

Using the general practice EMR for improving blood pressure medication adherence

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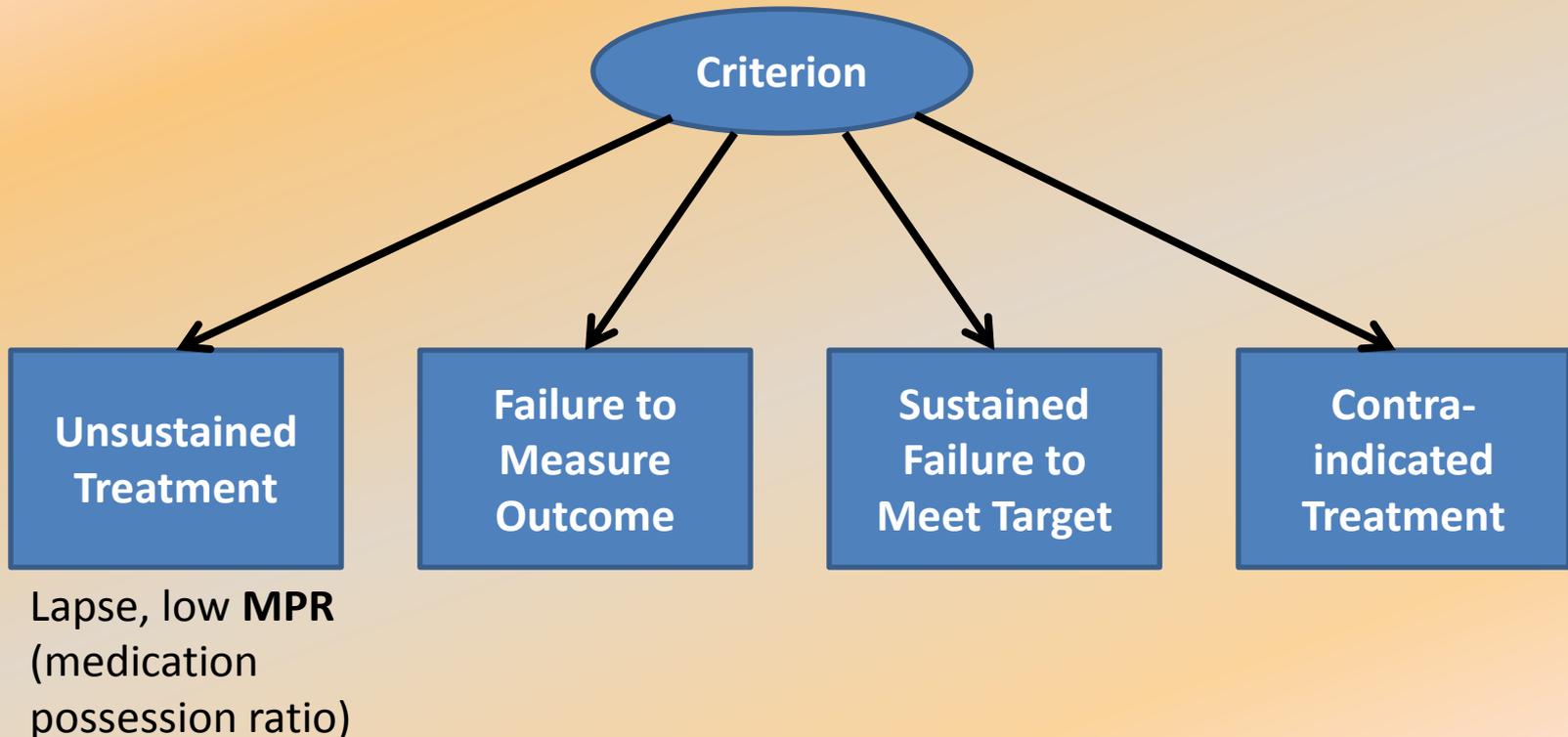
Study context

- New Zealand
 - Has high uptake of practice management system (PMS) software in general practice medicine (like Australia and UK)
 - Local data include: electronic prescribing, lab test results review, problem lists, observations (e.g. BPs), practice notes
 - Mature NHI allows linkage to national collections, including dispensing
- Worked with West Fono Health Care
 - Pacific led practice in West Auckland
 - Iterative analysis of PMS data to identify opportunity for improvement in management of long-term conditions

