Population Health

PUBH 2000 - Dr. Witcher

Lecture #1

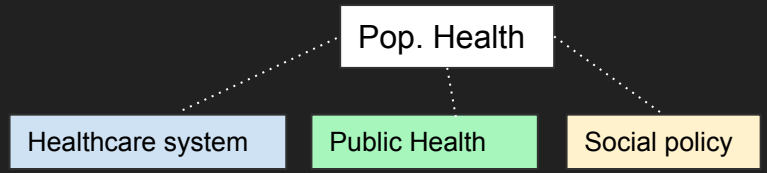
Population Health

Population health = distribution of health determinants, policies & intervention outcomes in a population

Health outcome = time specific (**m**orbidity, **m**ortality, chronic ***i***llness, **m**ental health)

SDOH = education, SES, poverty, physical enviro

Health policy = seatbelts, anti smoking



Public Health focuses on determinants of health in communities, preventive care, interventions & education

Health = "State of complete physical, mental & social well-being" (WHO,1948)

Tenets of Population Health

Determinants of health status are not just medical care inputs + utilization
but culture/ socio-economic factors (population & individual)

(population) societies with high level distribution of wealth enjoy a higher level of health status

(individual) **S**ocio-**E**conomic **E**nviro & Psychological resources **= determinants of health status**

Causal pathways: early childhood environment linked to major illness & deaths

Health policies take broad view

Understanding determinants of health stem from multidisciplinary approach (indiv. & society)

Population health

Population health requires

analysis of outcome,
understand the distribution of health outcomes in communities. Elements that influence health

"Texturing" = SES factors, root causes

ECOLOGICAL MODEL

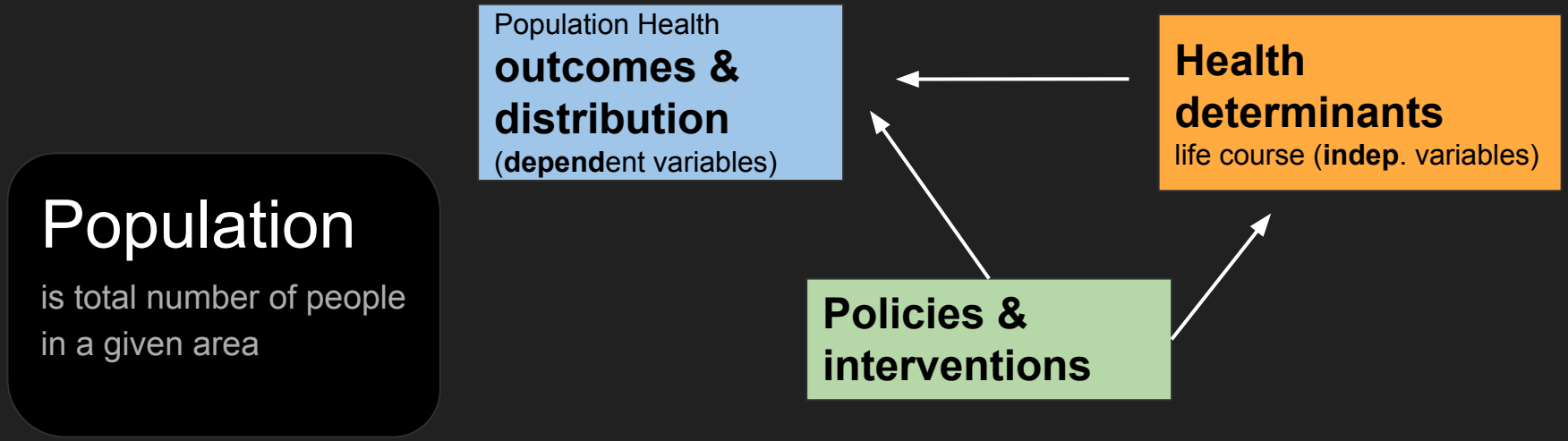
Micro = individual (+ biomedical view)

Macro = beyond an individual

Population Health field of study and approach

Does Population health = ***Public*** Health? *What extent does our lifestyles do we blame for poor population health outcomes?*

Kindig & Stoddart model



Lecture #2

Determinants of Population Health

Determinants contribute or reduce quality of life, loss of productivity & increased hospitalization & health and premature death

