Attachment 1
Minor Ailments and Care Gap Analysis

May 2020

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Prioritized List of Pharmacist Prescribing - Minor Ailments and Care Gaps

The list below is prioritized based on patient need/demand (established using literature and validated by Shoppers and Loblaw implementation of these services in NS, NB, SK, and QC) and on clinical evidence of pharmacist impact. Conditions with no, or limited, OTC alternatives are prioritized.

1. Travel Health (incl. Traveler's Diarrhea, Malaria Prevention and Travel-related Vaccines)
2. Cold sores (Herpes Labialis)
3. Urinary tract infection
4. Hormonal/Emergency Contraception
5. Vaccines
6. Dermatitis/Eczema/Diaper Rash
7. Conjunctivitis/ Allergic conjunctivitis
8. Strep throat antibiotic (if positive)
9. Oral fungal infection/ Oral thrush
10. Mild-moderate acne
11. Dyspepsia/ GERD and Acid reflux
12. Bacterial skin infections/ Impetigo
13. Fungal skin infection
14. Allergic rhinitis
15. Erectile dysfunction
16. Morning sickness from pregnancy
17. Cytoprotection from NSAID use
18. Migraine
19. Upper respiratory tract conditions

At the December 9, 2019 OCP Council meeting, Council passed a motion to include Lyme Disease on the proposed list. We concur with this approach, based on patient need and potential care gaps

Proposed Definition of ‘Minor Ailments’

- Given that access remains a health system challenge in Ontario where only 40% of Ontarians are able to see their primary care providers the same or next day when they are sick[1], **prescribing authority for minor ailments should extend beyond self-diagnosed, common ailments and focus as well on conditions where there is a care gap that Pharmacists can help address**
- For example, an estimated 40% of all pregnancies in Canada are unplanned and half of those are terminated.[2] The Society of Obstetricians and Gynecologists of Canada states it is feasible and safe for contraceptives and family planning services to be provided by trained allied health professionals such as Pharmacists[3]

Appendix

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Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (1/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
1	Travel Health (including Traveler's Diarrhea, Malaria Prevention and Travel-Related Vaccines)	• 12.8 million trips to overseas countries from Canada in 2017[4] • 22–64% of all travelers globally experience some degree of health impairment while traveling[5] • Up to 1 million Canadians travel to malaria-endemic areas each year[7] • Between 400 to 1,000 malarial cases in Canadian travelers yearly; 1 to 2 Canadian deaths per year[8]	• Increased access to pre-travel consultations and care [6] • 46% more likely to prescribe antibiotics for self-treatment when indicated versus primary care providers (PCP) [6] • PCPs were 18% more likely to prescribe antibiotics when not indicated and 43% less likely to order antibiotics when indicated[6] • Patients were 12% more likely to comply when pharmacists prescribed the prescriptions[6] • Malaria prophylactic drugs are the most effective preventative measure against malaria available (RR: 0.24), as compared to the next effective prevention method - insecticide treated nets (RR: 0.49)[9] • Pharmacists are 17% more likely to prescribe anti-malarial medication as compared to GPs [6]
2	Cold Sores	• Estimated to affect 20% of Canadians annually[12] • Varying frequency of outbreaks; can range from rare to 12+ episodes per year[12] • Cold sores are often self-limiting (typically resolve in 2 weeks), however complications can occur. For example, chemo as well as HIV+ patients are at risk for secondary infection (Herpetic whitlow, Herpetic keratoconjunctivitis, Encephalitis)[13]	• Most commonly treated minor ailment by pharmacists in SK (45% of all MA prescriptions 2012-2014) • Earlier initiation of treatment typically resulted in more favorable outcomes[14] • Prescriptions for frequently occurring episodes decreased by 0.09 cold sores per month per person[13]

Additional Information - Travel Health

Note: While travel is currently restricted due to COVID-19, we believe this should be added to the new prescribing service as travel resumes again over time

Travel immunization is critical for protecting Canadians from vaccine-preventable illnesses that are prevalent in overseas countries. Travel health recommendations vary based on the region of travel. The information below outlines information about select diseases, for illustrative purposes.

