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NIHB ONTARIO REGION
PRESCRIPTION DRUG TRENDS: A TEN-YEAR ANALYSIS

April 2010




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Introduction

This report is intended to support Chiefs, Health Directors and Program Managers in their health planning. It supplements the information provided in each community's annual Drug Utilization Report. By aggregating all of Ontario First Nations data together, a more detailed analysis of trends by age groups and gender is feasible.

The report is organized into the following sections:

1. Trends in opiate use
2. Trends in use of medications to treat diabetes
3. Trends in use of medications to treat heart conditions
4. Trends in use of mental health medications by adults
5. Trends in use of mental health medications by youth
6. Trends in use of inhalers to treat respiratory conditions
7. Trends in use of smoking cessation products
8. Trends in use of medications and devices in reproductive and sexual health

These sections were chosen since the medications may, in part, reflect underlying health conditions. However, caution is warranted in directly comparing drug use trends to the prevalence of health conditions because:

- Drugs are often used to treat conditions outside of their official "therapeutic classification". For example, ASA is classified as a pain killer, but is most often used to prevent heart attacks and strokes.
- Not all people with a health condition have been diagnosed. For example, many people with high blood pressure and diabetes are unaware that they have these conditions.
- Women are more likely to seek health care services than men, and may therefore be more likely to receive prescription medications.
- People who have been diagnosed with a health condition and prescribed a drug may or may not choose to fill that prescription at a pharmacy.
- Treatment guidelines change over time, which can change prescribing patterns (either upwards or downwards) with no change to the actual prevalence of the condition that they are treating.

Who is included in this report and where did the information come from?
The Non-Insured Health Benefits (NIHB) Program is Health Canada's national, medically necessary health benefit program that provides coverage for eligible First Nations people and Inuit. NIHB provides benefit claims for a specified range of drugs, dental care, vision care, medical supplies and equipment, short-term crisis intervention mental health counseling and medical transportation.

This analysis uses the NIHB pharmacy claims database which captures key information such as client band number, date of birth and gender as well as drug details for each prescription which is dispensed. For privacy reasons, the data collected does not include client address.

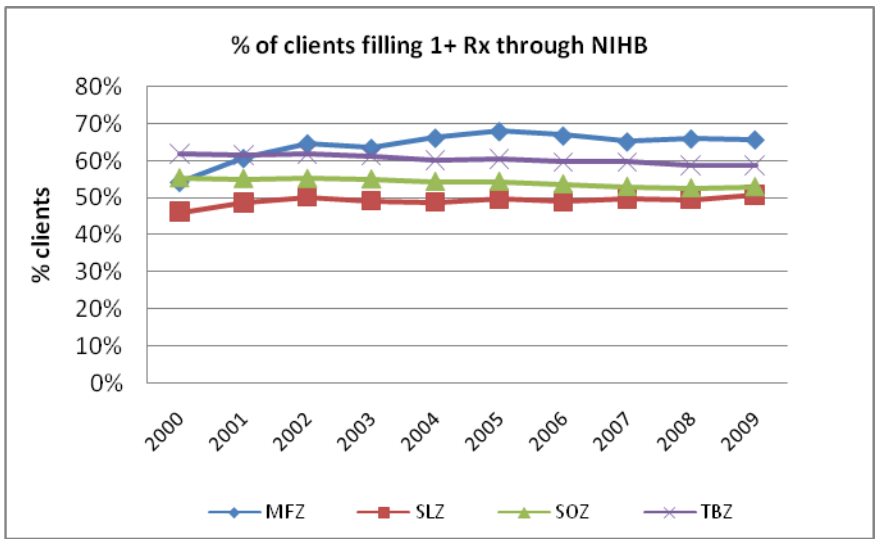
This analysis includes First Nations clients – both on- and off-reserve – registered to an Ontario band who fill prescriptions in an Ontario pharmacy. It does not include prescriptions filled outside of Ontario for Ontario clients, or prescriptions filled in Ontario for First Nations registered to non-Ontario bands. Since the database does not capture client addresses, this analysis is based on the community where clients are registered, not the actual place of residence of clients.

The data is organized by calendar year, not fiscal year, meaning that 2009 includes all prescriptions filled between January 1, 2009 and December 31, 2009, inclusive.

What are the limitations of this analysis?
When calculating the percentage of clients receiving treatment, it is based on INAC population data. This can lead to underestimations, since some clients included in the INAC data may be living outside of Ontario.

This report captures only those prescriptions paid for by Non-Insured Health Benefits (NIHB). Prescriptions paid for by other drug plans are not captured unless a portion is also billed to NIHB (as may be the case with the Ontario Drug Benefit plan). Prescriptions paid for directly by clients are not captured. Medications given to patients directly through nursing stations are also not captured by this data.

In 2009, 56% of Ontario First Nations (92 615 out of a population of 166 352, excluding Mohawks of Akwasasne) filled a prescription in Ontario. The percentage of First Nations clients who fill prescriptions is different in each zone – see chart below – which can affect our ability to compare data between zones. For example, we don't know if more people in Southern Ontario Zone are healthy and not needing prescriptions as compared with those in Moose Factory Zone , or if people in Southern Ontario Zone are more likely to bill their prescriptions to a private insurance plan.



If there are inquiries regarding this report, please contact the NIHB Ontario Regional office at 613-941-0969.

Abbreviations used throughout the report

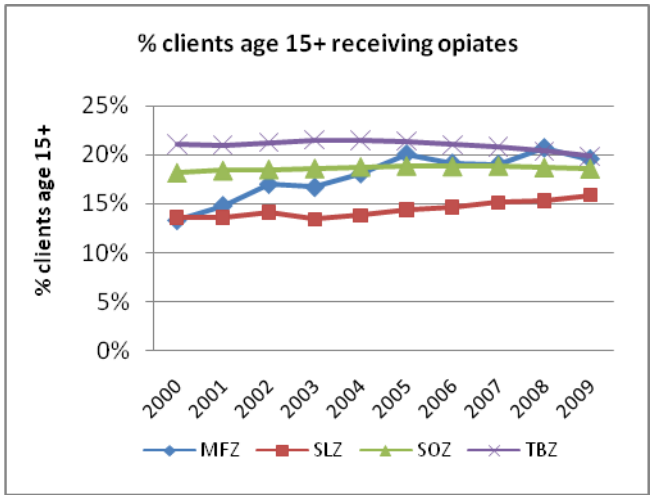
MFZ	Moose Factory Zone
NIHB	Non-Insured Health Benefits
ODB	Ontario Drug Benefit
ON	Ontario
SLZ	Sioux Lookout Zone
SOZ	Southern Ontario Zone
TBZ	Thunder Bay Zone

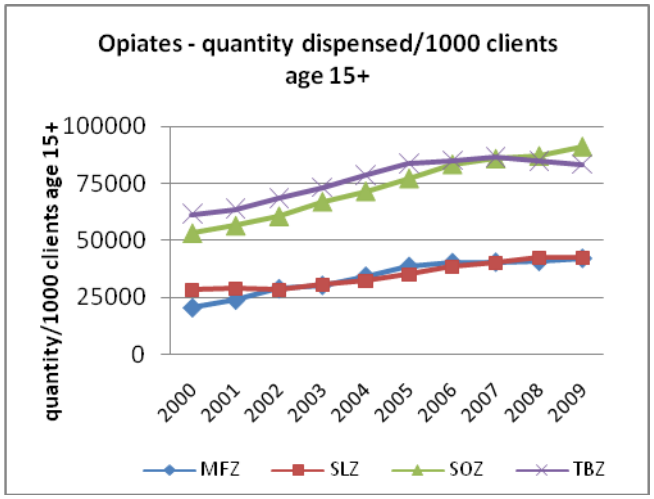
Trends in Opiate Use

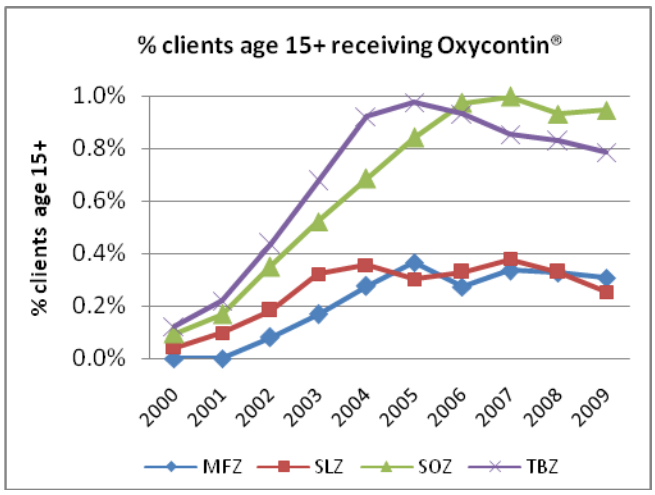
Background

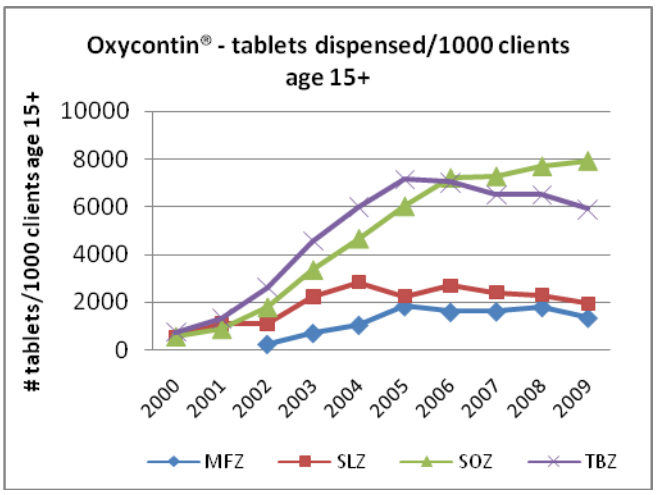
- Opiates are medications used to treat acute and chronic pain. These are drugs with significant addiction risk and abuse potential.
- This data shows only those medications which have been prescribed and then dispensed through a pharmacy in Ontario. We do not know how much of these medications are subsequently diverted for illicit use. An unknown amount of these medications may also be dispensed to Ontario First Nations outside of the NIHB program (i.e. paid for directly by clients or through Ontario Drug Benefit or other insurance plans) or through nursing stations in remote-isolated communities.
- Oxycontin® has been highlighted in recent years as being a major drug of abuse. Oxycontin® contains oxycodone in a slow-release, long-acting formulation. Oxycontin® tablet strengths range from 5mg to 160mg per tablet.
- Oxycodone is also available in short-acting preparations. Oxy-IR® and Supeudol® contain between 5mg and 20mg of oxycodone per tablet. Percocet® and generics such as ratio-Oxycocet® contain oxycodone 5mg plus acetaminophen 325mg per tablet.
- The number of tablets dispensed per 1000 clients is reported to compare trends and volumes of opiates dispensed between zones with different populations.

