

Dunedin, New Zealand





Aging and Multimorbidity

A major challenge for all healthcare systems

- Ageing populations
- Increasing long-term conditions
- Increasingly complexity
- Care is more specialist and fragmented
- More expensive and less affordable

NZ Triple Aim



Driving Principles Promoting Primary Care

- Measurable Quality Improvement
- Cost Reduction/containment
- Utilize Data to inform care
- Best Practice Advocacy
 - Education
 - Multidisciplinary working
 - Standards and Guideline development & uptake via expert systems
 - Professionalism vs compliance



Health System Funding

- predominantly publicly funded, universal coverage health system
- government funded 82.7% of national health care expenditures in 2012
- public expenditure on health care was equivalent to 10.3% of GDP, just above the OECD average of 9.3%
- Primary care funding ; capitation 45%, patient fees 38%, workers insurance cover 11% performance programmes 6%
- Life expectancy at birth 79.3 years for males and 83 years for females.

Capitation vs Fee for Service

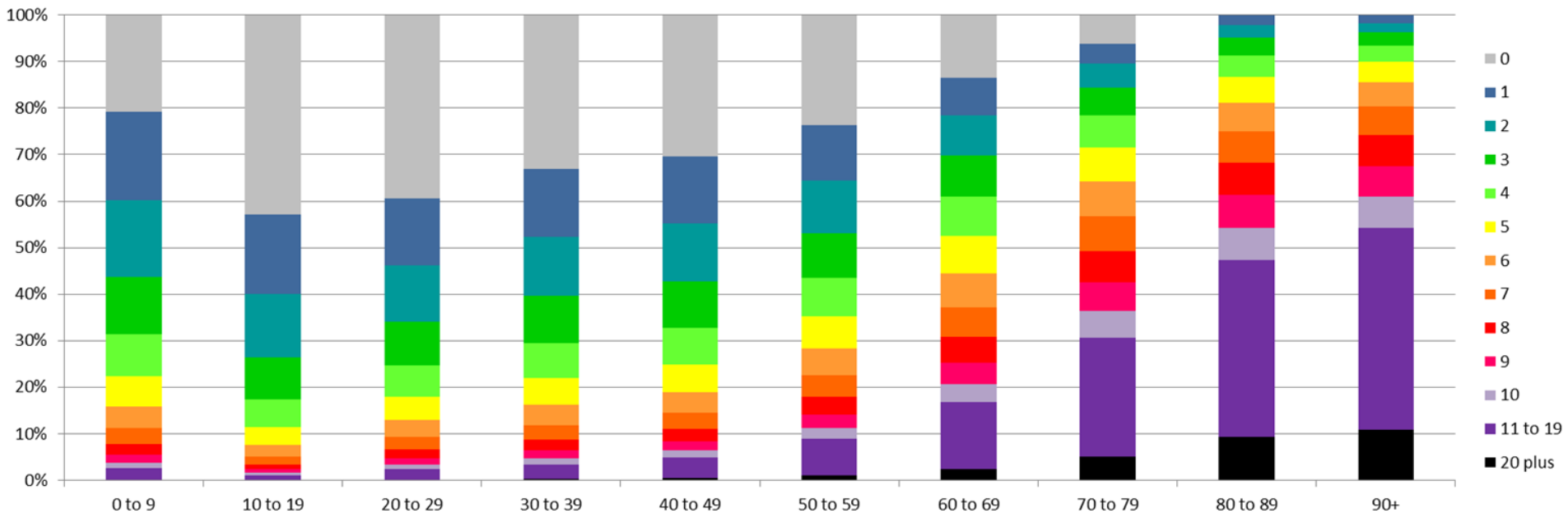
- Has had a significant impact
 - Still maintain focus on individual BUT
 - Now a focus on the enrolled population (Panel).
- Seeing measurable improvement in individual and population health
- Tied in to feedback and education on performance
- Focus on Professionalism and appropriate incentives vs compliance

Data into Information

- National data sets including social determinants are used to identify populations requiring intervention and support
- Practice data sets including social determinants can and do identify individuals requiring intervention/support