⅘ of Canadians 20+ have chronic disease

(heart disease, diabetes, etc)

Social & environmental determinants

Macro level

SES {education, income, employment, social support}

Prenatal / early life

Enviro {built / exposures}

Micro level

Behavioural risk factors

Risk conditions (pre-clinical disease)

Disease (single to multi-morbidity)

Burden of illness (disability)

6 Domains of Health influence

Social & Enviro determinants

Early childhood risks (life course + primary prevention)

Behavioural risk & protective factors (primary)

Risk **conditions** (intermediate risk, 2nd prevention)

Disease *prevention* (2nd + 3rd prevention)

Health outcomes/ status (severity & impact on quality of life)

SES μ & macro

RISK (childhood, factors, behaviour)

Disease Prevention 1,2,3

Hstats - QALY

Social & Enviro determinants

Education: 15+ without HS diploma decreased to 19.1% 2012 << knowledge & skills, job/ $

Income: 8.8% of all Canadians low income 2011 << education/ food “choice”/ stress

Employment: unemployment 7.2% 2012, 15-24 age = 11.6-15.2% << poverty/ stress

Early life/ childhood factors

2nd hand smoking: chronic exposure = higher risk of respiratory conditions/ heart disease/ cancers

3.3% children <12 yrs regularly exposed to enviro tobacco smoke

Breastfeeding: 26.2% of women (15+) breastfeed their child for first 6 months

Trends among men vs. women

Behaviour risks & factors

Physical activity: 15% of (18+) adults get 150 min of PA per week, 18-79 age = 10 hrs sedentary per day

Smoking linked to 24 chronic diseases, 2013: 19.3% CAN 12+ smoke daily/occasionally [m:22.1% vs. w:16.5%]

Disease prevention regular doctor for screenings etc. 72% CAN 12+ see Dr. 1x in yr
2012: 15% CAN 12+ don't see Dr. regularly

Healthy eating 2013: 40.8% CAN 12+ consume fruit & vegetables 5+ times per day, females>veggies

Heavy drinking 2013: 19% CAN 12+ heavy drinkers, m: 5+ drinks per occasion| w: 4+

Stress bad for nervous & immune system, 2013: 23% CAN 15+ stressed, **females > stress**

Obesity 2013: 18.8% CAN 18+,
overweight **m: 42%** and w: 28%

Health outcomes/ status

life expectancy average 82, w:84|m:80

Leading cause of death (2011)

Cancer

Heart disease

CVD (stroke)

Physical Activity	= men
Smoking	= men
Healthy eating	= women
Heavy drinking	= men

Lecture #3 theory & models

Objectives

Provide a general overview of the evolution of population health theories/ models
Identify and explain the main features of holistic/multi level models of population health
Understand and explain population health outcomes through the use of these models; develop strategies to “intervene”

Why do theories & models matter

predict models/ patterns of Behaviour on policies

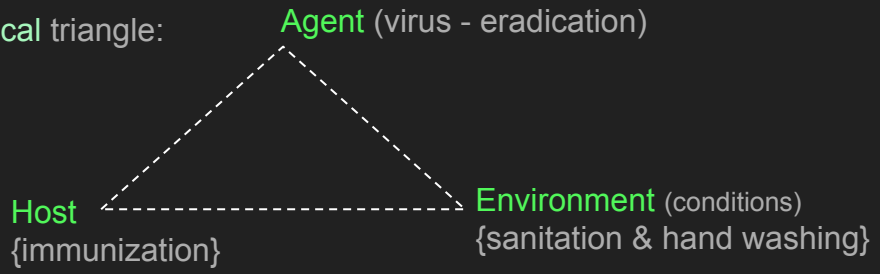
To test knowledge/ change theories in population health

Early models of human health

Medical thinking = sick individuals (Rose,1992)
Causal of diseases discovered
"Germ theory" + eradication of agent

Disease Causation

Epidemiological triangle:



Socio-ecological model (Morris, 1975)

