

Effective Health and Disease Management - What Works

Submission to the ON Strategic Drug Review

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Health (Disease) Management

Disease management can be broadly defined as: a focused application of resources to identify patients at risk from specific disease(s) and intervene to improve their outcomes. The modern use of the term often refers to a patient-centred, population approach to the prevention, diagnosis, therapy, and monitoring of disease/health states. It considers drug and non-drug therapy, measurement and feedback of practices and stakeholder and patient education, with attempts at coordinating specific interventions across the healthcare system.

The working premise is: care and outcomes can be better!

Effectiveness of Interventions in Health (Disease) Management - Overall

In a recent issue of the British Medical Journal Weingarten et al published a comprehensive overview evaluation of the efficacy of interventions used in disease management programs (Weingarten SR, Henning JM, Badamgarav E, Knight K, Hasselblad V, Gano A, Ofman JJ. Interventions used in disease management programmes for patients with chronic illness - which one work? Meta-analysis of published reports. *BMJ* 2002; 325: 925-32). In this formal and systematic review, 118 programs were analysed, covering common and important disease burdens such as asthma, coronary disease, depression, diabetes, hypertension and chronic pain.

Patient education was the most common intervention (78%) in these programs, followed by stakeholder/provider education (40%) and feedback (27%); with most (59%) programs using a combination of interventions.

At the provider level, the investigators found all interventions to be associated with significant improvements in adherence to guidelines (effect size range: 44% to 61%) and disease control (effect size range: 17% to 35%).

At the patient level, several interventions were also associated with significant positive increments in disease control, including: education (24%), reminders (27%) and financial incentives (40%).

Effectiveness of Interventions in Health (Disease) Management - Canada

These above conclusions fit very well with Canadian data on the effectiveness of education and stakeholder feedback in driving improved patient outcomes as part of disease management initiatives (Montague T, Sidel J, Erhardt B, et al. Patient health management: a promising paradigm in Canadian healthcare. *Am J Man Care* 1997; 3: 1175-

82; Montague T, Taylor L, Barnes M, Ackman M, Tsuyuki R, Wensel R, Williams R, Catellier D, Teo K, for the Clinical Quality Improvement Network (CQIN) Investigators. Can practice patterns be successfully altered? Examples from cardiovascular medicine. *Can J Cardiol* 1995; 11: 487-92).

Key features of this model of disease management community-based partnerships and use of repeated measurement and feedback of practices and outcomes to generate a continuous quality improvement loop, particularly to ensure more appropriate prescribing. The most advanced case study of the model is the ICONS (Improving Cardiovascular Outcomes in Nova Scotia) project (Montague T, Cox J, Kramer S, Nemis-White J, Cochrane B, Wheatley M, Joshi Y, Carrier R, Gregoire J-P, Johnstone D, for the ICONS investigators. Improving cardiovascular outcomes in Nova Scotia: ICONS, a successful public/private partnership in primary health care. *Hosp Quart* 2003 (In Press). The figure below summarizes the improvements in use of proven drug therapies for heart attack during the research phase of ICONS.

Medication Use

Acute Myocardial Infarction - ICONS

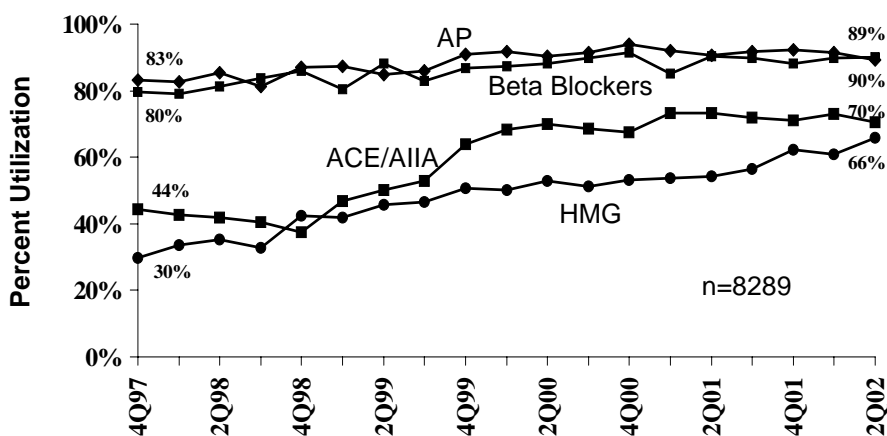


Figure 1.. Temporal changes in utilization of proven medical therapies at discharge among consecutive cohorts of patients with acute myocardial infarction admitted to Nova Scotia hospitals 1997 to 2002. AP = anti-platelet therapy; ACE/AIIA = angiotensin converting enzyme inhibitors/angiotensin receptor antagonists; HMG = lipid-lowering statin medications; Q = quarter of a year.

