Using the general practice EMR for improving blood pressure medication adherence

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

- Unsustained Treatment (Lapse, low MPR (medication possession ratio))
- Failure to Measure Outcome
- Sustained Failure to Meet Target
- Contra-indicated Treatment
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)** ≥80% to all (out of those 6) that they were prescribed
  - High adherence to individual medications was from 68% (felodipine) to 55% (metformin)
  - Prescribing and dispensing align reasonably well for long-term medications (93% of scripts followed by a dispense within one week)

Understanding adherence in the Pacific population

- 20 Samoan patients (10 high MPR, 10 low)
  - 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’

Intervening – **AIM-HI**

- **Adherence Innovation in Medication use for Health Improvement**
  - Used ChronoMedIt to define a register of 252 patients with antihypertensive 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 ($p=0.0002$)
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?

Questions / further info

• Jim Warren, Professor of Health Informatics
  – jim@cs.auckland.ac.nz
  – Also, try PubMed on ‘Mabotuwana’

Thank you! Questions???