Do Some Clinics See Sicker Patients?

This study is a joint project between the Manitoba Centre for Health Policy and Evaluation, University of Manitoba, and the Centre for Health Services and Policy Research, University of British Columbia.
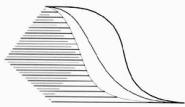
Do some Manitoba clinics treat healthier patients while others treat sicker ones? That is the question we asked in this study. The answer is yes.

Why does this question matter? There is growing interest in Canada in experimenting with new methods of financing and managing physician services to improve the efficiency and effectiveness of medical care. Among these methods are *capitation* and *physician profiling.*

Capitation refers to a method of paying clinics a set amount per year per patient, no matter how many services they provide. Under this method, clinics stand to make more money if their patients use few services and less money if they use many services. *Profiling* refers to the process of adding up the costs of all services clinics provide to their patients and comparing the costs incurred by one clinic with other clinics. Profiling may also help doctors and researchers identify overuse or underuse of services.

However, capitation and profiling could create problems if the health of patients seen by different clinics varies, and those differences in health are not taken into consideration. Let's take a hypothetical situation involving two clinics, and examine first capitation and then profiling.

Imagine that Clinic A sees primarily healthy patients—most have only minor health problems such as colds or twisted ankles—and Clinic B sees primarily very sick patients—they suffer from numerous serious conditions such as cancer, diabetes, heart disease, and depression. What will happen if both clinics are paid $150 per patient per year? Remember, under capitation, the clinics cannot get more money if their patients are sick and need lots of services, nor do clinics with healthy patients have to give back any money they don't spend delivering care to their patients. Under this scenario, Clinic A will be overpaid and Clinic B will be underpaid (assuming that both clinics provide all the services their patients need and only those services). Clinic A will be overpaid because its healthy patients will need fewer doctor visits and lab tests. Nevertheless, Clinic A will be paid as if it were treating patients of average health costing $150 per year. Conversely, Clinic B will be underpaid because, with sick patients, it will incur above-average costs.

Overpaying Clinic A does not pose a threat to the health of Clinic A's patients, but it wastes precious health care dollars. Underpaying Clinic B does pose a threat to patient health. The doctors working for Clinic B will feel great pressure to cut back necessary services to their patients in order to stay within their $150-per-patient-per-year budget. In this scenario—capitation with no adjustment in fees to reflect differences in patient health—we get the worst of both worlds; we save little or no money because we overpaid Clinic A, and we reduce the quality of care Clinic B gives to its patients.