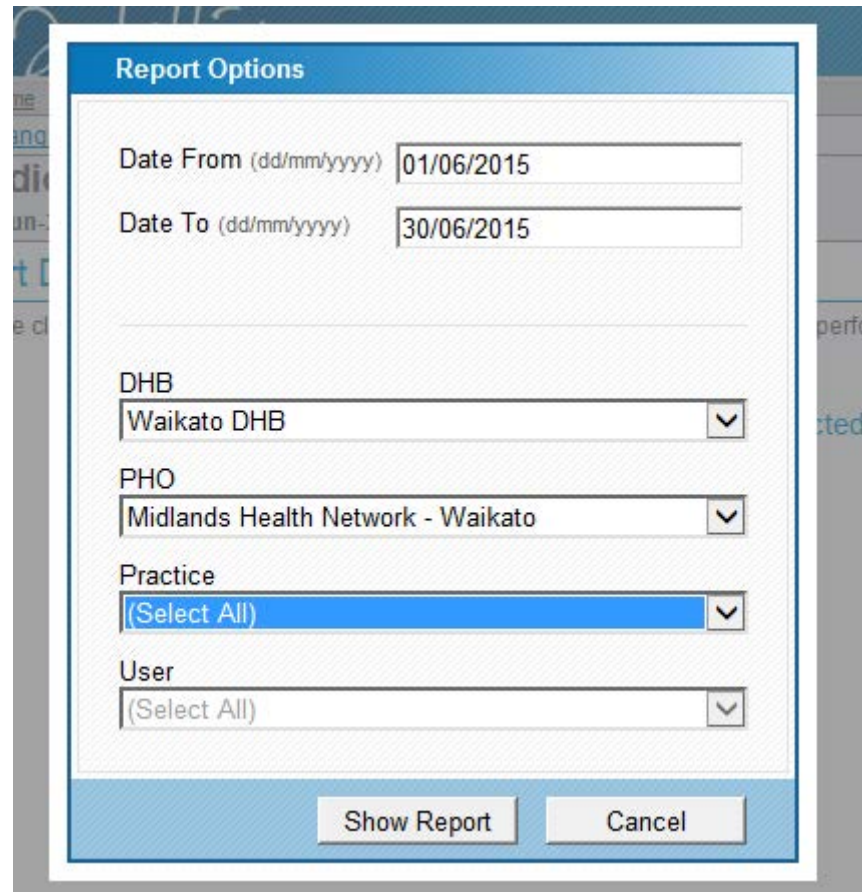
National dataset - Polypharmacy

Prevalence of polypharmacy in New Zealand's primary care population 2012



Regional/Practice dataset

Real Time



A screenshot of a 'Report Options' dialog box. The dialog has a blue header bar with the title 'Report Options'. Below the header, there are five input fields, each with a label and a dropdown menu. The first two fields are 'Date From (dd/mm/yyyy)' and 'Date To (dd/mm/yyyy)', both containing the date '01/06/2015' and '30/06/2015' respectively. The third field is 'DHB' with the value 'Waikato DHB'. The fourth field is 'PHO' with the value 'Midlands Health Network - Waikato'. The fifth field is 'Practice' with the value '(Select All)'. The sixth field is 'User' with the value '(Select All)'. At the bottom of the dialog, there are two buttons: 'Show Report' and 'Cancel'.

Report Options

Date From (dd/mm/yyyy) 01/06/2015

Date To (dd/mm/yyyy) 30/06/2015

DHB
Waikato DHB

PHO
Midlands Health Network - Waikato

Practice
(Select All)

User
(Select All)

Show Report Cancel



bestpractice Intelligence
Business and Clinical Intelligence for Primary Care

bestpractice intelligence (bestpractice)

Web

PMS

[Demo Summary](#)

[CVD testing](#)

[Param Test](#)

[Summary](#)

[Summary](#)

PPP Summary

Clinical

PPP Indicators

Financial

Decision Support

National

LTCMP and Clinical Management

Other Reports

Quality 2013 Indicators

LTCMP 2013 Measures

Alliance Health Plus Reports

Quality Indicators

South Canterbury Reports

Clinical Pathway Identifier

Clinical Pathway Activity

Care Stratification

BPI demo reports

Test Report for Diabetes Followup

RC reports for testing

Rural Canterbury Reports

Poly Pharmacy Report

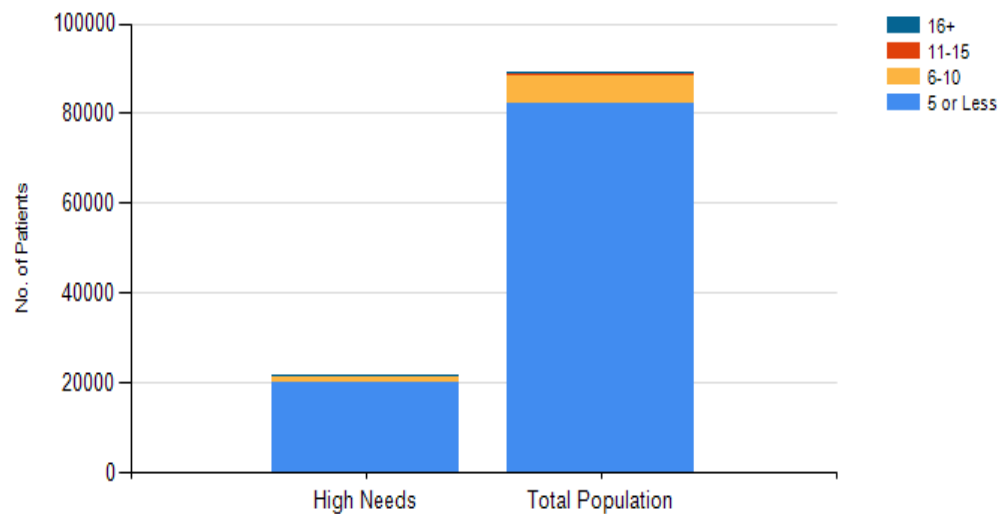
Diabetes Management

Diabetes Management

Poly Pharmacy Report

01-Apr-2015 - 30-Apr-2015

for Midlands Health Network - Waikato



Population	Eligible	5 or Less	6-10	11-15	16+
High Needs	21820	19886	1679	215	40
Total Population	89235	82135	6214	759	127

