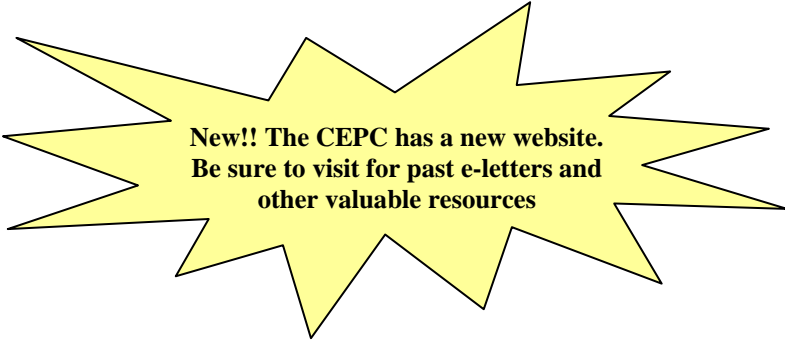


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**In This Issue**

- ✦ **Featured Article: *Interview with Dr.  
Tom Mackenzie***
- ✦ **Abstracts**

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**FEATURED ARTICLE**

**Interview with Dr. Tom MacKenzie, Denver Health, June 2007**

Denver Health is the public hospital/health system of Denver, Colorado. For years, Denver Health has been a leader among public hospital systems in improving the quality, access and efficiency of health care services. Tom Bodenheimer (TB) discussed Denver Health's recent efforts to improve primary care practice with Tom MacKenzie (TM), Director of Internal Medicine and Director of Ambulatory Quality Improvement. Dr. MacKenzie is general internist who has worked as a clinician and clinical leader at Denver Health for 14 years.

TB: What efforts are you making to improve primary care in the Denver Health system?

TM: For a few years we have been utilizing the Toyota "lean" concept to make our care better and more efficient.

TB: For background, the Toyota Production System, developed in Japan, was based on several principles, including the concept that the people who best understand how to improve a manufacturing or service process are the people on the front lines who know how things work and how to make them work better. The "lean" concept refers to elimination of waste, which is not a simple task. A number of health care institutions have become expert at uncovering and eliminating waste and thereby improving care.

TM: We have been working with a consulting group to help us in this process, which includes making flow diagrams of actual processes of care (value stream mapping) to see where waste exists. For example, one can map how a clinic registers the patients, eliminate unnecessary steps, and reduce the amount of time the registration process takes.

TB: Some organizations would like to improve but do not have people with the time to lead improvement work.

TM: We free up 8-10 people to spend a week with their only responsibility being the improvement of a particular problem in one of our clinical sites. We map the existing processes, figure out what the ideal situation would be, and do tests of change to move toward the ideal state. We do this fast: figure out the ideal, implement a change, test the change, and report back to the executive leadership by the end of the week. Then the process owners at the clinical site would sustain the change.

TB: Can you give an example?

TM: Our cycle time was too long – the time from when the patient walks in the door to the time the patient leaves. We measured the cycle time, determined where there was waste that slowed things up, worked to eliminate that waste, all within a few days. The waste might be in registration, or in the process of the MA taking vital signs, or in the visit

itself, or in the check-out process. We went into 3 clinics to do this rapid improvement work. We found that it was a waste of time to have the MA check in the patient, then the doctor come into the room, then the MA checks out the patient. Total cycle time was about an hour before we made the improvement. The improvement plan was rather than have the MA and the provider work in sequence, one after the other, we have them work in parallel with the patient simultaneously.

We started in pediatrics, had the MA in the room with the patient and the provider. While the MA was doing vital signs and pulling up data from the computer, the provider was taking the history and doing the physical exam. In one clinic cycle time dropped from 55 to 25 minutes, and this was sustained. Patients did not wait in the exam room as they had done before.

TB: Isn't pediatrics less complicated than adult medicine, since a greater percent of pediatric visits are well-child care or minor acute illnesses rather than the multiple diagnoses and medications of many adults?

TM: Yes that's true. We then moved this improvement to adult medicine, which was harder. The variability in patient complexity is greater and each patient is different, so it is harder for the MA to have the work standardized. In internal medicine we started with one nurse practitioner and one MA, and now we have a physician-MA pair. We cut cycle time by 30-50% for both of these dyad pairs. Some providers have been fearful that patients would not like the MA in the room, but that has not been the case.