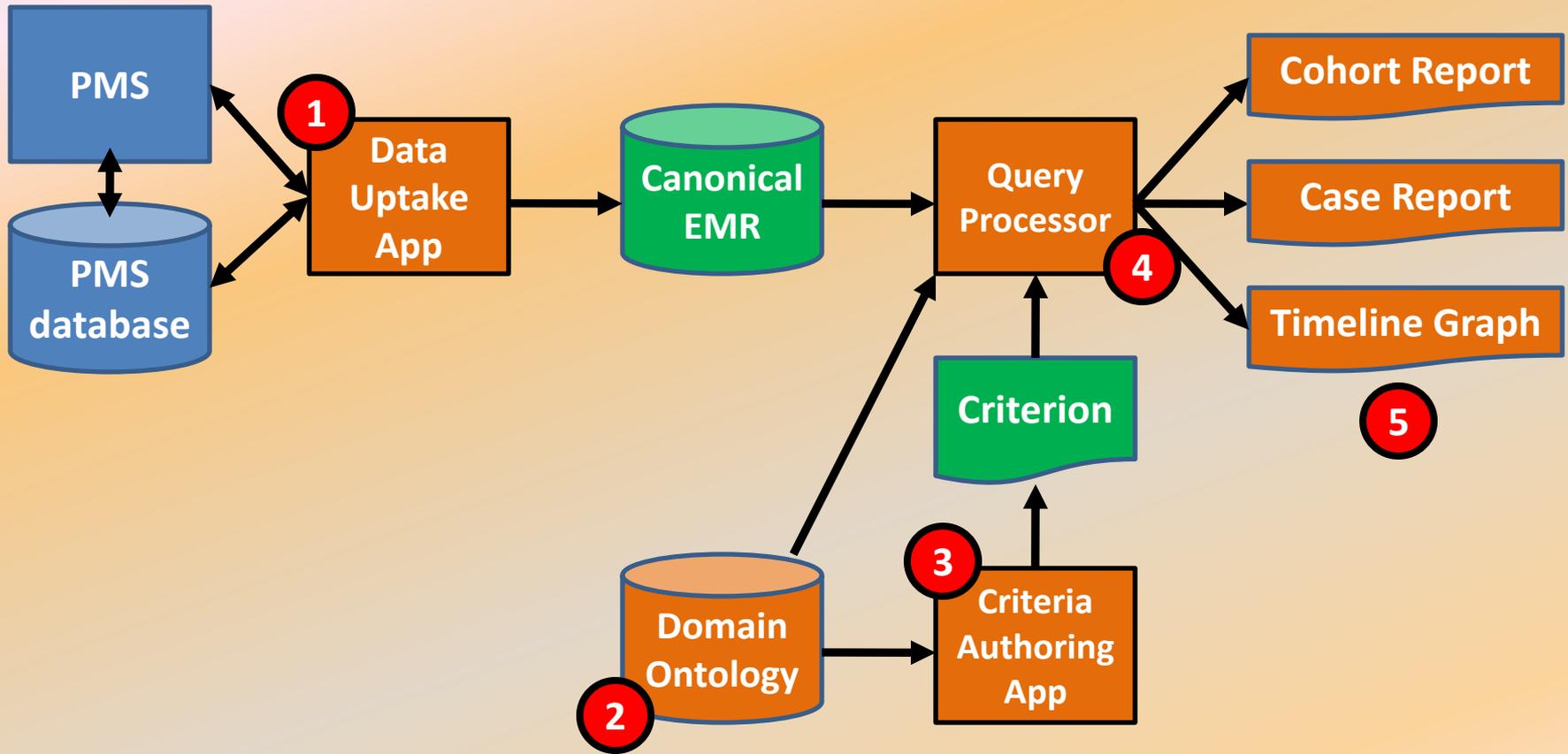


Criteria model

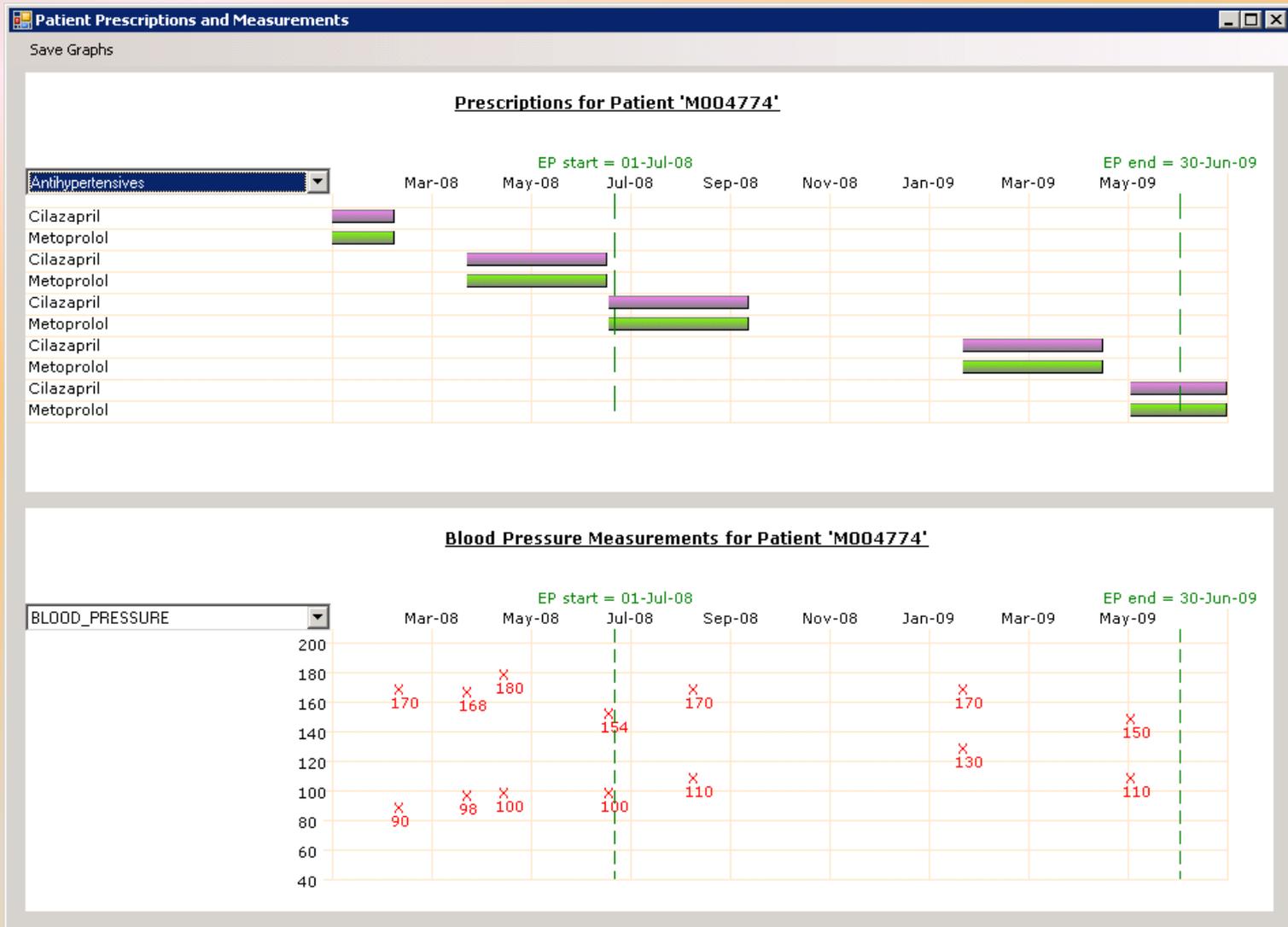
- Abstracted audit classes from general practice opportunities for quality improvement



