

The Role of Diabetes Educators in the Medical Home

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From the 1960s to 2000, there was very little improvement in diabetes care in the United States. However, since 2000, there has been substantial improvement. Median A1C reached 7.18% nationally in 2005. In adults with diabetes, median LDL cholesterol is now ~ 85 mg/dl, and median blood pressure is ~ 130/78 mm Hg.^{1,2} Endocrinologists and diabetes educators have led the charge, but most of the diabetes care in the United States is provided by primary care physicians, and the national improvements reflect better diabetes care in primary care practices in recent years.³

Yet primary care is currently in crisis. Increased patient demand, a reduced number of providers, and the demands of working in an information-rich environment leave too little time to meet patient needs. Unaddressed societal health problems that include obesity and unhealthy lifestyles may lead to future decline in the overall health of the American population.⁴ The growing shortage of primary care physicians, in the face of the growing number of Americans with chronic diseases, mandates new approaches to care delivery that expand access through team models within primary care settings—perhaps most importantly for those with diabetes and related conditions.

One of the most important clinical revolutions in diabetes care in the past 10 years is the realization that ~ 70% of those with diabetes die of heart attacks or strokes.⁵ Moreover, it is not only elevated A1C that drives these catastrophic events; it is also elevated blood pressure, elevated LDL cholesterol, and tobacco use.

National quality measures for diabetes have now evolved to what is known as a “comprehensive measure” widely endorsed by advocacy groups, health care delivery organizations, and payers. The 2008 diabetes comprehensive measure requires that a given patient’s diabetes be counted as “controlled” only if the patient reaches goals in five evidence-based domains: A1C, blood pressure, LDL cholesterol, aspirin use, and non-use of tobacco.^{6,7} Medicare will reimburse more money to providers with good scores and less money to providers with poor scores on the comprehensive diabetes measure. Moreover, the Diabetes Physician Recognition Program, developed by the National Committee on Quality Assurance in partnership with the American Diabetes Association (ADA), requires comprehensive performance measurement in specific areas of diabetes management including A1C, blood pressure, LDL cholesterol, non-use of tobacco, and screening for eye, foot, and renal complications. Measures are weighted through a point system, and physicians or medical groups needing to achieve 75 of a possible 100 points on the measurement bundle to achieve recognition.

Although the national median A1C is now approaching 7.0% or less, fewer than 20% of adults with diabetes typically achieve the “comprehensive” diabetes measurement goal.^{1,6} To further improve diabetes care quality, we must go beyond the familiar but outdated mantra, “Diabetes is sugar, is eye, foot, and kidney.” The new diabetes care mantra might be “diabetes means heart disease; control A1C, blood pressure,

LDL cholesterol, use aspirin, and help smokers quit.”

Clinical trials show that lowering A1C to the 7–8% range dramatically improves both microvascular and macrovascular complications.^{8,9} However, further lowering of A1C to < 7% is unlikely to further reduce heart disease^{10,11} and may worsen mortality rates and cardiovascular event rates in some patient subgroups.^{10,12} On the other hand, more intensive blood pressure and LDL cholesterol control dramatically lower mortality and cardiovascular events in those with type 2 diabetes.^{13,14} Recent evidence adds controversy regarding the benefits of aspirin for primary prevention of heart disease in the diabetic population, but pending more definitive studies, the national guidelines have not changed.^{15–17} Aspirin use is still a strong recommendation for those with diabetes and known cardiovascular disease.¹⁸ The new journey to better outcomes and quality of life for patients with type 2 diabetes is through blood pressure and LDL cholesterol control, along with aspirin use when indicated, and non-use of tobacco.

In this brave new world, how can diabetes educators maximize their contribution to patient health and well-being? Diabetes educators will need to define how their knowledge and skills can be used within the context of primary care teams. Five years from now, diabetes educators who limit their attention to glucose control and information-based patient education related primarily to glucose control will find it difficult to compete with pharmacists and other extended support providers who effectively address an expanded scope of clinical domains beyond glycemic control. On the other hand, diabetes educators who broaden their clinical repertoire to include the new terrain of blood pressure and LDL cholesterol control, aspirin use, and tobacco non-use will be in high demand by diabetes care centers, medical groups, disease management organizations, worksites, and health plans.

There are some practical issues involved in this role transition.

