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Drug Prescribing in Manitoba: How Appropriate is it?

MANITOBA CENTRE FOR HEALTH POLICY

Summary by
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the report:
*Pharmaceuticals:
Focussing on
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Prescription drugs cost Manitoba about \$170 million in the year 2000. Surprising? How about the fact that that's up almost \$62 million from 1995—a whopping 58% increase in only five years! And that's not including the additional \$116 million or so Manitobans spent in 2000 out of their own pockets (or through insurance). Spending on pharmaceuticals is skyrocketing in our province, and it's not because prices are up. It's because more drugs are being prescribed than ever before—both familiar drugs and newer more expensive drugs. So what's going on?

Essentially, that's the question MCHP is trying to answer in this report. More specifically, this report asks: If more drugs are being dispensed, is their use appropriate? Given the enormous financial impact of pharmaceuticals on Manitobans, and the increasing strain on our health care system, the question was never more important.

Now, we want to make it clear that this study is in no way a condemnation of drugs. Proper prescribing does a lot of good, preventing more serious illnesses and/or hospitalization. On the flip side, inappropriate drug use—both overuse and underuse—can cause serious illness and/or hospitalization. The consequences are not good for the patients nor for our health care system because they drive up costs.

Our goal was to try to develop a method of first, assessing (and comparing) the appropriateness of drugs being prescribed

to Manitobans: Has the right drug been prescribed for a given condition? for the right person? at the right time and dose? Following that, to measure the drug's effectiveness: Is it doing what it is supposed to do? Have there been side effects?

Answering these questions is far from straightforward. Drug "effectiveness" isn't something one can simply look up in Manitoba's health data; there aren't many measures of the effect of taking a drug. The data won't show if blood pressure is lowered or pain goes away. Nor do we see side effects like a medication giving a patient headaches or nausea or a rash.

But that doesn't mean that there's no useful data available for this purpose. We found that usage data—what drugs were taken, for what condition, for how long—as well as data on diagnostic tests, like blood work, could tell us a great deal.

When these data were combined with clinical guidelines for the use of certain medications—what drugs to use for which symptoms, when and in what order to use them, what follow-up testing should be done—we were able to develop some reasonably useful formulas for measuring drug appropriateness, and indirectly, effectiveness.

To test our formulas, we chose two drug classes—drugs to lower blood pressure and cholesterol reducing drugs (statins). We chose these because they are two of the most highly prescribed and expensive classes of drugs in Manitoba. We also looked at two common diag-

noses—high blood pressure (hypertension) and heart attack (myocardial infarction or MI)—for which these drugs are prescribed. This included both patients with or without other medical problems (comorbidities). Each analysis looked at new users of the drug living in Manitoba. The study period varied for each analysis, but the data came from somewhere between April 1, 1996 and March 31, 2000.

Among the key things we wanted to know was whether Manitobans are being prescribed newer or more expensive drugs when a proven, less expensive drug can be just as effective or is, in fact, a clinically recommended first choice.

Blood pressure agents and hypertension

We tested our appropriateness measures on two blood pressure drugs: angiotension-converting enzyme inhibitors (ACEIs) and the newer angiotension II receptor antagonists (A2RAs). These are given to patients having high blood pressure (hypertension), with or without comorbidities. All of this category's criteria are based on a step-up approach—prescribing the mildest drug in the minimum amount needed to bring about a desired change. For instance, trying an ACEI before trying an A2RA (Fig. 1).

