

Pharmacist led, primary care based disease management reduced risk factors and improved glycaemic control in diabetes

Rothman RL, Malone R, Bryant B, *et al.* A randomized trial of a primary care-based disease management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes. *Am J Med* 2005;118:276–84.












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Clinical impact ratings GP/FP/Primary care ★★★★★☆ Internal medicine ★★★★★☆
 Cardiology ★★★★★☆ Endocrine ★★★★★☆

Q In vulnerable patients with poorly controlled type 2 diabetes mellitus, does a pharmacist led, primary care-based, disease management programme reduce cardiovascular risk factors and improve glycaemic control?

METHODS

-  **Design:** randomised controlled trial.
-  **Allocation:** {concealed*}†.
-  **Blinding:** blinded (outcome assessors {and data collectors}†).
-  **Follow up period:** 1 year.
-  **Setting:** University of North Carolina General Internal Medicine Practice, Chapel Hill, North Carolina, USA.
-  **Patients:** 217 English speaking patients who were ≥18 years of age, had a clinical diagnosis of type 2 diabetes, had poor glucose control (glycated haemoglobin [HbA_{1c}] concentration ≥8.0%), and had a life expectancy >6 months.
-  **Intervention:** primary care disease management programme (n=112) or usual care (n=110). The intervention consisted of usual care supplemented with intensive diabetes management; 3 clinical pharmacists who had training in outpatient disease management delivered intensive educational sessions and used evidence-based algorithms and proactive management of clinical parameters. See www.evidence-basedmedicine.com.
-  **Outcomes:** blood pressure (BP), HbA_{1c} concentrations, aspirin use, and lipid concentrations.
-  **Patient follow up:** 89% at 1 year (intention to treat analysis).

*See glossary.
 †Information provided by author.

MAIN RESULTS

Systolic and diastolic BP, HbA_{1c} concentrations, and aspirin use for cardiovascular risk prevention were more improved in patients who received the primary management programme than in those who received usual care (table). Cholesterol concentrations did not differ significantly between groups.

CONCLUSION

In vulnerable patients with poorly controlled type 2 diabetes mellitus, a pharmacist led, primary care-based, disease management programme reduced cardiovascular risk factors and improved glycaemic control.

Commentary

Rothman *et al* add to the literature on models of disease care management that empower health professionals other than primary care physicians with standardised guidelines and procedures. These professionals (pharmacists in this intervention) are responsible for tracking, coordinating, and implementing individualised patient care.

What could limit adoption of these models? Firstly, as in other guideline implementation efforts,^{1,2} these models yield modest improvements. Secondly, if protocols are not sufficiently explicit and unambiguous, non-physician professionals may be challenged for extending their "scope of practice." Thirdly, successful translation requires system redesign to support new roles and detailed protocols to ensure adequate implementation.

Also, a wider scope of intervention, beyond monitoring and medication adjustment, may be more effective. Notably, supporting patient self efficacy and problem solving by using family and peer counselling and other psychosocial interventions can lead to healthier behaviours³ that may enhance patient outcomes.

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- 1 Norris SL, Nichols PJ, Caspersen CJ, *et al.* *Am J Prev Med* 2002;22:15–38.
- 2 Grimshaw JM, Thomas RE, MacLennan G, *et al.* *Health Technol Assess* 2004;8:1–72.
- 3 Lorig KR, Holman H. *Ann Behav Med* 2003;26:1–7.

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Pharmacist led, primary care management programme v usual care in type 2 diabetes*

Outcomes at 1 year	Mean change from baseline			NNT (CI)
	Programme	Usual care	Difference (95% CI)	
Systolic BP (mm Hg)	-7	+2	-9 (-16 to -3)	4 (3 to 5)
Diastolic BP (mm Hg)	-4	+1	-5 (-9 to -1)	
HbA _{1c}	-2.5%	-1.6%	-0.8 (-1.7 to 0)	
Total cholesterol (mg/dl)	-27	-12	-15 (-35 to 4) (Not significant)	
Aspirin use	91%	58%	56% (32 to 91)	

*HbA_{1c} = glycated haemoglobin; BP = blood pressure. Other abbreviations defined in glossary; RBI, NNT, and CI calculated from data in article.

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INTERVENTION DETAILS

Pharmacist led, primary care-based disease management programme

Three clinical pharmacists who worked within general medicine practice and had training in outpatient disease management delivered the intervention. Two of these pharmacists were certified diabetes educators.

The intervention consisted of

- intensive education and counselling; and
- medication management: evidence-based treatment algorithms were used to reduce cardiovascular risk factors and improve glycaemic control. These algorithms pertained to the use of medication to lower blood pressure, cholesterol, and glucose and are available on the web (www.med.unc.edu/medicine/edursrc/algor.htm).

All medication adjustments were done with the approval of the patient's primary care provider.

The intervention group also had access to a diabetes care coordinator who was trained by the clinical pharmacists to address issues of health behaviour and health education. The coordinator telephoned patients to remind them of appointments and to assess whether further interventions were needed. Barriers to care (eg, transportation difficulties, communication issues, insurance problems, and low health literacy) were also addressed by the coordinator.