Nurses, registered dietitians (RDs), and educators with core training in diabetes may face challenges involving fear of broadening their scope and constraints on scope of practice that can vary by state. However, simple clinical algorithms can be applied for the use of aspirin and for tobacco cessation counseling and interventions. Clinical algorithms can also be applied to help with lipid and blood pressure management. Management of LDL cholesterol is achieved primarily through medical nutrition therapy plus aggressive initiation and titration of statins. Statins can be initiated and titrated for most patients using algorithms because dosing is simple and safety monitoring is straightforward and inexpensive. Statins have a strong safety record and few serious side effects and may become available as over-the-counter medications in the future.

Blood pressure management is more complex, because there are > 80 Food and Drug Administration–approved blood pressure–lowering drugs in at least 10 different classes now on the market. However, most experts believe that the most important predictor of benefits to blood pressure control is the blood pressure level achieved and not the specific drug(s) used to achieve that level.¹⁹ Data from large well-organized medical groups with good blood pressure control show that most patients’ hypertension can be controlled by combining, in a simple and step-wise manner, a set of only four specific drugs: an ACE inhibitor (such as lisinopril), a thiazide diuretic (such as chlorthalidone), a β -blocker (such as metoprolol), and a calcium channel blocker (such as amlodipine). In the vast majority of diabetes patients, the use of these drugs, administered in the sequence just outlined, is safe and effective at achieving blood pressure goals, which are < 130/80 mm Hg for those with diabetes.

There are some barriers, especially the reimbursement policy, that also inhibit the evolution of diabetes educators into expanded care roles as we have described. It is incumbent that forward-thinking

leaders of professional organizations such as the American Association of Diabetes Educators, the American Medical Association, and ADA meet with new partners such as Medicare, the American Academy of Family Physicians, the American College of Physicians, America’s Health Insurance Plans, the Robert Wood Johnson Foundation, the Commonwealth Foundation, and others to pave the way for resources to support the growth of diabetes educators into new roles to deal effectively with emerging challenges in diabetes care.

Some of these organizations are advocating a new model of care referred to as the Medical Home. The Medical Home is based on the premise that primary physicians need to collaborate with mid-level practitioners, RDs, educators, and others in an information-integrated team to ensure delivery of high-quality, patient-centered health care to all, and especially those with chronic diseases such as diabetes. It is apparent that implementing the Medical Home will require modification of current reimbursement policies to support team models of care. There are currently several Medical Home demonstration pilots across the country—some sponsored by Medicare—that include payment reform. Diabetes educators, especially those with a broad clinical range, can be pioneers in these new and exciting models of patient care intended to improve chronic disease care and prevention.

The primary care practice of the future will involve a team approach that involves active outreach by “extended” primary care providers for high-risk patients. Many clinics and medical groups have already established clinical algorithms, standing orders, and supervision arrangements that permit registered nurses, pharmacists, educators, case managers, and physicians to collaboratively provide effective care to diabetes patients that goes beyond glucose control to include blood pressure and LDL cholesterol control, aspirin use, and tobacco non-use. As attention shifts away from “carve-out” disease management to Medical

Home models of care for those with chronic diseases, diabetes educators who can broaden their clinical repertoire along the lines we have described will not only have more fun, but also be more employable and have more earning potential. In addition, the expanded skill set, delivered with appropriate support and supervision, may help us achieve what all of us want for our millions of diabetes patients—longer lives, with the extra years as free as possible of complications.

