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Intervening at the Right Point in the Causal Pathways: Law, Policy, and the Devastating Impact of Pain Across the Globe

Daniel S. Goldberg*

I. INTRODUCTION

Although it is notoriously difficult to quantify, pain is likely the single most common illness experience on the planet, within both the global North and the global South. Indeed, given that with only rare exceptions every human experiences pain, it has frequently been viewed as a central component of the human condition.[1] Despite several decades of attention from both domestic interests all across the Western world and from global health stakeholders such as the United Nations and the World Health Organization,[2] there is little evidence from which to conclude that significant progress has been made in ameliorating the staggering suffering unremediated pain can impose.[3]

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* Assistant Professor, Department of Bioethics & Interdisciplinary Studies, Brody School of Medicine, East Carolina University.

[1] See Sarah Aldrich & Chris Eccleston, Making Sense of Everyday Pain, 50 SOC. SCI. & MED. 1631, 1634-37 (2000); DAVID B. MORRIS, THE CULTURE OF PAIN (1992); See generally ELAINE SCARRY, THE BODY IN PAIN: THE MAKING AND UNMAKING OF THE WORLD (1985). Although this article addresses pain in human animals, in so doing I do not mean to endorse species exceptionalism. The indisputable fact that a large number of non-human animals experience pain is ethically important; for example, utilitarians hailing back to Bentham typically include such animals in the hedonic calculus precisely because they are capable of experiencing such pain. See, e.g., David DeGrazia, Animal Ethics Around the Turn of the Twenty-First Century, 11 J. AGRIC. & ENVTL. ETHICS 111, 113 (1998); Peter Singer, Utilitarianism and Vegetarianism, 9 PHIL. & PUB. AFFAIRS 325, 328 (1980). (While such animals' capacity for pain and suffering – which are not identical – is a hugely important ethical inquiry, it is not the subject of this article.)

[2] See infra Part II.

[3] There is an extensive literature on the potentially redemptive qualities of pain. See, e.g., ESTHER COHEN, THE MODULATED SCREAM: PAIN IN LATE MEDIEVAL CULTURE (2012); PAIN AND ITS TRANSFORMATIONS: THE INTERFACE OF BIOLOGY AND CULTURE (Sarah Coakley & Kay Kaufman Shelemay eds. 2007); MORRIS, supra note 1. Furthermore, it is well-settled within pain studies that while deeply connected, pain and suffering are not mutually inclusive, such that it is possible to experience pain without suffering and suffering without pain. The paper leaves aside each of these matters, and proceeds upon the premise that at least some pain – and likely very much of it – is deeply undesirable and as an ethical matter ought to be ameliorated. The latter does not negate the notion that in some circumstances,

Understanding the criteria of progress for global pain policy is crucial. For reasons that will become clear below, the criteria deployed here differ in some important ways from the goals articulated by leading governmental and nongovernmental organizations ("NGOs") as to ameliorating global burdens of pain. Building on prior work,[4] this article adopts Benach et al.'s two criteria for ethical population health policy: policy interventions should seek (1) to maximize improvements in overall population health and (2) to compress health inequities.[5] Pain presents a paradigm case for application of Benach et al.'s criteria because it produces an enormous adverse impact on overall population health and is also inequitably distributed within and between nations in both the global North and the global South.[6] The scope of these inequalities is staggering, and, as is the case for health inequalities across the globe, they are expanding.[7]

In a sense, these criteria are quite simple when applied to pain or to any other disease paradigm stakeholders are interested in mitigating. As to global burdens of pain, ethically optimal public health interventions are those which will reduce absolute prevalence and incidence of pain while simultaneously compressing the large and growing inequities[8] in such

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pain is not only an inevitable part of the human condition, but is a phenomenologically desirable one as well (i.e., that it helps make meaning in life). The capacity to experience pain is unquestionably a good, even if pain experiences themselves are frequently not so, given that the inability to experience pain (congenital analgesia) results in enormous increases in mortality and morbidity. Joseph H. Dimon III, Congenital Indifference to Pain: Long-term Follow-up of Two Cases, 88 SO. MED. J. 851, 855 (1995).