Now let's imagine using a system of profiling Clinics A and B that does not take patient health into account. We've dropped capitation in this scenario, and are now paying the clinics on the usual fee-for-service basis. This means the clinics get paid for each service or visit they provide, not a set amount per patient per year. Again, Clinic A has healthy patients and Clinic B has sick patients. We collect information on the costs each clinic incurs over, say, a three-month period, but we collect no information on the health of each clinic's patients. Because Clinic A's patients are healthy, they use fewer services, whereas Clinic B's sicker patients use more services. Is this information of any use to the doctors in these clinics, or to policy makers or researchers who seek to identify overuse or underuse of services? Answer: No, not much. Until we adjust for the health of the patients, we would be foolish to suggest that Clinic A is giving its patients too few services or that Clinic B is giving its patients too many services.
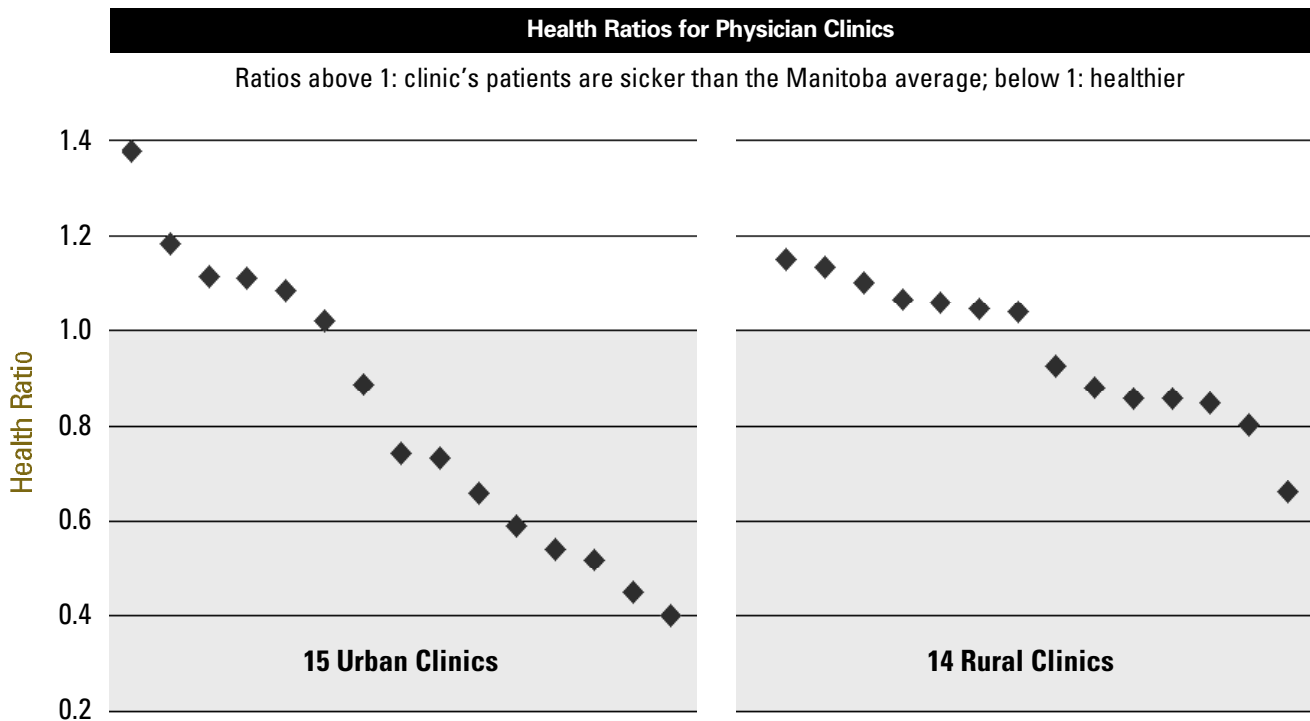
It is quite unlikely that any clinic in Manitoba will ever have all healthy patients or all sick patients as Clinics A and B, respectively, had in the hypothetical example we just discussed. However, we do know that per-patient costs can vary greatly between clinics. Previous work in Manitoba has shown that the costs billed varied from about $40 for patients with only minor illnesses to $2,400 per year for patients with very complex illness patterns. So, why is it important to know if some clinics see sicker patients than others? Because capitation and profiling will create more problems than they solve if patient health varies across clinics, and if the way physicians are paid or their practices are compared are not adjusted to reflect that fact.

The primary task of this project then was to come up with a method for describing the health of the patients each clinic serves (in this study, a clinic means a group of four or more physicians). However, before we could do this we had to develop a method for identifying which patients were treated by which clinic.

Assigning patients to clinics

If Manitobans visited just one clinic per year, assigning patients to clinics would be easy. But many patients seek medical care in more than one clinic in a year. We decided to try two methods to assign patients who visited more than one clinic. The first method assigned patients to just one clinic—the clinic in which the patients had incurred the most costs during 1995/96. We called this the *plurality* method. The second method split patients up and assigned "portions" of them to each of the

Health Ratios for Physician Clinics

Ratios above 1: clinic's patients are sicker than the Manitoba average; below 1: healthier

15 Urban Clinics

14 Rural Clinics

clinics they visited during 1995/96. The portion assigned to a clinic was equal to the fraction of the total annual spending on the patient that was incurred at that clinic. We called this the *equivalent* approach.

To illustrate both methods, consider a hypothetical patient who visited two clinics and incurred a total of $1,000 in expenses—$800 worth of medical services at Clinic A and $200 at Clinic B. Under the *plurality* method, we assigned the patient exclusively to Clinic A. Under the *equivalent* method, we assigned four-fifths of the patient to Clinic A and one-fifth to Clinic B. If it helps to remember these methods, you can think of the first method as a "winner-take-all" method and the second as a "fraction-of-a-patient" method.

