

Manitoba Centre for Health Policy

Antibiotics: too Much of a Good Thing?

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A summary of the report: *Outpatient Antibiotic Prescribing by Manitoba Clinicians*

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Have you ever had strep throat or an ear infection? If so, you were likely prescribed an antibiotic to help fight it. If you have had major surgery, you probably got an antibiotic then too.

Antibiotics are medicines that fight infections caused by bacteria. They do not work for infections caused by viruses such as colds and the flu.

Since penicillin was discovered in 1928, many other antibiotics have been introduced and are in use today. They help our body's natural defences fight infections and save lives every day. They also make routine surgery and other types of medical care less risky for people.

Like all medications, however, antibiotics can cause harm if used the wrong way. They can cause side effects such as rashes or create more serious problems. One such problem is 'antibiotic resistance'. This happens when bacteria develop the ability to resist the antibiotics designed to kill them. As a result, infections are harder to treat and people can become more ill or even die. To prevent these problems, we need to use the right antibiotics and only when they are really needed.

Antibiotic use is increasing over time. Governments and health planners around the world are worried about how this could increase antibiotic resistance and what this may mean for people's health in the future. To provide more information on antibiotic use by people in the community (not in hospital) in our province, the Manitoba Centre for Health Policy (MCHP) looked at who prescribes antibiotics and what they are prescribed for.

Researchers used data from MCHP's Population Research Data Repository. These data come from all contacts between Manitoba residents and the provincial health care system. To protect people's privacy, personal information such as names and addresses are removed before the data are added to the Repository. A unique number is used for each individual. This allows researchers to track their use of health services such as doctor visits and filling of prescriptions over time without knowing the person's identity. This study tracked antibiotic use with pharmacy data, which told us about the prescriptions people filled for an antibiotic.

Family doctors are not the only ones who prescribe antibiotics. Other health care professionals such as dentists, nurse practitioners, pharmacists, and optometrists can also prescribe them. However, since nearly 90% of antibiotic prescriptions come from doctors, they were the focus of this study.

Our Findings

Who is getting antibiotics?

Prescriptions for antibiotics are given to Manitobans of all ages. In this study, use was highest among adults 65 years and older and among children under five.

Overall, the number of Manitobans over the age of 15 who are being prescribed antibiotics is growing. In just five years, from 2011 to 2016, the number of people filling these prescriptions increased by 1.5%. That percentage may seem small, but it equals 67,000 more prescriptions.

Are these antibiotics necessary?

The next important question is how much of antibiotic prescribing is appropriate. To answer this, researchers looked at the main reasons for the doctor visits at which antibiotics were prescribed. They divided patients' conditions into three groups: 1) generally should not be treated with antibiotics; 2) may need them; and 3) usually need them.

Antibiotics were used in all three groups. Over the study period, use increased for the conditions that generally should not be treated with antibiotics. In this group, they were most often prescribed for bronchitis (chest cold) in people over one year of age.

One illness that may or may not need antibiotics is pneumonia. Viruses rather than bacteria often cause pneumonia. In children, especially under the age of five, it is usually due to a virus and should not be treated with an antibiotic. Researchers could not look at the cause of an infection. However, they could determine if the antibiotic that was prescribed followed medical guidelines. About half of all antibiotics used by children with pneumonia were not the right type for childhood pneumonia.

Conditions such as skin infections and bladder infections usually need antibiotics. In most cases, an appropriate antibiotic was given. One exception was bladder infection. The antibiotic most often used for bladder infections is not recommended because it also kills bacteria that do not cause bladder infections.

What factors affect antibiotic prescribing?

We know that the condition being treated is important. What else may impact the decision to prescribe an antibiotic? Do the characteristics of the doctor matter? What about where or when the care is provided? When the research team looked at these questions for each of the three groups of conditions, they found some relationships. This is important because these might be areas for change.

Doctors who saw more patients on a daily basis and doctors who worked in the Prairie Mountain Health region prescribed more antibiotics for conditions that should not be treated with antibiotics. As well, prescribing was higher among doctors who received their training outside of North America. This may be because of different guidelines or needs in other countries. Both results are worth further study.