[4] See, e.g., Daniel S. Goldberg, Social Justice, Health Inequalities, and Methodological Individualism in U.S. Health Promotion, 5 PUB. HEALTH ETHICS 104 passim (2012); Daniel S. Goldberg, Racism, the Social Determinants of Health, and Health Inequities Among Black Americans, 2 J. BLACK MASCULINITY 59, 59 (2012).

[5] Joan Benach et al., A New Typology of Policies to Tackle Health Inequalities and Scenarios of Impact Based on Rose's Population Approach, J. EPI. & COMM. HEALTH (Online First), available at http://jech.bmj.com/content/early/2012/08/16/jech-2011-200363.long; Joan Benach et al., Beyond Rose's Strategies: a Typology of Scenarios of Policy Impact on Population Health and Health Inequalities, 41 INT'L J. HEALTH SERV. 1, 6-7 (2011). The fact that Benach et al. develop these criteria in context of a policy typology based on the work of British epidemiologist Sir Geoffrey Rose is important, as Parts III and IV infra will suggest.

[6] See infra Part II.

[7] Id.

[8] See generally INSTITUTE OF MEDICINE, RELIEVING PAIN IN AMERICA: A BLUEPRINT FOR TRANSFORMING PREVENTION, CARE, EDUCATION, AND RESEARCH, (2011). Consistent with my prior work, I use the term "inequities" rather than "inequalities" or the preferred American locution "disparities" because the former carries an overt moral valence. See Goldberg, Racism, the Social Determinants of Health, supra note 4, at 60-61; Daniel S. Goldberg, 'Inequities' vs. 'Disparities': Why Words Matter, INEQUALITIES: RESEARCH AND REFLECTION FROM BOTH SIDES OF THE ATLANTIC, (Jan. 4, 2013), http://inequalitiesblog.wordpress.com/2011/05/31/'inequities'-vs-'disparities'-why-words-matter/. It is not simply differences in the prevalence and severity of pain that ought to be of most concern, but

measures of pain within and between nations. As we shall see below, maximizing both of these goals simultaneously is more difficult than it may seem. More troubling is the fact that currently dominant approaches, programs, and interventions are, based on the best evidence, both unlikely to reduce substantially overall burdens of pain and may even expand inequities in the assessment, diagnosis, and treatment of pain. This is ethically suboptimal, if not entirely unacceptable.

The overwhelmingly dominant approach to ameliorating burdens of global pain focuses on improving access to clinical treatments for pain, with special emphasis on pharmacotherapeutics, such as opioid analgesics.[9] While there is no doubt that essential medicines are in some obvious sense "essential," the weight of the epidemiologic evidence strongly suggests that access to treatment interventions are unlikely to have a significant impact either in improving global pain or in compressing pain inequities.[10] Unsurprisingly, then, and as far as can be discerned, the enormous and intensive resources expended on ameliorating the global burden of pain has had relatively little effect in either the global North or the global South.[11] Indeed, a plausible if not airtight argument can be advanced to suggest that global pain has in fact worsened: prevalence and incidence are increasing and global pain inequities are expanding.[12]

How can this be? The thesis of this paper is that despite the best of intentions, stakeholders have generally intervened at the wrong points in the causal pathway. Specifically, the vast majority of law and policy ("L&P") pain interventions have been directed proximal or subsequent to the onset of disease itself.[13] This is epidemiologically and ethically suboptimal given the overwhelming evidence suggesting that clinical or public health interventions utilized at such points are unlikely to have significant positive impacts on population health outcomes.[14] Even worse, the evidence suggests that interventions implemented proximal or subsequent to the onset of disease are likely to expand health inequities even where they improve absolute health.[15] The argument is that if we wish to ameliorate global pain, we must understand the root causes that determine the

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differences that at least appear as unfair. Of course, showing what makes health differences fair or unfair is an enormous inquiry, one far beyond the scope of this project.