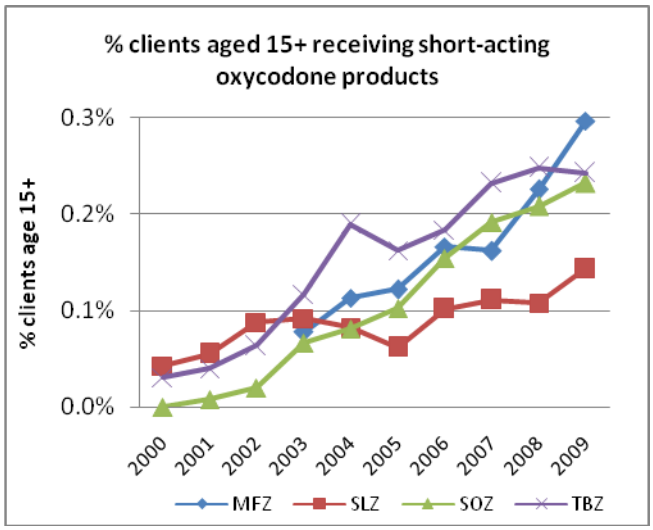
NIHB Trends

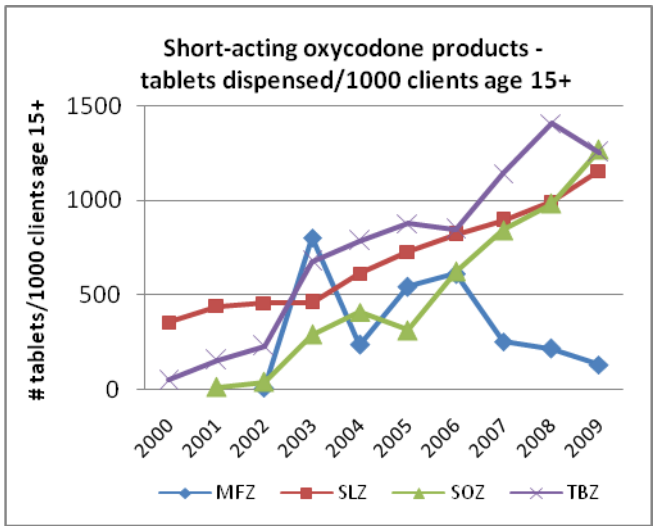












What does the NIHB data tell us?

- While the percentage of clients receiving prescriptions for opiates has not increased, the quantity dispensed has risen over the last 10 years.
- Use of oxycodone-containing drugs (e.g. Oxycontin®, Percocet®, Oxy-IR® and others) has risen significantly over the last 10 years, both in terms of percentage of clients receiving treatment and the quantity of tablets dispensed. However, the percentage of clients receiving Oxycontin® has flattened in all four zones in the last three years.
- The percentage of clients receiving prescriptions for short-acting oxycodone products (e.g. Oxy-IR®, Percocet®, ratio-Oxycocet®) rose in all zones. The number of tablets/1000 clients decreased in MFZ, suggesting that more clients are being treated for short-term use.
- In 2007, for every 1000 Ontario First Nations, 898 opiate prescriptions were dispensed. Of these, 119 prescriptions per 1000 were for oxycodone.

What else do we know?

- In Ontario in 2007, 591 opiate prescriptions per 1000 individuals were dispensed, of which 197 prescriptions per 1000 individuals were for oxycodone.[1] This data was based on pharmacy prescription records and thus presumably includes prescriptions dispensed to First Nations.

- The Workplace Safety and Insurance Board and the Manitoba provincial drug plans have recently restricted their criteria for payment of Oxycontin®. Criteria reviews are also underway at Ontario Drug Benefit and Non-Insured Health Benefits and changes are anticipated.

Putting it all together

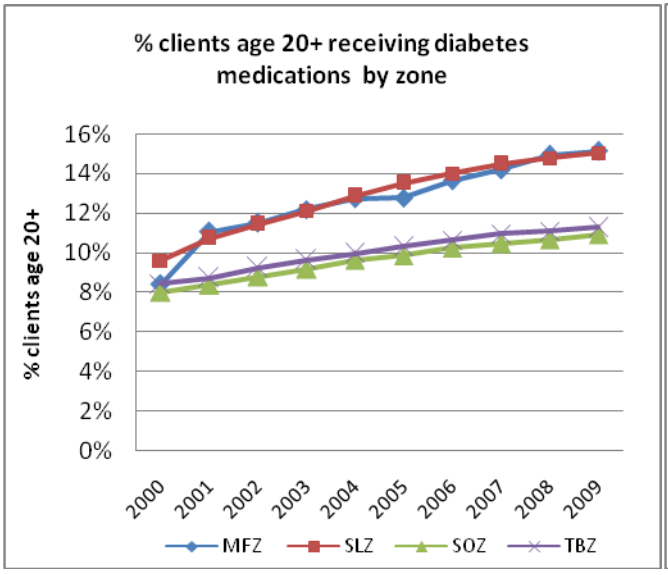
- The NIHB data shows a complex picture. Oxycontin® prescribing rose dramatically but has levelled off while use of short-acting oxycodone continues to increase. In spite of the changes to the number of Oxycontin® users, the percentage of clients who receive opiates overall has remained relatively flat, suggesting that this reflects a change in prescribing patterns.
- Ontario First Nations received more prescriptions for opiates than the Ontario population in 2007; however, fewer of these prescriptions were for oxycodone-containing medications.
- The Ontario Prescription Drug Abuse - Prevention and Intervention website is a resource for First Nations in Ontario and is available at http://addictions.knet.ca/

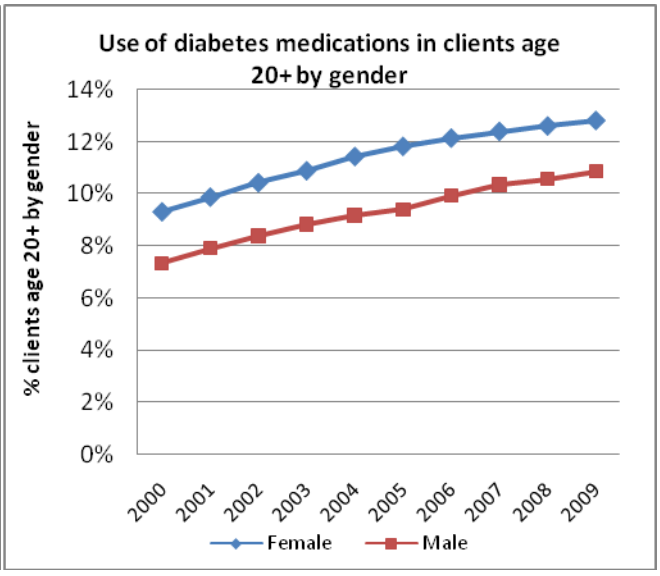
Trends in use of medications to treat diabetes

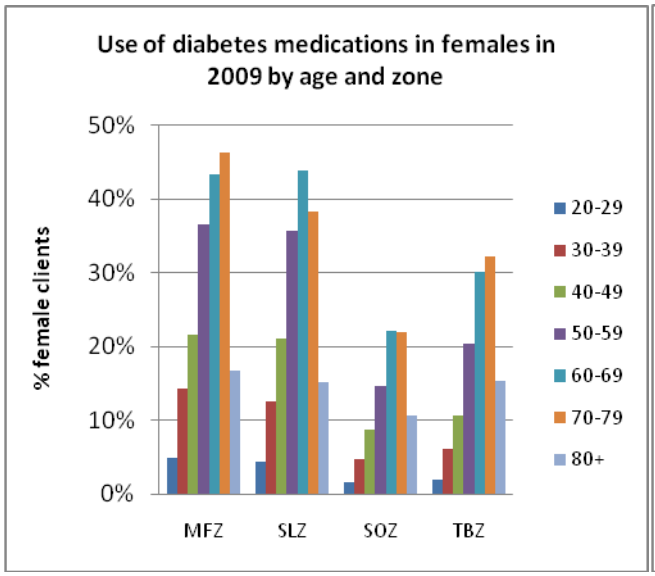
Background

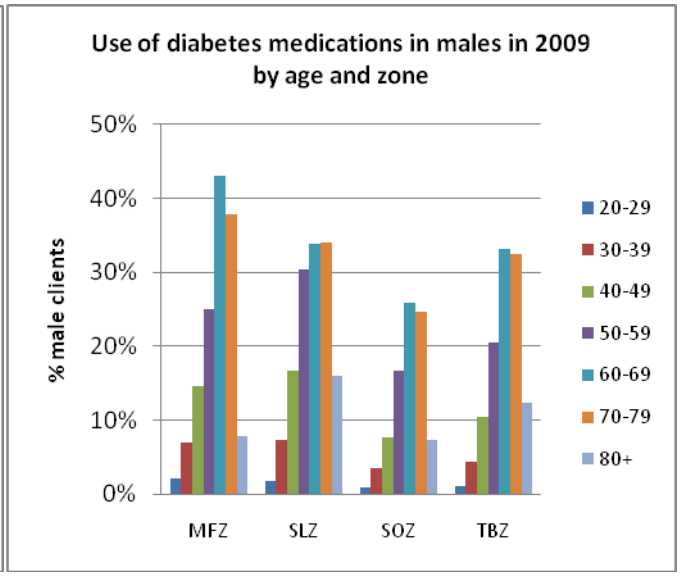
- Diabetes medications include both pills (e.g. glyburide, metformin) and insulin.
- This data cannot distinguish between clients using medications for Type 1, Type 2 or pregnancy-related (gestational) diabetes. Also, the percentage of clients taking diabetes medications is not the same as the percentage of clients who have been diagnosed with diabetes since some diabetics are not on drug treatment. That being said, trends in use of diabetes medications are probably reflective of the rates of diagnosed diabetes in these communities.
- Diabetes is associated with increased risk of heart disease and stroke, blindness, kidney disease and amputations.

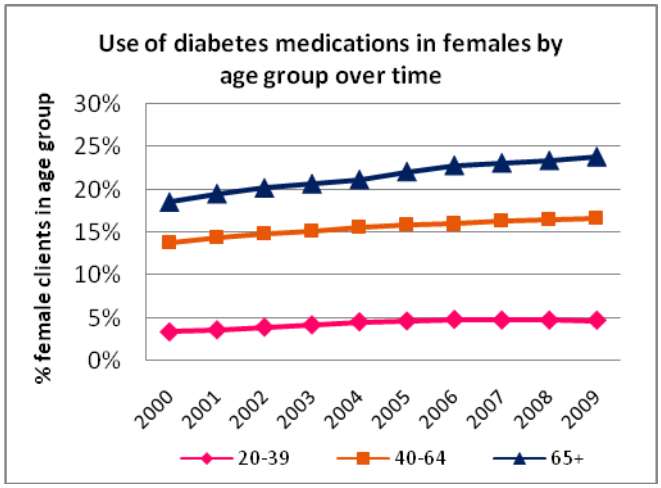
NIHB trends

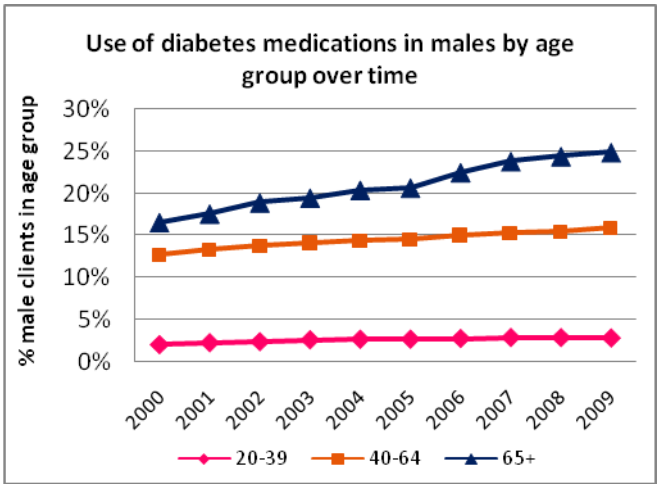












What does the NIHB data tell us?

- Use of diabetes medications is increasing in all four zones. Use is very similar amongst clients registered to MFZ and SLZ; taken together, use has increased by 64% in these two zones over the last decade. Use is lower in SOZ and TBZ, and is rising in these two zones at a similar pace of 34-36% over the last 10 years.
- Amongst those aged 20-39 in 2009, 4.7% of women versus 2.8% of men received a diabetes medication. The rate of increase over the last decade is similar between genders (40-42%) in this age group.
- Patterns of use are similar between women and men aged 40-64. Amongst women, 16.6% used diabetes medications in 2009 (a rise of 21% over 10 years) versus 15.9% of men (with a rise of 25% over 10 years).
- Amongst those aged 65+ in 2000, more women than men used diabetic medications. Over the last decade, usage rose more quickly amongst older men than women (51% versus 29%) such that in 2009, similar proportions of men and women aged 65+ (25% and 24%, respectively) used diabetes medications.

