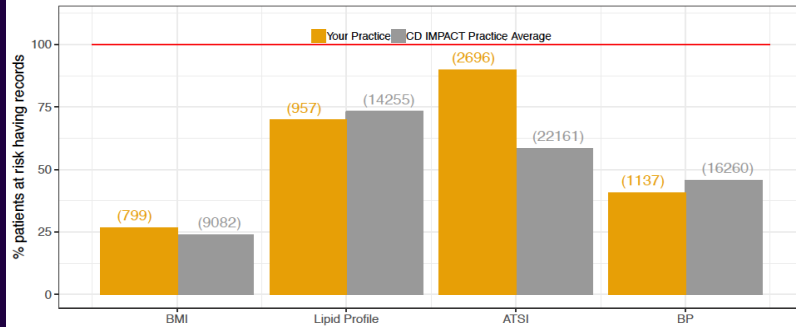
Management Items for Chronic Disease [population = 159]

Results last 12 months unless specified

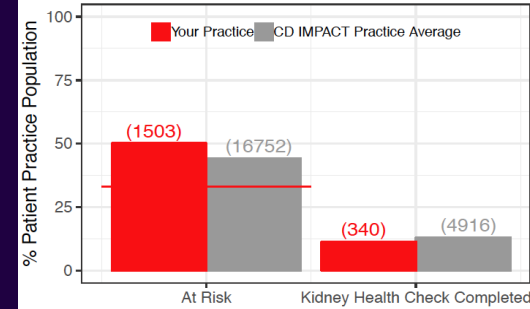


Benchmarking reports

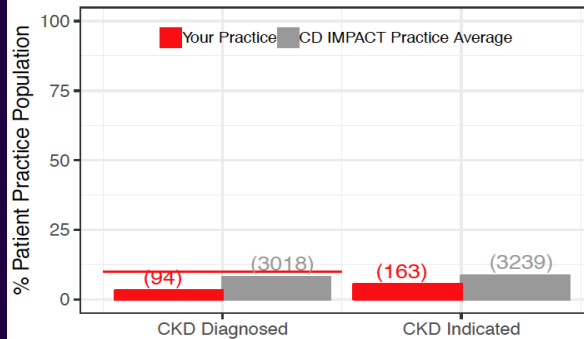
Data Quality - Disease Risk Factor Tests Recorded