Agent = personal behaviour factors/ influences

Host = genetics/ experiences

environmental = natural world/ society factors

Disease causation

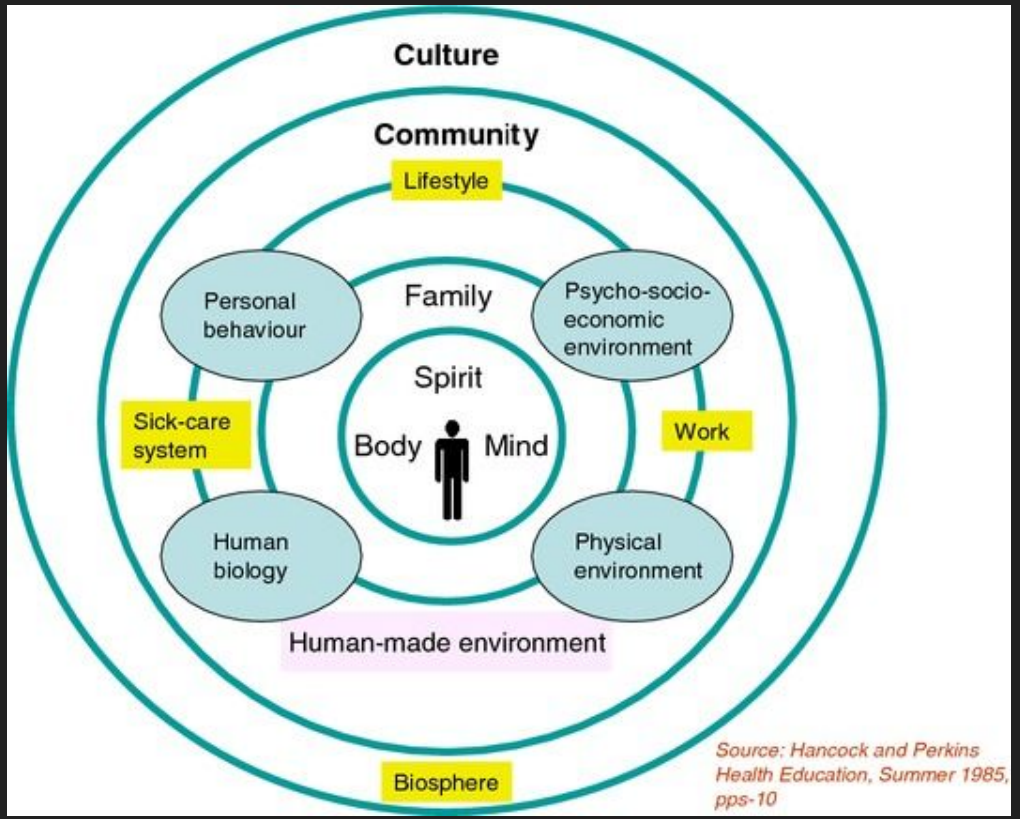
[Genetics | experiences] << host factors << >> [agent] personal behaviour >> enviro factors >> [physical | social]

Health as holistic (multi level)

(individual) **Socio Econ Enviro & psych determinants factor into health status**

Mandala of Health (Hancock, 1985) = body + mind + spirit (human health ecosystem)

Determinants of health status are *more than biomedical* but socio-economic factors (population & individual)



Health determinants framework (Evans & Stoddart,1990)

Traditional model : sick people >> health care services >> health need gets defined

Lifestyle ----------> diseases <----------> health care

Health & function = **subj**ective experiences of illness vs. disease (direct relationship)

Response = behavioural, biological [predisposition/ susceptibility]

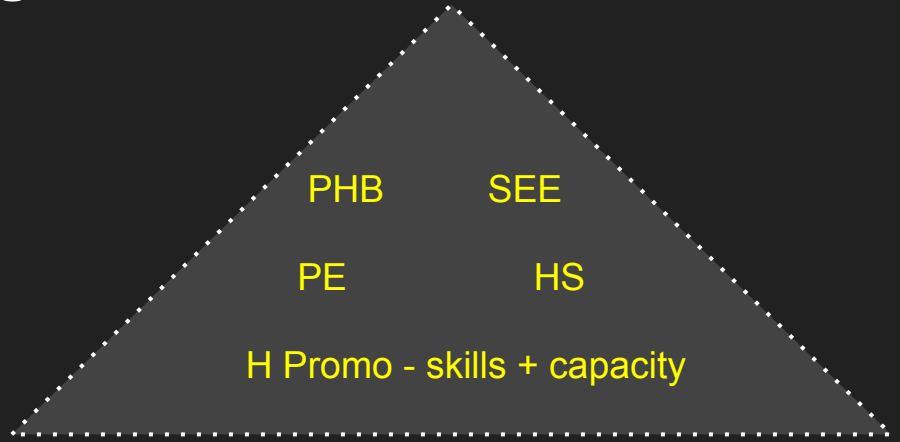
SDOH Factors--> disease <<-- (need, access, cure, care) -->> health care