It is important, in the same population and time frame, to be able to link improvements in prescribing patterns with improvements in outcomes. The following figure illustrates the companion improvement in survival for this same patient myocardial infarction population in ICONS.

Mortality

Acute Myocardial Infarction - ICONS

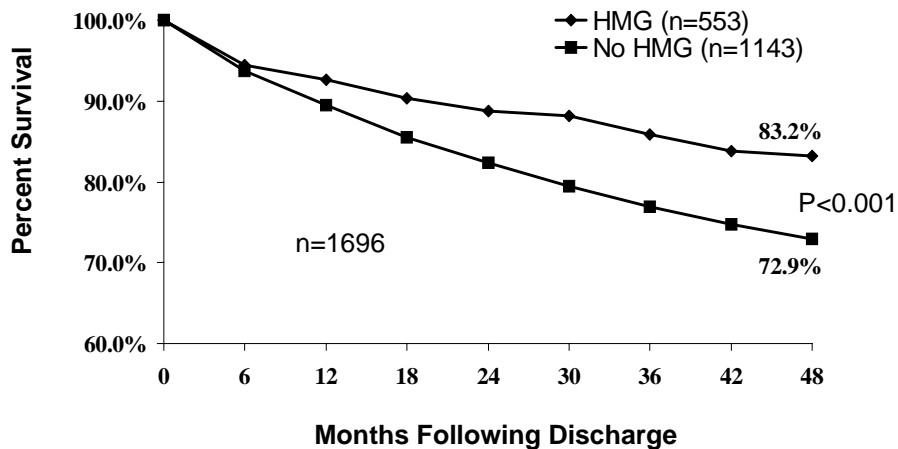


Figure 2. Survival of consecutive patients with acute myocardial infarction admitted to Nova Scotia hospitals in 1997 and 1998, according to whether they received lipid-lowering medications. HMG = lipid-lowering statin medications.

Two other recent Canadian studies are also relevant for consideration in demonstrating the efficacy of community-based patient and care giver education in driving improved outcomes in disease management initiatives. One was the Enhancement of Secondary Prevention trial, performed in Calgary. It utilized patient and provider education and reminders, in a randomized design, as an intervention to improve outcomes in cardiac patients with acute ischemic syndromes. The results are summarized in Figure 3 (Edworthy S, Belenkie, I, Trasler T et al. Enhancement of secondary prevention. *Can J Cardiol* 1998; 14: 113F).

The other is the SCRIP project, also a randomized controlled trial design, which demonstrated the value of a community-based collaboration of physicians, pharmacists and patients in improving the care and outcomes for high risk cardiac patients (Tsuyuki RT, Johnson JA, Teo KK et al. A randomized trial of the effect of community pharmacist intervention on cholesterol management. The study of cardiovascular risk intervention by pharmacists. *Arch Intern Med* 2002; 162: 1149-55). . A very unique feature of SCRIP was the proof of concept for the feasibility of patient identification and recruitment at the pharmacy point-of-care.

Re-hospitalizations Post-heart Attack

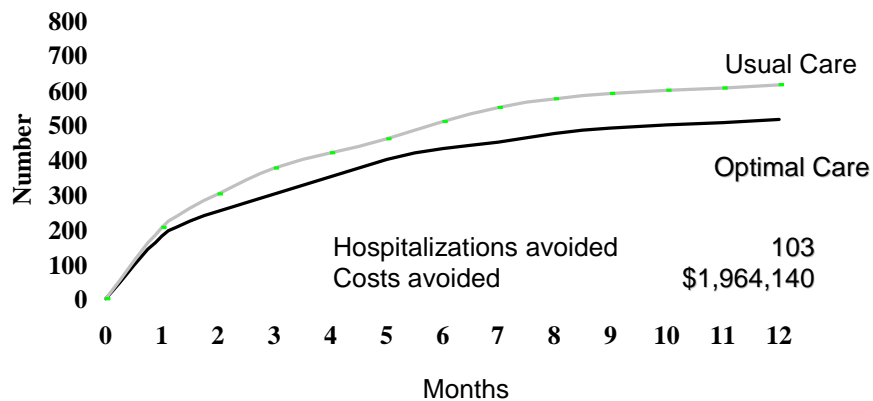


Figure 3. Impact of an optimal care disease management program in reducing re-hospitalizations for patients following an initial heart attack.

All of this recent evidence is in the same direction, as earlier evidence from the Clinical Quality Improvement Network (CQIN) investigators (Figure 4), where provider feedback and education were the principal interventions implemented to drive improved practices and outcomes for heart attack patients (**McAlister FA, Taylor L, Teo K, Tsuyuki RT, Ackman ML, Yim R, Montague TJ, for the Clinical Quality Improvement Network (CQIN) Investigators.** The treatment and prevention of coronary heart disease in Canada: do older patients receive efficacious therapies? *J Am Geriatr Soc* 1999; 47: 911-8.).

Is optimized patient care consistent with cost efficiency?

