



PUBLIC HEALTH MEDICINE AS A CAREER



An Introduction by the
Public Health Physicians of
Canada Residents Council

Presented by:
(Insert Name Here)
(Month, DD, YYYY)
(Insert Contact Info Here)

Placeholder



Outline

- What are Health, Public Health, & Health Care?
- What do Physicians in Public Health do?
- What is Public Health & Preventive Medicine Residency?
- How Can You Explore a Career in Public Health?



**WHAT IS HEALTH?
WHAT IS PUBLIC HEALTH?
WHAT IS HEALTH CARE?**

A Case You May be Familiar With . . .

- Middle-aged man presents to the emergency department with chest pain and shortness of breath
- Troponin and Creatine Kinase are elevated
- Knowing only the above, what are some things you can guess about the patient?



- Weight?
- Diet?
- Smoker?
- Race & gender?
- White collar or blue collar?
- University educated? High school educated?



- The patient receives a stent and medications
- What do you think the patient's prognosis will be?
- How will quality of life change over time?
- What are the patient's barriers to avoiding another heart attack?



Another Case

- A 76 year old female has suffered a fall on a cold winter's day and had a hip fracture.
- Why might she have suffered a fall and fracture?
- What will her prognosis and quality of life be, with the best orthopedic care?



- How much better would preventing this have been? (No disrespect to the great work of orthopedic surgeons!)
- What was needed to prevent all this?



- How might these have helped?
 - Education?
 - Living arrangements?
 - Income?
 - Social supports?
 - Public transportation?
 - Street and sidewalk design?
 - Government policies?



One More Case

- A 36 year old female street worker was referred to your gynecologic practice after presenting to a walk-in with unusual bleeding. You diagnose her with cervical cancer and plan to operate.
- What has led to this illness?
- What may be some underlying causes?



What might have been the role of these in preventing this?

- Access to health care?
- Stigma?
- Abuse?
- Addiction?
- Income?
- Education?
- Social Supports?



Health is determined by many factors

- Medical care
- Preventive care
- Good treatment
- Lifestyle
- Socioeconomics
- Social attitudes (e.g. stigma)
- Government policies

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Not
Health
Care

- Public health is the practice of improving the non-health care factors that affect health
- Public health physicians are the medical experts within the diverse group of professions that work in public health

Health Is a Partnership

Good Health

Access to
medical care
Preventive care
Good treatment

**HEALTH
CARE**

Lifestyle
Socioeconomics
Social attitudes
(e.g. stigma)
Government
policies

**PUBLIC
HEALTH**

PUBLIC HEALTH MEDICINE AS A CAREER



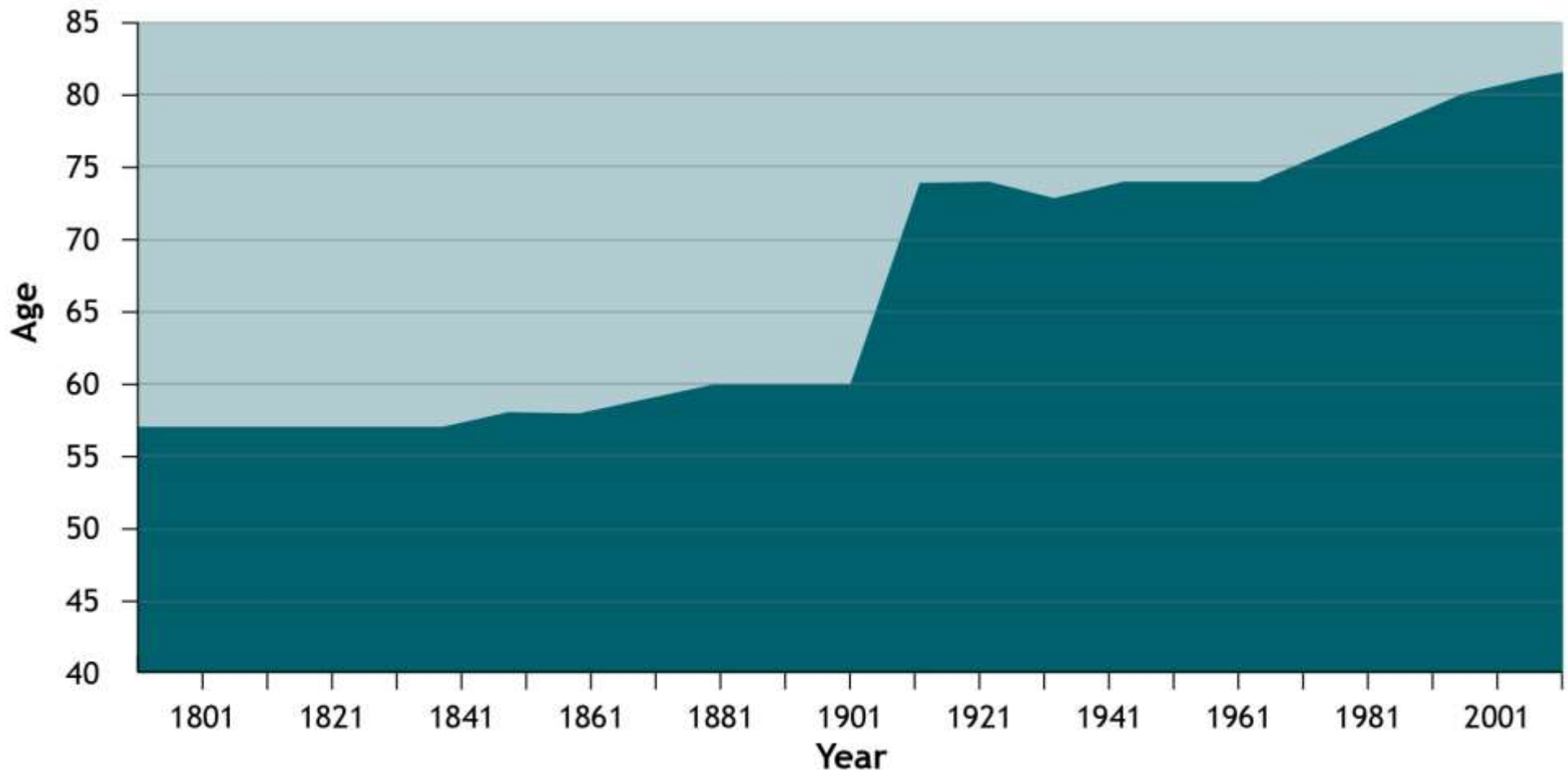
Courtesy of the Sudbury & District Health Unit (in northern Ontario)