Patient Need or Demand	Clinical Impact
• 10.3 million trips to overseas countries (countries other than US) from Canada in 2018[4] • Top 5 countries most visited by Canadians in order are: Mexico, Cuba, UK, Dominican Republic and China[4] **Traveler's Diarrhea**[10] • Most common illness that affects travelers; easily spread from person-to-person or through consumption of contaminated food or water • High risk destinations include Mexico, Africa, the Middle East and Asia **Malaria** • Up to 1 million Canadians travel to malaria-endemic areas each year[7] • Between 400 to 1,000 reported malarial cases in Canadian travelers annually; 1 to 2 Canadian deaths per year[8] **Hepatitis B (HB)**[11] • HB remains highly endemic in the Far East, the Middle East, Africa, South America, Eastern Europe and Central Asia, with carrier rates of 2% to 20% in the general population	• Increased access to pre-travel consultations and care **Traveler's Diarrhea**[6] • Pharmacists are 46% more likely to prescribe antibiotics for self-treatment when indicated versus primary care providers (PCP) • PCPs are 18% more likely to prescribe antibiotics when not indicated and 43% less likely to order antibiotics when indicated • Patients are 12% more likely to comply when pharmacists prescribed the prescriptions **Malaria**[6] • Pharmacists are 17% more likely to prescribe anti-malarial medication as compared to GPs **Hepatitis B (HB)**[11] • The incidence of HB has decreased in all age groups, coinciding with the increasing use of vaccine and has virtually disappeared in the cohorts that have benefited from routine immunization programs in Canada

Additional Information Travel Health – Estimated Need

2018 Visits Overseas Excluding US (in '000)			Countries at risk of:	
Country	Visits by Canadians	Visits by Ontarians*	Traveler's Diarrhea	Malaria
Mexico	1,700	792	Y	
Cuba	900	419	Y	
United Kingdom	750	349		
Dominican Republic	590	275	Y	
France	580	270		
China	580	270	Y	
Italy	440	205		
Spain	320	149		
Germany	310	144		
Hong Kong	290	135	Y	
Jamaica	280	130	Y	
Portugal	240	112		
Netherlands	230	107		
Japan	220	103		
Other	2,870	1,337		Y
TOTAL	**10,300**	**4,797**	**2,021**	**1,337**
			180	395

* Ontario visits derived from % of Ontario Tourists returning from abroad

Sources: *https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=2410004301; https://www150.statcan.gc.ca/n1/daily-quotidien/190528/dq190528c-eng.htm*

Additional Information - Contraception

Access to contraception is recognized as a basic human right.[15] In most Canadian jurisdictions, only a physician can prescribe contraceptives – a policy that does not serve women in communities where physician access is limited.

Patient Need or Demand	Clinical Impact

• Contraceptives are underutilized in Canada, and nearly one in three Canadian women will have an abortion in her lifetime[16]
• Health and social disparities increase risk of pregnancies and births resulting from unintended conceptions[15]
• Health Canada survey reported that 16% (1.3M) of women in Canada between the ages of 15-49 use oral contraceptives[17]
  o Number of women in ON estimated at 505K to 733K (oral) and 836K (emergency)
  o ON script count estimated at 2.2M (oral) and 992K (emergency)** see Appendix
• In Quebec where pharmacists are allowed to prescribe contraceptives, there is high demand from patients (one of top 5 requested prescriptions based on SDM claims data)
	• Lack of education and access are major factors in low contraception use. Access is greatly improved where pharmacists (e.g. QC) and registered nurses (e.g. BC) are allowed to prescribe contraceptives[18]
	• According to a 2014 study by the Guttmacher Institute, $7.09 was saved in costs related to unintended pregnancies, sexually transmitted infections and cervical cancer for every dollar spent by the US government on family planning services (including contraceptive care, STI testing, pap testing and HPV vaccination)[19]
	• There is limited publicly available information related to impact of pharmacists being able to prescribe for hormonal contraceptives

There are currently 10 US jurisdictions with regulations that allow pharmacists to prescribe contraceptives including California, Colorado, Utah and New Mexico.[20] Study conducted in 2019 indicated that among Oregon's Medicaid population at risk for unintended pregnancy, the policy expanding the scope of pharmacists to prescribe hormonal contraception averted an estimated 51 unintended pregnancies and saved $1.6 million dollars.[21]

Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (2/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
3	Urinary Tract Infection	• 12% annual incidence for women with 50% experiencing at least one UTI before age 32[22] • 25% chance of reoccurrence within 6 months after initial infection[22]	• Patients sought pharmacist in 1.7 days of symptoms as opposed to 2.8 days with physician[23] • 88.9% of patients experienced a clinical cure after pharmacist provided prescription (2018) • Majority of patients were highly satisfied with pharmacist thoroughness and result of care[23]
4	Hormonal & Emergency Contraception (EC)	• Stats Canada reported that 16% of women in Canada between the ages of 15-49 use oral contraceptives[24]	• Access is greatly improved where pharmacists are allowed to prescribe[25]
5	Vaccines	• ~8.5M publicly funded vaccines distributed in Ontario in 2017 (through all channels)[26] • Vaccinations received by Ontarians increased by 448,000, with pharmacists vaccinating approximately 765,000 people per year comparing 2011/ 2012 influenza season to 2013/2014 season[27] Note: See next slides for publicly funded vaccines in Ontario and vaccine coverage	• After two influenza seasons, following the introduction of pharmacist-administered flu vaccinations, there was a net immunization increase of almost 450,000, which potentially saved $2.3 million in direct health care costs and lost productivity in the province[27] • Public Health Agency of Canada (PHAC) estimates that $6-45 is saved for every dollar spent on most routine immunization programs[27]