Certainly, the evidence suggests that innovative drugs are very cost effective; and, enhancing their evidence-based use and accountability via partnership/measurement disease management programs is one way to produces an optimal societal return on their investment (**Montague T, Cavanaugh S, Skilton K, Szabo G, Sidel J, Gregoire J-P.** Drugs, health and the economy: investment, innovation, outcomes, growth. *HealthcarePapers* 2002; 3: 63-69).

As one practical example, in ICONS, the infrastructural and operating costs of ICONS were about 1.2 million dollars/year and the incremental costs of increased use of ACE inhibitors in patients with heart failure was .32 million dollars. However, based on the anticipated reductions in re-hospitalizations for this high-risk patient group, secondary to the increased use of ACE inhibitors, 3054 hospital days were avoided with net cost avoidance >3 million dollars. A similar net cost savings was evident in the Enhancing Secondary Prevention trial

of an optimal post-heart attack patient management trial done in Calgary (Figure 3).

Medication Use And Mortality

Acute Myocardial Infarction - CQIN

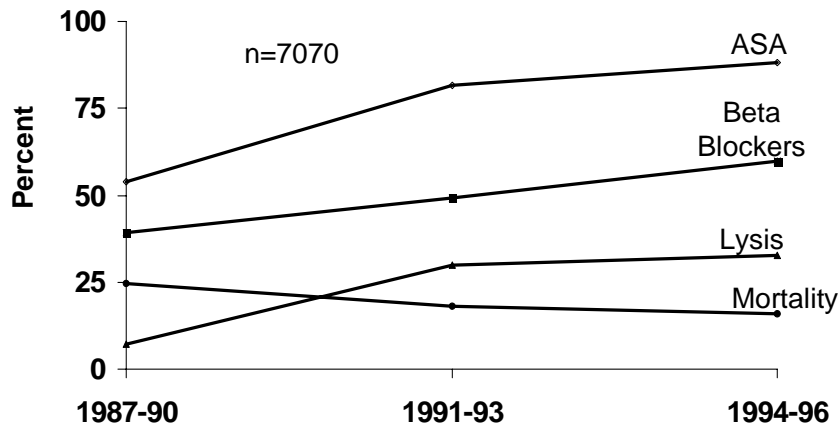
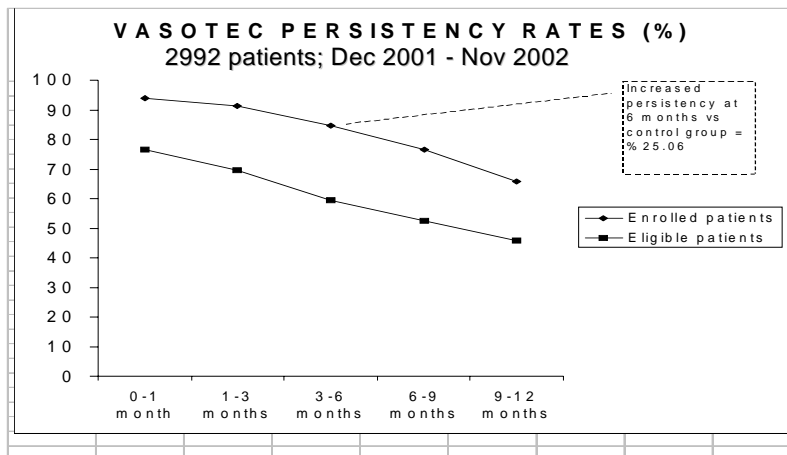


Figure 4. Temporal changes in utilization of risk reducing medical therapies and mortality among consecutive cohorts of older patients (≥ 65 years) with acute myocardial infarction at the CQIN hospitals 1987 to 1996. Adapted, with permission, from *Journal of the American Geriatrics Society* (McAlister et al 1999). ASA = acetylsalicylic acid; lysis = acute thrombolytic therapy.

Lastly, it is important to focus somewhat on compliance, or patient persistence, with therapy. This is a problem common to all the chronic diseases. And, as with the mounting evidence for effectiveness of disease management processes to improve prescribing practices and related outcomes, there is emerging evidence that similar process tools, particularly patient education and reminders, can be very efficacious in improving persistence by patients with their therapies (Figure 5). In the figure below, pharmacist-directed and third party-provided, patient education was the primary intervention driving the improved compliance.

Compliance Improvement



Health Inform 2003.

Figure 5. Impact of patient education and reminders in improving patient compliance with angiotension converting enzyme inhibitor therapy.

In summary, there is very consistent evidence, across many important disease states, that various interventions directed at both care givers and care receivers in the health system can lead to improved practices and outcomes..

Further work needs to be done on how best to package interventions to drive the most efficient outcomes gain, as well as how best to enhance continuity of care and bundling of disease targets. However, the conclusion from the totality of available evidence is that disease management programs, as outlined above, are feasible and effective.