HISTORY OF PUBLIC HEALTH & HEALTH CARE

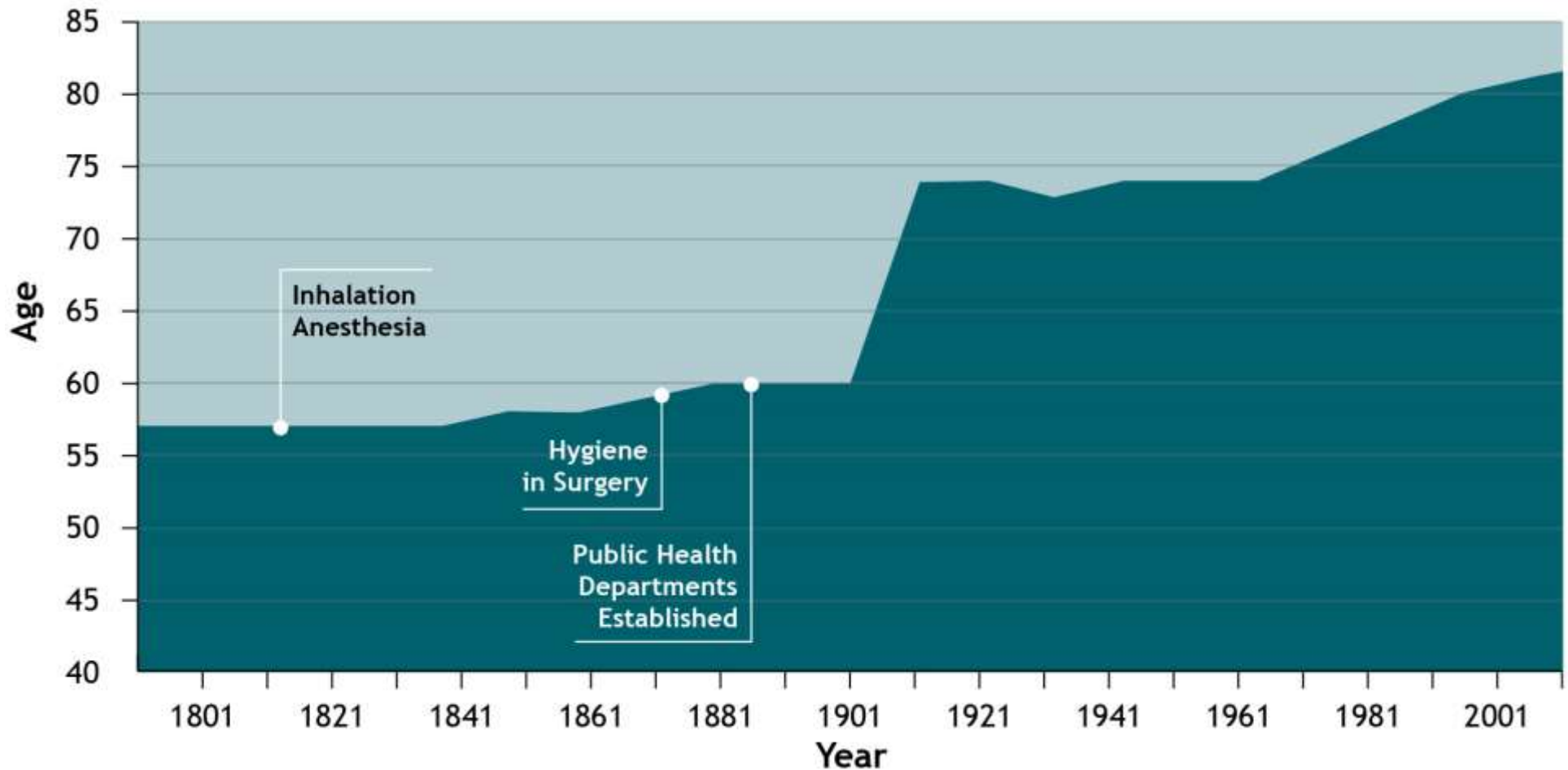


Average Expected Age at Death in Ontario for a 50 Year Old



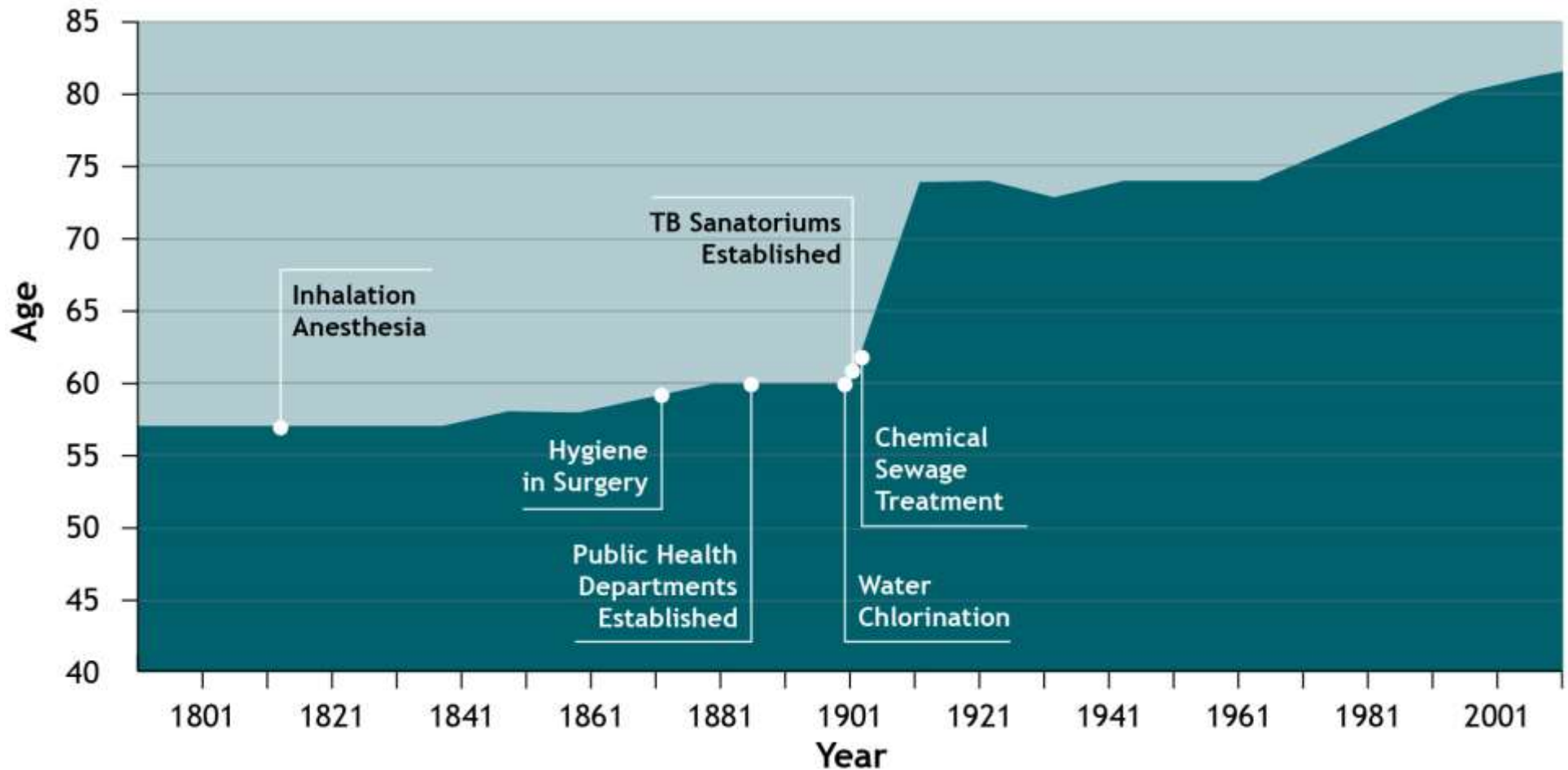
LifeInsuranceCanada.com Inc. <https://www.lifeinsurancecanada.com/life-expectancy-calculator/>

