Summary:

Although there are fundamental differences between applied anthropology and public health, the disciplines are in some ways natural collaborators, with similar orientations, common concerns, and complementary methods. Both disciplines, for instance, study and talk with individuals, but have a shared interest in communities and groups, and the phenomena that shape collective beliefs, behaviors, and contexts. These convergences have led to productive studies of the human components to the spread of infectious diseases like malaria, flu, tuberculosis, or Ebola, or the role that social inequality plays in contributing to chronic diseases like diabetes or cancers, or the relevance of culture and context for informing community interventions and health campaigns across diverse social groups. Methodologically, public health's emphasis on community and advocacy provides a natural entry point for anthropology's ethnographic method that emphasizes spending time with a community and understanding aspects of culture and health from its peoples' perspectives.

When a multi-disciplinary team meets on a common interest, such as improving public health, everyone's interests become better served if each discipline's perspectives and values are recognized. Anthropologists with careers in public health can expect to engage in formative research to help develop the most appropriate health interventions, evaluate community uptake or rejection of public health initiatives, or critically examine the effects of national or global policies on local populations.

Applied Anthropology and Public Health

Overview

Anthropology and public health are in some ways natural collaborators, with similar orientations, common concerns, and complementary methods. Those from both disciplines, for instance, study and talk with individuals, but have a shared interest in communities and groups, and the phenomena that shape collective beliefs, behaviors, and contexts. These convergences have led to productive studies of the human components to the spread of infectious diseases like malaria, flu, tuberculosis, or Ebola, or the role that social inequality plays in contributing to chronic diseases like diabetes or cancers, or the relevance of culture and context for informing community interventions and health campaigns across diverse social groups.

At the same time, there can be fundamental differences between the two disciplines. Porter, an epidemiologist, contrasts the objective assumptions of public health to the subjective acknowledgement of anthropology: because anthropologists embed themselves in a community, they by necessity have to be reflective about their own positioning and epistemologies (2006). For anthropologists, individuals and communities are most often the experts; we ourselves are perpetual students, attentive to learning about local environments, conditions, and ways of thinking. Part of our job historically has been to explain and translate this approach to outsiders and to mediate between multiple perspectives. Though community-based participatory approaches are growing in public health, the field's reliance on epidemiological methods has been critiqued in the social sciences, and in public health as well. Public health has had a tendency to privilege a particular way of knowing that silences alternative epistemologies, or that overlooks the influences of social structure while pointing to individuals as ultimately responsible for their current situation (Brough, 2013; Riemann and Rossi, 2019).

Because anthropology's perspectives have proven to be a versatile tool in public health, previous summaries of the literature frequently discuss "anthropology IN public health" or how anthropology is "good for" public health (Hahn, 2009; Campbell, 2011; Stellmach et al., 2018), calling attention to the value of anthropological insights or methodologies for particular public health endeavors. Yet public health also has been valuable IN anthropology and TO anthropologists, particularly within the subdisciplines of "medical anthropology" and "applied anthropology," which have the strongest collaborations with public health. Anthropologists with careers in public health can expect to engage in formative research to help develop the most appropriate health interventions, evaluate community uptake or rejection of public health initiatives, and critically examine the effects of national or global policies on local populations.

Methods and Perspectives in Anthropology in Public Health

Methodologically, anthropology emphasizes the practical use of ethnography—meaning the holistic description of a cultural group—as a method to identify factors that contribute to health and disease outcomes. Ethnography emphasizes spending time with a community and understanding aspects of culture and health from its peoples' perspectives, trying to learn the world through their eyes. While public health tends to rely more on quantitative data and anthropology on qualitative, an important component of ethnography is "triangulation." As part of triangulation, anthropologists approach an identified problem with an integration of mixed methods—both qualitative and quantitative—including surveys, focus groups, participant-observation, social network analysis, and semi-structured and informal interviewing. Anthropologists working as part of public health teams often find it useful to cross-train in quantitative methods, learning "the language" of others on the team, much in the same way as anthropologists traditionally learned the

language of local populations they were studying (Thompson et al. 2019; Dressler 2016). Particularly in the last few decades, anthropologists have focused on applying these methods towards a decolonized approach, meaning the aim is to decenter power away from the researcher and towards the empowerment of the community (Harrison, 1991).

Public health's emphasis on community and advocacy has provided natural entry points for these methods and orientations. For instance, an expanding framework of inquiry and outreach in public health is Community Based Participatory Research (CBPR), which is itself informed by anthropologists (and other social science and activist disciplines) working in research; it is also called "action research," "rapid rural appraisal," "participatory assessment," and "participatory action research" (Wallerstein and Duran, 2008). Paolo Freire, in *Pedagogy of the Oppressed* (1970), writes of the necessity of transforming research away from one in which communities are objects of study, to one in which community members themselves participate in the inquiry. CBPR stresses negotiation and collaboration with community members, and transfers of knowledge such that community members are able to "analyze conditions and make informed decisions on actions to improve their (own) lives." CBPR also emphasizes "community members transferring their expert content and meaning to researchers in the pursuit of mutual knowledge and application" (Wallerstein and Duran, 2008:27).

Important paradigmatic distinctions characterize the two fields. Some of these are theoretical. Public health borrows social science theory eclectically from a variety of disciplines in attempts to understand individual health behaviors, the contexts in which they occur, and motivations for behavioral change. Some public health theories, e.g., the "social ecological model," borrow directly from anthropology in recognizing multiple levels of influence on individual behavior, from community and cultural values, social networks, and public policy.

Medical anthropology is in fact theoretically indebted to public health practitioners. The Society for Medical Anthropology's "Critical Anthropology for Global Health" group, for example, names its annual "Virchow Award" after a 19th century German physician who wrote about the multiple and interactive effects of social inequality, class, and power on mortality rates and the spread of disease. "Medicine," Virchow wrote, "is a social science, and politics nothing but medicine at a larger scale" (quoted in Mackenbach 2009: 181).

Porter (2006), an epidemiologist, talks about the differences between anthropology and public health in terms of data outliers. For an epidemiologist seeking to portray empirical population data as generalizable, outliers may be eliminated. For an anthropologist talking with individuals, although understanding cultural patterns are important, outliers often represent interesting people with possibly opposing worldviews and social situations. By including the exceptions in their study, the anthropologist often gains insight into the unwritten rules, marginalized social groups, and cultures that operate within a given social context. While public health relies on statistically valid samples to portray community evidence, the anthropologist uses in-depth questioning and narrative to give all individuals a voice and to understand their stories and perspectives.