Print

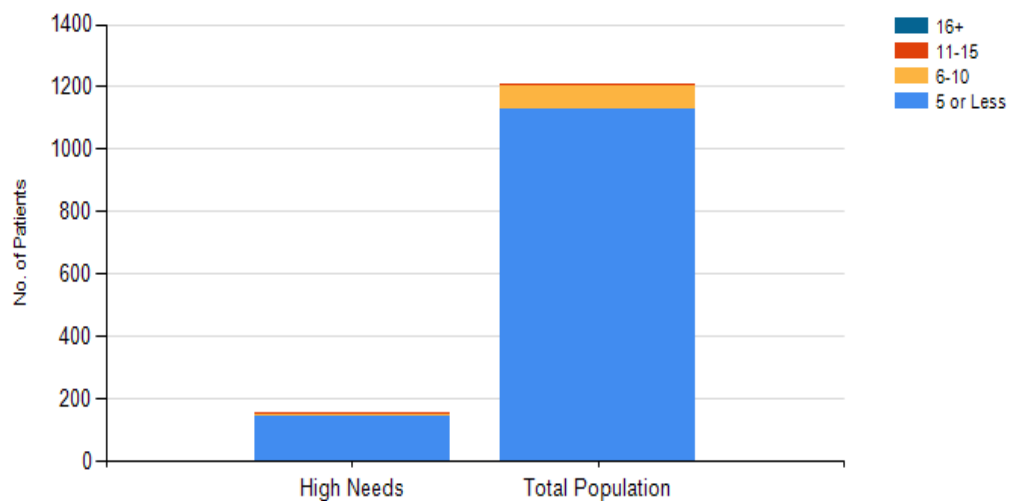
Close

Help

- Param Test
- Demo Summary
- Summary
- ⊕ PPP Summary
- ⊕ Clinical
- ⊕ PPP Indicators
- ⊕ Financial
- ⊕ Decision Support
- ⊕ National
- ⊕ LTCMP and Clinical Management
- ⊕ Other Reports
- ⊕ Quality 2013 Indicators
- ⊕ LTCMP 2013 Measures
- ⊕ Alliance Health Plus Reports
- ⊕ Code Quality Report
- ⊕ Quality Indicators
- ⊕ South Canterbury Reports
- ⊕ Clinical Pathway Identifier
- ⊕ Clinical Pathway Activity
- ⊕ Care Stratification
- ⊕ BPI demo reports
- ⊕ Test Report for Diabetes Followup
- ⊕ RC reports for testing
- ⊕ Rural Canterbury Reports
- ⊕ Diabetes Management Programme
- ⊕ Poly Pharmacy Report
 - Poly Pharmacy Report
- ⊕ Common Form Reports

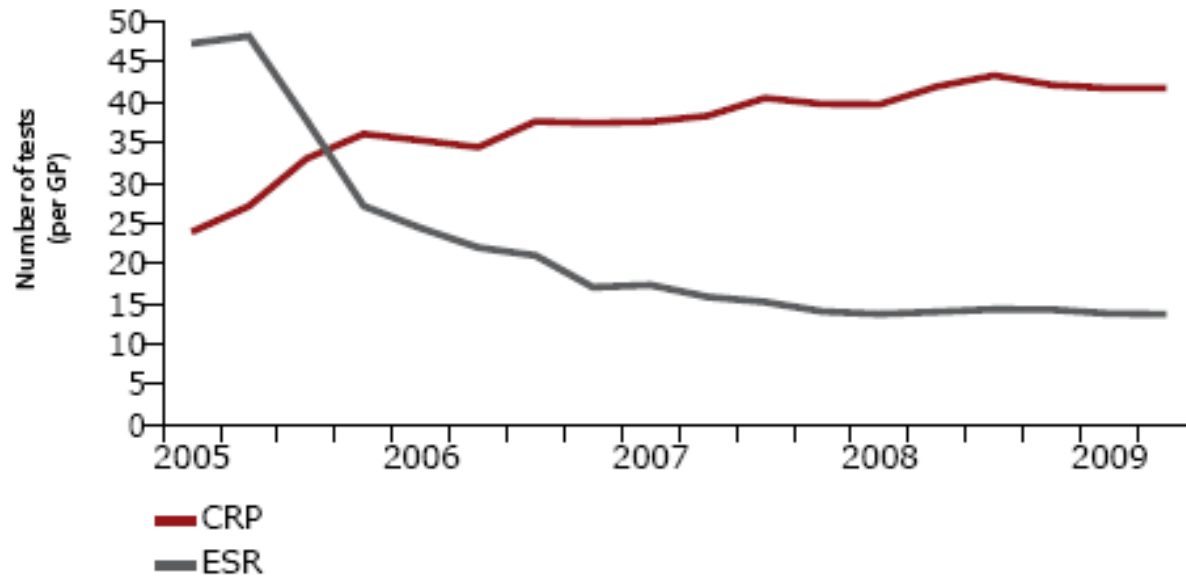
01-Apr-2012 - 30-Jun-2012

for Nelsonsburn Medical Centre



Population	Eligible	5 or Less	6-10	11-15	16+
High Needs	156	141	14	1	0
Total Population	1211	1127	80	4	0

Focused Education



- **CRP vs ESR Assessing & Measuring the Inflammatory Response**
 - **ESR ~ 68% decrease**
 - **CRP ~ 54% increase**
- } Overall 29% decrease in total tests

