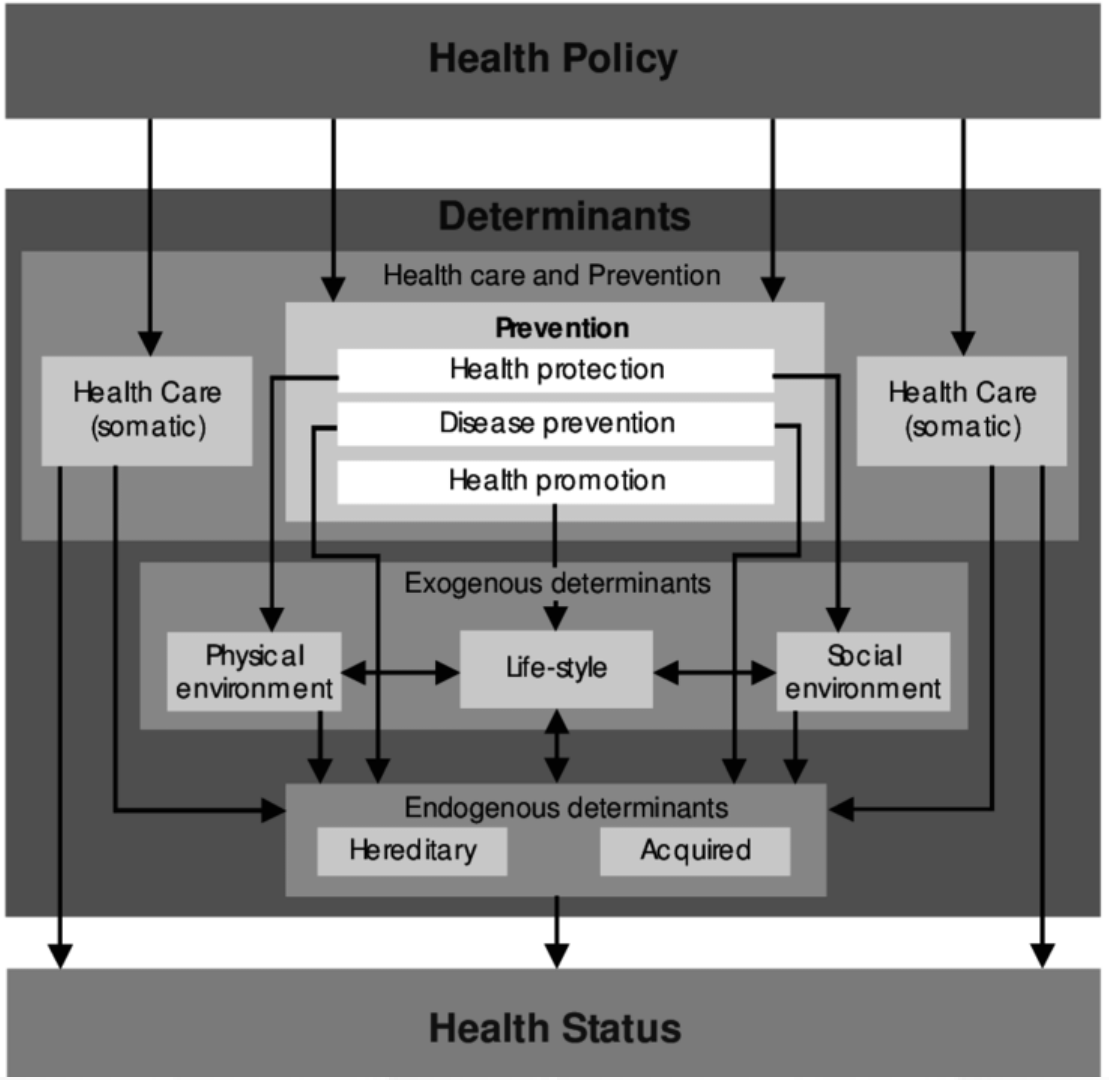
Public health, its functions and services.
Population health: the key determinants.

"Public health is what we, as a society, do collectively to assure the conditions in which people can be healthy."

National Academy of Medicine

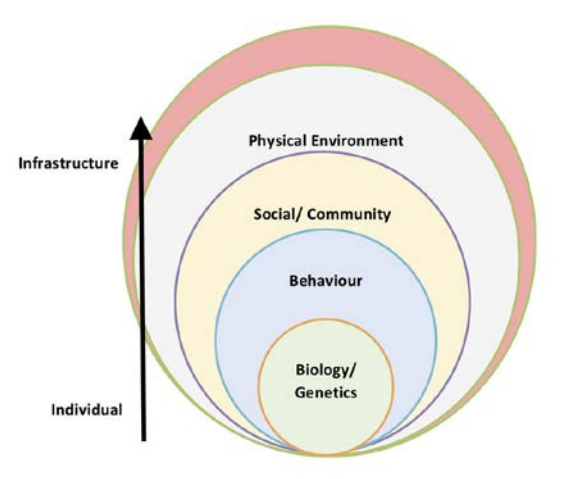
The term public health has the following two meanings:

- Health status of the public (i.e., a defined population)
- Organized social efforts to preserve and improve the health of a defined population



"Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health."

Public Health is defined as "the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society" (Acheson, 1988; WHO).



Public health focuses on the entire spectrum of health and wellbeing, not only the eradication of particular diseases. Many activities are targeted at populations such as health campaigns. Public health services also include the provision of personal services to individual persons, such as vaccinations, behavioural counselling, or health advice.

DEFINITIONS

According to the American Public Health Association:

"Public Health is the practice of preventing disease and promoting good health within groups of people, from small communities to entire countries."

According to the World Health Organization (WHO):

"Public health refers to all organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases."

According to the Centers for Disease Control and Prevention (CDC):

"Public health systems are commonly defined as 'all public, private, and voluntary entities that contribute to the delivery of essential public health services within a jurisdiction."

History Of Public Health

A review of the historical development of public health, which began in ancient times, emphasizes how various public health concepts have evolved.

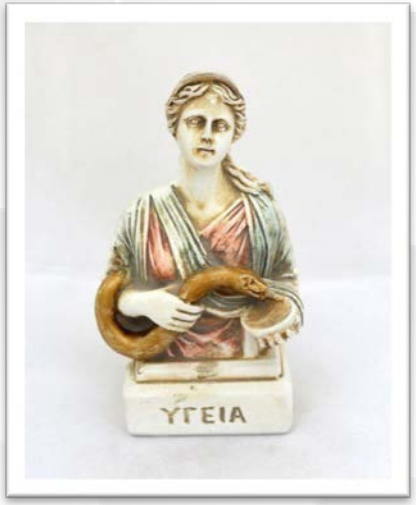
Historical public health measures included quarantine of leprosy victims in the Middle Ages and efforts to improve sanitation following the 14th-century plague epidemics.

Population increases in Europe brought with them increased awareness of infant deaths and a proliferation of hospitals. These developments in turn led to the establishment of modern public health agencies and organizations, designed to control disease within communities and to oversee the availability and distribution of medicines.

History Of Public Health

BEGINNINGS IN ANTIQUITY

Most of the world's ancient peoples practiced cleanliness and personal hygiene, often for religious reasons, including, apparently, a wish to be pure in the eyes of their gods.

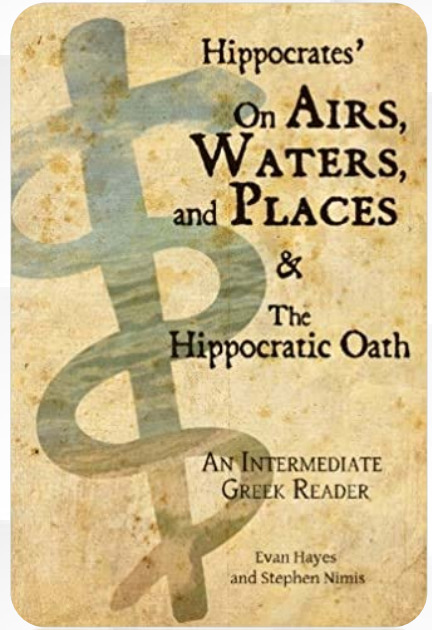


Religion, law, and custom were inextricably interwoven. For thousands of years societies looked upon epidemics as divine judgments on the wickedness of humankind. The idea that pestilence is due to natural causes, such as climate and physical environment, however, gradually developed.

History Of Public Health

This great advance in thought took place in Greece during the 5th and 4th centuries BCE and represented the first attempt at a rational, scientific theory of disease causation. An association between malaria and swamps, for example, was established very early (503–403 BCE), even though the reasons for the association were obscure.

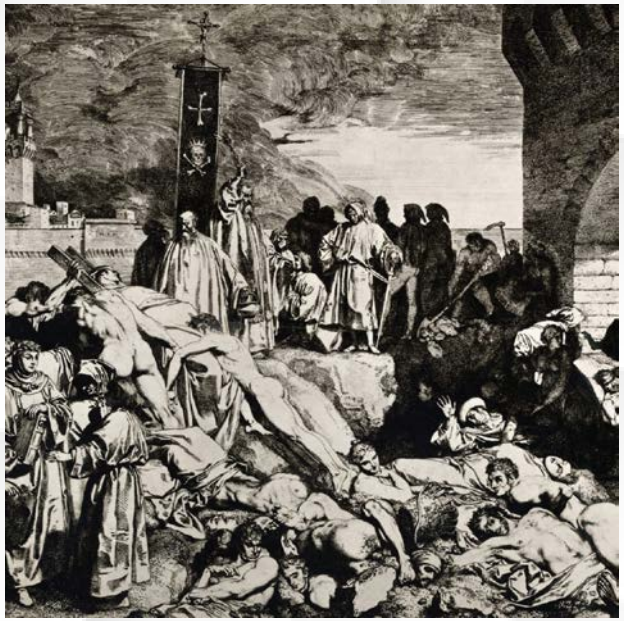
In the book Airs, Waters, and Places, thought to have been written by Greek physician Hippocrates in the 5th or 4th century BCE, the first systematic attempt was made to set forth a causal relationship between human diseases and the environment.



