The Risks of Tobacco Use on Overall Health

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On behalf of The Alberta Coalition for Prevention and Control of Vascular Disease (ACTION) Network
## Key Modifiable Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor/Chronic Disease</th>
<th>Cancer</th>
<th>Cardiovascular disease</th>
<th>Diabetes</th>
<th>COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Nutrition</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Physical Inactivity</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Alcohol</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Stress</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Obesity</td>
<td>X</td>
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</tbody>
</table>
Prevalence

- The smoking rate in Alberta is declining, from 26% in 1999 to 17.7% in 2011.
- The smoking rate in Alberta (17.7) is slightly higher than the smoking rate for Canada (17.3%).
- The smoking rate in Alberta remains highest among young adults (aged 20 to 24) at 24%. This is slightly higher than the national rate of 21.5%.

(CTUMS, 2011)
Mortality Rates/Costs

- **37,209 Canadians die annually** from tobacco-related illnesses (17% of total deaths per year)
- More than **8,000 non-smokers die annually** from tobacco smoke exposure
- More than **3,000 Albertans** die annually from tobacco-related illnesses
- Direct health care costs in Alberta $470.6 million per year
- Tobacco is responsible for 5.4 million deaths globally each year.
- Without substantial change to tobacco use rates, tobacco will have killed 1 billion people during the 21st century.

(Baliunas et al., 2007)
Financial and human benefits

- If Alberta’s smoking rate dropped to B.C.’s rate of 14% there would be 131,521 fewer Alberta smokers
- A conservative estimate of the health care cost savings per quitter is $8,533
- 131,521 fewer smokers represent potential cost savings of $1,122,268,693.00
- Given that tobacco use prematurely kills 50% of long-term users there is also the enormous human benefit of saving 65,760 lives
Smoking Through the Lifespan

- Life span of someone who smokes

Connie
Poll

• Ideally before conception, who should quit smoking?
  • A) Mother
  • B) Father
  • C) Both potential parents
Meet Connie
Smoking and Sperm Morphology
Embryonic Stage

4 Cell stage of human embryo

A. Both

B. Father

C. Mother

D. Normal smoke

(Zenzes, 2000)
Connie’s Poor Oocytes!!

• Destruction of 25% of oocytes (eggs)
• Early Menopause (1 to 4 years earlier)
• Higher risk of breast cancer because most breast cancers happen post menopausal

(Zenzes, 2000)
Connie’s Development

- Nicotine, acting on the adrenal glands intensifies secretions of noradrenaline, adrenaline and acetylcholine.
- This causes uterine vasoconstriction and reduces utero-placental perfusion.
- The amount of oxygen and nutrients reaching Connie are decreased.
- Nicotine crosses the placenta and leads to higher fetal blood pressure, higher fetal heart rate, and lower fetal breathing movements.

(Lindland et al. 1998)
Cute Little Connie

- Connie was born today!
- She was very small- weighing only 5 pounds.
- Connie is at greater risk for SIDS (2-5 times). She does not react to levels of low oxygen like she should.
- Connie is also less sensitive to stress hormones.
Connie Starts Smoking

- Connie starts smoking as soon as she is exposed to second-hand smoke
- Connie has frequent ear infections, coughs, and gets ill easily.
- Connie is also at higher risk for asthma
- Connie is also at an even higher risk for breast cancer.

(Peck, et. al.,2010)
Connie Starts Smoking Cigarettes

• Connie is now a teen and has started smoking her own cigarettes.
• If Connie tests positive for HPV-16, she is 14.4 times more likely to get cervical cancer than those without the infection.
• Among non-smokers, those who tested positive for HPV-16 were only 6 times more likely to get cervical cancer than non-smokers without the infection.

(Gunnell, et.al 2006)
Connie is Sexually Active

- Connie decides to take oral contraceptives.
- Connie is now at a higher risk for stroke and heart disease.
Connie’s Brain

- http://www.youtube.com/watch?v=797WAV3kZhQ
Connie’s Body

(Tobacco Free Futures, 2012)
Connie is Pregnant

- She has a 1.6 to 2.8 times greater risk of developing abruptio placenta and placenta previa.
- 1.5 greater risk of spontaneous abortion
- 20% increase in perinatal mortality

(Lindland et al. 1998)
Connie has Post Partum Depression

- The amount a person smokes increases with severity of depression
- Schizophrenia 75-90%
- Bi-polar Disorder 60%
- Major Depressive Disorder 58%
- Obsessive Compulsive Disorder 9%
- Post Traumatic Stress Disorder 57%
- Nicotine-dependent and psychiatrically ill individuals consume 70% of all cigarettes smoked in the United States.

(Kalman, Morissette & George 2005)
Poll about Mental Health

• Are patients with mental illness interested in quitting smoking?

• A) Yes
• B) No
Addiction

- Connie’s father is struggling with a cocaine addiction
- People who struggle with addiction, have a high rate of tobacco use - 75-85%

(Morisano, Bacher, et.al, 2009)
Poll

• Do people who struggle with multiple addictions want to quit smoking?
  a) Yes
  b) No
Poll

• Is it a good idea to do tobacco cessation at the same time as treatment for other addictions?
  a) Yes
  b) No
Connie is a Senior

- Connie has heart disease.
- Connie has COPD.
- She has a really low quality of life.
Tobacco use causes 85 to 90% of ChronicObstructive Pulmonary Disease (COPD)

- COPD accounts for the highest rate of hospital admission among major chronic illnesses in Canada
- COPD hospitalization average stay is 10 days with approximate cost of $10,000 per stay
- In 2011 69,430 Albertans were living with COPD
- About 50% of people diagnosed with COPD are expected to die within 10 years of being diagnosed

(The Lung Association, 2010)
Tobacco use causes 30% of deaths from heart disease

- Approximately 3,700 Albertans die of ischaemic heart disease each year
- Roughly 1,233 of these deaths can be attributed to smoking

http://www.statcan.gc.ca/pub/84f0209x/84f0209x200800-00-eng.pdf
Adverse Impact on Surgical Outcomes

• Smokers are more likely to have problems recovering from surgery and are more likely to need repeat surgery
• In one study smokers were 38% more likely to die after surgery than patients who had never smoked
• Smokers are 80% more likely to have a heart attack after surgery than non-smokers

Stop smoking for safer surgery http://www.stopsmokingforsafersurgery.ca/
It Doesn’t Have to be This Way

• Tobacco use is highly treatable.
• Treatment is cost effective, has a positive return on investment.
• Handout on programs and services.


References


- http://www.statcan.gc.ca/pub/84f0209x/84f0209x2008000-eng.pdf

- http://www5.statcan.gc.ca/cansim/
References

• Lindland et al. (1998). Effect of nicotine on human fetal blood flow. *Obstet & Gynecol, 72*


References


• Warner, David O. Perioperative Abstinence from Cigarettes: Physiologic and Clinical consequences. Anesthesiology, 2006; 104: 356-367
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