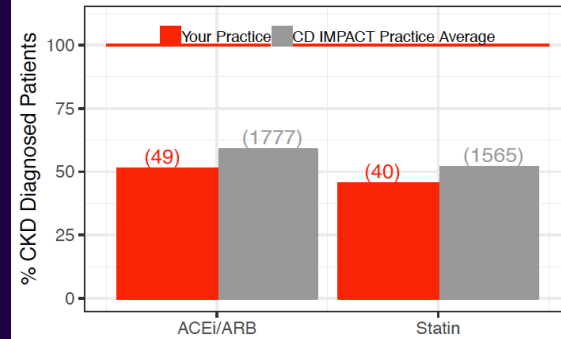
CKD At-Risk Population and Testing



CKD Diagnosed Population



CKD Management of Diagnosed Patients

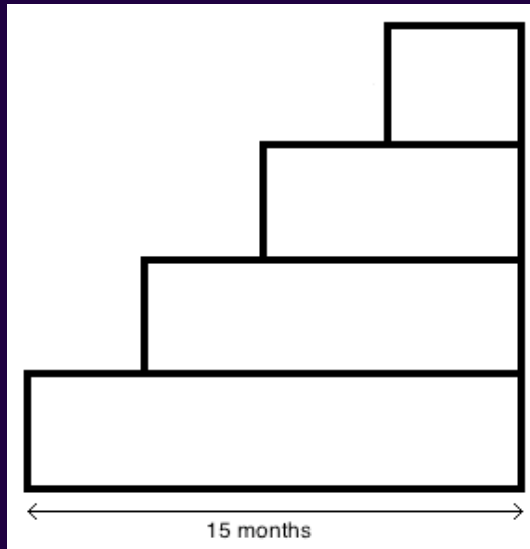


Audit Plan Objectives

- Guide for GP practices when developing audit plan
 - Record coded diagnoses for patients identified to have a chronic vascular disease diagnosis based on disease indicators (eg. eGFR <60)
 - Manage newly identified patients with a chronic vascular disease diagnosis as per national guidelines
 - Perform chronic vascular disease risk testing as per national guidelines and record this in the practice system
- Eligible for 40 RACGP CPD points



Chronic Disease IMPACT Study Design



- Randomised Stepped Wedge Trial
- 2 to 3 practices commencing e-technology access and educational program every 16 weeks
- Stepped wedge accounts for temporal changes not related to the intervention

Chronic Disease IMPACT – Data Analysis

- 8 practices included in analysis
 - 1 practice excluded due to unreliable data secondary to a practice merger
- Patients included if
 - Aged ≥ 18 years
 - Active patient (attended practice ≥ 3 times within past 2 years)
- Randomised stepped wedge trial analysed with R version 3.5.1
 - Logistic random effects model with practice and time-specific random intercepts
- Qualitative thematic analysis of general practice feedback

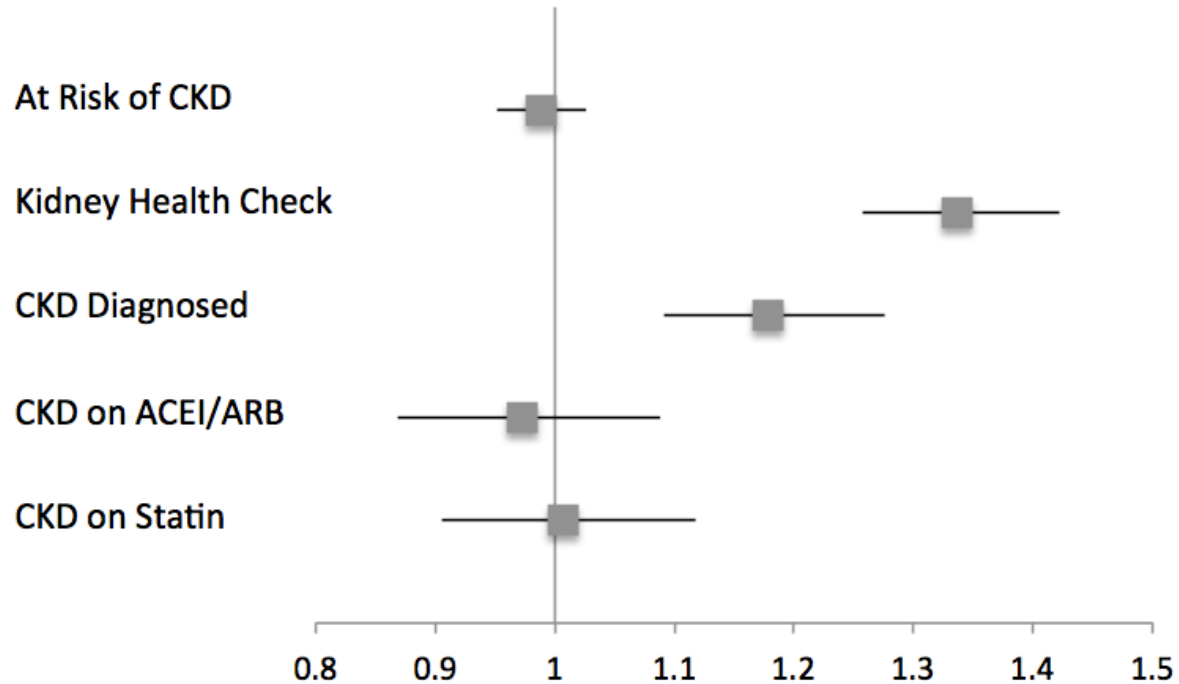


Results

- 37,946 patients at baseline
- 37,385 patients at 15 months
- Mean age 48 years (SD 18)
- 40% male
- No statistically significant change for
 - Risk factor detection
 - CVD detection and management