Until the new sciences of bacteriology and immunology emerged well into the 19th century, this book provided a theoretical basis for the comprehension of endemic disease (that persisting in a particular locality) and epidemic disease (that affecting a number of people within a relatively short period).

History Of Public Health

THE MIDDLE AGES



In terms of disease, the Middle Ages can be regarded as beginning with the plague of 542 and ending with the Black Death (bubonic plague) of 1348. Diseases in epidemic proportions included leprosy, bubonic plague, smallpox, tuberculosis, scabies, erysipelas, anthrax, trachoma, sweating sickness, and dancing mania. The isolation of persons with communicable diseases first arose in response to the spread of leprosy. This disease became a serious problem in the Middle Ages and particularly in the 13th and 14th centuries.

During the Middle Ages a number of first steps in public health were made: attempts to cope with the unsanitary conditions of the cities and, by means of quarantine, to limit the spread of disease; the establishment of hospitals; and provision of medical care and social assistance.

History Of Public Health

THE RENAISSANCE

Centuries of technological advance culminated in the 16th and 17th centuries in a number of scientific accomplishments. Educated leaders of the time recognized that the political and economic strength of the state required that the population maintain good health. No national health policies were developed in England or on the Continent, however, because the government lacked the knowledge and administrative machinery to carry out such policies. As a result, public health problems continued to be handled on a local community basis, as they had been in medieval times.

Scientific advances of the 16th and 17th centuries laid the foundations of anatomy and physiology. Observation and classification made possible the more precise recognition of diseases. The idea that microscopic organisms might cause communicable diseases had begun to take shape.

- Among the early pioneers in public health medicine was English statistician John Graunt, who in 1662 published a book of statistics, which had been compiled by parish and municipal councils, that gave numbers for deaths and sometimes suggested their causes. Inevitably the numbers were inaccurate but a start was made in epidemiology.

History Of Public Health

18TH AND 19TH CENTURIES

Revolutions in France and the US. A first Encyclopedia of Science was published in France. Jeremy Bentham of England provided an underpinning for British Social & Health Policy for the 19th century. Population increases started late in the 18th century to continue through the 19th.

In England, in 1751, a campaign against "GIN" was started and its implementation was associated with a decrease in infant mortality in England. In 1750 Infant mortality in some London parishes was about 90%! Also, during the last half of the eighteen-century programs for Obstetrics as well as to combat infant mortality were started. The maternal mortality rate over 1750-1798 dropped from 24 to 3.4, while for infants it dropped from 66 to 13!

Lemon Juice started being used to combat scurvy in seamen.

In Germany strides were made in occupational health.

Sand filters, which were used to filter water in troop bivouacs, started to be used in private homes but not by communities.

In 1777 in England a book on the 'State of Prisons' started inquiries into health of prisoners. Mental health reforms for 'madhouses' started, particularly with activities of the 'Society of Friends' in York. Increased numbers of hospitals for the poor were built. Social policy on housing and destruction of slums was seen to improve health. In 1808 iron pipes were used to replace wood pipes in transmission of water. Lead pipes were replaced by iron. In 1829 the Chelsea and Lambeth Water Company introduced slow sand filters, while in 1829 in Lynchburg, Virginia cast iron pipes were used for the first high-pressure water system in the world.

It was during this period that smallpox vaccination was introduced. In 1718 the wife of the British Ambassador in Constantinople had her son inoculated, then 3 years later her daughter. In 1772 the British royal children were inoculated. These inoculations used infectious material from mild cases, to prevent severe cases. In 1796 Edward Jenner tried inoculation using cowpox from an infected individual (In 1986 the world was declared free of smallpox!). Then he tried to infect the inoculated individual with smallpox, which failed to take. A friend of Jenner's in London, a physician at St.Thomas's Hospital tried the vaccination. Then, finding it worked, he introduced it generally. By 1801 more than 100,000 English had been so vaccinated.

In 1798 the Marine Hospital Service (the forerunner of the USPHS) was enacted by the US Congress. The first federal quarantine program to forestall importation of Yellow Fever and Smallpox.

1799, Boston: First Board of Health in U.S., Paul Revere was a member of the first local Board of Health in the United States.

History Of Public Health

1830-1875- THE SANITARY MOVEMENT

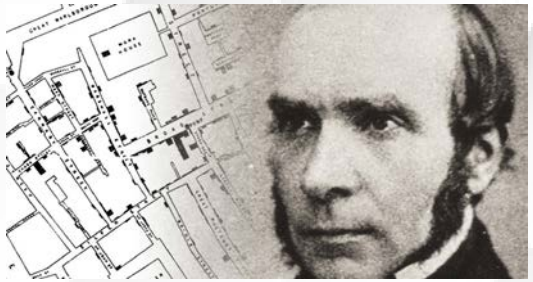
In 1832 Edwin Chadwick was named first assistant, then Commissioner of the Poor Laws in London. The Commission provided its first report in 1834. It emphasized support of those not able bodied. It emphasized availability of jobs, versus social support. Population expanded exceeding any ability to house and feed it. Chadwick suggested that development of a scientific method of population/health analysis could be a useful tool to manage poverty and productivity. He believed that prevention of disease was of paramount value (100 years ago!). He felt and stated that sanitary conditions had much to do with health status. A registry of births and deaths was set up in 1836. In 1842 he reported on ' the sanitary condition of Laboring populations in Great Britain.' This Resulted in changes in housing conditions and health services. It was so successful that in 1854 the combined efforts of engineers and physicians defeated adoption of a new public health act.

1848 John Snow reported on his findings of an outbreak of Cholera associated with the Broad Street Pump. This lead to the establishment of the General Board of Health for England. John Simon was appointed as the first Health Officer for London, and in 1855 he was appointed as the first National Health Officer.

In 1854-Dr John Griscom, City Inspector for the New York Board of Health wrote a Brief View of the Sanitary Condition of the City. His report had a similar effect as that of Chadwick in raising consciousness about prevention of disease by social interventions.

In 1850 the Massachusetts Sanitary Commission published the Shattuck Report. Shattuck was an organizer of the American Statistical Society. He had previously published a Census of Boston. That 1850 report revealed high mortality from many diseases as well as identifying horrible living conditions for the poor. He recommended a state board of health. Unfortunately his report fell on deaf ears. Despite an effective study of health status by the New York Senate in 1858 it was not until a publication by the Council on Public Health & Hygiene that actions started. After several attempts a law was passed in 1868 creating a Metropolitan Board of Health. In 1860 Shattuck's prescription for Massachusetts came to life with a state health department. By 1879 additional state health departments were organized (Virginia's in 1872)

In the last half of the nineteenth century significant changes in sanitary services took place in Germany as well as development of a German health care system. In 1870 the first US Surgeon General was appointed and in 1872 the Marine Hospital Service was enhanced and federal responsibility for health started.



History Of Public Health

1875-NOWDAYS

In 1876 Koch demonstrated that anthrax bacilli were responsible for a disease, that nothing else could produce it. In the next 20 years other major diseases were confirmed as due to bacteria. Bacteria were shown to be responsible for water borne diseases. In the 1890s the understanding of rats as vectors for plague developed. In 1890 Health Examinations of immigrants started. In 1901 yellow fever was demonstrated as caused by a bacterium. In 1890 public health laboratories were first developed. By 1900 diphtheria could be diagnosed with protection induced with use of antitoxin.

1870s- Major steps in development of potable water supplies. Development of central sewage disposal systems. Infant mortality was used as a sensitive barometer of community health status.

Between 1893-1903 in Villiers-du-lac in France, where every mother was required to nurse a child till 12 months of age (unless a wet nurse was found) plus use of clean milk and weighing each child each 2 weeks, infant mortality dropped to 0!

After the Civil War, in 1873 in New York, food kitchens were set up. Later, in 1878, they were converted to milk stations for babies. Other milk stations in Europe and US followed thereafter. 1908, the Child Hygiene Dept in NYCHD was the first of its kind. In 1910 Pasteurization of Milk resulted in elimination of summer diarrhea in children.

1914 Flexner Commission of Public Health Education (Rockefeller Foundation)

1918 Johns Hopkins School of Public Health (first in the nation) opened (endowed by the Rockefeller Foundation)

1912 the federal Children's Bureau was created.

History Of Public Health

1875-NOWDAYS

In 1935, the Social Security Act was passed with its Bureau of Maternal and Child Health, which has now become part of HHS. It also provided funds for public health training - the first federal funds for this purpose.

In 1946 the Centers for Disease control were created.

By 1954 the concept of social epidemiology and ecology was born.

In the late 1950s and the 1960s immunizations for viral disease such as Polio and Measles were added to DTP immunizations. the Polio epidemic of the 1950s was rapidly brought under control.

in 1973 the Smallpox eradication program started and was completed in 10 years.

In 1965 Medicare & Medicaid Legislation passed

In 1981 the last case of 'wild' polio was reported in the US

In 1981 the first cases of a disease apparently limited to homosexuals, and named AIDS, was reported. By 1984 the virus responsible was identified and named Human Immunodeficiency Virus.

IN the 1990s advances in disease detection had identified a number of diseasrs of Emerging Public Health Importance such as Legionaire's disease and Lyme disease. In 1999 a potential outbreak of Ebola Virus and a laboratory in Reston, VA was invesigated and found not to be a problem among humans. In 1999 West Nile Virus was detected in NewYork and zoonotic spread identified as far south as Virginia. In 2003 SARS was identified.

INTERNATIONAL ORGANIZATIONS

Since ancient times, the spread of epidemic disease demonstrated the need for international cooperation for health protection.