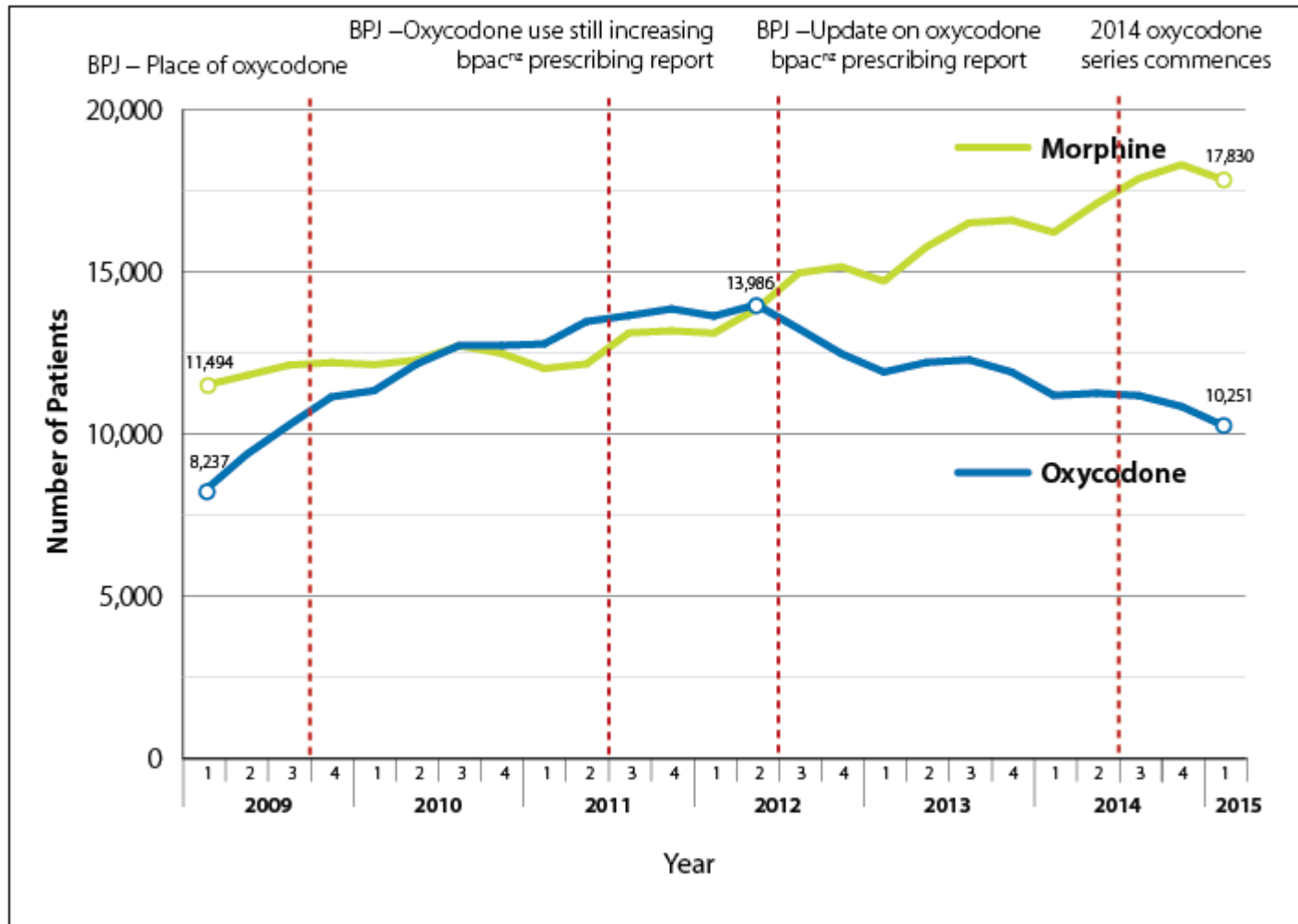
Focused Education

CRP vs ESR 2005 -2012

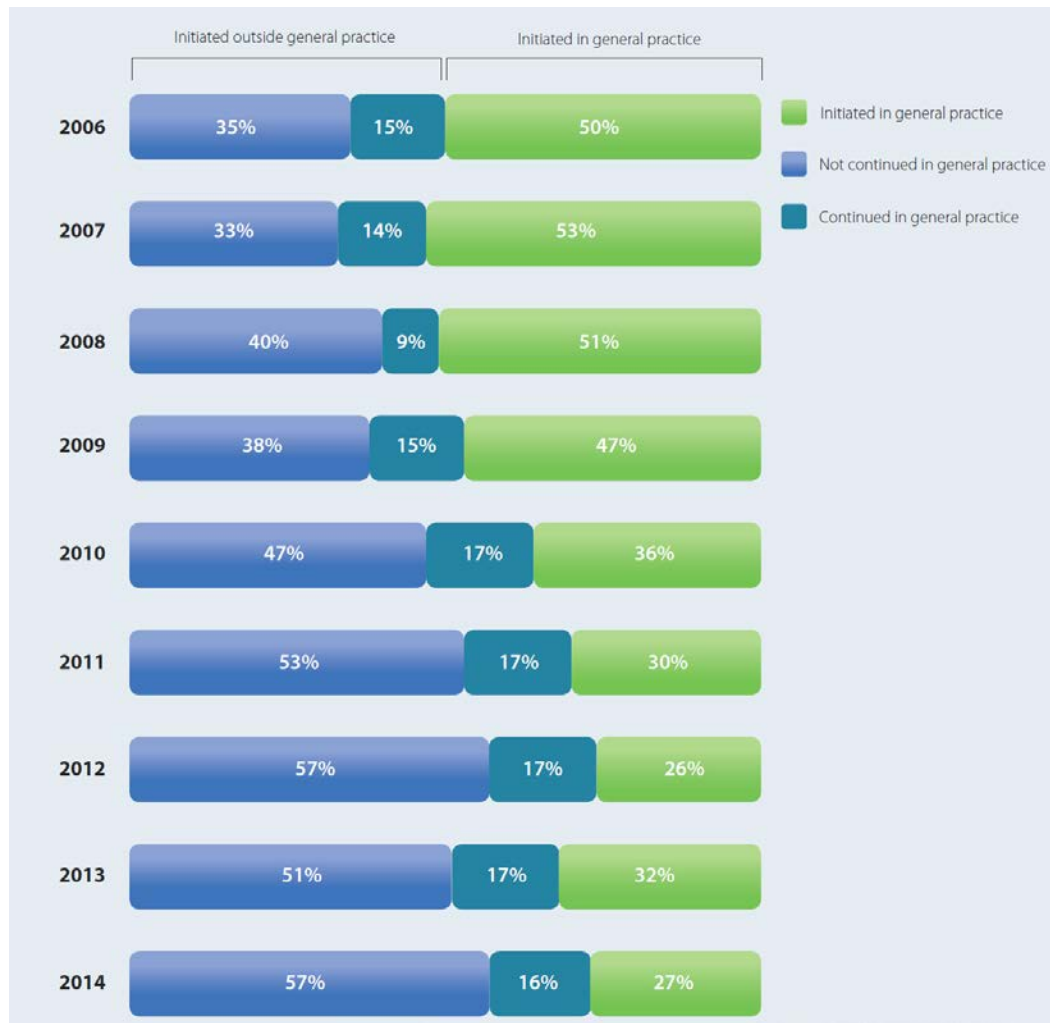
**Combined total savings
> \$17 Million**

Cost of \$1.5 million

Oxycodone use



The **majority of oxycodone** is now initiated outside of general practice





NEW ZEALAND TODAY

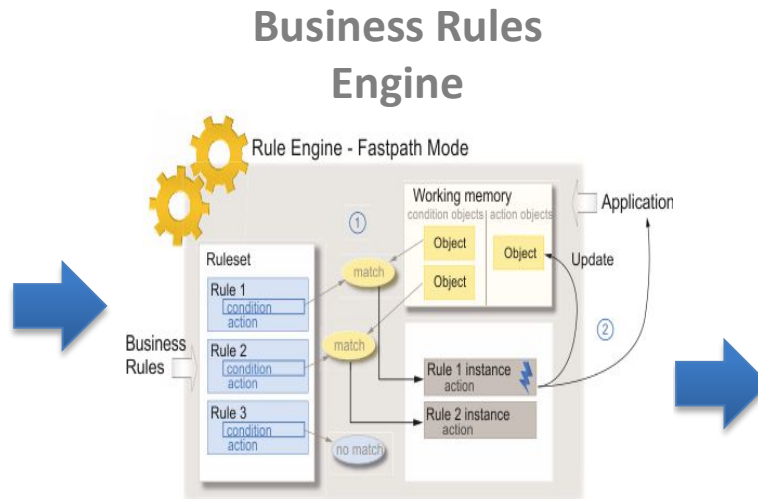
**Integrated into the standard
workflow**

**Average of 140,000 hits per
working day or 29.5 million per
year**

Used in 98% of practices

Basic Principles

Guidelines or
Pathways
Care
Information



Guidelines
Digitised on
BPAC servers

bestpractice care at a glance

Diagnosis
Support

Patient Prompt

The screenshot shows the 'bestpractice - pilot (bestpractice)' web application. The top navigation bar includes 'Investigator', 'Main menu', 'Resources', and 'Feedback'. The user is logged in as 'SMITH Arnie'. Below the navigation bar, there are buttons for 'Nurse Form' and 'Update PMS'. The main content area is divided into sections: 'Current Pathways' with links for 'Diabetes Pathway' and 'Depression Pathway'; 'Suggested Pathways' with links for 'Chronic Kidney Disease Pathway' and 'Stroke TIA Pathway'; 'Last Message on 08/07/2014' with an 'open' link; 'Personal Health Plan' with an 'open' link; 'Acute kidney injury (decline 33%; stage 4)' with a 'CKD Pathway' link; 'Smoking Status : Non Smoker' with a 'change status' link; 'Smear Overdue'; and 'Update Coding' with a checkbox. At the bottom, there are 'Classifications' and 'Patient Screening' dropdown menus, a 'Map of Medicine' button, and an 'Update PMS' button. The footer includes the 'bestpractice care' logo, 'inacle acle.co.nz', and the copyright notice '©2005 - 2014'. A 'Print' button is visible at the bottom right.