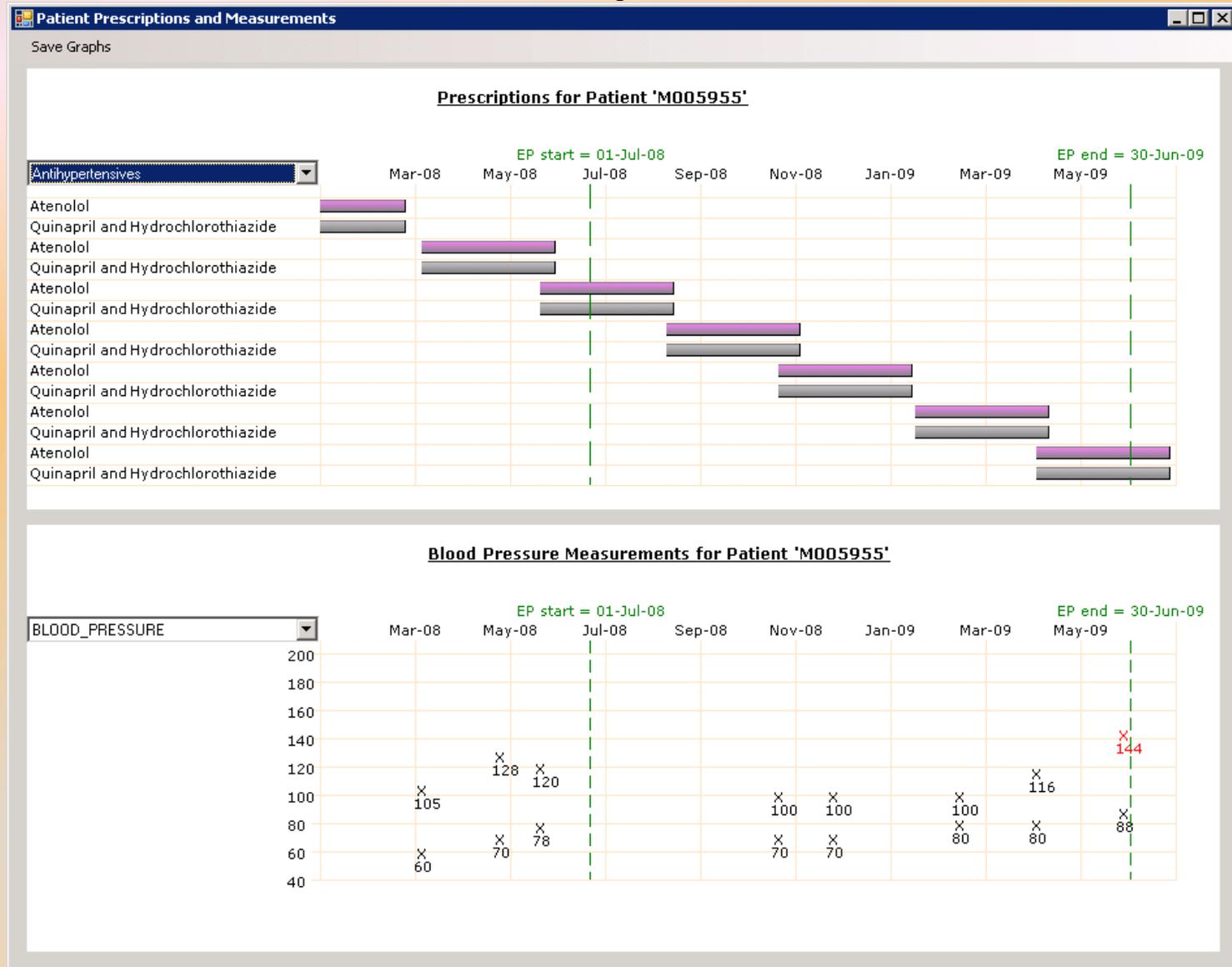
ChronoMedIt Architecture



Visualisation: Bad pattern, low MPR



Good pattern



Non-adherence is common problem

- For 646 patients prescribed at least one of simvastatin, metoprolol succinate, bendrofluazide, felodipine, cilazapril and metformin in a 15-month period, 50% had high adherence **MPR (Medication Possession Ratio)** $\geq 80\%$ to all (out of those 6) that they were prescribed
 - High adherence to individual medications was from 68% (felodopine) to 55% (metformin)
 - Prescribing and dispensing align reasonably well for long-term medications (93% of scripts followed by a dispense within one week)

Mabotuwana T, Warren J, Harrison J, Kenealy T. What can primary care prescribing data tell us about individual adherence to long-term medication?-comparison to pharmacy dispensing data. *Pharmacoepidemiol Drug Saf* 2009;18(10):956-64.