Early efforts toward international control of disease appeared in national quarantines in Europe and the Middle East.

The first formal international health conference, held in Paris in 1851, was followed by a series of similar conferences aimed at drafting international quarantine regulations.

A permanent health organization, the **International Office of Public Health (L'Office International d'Hygiène Publique)**, was established in Paris in 1907 to receive notification of serious communicable diseases from participating countries, to transmit this information to the member countries, and to study and develop sanitary conventions and quarantine regulations on shipping and train travel. This organization was ultimately absorbed by the **World Health Organization (WHO)** in 1948.

THE 10 ESSENTIAL PUBLIC HEALTH SERVICES

To protect and promote the health of all people in all communities

The 10 Essential Public Health Services provide a framework for public health to protect and promote the health of all people in all communities. To achieve equity, the Essential Public Health Services actively promote policies, systems, and overall community conditions that enable optimal health for all and seek to remove systemic and structural barriers that have resulted in health inequities. Such barriers include poverty, racism, gender discrimination, ableism, and other forms of oppression. Everyone should have a fair and just opportunity to achieve optimal health and well-being.

Public Health Services

Assessment

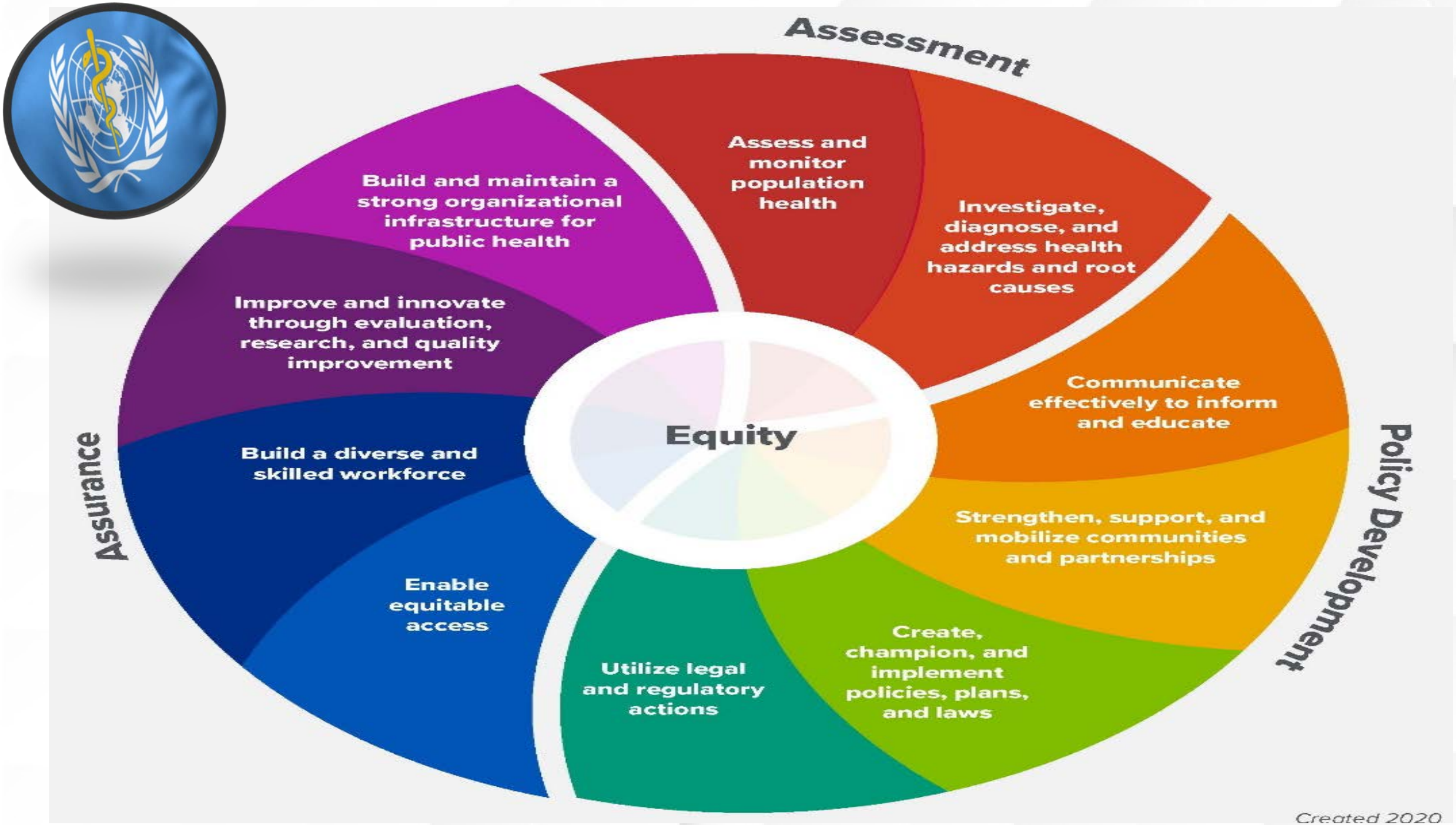
- Monitor environmental and health status to identify and solve community environmental health problems
- Diagnose and investigate environmental health problems and health hazards in the community

Policy Development

- Inform, educate, and empower people about environmental health issues
- Mobilize community partnerships and actions to identify and solve environmental health problems
- Develop policies and plans that support individual and community environmental health efforts

Assurance

- Enforce laws and regulations that protect environmental health and ensure safety
- Link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable
- Assure a competent environmental health workforce
- Evaluate effectiveness, accessibility, and quality of personal and population-based environmental health services
- Research for new insights and innovative solutions to environmental health problems

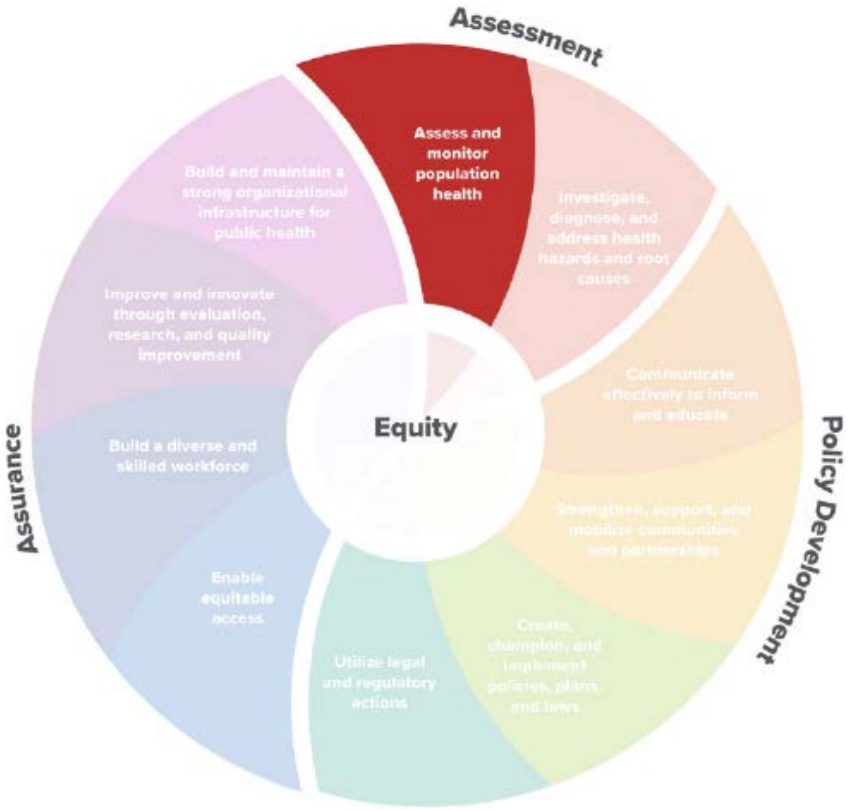

Assessment
Assess and monitor population health
Investigate, diagnose, and address health hazards and root causes
Communicate effectively to inform and educate
Policy Development
Strengthen, support, and mobilize communities and partnerships
Create, champion, and implement policies, plans, and laws
Utilize legal and regulatory actions
Enable equitable access
Assurance
Build a diverse and skilled workforce
Improve and innovate through evaluation, research, and quality improvement
Build and maintain a strong organizational infrastructure for public health
Equity
Created 2020

ESSENTIAL PUBLIC HEALTH SERVICE #1

ASSESS AND MONITOR POPULATION HEALTH STATUS, FACTORS THAT INFLUENCE HEALTH, AND COMMUNITY NEEDS AND ASSETS

Maintaining an ongoing understanding of health in the jurisdiction by collecting, monitoring, and analyzing data on health and factors that influence health to identify threats, patterns, and emerging issues, with a particular emphasis on disproportionately affected populations

Using data and information to determine the root causes of health disparities and inequities



Working with the community to understand health status, needs, assets, key influences, and narrative

Collaborating and facilitating data sharing with partners, including multi-sector partners