What else do we know?

- In the general Canadian population in 2004-5, the diabetes prevalence rate in adults aged 20+ was 6.6% among females and 7.6% among males. This represents an increase of 23% since 2000-1.[2]

- In the general Canadian population in 2004-5, the diabetes prevalence rate for women and men aged 20-39 was 1.4% and 1.2% respectively. Amongst 40-64 year olds, 6.2% and 8% of women and men, respectively, were diabetic. The highest prevalence rates in the general Canadian population are amongst those aged 65+, with 17% of women and 22% of men being diabetic in that age group.[3]
- In Saskatchewan adults, between 1980 and 2005, diabetes prevalence doubled amongst First Nations women doubled to 20% and tripled amongst First Nations men to 16%. Amongst non-First Nations in Saskatchewan, 5.5% of women and 6.2% of men were diabetic in 2005. The peak age for diabetes amongst First Nations people was 40-49 versus 70+ amongst non-First Nations.[4]
- Amongst BC First Nations adults (aged 20+) in 2001, 7.2% of women and 6.7% of men were diabetic. During 1998-2000, there were 8.2 new cases of diabetes for every 1000 First Nations adults. This compares to 6.7 new cases per 1000 people amongst non-First Nations adults in BC. [5]
- Amongst James Bay Cree aged 20+ in 2001-2, 23.3% of women and 14.8% of men were diabetic.[6]
- In the Ontario general population, including First Nations, diabetes prevalence amongst adults rose from 5%- 9% (a 69% increase) between 1995 and 2005. The rate of rise was 31% faster amongst younger adults (age 20-49) than those age 50+. While a larger percentage of Ontario men than women were diabetic, the rate of diabetes was rising more quickly amongst women than men age 20-49.[7]
- Amongst on-reserve First Nations in Canada, 19.7% of adults report diabetes as compared with 5.2% of the general Canadian population. The peak diabetes prevalence in this study was 36.4% amongst on-reserve First Nations adults aged 55-64 versus 9.9% of adults the same age in the general Canadian population.[8]

Putting it all together

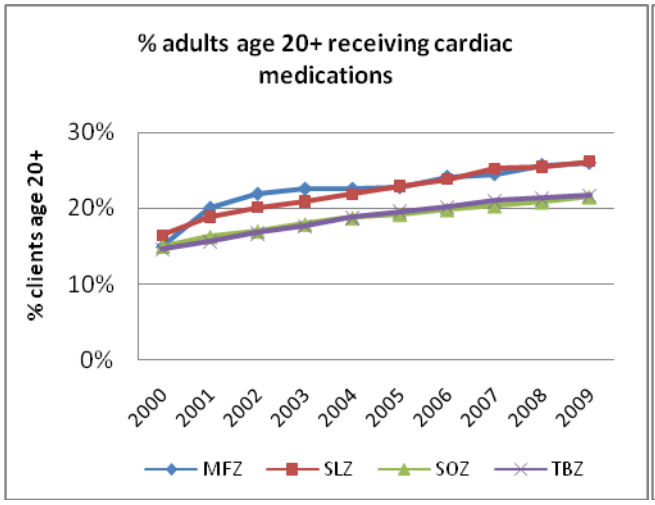
- While we can't directly compare diabetes prevalence rates with data showing use of diabetes medications, it appears that diabetes is striking Ontario First Nations at a younger age than the general Canadian population.
- Overall, rates of diabetes medication use in First Nations clients registered to communities in SOZ and TBZ are comparable to rates of diabetes in the general Canadian population. As we move north, the percentage of the First Nations population using diabetes medications increases.

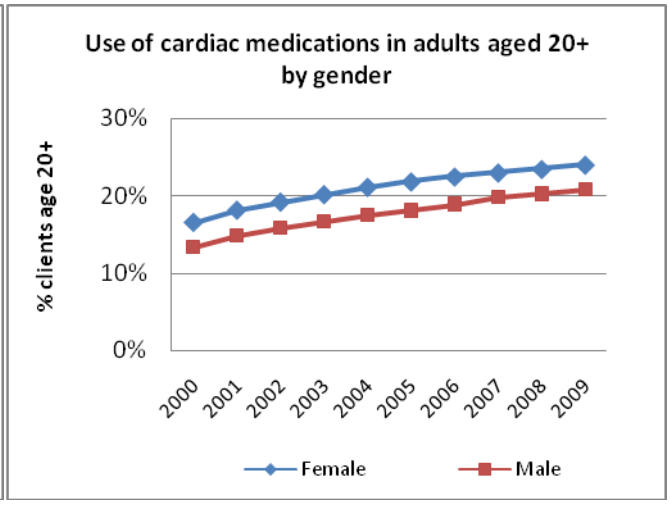
Trends in use of medications to treat heart conditions

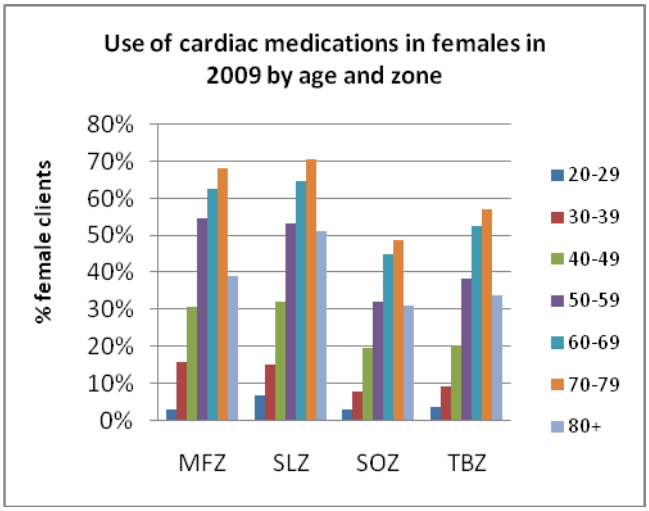
Background

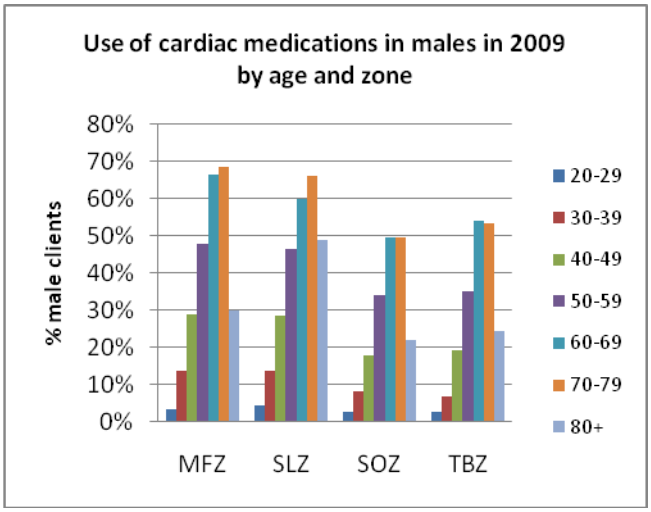
- In this analysis, cardiac medications include those drugs, including water pills (diuretics), which are used to treat heart rhythm abnormalities, high blood pressure, high cholesterol, angina, congestive heart failure, heart attacks and other conditions. This analysis does not include blood thinners such as Coumadin® or Fragmin®, or anti-platelet drugs such as ASA or Plavix® despite their use in the treatment of some heart conditions.
- The medications included in this analysis may also be used to treat non-cardiac conditions such as using beta-blockers to prevent migraines.

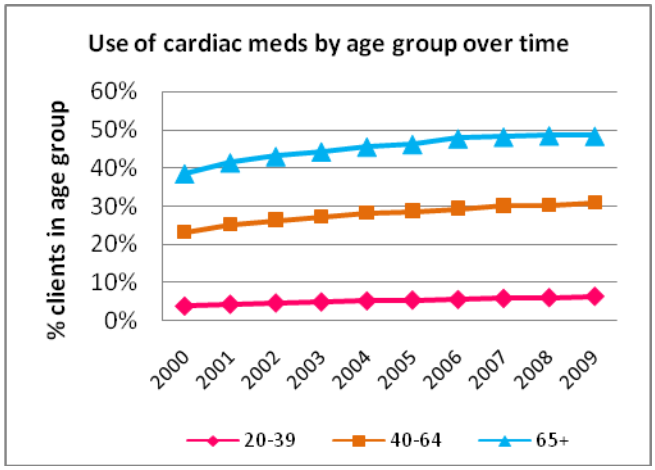
NIHB trends











What does the NIHB data tell us?

- More women use cardiac drugs than men, but the overall pattern of use is similar across age groups between men and women.
- In Ontario Region, the percentage of clients using cardiac drugs has risen by 50% in the last 10 years. Use has risen in all zones with the fastest rise in MFZ (74%) and the slowest in SOZ (44%).
- While use of cardiac drugs is highest amongst those age 65+ (49% in 2009), use over the last 10 years is rising fastest amongst younger age groups. Over the last 10 years, use rose 67%, 32% and 26% amongst those aged 20-39, 40-64 and 65+, respectively.

What else do we know?

- The number of prescriptions for cardiac medications in Canada's general population more than tripled between 1996 and 2006.[9] In all of Canada, about one-quarter of all prescriptions dispensed were to treat heart disease.[10]
- In 2007, 4.8% of Canadians reported having heart disease. Heart disease is more common amongst older people - 20% and 27% of women and men age 75+, respectively, have heart disease.[11]
- Between 1994 and 2005, the percentage of people in the general Ontario population with high blood pressure increased from 8% to 15%. This same study showed that people living in Ontario's north and mid-north were more likely to have multiple cardiovascular risk factors than those living in southern Ontario. [12] In Canadian First Nations living on reserve, 20% had high blood pressure in 2002-3. That same year, among First Nations age 60+, 44% of women and 35% of men had high blood pressure.[13]
- Between 1982 and 1995, heart attacks rates amongst Ontario First Nations rose significantly in spite of rates staying stable in the Northern Ontario population.[14]
- In FY2000-01, 20% of Ontario seniors filled a prescription for a statin (cholesterol pill); of these seniors, 8%, 25% and 14% had been diagnosed with acute coronary syndrome, coronary heart disease or diabetes respectively.[15]
- People with diabetes are more likely to have heart disease at a younger age. One study showed that having diabetes confers the same risk as ageing 15 years in terms of risk of heart disease. While women normally have lower rates of heart disease than men, diabetes removes much of that protective effect.[16]
- Being overweight or obese increases the risk of developing heart disease. In Timmins in 2006, 28% of school children were overweight or obese[17]; 53-65% of James Bay Cree 5-year olds were overweight or obese in 2002.[18]
- The age at which people are developing risk factors for heart disease is becoming younger. In 2007, amongst adolescents in Niagara, 9% and 10% had borderline high blood pressure and high cholesterol respectively.

Putting it all together

- While we can track how many Ontario First Nations receive cardiac drugs over time, we do not know their medical diagnoses. This means that we cannot directly compare NIHB data with studies that look at disease trends over time. Also, changes to clinical practice guidelines can result in earlier or more aggressive treatment of conditions without an actual increase in disease prevalence.
- Nonetheless, it is notable that use is rising fastest amongst the younger group of Ontario First Nations. This may be related to trends in diabetes and obesity.
- The use of cardiac medications amongst Ontario First Nations seniors is much higher than the reported prevalence of heart disease in seniors in the general Canadian population.
- As noted above, while women in the general population have less heart disease than men, diabetes removes that protective effect. Amongst Ontario First Nations, more women than men received treatment with cardiac drugs. While women are more likely to seek health care services, this may also reflect the effect of high rates of diabetes in the female First Nations population.