In-consultation
Guidance

Clinical Modules

The screenshot shows the 'Diabetes Review' module in the 'bestpractice care' application. The top navigation bar includes 'Resources', 'Main Menu', and 'Send Feedback'. The main content area is titled 'Diabetes Review' and features a red banner indicating 'Risk of Diabetic Complications - SEVERE' and 'Calculated CVD Risk: 44%'. Below this, the 'Clinical Details' section includes fields for 'Smoker' (Yes/No/Past/Recently quit), 'Patient would like cessation advice or support' (Yes/No), 'CVD Risk Factor' (CVD Event, Genetic Lipid Disorder, Nephropathy, Family History), 'Diabetes' (Type I/II, Year of Diagnosis, Duration), 'Foot Check' (Completed On, Diabetic foot risk - High), 'Retinal Screening' (Done, 09/07/2014), 'Height' (178), 'Weight' (88), 'BMI' (27.8), 'Blood pressure' (130/90), 'Cholesterol' (6), 'Triglycerides' (1), 'LDL' (2), 'HDL' (1), 'TC:HDL' (6), 'HbA1c' (66), 'ACR' (1), 'CKD Stage 3b', 'eGFR' (32), 'Rate of decline' (Last year -13.7, Last 5 years -5.5). The 'Graphs' section shows 'HbA1c', 'Cholesterol', 'Triglycerides', 'LDL', 'HDL', and 'eGFR'. The 'Clinical Management Advice' section includes a 'Medication Review required' link, a 'Consider screening for Depression' link, a 'Enrol in smoking cessation programme' link, a 'Start statin to at least an equivalent of Atorvastatin 40mg at night' link, a 'If not contraindicated, consider starting Aspirin 75 - 150mg a day' link, a 'Provide intensive lifestyle advice' link, and an 'Optimal diabetic control is required' link. The bottom navigation bar includes 'Refresh', 'Save', 'View Care Plan', 'Patient Overview', and 'Exit' buttons. The footer includes the 'MIDLANDS HEALTHNETWORK' logo and the copyright notice '© bestpractice 2005 - 2014'.

Referral
Management

Intelligent Referrals

The screenshot shows the 'Southern PHO eReferral' module in the 'bestpractice care' application. The top navigation bar includes 'Referral Details', 'Patient Details', 'CKD', 'Clinical Details', 'Investigations', and 'Referrer Details'. The main content area is titled 'Southern PHO eReferral' and features a red banner indicating 'ACC'. Below this, the 'Clinical Information' section includes a 'Reason for referral / Diagnosis / Problem' field (Progressive CKD stage 3) and a 'Details' section with a 'Review and include consultation notes?' checkbox. The 'Details' section contains a text area with the following text: 'Thank you for seeing this 75 year old male with Progressive CKD stage 3. His last blood pressure readings were 130/80 mmHg on Thu Jan 9 2014. His last two eGFRs show a 1% change. His last 12 month eGFR declined by -8 mL/min/1.73m2. His last 5 year eGFR declined by -28 mL/min/1.73m2. His protein loss was estimated by PCR as 25 on Fri Dec 9 2011.' Below the text area, there are checkboxes for 'Include screening results?' and 'Long Term Medications'. The 'Recent Medications' section includes a 'History' dropdown menu. The bottom navigation bar includes 'Referral Details', 'Patient Details', 'CKD', 'Clinical Details', 'Investigations', and 'Referrer Details' buttons.

CKD in consultation clinical decision module

NICE National Institute for Health and Care Excellence

Stage	Description	GFR (ml/min/1.73 m ²)
1*	Kidney damage with normal or raised GFR	≥90
2*	Kidney damage with mild decrease in GFR	60-89
3A	Moderately lowered GFR	45-59
3B		30-44
4	Severely lowered GFR	15-29
5	Kidney failure (end-stage renal disease)	<15

Chronic kidney disease

early identification and management of chronic kidney disease in adults in primary and secondary care

Issued: July 2014 last modified: March 2015

NICE clinical guideline 182
guidance.nice.org.uk/og182

NICE has accredited the process used by the Centre for Clinical Practice at NICE to produce guidelines. Accreditation is valid for 5 years from September 2009 and applies to guidelines produced since April 2007 using the processes described in NICE's 'The guidelines manual' (2007, updated 2009). More information on accreditation can be viewed at www.nice.org.uk/accreditation



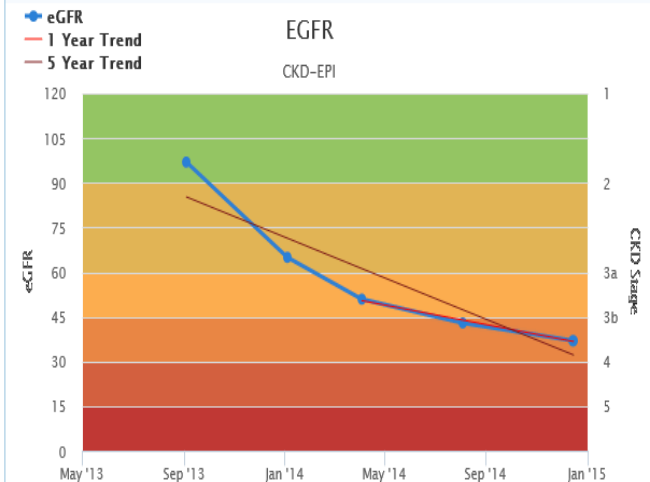
© NICE 2014

Extracts EGFR results from PRS (calculates EGFR from creatinine)

- Determines stage
- Does regression
- Determines estimated time to stage 4

Progressive CKD stage 3b


Charts



Current/Existing Data

Laboratory Results

① Serum Creatinine (most recent)	175	μmol/l	(15/12/2014)
① eGFR	37	ml/min/1.73m ²	0% change from previous (15/12/2014)
① Annual Rate of Change	-27	ml/min/1.73m ² /year	(03/04/2014 - 15/12/2014)
① Five Year Rate of Change	-208	ml/min/1.73m ² /5 years	(03/09/2013 - 15/12/2014)
ACR (most recent)	45	mg/mmol	(01/09/2014)