Using innovative technologies, data collection methods, and data sets

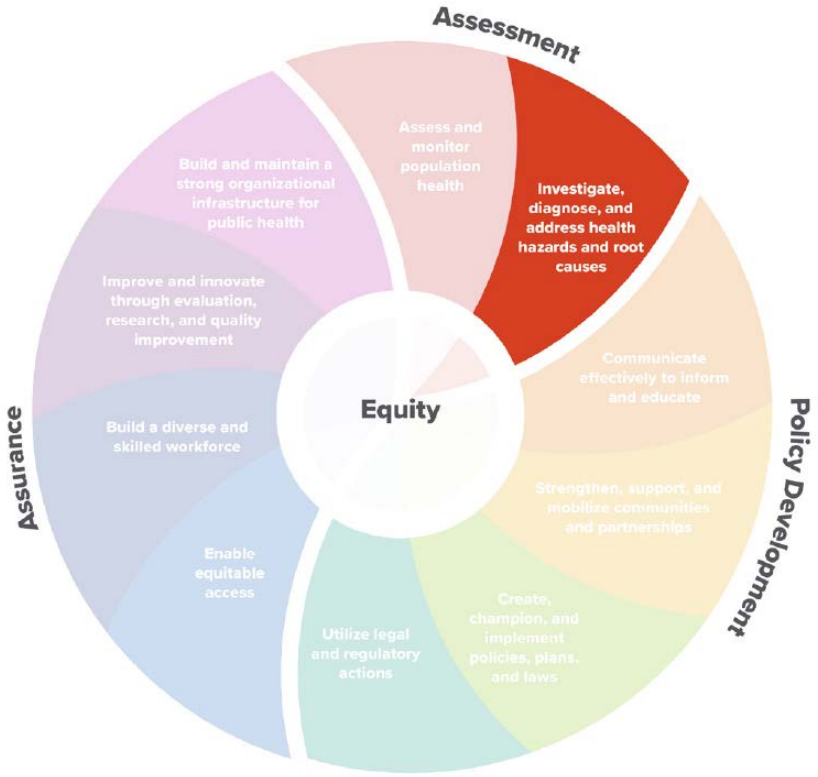
Utilizing various methods and technology to interpret and communicate data to diverse audiences

Analyzing and using disaggregated data (e.g., by race) to track issues and inform equitable action

Engaging community members as experts and key partners

ESSENTIAL PUBLIC HEALTH SERVICE #2

INVESTIGATE, DIAGNOSE, AND ADDRESS HEALTH PROBLEMS AND HAZARDS AFFECTING THE POPULATION



Anticipating, preventing, and mitigating emerging health threats through epidemiologic identification

Monitoring real-time health status and identifying patterns to develop strategies to address chronic diseases and injuries

Using real-time data to identify and respond to acute outbreaks, emergencies, and other health hazards

Using public health laboratory capabilities and modern technology to conduct rapid screening and high-volume testing

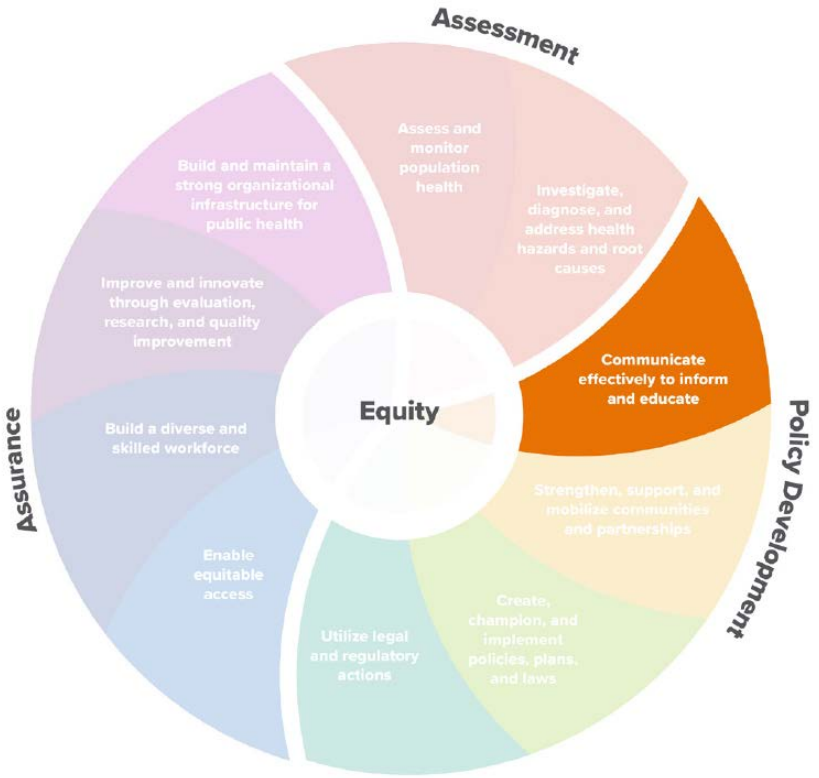
Analyzing and utilizing inputs from multiple sectors and sources to consider social, economic, and environmental root causes of health status

Identifying, analyzing, and distributing information from new, big, and real-time data sources

ESSENTIAL PUBLIC HEALTH SERVICE #3

COMMUNICATE EFFECTIVELY TO INFORM AND EDUCATE PEOPLE ABOUT HEALTH, FACTORS THAT INFLUENCE IT, AND HOW TO IMPROVE IT

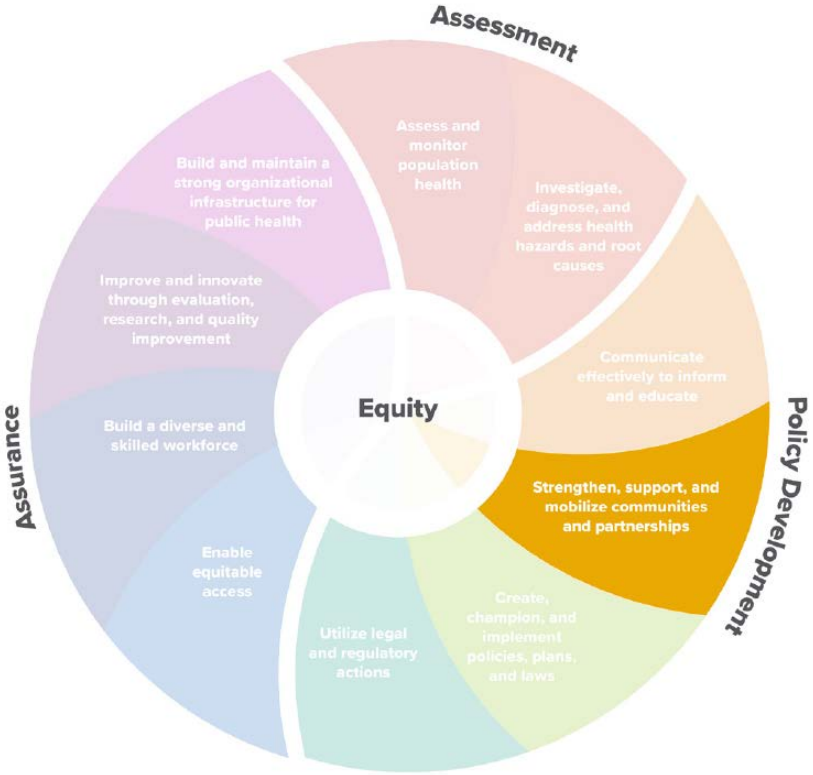
- **Developing and disseminating accessible health information** and resources, including through collaboration with multi-sector partners



- **Communicating with accuracy and necessary speed**
- **Using appropriate communications channels** (e.g., social media, peer-to-peer networks, mass media, and other channels) to effectively reach the intended populations
- **Developing and deploying culturally and linguistically appropriate and relevant communications** and educational resources, which includes working with stakeholders and influencers in the community to create effective and culturally resonant materials
- **Employing the principles of risk communication, health literacy, and health education** to inform the public, when appropriate
- **Actively engaging in two-way communication** to build trust with populations served and ensure accuracy and effectiveness of prevention and health promotion strategies
- **Ensuring public health communications and education efforts are asset-based** when appropriate and do not reinforce narratives that are damaging to disproportionately affected populations

ESSENTIAL PUBLIC HEALTH SERVICE #4

STRENGTHEN, SUPPORT, AND MOBILIZE COMMUNITIES AND PARTNERSHIPS TO IMPROVE HEALTH



Convening and facilitating multi-sector partnerships and coalitions that include sectors that influence health (e.g., planning, transportation, housing, education, etc.)

Fostering and building genuine, strengths-based relationships with a diverse group of partners that reflect the community and the population

Authentically engaging with community members and organizations to develop public health solutions

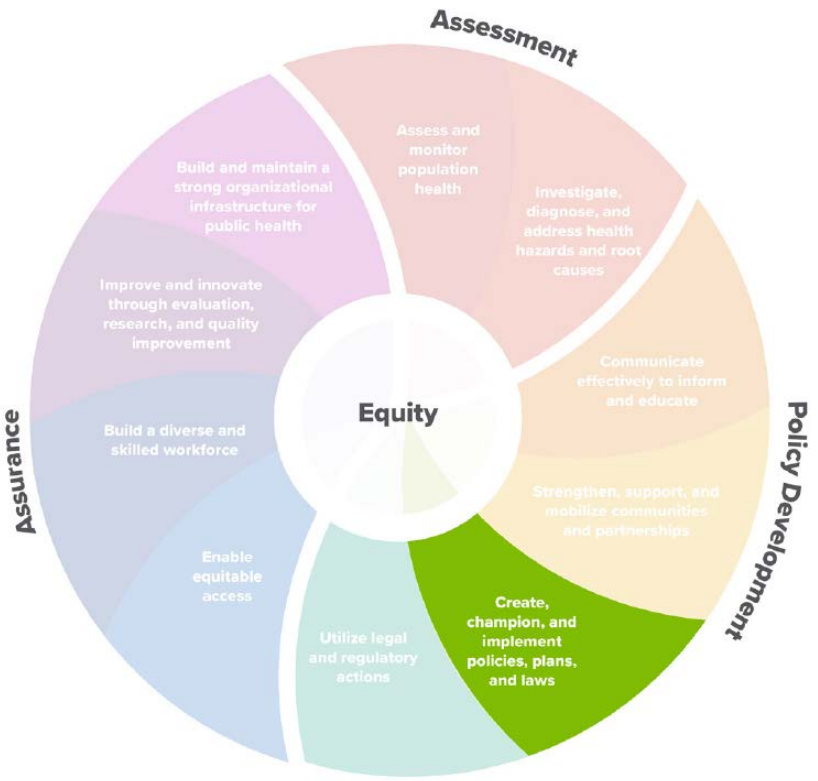
Learning from, and supporting, existing community partnerships and contributing public health expertise