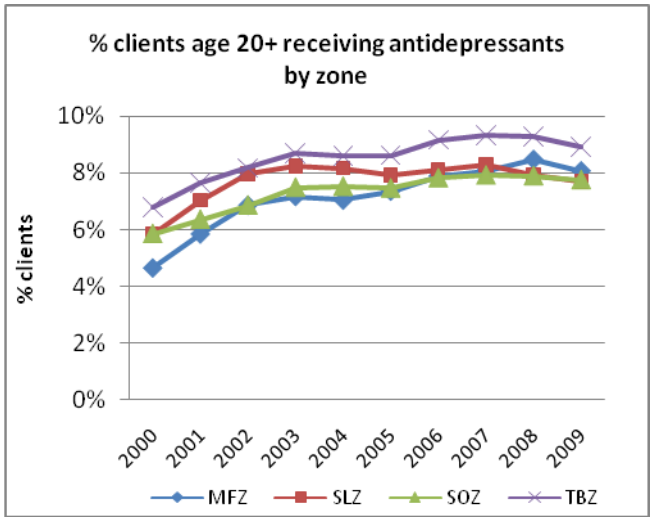
Trends in use of mental health medications by adults

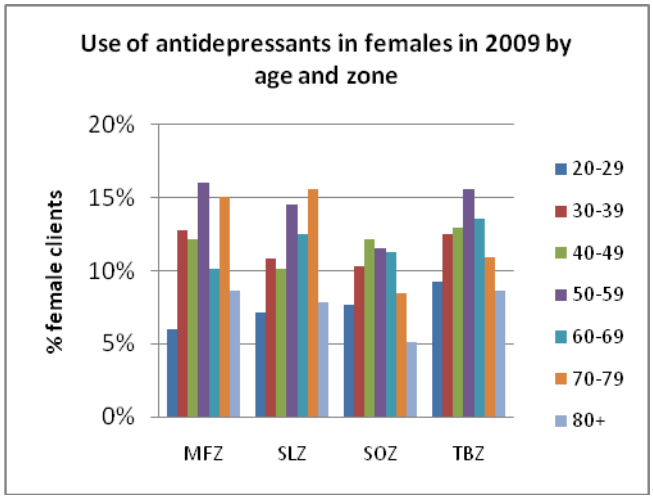
ANTIDEPRESSANTS

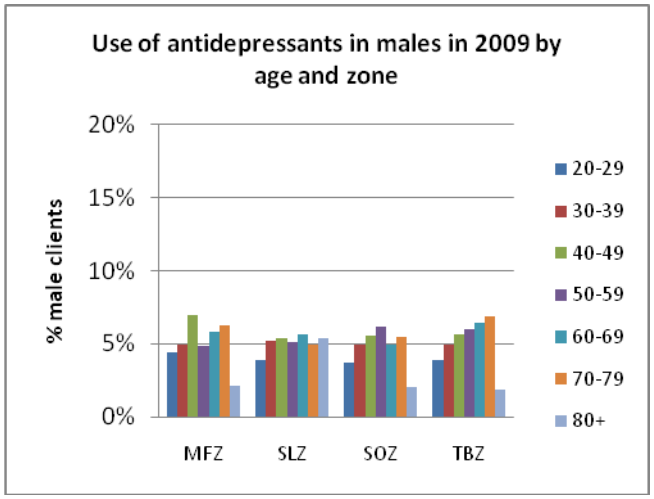
Background

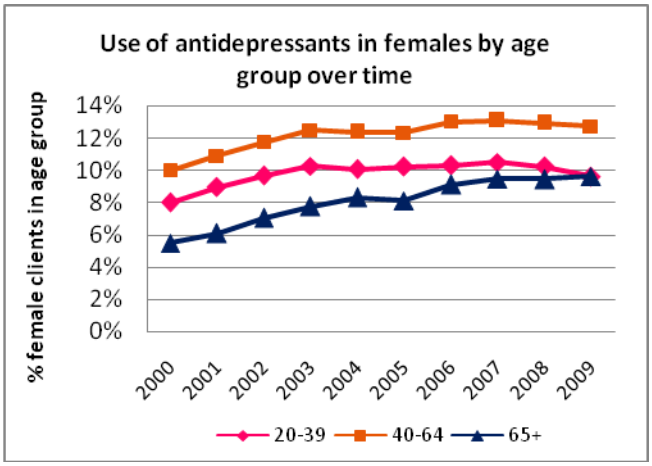
- Antidepressants are used to treat depression, obsessive-compulsive disorder, anxiety disorders and other conditions.
- These analyses include the following types of antidepressants: selective serotonin reuptake inhibitors (SSRIs such as Paxil®), serotonin-norepineprine reuptake inhibitors (SNRIs such as Effexor®) and monoamine oxidase inhibitors (MAOIs such as moclobemide). They exclude medications which are classed as anti-depressants but are typically used for other medical conditions. For example, these analyses exclude trazodone and amitriptyline which are more often used as sleep aids or to treat pain and buproprion (Zyban®) which is used as a smoking cessation aid.

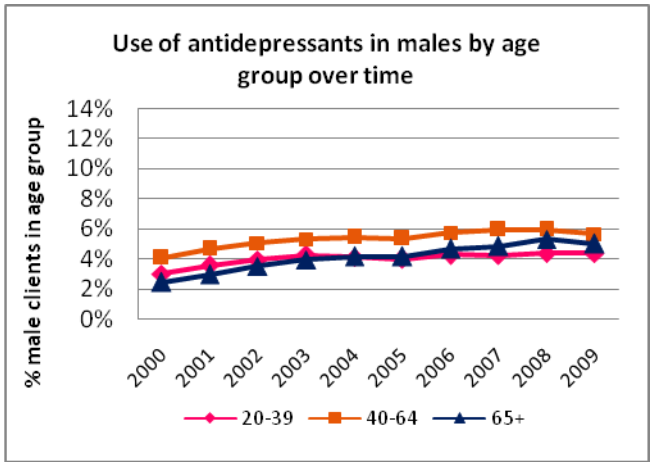
NIHB Trends











What does the NIHB data tell us?

- Across all zones, use of antidepressants over the last 10 years has increased by 34%. Most of that increase occurred in the first five years and then levelled off. The levelling off is more marked in Sioux Lookout and Southern Zones. The increase occurred among both men and women and in all zones, suggesting it is part of a larger phenomenon.
- In each age-range and zone, approximately half as many men use antidepressants as women. However, use is increasing more rapidly amongst men than women (48% versus 29% respectively) in all age groups.
- Use of antidepressants has risen over the last 10 years in all age groups. The rate of increase is fastest amongst adults age 65+ (105% and 75% increase in men and women respectively). Amongst adults age 20-39, use is also rising faster amongst men than women (44% versus 20% respectively). In the 40-64 age group, use increased by 38% and 27% in men and women respectively.

What is happening elsewhere?

- Ontario data from the general population in 2002 showed that the age group most likely to have been depressed in the last 12 months was 20-24 year olds (7.5% amongst males and 11.5% amongst females). Depression prevalence was higher amongst women (with 100 women depressed for every 60 men) and those with the lowest household income (11.3% in the last 12 months).[19]
- During 1995-1997, rates of depression for on-reserve First Nations women were double that of the general female Canadian population (18% versus 9%) with similar rates of depression across all age groups and geographic isolation.[20]
- In BC in 2004, 7.2% of residents (excluding First Nations) received an antidepressant with higher use (8.7%) amongst those in the lowest income group.[21]
- A 2001 study in Calgary showed that while younger age groups were more likely to be depressed, they were least likely to be taking antidepressants.[22] In this study, the overall use of antidepressants was 4.9%.

Putting it all together

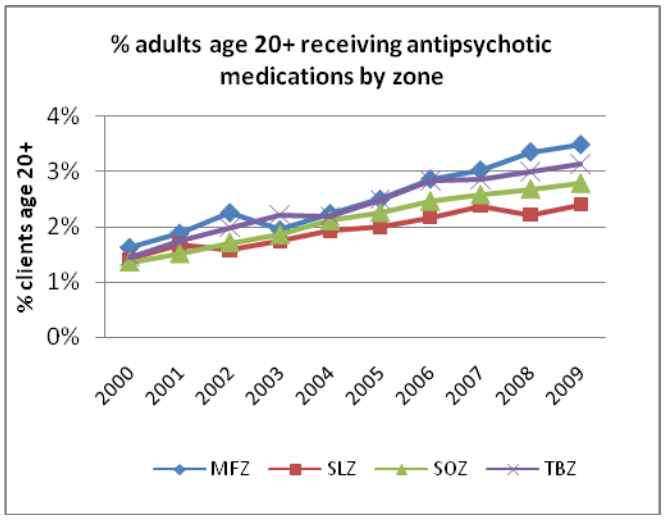
- Prevalence of use of antidepressants is not the same as prevalence of depression itself since different groups may be more or less likely to seek treatment. However, there was a dramatic increase in the prescription of antidepressants between 2000 and 2004.
- Use of antidepressants among Ontario First Nations is similar to use in the general population of British Columbia.

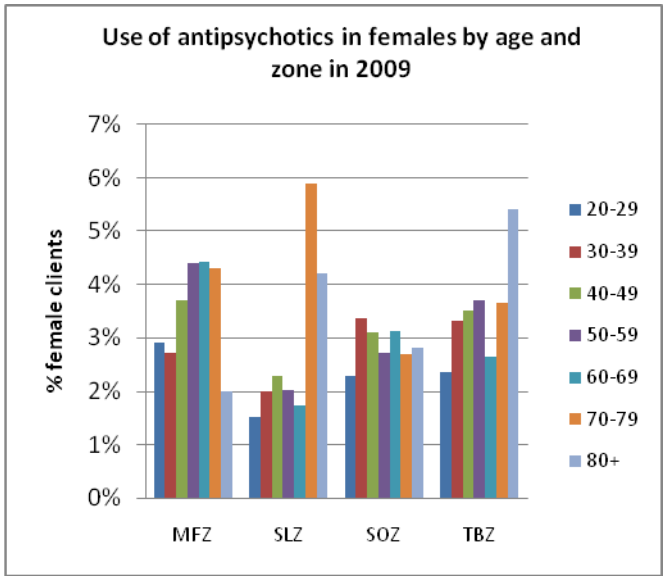
ANTIPSYCHOTICS

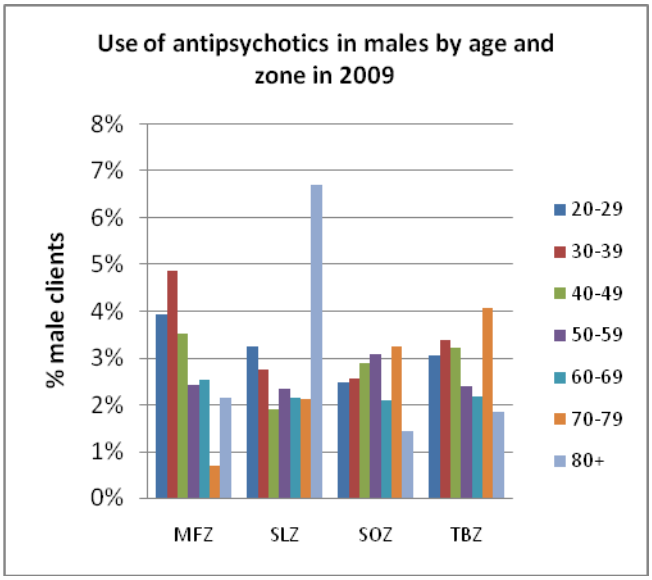
Background

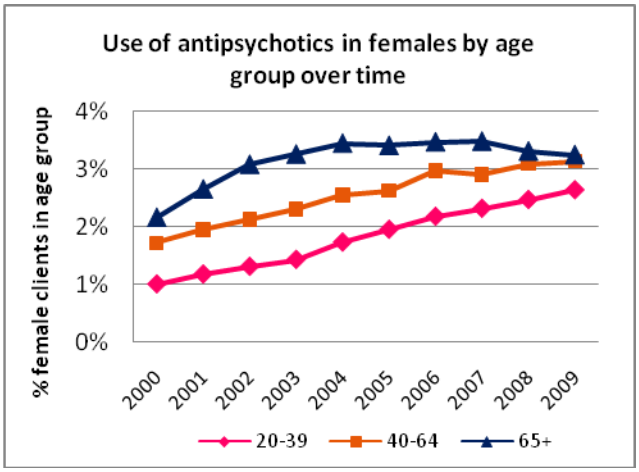
- Antipsychotics are used in adults to treat schizophrenia, sleep disorders, depression, bipolar disorder, agitation in elderly people with dementia and other conditions.
- The use of newer antipsychotics has been associated with diabetes, weight gain and high cholesterol.

