EPID799C section 01: Social justice and inequality – in search of John Cassel’s epidemiology

**Main points, spring 2017**

**Learning Objectives for the course**

The primary goal of this course is for all participants to broaden their awareness of the factors that influence public health and fruitful approaches to improve public health. After completing this course, students should be able to:

* Describe landmarks in the 100+ year movement to advance health equity. (part I)
* Analyze contemporary issues in health equity/health disparities in the context of this movement. (part I)
* Give examples of how major health disparities are heavily influenced by social determinants.
* Describe how these social determinants arise from the actions of individuals and institutions as they pursue expected objectives.
* Explain how this process is shaped by fundamental economic, political, and evolutionary forces.
* Cite examples of cognitive tendencies that contribute to narrow awareness exhibited in management, leadership, and political expression.
* Cite biological and environmental influences on thinking, behavior, and consciousness.
* Identify ways in which individual and collective consciousness influence public health and possible ways to improve these influences.

**Contextual factors**

Conditions of living are major determinants of health and disease.

These contextual factors include exposure to hazardous (microorganisms, toxic substances, injury, and violence) and protective factors.

Access to resources and power enable people to avoid harmful exposures and to take advantage of protective factors.

As knowledge and capability to prevent or cure diseases become available, then differences in access to that knowledge and capability become primary determinants of health for those diseases.

Dramatically different access to knowledge, resources, and power is the key contextual factor in health inequities in the U.S.

**Underlying determinants**

**Economics**

Economic disparities are both the basis of health disparities and in turn are maintained and aggravated by health disparities.

Economic influences are powerful motives for actions that are harmful to other individuals, public health, the environment, and the future.

The economic system has also grown up along with affluence and technological advancement that have transformed human society. Relatively few of us would like to live in the preindustrial era.

Concepts of economics underlie a wide variety of phenomena (investment vs. expenditure, present vs. future, inventory vs. JIT, produce versus trade, etc.)

**Evolution**

Evolutionary theory – whether one believes in it or not(!) – provides insight into fundamental processes by which life proceeds.

Evolutionary principles apply to plants, animals, people, organizations, societies.

Basic concepts of evolution include: what exists today has, for the most part, survived from the past; over a very long period of time, many things change and unusual events occur; surviving over a very long period of time requires reproduction, diversity, and inheritance.

**Cognition**

Thinking and behavior greatly influence public health, the environment, and the future.

Thinking may not be what we think it is.

Thinking is influenced by many things that we don’t think about except when we want to influence others.

Short-sightedness, narrow-mindedness, fixations and distractions, failures to see connections and implications, and other shortcomings make our actions less successful than they could be.

In order to improve outcomes, we need to change the way people think.

**Neurobiology**

The human brain is a community of hundreds of billions of cells and trillions of connections, that forms over an extended period as precursor cells develop into neurons and glial cells, switching some genes on and others off, migrating to appropriate positions, extending axons to make synaptic connections, and undergoing two pruning processes to fine-tune these initial neuronal networks. “Both pruning processes seem to involve competition for limited amounts of specific trophic signals released by the target cells.” Martin Raff, 1996, p1063.

Human thinking and behavior arises from the interactions of this vastly complex world with an environment that includes additional such worlds.

The detailed circuitry of each brain (the “connectome”) is unique, reflecting her blend of genetics, environmental influences, and life experiences.

The developing and adult brain can be influenced by hormonal, nutritional, pharmacologic, microbial, chemical, physical, and social factors.

Early life experiences – or their absence – have lasting impacts on the structure and functioning of the brain, with enduring influence on cognitive and non-cognitive skills, emotions, and resilience.

**Consciousness**

The quality of functioning of the nervous system determines the quality of our thoughts, actions, and experience of consciousness.

Nervous system functioning and, therefore thinking, behavior, and consciousness, are influenced by genetics, early life experiences, hormonal milieu, nutrition, sleep, activity, substance use, medications, the physical environment, and the social environment.

Transdisciplinary epidemiologic research could identify and evaluate influences on nervous system functioning, including interventions to improve functioning.

The epidemiology of consciousness could also identify and evaluate influences on breadth of awareness, such as varying tendencies to focus on short term, nearby, highly visible implications of actions to the exclusion of longer term, more distant, and more subtle implications.

Broader awareness could conceivably improve humans’ ability to advance their own wellbeing in the present without sacrificing future wellbeing, the wellbeing of others, and the environment.