Average Expected Age at Death in Ontario for a 50 Year Old



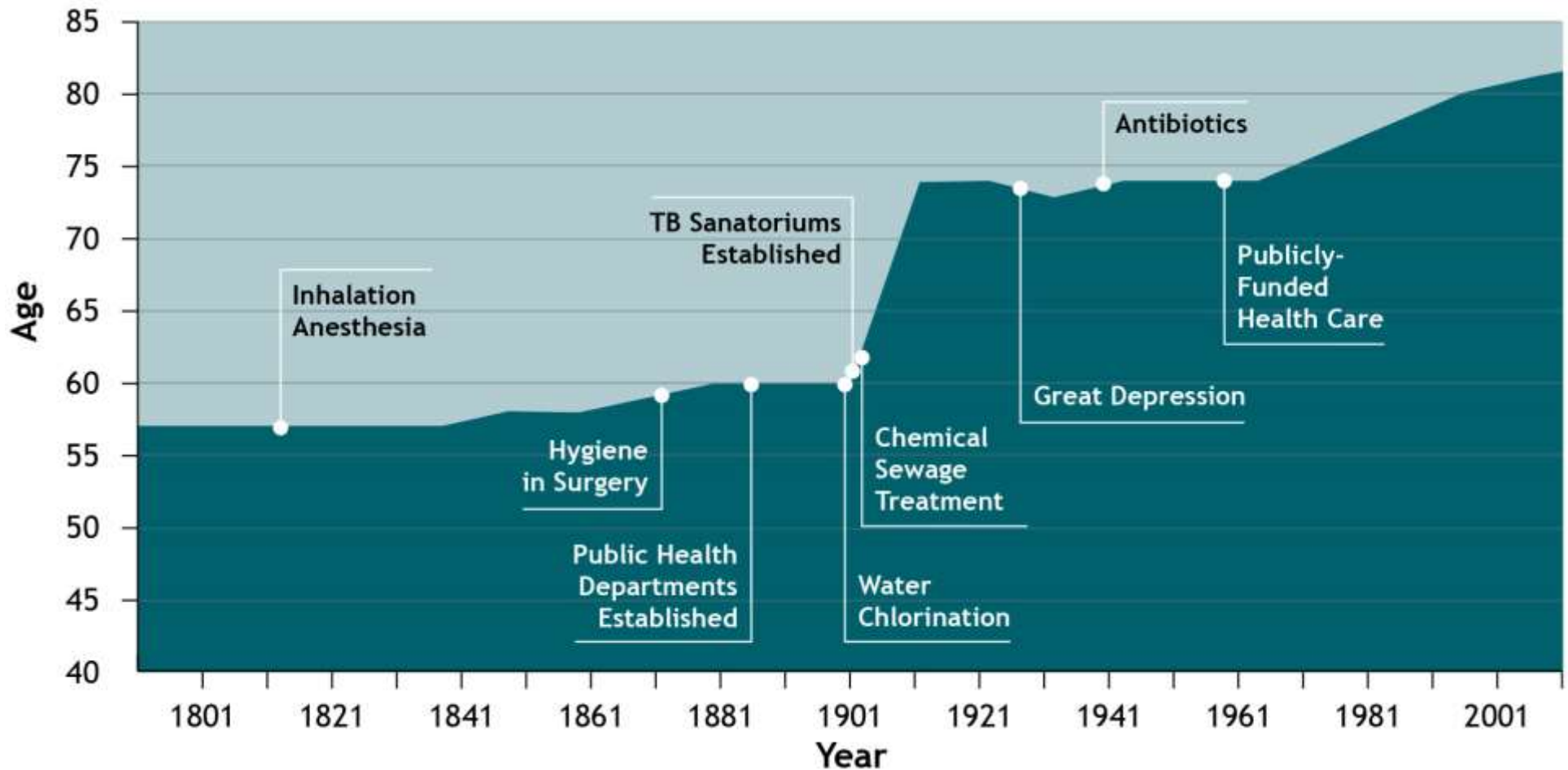
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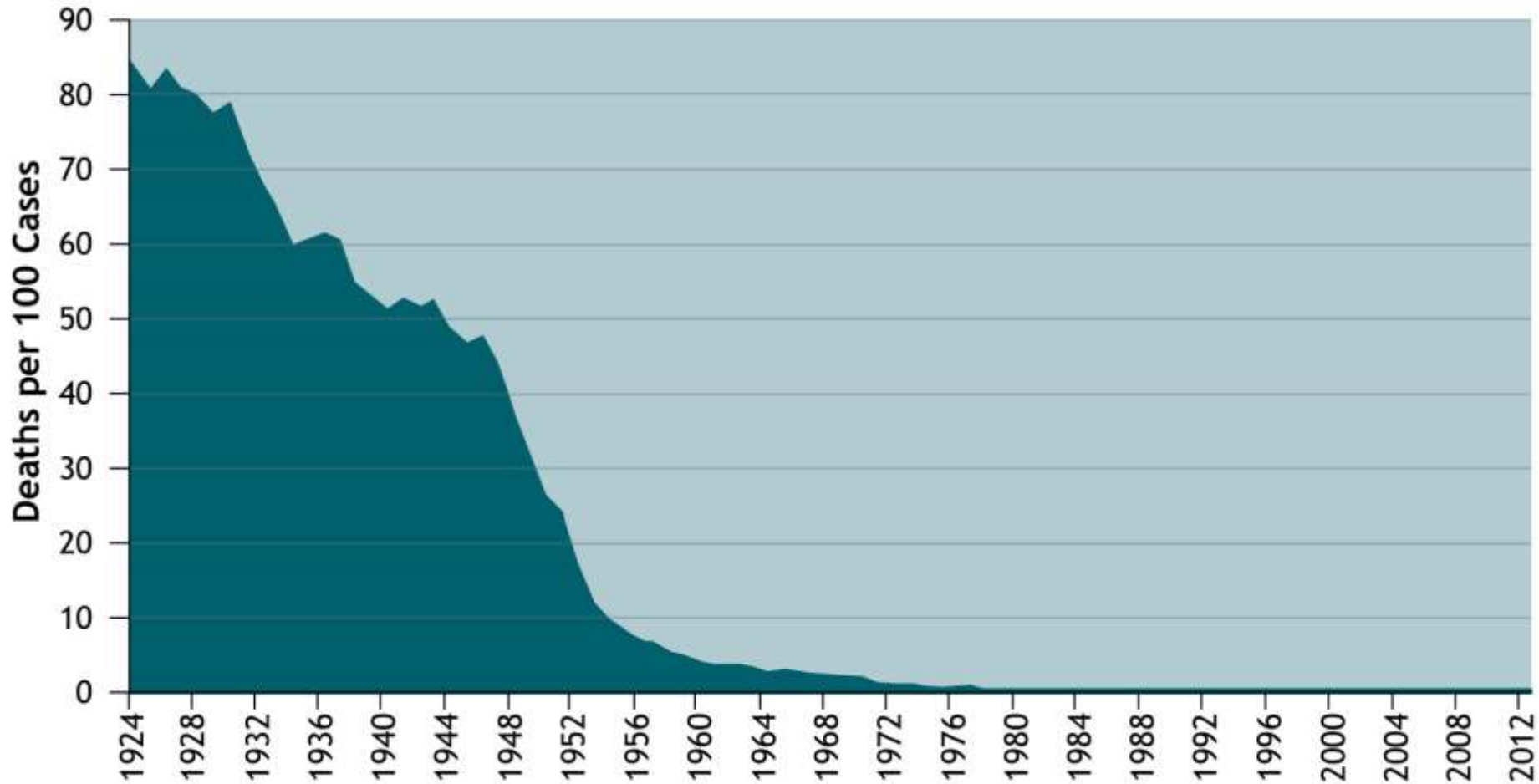
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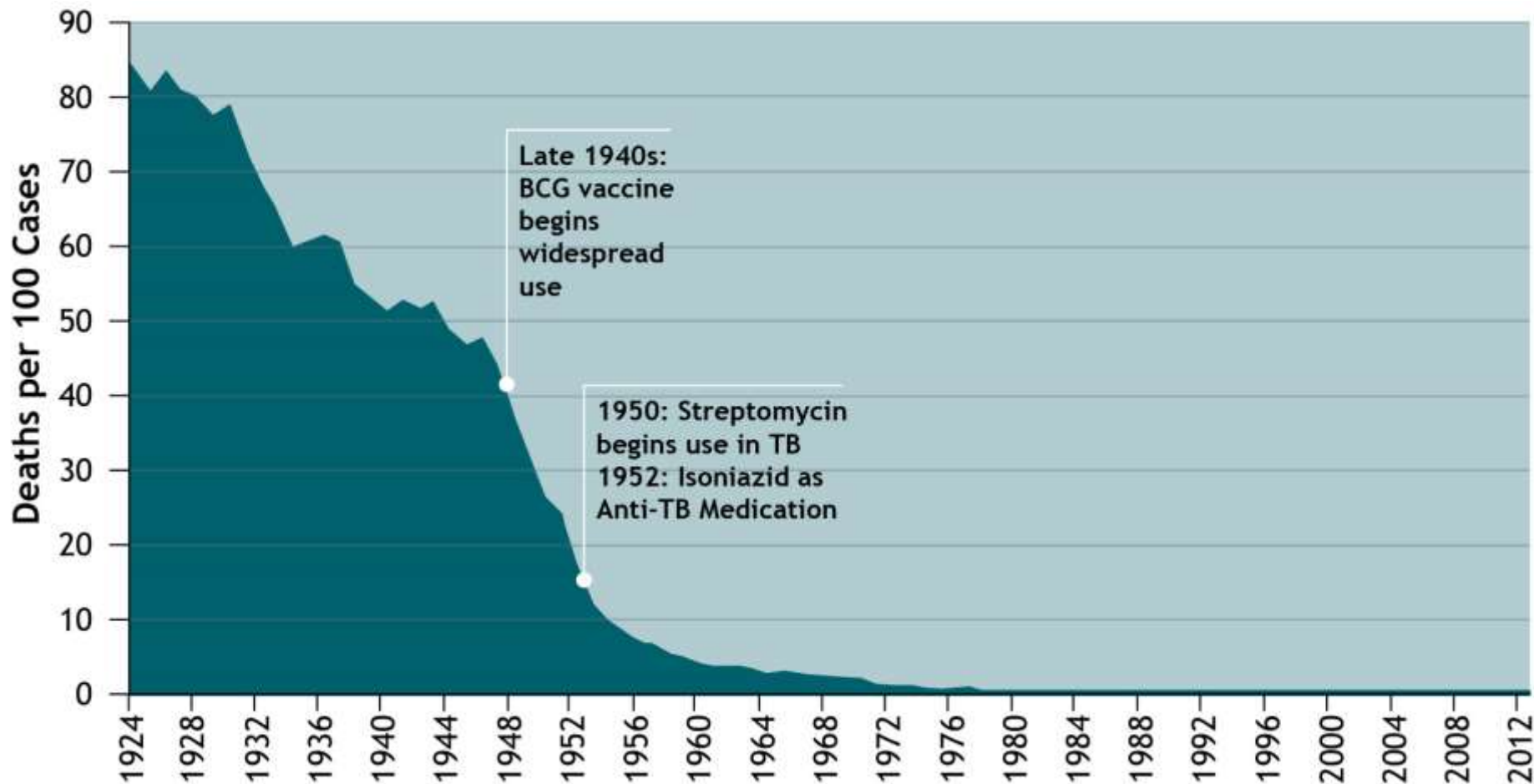
Case Fatality Rate from TB