Both anthropology and public health have complementary concerns. Upon a disease outbreak, public health methods are used to track the demographic and shared risk factors of those most affected. Often, one of the first things discovered is that a disease never affects everyone in society equally; its distribution most often occurs in pockets, usually influenced by the social groupings in which people live. These groupings themselves correlate with the division of power and wealth in society. Studying these divisions and their effects has been a fundamental project in anthropology. Anthropologists are trained in holism—focusing on the entire situation of a given

community. Holism involves directing attention to macro and micro influences, as well as global and local influences, to understand the events, policies, and social structures that act on people, constrain their choices, or lead them to do and think what they do. For an anthropologist, health is never isolated from culture, which itself is never isolated from political, social, and economic structures (Porter, 2006). Advantaged from this perspective, we can be called upon to give insight into the root causes and persistence of some of the most vexing public health problems, to evaluate public health education programs and initiatives, and to inform public policy about the local costs and implications of macro-level legislation, among other issues.

Case Study and Career Profile in Methods:

Dr. Jean Schensul, PhD

The Institute for Community Research

Schensul et al. (2013) write about the value of ethnography for participatory community assessment, what they consider the first step towards CBPR, in a group of Connecticut youth.

Insert picture 1- Jean Schensul about here.

Their first step was to form an assessment team composed of both community members and academic researchers functioning as facilitators and collaborators. Over a period of days, they bonded and debated topics that were relevant in the lives of those youth. The youth

chose "hustling" as a particularly pertinent issue—how some youth were forced into selling drugs, sex, or really anything on the street, for survival. The next step involved asking fundamental questions about all the communities that intersected with this issue:

- How are communities defined or bounded?

- Who are the key people?

- What issues and needs exist?

- What disparities exist?

- What resources are available?

- How do people currently mobilize to resolve problems?

Through preliminary interviews, they constructed assessment models and "geo-social maps," which assessed the problem, identified where events took place and when, and the influences. Community experts helped them identify appropriate methods of data collection, and recruitment. They used common anthropological methods of mapping, pile-sorting, open-ended exploratory interviews, and a survey to triangulate their findings. Data analysis was done with the youth and the community experts, who got together to debate the results, identify any contradictions, and resolve them.

Epidemiology and Risk

Epidemiology is the study of the distribution and determinants of health in a given population (Last, 1988), as well as the identification of risk factors as variables that increase the likelihood of

developing a disease or infection. Epidemiology has been called "the basic science" of public health, a perspective that privileges "scientific" empiricism and objectivity in assessments of public health problems (Gouda and Powles, 2014). Increasingly, however, epidemiologists themselves have questioned the degree to which such a scientific enterprise can be value-free or objective and have called attention to the particularly-situated epistemological and philosophical foundations of epidemiology (Krieger, 2011; Luby, 2013). Mark Brough, a professor of indigenous health, notes that any supposedly "objective" methods may preclude researchers from even attempting to understand local perspectives as anything other than faulty (2013).

For instance, when met with public resistance to mass vaccination campaigns, epidemiologists have often assumed that the culprit is a collective lack of information or knowledge, and that more education will invariably push populations to "come around" to accept the public health point of view about vaccine efficacy (Fairhead and Leach, 2007). Anthropologists instead frame these kinds of problems and responses in terms of choice, constraint, culture, politics, economies, and history. We prioritize local knowledge and ways of knowing, in order to elicit local conceptual frameworks about how people understand vaccines or vaccine risk, how they have experienced them historically, and how they conceive of their own personal role in community health and risk reduction (Gullion et al., 2008; Sobo, 2016; Brunson and Sobo, 2017).

Anthropology's perspective is that the processes by which people and communities appraise situations, assign risk, and act upon them, are all equally important to assess alongside epidemiology. Whereas epidemiology may assume that population health and scientific demonstration will be universally motivating, individuals may be more motivated by family history, wider views of government, anxieties about vaccine ingredients, or personal experiences with clinicians.

In anthropology, all these local ways of knowing and assessing risks are recognized as "lay epidemiology." Lay epidemiology is the process through which health risks are understood and interpreted by lay people, usually through exposure to news reports, personal observations or experience, or local conversations within one's contextual social network (Almark and Tod, 2006). For an anthropologist interested in vaccine hesitancy, the public's evaluation of risk factors, and the context within which situations are appraised, are viewed as equally important as the epidemiologist's evaluation; perception and context affect how people process health information and health promotion messages and behave accordingly.

In work settings, epidemiologists have relied on anthropologists to 1) identify risk behaviors during community assessments, 2) analyze the social context to assess what in the social context leads to higher morbidity, or 3) evaluate possible interventions. Historically, anthropology's role has been to translate or act as a broker across varying perspectives, and to start conversations with all stakeholders about any differences. Because anthropology is focused on listening to and learning from the community's perspectives, it is possible to create research questions that are relevant and meaningful to community members, and develop interventions that are relevant to their daily lives.

CASE Study and Career Profile in Epidemiology and Risk:

Dr. Julienne Anoko, PhD.

The World Health Organization

At times an anthropologist working in the public health field can play the role of mediator—someone who conveys both the logics of the epidemiological public health response and the 'lay epidemiologies' of communities and shows that each are governed by their own rationalities and responsibilities. Sometimes the most important thing an anthropologist does is sit down and listen to people, to try to understand the world through their eyes. One such person is Dr. Julienne Anoko, a Sorbonne-trained, Cameroonian medical anthropologist who has worked with the World Health Organization on Zika outbreaks in Latin America, and Ebola outbreaks in Africa. "Large scale infectious disease outbreaks," she notes, "are as much social crises as they are health crises."

Insert picture 2- Julienne Anoko, about here.

In 2014, at the height of the Ebola Virus Disease in Guinea, West Africa, a pregnant woman from a rural village presented at a hospital both feverish and bleeding and died shortly after admission. A test for Ebola came back inconclusive, but under strong suspicion of her symptoms (and because her village was near the epicenter of the epidemic), the hospital staff determined that the probability of Ebola was high. They therefore recommended to the District Health Office a "safe" burial, meaning that the body would be carefully placed in a body bag and buried at a secure location. This decision conflicted with the traditional prescription for the proper burial of a deceased pregnant woman, in which village-level religious leaders normally perform a post-mortem cesarean section to remove the fetus from the body of the deceased.