[9] DANIEL S. GOLDBERG & SUMMER J. MCGEE, BMC PUBLIC HEALTH 3 (2011), available at http://www.biomedcentral.com/1471-2458/11/770.

[10] See id.

[11] See id.; see infra Part II.

[12] See infra Part II.

[13] Id.

[14] See infra Part III.

[15] Id.

distribution of pain within human populations. Armed with such understanding, stakeholders will then be able to design and deliver L&P interventions that target the macrosocial factors that structure such distributions, rather than perpetually seeking to intervene proximal or subsequent to the onset of pain.

The structure of this paper is as follows: Part II documents the epidemiologic evidence regarding global pain, and also demonstrates that the dominant approach to meeting health goals as to pain focuses overwhelmingly on medical interventions and treatments for pain. Although proving an epidemiologic negative is virtually impossible, Part II also surveys the evidence suggesting that the dominant approach has had little appreciable impact either in alleviating absolute burdens of pain or in compressing global pain inequities. Part III draws on a number of key findings largely from the field of social epidemiology to show that pain is best considered as a population and public health problem rather than as a clinical medical problem. In particular, Part III considers the notion of pain in context of Bruce Link and Jo Phelan's influential fundamental cause theory, which posits that social conditions are fundamental causes of disease. As discussed in Part III, there is ample evidence showing that population health problems require population-level solutions, including L&P interventions. While there is no denying the significance of medical treatment for pain, such interventions are not intended to and cannot possibly ameliorate the structural factors that determine pain and its distribution across the globe.

Accordingly, Part IV addresses questions regarding the appropriate levels and categories of L&P interventions targeted at ameliorating global pain. Building on the evidence surveyed in Parts II and III, Part IV demonstrates the applicability of fundamental cause theory to clear thinking about pain and explores the practical implications for designing and implementing L&P interventions intended to alleviate absolute and relative burdens of global pain. Part V considers the most likely objection to the claims adduced in Parts II-IV. Part VI concludes with some observations about rank-ordering ethical priorities regarding global pain and the connections (or lack thereof) between those priorities and categories of L&P interventions.

II. THE CRISIS OF GLOBAL PAIN AND THE DOMINANT L&P PARADIGM

The opening sentence of this paper bears repeating: "Although it is notoriously difficult to quantify, pain is likely the single most common illness experience on the planet, within both the global North and the global South." There are many reasons why precise estimates of global pain prevalence and incidence are elusive. The most obvious is that as Emily

Dickinson famously observed, pain defies definitions and straddles categories.[16] In a 2005 essay, anthropologist Jean Jackson found multiple and competing (about ten) definitions of chronic pain in the clinical literature.[17] There are dozens of different kinds of pain, and because experiences of pain are profoundly conditioned by the enormous variety of human beings' lived experiences,[18] definitions of pain in one sociocultural context may be inapplicable in others. Constructing even a crude epidemiology of global pain therefore requires analysis of a hodgepodge of local and regional studies. In a 2011 paper, Goldberg and McGee note the following statistics:[19]

- Globally, twenty percent of adults suffer pain, and ten percent of adults (sixty million people) have been diagnosed with chronic pain;
- Ten percent of adults are newly diagnosed each year;
- Reliable estimates of pain prevalence in many countries and regions hover around twenty to twenty-five percent;
- Estimates of pain prevalence in the United States and Europe range from between twelve and twenty-five percent and approximately twenty percent, respectively.