Additional Information Vaccines - Adult Vaccinations

Beyond travel vaccines, there remains a significant gap in vaccine coverage in adults across Canada, particularly in those with chronic medical conditions. This is attributed primarily to a lack of awareness.

Note: We were unable to source Ontario specific data in the public domain, for example, from Public Health Ontario

TABLE 10: Estimated vaccine coverage among adults from 2006 to 2016 for seasonal influenza, pneumococcal, pertussis, tetanus, and hepatitis B vaccines

GROUP	2006	2008	2010	2012	2014	2016
Seasonal Influenza						
General Population	37.5 (35.4–39.6)	36.1 (34.1–38.0)	28.9 (27.0–30.8)	37.6 (35.7–39.6)	40.4 (38.4–42.5)	39.6 (37.6–41.7)
65+ years of age	71.3 (65.9–76.7)	67.6 (63.4–71.7)	57.4 (53.2–61.7)	65.9 (62.2–69.7)	66.3 (62.7–70.0)	65.1 (61.6–68.6)
18–64 years of age with a CMC*	40.5 (35.8–45.3)	40.0 (35.9–44.0)	35.9 (31.9–40.0)	40.7 (36.7–44.7)	43.8 (39.6–48.1)	40.6 (36.4–44.8)
Pneumococcal						
65+ years of age	39.9 (34.2–45.7)	35.9 (31.5–40.2)	40.6 (36.4–44.8)	39.5 (35.6–43.5)	36.8 (33.0–40.7)	41.6 (37.9–45.3)
18–64 years of age with a CMC*	17.6 (13.1–22.1)	12.3 (9.3–15.3)	16.3 (12.9–20.0)	21.1 (17.2–25.1)	18.3 (14.6–22.0)	20.3 (16.3–24.4)
Pertussis						
General Population	4.0 (3.1–4.9)	5.0 (4.1–5.9)	5.4 (4.4–6.3)	7.1 (6.1–8.2)	9.9 (8.6–11.3)	9.7 (8.4–10.9)
Tetanus						
General Population	48.1 (45.9–50.3)	52.6 (50.5–54.7)	49.1 (46.9–51.3)	53.0 (50.9–55.1)	52.7 (50.6–54.9)	54.0 (51.8–56.2)

Vaccine coverage estimates are displayed as a % (95% confidence intervals).

* CMC = CMC includes heart condition, stroke, asthma, other chronic lung conditions, cancer, diabetes, liver cirrhosis, chronic kidney disease, immune disorder/suppression

- Coverage for influenza, pneumococcal, pertussis and tetanus remains low from 2006 to 2016
- A recent survey indicated that one in three Canadian respondents (33%) reported having received a pertussis-containing vaccine in adulthood and two-thirds of respondents (69%) reported having received a vaccine against tetanus in the previous 10 years[10]

Source: http://publications.gc.ca/collections/collection_2018/aspc-phac/HP40-222-2018-eng.pdf

Publicly Funded Immunization Schedules for Ontario – December 2016

Publicly funded vaccines may be provided only to eligible individuals and must be free of charge

Routine Schedule: Children Starting Immunization in Infancy

Vaccine \ Age	2 Months	4 Months	6 Months	12 Months	15 Months	18 Months	4-6 Years^	Grade 7	14-16 Years§	24-26 Years †	≥34 Years ‡	65 Years
DTaP-IPV-Hib Diphtheria, Tetanus, Pertussis, Polio, *Haemophilus influenzae* type b	◆	◆	◆			◆						
Pneu-C-13 Pneumococcal Conjugate 13	◆	◆		◆								
Rot-1 Rotavirus	▲	▲										
Men-C-C Meningococcal Conjugate C				◆								
MMR Measles, Mumps, Rubella				■								
Var Varicella					■							
MMRV Measles, Mumps, Rubella, Varicella							■					
Tdap-IPV Tetanus, diphtheria, pertussis, Polio							◆					
HB Hepatitis B								●				
Men-C-ACYW Meningococcal Conjugate ACYW-135								●				
HPV-4 Human Papillomavirus								●				
Tdap Tetanus, diphtheria, pertussis									◆	◆		
Td (booster) Tetanus, diphtheria											◆ Every 10 years	
HZ Herpes Zoster												■
Pneu-P-23 Pneumococcal Polysaccharide 23												■
Inf Influenza				*** Every year in the fall**								