CCDR: Volume 40-6, March 20, 2014

<http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/14vol40/dr-rm40-06/assets/longdesc/dr-rm40-06-ld-eng.php#fig1>

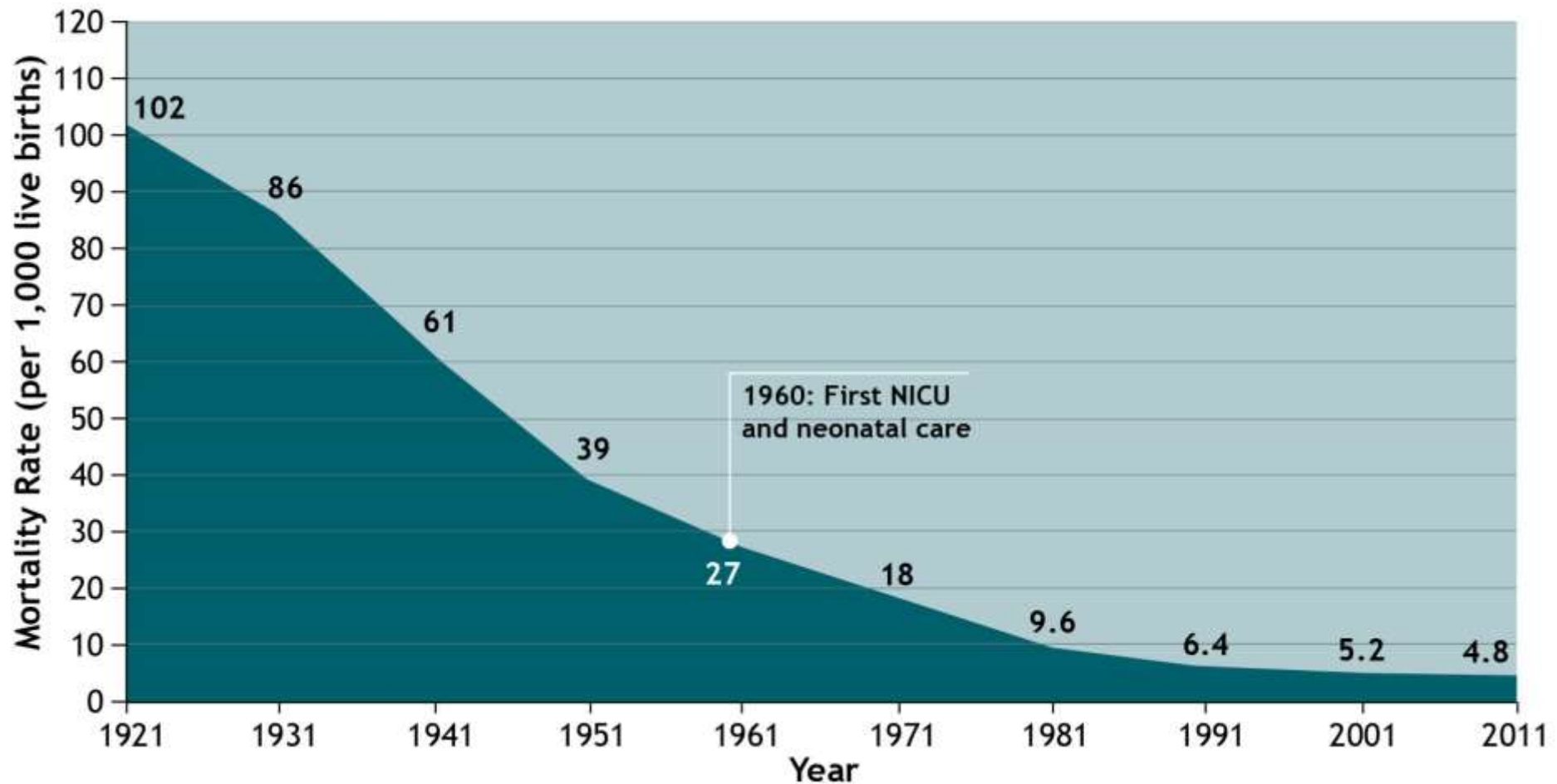
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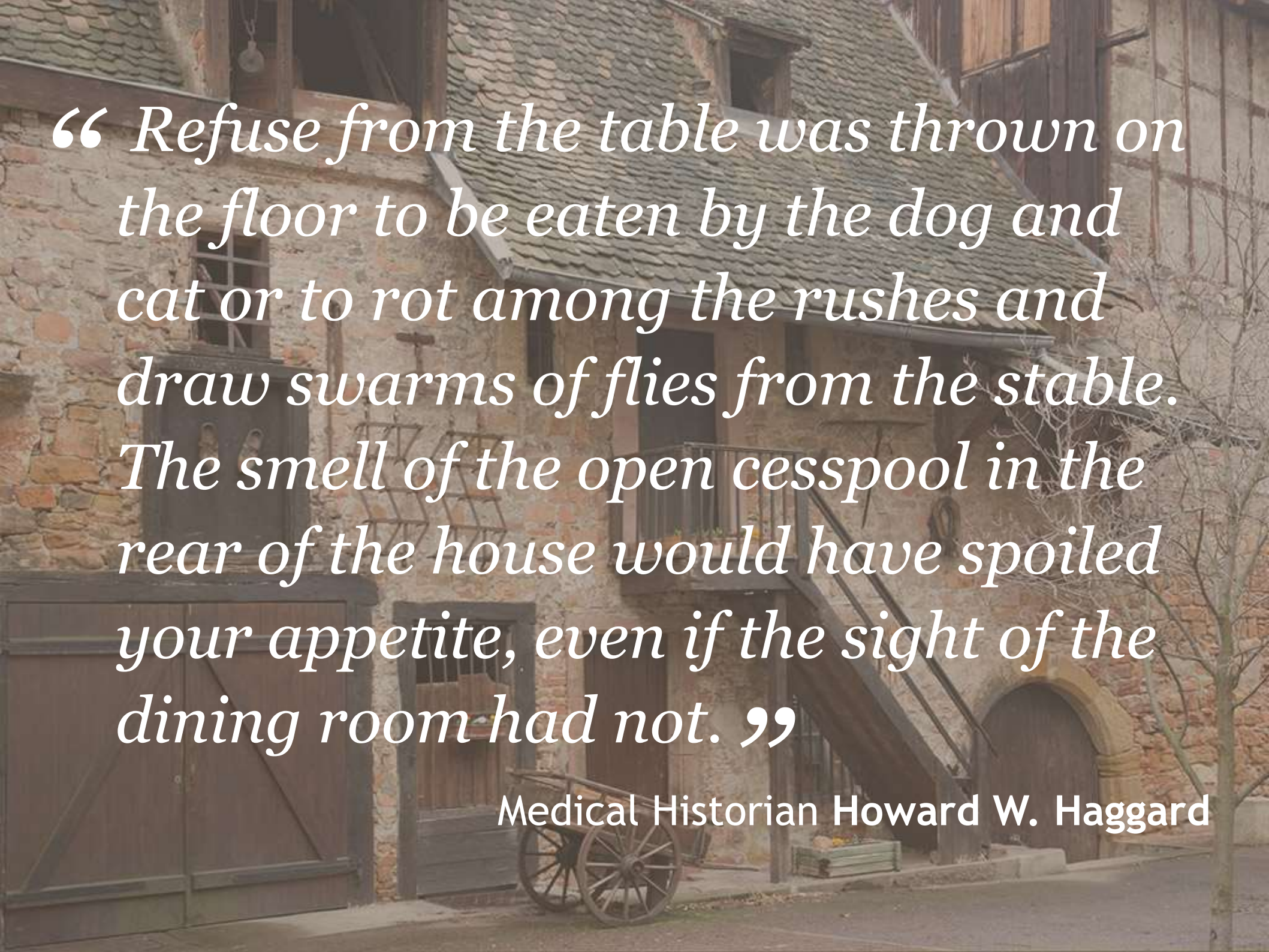
Infant Mortality