References

- ¹ Hoerger TJ, Segel JE, Gregg EW, Saaddine JB: Is glycemic control improving in U.S. adults? *Diabetes Care* 31:81–86, 2008
- ² Saaddine, JB, Cadwell B, Gregg EW, Engelgau MM, Vinicor F, Imperatore G, Narayan KM: Improvements in diabetes processes of care and intermediate outcomes: United States, 1988–2002. *Ann Intern Med* 144:465–474, 2006
- ³ Peterson KA, Radosevich DM, O'Connor PJ, Nyman JA, Prineas RJ, Smith SA, Arneson TJ, Corbett VA, Weinhandl JC, Lange CJ, Hannan PJ: Improving diabetes in practice: findings from the TRANSLATE trial. *Diabetes Care* (electronically published ahead of print 22 September 2008)
- ⁴ Lee TH, Bodenheimer T, Goroll AH, Starfield B, Treadway K: Perspective roundtable: redesigning primary care. *N Engl J Med* 359:e24, 2008
- ⁵ Haffner SM, Lehto S, Ronnema T, Pyorala K, Laakso M: Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. *N Engl J Med* 339:229–234, 1998
- ⁶ Minnesota Community Measurement: The D5: how are clinics scored? [article online] Available from http://www.thed5.org/index.php?p=view_clinics. Accessed 16 March 2009
- ⁷ National Committee on Quality Assurance: 2008 HEDIS performance measures [article online]. Available from <http://www.ncqa.org/tabid/697/Default.aspx>. Accessed 16 March 2009
- ⁸ Holman RR, Paul SK, Bethel MA, Matthews DR, Neil HA: 10-year follow-up of intensive glucose control in type 2 diabetes. *N Engl J Med* 359:1577–1589, 2008
- ⁹ Gaede P, Lund-Andersen H, Parving HH, Pedersen O: Effect of a multifactorial intervention on mortality in type 2 diabetes. *N Engl J Med* 358:580–591, 2008
- ¹⁰ Gerstein HC, Miller ME, Byington RP, Goff DC Jr, Bigger JT, Buse JB, Cushman WC, Genuth S, Ismail-Beigi F, Grimm RH Jr, Probstfield JL, Simons-Morton DG, Friedwald WT: Effects of intensive glucose lowering in type 2 diabetes. *N Engl J Med* 358:2545–2559, 2008
- ¹¹ Patel A, MacMahon S, Chalmers J, Neal B, Billot L, Woodward M, Marre M, Cooper M, Glasziou P, Grobbee D, Hamet P, Harrap S, Heller S, Liu L, Mancia G, Mogensen CE, Pan C, Poulter N, Rodgers A, Williams B, Bompoint S, de Galan BE, Joshi R, Travert F: Intensive blood glucose control and vascular outcomes in patients with type 2 diabetes. *N Engl J Med* 358:2560–2572, 2008
- ¹² Vandenbroucke JP, Psaty BM: Benefits and risks of drug treatments: how to combine the best evidence on benefits with the best data about adverse effects. *JAMA* 300:2417–2419, 2008
- ¹³ Patel A, MacMahon S, Chalmers J, Neal B, Woodward M, Billot L, Harrap S, Poulter N, Marre M, Cooper M, Glasziou P, Grobbee DE, Hamet P, Heller S, Liu LS, Mancia G, Mogensen CE, Pan CY, Rodgers A, Williams B: Effects of a fixed combination of perindopril and indapamide on macrovascular and microvascular outcomes in patients with type 2 diabetes mellitus (the ADVANCE trial): a randomised controlled trial. *Lancet* 370:829–840, 2007
- ¹⁴ Pyorala K, Pedersen TR, Kjekshus J, Faergeman O, Olsson AG, Thorgeirsson G: Cholesterol lowering with simvastatin improves prognosis of diabetic patients with coronary heart disease: a subgroup analysis of the Scandinavian Simvastatin Survival Study (4S). *Diabetes Care* 20:614–620, 1997
- ¹⁵ Belch J, MacCuish A, Campbell I, Cobbe S, Taylor R, Prescott R, Lee R, Bancroft J, MacEwan S, Shepherd J, Macfarlane P, Morris A, Jung R, Kelly C, Connacher A, Peden N, Jamieson A, Matthews D, Leese G, McKnight J, O'Brien I, Semple C, Petrie J, Gordon D, Pringle S, MacWalter R: The prevention of progression of arterial disease and diabetes (POPADAD) trial: factorial randomised placebo controlled trial of aspirin and antioxidants in patients with diabetes and asymptomatic peripheral arterial disease. *BMJ* 337:a1840, 2008
- ¹⁶ Pradhan AD, Cook NR, Manson JE, Ridker PM, Buring JE: A randomized trial of low-dose aspirin in the prevention of clinical type 2 diabetes in women. *Diabetes Care* 32:3–8, 2009
- ¹⁷ Ogawa H, Nakayama M, Morimoto T, Uemura S, Kanauchi M, Doi N, Jinnouchi H, Sugiyama S, Saito Y: Japanese Primary Prevention of Atherosclerosis With Aspirin for Diabetes (JPAD) Trial Investigators: Low-dose aspirin for primary prevention of atherosclerotic events in patients with type 2 diabetes: a randomized controlled trial. *JAMA* 300:2180–2181, 2008
- ¹⁸ American Diabetes Association: Standards of medical care in diabetes—2009. *Diabetes Care* 32 (Suppl. 1):S13–S61, 2009
- ¹⁹ Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Rocella EJ: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 289:2560–2572, 2003

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