For the woman's family and village, the medical staff's behavior was unacceptable. The community feared a different kind of contagion would result if they were not allowed to follow the traditional burial protocol. They believed that ignoring the usual burial protocol would cause a widely feared curse on the woman's home village, with disastrous implications for the broader community's reproductive health. Out of their own concern for community health, the family insisted on receiving the body back so that a traditional cesarean and burial could occur. A tense standoff between the family, the district health officers, the medical staff, and the village leaders, threatened to turn violent.

Coincidentally, Dr. Anoko was working nearby, and was called upon by the World Health Organization to consult. She conducted a rapid ethnographic assessment of the local community to understand how death, particularly an unexpected death, was understood by the key members of the community. She realized that if correct funeral procedures were not allowed, kin and village could be judged at fault by powerful ancestors, who could curse a community for the slight. Importantly, the rapid assessment started a process by which the anthropologist was able to build mutual trust and lay the foundation for mediation.

During her assessment, she also met with traditional practitioners, some of whom suggested a remediation ritual that could attend to the religious, social, and emotional needs of the community, and respect public health norms (i.e., avoiding the post-mortem cesarean). Ultimately, the improvised ritual was carried out with respect for both local customs and community well-being, allowing the process to find a peaceful end (story excerpted from Anoko and Henry, 2019).

Global Health and Health Inequalities

A major focus within the anthropology of public health is "Global Health." Anthropologists have approached this field both critically and constructively; their work may be locally informed from a particular context, but broadly comparative and internationally applicable in scope. The critical work argues for more anthropological attention to the politics and power relations within global health policy and practice, a "studying up" of how wealthier nations and bureaucracies produce global health infrastructure, and how policy becomes created and exported to developing nations around the world (Nichter, 2008; Janes and Corbett, 2009). Anthropologists have also pointed out the hidden assumptions within global health language. Although "global" is in the title, in reality it refers to the flow of advice, information, and expertise from wealthier nations to poorer nations. The "planners" and "donors" are in the higher-income, "developed" countries, while the "recipients" are the lower-income, developing ones.[1] The created system of aid functions such that wealthier countries' priorities tend to get adopted and exported to the recipients, a fact which can function to benefit the economies, employment, and political structures of the donor countries. For instance, during the 2014 Ebola epidemic in West Africa, donor priorities suddenly shifted away from malaria and diarrheal prevention programs to channel money towards preventing the spread of Ebola. Critics pointed out that this shift seemed to have less to do with actual numbers of deaths (malaria deaths far exceeded Ebola deaths even during the epidemic), than with preventing the spread of Ebola across international borders (Henry and Shepler, 2015). Donor countries may not

[1] Even the labels of "developing" and "developed" are value laden, made with the patronizing assumption that developing nations would benefit from becoming more like the developed ones.

trust foreign governments to be good administrators of their money and choose instead to fund and implement their own projects, usually through non-governmental organizations ("NGOs") and experts from their own countries. Critics have pointed out that this organization of aid has led to an explosive growth of NGOs, along with a concentration of knowledge and expertise on the donor side, while often preventing the transfer of knowledge to receiving countries, whose governments gain fewer opportunities to become accountable to their people, or be in charge of solving their own problems (Pfeiffer, 2003). Capacity building at the national level can be sacrificed for externally defined, measurable outcomes that solicit more donations.

Practically, the global health infrastructure also employs many anthropologists, who work at different levels: multilateral organizations like UNHCR, bilateral organizations like USAID, government agencies (foreign and domestic), foundations and banks, international NGOs, for-profit development agencies, local NGOs, and as consultants, for any of the levels above. A primary focus for all has been the implementation of the United Nations' Millennium Development Goals (pre-2015) or Sustainable Development Goals (post-2015), which generally call for increasing international cooperation and investment to increase access to quality education, realize gender equality, reduce poverty, hunger, and child mortality, improve maternal health, increase access to clean water, fight infectious and parasitic diseases, improve environmental health, reduce social inequalities, and increase global development partnerships. In these projects, anthropologists tend to be valued for their skills in working with, not just "in," local communities, respecting and soliciting local knowledge to understand context, and implementing strategies to ensure local engagement.

In a global health career, there are difficulties anthropologists sometimes face in bringing ethnographic methods to the fore in projects. Those attached to universities can be limited by an

academic calendar; those doing consultancies can be limited by a short time in the field and long working days. Those who work in agencies and bureaucracies can sometimes struggle to retain a critical stance; they may do excellent work but be assigned to projects with a limited ability to address larger structural inequities found within political, social, or economic contexts (Farmer, 1999; Lewis, 2005). Too often anthropologists are brought in at the end of projects, to troubleshoot why things are not working as expected, rather than at the beginning, when planning and implementation are underway that could benefit from anthropological expertise. Sometimes statistically quantified "measurable outcomes" become prioritized before the welfare of the poor, while ethnographically discovered circumstances recognized by anthropologists remain hidden (Adams, 2016).

Case Study and Career Profile in Gender and Reproductive Health:

Dr. Bryan Shaw, PhD

Institute for Reproductive Health, Georgetown University

Dr. Shaw got a "dual degree" in both anthropology and public health (MA-MPH), then followed it with a PhD in International Health from Johns Hopkins University. He's now a "Senior Research Manager" at Georgetown University's Institute for Reproductive Health.

Insert picture 3- Bryan Shaw, about here.

Photo caption: Dr. Shaw working with local faith leaders in Plateau State, Nigeria.

On a weekly basis, Dr. Shaw is responsible for the development and oversight of reproductive health projects in different countries in Africa. His anthropology degree helps him specialize in understanding local communities' social norms, and work within those norms so that his projects are appropriate in scope, research questions, and methodology. Sometimes his projects are assessment-based, trying to elicit local cultural contexts and priorities. In other cases they are evaluations designed to understand how and why norms-shifting programs are (or are not) working as expected. For example, one month his group may be funded to design a program working with elders to reduce female genital cutting among young girls in Southern Senegal. Another month he may be developing qualitative interview questions to understand why rural Ethiopian women do not use government health workers for treating their children. He might oversee a program to promote more contraceptive use in Kinshasa, or keep daughters in school in Niger, or do data analysis with a team from Burundi that used participatory methods among young men to ask questions about alcohol and sex. For Shaw, it is always important to understand the cultural context in which interventions are planned, and how to work with those contexts to help design projects and solutions. When able, he flies to Africa to meet with and train local research teams. At Georgetown, he advocates for his own work as part of a

consortium, monitoring project ethics, developing research measures and agendas in response to global health needs, conducting trainings, and publishing results.