<http://www.thecanadianencyclopedia.ca/en/article/population/>

The Middle Ages (Europe)

- Life expectancy in early teens
 - Perinatal mortality
 - Unhealthy living conditions (e.g. no toilets, waste dumped to streets)
 - Vector-borne diseases
 - Stray animals roaming streets
 - No insect control; breeding in waste on streets

A photograph of a rustic stone building with a tiled roof, a wooden staircase, and a wooden cart in the foreground. The building has a weathered appearance with a mix of stone and wood. A wooden cart is parked in front of the building. The text is overlaid on the image in a white, serif font.

“ Refuse from the table was thrown on the floor to be eaten by the dog and cat or to rot among the rushes and draw swarms of flies from the stable. The smell of the open cesspool in the rear of the house would have spoiled your appetite, even if the sight of the dining room had not. ”

Medical Historian Howard W. Haggard

Establishing Public Health in Canada

• Isolating the very ill

- 1800s: Quarantine laws in Lower Canada
- 1816 Physician health officer to increase quarantine capacity
- Gross Isle, Quebec — focus of newcomer quarantine



Photo: D.A. McLaughlin /
[Bibliothèque et Archives Canada](#) / C-079029

Reference: This is Public Health: A Canadian History by Christopher Ruddy and Sue Sullivan - Canadian Public Health Association 2010

www.cpha.ca/uploads/history/book/history-book-print_all_e.pdf

Establishing Public Health in Canada

- Collecting data to understand population health
 - 1879 Census and Statistics Act mandated collection of vital statistics
- Widespread Vaccination
 - 1875 Smallpox vaccination program in Montreal



Photo: D.A. McLaughlin /
[Bibliothèque et Archives Canada](#) / C-079029

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Establishing Public Health in Canada

- Formal Public Health Structures
 - 1874–1892 first public health journal published (Dr. Edward Playter, sanitation leader)
 - 1882 Ontario establishes a full-time provincial Board of Health to manage public health
- 1890s: Sanitation Infrastructure



Photo: D.A. McLaughlin /
[Bibliothèque et Archives Canada](#) / C-079029

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Eradication of Polio

- 1930s & Great Depression: Polio outbreaks
 - Peaked in 1953: 9,000 cases in Canada.
- 1955 Polio vaccine
- 1994 Polio eradicated in Canada (WHO Certifies)



Reference: This is Public Health: A Canadian History by Christopher Ruddy and Sue Sullivan - Canadian Public Health Association 2010

www.cpha.ca/uploads/history/book/history-book-print_all_e.pdf

Impact of Vaccines

Table 1 Incidence of selected vaccine-preventable disease in Canada, pre-vaccine era compared with 2007 to 2011

Disease	Pre-vaccine era Peak annual number of cases	2007-2011 Peak annual number of cases
Congenital rubella syndrome (CRS)	29 (1979-1983)	0
Diphtheria	9,010 (1925-1929)	4
Haemophilus influenzae type b (Hib) (children <5 years)	526 (1986-1990)	12
Measles	61,370 (1950-1954)	750
Mumps	43,671 (1950-1954)	1,110
Pertussis (whooping cough)	19,878 (1938-1942)	1,967
Poliomyelitis	1,584 (1950-1954)	0
Rubella	37,917 (1950-1954)	12
Tetanus	19 (1957-1961)	6

Canadian Immunization Guide (March 2015)

Leading Causes of Death in Canada

1910

- Pneumonia & Influenza
- TB
- Diarrhea
- Heart Disease
- Stroke

2011

- Cancer
- Heart Disease
- Stroke
- Chronic lower respiratory diseases
- Unintentional injuries

Leading Causes of Death in US

1900

- Pneumonia & Influenza
- TB
- Diarrhea
- Heart Disease
- Stroke
- Kidney Disease
- Unintentional Injury
- Cancer
- Senility (Alzheimer's?)
- Diphtheria

1998

- Heart Disease
- Cancer
- Stroke
- Chronic lower respiratory diseases
- Unintentional injuries
- Influenza & Pneumonia
- Diabetes
- Suicide
- Kidney Disease
- Chronic Liver Disease

CDC. Leading Causes of Death, 1900-1998 http://www.cdc.gov/nchs/data/dvs/lead1900_98.pdf

Shifting from Infection to Chronic Disease

- 1971: mandatory seatbelt laws
 - 6,000 per year to less than 2,500 per year
 - Cost per life saved is \$69
- 1970s-80s Smoking restrictions
- 1986 Ottawa Charter on Health Promotion



Reference: This is Public Health: A Canadian History by Christopher Ruttly and Sue Sullivan - Canadian Public Health Association 2010
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Cost-Benefit of Public Health Interventions

Table 3: Cost per life year saved for selected immunization programs and other public health interventions (adapted from references)

Public Health Intervention	Cost per life year saved*
Vaccines	
Hepatitis B screening in pregnancy and immunization of children carriers	\$164
Human papillomavirus vaccine for 12 year old girls in a school-based immunization program	\$12,921
Varicella vaccine for children	\$16,000
Pneumococcal conjugate vaccine for children	\$125,000
Other Interventions	
Mandatory seat belt law	\$69
Chlorination of drinking water	\$3,100
Smoking cessation counselling	\$1,000 to \$10,000
Annual screening for cervical cancer	\$40,000
Driver and passenger air bags/manual lap belts (vs. airbag for driver only and belts)	\$61,000
Smoke detectors in homes	\$210,000
Crossing control arm for school buses	\$410,000
Radiation emission standard for nuclear power plants	\$100,000,000

* Monetary resources required to save one year of “statistical” life

Canadian Immunization Guide (March 2015)

Future Directions in Public Health

- Controlling health care costs
- Restructuring our society to be healthier
 - What's today's game changer like sanitation was 100 years ago?
- Anti-vaccination advocates
- Climate change

