UNDERSTANDING THE PATTERNS OF AMBULATORY CARE IN MANITOBA

A summary of the report, *Understanding the Health System Use of Ambulatory Care Patients* by Alan Katz, Patricia Martens, Dan Chateau, Bogdan Bogdanovic, Ina Koseva, Chelsey McDougall, Eileen Boriskewich

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Universal access to healthcare is a source of national pride for Canadians. Most Canadians would agree that no matter who you are, if you are sick and in need of care, you should receive it. One foundation that the Canadian healthcare system is built upon is the concept of primary care. In the best-case scenario, primary care involves a family doctor or nurse practitioner (sometimes called a "primary care provider") who builds an ongoing relationship with their patients, and refers a patient to more specialized care when needed. A single provider giving routine medical care is thought to be best placed to provide both preventative care (think "an apple a day"), and to judge when someone may require more complicated medical care. And when others need to be involved in providing care, a family doctor is essential in relaying knowledge of their patient, as well as providing follow-up care. It is from this perspective that researchers think having a regular primary care provider means better quality health care, and ultimately better health outcomes overall.

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Of course, this is the best-case scenario. In Manitoba, we know that different patterns of care exist. Some people don't have family doctors. Some people get most of their care from specialist doctors. Importantly, although we know that people have different patterns of care, we don't actually know what those patterns are. And because we can't describe what people's patterns are, we don't really know whether the quality of care people receive depends on their pattern of care.

The latest report from the Manitoba Centre for Health Policy (MCHP), called "Understanding the Patterns of Ambulatory Care in Manitoba" looks at this issue. At this point, a couple of terms should be clarified. First, what is meant by ambulatory care? Ambulatory care is any medical care given outside of hospitals and personal care nursing homes. These include visits to doctor's offices and nursing stations, for example. Second, specialists include psychiatrists, doctors specializing in internal medicine (like for your heart, for example), dermatologists, and surgeons for this report.

MCHP researchers used information from MCHP's population-based data repository. This Repository links together information on all Manitobans from various government services. This information is made anonymous so that although no one person can be identified, information from doctors' visits, hospitalizations and drug prescriptions can still be linked together. MCHP researchers can then get a sense of patterns of care over time, without ever knowing who anyone is in the repository.

MCHP researchers looked at three years' worth of ambulatory care visits for Manitobans, from fiscal year (FY) 2007/08 to 2009/10. Only those 19 years and older, and who had four or more visits were included. A "most responsible physician" was assigned to each individual, based on which physician saw the person the most. This "assigned provider" can be thought of as a person's "main" doctor.

In total, six chronic conditions (Hypertension, Total Respiratory Morbidity, Depression, Diabetes Mellitus, Ischemic Heart Disease and Congestive Heart Failure) and 10 quality of care measures were examined. The quality of care measures ranged from broad measures, like flu vaccinations, which apply to almost all people with chronic conditions, to measures that are more specific to a particular disease, like the number of heart attacks among those with hypertension.

Defining Ambulatory Visits

Let's get to how ambulatory visits were defined. In total, researchers came up with nine categories. So all the visits made by Manitobans with at least one of the chronic conditions, to any doctor over the three year period, were put into groups. The groups were based on things like type of doctor visited (primary care provider versus specialist), whether their main doctor was seen, and who referred the person for the visit to a specialist. Three types of visits were identified for primary care visits, while six were identified for specialist visits, for a total of nine.

To make sense of the visit patterns, researchers used a technique called cluster analysis to group people into separate groups, based on their ambulatory visit patterns. Simply put, cluster analysis attempts to find groups of individuals most similar to each other according to some trait—here visit patterns. Because of the differences in healthcare use between people living in Winnipeg, and in other parts of Manitoba, the study sample was separated into Winnipeg and non-Winnipeg residents. Finally, and for each chronic condition, quality of care indicators were compared across the clusters found, to see if quality of care differed amongst patterns of care.

Describing Visits

The study included 356,557 Manitobans with chronic conditions, of which 347,606 had four or more ambulatory care visits. This group of people had over 7 million visits, with an average of about 20 visits per person over the study period, or seven visits per year. More than 50% of visits were to someone's main doctor, for both Winnipeg and non-Winnipeg residents, although this percentage was higher for non-Winnipeg residents. In fact, for Winnipeg residents, about 7 out of every 10 visits were to their main doctor. In comparison, for non-Winnipeg residents, this frequency was about 8 out of every 10 visits. Thus, although visits to a specialist were uncommon, Winnipeg residents were more likely to see specialists. Which makes sense, as Winnipeg is home to more specialists overall.

> Communication between specialists and primary care providers is essential for the proper management of chronic conditions.

What types of visit patterns were found from the cluster analysis? To start with, a total of 15 clusters were found. As seen in Table 1, about 8 out of every 10 people included in the study could be found in just three clusters, with about 60% belonging to one large single cluster. People in this biggest cluster visited doctors about three times a year, and when they did, it was most likely to visit their main doctor. People belonging to this cluster saw specialists, on average, about two times a year, with most of the visits not being a result of a referral from their main provider. In a way, the visit patterns of this biggest cluster could be thought of as the "average" or "common" experience of people in the study. Their visits were infrequent, were mainly to one doctor, and the one or two specialists they saw in a year were usually made without a referral from their main doctor (as opposed to referral from another provider).