◆ = A single vaccine dose given in a syringe and needle by intramuscular injection
■ = A single vaccine dose given in a syringe and needle by subcutaneous injection
▲ = A single vaccine dose given in an oral applicator by mouth
● = Provided through school-based immunization programs. Men-C-ACYW is a single dose; HB is a 2 dose series (see Table 6); HPV-4 is a 2 dose series (see Table 10). Each vaccine dose is given in a syringe and needle by intramuscular injection
^ = Preferably given at 4 years of age
§ = Given 10 years after the (4-6 year old) Tdap-IPV dose
† = Given 10 years after the adolescent (14-16 year old) Tdap dose
‡ = Once a dose of Tdap is given in adulthood (24-26 years of age), adults should receive Td boosters every 10 years thereafter
★ = Children 6 months to 8 years of age who have not previously received a dose of influenza vaccine require 2 doses given ≥4 weeks apart. Children who have previously received ≥1 dose of influenza vaccine should receive 1 dose per season thereafter

Note: A different schedule and/or additional doses may be needed for high risk individuals (see Table 3) or if doses of a vaccine series are missed (see appropriate Tables 4-23)

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Source: http://www.health.gov.on.ca/en/pro/programs/immunization/docs/immunization_schedule.pdf

Additional Information Vaccines - Adult Vaccine Coverage Canada - 2015

TABLE 10: Estimated vaccine coverage among adults from 2006 to 2016 for seasonal influenza, pneumococcal, pertussis, tetanus, and hepatitis B vaccines

GROUP	2006	2008	2010	2012	2014	2016
Seasonal Influenza						
General Population	37.5 (35.4–39.6)	36.1 (34.1–38.0)	28.9 (27.0–30.8)	37.6 (35.7–39.6)	40.4 (38.4–42.5)	39.6 (37.6–41.7)
65+ years of age	71.3 (65.9–76.7)	67.6 (63.4–71.7)	57.4 (53.2–61.7)	65.9 (62.2–69.7)	66.3 (62.7–70.0)	65.1 (61.6–68.6)
18–64 years of age with a CMC*	40.5 (35.8–45.3)	40.0 (35.9–44.0)	35.9 (31.9–40.0)	40.7 (36.7–44.7)	43.8 (39.6–48.1)	40.6 (36.4–44.8)
Pneumococcal						
65+ years of age	39.9 (34.2–45.7)	35.9 (31.5–40.2)	40.6 (36.4–44.8)	39.5 (35.6–43.5)	36.8 (33.0–40.7)	41.6 (37.9–45.3)
18–64 years of age with a CMC*	17.6 (13.1–22.1)	12.3 (9.3–15.3)	16.3 (12.9–20.0)	21.1 (17.2–25.1)	18.3 (14.6–22.0)	20.3 (16.3–24.4)
Pertussis						
General Population	4.0 (3.1–4.9)	5.0 (4.1–5.9)	5.4 (4.4–6.3)	7.1 (6.1–8.2)	9.9 (8.6–11.3)	9.7 (8.4–10.9)
Tetanus						
General Population	48.1 (45.9–50.3)	52.6 (50.5–54.7)	49.1 (46.9–51.3)	53.0 (50.9–55.1)	52.7 (50.6–54.9)	54.0 (51.8–56.2)

Vaccine coverage estimates are displayed as a % (95% confidence intervals).

* CMC = CMC includes heart condition, stroke, asthma, other chronic lung conditions, cancer, diabetes, liver cirrhosis, chronic kidney disease, immune disorder/suppression

- There remains significant gap in vaccine coverage in adults across Canada, particularly in those with chronic medical conditions
- **Lack of awareness** in adults including high risk groups is perceived as one of the key reasons for suboptimal coverage

Source: http://publications.gc.ca/collections/collection_2018/aspc-phac/HP40-222-2018-eng.pdf

Additional Information Vaccines - Vaccine Coverage in Canadian Pediatrics - 2015

Comparison of coverage estimates from cNICS 2011, 2013 and 2015

	2-YEAR-OLD CHILDREN			7-YEAR-OLD CHILDREN		
	2011	2013	2015	2011	2013	2015
Diphtheria	70.9	76.6‡	76.9	67.9	71.4	74.6
Pertussis	69.7	76.4‡	77.0‡	67.8	70.8	74.9
Tetanus	70.1	76.4‡	76.7	67.7	71.0	74.6
Polio	88.6	90.9	91.2	87.0	89.5	90.2
Hib	64.7	71.9‡	71.9	74.6	80.7‡	77.3
Measles	89.2	89.7	89.2	79.5	85.7‡	85.8‡
Mumps	88.8	89.4	88.9	79.2	85.1‡	86.2‡
Rubella	88.8	89.4	88.9	92.5	94.8	93.5
Meningococcal	84.6	88.7	87.8			

We did not compare Hepatitis B and pneumococcal vaccine data because of changes over time in provincial/territorial programs

We did not compare HPV coverage estimates because of changes over time in the age group at which it was measured (10–14 years in 2011, 12–14 years in 2013 and 13–14 years in 2015).