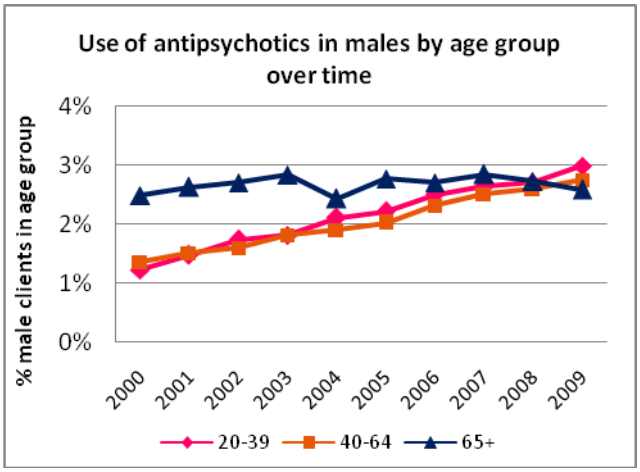
NIHB Trends











What does the NIHB data tell us?

- Use of antipsychotics is increasing more quickly in MFZ and TBZ (116% increase over 10 years) than SLZ (70% increase over 10 years).
- While overall use of antipsychotics is the same between males and females, differences exist between age groups.
- In the 20-39 age group, use was higher amongst men than women in 2009 (3.0% versus 2.6%), but women are catching up - their use increased by 163% versus 143% in men over 10 years. This is the age group with the most rapid rate of increase in use.
- Amongst the 40-64 year olds, while 3.1% of women versus 2.8% of men were on antipsychotics in 2009, use in men has been rising more quickly than in women (104% versus 81% increase).
- Clients aged 65+ previously had the highest use rates, but younger age groups have since caught up. In 2009, 3.2% of women and 2.6% of men aged 65+ received antipsychotics. Use in women this age has risen over the last decade by 50%. Most of that increase was in the first five years of the period then levelled off. In contrast, use in older men has stayed relatively flat over the past 10 years.

What is happening elsewhere?

- In Manitoba, 2% of the provincial population (including First Nations) received an antipsychotic in 2006. Use was highest amongst people over 65 (4.3% and 6% for males and females respectively). Use was slightly higher amongst younger males than females (1.4% versus 1.2%). Amongst those aged 36-65, more females than males received an antipsychotic (2.4% vs. 2%)[23]. The prevalence of use in Manitoba increased by 62% between 1996 and 2006.
- Between 1993 and 2002, the prevalence of seniors receiving antipsychotics through Ontario Drug Benefit rose from 5% to 9%.[24]

Putting it all together

- Overall, use of antipsychotics is similar between Ontario First Nations and the province of Manitoba (including First Nations). While the patterns of use are similar between the genders in different age groups, use among Ontario First Nations is higher in the 20-39 year olds and lower amongst seniors than in Manitoba.
- Use of antipsychotics amongst Ontario First Nations seniors in 2002 was lower than that among Ontario Drug Benefit senior (which includes Ontario First Nations).

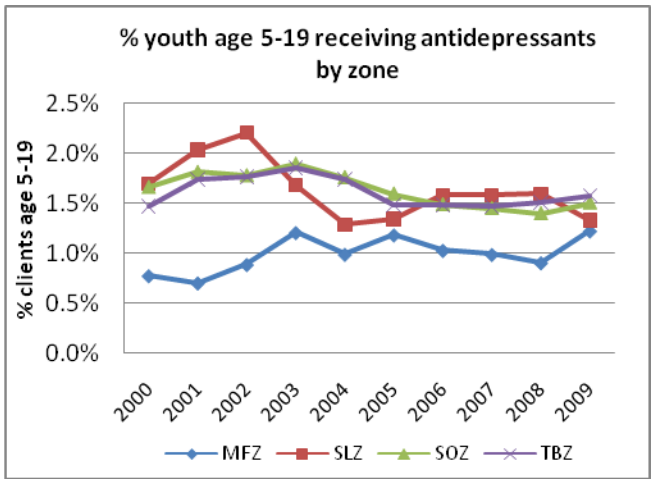
Trends in use of mental health medications by youth

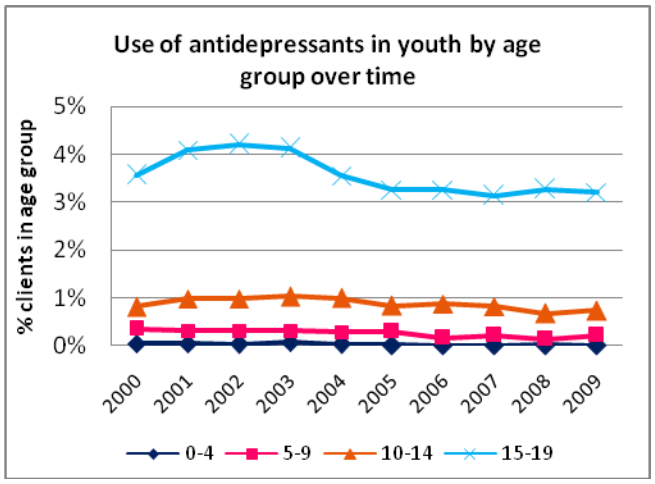
ANTIDEPRESSANTS

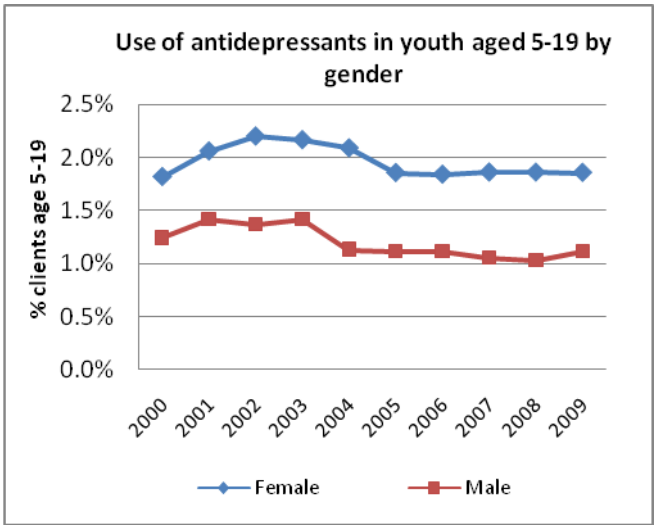
Background

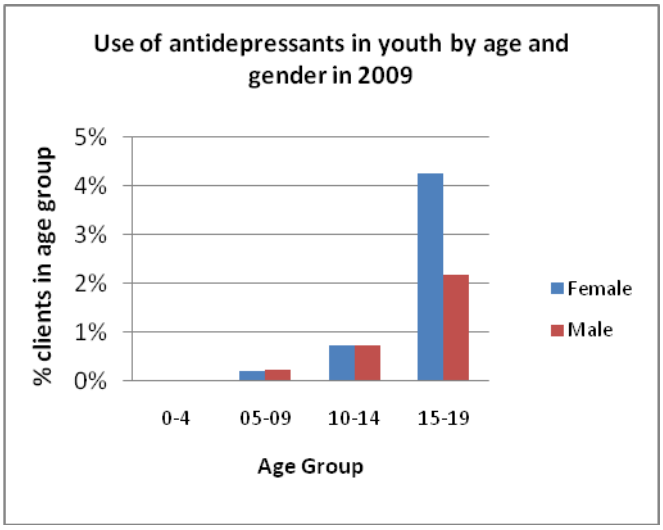
- Antidepressants are medications used to treat depression and bipolar disorder. They can also be used as adjunctive treatments for pain or sleep.

NIHB Trends









What does the NIHB data tell us?

- Use of antidepressants peaked in 2003 with 1.8% of youth aged 5-19 receiving treatment. Use has since decreased and plateaued to 1.5% in 2009.
- Youth aged 15-19 are most likely to receive treatment, and use amongst girls that age is double that of boys (4.3% versus 2.2% in 2009).
- Use of antidepressants converged across the zones to be similar in 2009. Over the last decade, use fell in SLZ, TBZ and SOZ while it increased in MFZ.

What else do we know?

- Warnings were issued in 2003 and 2004 in the UK, US and Canada that children and adolescents taking newer antidepressants (e.g. Paxil®, Effexor® and others) are at increased risk of suicidal behaviour as compared with those taking placebos (sugar pills).
- In Manitoba, a similar pattern of antidepressant use was seen with rising prevalence amongst youth until the warnings were issued, followed by a decrease.[25] In Manitoba, peak use amongst 15-19 year olds was approximately 2.3% in 2003-4.
- According to a study of depression in Ontario using 2002 survey data, 2% of males and 10% of females aged 15-19 met clinical criteria for depression in the last 12 months. The lower the household income, the higher the prevalence of depression. [26] Another study confirmed that youth in lower socioeconomic status groups were 2.5 times more likely to be depressed or anxious.[27]
- According to a 2009 review, antidepressant treatment results in modest improvements in cases of moderate to severe depression. Untreated depression in youth is associated with suicide, but it is not clear whether treatment with antidepressants can reduce this risk. [28]

Putting it all together

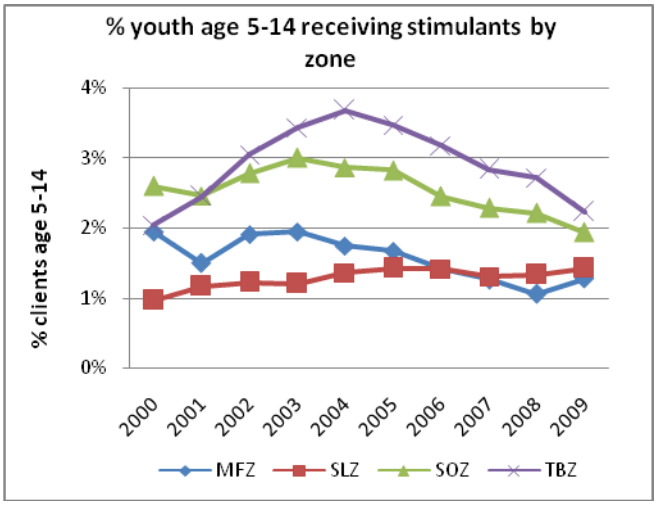
- The trends in use of antidepressants amongst Ontario First Nations youth is similar to that seen in other populations. Use of antidepressants fell in the period before the warnings regarding suicidal ideation were issued, suggesting prescribers were responding to emerging study data before the official warning was released.