The largest clinic in our sample of 29 clinics was visited at least once during the 1995/96 year by 110,313 patients. But when we calculated this clinic's patient base using the plurality (winner-take-all) method, we assigned only 46,396 patients to this clinic. When we calculated this clinic's patient base using the equivalence (fraction-of-a-patient) method, we assigned only 40,287 patients to this clinic.

The two methods of patient assignment—plurality and equivalent—generally produced similar numbers across all 29 clinics (they were at most 15% apart), and for all clinics these numbers were a lot lower than the patient pool measured simply by adding up all the patients who made at least one visit to the clinic. These large differences mean that there is much overlap in clinic patient populations. The overlap is greater in the urban clinics than it is in the rural clinics.

Measuring the health of each clinic's patients
Having developed a system for assigning patients to clinics, our next task was to figure out a way to measure the health of each clinic's patient population. We developed a *health ratio* for each clinic. If a clinic's ratio was 1, its patient population was about as healthy as the average Manitoban. If a clinic's health ratio was above 1, that meant its patient population was sicker than average. If the ratio was below 1, that meant the clinic's patient population was healthier than average. For an explanation of how we developed these health ratios, see the box.

Results
The variation in the clinic health ratios was surprisingly large. Using the plurality (winner-take-all) method of assigning patients to clinics, the clinics varied from a low of 0.40 to a high of 1.38 (figure). In other words, the clinic with the ratio of 0.40 had patients who were on average 60% healthier than the

average Manitoban, and the clinic with the score of 1.38 was treating patients 38% sicker than average. We got a similar range in scores when we used the equivalent (fraction-of-a-patient) method—0.43 to 1.49. In short, regardless of which method of patient assignment we used, we found that the healthiest and sickest of these 29 patient pools varied by about 100 percentage points.

We found greater variation in clinic scores among the 15 urban clinics than we did among the 14 rural clinics (figure). This means that the mix of patients is much more similar across rural clinics than it is across urban clinics: some urban clinics treat patients who mostly have serious illnesses, and some treat mainly individuals with minor health problems.

Interestingly, you can't simply assume that the patient characteristics of the community where the clinic is located will represent the characteristics and care needs of the patients who attend that clinic. To see how well community health corresponded with the health status of individual clinics' patients, we developed health ratios for the 60 *physician service areas* (PSAs) into which Manitoba is divided and compared each PSA's ratio to the ratios of the clinics operating within it. We found that the ratios of urban clinics varied by 30% from the ratios of the urban PSAs in which they were located, and that the ratios of the rural clinics varied by 8% from the ratios of their rural PSAs.

Conclusion

The most significant finding of this study is that the average health of patients seen by one clinic in Manitoba varies widely from the average health of patients seen by another clinic. If we had found that the health of clinics' patients varied little, we would have fewer reservations about moving to some form of a capitation method of paying doctors or about using profiling to gauge the efficiency of doctors. But our finding of wide variation in

patient health indicates that any effort to change how physicians are paid, or to profile physician practices will be ineffective or worse, counterproductive if these tools are used without regard to the health of patient populations. This observation is especially true for urban clinics where variation is greatest.

We note, moreover, that our study was limited to the 29 largest primary care clinics in the province. More than half the province's primary care doctors work in small clinics (three or fewer doctors) that were not part of this study. Variation in patient health may well be even greater among the smaller patient populations seen by these small clinics than it was among the larger clinics we studied. In any case, predicting patient health and setting capitation fees accordingly becomes more difficult as the size of the patient pool falls.

In view of the wide variations in the health of patient populations seen by clinics, we conclude that any proposal that relies on capitation, a blend of capitation and other methods, or profiling must take account of the effects the proposal may have on both quality of care and cost. Inadequately adjusted capitation payments and profiles may not only put downward pressure on quality but, perversely enough, may also be inequitable and unfair to patients and their physicians. Unless differences in patient health are adjusted for, a capitation payment system could put patients at risk because it gives physicians incentives to avoid seeing sicker patients, or to skimp on necessary care to those patients. Unless differences in patient health are adjusted for, information used to profile clinics to understand over- and underuse of services will be invalid.

Summary by Kip Sullivan, based on the report: Do Some Physician Groups See Sicker Patients than Others? Implications for Primary Care Policy in Manitoba, *by Robert Reid, Bogdan Bogdanovic, Noralou P Roos, Charlyn Black, Leonard MacWilliam and Verena Menec.*