Patient specific advice based on Guideline

Clinical Advice

Progressive renal decline, predicted to enter stage 4 soon: consider referral if patient may be affected during their lifetime

Referral may be less useful if patient unlikely to be affected by their renal decline

Offer influenza and pneumococcal vaccinations

Minimise nephrotoxic drugs and consider renal doses of medication

Review every six months with FBC, creatinine, electrolytes, lipids, HbA_{1c}, and urine albumin-creatinine ratio

Urinary protein-creatinine ratio is less sensitive but sometimes used to monitor significant levels of proteinuria

No recent serum potassium found: do not implement any advice about starting or increasing ACE inhibitors or ARBs until normokalaemia verified

Target BP is systolic 120 - 139 and diastolic less than 90

Blood pressure above target; consider reviewing antihypertensive therapy with priority to ACE inhibitors or ARBs

Please use the Common Form for more detailed advice on management of hypertension

Urine ACR indicated due to previous proteinuria (no recent ACR or PCR found)

Arrange imaging of renal tract due to persistent invisible haematuria unless benign transient cause of haematuria identified. Recall to monitor haematuria within a year

<http://www.bpac.org.nz/BT/2013/June/urine-tests.aspx> contains advice on investigating haematuria. Risk factors for urological malignancy include smoking, recurrent UTI or other urological disorders, occupational exposure to chemicals or dyes, pelvic irradiation, history of excessive analgesic use, and others

Refer to nephrology due to invisible haematuria with proteinuria in CKD stage 3

Nephrology Referral



Refer patient to Nephrology

Nephrology Details

Thank you for seeing this 83 year old male with Stage 3b CKD.

He weighs 99 kgs, has a height of 168 cms with a BMI of 35.1.

His last blood pressure readings were 140/80 mmHg on 2013 Mar 8.

He is diabetic.

His last two eGFRs show a -13.9% change.

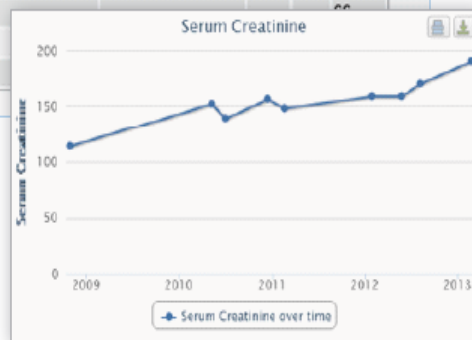
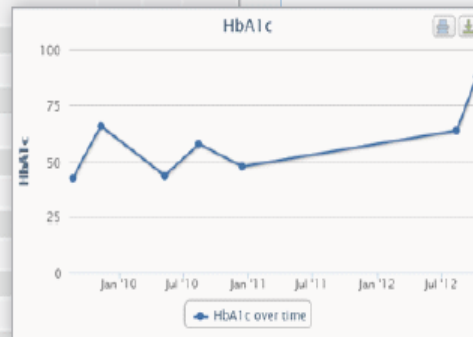
His last 12 month eGFR declined by -10.05 mls/min.

His last 5 year eGFR declined by -4.55 mls/min.

His record shows an instance of Microhaematuria.

His protein loss was estimated by ACR as 4 on 2012 Aug 14.

Date	Blood Pressure	Serum Creatinine	eGFR	ACR	HbA1c
2013 Mar 8	140 / 80				
2013 Mar 4	140 / 80				
2013 Feb 26	140 / 90	190			
2012 Nov 15	124 / 76				
2012 Oct 10					
2012 Aug 14					
2012 Aug 8		170			
2012 May 28		159			
2012 Feb 2		159			
2011 Feb 21		148			
2010 Dec 17		156			
2010 Aug 16					
2010 Jul 5		139	45		
2010 May 11		152	41	44	
2009 Nov 11					
2009 Aug 24					
2008 Oct 29					



The above image gives an example of the rich clinical information within the eReferral client. The eReferral contains all the agreed information with the ability to graph parameters. This functionality enables the nephrologists, when appropriate, to manage more cases without the need for a face-to-face first specialist appointment.

Standardised electronic referral

Main | [Audit](#)

External Details

Name: **Maze, Bronwyn Esther (22 Apr 1951)**

Reference No: 28655012_45333 (bpacincx)

Internal Details

Patient: MAZE Bronwyn (MAZ1)

Confidential: ☐ Do Not Upload to MMH: ☐

Subject: Declined Scn Referral Centre

Date: 18 Mar 2015

Attention: Comment: From:

Provider: Murray Tilyard (MT)

Classification: Status:

Folder: Referral/Discharge (RSD)

Referral/Discharge Status: Request Referral
Referral Description: Declined SCN Referral Centre
Referred to Provider: Prof Murray Tilyard
Primary Care Provider: Prof Murray Tilyard
Referring Physician: Prof Murray Tilyard
NHI: CHK8232

18 Mar 2015

Prof Murray Tilyard
Helensburgh Medical Centre

Dear Prof Murray Tilyard

Re: BRONWYN ESTHER MAZE
NHI: CHK8232
DOB: 22 Apr 1951

Your Nephrology referral for the above patient has been received by the SCN Referral Centre and forwarded onto the appropriate specialty.

Decline With Advice:

Thanks for referral

The change in creatinine may be a transient rise as a result of relative hypotension.