Varicella data are not show because of data quality concerns (see limitations section)

‡ Significantly different from 2011 ($p < 0.05$).

TABLE 4: Estimated vaccination coverage of routine immunizations in 17-year-old adolescents

ANTIGEN	NUMBER OF DOSES	COVERAGE % (95% CI)
Diphtheria	≥ 6	62.2 (56.2–67.8)
Pertussis	≥ 6	60.2 (54.2–65.9)
Tetanus	≥ 6	60.9 (54.9–66.6)
Polio	≥ 5	87.2 (82.2–90.9)
Hib	≥ 4	74.9 (69.3–79.8)
Measles	≥ 2	89.2 (84.7–92.5)
Mumps	≥ 2	87.7 (83.2–91.2)
Rubella	≥ 1	95.1 (91.8–97.1)
Hepatitis B	≥ 1	88.1 (84.4–90.9)

- Suboptimal vaccine coverage in children and adolescents in Canada can be attributed to the following:
  - Parents forgetting that child is due for immunization
  - Access challenges (e.g. unable to go to clinic during hours of operation)
  - Doubts about vaccines and their benefits

Sources: https://www.cps.ca/en/documents/position/strategies-to-improve-childhood-immunization; http://publications.gc.ca/collections/collection_2018/aspc-phac/HP40-156-2018-eng.pdf

;

Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (3/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
6	Dermatitis, Eczema & Diaper Rash	• Reliable estimates are not available for Canada • Prevalence of atopic dermatitis is estimated to be as high as 20% of children and 10% of adults[28]	• Common first point of entry to healthcare • Mild-moderate diaper dermatitis can be effectively treated with OTC emollients, while inflammation in the affected area may require steroidal preparation (which is also available OTC at lower strengths) [29]
7	Conjunctivitis / Allergic Conjunctivitis	• Affects 1-2% of people (3– 6M) get conjunctivitis each year[30] • Up to 75% of all pink eye cases in children are bacterial[30]	• Prescription topical antibiotics shorten duration of bacterial conjunctivitis, allowing earlier return to work/ school[30] • OTC can relieve viral conjunctivitis symptoms, pharmacist can educate patients regarding antibiotics having no effect on viral strains of conjunctivitis[31] • Pharmacist can prescribe/direct patient to most optimal treatment for allergic conjunctivitis[32]
8	Strep Throat	• Strep is the cause of 15–40% of sore throats among children and 5–15% among adults[33] • Invasive group A strep 6.2 cases per 100,000 in Canada (2016) [34]	• Pharmacists testing and prescribing antibiotics to patients were effective in reducing antibiotic use to <10% for those presenting[35]

Additional Information - Strep Throat

While rapid antigen detection test (RADT) for strep throat done at point of care can reduce unnecessary antibiotic prescription, limitations of the tests particularly in children should be carefully considered.

Patient Need or Demand	Clinical Impact

• Sore throat is one of the most common reasons for PCP visits, accounting for 2-4% of all visits[36]
• Estimated that between 87,729 and 175,454 cases of strep throat occur yearly in AB, BC, NS, ON and SK[37]
  o 48,698 to 97,395 cases for ON
  o Estimated ON market of 187K to 373K
• While most cases of sore throat are caused by viruses, the most common bacterial cause is group A beta-hemolytic streptococci (GABHS)[36]
• An Ipsos survey conducted on behalf of SDM in 2015 (n=1709) found that three-quarters of respondents would take a strep throat test at the pharmacy to avoid having to visit a physician clinic
	• Pharmacists testing and prescribing antibiotics for strep throat was found to be effective in reducing overall antibiotic use to <10% for those presenting with symptoms[38]
	  • UK pilot estimated pharmacists could treat two-thirds of all sore throat visits to physicians
	• Survey (n=1004) conducted by SDM in 2016 indicated that availability of strep throat test at the pharmacy helped divert 8/10 respondents that had negative results from an unnecessary trip to a walk-in, family physician or emergency room
	• Indirect benefits of strep throat RADT include improved timeliness of assessment and treatment, improved antibiotic use and improved accessibility to care for severe sore throat[37]
	Pediatrics*
	• In scope in AB, NS, BC
	• Analysis estimates that pediatric cases make up ~25-30% of all strep throat cases per year
	• Swabbing a child's throat to test for strep without a complete medical examination was contrary to clinical practice guideline recommendations[39]