Understanding adherence in the Pacific population

- 20 Samoan patients (10 high MPR, 10 low)
 - Lower adherence: ‘lack of transport’, ‘family commitments’, ‘forgetfulness’, ‘church activities’, ‘feeling well’ and ‘priorities’
 - High adherence: ‘prioritising health’, ‘previous event’, ‘time management’, ‘supportive family members’ and ‘relationship with GP (language and trust)’
 - Common to both: ‘coping with the stress of multiple co-morbidities’

Chang Wai K, Elley CR, Nosa V, Kennelly J, Mabotuwana T, Warren J. Perspectives on adherence to blood pressure lowering medications among Samoan patients: qualitative interviews. *Journal of Primary Health Care* 2010;2(3):217-224

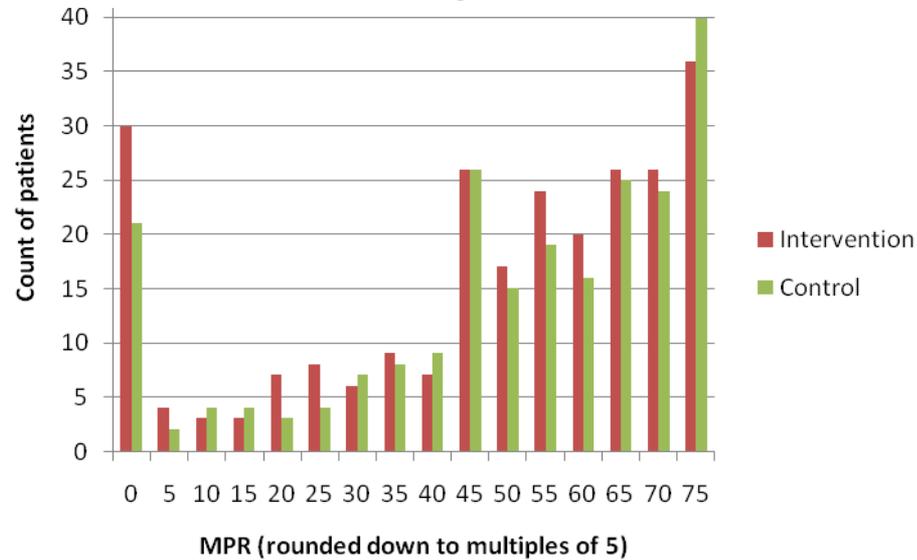
Intervening – AIM-HI

- Adherence Innovation in Medication use for Health Improvement
 - Used ChronoMedIt to define a register of 252 patients with anihypertensive MPR<80% (for a 6 month period)
 - Two nurses undertook Chronic Disease Management (CDM) on these patients
 - Initial contact and assessment of adherence barriers, encouragement
 - Reminder of each (quarterly) appointment about one week in advance
 - Significantly improved MPR* for the intervention year as compared to similar (low MPR) patients in a control Pacific-led practice
 - Marginally significant improvement* on systolic BP as measured ambiently at the practice (3.5mmHg systolic as compared to control [p=0.07])