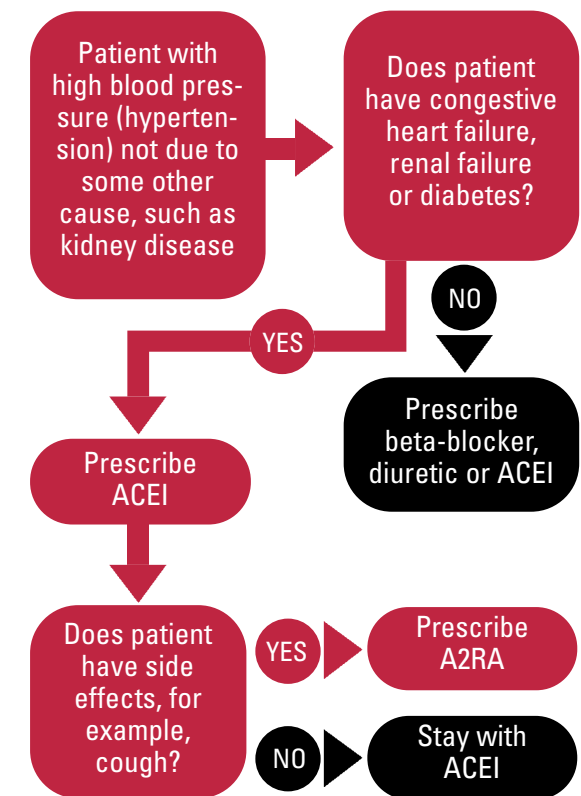
- ❑ Due largely to the introduction of new blood pressure drugs, especially A2RAs, the cost per prescription increased a startling 60% between 1995/1996 and 1999/2000—from \$12.73 to \$20.33.
- ❑ ACEIs are used more than twice as often in patients with a comorbidity—like diabetes or congestive heart failure—as in those with uncomplicated hypertension.
- ❑ The percentage of people prescribed A2RAs as first-line agents in newly-diagnosed hypertension increased four-fold (0.5% to 2.4%) from 1996/97 to 1999/2000.
- ❑ Sixty-four per cent (64%) of all new users of A2RAs in 1999/2000 did not have a previous trial with an ACEI (despite recommendations that an ACEI be tried first).

Cholesterol reducers

When patients are prescribed statins, it's typically for life; these drugs don't cure, they only control cholesterol, reducing the risk of heart attack. Patients also should have regular follow-up cholesterol tests—at least once a year, ideally every six months. We examined two indicators for appropriateness: length of time on the treatment and follow-up testing:

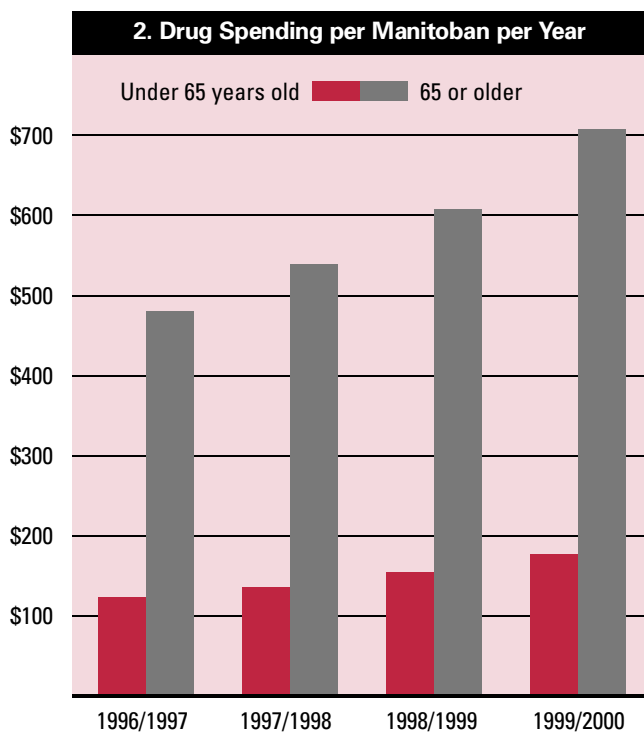
- ❑ The number of users of statins jumped by 60% between 1996/97 and 1999/2000—25,824 to 41,344. Yet while usage increased across all age groups, it dropped for those over 80 years old.

1. Step-up Approach for Prescribing Drugs to Treat High Blood Pressure



- ❑ Among new users of statins in 1996/97, just under 10% had only one prescription while 41% had the prescription refilled or remained on treatment for more than one year.

- The appropriate rate of follow-up testing is at least once per year. In Winnipeg (data was not available for areas outside of Winnipeg), about 90% of new statin users had at least one test in the following three years, but only 45% were tested in all three years.
- If one examines those with a previous heart attack, just under 6% had only one prescription of a statin; 52% remained on statin treatment after one year.



Treatment after heart attack

We used Manitoba Health's hospital diagnosis data to identify individuals who had suffered a heart attack. Then we calculated the proportion of individuals who were prescribed several types of drugs that are appropriate following a heart attack. These were individuals starting a new drug as opposed to continuing with an old prescription.

- In 1999/2000, 78.5% of post-MI persons were prescribed at least one of, or a combination of, the following: a beta blocker, an ACEI or a statin. As a single agent, beta-

blockers were the most commonly used, although their use dropped over the study.

- No outpatient heart medications (excluding non-prescription drugs like ASAs) appear to be prescribed to about 17% of post-MI patients.