TB: Are you spreading this change – having the MA in the room with the provider – to other clinics?

TM: That's the next step. But to make it work one can't just tell a clinic to do it. They have to discover how to make the change. They will have buy-in to the change if they have a voice in how it is done. One key is to show inappropriate variability in care. If one doctor takes 30 minutes seeing a patient with a sore throat and another doctor sees a similar patient in 5 minutes, with no difference in outcome, it becomes hard to justify the 30 minute visit.

TB: What exactly does the MA do in the visit?

TM: First, vital signs, checking smoking history, allergies, other elements of the history, looking up data in the computer. If the physician needs something not in the room, the MA finds the form or schedules the echocardiogram. We have not had MAs doing medication reconciliation or documentation. We are actually going to do a rapid improvement process with medication reconciliation soon. Our med lists need a lot of work. Many old meds are on the med lists that need to be removed, and removing each one takes 3 clicks. Perhaps MAs could do some of that work. The physician could quickly say what needs to be done to clean up the med lists and the MA could implement it. One challenge is that there is one computer in each exam room and if the MA is doing something on the computer and the physician needs to look something up, they can't do it at the same time.

TB: Do you have the MAs do behavior change action plans with patients, for example, after the visit?

TM: we are not doing that currently. There is not a formal post-visit in our system with the MA. The physician may leave the room before the MA leaves, so that the MA can help the patient finalize the visit while the physician does the charting.

TB: We have been trying a "teamlet" model in which the MA is in the room with the patient and physician and then does a post-visit with the patient, including action plans and checking to make sure the patient understands what has taken place in the visit. To do that with every patient would require a 2:1 ratio of MAs to physicians, which we don't have, so we do it with only some patients.

TM: We have a 1:1 ratio of MA to provider. We are interested in determining what are the most effective staffing ratios. We think the physicians and nurse practitioners do too much of the work currently.

TB: What are other areas in which you can apply the lean concepts?

TM: We can do value stream mapping related to same-day appointments, panel management, between visit care, looking at types of encounters that are not the traditional face to face visit.

TB: Are your primary care providers stressed by the number of visits each day?

TM: Our panel size, measured by all patients seen by a provider in the last 18 months, varies from 1100 to 1800. We think an average of 1500 is about right, of course it needs to be age and sex adjusted. We do measure productivity by numbers of visits, but we don't measure non-visit care such as phone encounters, and those should be part of our productivity count.

TB: Is there a business case for having the MA in the room with the provider? Isn't it more expensive?

TM: The benefit is reduced cycle time. We want to reduce the cycle time of the patient without reducing the amount of time the patient spends with the provider. If we can eliminate duplicate work and waste, we could see more patients which can improve our revenues. There is also a business case to do panel management. We have 33,000 capitated Medicaid patients. If we can manage a specific issue as well over the phone, it eliminates a wasted visit and may open up a slot for a new member.

TB: One challenge for our teamlet model is the logistics; the physician and MA don't finish at the same time because the MA is doing a post visit, so the same MA cannot join the physician in the room with the next patients. Ideally one would have 2 MAs per physician, but we are a long way from that.

TM: In our system, the MA and physician start together and end together. The brief post-visit with the MA is the time the physician is charting, so it works quite well.

TB: Many thanks; this is a fascinating process. Let's keep in touch how things are going.

## **ABSTRACTS**

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Bindman et al. Diagnostic scope of and exposure to primary care physicians in Australia, New Zealand, and the United States. *BMJ* 2007;334:1261.