Environment, Ecology, and Infectious Disease

The anthropology of infectious disease investigates cultural notions about contagion, beliefs about the etiology of disease or expected disease course, and the social, political, and economic forces that structure the beliefs or behaviors that influence infectious epidemiology. It would be hard to overstate how connected all of human behavior is to microbial life and thus to infectious disease. Cultural beliefs, expectations, and assumptions dictate how we interact with each other- how close we get, if and when we kiss or touch noses, when we share food, and when we have sex (Brown et al., 2011). How we handle death and the ritual preparation of bodies, how we alter the environment of infectious disease vectors, and how we structure our medical systems for access to care, are all human created systems which affect the spread of infectious disease (Singer, 2014).

Because human ecology is so interconnected with microbial ecology, when we alter our environments through dam building, road building, draining swamps, or releasing air pollutants, we alter the ecology of infectious disease and thus how diseases spread. One of anthropology's largest contributions in this area is to broaden the definition of "environment," pointing out that humans interact within many different environments—physical, but also socioeconomic, political, and cultural (Inhorn and Brown, 1997). Anthropological attention to context and behavior draws our focus to the role of human environmental alterations in upsetting a homeostasis between humans, environments, and pathogens. For example, humans develop and

take antibiotics, which affects the mutation rate of microbes; we change the climate, which affects mosquito born vectors; we occupy new terrains, which puts us in touch with fauna that spread disease; we develop industrial food production or processing, which facilitates the birth and spread of new diseases.

Case Study of Infectious Disease: Social Disparities AND COVID-19

In 2020, the worldwide spread of COVID-19 provided a window into what an anthropological perspective can reveal about the social and ecological factors involved in the spread of infectious disease. It also revealed how conditions created within the structure of society can shape the morbidity and mortality of a pandemic.

Because of its genetic similarity to bat coronaviruses, the 2019-nCoV virus is thought to have spread initially into human populations from bats, and then most likely amplified from a live-animal wholesale seafood market in Wuhan, China. Because the market is built around a crowded city of 11 million, the virus found ready hosts, and quickly spread beyond quarantines and around the world. The original quarantine itself was difficult to enforce, as it coincided with the Chinese Lunar New Year holiday, annually one of the largest human migrations in the world, where over 3 billion people travel to visit family and hometowns (Cripps

and Wang, 2019). Human advances in air travel technology resulted in the virus spreading throughout the world.

Early research suggested that 80% of the spread of infections were between people who were asymptomatic, though this percentage was later revised downward to 20% (Pollok and Lancaster, 2020). Around the world, people were encouraged to adopt social distancing measures and avoid close contact with others. This guidance, though medically sound, contradicted fundamental cultural and psychosocial needs of families to visit and embrace loved ones, celebrate marriage together, keep vigil at death, or gather and weep at funerals. In the United States, handshakes are a normal part of social interaction, but became replaced by "air fives" and "elbow-bumps." Scientific evidence eventually consolidated on the prophylactic capability of mask-wearing to prevent the spread of the virus by asymptomatic people. This prescription, however, immediately came into conflict with a large portion of American society who claimed that it represented public health overreach, and that personal freedoms within American political culture took precedent over any collective responsibility. Fear and the misinformation about public health science became common parts of lay epidemiology, leading some authors to declare an "infodemic" (Bagherpour and Nouri, 2020).

In terms of both infection and impact, COVID-19 has been like most other infectious disease outbreaks in that it has not affected everyone equally. It has

been especially difficult for marginalized groups, including those living in poverty, those with disabilities, indigenous communities, ethnic minorities, and those living in intersectional (overlap of social identities that put someone at greater risk of discrimination) situations. All of these groups have borne the brunt of disease disproportionately. For instance, those living with disabilities face increased challenges in accessing healthcare services, as well as stigma and discrimination, and pre-existing healthcare conditions that leave them more vulnerable. Indigenous people and people of color also have challenges of access, and burdens of pre-existing conditions like diabetes, obesity, cardiovascular disease—all of which are associated with higher morbidity and mortality rates. In addition, they are also significantly more likely to be poor. Poverty itself is a risk factor, in that poorer people typically work in service jobs that require working with many contacts in close proximity, are more likely to live in multigenerational crowded housing, or live near environmental hazards (Yaya, 2020).

Wealthier members of society typically have higher education levels, the ability to telecommute, have more ready access to testing, or can use built-in sick days when ordered to shelter-in-place or self-quarantine. Poorer workers, in contrast, are more likely to be paid hourly wages, with fewer possibilities for taking sick leave or staying at home. These differentials are particularly evident in societies with capitalist models for healthcare, or where healthcare is channeled through full-time employment. From the beginning of COVID infections, unemployment rose for everyone, but not for all groups equally. In the U.S. for example,

unemployment rose to 15% for all groups, but 19% for Latino-Americans, and

21% for those with less than a high school education (Ku and Brantley, 2020).

Food insecurity among the poor also increased dramatically. While 10% of

Americans reported food insecurity, the rate was much higher (20%) among

African-Americans.

These social impacts are likely to be long-term. In the U.S., for example, when

schools moved online to virtual meetings, poorer families were less likely to have

appropriate computing technology in the house or were less likely to have a

parent able to stay home and shepherd a child through online classes. When

poorer children suffer disproportionately in schools, the persistence of poverty

becomes extended over multiple generations.

Chronic Disease and Policy

Chronic diseases are defined by the CDC as conditions that last one year or more, cannot be cured

by medication, and cannot be prevented by vaccines (CDC, 2021a). Globally, while the burden of

infectious disease has decreased over the last several decades, the number and severity of chronic

diseases have actually increased. As with infectious diseases, epidemiological changes are clearly

linked to human activity. In part, industrialization and innovation brought advances in technology

like immunizations, which lessened the burden of infections. At the same time, increasingly

sedentary occupations and habits, dietary shifts that included more sugar and processed food, and

policy-related changes to our agricultural system, put humans more at risk for chronic and

degenerative diseases like cancers, diabetes, cardiovascular diseases, and obesity-related problems like sleep apnea. Humans live in increasingly polluted environments, which increases the likelihood of asthma or lung diseases. We live longer, more isolated lives, which puts us at risk for depression and Alzheimer's.