PUBLIC HEALTH MEDICINE AS A CAREER



Courtesy of the Canadian Public Health Association



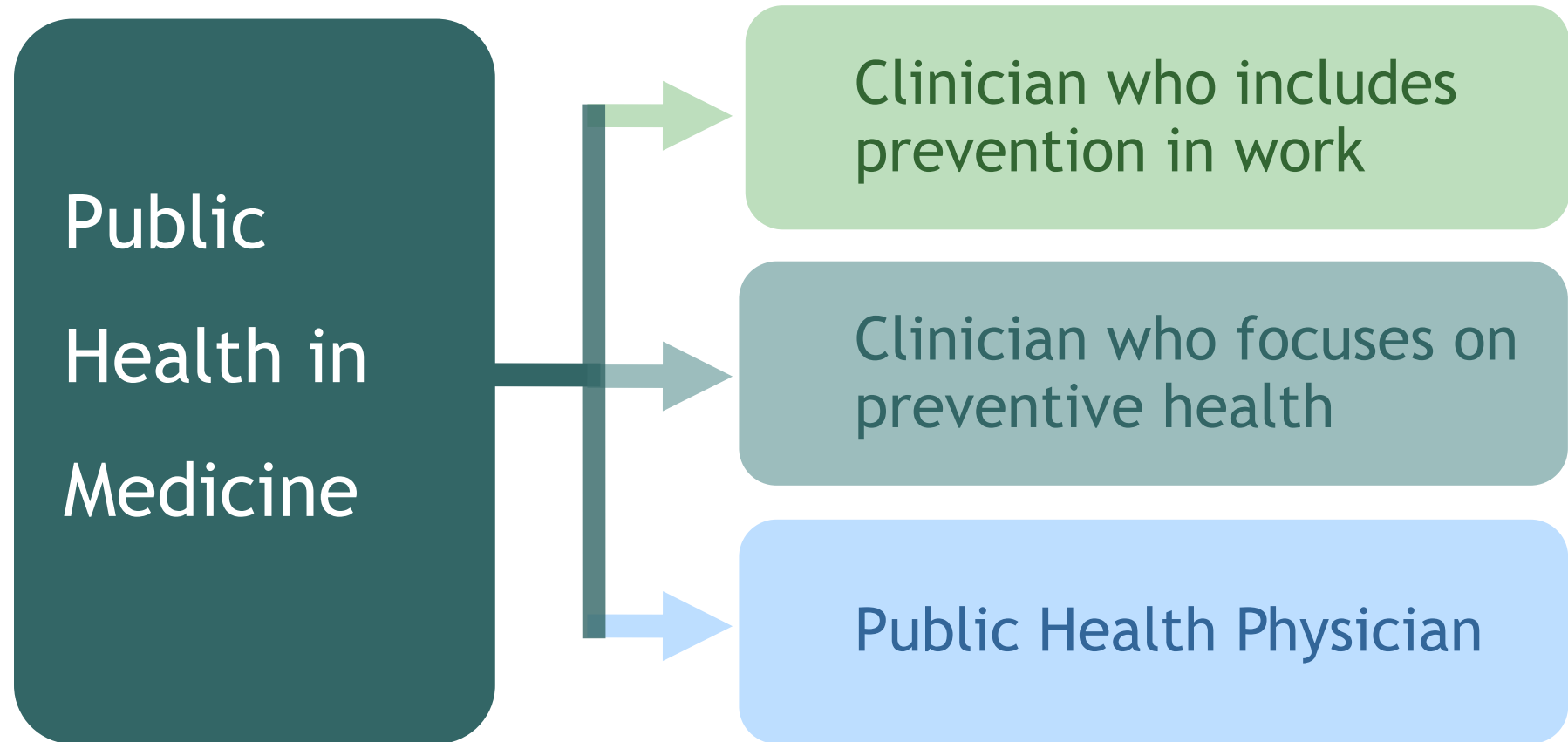
A MEDICAL CAREER IN PUBLIC HEALTH

How to Get Involved
in Public Health
as a Physician



Specialties Working in Public Health

- Public Health & Preventive Medicine
- Family Physicians
- Emergency Medicine
- Infectious Disease
- Medical Microbiology
- Pediatrics
- Internal Medicine
- Many Others



Including Prevention in Practice

- Vaccination
- Preventive health counseling (e.g. smoking)
- Advocating supports for patients
- Actively ensure all school children are immunized
- Collaborating with Public Health Departments to support those with chronic infectious diseases to reduce spread (e.g. HIV, Hep C)
- Providing sexual health services to underserved populations

Focusing on Public Health

- Prevention-focused practice
 - Offering mix of clinical and support services for chronic diseases
 - Addictions medicine

Focusing on Public Health

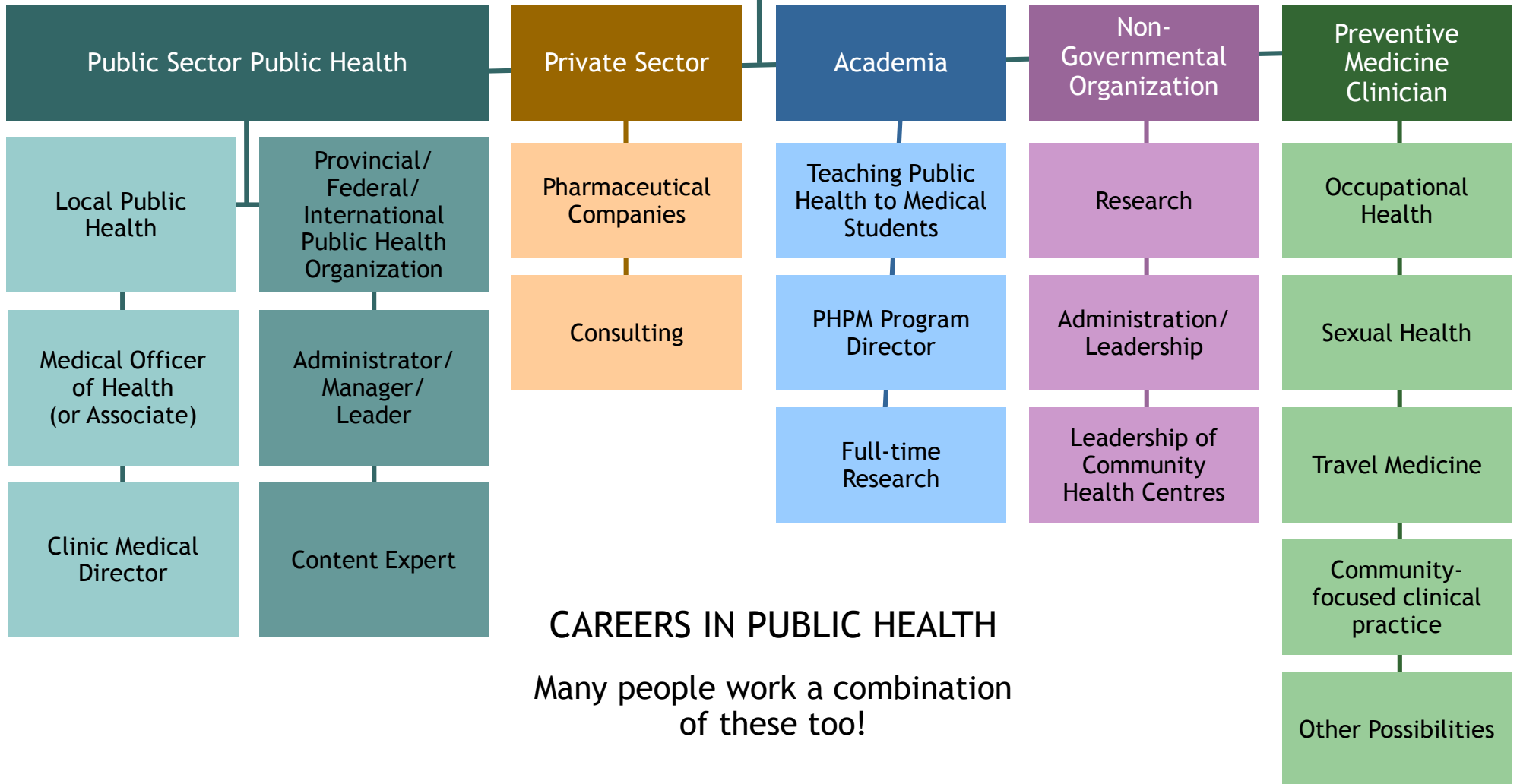
- Working within Public Health Departments
 - Travel Clinics
 - Sexual Health Clinics
 - Medical Director for Sexual Health Clinics
 - Public Health Laboratories
 - Emergency Preparedness
- Occupational Health
- Academics