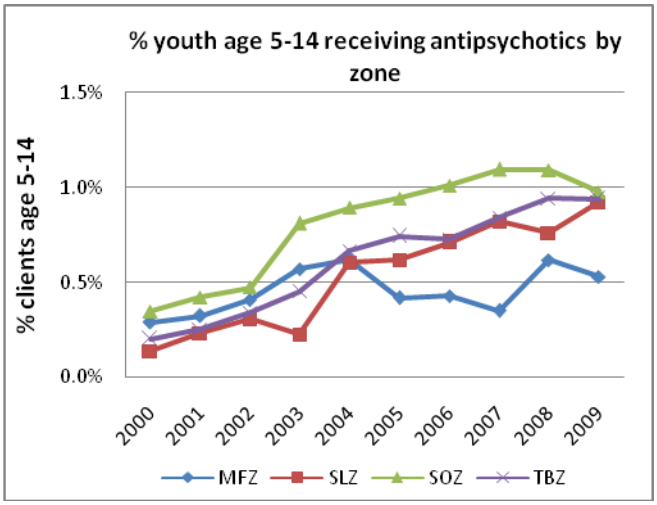
STIMULANTS AND ANTIPSYCHOTICS

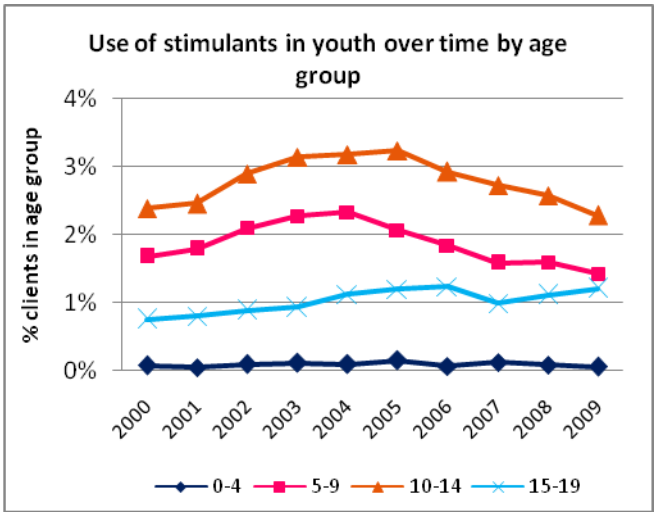
Background

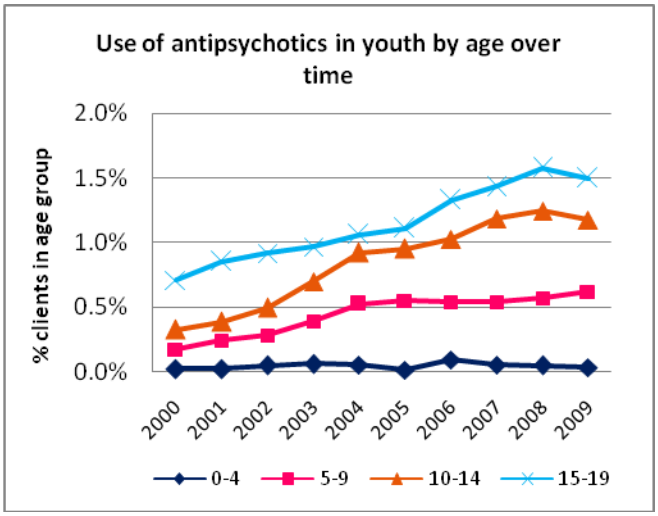
- This analysis looks at use of stimulants (such as Dexedrine® and Ritalin®) and antipsychotics (such as risperidone and Seroquel®) in youth. Between the ages of 5-14, these medications are most commonly used in the treatment of Attention Deficit Hyperactivity Disorder (ADHD), behavioural disorders and Fetal Alcohol Spectrum Disorder symptoms. In older youth, use of antipsychotics will reflect treatment of schizophrenia, bipolar disorder and depression as well as ADHD.

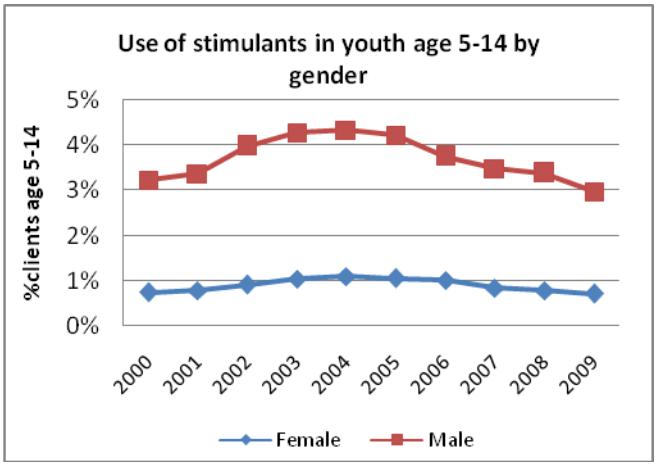
NIHB Trends

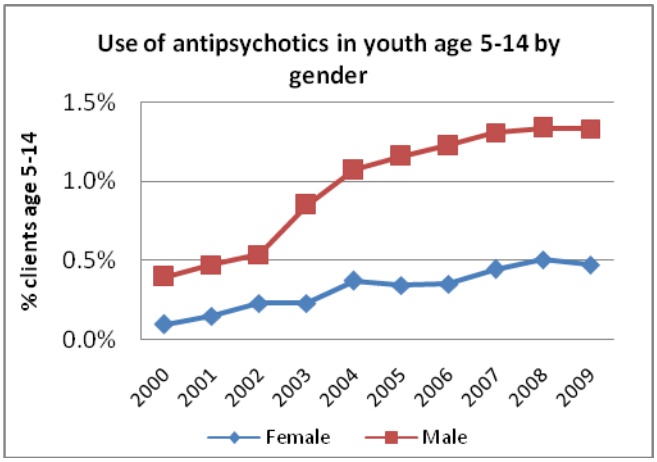


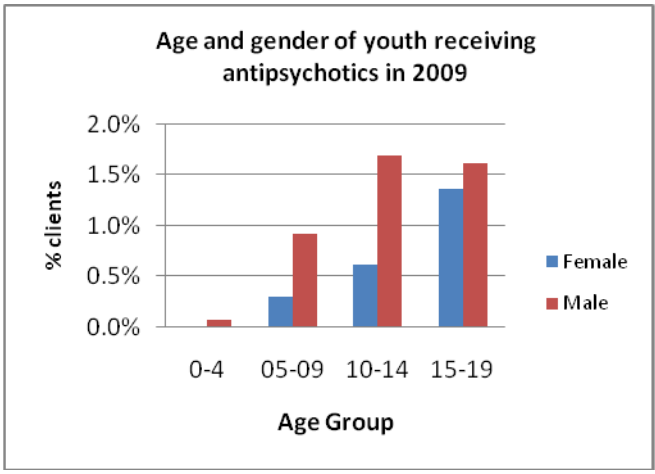


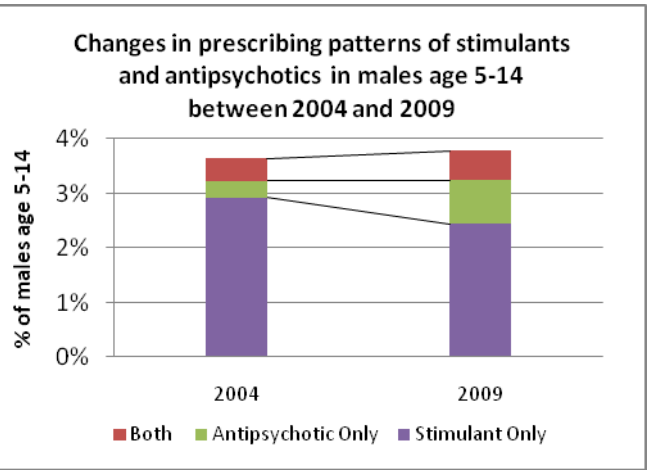












What does the NIHB data tell us?

- Use of stimulants is highest amongst 10-14 year olds while use amongst pre-schoolers is extremely low. Use peaked in 2004 and has since decreased or plateaued in all zones. Use is more common amongst boys than girls, and more common in TBZ and SOZ.
- Use of antipsychotics continues to rise in all age groups and across all zones. Use is more common amongst boys than girls between the ages of 5-14 (1.3% versus 0.5% in combined age groups). In older youth, the gender gap narrows with 1.6% of males versus 1.4% of girls receiving treatment.

- Looking at only boys, who are more likely to be treated for ADHD than girls, antipsychotics appear to be replacing stimulants as a treatment in this age group. Overall, between 2004 and 2009, there was no change in the proportion of boys aged 5-14 who were treated with either drug. This suggests that while prescribing patterns for treatment of ADHD has changed, the percentage of children under treatment has not.

What else do we know?

- In the Atlantic provinces, 6% of grade 7-12 students were diagnosed with ADHD on screening, with no difference between boys and girls. This study also showed that only 9% of those with ADHD were receiving treatment.[29]
- In 2007, 5.3% of boys and 1.7% of girls in an Ontario survey of adolescents had been prescribed Ritalin in the previous 12 months.[30]
- In a Canadian survey, 94% of child psychiatrists and 89% of developmental paediatricians reported prescribing antipsychotics with 12% of their prescriptions being for children aged 8 or younger. [31]
- In Manitoba in 2006, 0.9% and 0.35% of males and females aged 0-18 respectively received an antipsychotic. This is an increase from 0.2% and 0.1% in 1996.[32]
- Recent studies show that some antipsychotics are associated with weight gain, cholesterol problems and high blood sugars in children. Children started on these medications should be monitored regularly for these adverse effects as they could increase the risk of developing diabetes and heart disease later in life.

Putting it all together

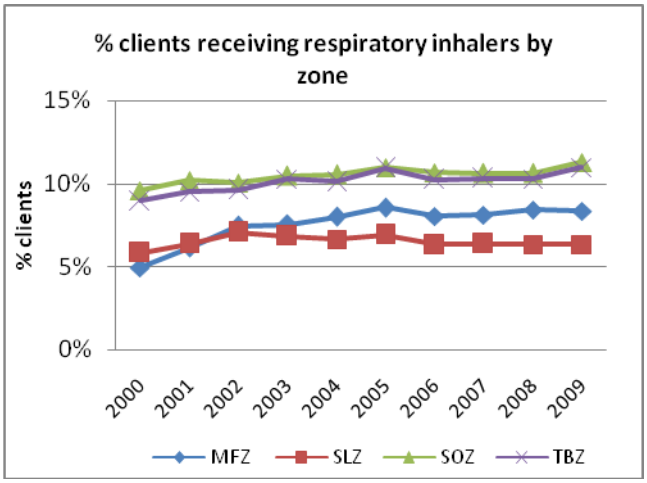
- Use of stimulants and antipsychotics amongst Ontario First Nations youth is comparable to use in other populations. The fall in stimulant use has been replaced by an increase in antipsychotic use in youth aged 5-14. Antipsychotics are less prone to non-medical use, but youth on this treatment should have their weight, blood sugars and cholesterol levels monitored.
- The comparable use of antipsychotics amongst male and female teens aged 15-19 likely reflects the broader range of conditions that they treat, including bipolar disorder, depression and schizophrenia as well as ADHD and behavioural disorders.

