

**COMMENTARY**

# The Gordian Knot of Chronic Illness Care

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According to legend, when Alexander the Great arrived in the kingdom of Phrygia in what is now central Turkey, he was faced with a unique challenge. The gods had assisted Gordius, the king of Phrygia, with tying his ox-cart to a pole with an intricate knot. The man who could undo the “Gordian Knot” would rule all Asia. When Alexander could not untie the knot, he unsheathed his sword and sliced it with one stroke, producing the “Alexandrian Solution.”

Family physicians today are faced with a similar set of circumstances. Numerous studies have documented gaps between current knowledge and outcomes of care for patients with chronic diseases.<sup>1-3</sup> As the number and complexity of our patients with not 1, not 2, but multiple chronic illnesses rises, the challenge may seem to present a knot with no solution. Disturbingly, a recent report found that close to 60% of nonelderly adults report having one or more serious major chronic conditions, including hypertension, diabetes, emphysema, heart disease, asthma, or stroke.<sup>4</sup> When combined with the elderly population and the growing complexity

of managing each of these chronic conditions, it is no wonder that solutions to improving outcomes do not seem obvious. For example, one study has shown that if the typical family physician were to follow current guidelines for the 10 most common chronic diseases, the amount of time required would exceed the time we currently have for direct patient care overall, leaving *no* time for acute illnesses or delivery of preventive services.<sup>5</sup>

Several of the studies in this issue illustrate the challenges faced by family physicians in the management of their patients with chronic illnesses, especially those with diabetes. In his study of hypertension control before and after the release of Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 7 Guidelines in May of 2003, Jackson found that, over the same time period, the proportion of patients with good blood pressure control increased by 15% among those without diabetes but only 6% among patients with diabetes.<sup>6</sup> The gap seems to be growing. One explanation for this gap is that the level of competing demands during the encounter pose a significant challenge to achieving adequate blood pressure control in patients with diabetes in a manner similar to that documented with glucose control.<sup>7</sup> Given that the average patient with diabetes seen in family physician offices is on more than 6 oral medications, and that good blood pressure control in the United Kingdom Prospective Diabetes Study required an average of 3 or more antihypertensive medications, who among us has not encountered the patient who complains that they are already on too many medications when we suggest that another medication is needed to achieve adequate blood pressure control.<sup>8,9</sup>

The study by Shani et al<sup>10</sup> seems to suggest that the physician caring for the patient with diabetes is an important predictor of good glucose control, but none of the measured physician characteristics were significant predictors. Furthermore, clinic size was an important predictor, with a higher propor-

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tion of patients seen in intermediate-size clinics under good control. Other studies have also suggested that the setting in which a patient is seen might be an important predictor of chronic disease outcomes independent of the attending physician.<sup>11,12</sup> Is it possible that some settings design their care processes in a manner that overcomes competing demands when a patient presents with multiple, complex chronic disease, including diabetes? Much more research is needed to answer the question, How do we redesign the family physician office of the future in manner that optimizes chronic disease outcomes?

Many continue to believe that technology is the answer to improving chronic disease outcomes. The case study by Boronat<sup>13</sup> about the malfunctioning insulin pen device points to the danger of placing all of our eggs in this basket. It was not until this patient's primary care physician took the time, after 3 patient visits to the emergency department, to have the patient demonstrate in great detail her injection technique that the problem was uncovered. This patient-centric approach to care—one that family physicians excel at—is critical for patients with a complex chronic disease like diabetes.

Who among us has not ordered a comprehensive metabolic panel only to discover unexplained elevated liver function tests? In their analysis of a large national sample of community-dwelling adults in the United States, Mainous et al<sup>14</sup> suggest that some of these people may have impaired fasting glucose or undiagnosed diabetes. It is possible that these patients have nonalcoholic steatohepatitis caused by their abnormal glucose metabolism, leading to mildly elevated liver function tests.<sup>15</sup>

Finally, the alarmingly high prevalence of hypertension and prehypertension among a healthy population of active duty military personnel reinforces the concern about the growing burden of chronic illness care.<sup>16</sup> Such a burden will require a primary care workforce that currently does not exist, as illustrated by the primary care capacity crisis in Massachusetts with expansion of health insurance coverage.<sup>17</sup>

The Gordian Knot of chronic illness care in the United States will require creative “out-of-the-box” thinking, like that demonstrated by Alexander the Great. One speaker at a recent primary care research conference was introduced as someone “. . . who not only thinks outside the box, he frequently is not even in the same room as the box.”