**OBJECTIVES:** To compare mix of patients, scope of practice, and duration of visit in primary care physicians in Australia, New Zealand, and the United States. **DESIGN:** Comparison of three comparable cross sectional surveys performed in 2001-2. Physicians completed a questionnaire on patients' demographics, diagnoses, and duration of visit. **SETTING:** Primary care practice. **PARTICIPANTS:** 79,790 office visits in Australia, 10,064 in New Zealand, and 25,838 in the US. **MAIN OUTCOME MEASURES:** Diagnostic codes were mapped to the Johns Hopkins expanded diagnostic clusters. Scope of practice was defined as the number of expanded diagnostic clusters accounting for 75% of all managed problems related to morbidity. Exposure to primary care was calculated from duration of visits recorded by the physician, and reports on rates of visits to primary care for each country. **RESULTS:** In each country, primary care physicians managed an average of 1.4 morbidity related problems per visit. In the US, 46 expanded diagnostic clusters accounted for 75% of problems managed compared with 52 in Australia, and 57 in New Zealand. Correlations in the frequencies of managed health problems between countries were high (0.87-0.97 for pairwise comparisons). Though primary care visits were longer in the US than in New Zealand and Australia, the per capita annual exposure to primary care physicians in the US (29.7 minutes) was about half of that in New Zealand (55.5 minutes) and about a third of that in Australia (83.4 minutes) because of higher rates of visits to primary care in these countries. **CONCLUSIONS:** Despite differences in the supply and financing of primary care across countries, many aspects of the clinical practice of primary care physicians are remarkably similar in Australia, New Zealand, and the US.

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Parchman ML et al. Competing demands or clinical inertia: the case of elevated glycosylated hemoglobin. *Ann Fam Med*. 2007;5:196-201.

**PURPOSE** This study aimed to examine the contribution of competing demands to changes in hypoglycemic medications and to return appointment intervals for patients with type 2 diabetes and an elevated glycosylated hemoglobin (A1c) level.

**METHODS** We observed 211 primary care encounters by adult patients with type 2 diabetes in 20 primary care clinics and documented changes in hypoglycemic medications. Competing demands were assessed from length of encounter, number of concerns patients raised, and number of topics brought up by the clinician. Days to the next scheduled appointment were obtained at patient checkout. Recent A1c values and dates were determined from the chart.

**RESULTS** Among patients with an A1c level greater than 7%, each additional patient concern was associated with a 49% (95% confidence interval, 35%–60%) reduction in the likelihood of a change in medication, independent of length of the encounter and most recent level of A1c. Among patients with an A1c level greater than 7% and no change in medication, for every additional minute of encounter length, the time to the next scheduled appointment decreased by 2.8 days ( $P = .001$ ). Similarly, for each additional 1% increase in A1c level, the time to the next scheduled appointment decreased by 8.6 days ( $P=.001$ ).

**CONCLUSIONS** The concept of clinical inertia is limited and does not fully characterize the complexity of primary care encounters. Competing demands is a principle for constructing models of primary care encounters that are more congruent with reality and should be considered in the design of interventions to improve chronic disease outcomes in primary care settings.

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Medicare pay-for-performance dilemma: Who gets the bonus? *American Medical News*, April 2, 2007

Medicare's march toward implementing physician pay-for-performance may run into a brick wall when federal officials get down to the job of determining which doctors should be rewarded when things go well, according to a recent study.

The leading pay-for-performance model involves looking back at medical claims data to identify which physician is primarily responsible for a patient's care and then to measure the physician's performance based on predetermined quality measures, said Hoangmai H. Pham, MD, MPH, a senior health researcher at the Center for Studying Health System Change, a Washington, D.C., policy research organization.

In an attempt to determine how readily Medicare could handle this task, Dr. Pham and several colleagues selected about 8,600 physicians from one of the center's past surveys and analyzed their Medicare claims from 2000 to 2002 for roughly 1.8 million beneficiaries to "assign" each patient to individual doctors.

The study, which appeared in the March 15 *New England Journal of Medicine*, concluded that this process would not be easy for Medicare. The typical beneficiary during the course of a year saw two primary care physicians and five specialists working in four different practices. About one-third of the seniors changed their main doctor from one year to another.

Seniors with certain chronic diseases or multiple conditions had longer lists of physicians, with typical beneficiaries in some categories seeing 10 or more doctors in a given year.

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Murray M et al. Panel size. How many patients can one doctor manage? Family Practice Management, April 2007

The full article can be accessed at the Center for Excellence in Primary Care website [MurrayPanelSize.pdf](#)

Panel size is the number of individual patients under the care of a specific provider. For an entire practice, this number is the sum of patients who have seen any provider in the practice during the past 18 months. To determine the panel size for a specific provider it is necessary to assign each patient to a specific provider, which can be tricky since some patients see several providers during the course of a year. Ideal unadjusted panel size is based on number of provider visits per day times the number of provider days per year divided by the number of visits per patient per year. Adjustment is needed to take into account the ages, gender and acuity of the patients in the panel. If a provider is "over-paneled," strategies are needed to reduce his or her panel.

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