ESSENTIAL PUBLIC HEALTH SERVICE #5

CREATE, CHAMPION, AND IMPLEMENT POLICIES, PLANS, AND LAWS THAT IMPACT HEALTH

Developing and championing policies, plans, and laws that guide the practice of public health

Examining and improving existing policies, plans, and laws to correct historical injustices



Ensuring that policies, plans, and laws provide a fair and just opportunity for all to achieve optimal health

Providing input into policies, plans, and laws to ensure that health impact is considered

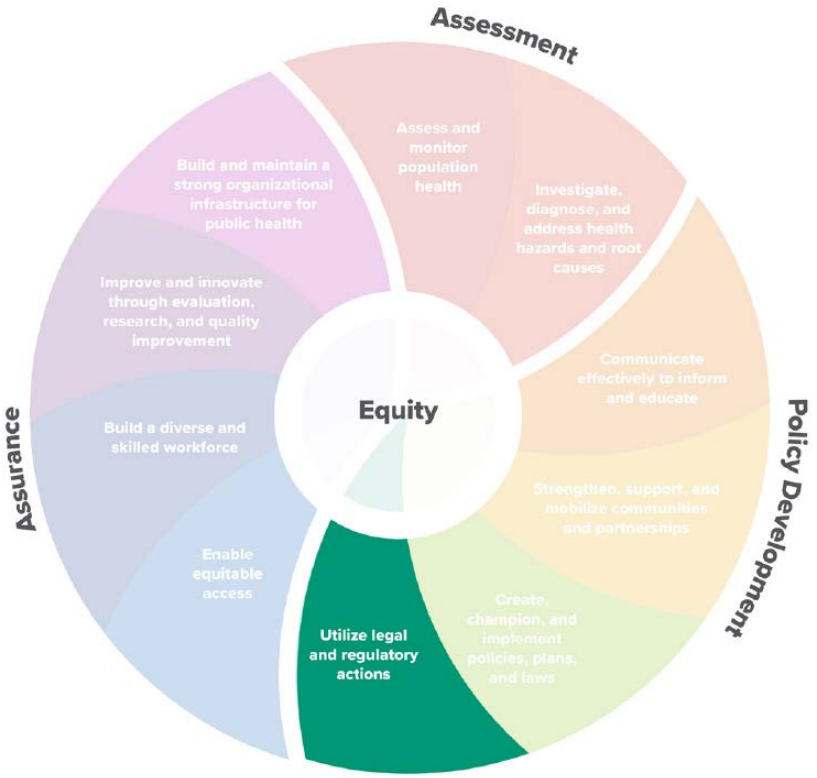
Continuously monitoring and developing policies, plans, and laws that improve public health and preparedness and strengthen community resilience

Collaborating with all partners, including multi-sector partners, to develop and support policies, plans, and laws

Working across partners and with the community to systematically and continuously develop and implement health improvement strategies and plans, and evaluate and improve those plans

ESSENTIAL PUBLIC HEALTH SERVICE #6

UTILIZE LEGAL AND REGULATORY ACTIONS DESIGNED TO IMPROVE AND PROTECT THE PUBLIC'S HEALTH



Ensuring that applicable laws are equitably applied to protect the public's health

Conducting enforcement activities that may include, but are not limited to sanitary codes, especially in the food industry; full protection of drinking water supplies; and timely follow-up on hazards, preventable injuries, and exposure-related diseases identified in occupational and community settings

Licensing and monitoring the quality of healthcare services (e.g., laboratory, nursing homes, and home healthcare)

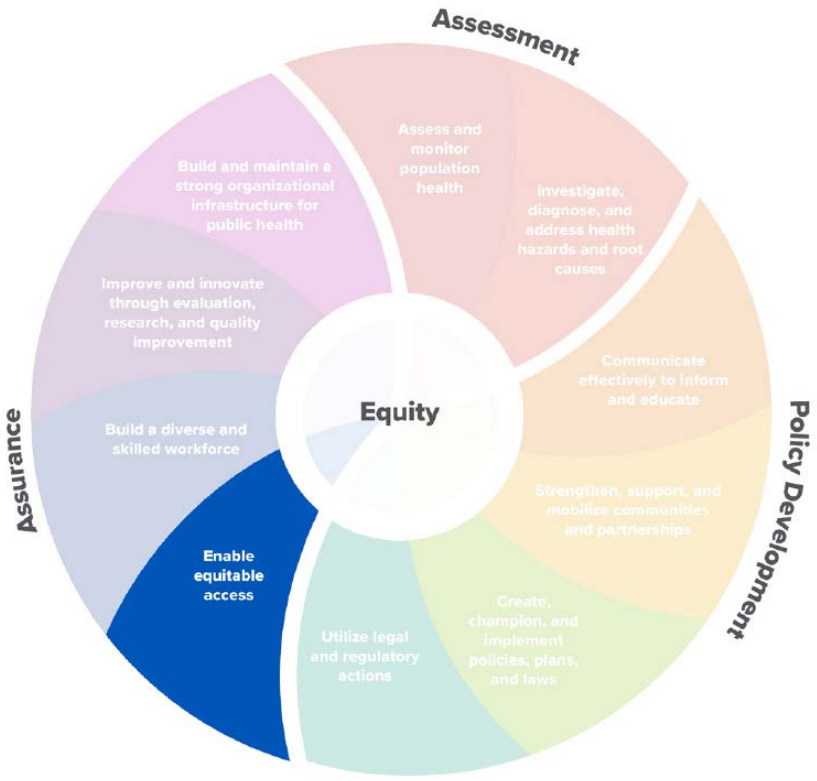
Reviewing new drug, biologic, and medical device applications

Licensing and credentialing the healthcare workforce

Including health considerations in laws from other sectors (e.g., zoning)

ESSENTIAL PUBLIC HEALTH SERVICE #7

ASSURE AN EFFECTIVE SYSTEM THAT ENABLES EQUITABLE ACCESS TO THE INDIVIDUAL SERVICES AND CARE NEEDED TO BE HEALTHY



Connecting the population to needed health and social services that support the whole person, including preventive services

Ensuring access to high-quality and cost-effective healthcare and social services, including behavioral and mental health services, that are culturally and linguistically appropriate

Engaging health delivery systems to assess and address gaps and barriers in accessing needed health services, including behavioral and mental health

Addressing and removing barriers to care

Building relationships with payers and healthcare providers, including the sharing of data across partners to foster health and well-being

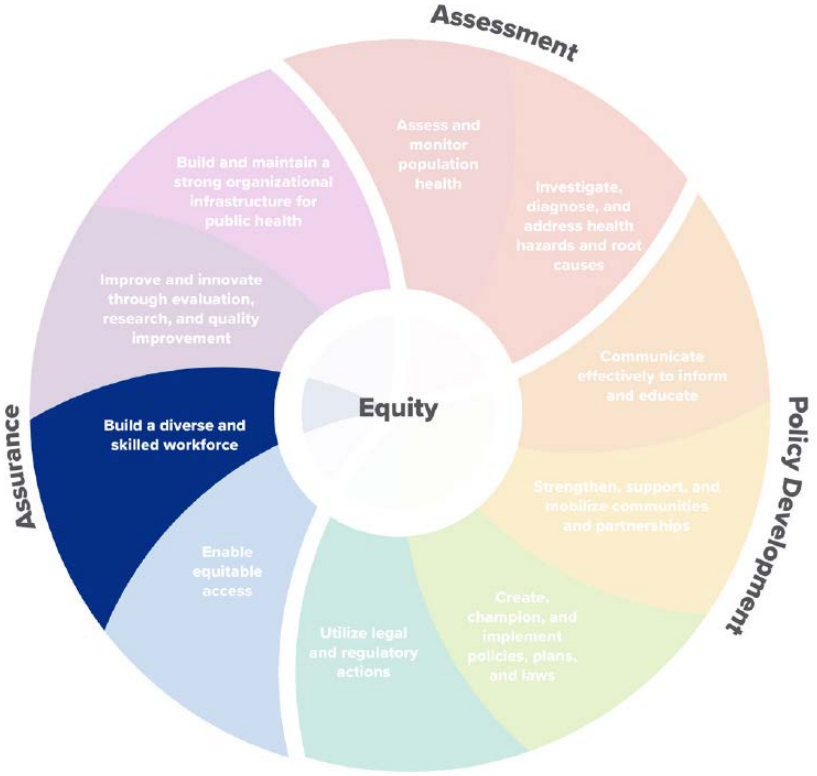
Contributing to the development of a competent healthcare workforce

ESSENTIAL PUBLIC HEALTH SERVICE #8

BUILD AND SUPPORT A DIVERSE AND SKILLED PUBLIC HEALTH WORKFORCE

Providing education and training that encompasses a spectrum of public health competencies, including technical, strategic, and leadership skills

Ensuring that the public health workforce is the appropriate size to meet the public's needs



Providing education and training that encompasses a spectrum of public health competencies, including technical, strategic, and leadership skills

Ensuring that the public health workforce is the appropriate size to meet the public's needs

Building a culturally competent public health workforce and leadership that reflects the community and practices cultural humility

Incorporating public health principles in non-public health curricula

Cultivating and building active partnerships with academia and other professional training programs and schools to assure community-relevant learning experiences for all learners