Anthropologists generally have approached chronic diseases by challenging the dominant individualizing "risk behavior" narrative sometimes promoted by epidemiologists and public health officials. For instance, in the United States, the Centers for Disease Control website acknowledges that chronic diseases are "the leading causes of death and disability in America," but seems to pin most of the blame for them on individuals and individual behavior:

Many chronic diseases are caused by a short list of risk behaviors: tobacco use and exposure to secondhand smoke, poor nutrition, including diets low in fruits and vegetables and high in sodium and saturated fats, lack of physical activity, (and) excessive alcohol use. (CDC, 2021a)

Anthropologists challenge this language, arguing that it distracts attention away from the dominant power structures in society that contribute to these problems in the first place (Manderson and Smith-Morris, 2010). For instance, the political power of multinational tobacco industries that make more money in a year than many countries' Gross Domestic Product, has proven problematic for nations that attempt to have healthier populations by restricting cigarette advertising (though not an anthropologist, see John Oliver's eye opening expose here: https://youtu.be/6UsHHOCH4q8).

Writing about the anthropology of chronic disease, Chaufan (2004) writes, "Public recognition of the benefits of physical activity can't fix neighborhoods that are too unsafe to walk in, or compensate for budgets that cut physical education programs" (266). Chaufan points out that even when "poverty" is recognized as a contributing factor to chronic diseases, poverty itself is often blamed as a culprit, but never the social conditions that lead to poverty, or the medical system that makes preventative care a cost-prohibitive commodity.

Anthropologists have typically championed policy-related solutions that address structural causes of chronic diseases as more effective than individualizing risk-education efforts (Nichter et al., 2009). In the U.S. and United Kingdom, obesity rates among children have dramatically increased since the 1970s, to include nearly 20% of all school aged children (CDC, 2021b, NHS 2019). Children increasingly have diets that are high in both fat and sugar, but low in nutrients, while simultaneously getting less than the recommended daily physical activity. Obese children have lower educational engagement, more behavior problems, and more school absences (Segal et al. 2017). To address these problems, there are numerous school-based educational programs in existence, to teach children the importance of a healthy diet and exercise. In Britain, for example, the "Healthy Heroes Lunch Program," provides one model aimed at establishing fun and educational role models to empower children to make healthier choices for themselves. Characters represent complementary goals of exercise, eating fruits and vegetables, reducing screen time, and drinking fewer sugary drinks.

Insert picture 4- Healthy
Heroes, about here.

Image from SarahBush.org (2021)

These attempts to shift the everyday culture of school children by providing role models

are laudable, but only part of the solution. Anthropologists instead point to policy-related solutions

that institute laws or guidelines to school districts to provide healthier school-based meals with

more whole grains, mandatory fruits and vegetables, and less salt. Michelle Obama's "Healthy,

Hunger-Free Kids Act," for instance, set stricter guidelines for these meals, plus school-based

community gardens, plus a "Let's Move" physical education curriculum. Despite their

demonstrable successes, all were rolled back during the subsequent Trump administration. The

rationale of the U.S. Department of Agriculture (USDA)at the time was that such regulations were

cost-prohibitive for schools, and that students were wasting the food (Jacobs, 2018). Discussions

of giving more money to schools so that they could provide more nutritious lunches for children

were not part of the solution.

The anthropology of public health policy bears some mention here. Nichter et al. (2009)

insist that any chronic disease control must attend to policy simultaneously with the mainstreaming

of prevention messages in health education. Castro and Singer (2004) distinguish between

anthropology IN policy, and the anthropology OF policy. The first refers to work designed to

either provide information to public health policymakers, or to inform the development of interventions that stem from existing health policy. The latter is more concerned with studying and assessing the processes of decision-making, including the influences of power-brokers, the marginalization of populations or perspectives, or the differential impacts of policy based on ethnicity, gender, sexuality, or class. To follow the obesity example above, critics of the outsized influence of agribusinesses on USDA policy have pointed out that government subsidized school lunch programs become a primary way for the USDA to support a concentrated number of multinational food corporations, with consideration of the actual nutritional components of subsidized lunches reduced to a lower priority (Ziperstein, 2012).

Interventions

Writing from within public health, Wallerstein and Duran describe "interventions" as anything organized to promote behavioral change, and improve physical, mental, or emotional health (Wallerstein and Duran, 2010). An intervention may be better epidemiology, such as increased surveillance or vaccinations, but it also can be socially based, involving targets and questions (See Table 1).

Examples of Public Health Interventions and Targets	Anthropological Questions
Working within a community to promote better teaching or social marketing about the risks of vaping black-market THC.	"How does vaping THC fit into people's lives? How can facts about THC vaping risk be communicated more effectively so that they speak to people's already existing health concerns?"

Community awareness of HIV among African American women.	"We know that HIV is a problem for African American women. What community leaders or establishments exist that can be approached to talk with about their concerns, or about how we might help?"
Increased use of condoms in a rural SE Asian community of gay, bisexual, and non-identifying men who have sex with men?	"How are sexuality and health talked about in each of these different communities? How empowered to act are individuals within these groups? What are the differential motivations of younger people concerning their health and sexuality? How available are reproductive services, tools, and information? How cost prohibitive are they?"
Lowering the epidemic of Hepatitis C among injecting drug users in a particular city.	"Needle exchange programs for heroin addicts have proven successful in lowering Hepatitis C rates in other communities. How viable could such programs be here? What powerbrokers and policies exist that could be engaged to support these programs?"
Increased access to food for food insecure college students.	"How do students attending colleges and universities in different regions/cities/suburbs/rural areas across the country differ in their food access needs?"

Table 1:   An Anthropological Approach to Intervention Research Questions

Anthropologists get involved in all of these areas, particularly those that target structurally-based, social and economic policy, those that advocate for an ethnographically-situated understanding of the local populations affected, and those that partner with communities in the creation, management, and oversight of solutions. As seen in Frieden's "Health Impact Pyramid" (See Figure 1), those interventions that target structural forces and policies tend to have the greatest impact on health (Frieden, 2010).

