

EPIDEMIOLOGY

MS, MPH  PhD, DrPH

WHAT IS EPIDEMIOLOGY?

- Study of the distribution and determinants of health-related states or events, including disease and the application of this study to the control of diseases and other health problems.
- Various methods can be used to carry out epidemiological investigations: surveillance and descriptive studies can be used to study distribution; analytical studies are used to study determinants.

“upon”
epi
“study”
demiology
“people”

SAMPLE TOPICS OF EPIDEMIOLOGIC STUDIES

Environmental Exposures

- Lead and heavy metals
- Air pollutants and other asthma triggers

Infectious Diseases

- Foodborne illness
- Influenza and pneumonia

Injuries

- Increased homicides
- National surge in domestic violence

Non-infectious Diseases

- Localized or widespread rise in particular type of cancer
- Increase in a major birth defect

Natural disasters

- Hurricanes Katrina & Rita (2005)
- Haiti earthquake (2010)

Terrorism

- World Trade Center (2001)
- Anthrax Release (2001)

POPULAR EPIDEMIOLOGIST SPECIALTIES



Infectious and
Chronic Diseases



Maternal and
Child Health



Public Health
Preparedness
& Emergency
Response



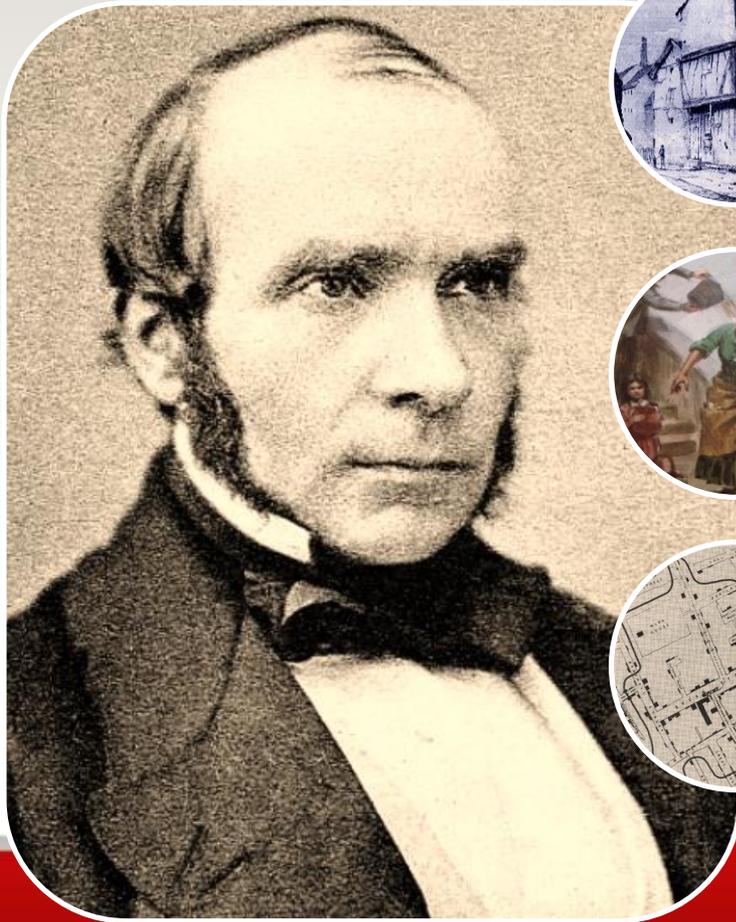
Environmental
Health



Substance Abuse
& Mental Health



MEET THE FATHER OF EPIDEMIOLOGY



JOHN SNOW, 1813-1858

Born in York, England, the son of a coal-yard laborer.

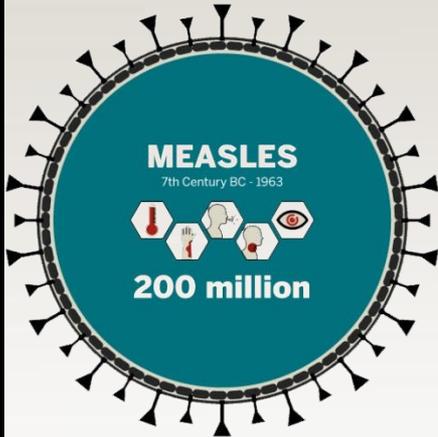


Snow spent his life trying to prove that repeated cholera outbreaks in London in the 1800s were caused by a contagion in the drinking water.



Snow's persistent efforts to determine how cholera was spread and the statistical and mapping methods he initiated, earned him his title.

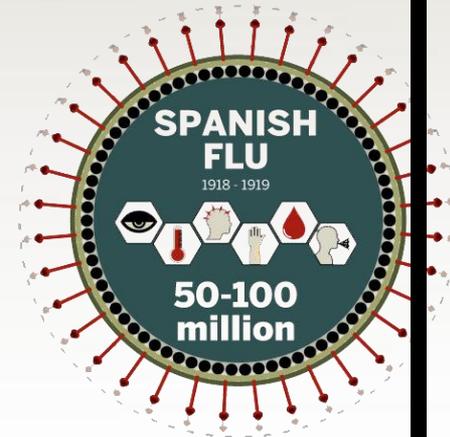
DEADLIEST PANDEMICS IN HISTORY



25+ million

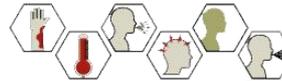


25 million



TYPHUS
430 BC - TODAY

4 million



CHOLERA
1817 - TODAY

3 million



THIRD PANDEMIC
1855

12 million



HONG KONG FLU
1968 - 1969

1 million



GRADUATE PUBLIC HEALTH PROGRAMS

with Epidemiology Focus

[Johns Hopkins Bloomberg School of Public Health](#)