Prosperity = expansion of health care can draw resources away from other health supportive initiatives, social programming infrastructure ** *paradox: spending more on health care may actually adversely affect population health outcomes {ignores prevention and other influences on health}*

Longer lives = more chronic illness

society awareness of health issues =>> self diagnosed symptoms of illness >> health issues in media (> panic) progress of medicine makes untreatable illness seem worse

5 categories of health determinants (Health Can., 1994)



5 categories of health determinants = (personal health behavior) (socio-econ enviro) (physical enviro) (health services)

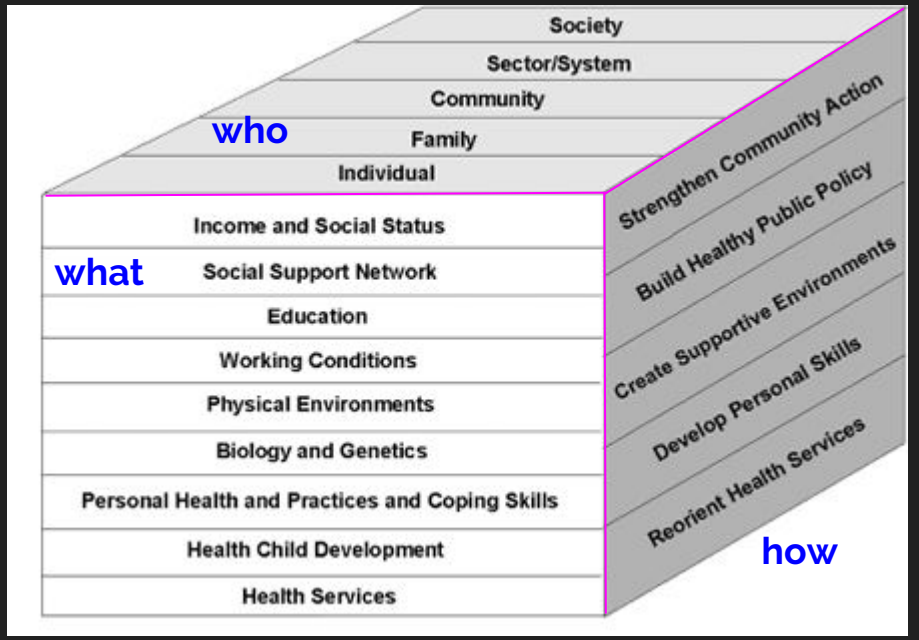
[Health Promo] individual capacity & coping skills

Population Health Promo Model (Hamilton & Bhatti, 1996)

Integrate population health research with healthy promotion activities

Enable people to **Ctrl** and **> health**

WHAT - (what are you targeting) Health Determinants
WHO - (who are you targeting) Levels of Action
HOW - (how to bring about changes) Action Strategies



Determinants of Health focus: example
Physical enviro + community level
+ create supportive environments == green spaces

Lecture #4
Behavioural determinants
PA & sedentary

definitions

Physical Activity = any movement produced by the musculoskeletal system resulting in energy loss

Exercise = PA that is planned, structured & repetitive

Sedentary = any activity awake that uses < 1.5 METs [sitting/reclining positions]

Exercise levels = sedentary >> light >> moderate >> vigorous

Canadian PA Guideline Adults: 150+ MVPA per week 0-4: 180 min/ day

Physical Activity

Benefits = reduce CVD, mental health, strength & flexibility

Bill C-12 (2003) replaced Fitness+sport act 1961

Sedentary behavior (child & youth, 2011): 0-4 [no screens], 5-11 [<2hrs/day], 12-17 [limit screen < 2 hrs/day]