Public Health Physician

- Medical consultant to a Public Health Department
 - Infectious disease (e.g. prophylaxis of contacts)
 - Environmental hazards (e.g. what is the risk to health?)
 - Chronic disease (e.g. program planning)
 - Advocacy (e.g. media, to government)
 - Emergency management (e.g. ensuring health and safety)
- Research & teaching
- Leading health organizations
- Occupational Health

PUBLIC HEALTH MEDICINE AS A CAREER

Public Health & Preventive Medicine Specialist



Lifestyle Issues

- Work intensity
 - Part time, flexible
 - Multiple careers combined (e.g. clinical practice & local public health)
 - Most specialists have a 40–50 hour work week
- Call
 - Home call
 - 1 in 2 to 1 in 5 depending on number of colleagues
 - Call is very light—rare for urgent issues needing after hours response

Lifestyle Issues

- Income
 - Public sector: \$200–300,000 (no overhead)
 - Researcher: \$150–225,000 (no overhead)
 - Clinician: \$250–\$350,000 (overhead)
- Public sector and academic jobs come with benefits packages

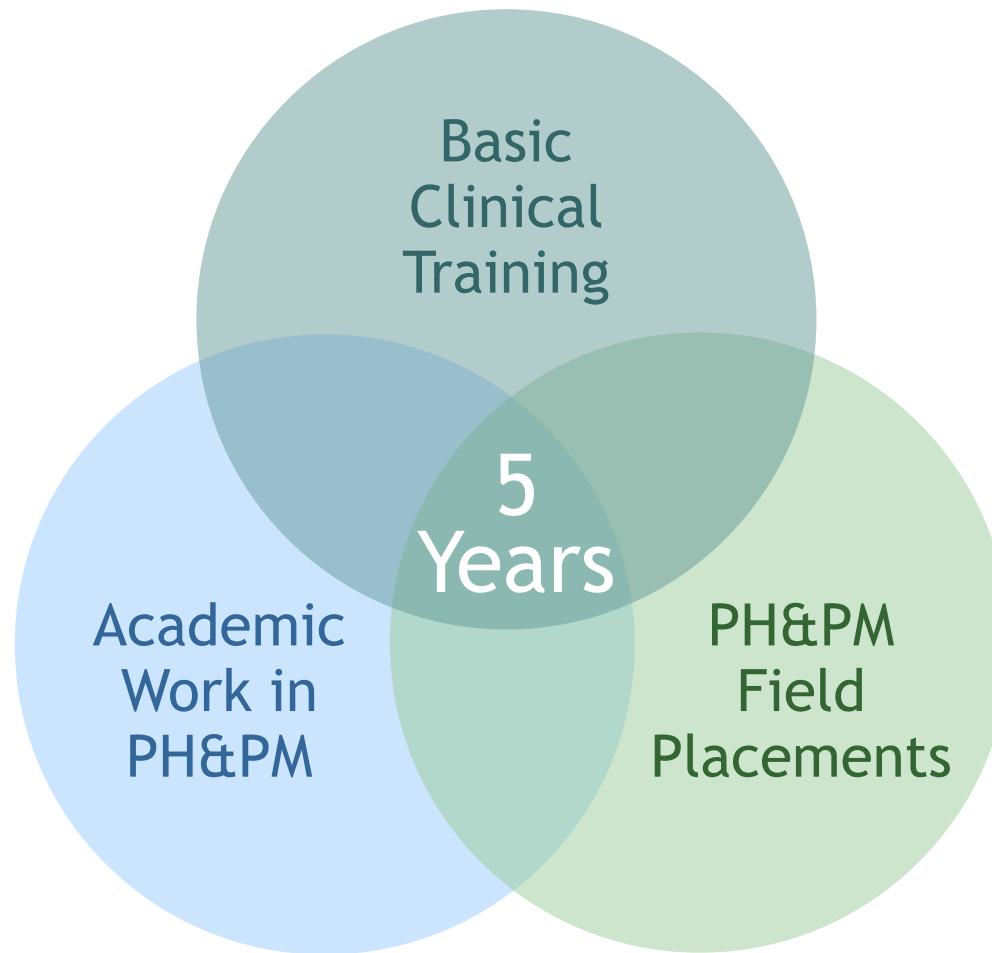


PUBLIC HEALTH & PREVENTIVE MEDICINE TRAINING

Introduction to the
Residency Program



Training Components



Clinical Training

- 1 year required
 - Similar to first year in most programs
 - Major disciplines (e.g. Internal Medicine, Pediatrics, OB/GYN)
 - Mostly inpatient work; reinforces medical knowledge and skills

Clinical Training

- Up to 1 additional year of clinical training
 - “Related to disease prevention or health promotion”
 - Can be used to complete requirements for CFPC certification
 - Can be used to gain competence in area of preventive medicine (e.g. sexual health, travel medicine, occupational health)

Academic Work

- 1 year required
- Generally graduate school
 - E.g. Master's degree or 1 year of courses
- Competencies needed for public health practice
 - Epidemiology, statistics, surveillance methods
 - Qualitative/quantitative research methods
 - Policy and program evaluation
 - Management and leadership
- Varying flexibility by program for how and where academic training is completed

Public Health Field Placements

- 1 year required
 - Typically 1.5 to 2 years required to meet readiness for exams
- Rotations
 - Local, provincial, and national public health agencies
 - Public Health expert bodies
 - NGOs offering public health services (e.g. addictions prevention)

Public Health Field Placements

- Exposure to different domains of Public Health
 - Communicable disease control
 - Health promotion
 - Environmental health
 - Etc.