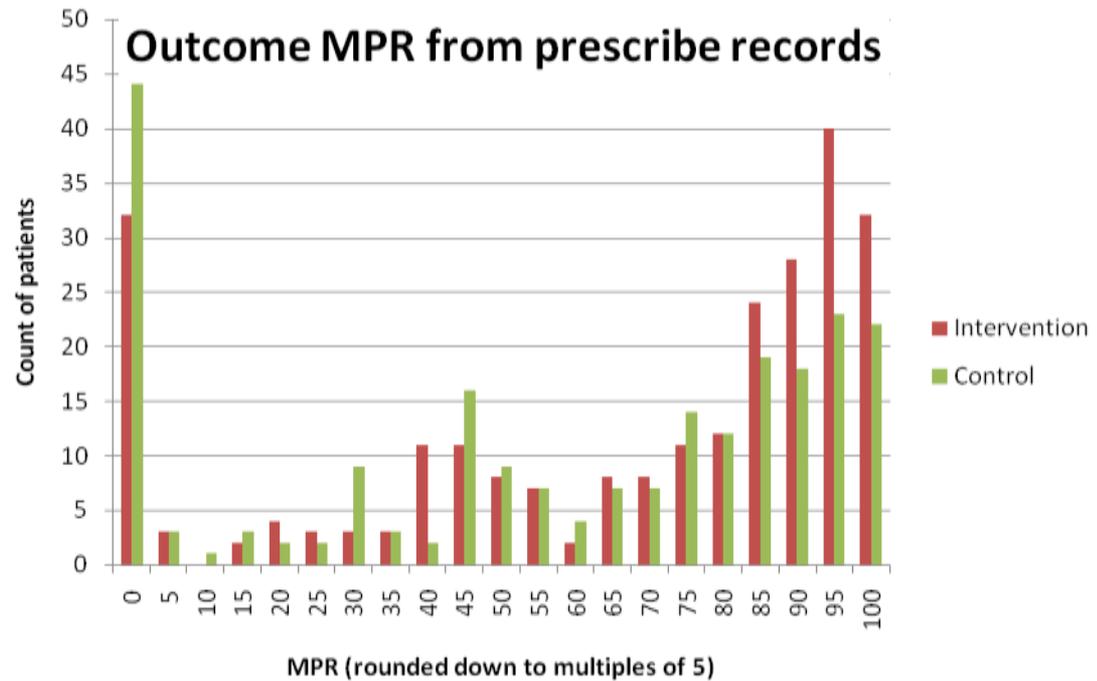
* multiple linear regression of patient outcome (difference of baseline and outcome period) by intervention/control group membership with age and gender as covariates