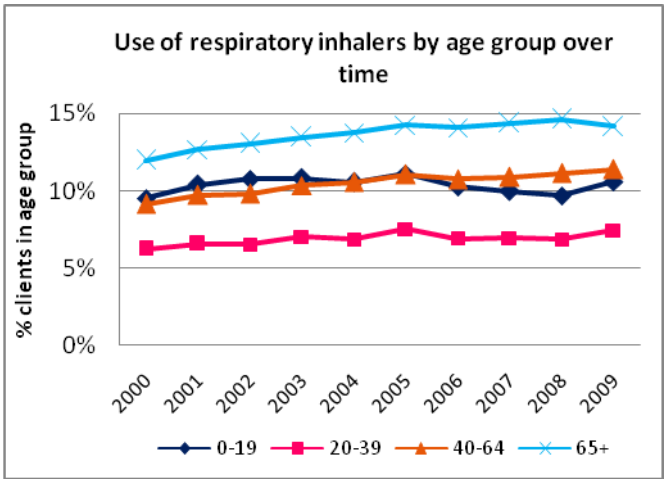
Trends in use of inhalers to treat respiratory conditions

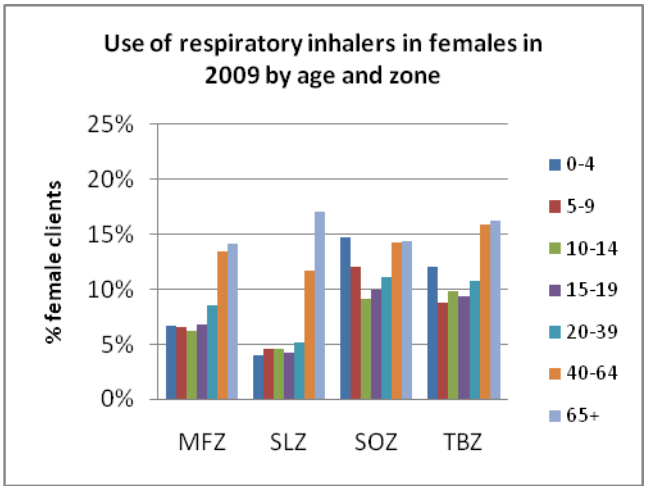
Background

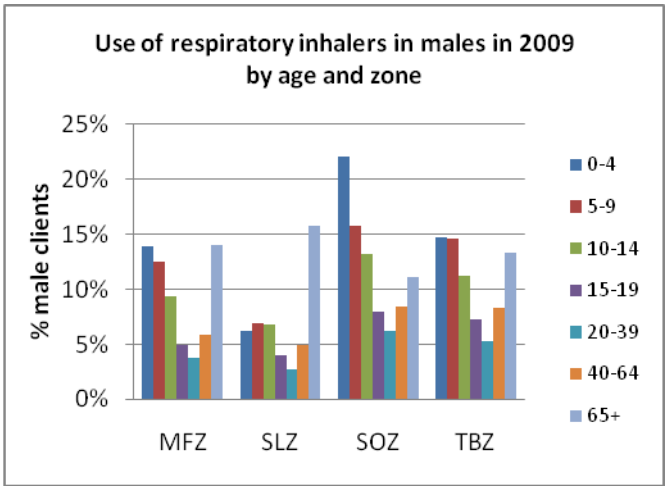
- Respiratory inhalers include puffers that open the airways (e.g. Ventolin®, Servent®), steroid puffers that reduce inflammation (e.g. Flovent®, Pulmicort®), ones that treat chronic bronchitis (e.g. Atrovent®, Spiriva®), and puffers that have combinations of the above medications.
- The most common respiratory disorders are asthma and chronic obstructive pulmonary disease (COPD). Respiratory inhalers are also prescribed during acute lung infections. Since the same medications are used to treat both acute and chronic illnesses, this data cannot help us to separate out rates of each of these conditions.
- Asthma can affect people of any age while COPD occurs only in adults. COPD includes both chronic bronchitis and emphysema. Smoking is the biggest risk factor for developing COPD.
- Inhalers dispensed from nursing stations are not captured by NIHB. This limits our ability to compare rates between zones with and without remote-isolated communities.

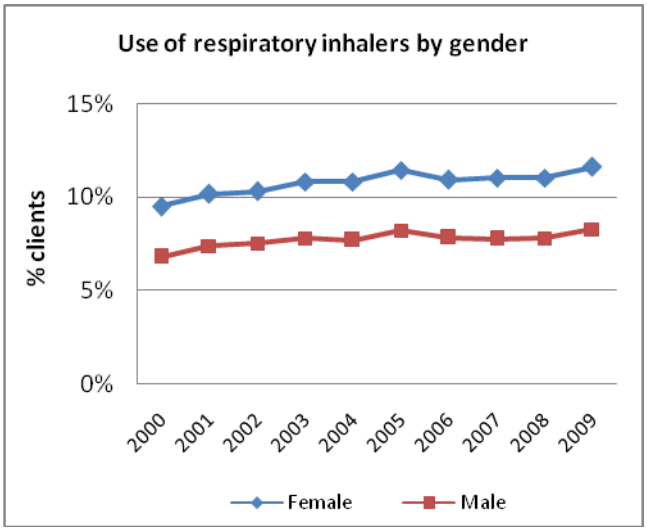
NIHB trends











What does the NIHB data tell us?

- Between 2000 and 2009, the percentage of Ontario First Nations receiving an inhaler increased by 20%. The rate of increase was most rapid in MFZ (69%) and slowest in SLZ (9%).
- Eleven percent of Ontario First Nation children aged 0-19 in 2009 received an inhaler through NIHB.

- Amongst children aged 0-14, more males than females received inhalers (13% versus 9% in 2009). After puberty, use is higher amongst females than males (8% versus 6% in 15-24 year olds in 2009).
- Use amongst males aged 0-4 in MFZ is more similar to use in clients registered to non-remote communities (TBZ) versus those registered to remote-isolated communities in SLZ.

What else do we know?

- The overall lifetime risk of being diagnosed with asthma is estimated to be 34% for people living in Ontario.[33]
- The prevalence of asthma in the general population in Canada in 2005 was 15.6% for children aged 4-11 and 8% for those aged 12+. Amongst off-reserve Aboriginals age 12+, 11.9% had been diagnosed with asthma. [34]
- Amongst on-reserve First Nations in Canada, 10.6% reported having asthma in 2002-3 versus 7.8% of the general Canadian population.[35]
- Asthma is more common amongst urban Canadians than rural Canadians (7.7% vs. 6.7%) and more common in women than men (8.1% vs. 6.9%). However, amongst children aged 0-14, boys are more likely to have asthma than girls. In rural areas in 2000-1, 17.5% of boys had asthma in 2000-1 versus 10.7% of girls; in urban areas, rates were lower with 13.3% of boys versus 9.1% of girls.
- Amongst Canadians in the general population aged 35+, 4.4% report having been diagnosed with COPD versus 7.9% of Aboriginals living off-reserve. Over 7% of the women aged 65+ in the general population have been diagnosed.[36]

Putting it all together

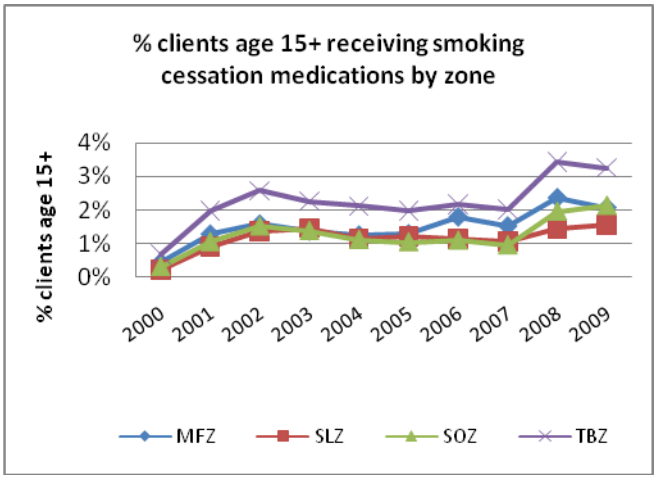
- While use of inhalers cannot be directly compared with prevalence rates of asthma, trends in NIHB do not appear to be dramatically different than reported rates of asthma.
- Known patterns of asthma prevalence are reflected in NIHB data. For example, pre-pubertal boys are more likely to have asthma than girls, and this pattern is seen in inhaler use through NIHB. Likewise, young women are more likely to have asthma than young men, and this same pattern is seen in NIHB data.

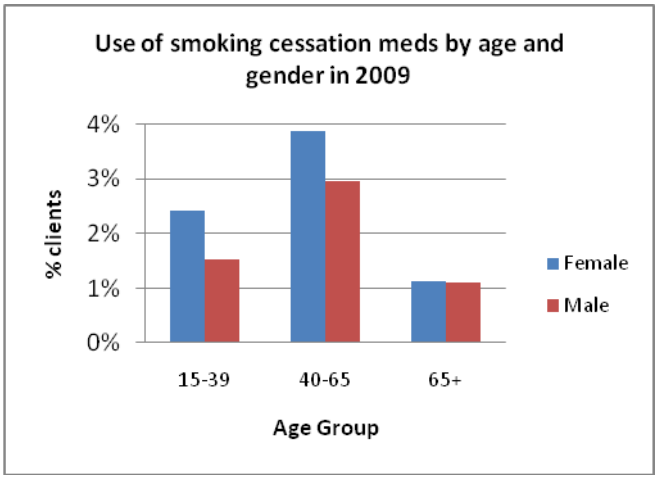
Trends in use of smoking cessation products

Background

- Smoking is a major risk factor for the development of lung disease, heart disease, cancer and other illnesses.
- Use of smoking cessation products may help smokers to quit and thereby reduce their risk of respiratory illnesses, cancer and heart disease. Quitting smoking has been shown to reduce the risk of death in patients with heart disease by one-third.[37]
- Smoking cessation products paid for through NIHB include nicotine replacement (patches, gum) and drug therapy (Zyban®, Champix®). Champix® has been on the Canadian market since 2007.

NIHB Trends





What does the NIHB data tell us?

- Use of smoking cessation products is low in all zones but has started to increase in the last two years. In 2009, 2.5% of Ontario First Nations used a smoking cessation aid.
- Uptake of smoking cessation products is highest in TBZ and similar in the other three zones. The increase in use in 2008 may be related to the introduction of Champix® to the Canadian market.
- Women are more likely than men to use smoking cessation products, as are adults age 40-65 as compared with younger or older adults.

W**hat else do we know?**

- In the general Canadian population, 18% of those aged 15+, and 27% of those aged 20-24, are smokers. Of these, half attempted to quit smoking in the last year. [38]
- Smoking rates are double to triple amongst First Nations, with 59% of those living on-reserve and 44% of those living off-reserve smoking. Seventy percent of on-reserve young adults (age 18-29) are smokers.[39] More than half of First Nations smokers reported that they had tried to quit at least once.[40]
- Smokers using Champix™, Zyban™ or nicotine replacement products are 2.3, 1.7 and 1.6 times more likely, respectively, to successfully quit than those using placebo.[41] [42] [43]
- In 2001, 3.8% of First Nations smokers in British Columbia filled a prescription through NIHB for a smoking cessation product. Claimants were more likely to be female and were, on average, 38 years old.[44]
- First Nations people who know about NIHB coverage for smoking cessation products are 3.5 times more willing to use a product to help them to quit smoking than those who did not know about the benefit. Aboriginal people who were advised by their doctors to use smoking cessation aids were 7.7 times more willing to do so than those who were not.[45]

Putting it all together

- While half of First Nations smokers have tried to quit, use of smoking cessation products is low. Uptake of these products could be increased if physicians encouraged their use, and if clients knew that they were NIHB benefits.