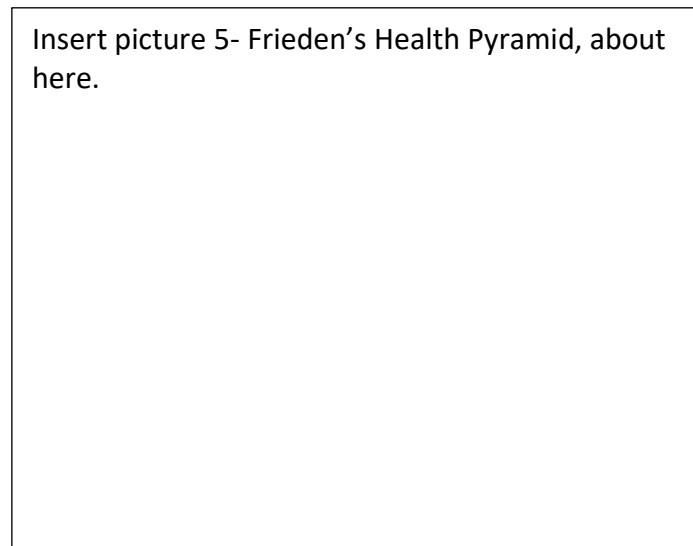Insert picture 5- Frieden's Health Pyramid, about here.

Figure 1: Health Impact Pyramid

In addition to enjoying a higher impact, community-driven solutions also tend to be more sustainable over the long-term. Speaking about targeted malarial interventions in Tanzania, Helitzer-Allen et al. (1993) write:

In order to assist the community in selecting and designing appropriate and potentially successful control programs, it is necessary to understand the context of the disease in the community. This context includes community characteristics, the

community perception of the nature and etiology of the illness and its symptoms,

and health seeking behavior for prevention and treatment… Programs which take

local concerns into account are more likely to be successful (and sustainable) than

those that adopt a simple strategy of providing information.

Careers for Anthropologists in Public Health

Throughout this piece, we've highlighted the subjects that anthropologists working in public

health consider, the topical areas of their work, the questions and paradigms that guide them, and

their challenges to practice. Specifically, we have highlighted anthropologists with three distinct

careers: a non-profit research institute with a strong community-collaboration focus, a

reproductive health "think-tank" that engages in consulting, and a global health multilateral

organization responsible for research, policy development, and advocacy. Anthropologists in

public health can also work from academic settings, or be embedded within bilateral

organizations like USAID, foundations, international non-governmental organizations,

development banks, industry, community-based organizations, local and regional public health

departments, medical centers, or as consultants to any of the levels or groups mentioned above.

As with any kind of employment, an anthropologist's specific work experience or level of

education determines their qualifications for a specific job title or occupational position, which in

turn influences how much power they have to design or frame a project early on, implement a

project designed by others, or contribute to policy development. A Master's level education is

typical for most work; those with a PhD may find an extra level of credibility that benefits them,

particularly within the U.S. federal government. Anthropologists who work in public health

while attached to a university may have a certain amount of freedom to publish that others who

work from within an agency do not, but they can also be restricted by the calendar or conditions of academic appointments. Those who work from inside an organization may conduct excellent and valuable work, but have highly task-specific responsibilities that preclude their ability to broadly disseminate their efforts, or contribute to larger policy formation.

Conclusion

In writing about the value of anthropology to public health, Porter notes that when disciplines converge on common interests, such as improving social health and wellbeing, everyone's interests become better served when multi-disciplinary teams can recognize both their own and each other's disciplinary perspectives and value (Porter, 2006). The demonstration of common ground and disciplinary value has guided the subject matter of this chapter, as we have attempted to make explicit those perspectives and methods that anthropologists who work in public health fields use to benefit their programs and projects. As Robert Hahn (2020) writes however, too often the burden of proving value falls to the social scientists who still face tremendous obstacles in broadening the research paradigms of large public health institutions, or in finding a seat at the planning stages of a public health response. Too often anthropologists remain an afterthought, brought in late to troubleshoot why particular messages or interventions are not creating the intended community response.

Public health concerns like chronic disease, the distribution of infection, perceptions of risk, public acceptance or rejection of interventions, human alterations of the environment, the making of policy that excludes or creates marginalized populations are social phenomena, influenced by the social rules and cultural knowledge base of people. Health interventions that exclude insights into these social rules, neglecting or rejecting knowledge of community-level

beliefs, behaviors, and contexts, are likely to fail. And should public health metrics for a healthier society be expanded from merely short-term success to long-term sustainability, the anthropological practice of working WITH communities, as collaborative partners engaged in the enterprise of mutual knowledge production and application, must prevail.

Bibliography

Adams, Vincanne, Ed. (2016). *Metrics: What Counts in Global Health.* Durham: Duke
University Press.

Allmark, Peter, and Angela Tod. (2006). "How Should Public Health Professional Engage with
Lay Epidemiology?" *Journal of Medical Ethics* 32(8): 460-463.

Anoko, Julienne, and Doug Henry. (2019). "Removing a Community Curse Resulting From the
Burial of a Pregnant Woman with a Fetus in Her Womb: An Anthropological Approach
Conducted During the Ebola Virus Epidemic in Guinea." In *Pregnant in the Time of Ebola:
Women and their Children in the 2013-2015 West African Epidemic.* edited by David Schwartz,
pp. 263-278. New York: Springer.

Bagherpour, Amir, and Ali Nouri. (2020). "COVID Misinformation is Killing People: This
"Infodemic" Has to Stop. *Scientific American*. October 11, 2020.
https://www.scientificamerican.com/article/covid-misinformation-is-killing-people1/ . Accessed
December 2020.

Brough, Mark. (2013). "Toward Cultural Epidemiology: Beyond Epistemological Hegemony."
In *When Culture Impacts Health: Global Lessons for Effective Health Research.* Edited by
Banwel, Ulijaszek, and Dixon. pp. 33-42. London: Academic Press.

Brown, Peter, George Armelagos, and Kenneth Maes. (2011). "Humans in a World of Microbes: the Anthropology of Infectious Disease." In *A Companion to Medical Anthropology*. Edited by Merrill Singer and Pamela Erickson. pp. 251-271. Malden MA: Wiley Blackwell.

Brunson, Emily, and Elisa Sobo. (2017). "Framing Childhood Vaccination in the United States: Getting Past Polarization in the Public Discourse." *Human Organization*. 76(1): 38-47.

Campbell, Dave. (2011). "Anthropology's Contribution to Public Health Policy." *McGill Journal of Medicine* 13(1): 76-81.

Castro, Arachu, and Merrill Singer. *Unhealthy Health Policy: A Critical Anthropological Examination.* Maryland: Altamira Press.

Center for Disease Control and Prevention (CDC) (2021a). "About Chronic Diseases." Centers for Disease Control and Prevention. https://www.cdc.gov/chronicdisease/about/index.htm Accessed January 2021.

