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
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
Prevalence of polypharmacy in New Zealand's primary care population 2012
Regional/Practice dataset
Real Time
### Poly Pharmacy Report

**Period:** 01-Apr-2015 - 30-Apr-2015

**Region:** Midlands Health Network - Waikato

#### Summary of Patients

<table>
<thead>
<tr>
<th>Population</th>
<th>Eligible</th>
<th>5 or Less</th>
<th>6-10</th>
<th>11-15</th>
<th>16+</th>
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<tr>
<td>High Needs</td>
<td>21620</td>
<td>19886</td>
<td>1679</td>
<td>215</td>
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<tr>
<td>Total Population</td>
<td>89235</td>
<td>82135</td>
<td>6214</td>
<td>759</td>
<td>127</td>
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</table>
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
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

New Zealand Population: 4.5 million
Basic Principles

Guidelines or Pathways
Care Information

Business Rules Engine

Guidelines Digitised on BPAC servers
Patient Prompt

Diagnosis Support

In-consultation Guidance

Clinical Modules

Referral Management

Intelligent Referrals

at a glance

Risk of Diabetic Complications - SEVERE

Calculated CVD Risk: 44%

Clinical Details

- Smoker: [Yes/No]
- Patient would like cessation advice or support: [Yes/No]
- CVD Risk Factor: [Diabetes/Tobacco use/Obesity/Other]
- Diabetes: [Type 1/Type 2]
- Year of Diagnosis: 2010
- Duration: 14

Other

- Blood pressure: 130/90
- Tri-glycerides: 1.2
- Total Cholesterol: 180
- HDL: 50
- LDL: 2
- TCHDL: 1

Graphs

- HbA1c:
- eGFR: 52
- Rate of decline: 2%
- Last year: 33.7
- Last 5 years: 3.5

Clinical Management Advice

- Medication Review required
- Consider screening for Depression: View screening questions
- Start statin at least 1 equivalent of Atorvastatin 40mg at night
- If contraindicated, consider starting Aspirin 75 - 150mg a day
- Provide intensive lifestyle advice on a cardioprotective dietary pattern (consider referral to a dietician)
- Optimal diabetic control required: Target HbA1c is less than 6.5 mmol/l (7%)

- Type 2 Diabetes: and not on insulin with maximum oral hypoglycaemic therapy and persistently elevated HbA1c (> 8.0 mmol/l) then consider insulin initiation programme

Refresh

Save

View Care Plan

Patient Overview

Exit
CKD in consultation clinical decision module

**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/cg182

**Extracts EGFR results from PRS (calculates EGFR from creatinine)**

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

**Progressive CKD stage 3b**

**Charts**

- eGFR
- 1 Year Trend
- 5 Year Trend

**Laboratory Results**

- Serum Creatinine (most recent): 175 μmol/l (15/12/2014)
- eGFR: 37 ml/min/1.73 m²
- Annual Rate of Change: -27 ml/min/1.73 m²/year (01/04/2014 - 15/12/2014)
- Five Year Rate of Change: -208 ml/min/1.73 m²/year (01/04/2014 - 15/12/2014)
- ACR (most recent): 45 mg/100 ml (15/12/2014)
### 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, HbA1c, 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.
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.
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

10 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

<table>
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<tr>
<th>Probability of Acute Admission in 2013</th>
<th>Number of patients</th>
<th>2013 Acute Admission:</th>
<th>Positive Predictive value</th>
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<td>419</td>
<td>178</td>
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<tr>
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The Personal Health Plan
creating, sharing & updating
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.
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.
Future Health System