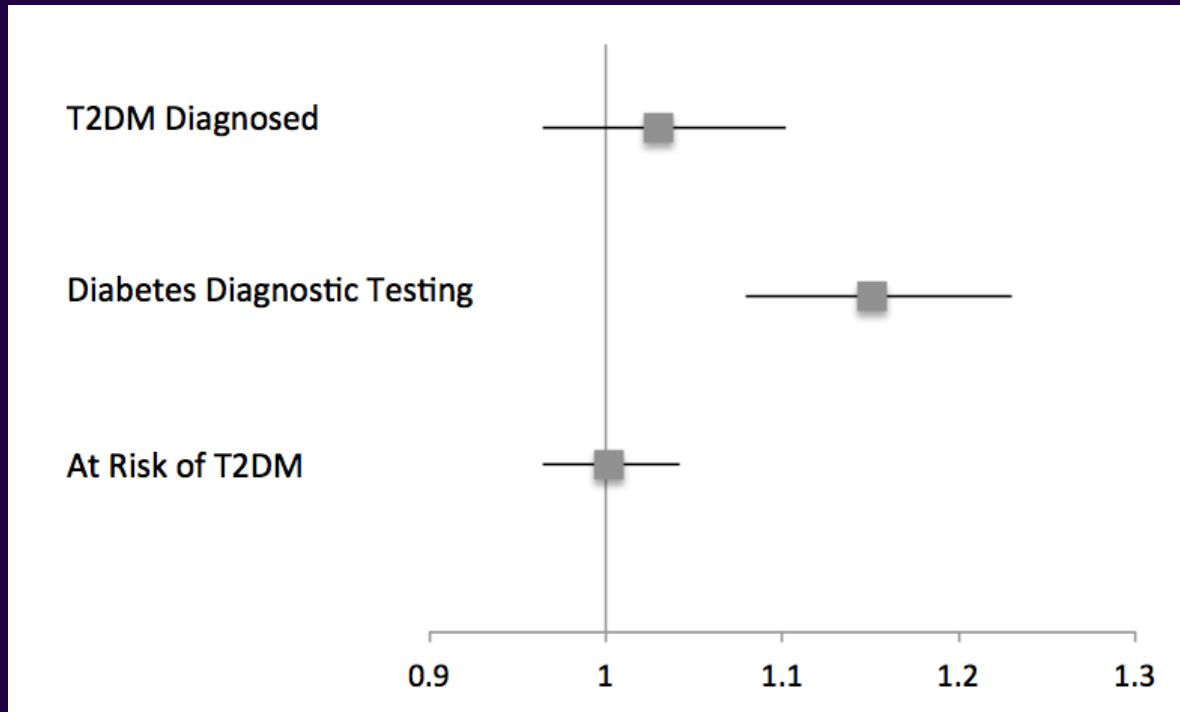


CKD



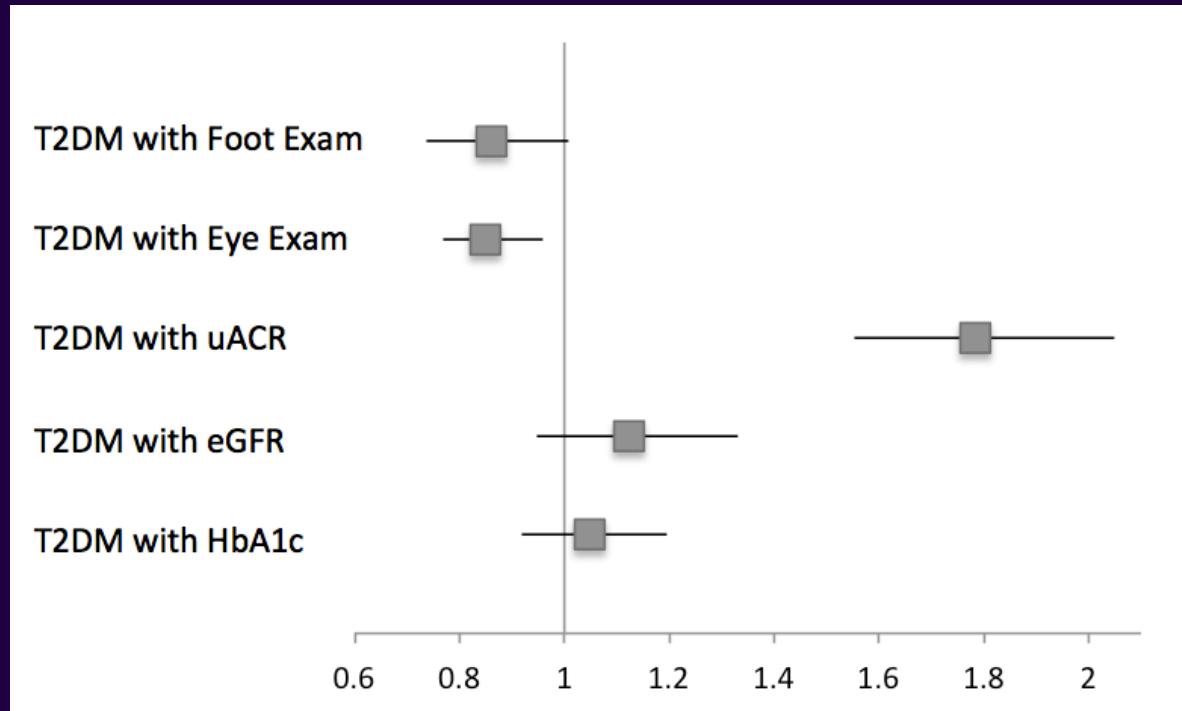


T2DM – Testing and Diagnosis





T2DM – Management





Qualitative Thematic Analysis

	Education	Data quality	E-technology	Resourcing	GP perspective
Enablers	<ul style="list-style-type: none">- Flexible delivery	<ul style="list-style-type: none">- Program champion- Systematic approach to improve data	<ul style="list-style-type: none">- Automatic recall- More intuitive EMR coding- Targeted list for auditing	<ul style="list-style-type: none">- Dedicated practice nurse- Program champion	<ul style="list-style-type: none">- GP input into program design to suit needs
Barriers	<ul style="list-style-type: none">- Not able to attend (time)	<ul style="list-style-type: none">- Coding time consuming/ non-intuitive- Pathology data not reflecting expected data	<ul style="list-style-type: none">- Reviewing audit list time consuming- EMR slow	<ul style="list-style-type: none">- PBS criteria different to guidelines- Competing priorities- GPs lack time	<ul style="list-style-type: none">- CKD not a priority- Strained relationship between GPs/specialists

Limitations

- Real world conditions
- Pathology results not always picked up by software
- Audit software coding issues
- Stepped-wedge analysis only detected changes:
 - Within 4 months after stepping-in
 - In patients attending practice at least 3 times in 2 years
- Practices only from two catchments in Victoria
 - May not be representative of practices Australia-wide



Conclusions

- Within 4 months this e-technology audit based intervention
 - Increased diagnostic testing for CKD in those at risk
 - Increased coded diagnosis of CKD
 - Increased diagnostic testing for diabetes in those at risk
 - Increased uACR testing of people with T2DM
- Negative effects
 - Reduced coded eye exams (and foot exams) in people with T2DM
- Qualitative analysis revealed areas for intervention refinement
 - Minimise time requirements for busy GPs
- Ideally develop less resource-intensive intervention for scale-up

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