Although a single sword stroke is unlikely to undo this knot, *all* of us have a responsibility to tell our story if we are to redesign a health system that will facilitate our ability to do so, rather than one that raises obstacles to improving chronic disease outcomes. Only then will we unleash the full potential of the family physician to truly make lives better.<sup>18</sup>

## References

1. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. *N Engl J Med* 2003;348:2635–45.
2. Kerr EA, Gerzoff RB, Krein SL, et al. Diabetes care quality in the Veterans Affairs Health Care System and commercial managed care: the TRIAD study. *Ann Intern Med* 2004;141:272–81.
3. Rundall TG, Shortell SM, Wang MC, et al. As good as it gets? Chronic care management in nine leading US physician organizations. *BMJ* 2002;325:958–61.
4. Hoffman C, Schwartz K. Eroding access among non-elderly U.S. adults with chronic conditions: ten years of change. *Health Aff* 2008;27:w340–8.
5. Ostbye T, Yarnall KSH, Drause KM, Pollak KI, Gradison M, Michener JL. Is there time for management of patients with chronic diseases in primary care? *Ann Fam Med* 2005;3:209–14.
6. Jackson JH, Sobolski J, Krienke R, Wong KS, Frecht-Tamas F, Nightengale B. Blood pressure control and pharmacotherapy patterns in the United States before and after the release of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) Guidelines. *J Am Board Fam Med* 2008;21:512–21.
7. Parchman ML, Pugh JA, Romero RL, Bowers KW. Competing demands or clinical inertia: the case of the elevated glycosolated hemoglobin. *Ann Fam Med* 2007;5:196–201.
8. Grant RW, Pirraglia PA, Meigs JB, Singer DE. Trends on complexity of diabetes care in the United States from 1991 to 2000. *Arch Intern Med* 2004;164:1134–9.
9. Parchman ML, Romero RL, Pugh JA. Encounters by patients with type 2 diabetes—complex and demanding: an observational study. *Ann Fam Med* 2006;4:40–5.
10. Shani M, Taylor TR, Vinker S, et al. Characteristics of diabetics with poor glycemic control who achieve good control. *J Am Board Fam Med* 2008;21:490–6.
11. Krein SL, Hofer TP, Kerr EA, Hayward RA. Whom should we profile? Examining diabetes care practice variation among primary care providers, provider groups and health care facilities. *Health Serv Res* 2002;37:1159–80.
12. Yano EM, Soban LM, Parkerton PH, Etzioni DA. Primary care practice organization influences colo-

- rectal cancer screening performance. *Health Serv Res* 2007;42:1130–49.
13. Boronat M, García-Delgado Y, Pérez-Martín N, Nóvoa FJ. Severe deterioration of metabolic control caused by malfunction of a disposable insulin pen device. *J Am Board Fam Med* 2008;21;575–6.
  14. Mainous AG, Diaz VA, King DE, Everett CJ, Player MS. The relationship of hepatitis antibodies and elevated liver enzymes with impaired fasting glucose and undiagnosed diabetes. *J Am Board Fam Med* 2008;21;497–503.
  15. Sheth SG, Gordon FD, Chopra S. Nonalcoholic steatohepatitis. *Ann Intern Med* 1997;126:137–45.
  16. Smoley BA, Smith NL, Runkle GP. Hypertension in a population of active duty service members. *J Am Board Fam Med* 2008;21;504–11.
  17. Sack K. In Massachusetts, universal coverage strains care. *New York Times* 5 April 2008.
  18. Gravelle H, Morris S, Sutton M. Are family physicians good for you? Endogenous doctor supply and individual health. *Health Serv Res* 2008;43:1128–44.