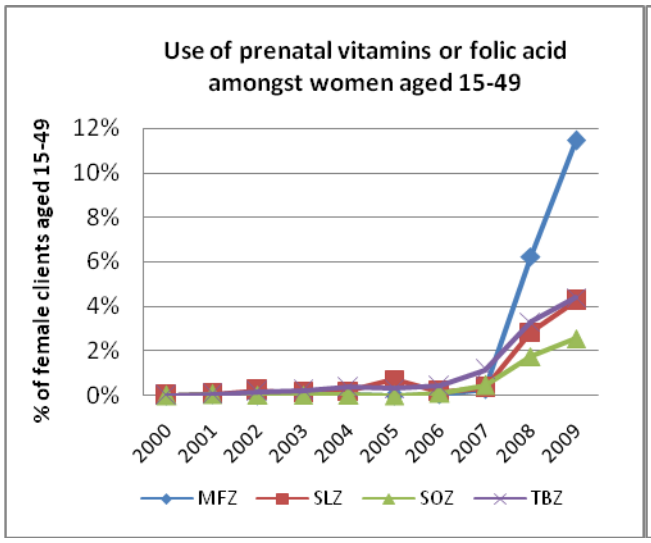
Trends in use of medications and devices in reproductive and sexual health

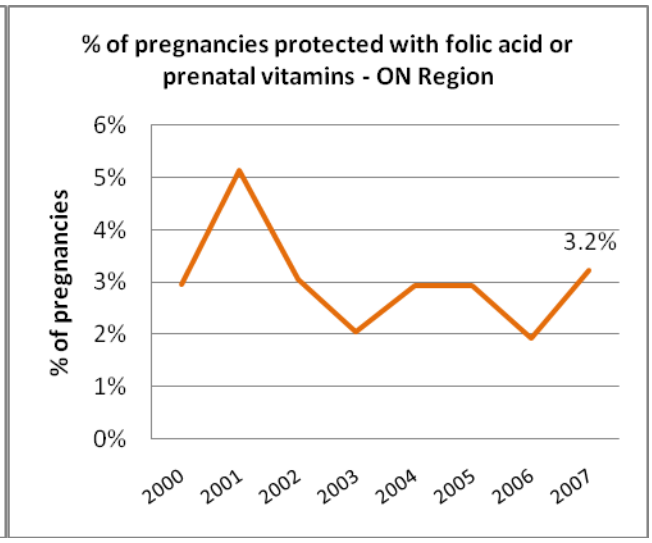
REPRODUCTIVE HEALTH

Background

- Folic acid supplementation, if taken before and during pregnancy, can reduce the risk of birth defects related to the spinal cord.
- While prenatal vitamins and folic acid supplements are NIHB benefits, they are also available through nursing stations, health centres, the Canadian Prenatal Nutrition Program, or over-the-counter. The NIHB data therefore underestimates coverage of prenatal supplementation.

NIHB trends





What does the NIHB data tell us?

- Amongst women who gave birth in 2008, 3.2% received folic acid or prenatal vitamins through NIHB in the prior year.
- In 2009, 36 478 tablets of pre-natal vitamins and folic acid were dispensed by Ontario pharmacies to First Nations clients registered to SLZ. In that same year, SLZ nursing stations distributed 66 700 tablets of prenatal vitamins.
- Use of prenatal vitamins and folic acid is increasing in all four zones in the last two years. In 2009, 4% of Ontario First Nations women of child-bearing ages received a prenatal vitamin or folic acid through NIHB.

What else do we know?

- In Ontario in 2000-1, 51% of women reported taking folic acid supplements before pregnancy. Use was lower in rural areas, amongst women who had not completed high school, as well as amongst younger women and non-married women.[46]

Putting it all together

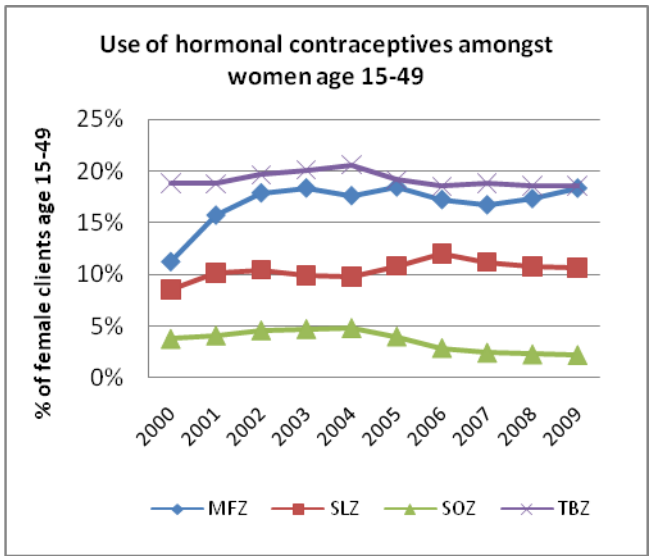
- While NIHB data on use of pre-natal vitamins significantly underestimates real-world use, the numbers are still very low. The recent increase in uptake, particularly in MFZ, is encouraging.

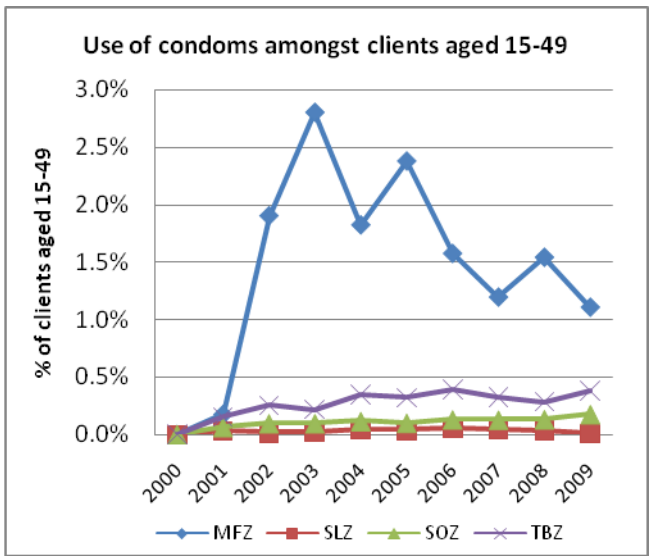
SEXUAL HEALTH

Background

- Condoms reduce the risk of infection with HIV or other sexually transmitted infections (STIs) as well as being a reliable form of family planning.
- Hormonal contraceptives (e.g. birth control pills, Depo-Provera®) are the most common types of family planning used in Canada.

NIHB Trends





What does the NIHB data tell us?

- The percentage of women of child-bearing years using hormonal contraceptives is highest in Thunder Bay Zone and lowest in Southern Ontario Zone.
- Use of condoms is low overall, with greatest use in Moose Factory Zone, although this is declining. This only captures condoms dispensed through NIHB – we don't know how many people get them from other sources (clinics, buying them privately, nursing stations and other).

What else do we know?

- In 2009, 750 000 condoms and almost 1700 packs of hormonal contraceptives were distributed through nursing stations in Sioux Lookout Zone.
- The fertility rate amongst Aboriginal peoples in Canada is higher than that of the total Canadian population.[47]
- In 2006, of the Canadian women surveyed who were sexually active but did not want to become pregnant, 54% used condoms and 44% used oral contraceptives; only 65% of this group "always used" contraception.[48]
- Among sexually active First Nations youth in 2002, 81% reported using condoms and 19% reported using birth control pills, while 10.9% reported using no form of birth control. In this same survey, 14% of 17-year olds reported having been pregnant or gotten someone pregnant.[49]
- Unintended pregnancies are common. In a Halifax study in 1992, 33% of pregnancies were unintended, and 17% were unwanted.[50] In a national survey, 27% of Canadian women reported having had an unplanned pregnancy.[51]

- While Aboriginal peoples make up 3.3% of the Canadian population, 8% of people living with HIV are Aboriginal, and the new infection rate amongst Aboriginal peoples is 3.6 times higher than in non-Aboriginals.[52] Among Aboriginal peoples, 43% of new infections resulted from sexual contact (the rest was related to injection drug use). Women account for nearly half (48%) of all new infections amongst Aboriginal peoples– this is more than double the rate in women in the general Canadian population.[53]
- In the Ontario general population between 1998 and 2007, rates of chlamydia, gonorrhoea and syphilis have risen by 66%, 55% and 650%.[54] Rates of infection are higher amongst Aboriginal peoples than non-Aboriginal people.[55]

Putting it all together

- These numbers underestimate overall use of contraceptives since they do not take into account clients who are not sexually active or clients who have had vasectomies or tubal ligation. Nonetheless, use of hormonal contraceptives seems low, particularly in Southern Ontario Zone - further investigation is warranted.

Appendix 1 – Communities in each Zone

Moose Factory Zone

Albany (Fort Albany FN)
Attawapiskat
Moose Cree First Nation
Taykwa Tagamou Nation (New Post)
Weenusk (Peawanuk)

Sioux Lookout Zone

Bearskin Lake
Cat Lake
Deer Lake
Eabametoong First Nation
Eagle Lake
Fort Severn
Kasabonika Lake
Kee-Way-Win
Kingfisher
Kitchenuhmaykoosib Inninuwug (Big Trout Lake)
Lac Seul
McDowell Lake
Mishkeegogamang
Muskrat Dam Lake
Neskantaga First Nation
Nibinamik First Nation
North Caribou Lake (Weagamow or Round Lake)
North Spirit Lake
Ojibway Nation of Saugeen (Savant Lake, Saugeen)
Pikangikum
Poplar Hill
Sachigo Lake
Sandy Lake
Slate Falls Nation
Wabauskang First Nation
Wabigoon Lake Ojibway Nation
Wapekeka
Wawakapewin
Webequie
Wunnumin

Southern Ontario Zone[1]

Aamjiwnaang First Nation (Sarnia)
Alderville First Nation
Algonquins of Pikwakanagan
Bay of Quinte Mohawks
Bearfoot
Beausoleil (Christian Island)
Caldwell
Chippewas of Georgina Island
Chippewas of Kettle and Stony Point
Chippewas of Mnjikaning First Nation
Chippewas of Nawash First Nation (Cape Croker)
Chippewas of the Thames First Nation
Curve Lake
Deleware
Henvey Inlet First Nation
Hiawatha First Nation
Konadaha Seneca
Lower Cayuga
Lower Mohawk
Magnetawan
Mississauga's of Scugog Island First Nation
Mississaugas of the Credit
Mohawks of the Bay of Quinte
Moose Deer Point
Moravian of the Thames (Delaware Nation)
Munsee-Delaware Nation
Niharondasa Seneca
Oneida
Oneida Nation of the Thames
Onondaga Clear Sky
Saugeen (Chippewas of Saugeen)
Shawanaga First Nation
Six Nations of the Grand River
Tuscarora
Upper Cayuga
Upper Mohawk
Wahta Mohawk (Mohawks of Gibson)
Walker Mohawk
Walpole Island (Bkejwanong Territory)
Wasauksing First Nation (Parry Island)

[1] Data from Mohawks of Akwasasne not included

Thunder Bay Zone

Animbiigoo Zaagi'igan Anishinaabek (Lake Nipigon Ojibway)
Anishinabe of Wauzhushk Onigum (Wauzhushk Onigum FN)
Anishnaabeg of Naongashiing (Big Island)
Aroland
Aundeck-Omni-Kaning (Ojibways of Sucker Creek)
Batchewana First Nation (Ojibways of Batchewana)
Big Grassy
Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay)
Brunswick House
Chapleau Cree First Nation
Chapleau Ojibway
Constance Lake
Couchiching First Nation
Dokis
Flying Post
Fort William
Garden River First Nation (Ojibways of Garden River)
Ginoogaming First Nation
Grassy Narrows First Nation
Gull Bay (Kiashke Zaaging Anishinaabek FN)
Iskatewizaagegan #39 Independent First Nation
Lac Des Mille Lacs
Lac La Croix
Long Lake No.58 First Nation
Marten Falls
Matachewan
Mattagami
M'Chigeeng First Nation (West Bay)
Michipicoten
Missanabie Cree
Mississauga
Naicatchewenin
Naotkamegwanning (Whitefish Bay)
Nicickousemenecaning
Nipissing First Nation
Northwest Angle No.33
Northwest Angle No.37
Obashkaandagaang (Washagamis Bay)
Ochiichagwe'babigo'ining First Nation (Dalles)
Ojibways of Onigaming First Nation (Sabaskong)
Ojibways of the Pic River First Nation
Pays Plat
Pic Mobert
Rainy River First Nations
Red Rock
Sagamok Anishnawbek
Sandpoint (Bingwi Neyaashi Anishaabek)
Seine River First Nation
Serpent River
Sheguiandah
Sheshegwaning
Shoal Lake No.40
Stanjikoming First Nation
Temagami First Nation
Thessalon
Wabaseemoong Independent Nations
Wahgoshig (Abitibi #70)
Wahnapitae
Whitefish Lake (Atikameksheng Anishnawbek First Nation)
Whitefish River
Whitesand
Wikwemikong
Zhiibaahaasing First Nation (Cockburn)

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