[Harvard T.H. Chan School of Public Health](#)



[U North Carolina Gillings School of Global Public Health](#)



[U Michigan School of Public Health](#)



[Columbia U Mailman School of Public Health](#)



[U Washington School of Public Health](#)



[Emory U Rollins School of Public Health](#)



ADMISSION REQUIREMENTS

for Johns Hopkins Bloomberg School of Public Health

APPLICATION

Statement of objectives and research goals (2 page limit)

Resume/CV, Transcripts

Three letters of recommendation (at least one academic, adviser preferred)

STANDARDIZED TESTS

GRE/MCAT or TOEFL/IELTS (scores less than 100/7.5 will not be considered)

Average scores in the 70th percentile or higher and an average GPA of 3.3

COURSES

Math through calculus

Biology

One additional science

WORK EXPERIENCE

One year minimum of full-time post-baccalaureate work is required for the PhD and ScD, only.

GENERAL EPIDEMIOLOGY AND METHODOLOGY

Doctoral course work for Johns Hopkins Bloomberg School of Public Health

Y E A R 1	SUMMER BEFORE	Intro to Online Learning Sexual Harassment and Sexual Violence Prevention Training	Avoiding Plagiarism
	FIRST TERM	Statistical Methods in Public Health I or Methods in Bio Statistics I FY Epidemiology Doctoral Seminar Epidemiologic Methods I	Current Topics in Epidemiologic Research Academic and Research Ethics at JHSPH Principles of Genetic Epidemiology
	SECOND TERM	Statistical Methods in Public Health II or Methods in Biostatistics II Epidemiologic Methods II FY Epidemiology Doctoral Seminar	Current Topics in Epidemiologic Research Introduction to Clinical Trials
	THIRD TERM	Statistical Methods in Public Health III or Methods in Biostatistics III Epidemiologic Methods III	FY Epidemiology Doctoral Seminar Current Topics in Epidemiologic Research
Y E A R 2	FOURTH TERM	Statistical Methods in Public Health IV or Methods in Biostatistics IV	Special Studies & Research Epidemiology with Adviser Current Topics in Epidemiologic Research
	FIRST TERM	Special Studies & Research w/ primary course instructor Current Topics in Epidemiologic Research Doctoral Seminars in Epidemiology	Advanced Methods for Design Analysis Practical Skills in Conducting Research in Clinical Epi & Investigation
	SECOND TERM	Current Topics in Epidemiologic Research Doctoral Seminars in Epidemiology	Advanced Theory and Methods in Epidemiology
	THIRD TERM	Current Topics in Epidemiologic Research Doctoral Seminars in Epidemiology	Causal Inference in medicine and Public Health I <i>also offered 4th term online</i>
	FOURTH TERM	Current Topics in Epidemiologic Research Problems in the Design of Epidemiologic Studies: Proposal Development and Critique	

WHAT CAN YOU DO WITH YOUR DEGREE?

Master's (MPH or MS)

Epidemiologist
*studying diseases in a given
population or group*

Clinical Researcher
*using research to study the
efficacy of treatment*

Data Analyst
*using data to draw conclusions for
the good of public health*

Doctorate (PhD or DrPH)

Director of Clinical Research
*overseeing clinical research in a
given institution*

Professor of Epidemiology
*teaching in an academic setting,
usually at a college or university*

Epidemic Intelligence Service Officer
*investigating possible and actual
disease outbreaks*

CAREER PROFILES



W. Tun, MS, PhD

EIS Officer, Division of STD Prevention, CDC



Katrina Roper, PhD, MAppEpid, BSc

Honorary Lecturer, MAE
Australian National University



Joel Begay, MPH

Hospital & Molecular, Epidemiology



C. Jessica Metcalf, PhD

Asst. Prof. EEB & Public Affairs
Princeton University



Let's Learn Public Health:
Epidemiological Studies Made Easy



PU Alumni Join Ebola Intervention
in West Africa

GERMS ON THE BIG SCREEN

-fun with epidemiology!



Contagion (2011)

- lethal airborne virus that kills within days quickly turns pandemic
- the masses' reaction rings true, harking back to the days of SARS



I Am Legend (2007)

- A rapidly-mutating virus goes airborne, wiping out the majority of humanity



28 Days Later (2002)

- the "Rage" virus spreads like the real-life Ebola virus and instantly causes rabies-like madness



Disease seemingly goes hand-in-hand with many of our worst nightmares in movies- fortunately, moviegoers can still get their big screen thrills armed with the best vaccination against the contagion of fear... KNOWLEDGE.

IMPORTANT LINKS

- American Journal of Epidemiology... academic.oup.com/aje
- Public Health Online: Epidemiology... www.publichealthonline.org/epidemiology/
- Public Health: Epidemiology & Research... www.publichealth.org/careers/epidemiology/
- Epimonitor... www.epimonitor.net/About.htm
- World Health Organization... www.who.int/topics/epidemiology/en/
- Centers for Disease Control and Prevention... www.cdc.gov/
 - Post-grad fellowships: www.cdc.gov/fellowships/full-time/bachelors.html
 - Principles of Epidemiology in Public Health Practice (pdf)...
www.cdc.gov/ophss/csels/dsepd/ss1978/ss1978.pdf
- National Institutes of Health... www.nih.gov/
- Explore Health Careers: Epidemiology...
explorehealthcareers.org/career/public-health/epidemiology/