I would suggest stopping the spironolactone and allowing BP to get up to 130 systolic.

I would suggest repeating renal function at this stage

If back to baseline then would carry on with regular monitoring

If doesn't settle check urine microscopy and rerefer

Yours sincerely


SCN Referral Centre

New Zealand Risk Stratification

1,409,506 general practice patients were included

Probability of Acute Admission in 2013	Number of patients	2013 Acute Admission:		Positive Predictive value
		Yes	No	
>=90%	597	419	178	70.2%
>=80%	1598	1126	472	70.5%
>=70%	3884	2589	1295	66.7%
>=60%	9173	5657	3516	61.7%
>=50%	20921	11564	9357	55.3%
>=40%	47,013	22,644	24,369	48.2%
>=30%	101988	40688	61300	39.9%
>=20%	222658	68355	154303	30.7%
>=10%	567005	111268	455737	19.6%
>=0%	1409506	154892	1254614	11.0%

The Personal Health Plan creating, sharing & updating


bestpractice

Personal Health Assessment
ZZE1918 Taylor, Elizabeth

Personal Health Plan *
[Send Feedback](#)
[eReferral](#)
[Print](#)
[Save](#)
[Close](#)


[Open All](#)
[Close All](#)
[Tips on effective goal setting](#)

▶ Communication Assessment Issues	6 Assessment Issues
▶ Memory Assessment Issues	1 Assessment Issues
▶ Pain Assessment Issues	3 Assessment Issues
▶ Lifestyle Assessment Issues	4 Assessment Issues
▶ Daily Living Activities Assessment Issues	2 Assessment Issues
▶ Stress, Coping & Mood Assessment Issues	4 Assessment Issues
▶ Social Support Assessment Issues	4 Assessment Issues
▶ Medication Assessment Issues	2 Assessment Issues

Goals
[+ Add Goal](#)
☒ Active
 ☐ Inactive
 ☐ Achieved
 All Assessments

Get off pain meds	Edit
Be able to take tablets with bad hands	Edit
To improve fitness as this will help my condition	Edit
Improve diet	Edit

Contacts
[+ Add Contact](#)
☒ Active
 ☐ Inactive


Pinnacle™
 pinnacle.co.nz

Logged in as:
 Demo MHN

© bestpractice 2013

The Personal Health Plan

– eReferrals to MDT

- Dieticians to provide nutrition education for individuals and groups.
- Social workers to provide psycho-social support services.
- Pharmacists to optimise the patient's medicine self management and adherence
- Podiatrists to focus on the prevention and management of foot problems, a leading cause of hospitalization for people with diabetes

MHN/Podiatry NZ Primary Health Podiatry

This fully-funded service is for those enrolled patients:

- at high risk of developing foot complications due to diagnosis of type 1 or type 2 diabetes
- who have more than one risk factor present for a high risk foot
- who have been referred to the service by a GP or nurse following a consultation.

'Moderate' risk patients causing concern can be discussed with the podiatrist who may accept a referral.

Exclusions are:

- Women with gestational diabetes
- Patients with active foot complications (refer secondary)
- People who are not eligible for publically funded services

For more information please view the [diabetic foot stratification and triage](#) document.

[Referral Details](#)
[Patient Details](#)
[Service Details](#)
[Clinical Details](#)
[Investigations](#)
[Referrer Details](#)

Appendix A: Diabetic foot risk stratification and triage

Category	Definition	Action
Low	No risk present There is no loss of sensation There are no signs of peripheral vascular disease There are no other risk factors	Annual screening by a suitably trained health care professional. Agreed self management plan Provide written and verbal education with emergency contact numbers. Appropriate access to a non-funded podiatrist if/when required.
Moderate	One risk factor present <ul style="list-style-type: none"> • Peripheral neuropathy – unable to detect the 10g monofilament • Peripheral vascular disease - pedal pulses are markedly reduced or not palpable • No callus • No deformity 	Annual screening by practice nurse (PN) with 700 level plus training in diabetes. If concerned PN will consult with primary care MDT and or refer to podiatrist in primary care. Agreed and tailored management/treatment plan by PN, podiatrist and patient according to the patient needs. Provide written and verbal education with emergency contact numbers.
High	More than one risk factor present <ul style="list-style-type: none"> • Peripheral neuropathy – unable to detect 10g monofilament • Peripheral vascular disease - Absent pulses, history of vascular surgery • Callus present/skin changes - Nail pathology/pre-ulcerative lesions/other 	Managed by podiatrist & MDT in primary care. Agreed and tailored management/treatment plan by podiatrist and patient according to patient needs. Provided written and verbal education

The Personal Health Plan – MDT replies visible in Patient Prompt

- **Accessing MDT replies from the Patient Prompt**
- Joined up working with integrated systems and messaging
- A banner on the Patient Prompt gives a 'quick view' of recent eReferral replies
- Open this, and you are taken to the eReferral Message Logging screen. You can select within this screen to view messages by patient, for your user account or by practice.

Last Message on 21/10/2013	open
Personal Health Plan	open
No renal function results available	
Trying to Quit: Offer Advice change status	
Brief advice to quit smoking given	<input type="checkbox"/>
Provided cessation behavioural support	<input type="checkbox"/>
Prescribed cessation medication	<input type="checkbox"/>
Referral to cessation support	<input type="checkbox"/>
Declined cessation services	<input type="checkbox"/>

Future Health System