Lecture #5
Behavioural determinants
Healthy eating

Social influence on eating

You eat more in social groups, the more people the more food

Perceived eating norms = individual' beliefs of others around them behave

Behavioural guides = act like everyone else

Social group membership = behaviour is in line with group

Placement & promotion in stores

Increase sales of healthier products in low-income areas by healthy products promoted - placement, signs & weekly sales

Menu labels: 3 groups (menu- no labels), (menu - labels), (menu - labels *+ calories info --- ate less*)

Lecture #6
Obesity

Obesity

Prevalence = 18% Overweight = 41% m 27% f

Can. Obesity Network

Obesity > food + PA, chronic disease, “best weight” = overall health + enjoy life

factors = enviro/ genes/ mental health/ sleep, Rx

Mayne et al. = new policies, change built enviro. Best results = active transportation, park use, diet alone fails

Explanations

Behavioural exercise, binge eating + nutrition habits

Pop. Health: impact of policies, cultural ideas, not personal behaviour, income, education, community

Lecture #7
Social determinants of health

SDOH

Significance = micro & macro level predictor of health outcomes

Econ & social conditions that affect health of individuals/ communities

SDOH determines person's physical & social resources within their environment.

Quantity **& Q**uality of resources made available

Focus = (horizontal structure) social distribution of economic and social resources
(vertical structure) Economic & Social policies

Health inequalities = unequal access to key **factors** that *influence* health [$, job, housing]
difference in health status (outcome) of individuals/ groups due to
Choice is influenced by enviro, culture & experience

SDOH

Aboriginal status | early childhood dev | healthcare services | housing | income | education
Social safety net | social support | gender | food security | environment

Income: significant disease prevalence in YLL based on income level

Measured by Low Income Cut-Off = difficult to meet basic needs

Social poverty is also a factor

Poverty: Single parents (26%) limited work (21%) immigrants (19%) Aboriginal (17%)

Employment: work stress, shift work

Built enviro: community design (urban vs rural), housing, access to services (school, medical)

Motor vehicle reliability: 58% population drives < 5 km to/ from work, 80% > 20 km away from work

Housing: affordable = <30% of b4 tax + no repairs or overcrowding

13% Can. have no access to proper housing

Child dev. : **parent**'s SES + gov't policies

Education: > education = > $ + healthy behaviour

Lack of Ed = welfare, jail, illness & injury

key problems of SDOH:

Theme1 - *$ has influence* health
Social factors & forces that shape health: vaccines, medical treatment = lower mortality & improved life quality

Theme2 - (materialist, neo-materialist, psycho-social comparison)
Pathways:
- Social factors:
  - Materialist (exposures + behav), psychosocial stress, neo-materialist (causes + socio-econ resources),

Theme3 - Lifecourse:
- Accumulated effects of experience across lifespan

Theme4 - Public Policy: SDOH are not independent factors & quality matters
Theme 5 - Political ideology

Lecture #8
SDOH perspectives & action

Materialist explanations

Material living conditions - exposures to negative living conditions determines health quality

Psycho-social factor Individual experience of inequality = stress & poor health

Adopting health coping behaviours: responses for low income/ employment/ housing/ food security

Neo-materialist explanations

socio-econ resources in population

Variations in SDOH (materialist) and ID social forces that determine quality & distribution of conditions

Life course Perspective

Latent effects = **bio**/ development experiences that influence health later in life

Life-Pathway affects = individual experiences influence health over lifespan

Cumulative effects = build up of + or - health over time

Professional & social discourse

health/ illness beliefs by professionals, public & politicians

Traditional approaches = (Health Sci) uses Quant & stats approach objective/ **no context**, **focus on individuals**

Policy change

Pluralist perspective: public ideas -----> policy dev

Materialist perspective: powerful interests (lobbyists) ---> policy dev

Public choice model: focus on *policy maker* & their implementation, mix of social + political dynamics

4 recommendations

Social investment = social net

Pension plan, medicare, EI, free post-secondary Ed, supportive housing, nat'l Pharmacare

Social capacity (community driven decision making)

What works best, what the community wants, Ed. + training programs

Intersectoral action

Partnerships + collaboration between health, econ, employment, education etc

Leadership of good ideas