Center for Disease Control and Prevention (CDC) (2021b). "Obesity." Centers for Disease Control and Prevention. https://www.cdc.gov/healthyschools/obesity/index.htm#:~:text=In%20the%20United%20States%2C%20the,than%20tripled%20since%20the%201970s.&text=Data%20from%202015%E2%80%932016%20show,the%20United%20States%20has%20obesity. Accessed January 2021.

Chaufan, Claudia. (2004) "Blues: A Social Anatomy of the Diabetes Epidemic in the United States." In *Unhealthy Health Policy: A Critical Anthropological Examination*. Edited by Arachu Castro and Merrill Singer. pp. 257-274. Walnut Creek: Altamira Press.

Cripps, Karla, and Serenitie Wang. (2019). "World's Largest Annual Human Migration Now Underway in China." CNN Travel https://www.cnn.com/travel/article/lunar-new-year-travel-rush-2019/index.html . Accessed January 2020.

Dressler, William. (2016). *The 5 things you need to know about statistics: Quantification in ethnographic research*. Routledge.

Farmer, Paul. (1999). *Infections and Inequalities: the Modern Plagues*. Berkeley: University of California Press.

Frieden, Thomas. (2010). "Health Impact Pyramid." *American Journal of Public Health*. 100 (4): 590-595.

Freire, Paolo. (1970). *Pedagogy of the Oppressed*. New York: Seabury Press.

Gouda, Hebe, and John Powles. (2014). "The Science of Epidemiology and the Methods Needed for Public Health Assessments: a Review of Epidemiology Textbooks." *BioMed Central Public Health* 14: 139-151.

Gullion, Jessica, Lisa Henry, and Greg Gullion. (2008). "Deciding to Opt Out of Childhood Vaccination Mandates." *Public Health Nursing* 25(5):401-408.

Hahn, Robert (2020). "The CDC Needs Social Science." Sapiens. https://www.sapiens.org/biology/cdc-social-science/ Accessed January 2021.

Hahn, Robert, and Marcia Inhorn. (2009). *Anthropology and Public Health: Bridging Differences in Culture and Society, 2nd edition*. Oxford: Oxford University Press.

Harrison, F. V. (1991). "Anthropology as an Agent of Transformation: Introductory Comments and Queries." In *Decolonizing Anthropology: Moving Further toward an Anthropology for Liberation*. Edited by F. V. Harrison. pp. 1-11. Washington, DC: American Anthropological Association.

Helitzer-Allen, Deborah, Carl Kendall, and Jack Wirima. (1993). "The Role of Ethnographic Research in Malaria Control: an example from Malawi." *Research in the Sociology of Health Care* 10: 269-286.

Henry, Doug, and Susan Shepler. (2015). "Ebola in Focus." *Anthropology Today* 31(1): 20-21.

Inhorn, Marcia, and Peter Brown. (2005). *The Anthropology of Infectious Disease: International health Perspectives.* New York: Routledge.

Jacobs, Julia. (2018). "Trump Administration Rolls Back Obama-Era Rules for School Lunches." *New York Times*. December 8, 2018.

Janes, Craig and Kitty Corbett. (2009). "Anthropology and Global Health." *Annual Review of Anthropolog*y 38:167-183.

Krieger, Nancy. (2011). *Epidemiology and the People's Health: Theory and Context*. Oxford: Oxford University Press.

Ku, Leighton, and Erin Brantley. (2020). "Widening Social and Health Inequalities During the COVID-19 Pandemic." *JAMA Heath Forum*. https://jamanetwork.com/channels/health-forum/fullarticle/2767253 . Accessed December, 2020.

Last, J.M. (1988). *Dictionary of Epidemiology*. Oxford: Oxford University Press.

Leach, Melissa, and James Fairhead. (2008). *Vaccine Anxieties: Global Science, Child Health, and Society*. London: Earthscan.

Lewis, Daniel. (2005). "Anthropology and Development: The Uneasy Relationship. In *A Handbook of Economic Anthropology.* Edited by James Carrier. pp. 472-486. Cheltenham, UK; Elgar Press.

Luby, Stephen. (2013). "The Cultural Anthropological Contribution to Communicable Disease Epidemiology." In *When Culture Impacts Health: Global Lessons for Effective Health Research*. Edited by Cathy Banwel, Stanley Ulijaszek, and Jane Dixon. pp. 43-52. London: Academic Press.

Mackenbach, Johan (2009) Politics Is Nothing but Medicine at a Larger Scale: Reflections on Public Health's Biggest Idea. Journal of Epidemiology and Community Health 63(3): 181-184.

Manderson, Lenore, and Carolyn Smith-Morris. (2010). "Introduction: Chronicity and the Experience of Illness." In *Chronic Conditions, Fluid States: Chronicity and the Anthropology of Illness.* Edited by Lenore Manderson and Carolyn Smith-Morris. pp 1-18. Rutgers, NJ: Rutgers University Press.

McNelly, Connie, Laurie Schintler, and Bonnie Stabile. (2020). "Social Determinants and COVID-19 Disparities: Differnetial Pandemic Effects and Dynamics." *World Medical and Health Policy* 12(3): 206-217.

Mendenhall, Emily, Svea Closser, Judith Justice, and Peter J. Brown. (2019). "Promoting the Anthropological Perspective in Global Health Systems Scholarship." *Anthropology News* . http://www.anthropology-news.org/index.php/2019/01/11/promoting-the-anthropological-perspective-in-global-health-systems-scholarship/. DOI: 10.1111/AN.1247. Accessed December 2020.

National Health Service Digital (NHS) (2019). "National Child Measurement Programme, England 2018/2019 School Year. Government Statistical Service, Health and Social Care Information Centre. Surrey, England.

Nichter, Mark. (2008). *Global Health: Why Cultural Perceptions, Social Representations and Biopolitics Matter*. Tucson, AZ: University of Arizona Press.

Nichter, Mark, Nichter, M., S. Padmawti, C. Thresia, and Project Quit Tobacco International Group. (2009). "Anthropological Contributions to the Development of Culturally Appropriate Tobacco Cessation Programs: a Global Health Priority." In *Anthropology and Public Health: Bridging Differences in Culture and Society*. Edited by Robert Hahn and Marcia Inhorn. pp. 298-331. Oxford: Oxford University Press.

Pfeiffer, James. (2003). "International NGOs and Primary Health Care in Mozambique: The Need for a New Model of Collaboration." *Social Science & Medicine*. 56(4): 725-738.