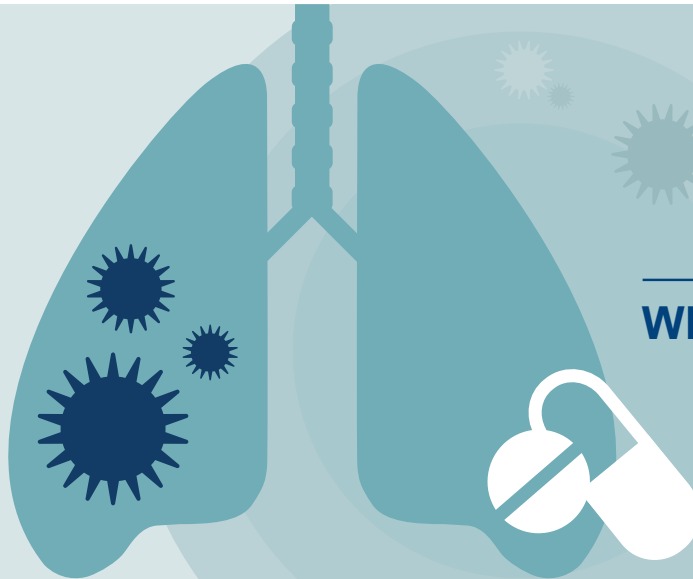
Antibiotic prescribing was higher for patients who had more than one illness and for patients from lower income areas. Patients who saw their regular doctor had less antibiotic use. When they did get an antibiotic, it was usually an appropriate one. Use was also lower in the summer months compared to the winter months.

73%
OF PEOPLE
— who have —
BRONCHITIS
— were prescribed —
ANTIBIOTICS



— even though —
BRONCHITIS
— generally —
DOES NOT NEED
ANTIBIOTICS

52%
OF ANTIBIOTICS
— prescribed to —
CHILDREN
— with —
PNEUMONIA



— were the —
WRONG TYPE

— the —
MOST USED
ANTIBIOTIC
— for —
BLADDER
INFECTION



NOT
RECOMMENDED
— as it —
KILLS BACTERIA
— that —
DO NOT CAUSE
THE ILLNESS

How can we reduce unnecessary antibiotic prescriptions?

The results are concerning. Antibiotic use in Manitoba is higher than it should be, and the wrong ones are sometimes being prescribed. But if there is a silver lining in this study, it is that these same findings show us where efforts to reduce antibiotic prescribing should focus.

The general public, healthcare planners, and providers each have important roles in bringing about this change. Based on the study findings, the researchers have several recommendations to help ensure that appropriate drugs are used and only when needed.

People should all try to see our regular family doctor instead of different doctors who do not know us or our health history. However, access needs to improve in some areas of Manitoba. Healthcare planners need to work to remove the barriers.

When patients are given prescriptions, they have the right to ask their doctor questions. It is important for them to understand what is or is not being prescribed and why.

Antibiotic stewardship programs are developed to improve the prescribing and use of antibiotics. Manitoba does not currently have a program with this goal. If one is created doctors and others who prescribe antibiotics should be involved. They would guide the development, training, promoting, and monitoring of optimal prescribing practices.

Improving the way antibiotics are prescribed will protect the health of Manitobans, prevent antibiotic resistance, and to help ensure their benefits for future generations.

Recommendations for Antibiotic Stewardship Programs (ASPs)



Focus on high or inappropriate prescribing for:

- Older adults
- Adults - bronchitis and pneumonia
- Children - pneumonia, sore throat, and ear infections.



Promote appropriate prescribing:

- Antibiotics that only target certain bacteria over those that kill many types at the same time
- Highlight the reasons to avoid antibiotics that are not recommended



Work directly with healthcare providers:

- Involve all who prescribe antibiotics in developing, training, and promoting appropriate prescribing practices
- Consult physicians who are more likely to prescribe more antibiotics
- Provide prescribers with regular feedback on their antibiotic prescribing

Manitoba Centre for Health Policy

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The Manitoba Centre for Health Policy is a research unit in the department of Community Health Sciences at the University of Manitoba's Max Rady College of Medicine, Rady Faculty of Health Sciences.

MCHP conducts population-based research on health services, population and public health, and the social determinants of health.

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