Health System Impact: An economic analysis estimated that total cost savings to the ministries of health of AB, BC, NS, ON and SK could be approximately $1.28-2.56M per year by funding programs for community pharmacy-based testing for strep throat. This figure does not take into account any indirect cost savings that may result from reduced antibiotic prescribing, increased timely access to care and workplace productivity, etc.[37]

**Nova Scotia College of Pharmacists issued a notice in May 2018 cautioning pharmacists to only conduct POCT, particularly in children, after the patient has undergone an initial examination by a PCP and has been recommended to test for strep[40]*

Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (4/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
9	Oral Fungal Infection / Oral Thrush	• Affects approximately 2-5% of healthy newborns and a slightly higher percentage of infants in the first year of life (US) [41] • Immunocompromised patients are more prone to thrush; estimated 9% to 31% prevalence in AIDS patients and 20% prevalence in cancer patients[42]	• Most common treatment for oral thrush, especially in babies, is prescribed Nystatin[43] • If untreated can lead to systemic candidiasis, which carries a mortality rate of 71% to 79%[41]
10	Mild-Moderate Acne	• Acne affects an estimated 5.6M Canadians yearly[44]	• Early and effective acne treatment with prescription topical retinoids can reduce the development of new scars resulting from mild-moderate acne[45]
11	Dyspepsia, GERD & Acid Reflux	• 10-20% of Canadians suffer from GERD (3.4M – 6.8M) (2010)[46]	• Improved access as a result of pharmacist intervention can make a large impact on productivity and quality of life • A Canadian study estimated that patients with GERD lose 16% of their work time due to their symptoms[47]
12	Bacterial Skin Infections	• Impetigo accounts for 10% of skin problems in pediatric clinics (US) [48] • Estimated incidence rate of skin and soft tissue infections is 24.6 per 1000 person per year[48]	• Highest evidence rated treatments for impetigo are prescription oral and topical antibiotics[49] • Impetigo is a major childhood dermatological condition with potential lifelong consequences if untreated[50]

Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (5/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
13	Fungal Skin Infections	• About 5% of the Canadian population has foot infections, including athlete's foot[51]	• Pharmacist can direct patients to appropriate OTC or prescribe topical/oral treatment • Consult on appropriate treatment for children, infants and pregnant or breastfeeding women • OTC treatments are shown to be as effective as prescription treatments for most fungal infections[52]
14	Allergic Rhinitis (AR)	• Estimated to affect 20-25% of Canadians[53]	• 70% self-select medication for allergic rhinitis. Self-selection is suboptimal with only 15% selecting appropriate OTC medications[54] • OTC meds are effective for most mild intermittent conditions, moderate to severe persistent may require prescription medication for relief of symptoms[54]
15	Erectile Dysfunction	• Cross-sectional study of 3900+ Canadian men (40-88) found that overall prevalence was 49.4%[55] • Estimated 3M men over 40 affected (2011)[55]	• Improved access and education on treatment options • Men with ED have a 26% higher risk of all-caus[56] mortality and a 43% higher risk of death due to CVD, compared to men without ED[57]
16	Morning Sickness (from pregnancy)	• Affects up to 85% of pregnant women[57] • ~60% experience excessive salivation[58]	• Most commonly prescribed treatment is Diclectin but its effectiveness has been questioned recently[59]

Minor Ailment and Care Gaps – Prioritized by Patient Need and Clinical Evidence (6/6)

#	Condition	Magnitude of Demand (Literature)	Pharmacist Impact
17	Cytoprotection from NSAID Use	• 3.3% of senior adverse drug reaction (ADR) hospitalizations were due to NSAIDs; the 6th highest drug class for ADRs(2016) [60] • NSAIDs are prescribed to ~25% of Canadians for short-term use, but overall use is likely much higher with over-the-counter availability[61]	• Pharmacists can monitor adherence and determine if NSAID use is appropriate, counsel patients on non-drug measures and whether patient requires cytoprotection given risk factors
18	Migraines	• 8.3% of Canadians (8.8% in Ontario) have been diagnosed with a migraine[62] • 42% took prescription medication for their migraine(s)[62] • At least 50% of adults have experienced a headache within the past year[63]	• Pharmacists have critical role in decreasing risk of medication overuse headaches from overuse of OTC analgesics[64] • Prevalence medication overuse headache in Canada is 1–2% and as high as 20.6% in referrals to Canadian headache clinics (2018) [65]
19	Upper Respiratory Tract Conditions	• 23% of Canadian children aged 2-3 reported having frequent upper respiratory infections[66] • More than 1 in 4 ED visits for pneumonia resulted in a hospitalization for at least 1 night[67]	• Pharmacists are antimicrobial stewards (educate, ensure appropriate prescribing, etc.) and can help differentiate between viral vs. bacterial causes of URTIs[68]