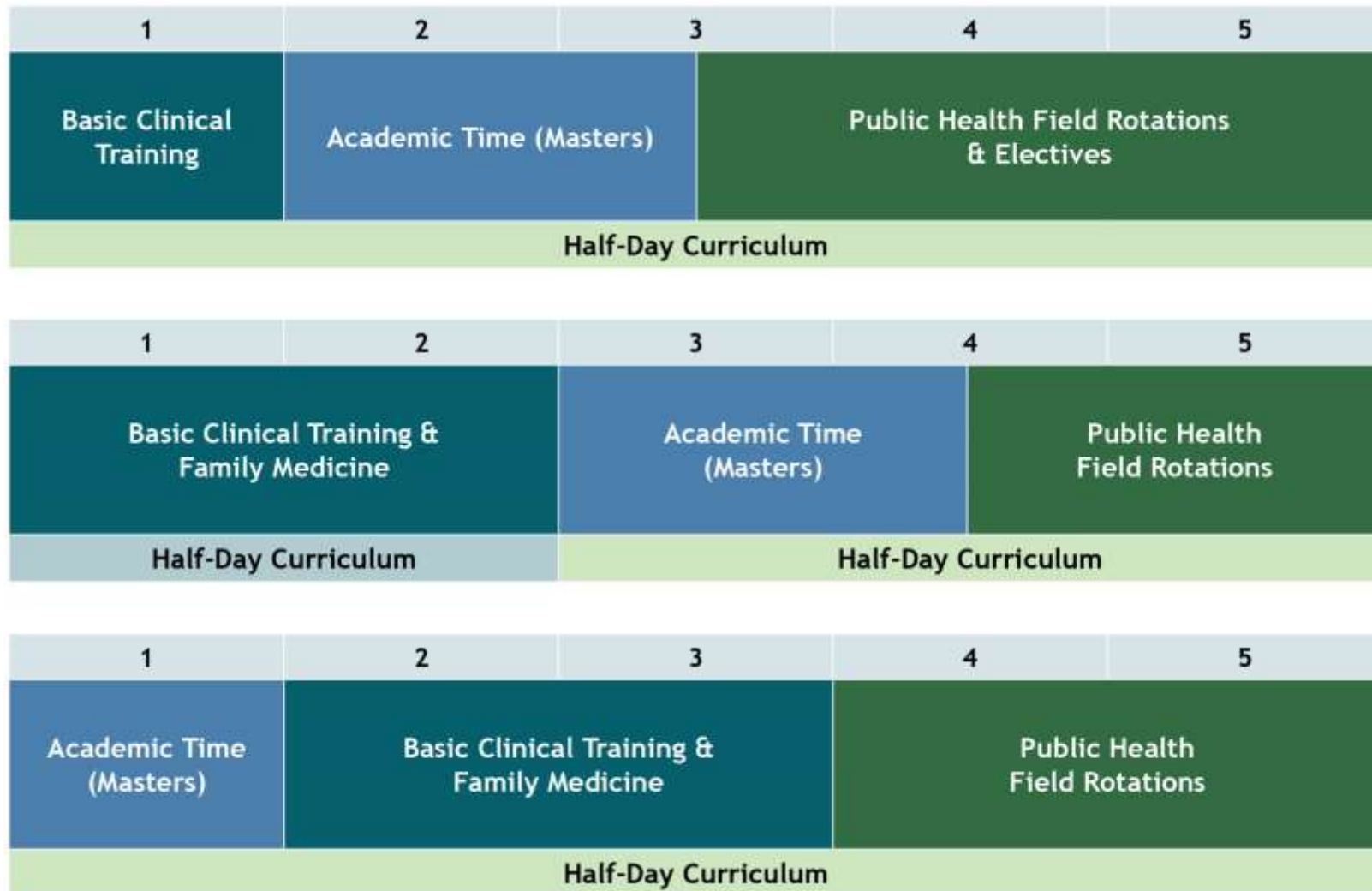
Public Health Field Placements

- Roles
 - Follow-up of reportable infectious disease cases (e.g. identifying contacts, prescribing prophylaxis)
 - Contribute to or lead organizational projects
 - Management of units within organization
 - Apprentice the role of a public health physician

Multiple Training Pathways

- Family Medicine option
- Order of training components
 - Sequential Pathway
 - Clinical -> Academic -> Public Health
 - Academic -> Clinical -> Public Health
 - Integrated Pathway
 - Clinical, academic, and public health all interspersed

Multiple Training Pathways



Multiple Training Pathways



Key Points about Training

- Three major training requirements
 - Clinical Training
 - Academic Work
 - PH&PM Field Placements
- Mix of requirements can be tailored to career interest
- Different routes to completion
 - With/without Family Medicine
 - Sequential vs. Integrated pathways
- Different routes to completion
 - Some programs may suit you better than others!

Placeholder

Residency Programs can add information about their program if they wish

Video Placeholder



Video of Public Health residents discussing their residency and their career (a Canadian version of this)



**PUBLIC HEALTH &
PREVENTIVE MEDICINE
PROGRAMS**



Web Pages for Programs

- [University of British Columbia](#)
- [University of Calgary](#)
- [University of Alberta](#)
- [University of Saskatchewan](#)
- [University of Manitoba](#)
- [Northern Ontario School of Medicine](#)

- [McMaster University](#)
- [University of Toronto](#)
- [Queen's University](#)
- [University of Ottawa](#)
- [McGill University](#)
- [Université de Montréal](#)
- [Université Laval](#)
- [Université de Sherbrooke](#)

The [CaRMS web page](#) is also a good source of information about the the various programs.

The [Royal College](#) keeps a listing of program directors as well.

Pursuing Public Health without the Residency Training

- Many options
 - Residency which interacts with Public Health
 - Infectious disease, medical microbiology work with communicable disease public health
 - Pediatrics works with vaccination and early childhood programs
 - Emergency medicine works with emergency planning

Pursuing Public Health without the Residency Training

- Many options
 - Another residency + special training
 - E.g. tropical medicine certification, travel medicine, occupational health fellowships, sexual health
 - Academic training (e.g. MPH, PhD)
 - Research
 - Focusing on public health issues in any discipline
 - Serving your patients by treating the medical aspects, but also addressing social and other factors however possible

Benefits of the Specialty Training

- Scope of practice is wider
 - Public sector public health positions strongly prefer PHPM specialists
 - Broader training allows more flexibility
- More training in leadership & management
- More training in epidemiology and research skills
- 5 years of experience and connections in public health

Video Placeholder



Video of specialist discussing their work life



**EXPLORING
A CAREER IN
PUBLIC HEALTH**



Shadowing a Resident or Practitioner

What to expect

- Every day is *very* different:
 - Unpredictable
 - Anything can happen!
- You will likely work with a multidisciplinary team
 - This really enriches the experience
- Be prepared to move around
 - May go to many sites
- Be prepared to have no idea what is going on
 - What is neat about PH is that it is diverse
 - Has its own language almost
 - Many of the topics covered may not be familiar – but it is a great time to learn

Shadowing a Resident or Practitioner

Making it great

- Pick a time that works for you both
 - *Both total length and length per shadow session*
- Have some areas of interest
 - *Do some pre-shadow research*
- Dress to impress
 - *No white coats, but professional attire (office environment)*
- Be excited
- Be honest
- Shadow a few times and different people
 - So much diversity; one experience won't give you a true sense

Setting Up An Elective in Public Health

- Local Public Health Agency (w/ MOH/AMOH)
- Provincial Public Health
 - Expert Think Tank (e.g. BC Centre for Disease Control, Public Health Ontario)
 - Provincial Ministry
- Federal Public Health
 - Public Health Agency of Canada
 - Federal Ministry (Health Canada)
 - First Nations & Inuit Health Branch

Setting Up An Elective in Public Health

- Occupational health clinics
- Preventive medicine
(e.g. smoking cessation, sexual health, addictions prevention)
- Not for profit groups
(e.g. Canadian Cancer Society)
- Research elective

Finding an Elective

- AFMC Electives Portal: www.afmcstudentportal.ca
- Ask what's at your school
 - Public health residency program at or near your school
 - Contact the program director or residents — web sites often list their contact information
 - Public health department at your university
 - The local public health agency where you live



Finding an Elective

- School websites
 - Note that some schools require you contact a supervisor first, while others require you not to contact first
- Personal contacts
 - Residents, mentors, organizational websites



What to Look for in an Elective?

- Research vs. public health practice vs. clinical?
- Is there a project that you can get involved in?
- Local vs. provincial vs. federal vs. international?
- Does your medical school have a memorandum of understanding (MOU) with the host agency of your elective?
- Look for an enthusiastic and engaging supervisor

What to Look for in an Elective?

- Do you want a reference letter?
 - If so try to make your interest clear early on, and be keen!
- Duration
 - 2 weeks can give you a taste of public health, but 4 weeks is better to allow you to possibly get involved with a project and a better feel for what doing the job would be like

Additional Resources about Public Health & Preventive Medicine

- [Public Health Physicians of Canada](#)
 - Includes student forum, comparison of residency programs, and more
- Association of Faculties of Medicine of Canada
[Public Health Page](#)
 - Includes information for Public Health Interest Groups and learning resources

Placeholder

Residency programs can add additional sources about their program here

Join the Public Health Physicians of Canada (PHPC)

- Represents the interests of public health and preventive medicine specialists and public health physicians in Canada.
- More than 200 members.
- PHPC is the unique and vibrant voice for public health and preventive medicine specialists/public health physicians and continues to grow each year in membership.

Join the Public Health Physicians of Canada (PHPC)

- Established as the National Specialty Society for Community Medicine (NSSCM) in 1998 and promotes the inclusion of a population and public health perspective in the development and implementation of health policy.
- Join Today: There is no cost to join PHPC for medical students and residents.
- Website: <http://nsscm.ca>

Public Health & Preventive Medicine Video Series





QUESTIONS?



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