Epidemiology definitions

morbidity	state of being diseased
morbidity rate	% of diseased individuals in a population
mortality rate	% of population that has died of disease
epidem-iology	study of how diseases originate and how that are passed through communities
epidemiol-ogists	must take into account time, place, # of people, frequency of disease when studying diseases.
incidence	fraction of a population that contracts a disease during a specific time
prevalence	fraction of a population having a specific disease at a given time
sporadic disease	disease that occurs occasi-onally in a population.
endemic disease	disease constantly present in a population(cold).
epidemic disease	disease acquired by many hosts in a given area in a short time (flu).
pandemic disease	world wide epidemic (covid).

portals of entry

skin	parasitic worms and fungi
mucous membranes	easiest way for pathogens to enter body
parental route	pathogens deposited directly into tissues

development of disease

incubation period	between infection and first sign and symptom
prodromal period	relatively short period with mild and early symptoms
illness	disease most severe, patient dies if immune response not sufficient
decline	patient vulnerable to second infection at this time. signs and symptoms subside
conval-secence	regaining of strength

important history

Louis Pateur	germ theory
Robert Koch	cause of disease
Joseph Lister	control of disease
John snow	mapped cholera in London
Ignaz Semmelweis	proved hand washing effective in reducing death during child birth
Florence Nightingale	Showed improved sanitation decreased the incidence of epidemic typhus

patterns of disease

1. source of infection (reservoir
2. transmission
3. invasion (pathogenesis)

transmission of disease

direct contact transmission	person to person by physical contact
indirect contact transmission	reservoir to host by non living object
droplet contact transmission	microbes spread in droplet nuclei
vehicle transm-ission	transmission by inanimate reservoir
mechanical vector transmission (passive)	vector physically carries disease and drops on host
biological vector transmission (active)	spreads microbes through inside vector

severity of disease

acute disease	symptoms develop rapidly but last short amt of time
chronic disease	disease develops slowly but lasts long time
subacute disease	intermediate between acute and chronic
latent disease	is dormant but can have active periods

limit disease transmission

enforcing standards of cleanliness

work to reduce # of disease vectors and reservoirs

establish and enforce immunization schedules

locate and treat individuals exposed to contagious pathogens

establish isolation and quarantine measures to control the spread of pathogens

educate public

epidemiology data	
descri-ptive	(who, what, when where) data that describes occurrence of disease
analytical	(why) comparison of diseased and healthy
experi-mental	(hypothesis and answer) controlled experiments used to study disease

koch's postulates
microbes cause specific disease
bacillus anthracis
cultured bacteria still infectious

reservoirs of infection	
human reservoirs	transmit directly or indirectly to others
animal reservoirs	direct contact with animal or pet waste, contaminated food and water, consuming infected products
non living reservoirs	soil, water if contaminated, food

virulence measured	
ID50/ infectious dose	how many microbes needed to make 50% of population sick
LD50/ lethal dose	how many lethal doses needed to kill 50% of population

extent of host involve	
local infection	limited small area of body (stays localized)
systemic infection	an infection throughout the body
focal infection	local infection turned into systemic infection

HAIs	
nosocomial infection or HAIs	infection acquired in health acre facility
exogenous	acquired from health care environment
endogenous	normal microbiota become opportunistic because of hospitalization or treatment
iatrogenic	"doctor induced". use of catheters and invasive diagnostic procedures, surgery