Lyme Disease

Lyme Disease is the most common vector-borne infection in Canada,[69] affecting 2025 Canadians in 2017.[70] Recent surveillance indicated that populations of blacklegged ticks are spreading in eastern and central Canada *(see next slides for risk areas map and number of cases by province in Canada).*

Patient Need or Demand	Clinical Impact

• Experts conclude that the number of Lyme Disease cases each year are under-reported. One study suggested that there is a minimum of 10-28 fold under-detection across Canada[71]
  o A gap of 2,480 cases due to a 7.7 fold under-detection in ON
  o It is estimated that 11,500 human tick bites occurred in New Brunswick in 2014
• Chance of contracting Lyme Disease from a tick bite (with the tick attached for at least 36 hours) is roughly 1.2-1.4%[72]
• Late stage Lyme disease can lead to a number of severe manifestations including atrioventricular heart block, facial palsies, encephalitis, etc.[73]
	• In endemic areas, diagnosis is based on symptoms, objective physical findings (distinct presentation i.e. erythema migrans rash) and recent potential exposure to infected ticks (without confirmation from lab tests)[73]
	• **If untreated, bacterium can disseminate via bloodstream to other body sites and provoke damage therefore timely prophylaxis or treatment is important if criteria met[74]**
	Quebec:[75]
	• Since July 2018, pharmacists in the Montérégie region in Quebec are able to prescribe doxycycline for Lyme prophylaxis based on specific eligibility criteria:
	  o Person who has been bitten by a tick in the areas of the Estrie regions, Montérégie and Outaouais
	  o Time between tick withdrawal and the beginning of post-exposure prophylaxis (PEP) does not exceed 72 hours
	  o The tick remained on the skin for at least 24 hours
	  o There is no contraindication to doxycycline

Lyme Disease Prophylaxis Criteria[76]	• Tick is fully or partially engorged or has been attached for ≥ 24 hours • It has been ≤ 72 hours since the tick has been removed • Doxycycline is not contraindicated (e.g. pregnancy under 8 years old)