Prescribing MPR improved 12.0% over control practice (p=0.0002)

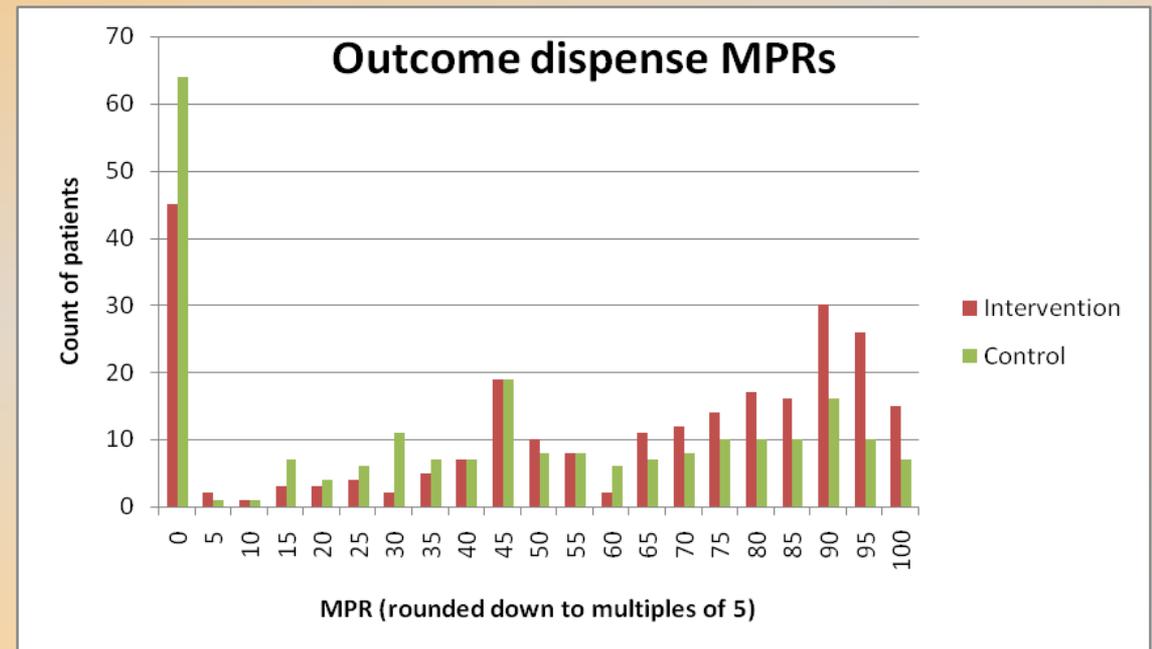
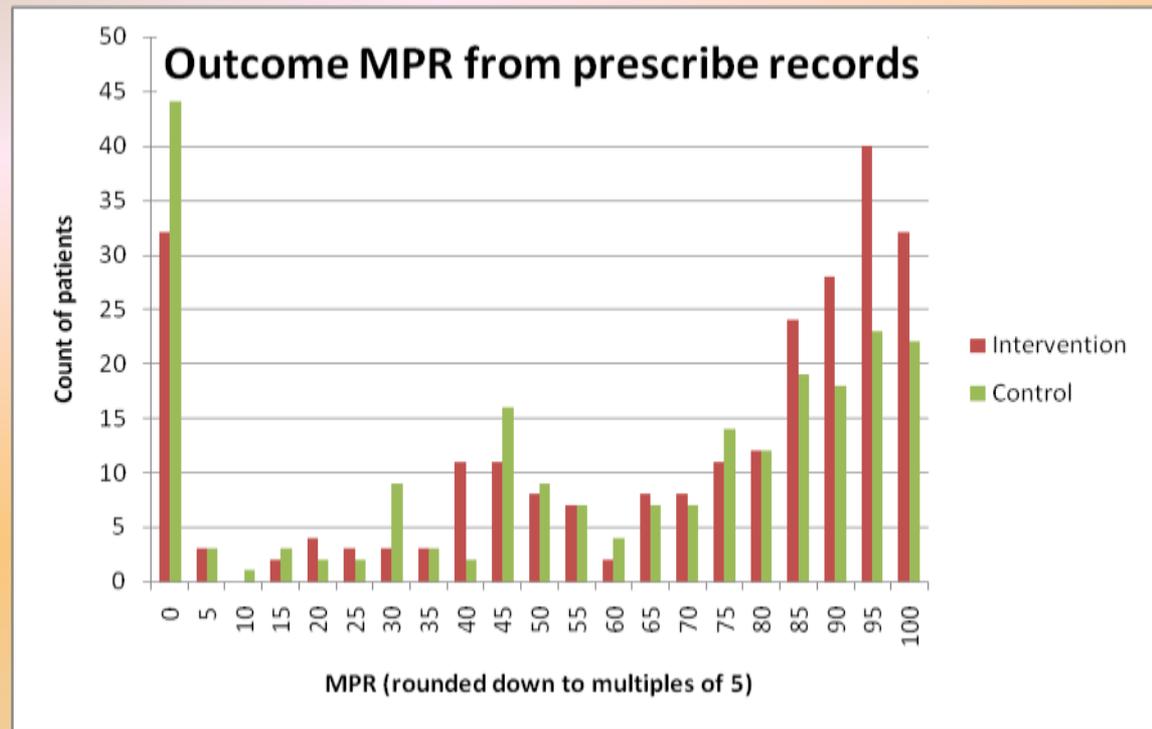
Baseline MPR from prescribe records