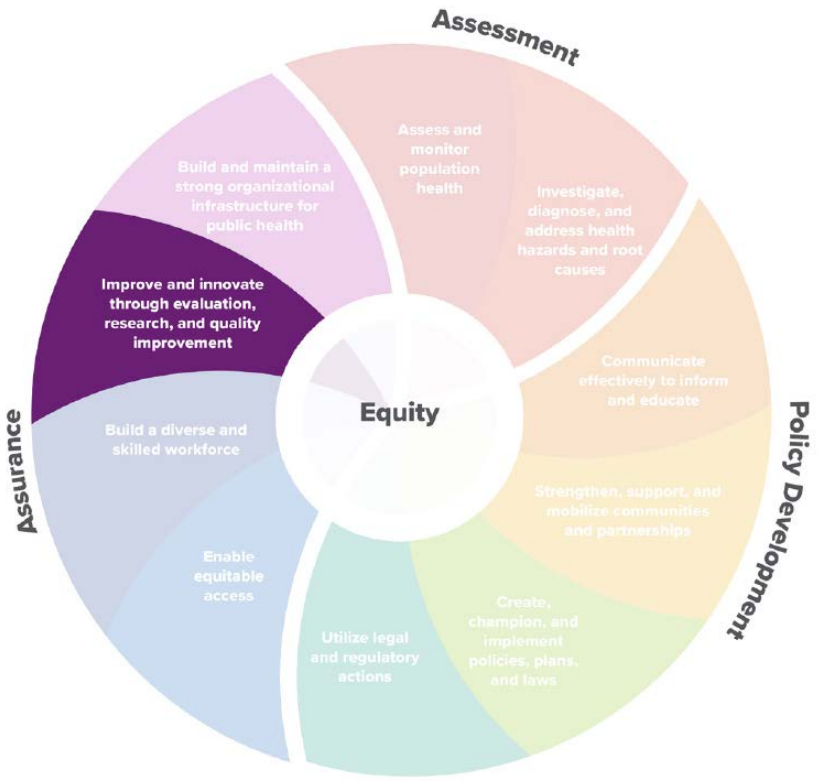
Promoting a culture of lifelong learning in public health

Building a pipeline of future public health practitioners

Fostering leadership skills at all levels

ESSENTIAL PUBLIC HEALTH SERVICE #9

IMPROVE AND INNOVATE PUBLIC HEALTH FUNCTIONS THROUGH ONGOING EVALUATION, RESEARCH, AND CONTINUOUS QUALITY IMPROVEMENT



Building and fostering a culture of quality in public health organizations and activities

Linking public health research with public health practice

Using research, evidence, practice-based insights, and other forms of information to inform decision-making

Contributing to the evidence base of effective public health practice

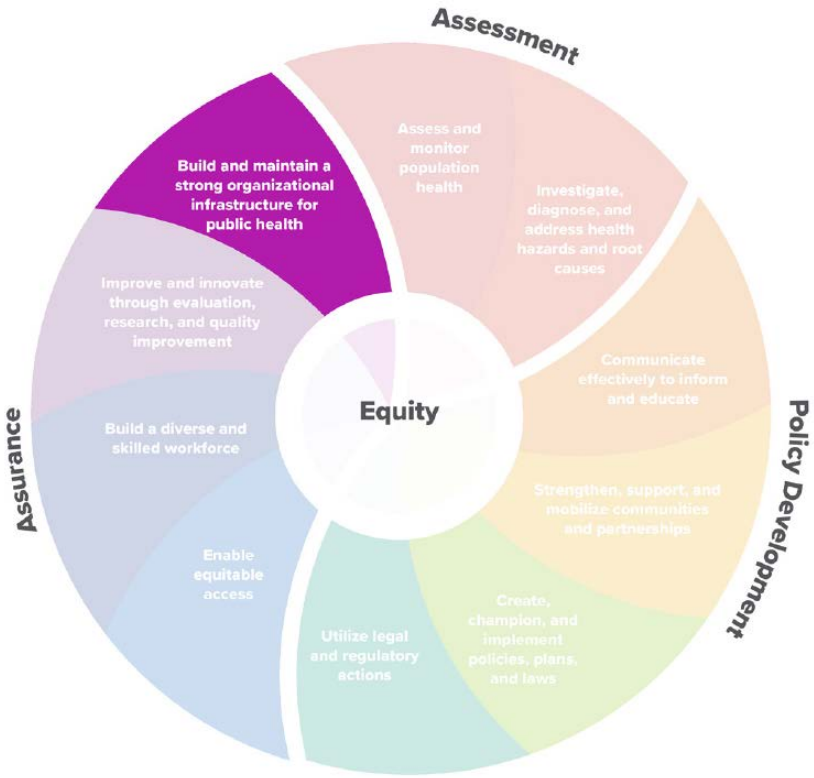
Evaluating services, policies, plans, and laws continuously to ensure they are contributing to health and not creating undue harm

Establishing and using engagement and decision-making structures to work with the community in all stages of research

Valuing and using qualitative, quantitative, and lived experience as data and information to inform decision-making

ESSENTIAL PUBLIC HEALTH SERVICE #10

BUILD AND MAINTAIN A STRONG ORGANIZATIONAL INFRASTRUCTURE FOR PUBLIC HEALTH



Developing an understanding of the broader organizational infrastructures and roles that support the entire public health system in a jurisdiction (e.g., government agencies, elected officials, and non-governmental organizations)

Ensuring that appropriate, needed resources are allocated equitably for the public's health

Exhibiting effective and ethical leadership, decision-making, and governance

Managing financial and human resources effectively

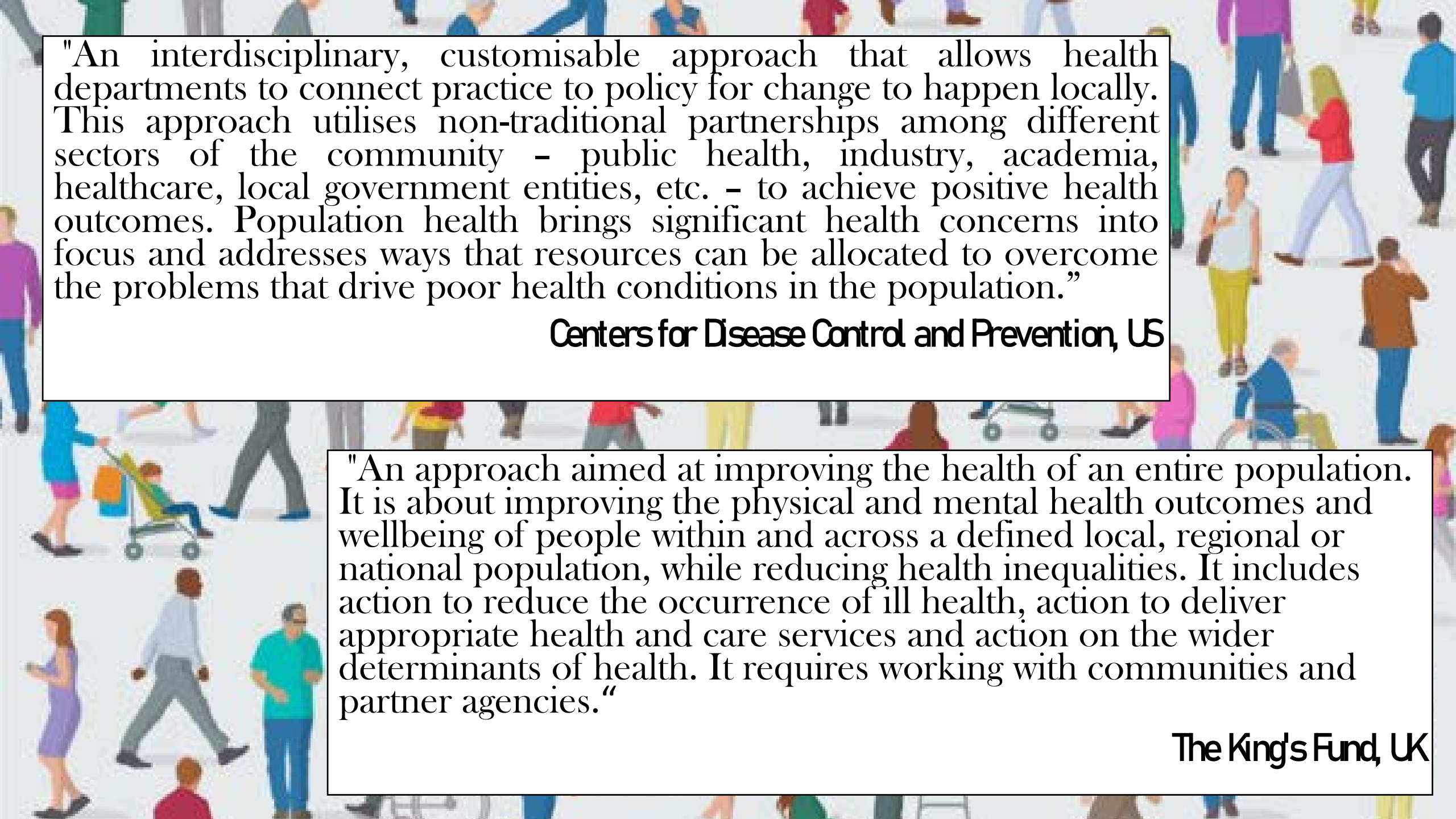
Employing communications and strategic planning capacities and skills

Having robust information technology services that are current and meet privacy and security standards

Being accountable, transparent, and inclusive with all partners and the community in all aspects of practice

What is population health?

Population health is a new concept aimed at preventing illness and improving the health and wellbeing of local communities. It considers all aspects of health, such as physical, mental and emotional wellbeing, as well as social aspects, including education, employment, housing and more.