Drug use study

We looked at the total number of prescription drugs sold in retail pharmacies.

- Over eight million prescriptions were dispensed to Manitobans in 1999/2000. The total cost (for both public and private payers—insurers and/or out of pocket) totalled nearly \$286 million.
- Roughly 67% of Manitobans have at least one prescription dispensed per year. This proportion increases to 87% if one examines only Manitobans 65 years of age or older.
- There is little difference in drug consumption per person between Winnipeg and non-Winnipeg residents.
- Women average about a third more doses of medication daily than men.
- Older Manitobans (aged 65 years or older) average over 21 prescriptions a year and take more than five different kinds of medication. Younger Manitobans average five prescriptions a year, representing about three different kinds of medication.

- Older Manitobans spend four times more per person for pharmaceuticals each year than younger residents—\$708 vs. \$177 in 1999/2000 (Fig. 2). At the same time, the cost per daily dose for younger Manitobans was 20% higher—\$1.81 vs. \$1.39.

Putting it in perspective

There is nothing remarkable about the rates at which prescription drugs are used in our province. It is consistent with previous Manitoba studies and with rates in other provinces. But many Canadian health policy-makers are calling for better quality control of prescrip-

tion drugs. So our focus in this report has been on the question: How appropriate has this use been?

But before we go any further, we must emphasize that administrative data, such as was used in our study, are seldom all-inclusive. For example, in deciding which drugs to use to prevent heart attack, physicians consider a variety of risk factors, including things like lifestyle, obesity, and smoking. Such information is not part of the data available to us. When a patient stops taking a drug, the data can't tell us why; was it the patient's decision or the physician's? So some indicators of appropriateness are not known to us.

That being said, we have been able to develop four sets of guidelines—or formulas—to assess the appropriateness of (1) step-up prescribing; (2) start of treatment after a medical event; (3) length of treatment; (4) follow-up monitoring on chronic medications.

What our exploratory “report card” on drug use appropriateness in Manitoba tells us is that the news appears to be more bad than good.

An example of the good news—or appropriate use—was in our assessment of ACEI use. It should be higher in persons with high blood pressure and at least one comorbidity than it is in those with uncomplicated high blood pressure. It was—more than twice as high.

Unfortunately, we found inappropriate use in most other categories.

For example, patients should be prescribed an ACEI before they use an A2RA. But 64% of A2RA users had not been previously treated with an ACEI. In addition, A2RA use should be highest in persons with at least one comorbidity. We found no discernible usage differences between patients with comorbidities and those without. Also, people with newly-diagnosed, uncomplicated hypertension should not receive A2RAs as first-line therapy. We found 2.4% of these patients were prescribed an A2RA. In 1999/2000 that works out to about 1900 people.

The appropriateness news also isn't good for people prescribed a statin. Normally, these users should stay on the drug for life. This

includes heart attack patients who are typically prescribed a statin to prevent another heart attack. But only 41% of all users and only about 52% of heart attack patients stayed on statins past one year.

We also found that follow-up testing for statin users seems less than it should be. The cholesterol levels of statin users should be checked at least once a year (preferably every six months). On the positive side, about 90% of people prescribed statins were tested at least once in the following three years. But on the negative side, only 45% were tested in each of those years.

In addition, most post-MI patients (about 90%) should be taking aspirin and at least a beta-blocker, statin or an ACEI. What we found is that 17% of post-MI patients were not dispensed any prescription drugs. So there is a possible under-treatment here, albeit a small one. And since aspirin is an over-the-counter medication, we don't know what portion of that 17% were even taking aspirin.

From all this, we know two main things now that we didn't know before. First, it is possible, using currently available data, to assess the appropriateness of pharmaceutical use in Manitoba. Second, much of that use appears to be inappropriate—some drugs aren't being prescribed when they should, others are being dispensed too readily.

It underscores the fact that policies on drug use and appropriateness are needed. In particular, clear guidelines are needed on what drugs heart attack patients need to take when, and for how long. And the step-up approach to prescribing needs to be strongly encouraged. Hand in hand with that goes testing imperatives. Such policies should enhance the well being of patients and the system.

The financial impact of pharmaceuticals on our health care system—and pockets—is enormous. And it's growing. In a system where resources are scarce, it is essential to know whether drugs are being used appropriately and effectively. If Manitobans are to take anything from this study, it's that we all need to take a closer look at what drugs we're taking.

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