Outcome MPR from prescribe records



Dispensing MPR improved 11.5% over control practice (p=0.0001)



What did people think?

- Patients
 - Positive reaction to outreach
 - “Someone is thinking about me”
 - Different patients prefer different modes of contact
- Providers
 - Need dedicated team to carry out the intervention tasks
 - Traditional medicine interferes with evidence based treatment regimens
 - Should expand to other practices

Onward with medication adherence

- Adherence promotion deserves more attention
 - By reminder
 - Packaging, alerts/reminders, invoking 'whānau' (family)
 - By mobile phone
 - Assess and modify the belief model underpinning non-adherence
- Continue to improve the epidemiology
 - Retrospective study with larger cohorts (45andUp Study in New South Wales; Auckland regional TestSafe) to better assess statistical impact of MPR

Other users for ChronoMedIt?

- It applies to other long-term medications, too
 - E.g. identifying repeat short-term users of anti-depressants
- But who operates in a healthcare setting where they really want clever tools to find more work for them?!
 - A truly rational healthcare system would be seeking this information
 - Know of any?

Mabotuwana, T., Warren, J., Orr, M., Kenealy, T. & Harrison, J., "Using Primary Care Prescribing Data to Improve GP Awareness of Antidepressant Adherence Issues," *Informatics in Primary Care*, Vol. 19, No. 1, pp. 7-15, 2011.

Questions / further info

- Jim Warren, Professor of Health Informatics
 - jim@cs.auckland.ac.nz
 - Also, try PubMed on 'Mabotuwana'

Thank you! Questions???!



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