Pollock, Allyson, and James Lancaster. (2020). Asymptomatic Transmission of Covid-19. *British Medical Journal*. 371:m4851. https://www.bmj.com/content/371/bmj.m4851 Accessed December 2020.

Porter John. (2006). "Epidemiological Reflections of the Contribution of Anthropology to Public Health Policy and Practice." *Journal of Biosocial Sciences*. 38(1):133–144.

Riemann, Malte, and Norma Rossi. (2019). "Medicalizing Conflict: the Risks of Public Health

Based Approaches to Conflict Resolution." Urban Violence Research Network

https://urbanviolence.org/medicalizing-conflict/ Accessed 12-2020.

SarahBush.org. Healthy Heroes (2021).

https://www.sarahbush.org/healthycommunities/healthy-heroes/. Accessed January 2021.

Schensul, Jean, Marlene Berg, and Saritha Nair. (2013). Using Ethnography in Participatory

Community Assessment. In *Methods for Community-Based Participatory Research for Health*.

Edited by Barbara Israel, Eugenia Eng, Amy Schulz, and Edith Parker. pp. 161-188. San

Francisco, CA: Wiley and Sons.

Segal, L. A., Rayburn, J., & Martin, A. (2017). "The state of childhood obesity: Better policies

for a healthier America". https://stateofobesity.org/wp-

Content/uploads/2018/08/stateofobesity2017.pdf Accessed December 2020.

Singer, Merrill. (2014). *Anthropology of Infectious Disease*. Walnut Creek, CA: Left Coast

Press.

Sobo, EJ. (2016). "Theorizing (Vaccine) Refusal: Through the Looking Glass." *Cultural

Anthropology* 31(3):342-350. DOI: 10.14506/ca31.3.04

Stellmach, Darryl, Isabel Beshar, Juliet Bedford, Philipp du Cros, and Beverly Stringer. (2018). "Anthropology in Public Health emergencies: What is Anthropology Good For?" *British Medical Journal Global Health*. 3(2): e000534.

Thompson, E.L., Mahony, H., Noble, C. et al. (2018). "Rural and Urban Differences in Sexual Behaviors Among Adolescents in Florida." *Journal of Community Health* 43, 268–272 (2018). https://doi.org/10.1007/s10900-017-0416-6.

Wallerstein, Nina, and Bonnie Duran. (2006). "Using Community-Based Participatory Research to Address Health Disparities." *Health Promotion and Practice* 7(3): 312-313.

Wallerstein, Nina, and Bonnie Duran. (2008). The Theoretical, Historical, and Practice Roots of CBPR. In Community Based Participatory Research for Health. Edited by Meredith Minkler and Nina Wallerstein. p. 25-46. Jossey-Bass Press.

Wallerstein, Nina, and Bonnie Duran (2010). "Community Based Participatory Research Contributions to Intervention Research: The Intersection of Science and Practice to Improve Health Equity." *American Journal of Public Health* 100(Suppl 1): S40-S46.

Yaya, Sanni, Helena Yeboah, Carlo Handy Charles, Akaninyene Otu, and Ronald Labonte. (2020). "Ethnic and Racial Disparities in COVID-19-Related Deaths: Counting the Trees, Hiding the Forest." *BMJ Global Health* 5:e002913.

Ziperstein, Robyn. (2012). School Food, Inc.: the contracting of America's National School

Lunch Program and its Nutritional Consequences. Cornell University blogs,

https://blogs.cornell.edu/policyreview/2012/03/15/school-food-inc-the-contracting-of-

america%E2%80%99s-national-school-lunch-program-and-its-nutritional-consequences/ .

Accessed January 2021.

Further Reading

Brough, Mark. (2013). "Toward Cultural Epidemiology: Beyond Epistemological Hegemony."

In *When Culture Impacts Health: Global Lessons for Effective Health Research.* Edited by

Banwel, Ulijaszek, and Dixon. pp. 33-42. London: Academic Press.

Campbell, Dave. (2011). "Anthropology's Contribution to Public Health Policy." *McGill

Journal of Medicine* 13(1): 76-81.

Hahn, Robert (2020). "The CDC Needs Social Science." Sapiens.

https://www.sapiens.org/biology/cdc-social-science/ Accessed January 2021.

Hahn, Robert, and Marcia Inhorn. (2009). *Anthropology and Public Health: Bridging

Differences in Culture and Society, 2nd edition*. Oxford: Oxford University Press.

Krieger, Nancy. (2011). *Epidemiology and the People's Health: Theory and Context*. Oxford:

Oxford University Press.

Luby, Stephen. (2013). "The Cultural Anthropological Contribution to Communicable Disease Epidemiology." In *When Culture Impacts Health: Global Lessons for Effective Health Research*. Edited by Cathy Banwel, Stanley Ulijaszek, and Jane Dixon. pp. 43-52. London: Academic Press.

Nichter, Mark. (2008). *Global Health: Why Cultural Perceptions, Social Representations and Biopolitics Matter*. Tucson, AZ: University of Arizona Press.

Porter John. (2006). "Epidemiological Reflections of the Contribution of Anthropology to Public Health Policy and Practice." *Journal of Biosocial Sciences*. 38(1):133–144.

Schensul, Jean, Marlene Berg, and Saritha Nair. (2013). Using Ethnography in Participatory Community Assessment. In *Methods for Community-Based Participatory Research for Health*. Edited by Barbara Israel, Eugenia Eng, Amy Schulz, and Edith Parker. pp. 161-188. San Francisco, CA: Wiley and Sons.

Singer, Merrill. (2014). *Anthropology of Infectious Disease*. Walnut Creek, CA: Left Coast Press.

Sobo, EJ. (2016). "Theorizing (Vaccine) Refusal: Through the Looking Glass." *Cultural Anthropology* 31(3):342-350. DOI: 10.14506/ca31.3.04

Stellmach, Darryl, Isabel Beshar, Juliet Bedford, Philipp du Cros, and Beverly Stringer. (2018).

"Anthropology in Public Health emergencies: What is Anthropology Good For?" *British*

Medical Journal Global Health. 3(2): e000534.

Wallerstein, Nina, and Bonnie Duran. (2008). The Theoretical, Historical, and Practice Roots of

CBPR. In Community Based Participatory Research for Health. Edited by Meredith Minkler and

Nina Wallerstein. p. 25-46. Jossey-Bass Press.