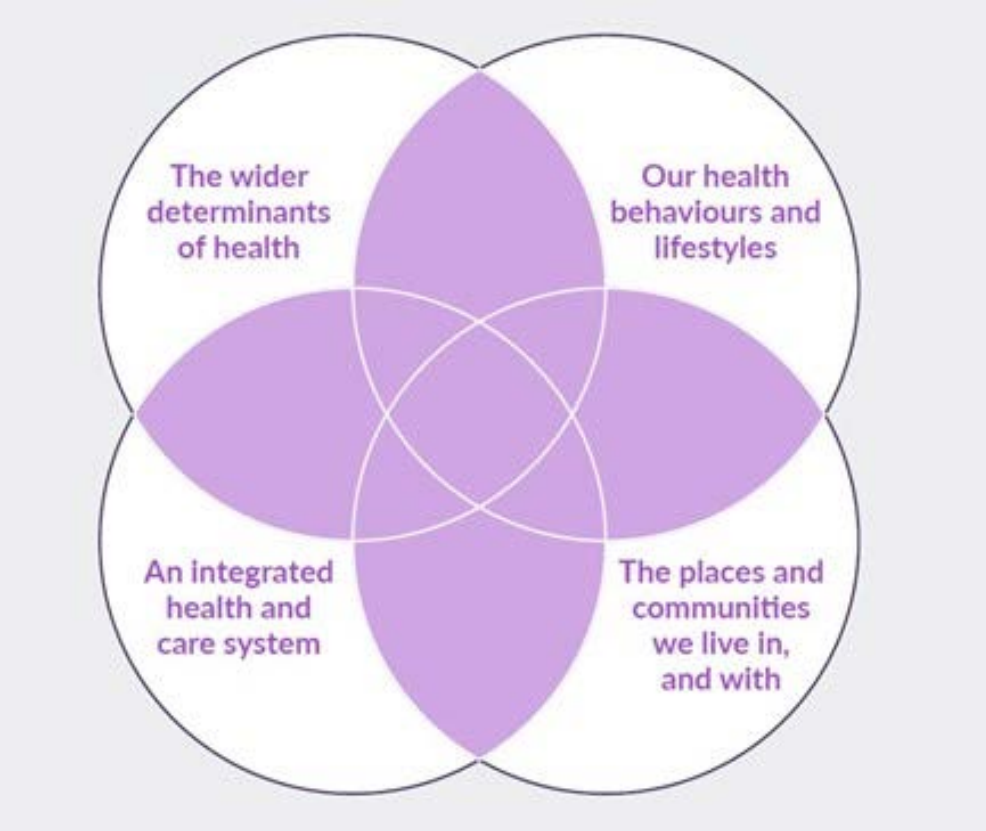
"An interdisciplinary, customisable approach that allows health departments to connect practice to policy for change to happen locally. This approach utilises non-traditional partnerships among different sectors of the community – public health, industry, academia, healthcare, local government entities, etc. – to achieve positive health outcomes. Population health brings significant health concerns into focus and addresses ways that resources can be allocated to overcome the problems that drive poor health conditions in the population."

Centers for Disease Control and Prevention, US

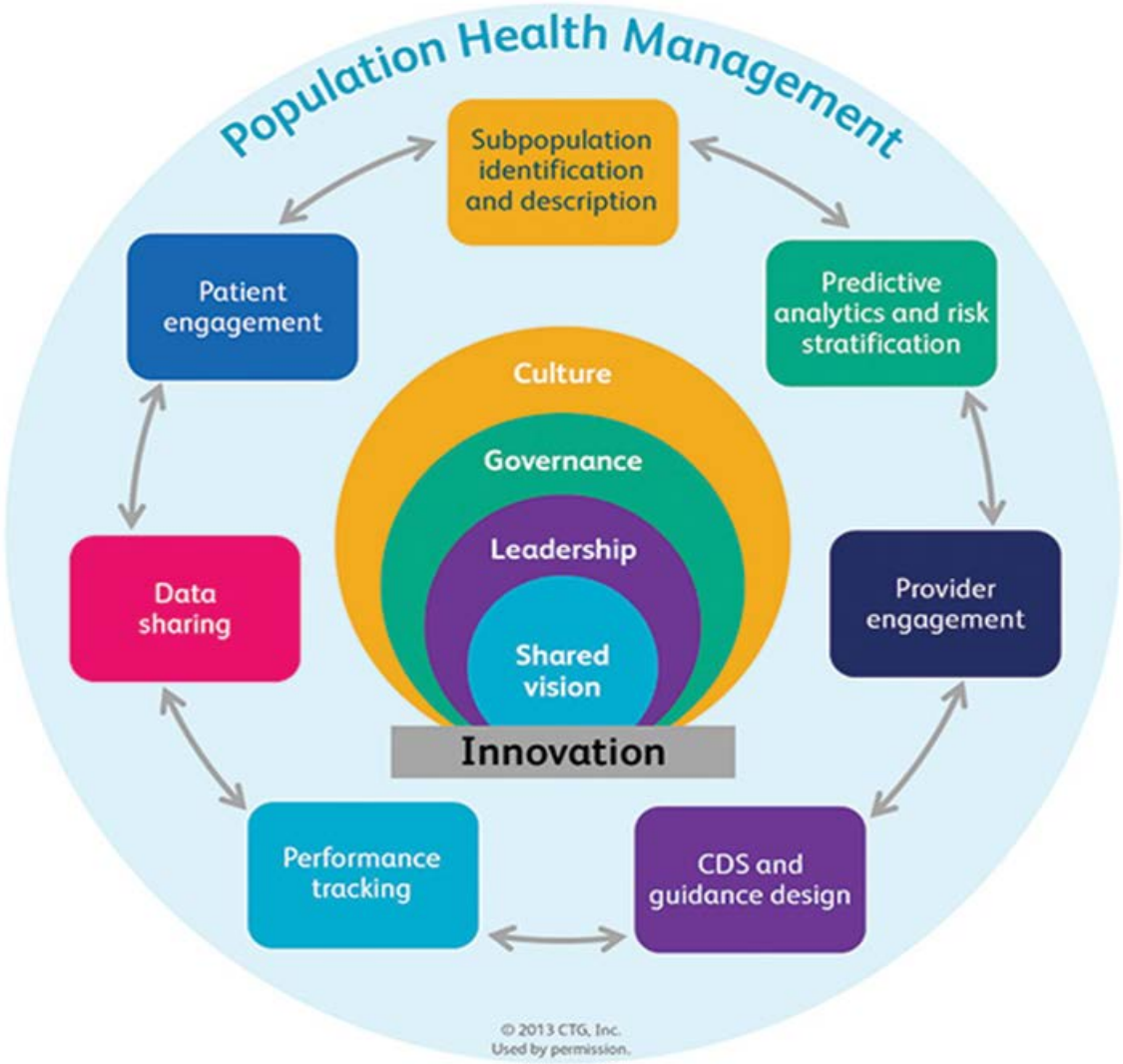
"An approach aimed at improving the health of an entire population. It is about improving the physical and mental health outcomes and wellbeing of people within and across a defined local, regional or national population, while reducing health inequalities. It includes action to reduce the occurrence of ill health, action to deliver appropriate health and care services and action on the wider determinants of health. It requires working with communities and partner agencies."

The King's Fund, UK

IMPROVING POPULATION HEALTH



To improve population health, the 4 pillars should be seen as a whole system interconnected with each other rather than acting individually.



Determinants of Health

The range of personal, social, economic, and environmental factors that influence health status are known as determinants of health.

Determinants of health fall under several broad categories:

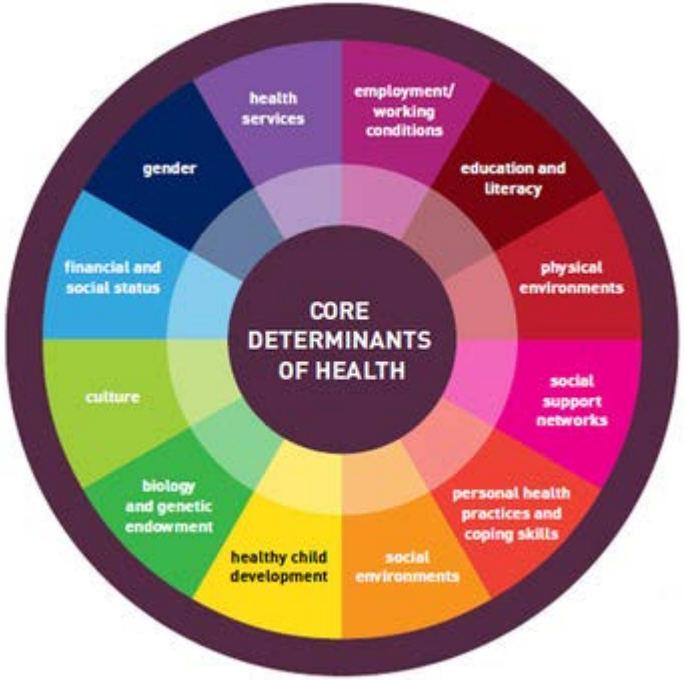
Policymaking

Social factors

Health services

Individual behavior

Biology and genetics



It is the interrelationships among these factors that determine individual and population health. Because of this, interventions that target multiple determinants of health are most likely to be effective. Determinants of health reach beyond the boundaries of traditional health care and public health sectors; sectors such as education, housing, transportation, agriculture, and environment can be important allies in improving population health.

POLICYMAKING

Policies at the local and state level affect individual and population health. Increasing taxes on tobacco sales, for example, can improve population health by reducing the number of people using tobacco products.

Some policies affect entire populations over extended periods of time while simultaneously helping to change individual behavior. For example, the 1966 Highway Safety Act and the National Traffic and Motor Vehicle Safety Act authorized the Federal Government to set and regulate standards for motor vehicles and highways. This led to an increase in safety standards for cars, including seat belts, which in turn reduced rates of injuries and deaths from motor vehicle accidents.

Social Factors

Social determinants of health reflect the social factors and physical conditions of the environment in which people are born, live, learn, play, work, and age. Also known as *social and physical determinants* of health, they impact a wide range of health, functioning, and quality-of-life outcomes.