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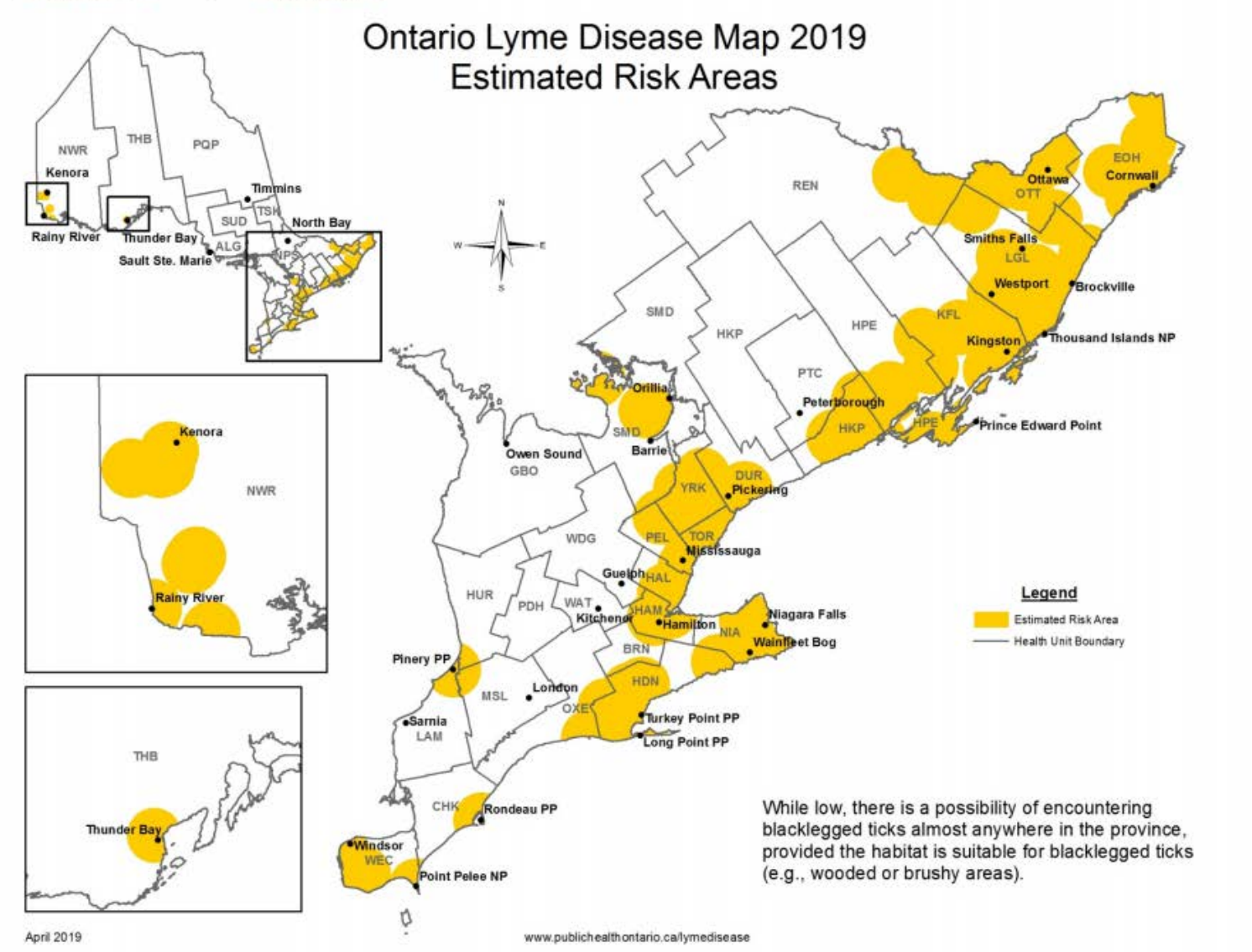
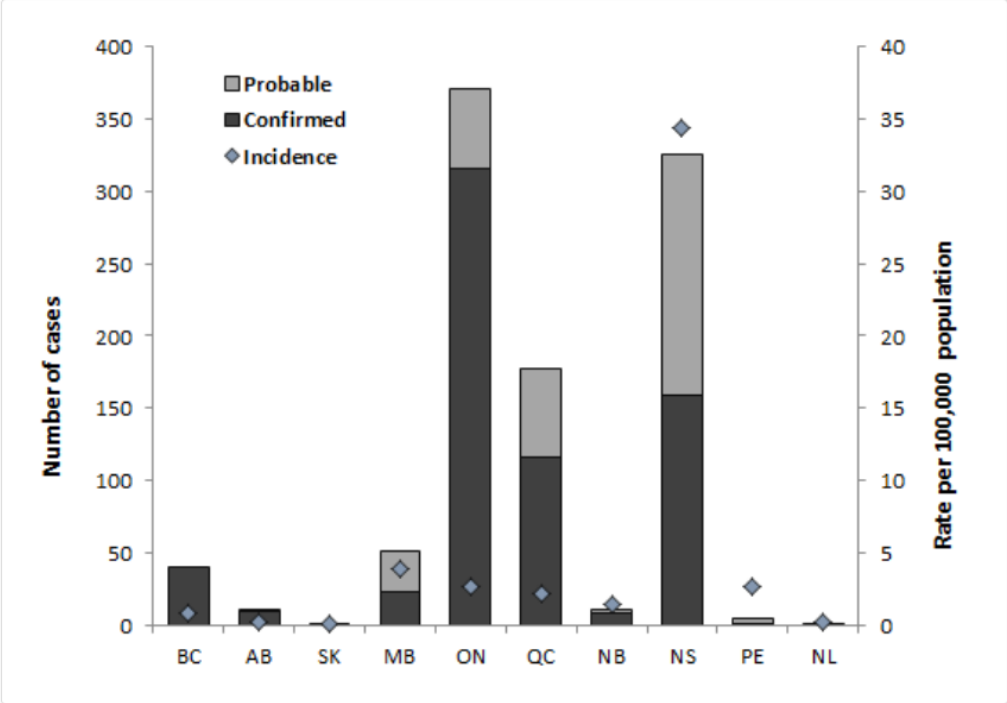


Source: https://www.publichealthontario.ca/-/media/documents/lyme-disease-risk-area-map-2019

Lyme Disease – Cases

The figure below provides the numbers of probable, confirmed and incidence of reported Lyme disease cases by province. Territories have not reported cases to Public Health Agency of Canada:

Figure 2: The numbers of probable, confirmed and incidence of reported Lyme disease cases by province of residence in Canada, 2016



The denominators used to calculate incidence are obtained from Statistics Canada.

Note: All the cases recorded for Alberta, Saskatchewan and Newfoundland and Labrador were acquired on travel outside the province.

Source: https://www.canada.ca/en/public-health/services/diseases/lyme-disease/surveillance-lyme-disease.html#a1

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