The next biggest cluster included about 20% of the study sample, and like the "common" cluster, most received the majority of their care from their main doctor. However, people in this cluster saw their main doctors more—about seven visits in a year. Finally, people in the next biggest cluster, who made up about 2% of the study sample also saw their main doctor about seven times a year. This group of people also saw specialists about seven times a year, mostly without a referral from their main doctor. It is important to note that since these three clusters make up over 80% of the entire study sample, we can say that about 4 out of every 5 people fall into groups where the bulk of care is provided by their main doctor.

There were some clusters that stood out—either because of the sheer frequency of doctor visits, or because they represented care which seemed to be overly reliant on specialist care. For example, one cluster included people who averaged about 30 visits a year to a specialist doctor. Another cluster included people who averaged about 16 visits a year to their main doctor. Although they represent only a small percentage of the total sample, it would be important to examine these clusters to see why their visit patterns differed so much from the norm.

Quality of Care

Table 2 shows the results looking at quality of care by cluster type, across chronic conditions. To make things clearer, the 15 clusters were grouped into three types: clusters that mostly used primary care doctors, those that used specialists and those with a mixture of visit types. Looking at flu vaccinations, and compared to the primary care clusters, we saw that specialist-type and mixed-type clusters tended to fare worse. For example, for those with

Table 1: Clusters of Manitoba Patients with a Chronic Disease

Cluster	Number of Patients in Cluster	Annual Average Number of Visits to the Main Physician	Annual Average Number of Visits to Other Physicians
1	1,856	7	>7
2	8,719	15	-
3	1,387	18	-
4	443	18	18
5	33,553	4	4
6	64,240	7	-
7	208,756	3	-
8	312	33	-
9	7,766	7	7
10	3,707	6	12
11	15,943	4	-
12	313	43	-
13	262	6	12
14	146	3	28
15	203	6	30

Table 2: Chronic Conditions, Quality of Care Indicators and Comparing the Specialist and Mixed Cluster Types by Primary Care Cluster Type

Chronic Condition	Quality of Care Indicators		Performace of Cluster Types	
	Process Indicators	Negative Outcomes	Good	Poor
Hypertension	Influenza Vaccination	Myocardial infarction Renal failure Stroke	- - -	SP and Mixed Mixed SP
Total Respiratory Morbidity	Influenza Vaccination Asthma Drug Prescription	_	- Mixed	SP and Mixed -
Depression	Follow-Up Appointment	_	Mixed	SP
Diabetes Mellitus	Influenza Vaccination Eye Examination	Lower limb amputation	- -	SP and Mixed Mixed
Ischemic Heart Disease	Influenza Vaccination Drug Prescription	_	- SP	SP and Mixed -
Congestive Heart Failure	Influenza Vaccination Drug prescription	_	- Mixed	Mixed -

SP - Specialist
Mixed - Mixed cluster group

hypertension, about 15% of people belonging to specialist-type clusters received their flu vaccination, compared to 20% of those in primary care clusters. Most importantly, it should be pointed out that no group of clusters always did better; and with the exception of flu vaccinations, no group of clusters always did worse, with respect to quality of care. People in mixed-type clusters tended to do poorly when it came to stroke and eye examinations if they had hypertension and diabetes, respectively. Same with those in specialist clusters with renal failure if they had hypertension. But again, no cluster did poorly across the board.

Lessons Learned

What are some of the lessons learned? First, it is reassuring that most patients with a chronic disease received the bulk of their care from their main doctor. This suggests that for the most part, the ambulatory care system is working as it should. Second, even though some clusters had irregular visit patterns, these clusters contained a very small portion of the entire study sample. Third, further study is needed to explain patterns of care provided by non-assigned doctors other than the primary care doctor. This type of pattern is at odds with evidence that an ongoing doctor-patient relationship is best for health outcomes. Likewise, most referrals to specialists were not made by someone's main doctor. Communication between specialists and primary care providers is essential for the proper management of chronic conditions. If our healthcare system is to continue to provide the best care possible, this practice needs to improve. This will require further study to understand why this is happening and how best to change it.

Without a doubt, Canadians cherish their healthcare system. It has, to a certain extent, defined who we are. But our system is not without its issues, and room should always be made for discussion and hopefully, improvement. Reports like this provide real-life evidence to inform these discussions. This report starts the conversation of how the healthcare system can change, in light of how people actually access the care available to them. If we truly believe that primary care results in better health, is there a better way to encourage people to see their primary care providers? And should this encouragement be directed at the users of the system, or to doctors who provide care, or both? We don't have the answers yet. But at the end of the day, this report suggests primary care does indeed provide a solid foundation by which the health of Manitobans is maintained. Even the strongest foundations are at risk for cracks, however. By understanding how visits are organized, this report gives us some hints on how to make the system better, and provides policymakers with the evidence needed to address any weaknesses in an intelligent and timely manner.

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