Examples of *social determinants* include:

- Availability of resources to meet daily needs, such as educational and job opportunities, living wages, or healthful foods
- Social norms and attitudes, such as discrimination
- Exposure to crime, violence, and social disorder, such as the presence of trash
- Social support and social interactions
- Exposure to mass media and emerging technologies
- Socioeconomic conditions, such as concentrated poverty
- Transportation options
- Public safety
- Residential segregation

Examples of *physical determinants* include:

- Natural environment, such as plants, weather, or climate change
- Built environment, such as buildings or transportation
- Worksites, schools, and recreational settings
- Housing, homes, and neighborhoods
- Exposure to toxic substances and other physical hazards
- Physical barriers, especially for people with disabilities
- Aesthetic elements, such as good lighting, trees, or benches
- Poor health outcomes are often made worse by the interaction between individuals and their social and physical environment.

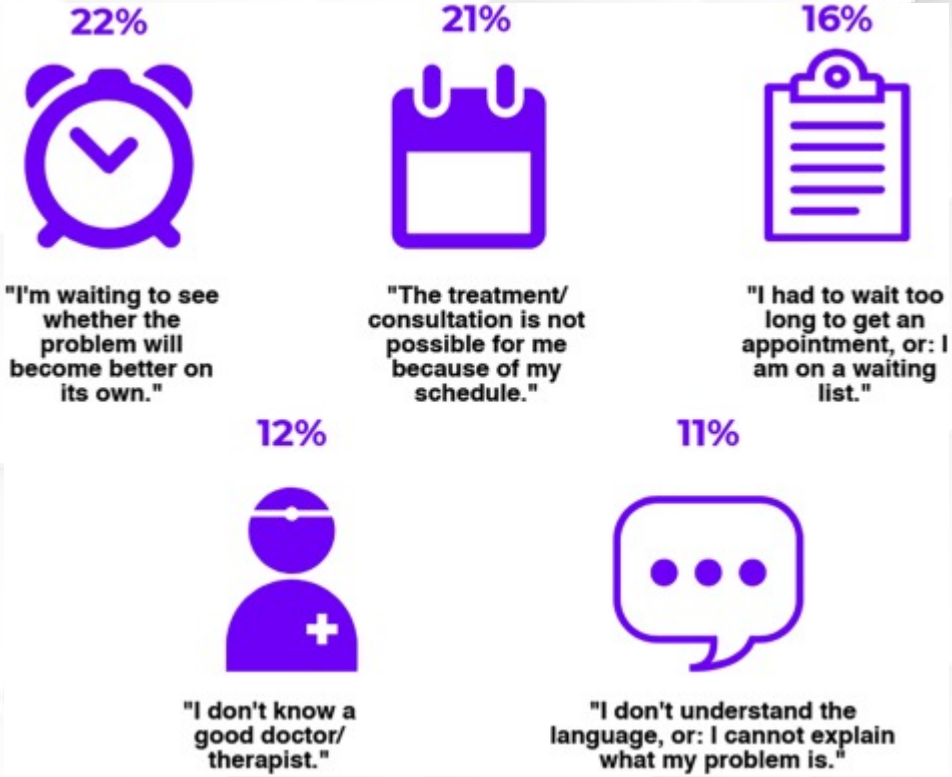
Health Services

Both access to health services and the quality of health services can impact health. Healthy People 2020 directly addresses access to health services as a topic area and incorporates quality of health services throughout a number of topic areas.

Lack of access, or limited access, to health services greatly impacts an individual's health status. For example, when individuals do not have health insurance, they are less likely to participate in preventive care and are more likely to delay medical treatment.

Barriers to accessing health services include:

- Lack of availability
- High cost
- Lack of insurance coverage
- Limited language access
- These barriers to accessing health services lead to:
- Unmet health needs
- Delays in receiving appropriate care
- Inability to get preventive services
- Hospitalizations that could have been prevented



Individual Behavior

Individual behavior also plays a role in health outcomes. For example, if an individual quits smoking, his or her risk of developing heart disease is greatly reduced.

Many public health and health care interventions focus on changing individual behaviors such as substance abuse, diet, and physical activity. Positive changes in individual behavior can reduce the rates of chronic disease in this country.

Examples of *individual behavior determinants* of health include:

- Diet
- Physical activity
- Alcohol, cigarette, and other drug use
- Hand washing

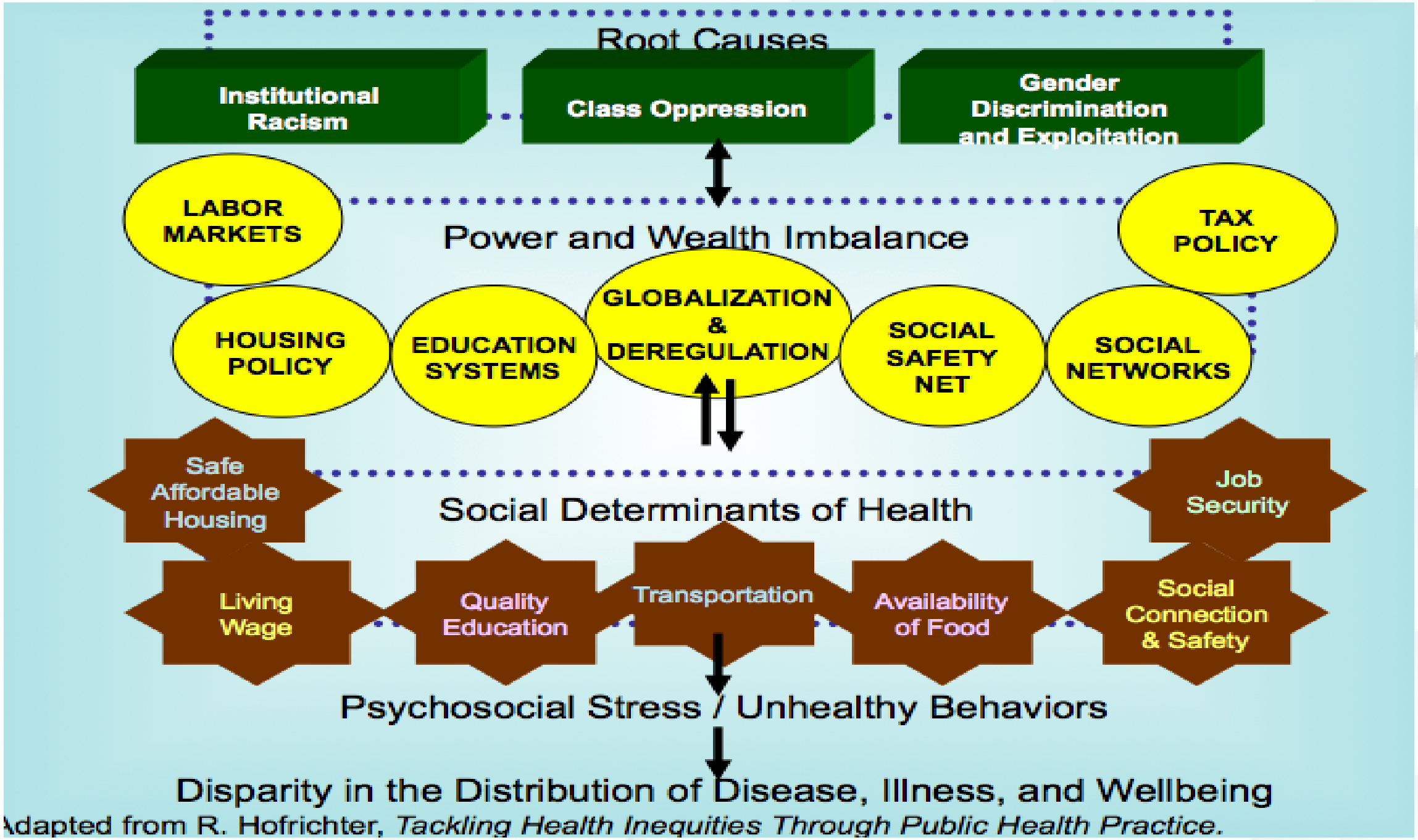
Biology and Genetics

Some biological and genetic factors affect specific populations more than others. For example, older adults are biologically prone to being in poorer health than adolescents due to the physical and cognitive effects of aging.

Sickle cell disease is a common example of a genetic determinant of health. Sickle cell is a condition that people inherit when both parents carry the gene for sickle cell. The gene is most common in people with ancestors from West African countries, Mediterranean countries, South or Central American countries, Caribbean islands, India, and Saudi Arabia.

Examples of *biological* and *genetic social determinants* of health include:

- Age
- Sex
- HIV status
- Inherited conditions, such as sickle-cell anemia, hemophilia, and cystic fibrosis
- Carrying the BRCA1 or BRCA2 gene, which increases risk for breast and ovarian cancer
- Family history of heart disease


Root Causes
Institutional Racism
Class Oppression
Gender Discrimination and Exploitation
LABOR MARKETS
Power and Wealth Imbalance
TAX POLICY
HOUSING POLICY
EDUCATION SYSTEMS
GLOBALIZATION & DEREGULATION
SOCIAL SAFETY NET
SOCIAL NETWORKS
Safe Affordable Housing
Social Determinants of Health
Job Security
Living Wage
Quality Education
Transportation
Availability of Food
Social Connection & Safety
Psychosocial Stress / Unhealthy Behaviors
Disparity in the Distribution of Disease, Illness, and Wellbeing
Adapted from R. Hofrichter, *Tackling Health Inequities Through Public Health Practice.*


Social, Economic & Political Factors
Political Particpation
Power
Living & Working Conditions
Segregation
Working Environment
Inequality
Public Services & Infrastructure
Sexism
Social Networks
Community Centers
Transportation
Wages & Benefits
Individual Behaviors
Racism
Housing
Education
Diet
Addiction
Economic Dev
Air & Water & Soil Quality
Poverty
Individual Factors
Access To Food
Parks
Exercise
Coping
Health Care
Noise
Age, Gender, Genetics
HEALTH