Goldberg and McGee also note that pain severity and functional impairment are crucial indicators of the burden of global pain, and cite evidence that "moderate-to-severe pain is prevalent even in resource-rich settings, and that the combination of persistent pain and comorbid psychological disorders produce significant disability across the globe (as measured by impairment of daily activities)."[20] The recently released Global Burden of Disease ("GBD") Report, the product of a monumental effort of data collection, synthesis, and interpretation, documents that musculoskeletal disorders comprised the "large total" of six to eight percent of global disability adjusted life years ("DALYs"), disorders which were themselves largely composed of back pain (about 50%), neck pain (about 20%) and osteoarthritis (about 10%).[21]

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[16] EMILY DICKINSON, PAIN HAS AN ELEMENT OF BLANK (1955) reprinted in THE COMPLETE POEMS OF EMILY DICKINSON (Thomas H. Johnson ed., 1976).

[17] Jean E. Jackson, Stigma, Liminality and Chronic Pain: Mind-body Borderlands, 32 AM. ETHNOLOGIST 332, 335-36 (2005).

[18] This is generally undisputed within pain studies. See, e.g., Morris, supra note 3; James Giordano, et al., Culture, Subjectivity, and the Ethics of Patient-Centered Pain Care, 18(1) CAMBRIDGE Q. HEALTHCARE ETHICS 47 (2009).

[19] GOLDBERG & MCGEE, supra note 9 at 1-2.

[20] Id. at 2.

[21] Christopher JL Murray et al., Disability-adjusted Life Years (DALYs) for 291

Allyn L. Taylor concludes that "for millions of people across the globe, excruciating pain is an inescapable reality of life."[22] Although the evidence for global pain is necessarily regionalized and localized to specific contexts, this reveals an important point: pain is an enormous population health problem in both the global North and the global South. The ubiquity of pain is unsurprising given the considerable evidence suggesting that while health concerns and priorities differ across the globe, such differences mask the underlying commonality in the determinants of disease and health, namely social and economic conditions typically referred to as the "social determinants of health" ("SDOH").[23]

Moreover, the epidemiologic evidence also strongly suggests that the highly inequitable distribution of pain both between regions and countries and within such regions and nation-states is largely the result of said SDOH. Goldberg and McGee cite evidence linking global chronic pain to a variety of such social determinants, including but not limited to, "mental and physical stress at work, socioeconomic status, rurality, occupational status, neighborhood, race, and education."[24] Dorner et al. showed that even at the same intensity of pain, the least well-off reported feeling two to three times more disabled than the most well-off.[25] Lacey, Belcher, and Croft recently found that "older adults . . . with a life course trajectory of consistently low [socioeconomic position] had almost three times the odds of reporting chronic disabling pain . . . compared [to] those with a consistently high [socioeconomic position] trajectory throughout life."[26]

In terms of both its overall burden and its inequitable distribution along

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Diseases and Injuries in 21 Regions, 1990–2010: A Systematic Analysis for the Global Burden of Disease Study 2010, 380 LANCET 2197, 2203 (2012). And of course, there are many kinds of pain other than that which results from musculoskeletal disorders, suggesting that the "large" total of DALYs comprised of pain experiences may be significantly larger.

[22] Allyn L. Taylor, Addressing the Global Tragedy of Needless Pain: Rethinking the United Nations Single Convention on Narcotic Drugs Addressing the Global Tragedy of Needless Pain: Rethinking the United Nations Single Convention on Narcotic Drugs, 35 J. L. MED. & ETHICS 556, 556 (2007).

[23] See, e.g., WORLD HEALTH ORGANIZATION COMMISSION ON SOCIAL DETERMINANTS OF HEALTH, CLOSING THE GAP IN A GENERATION: HEALTH EQUITY THROUGH ACTION ON THE SOCIAL DETERMINANTS OF HEALTH 3 (2008), available at http://whqlibdoc.who.int/publications/2008/9789241563703_eng_contents.pdf [hereinafter WHO CSDH, Final Report]; accord Sridhar Venkatapuram et al., The Right to Sutures: Social Epidemiology, Human Rights, and Social Justice, 12(2) HEALTH AND HUMAN RTS 3 (2010).

[24] GOLDBERG & MCGEE, supra note 9, at 2.

[25] Thomas E. Dorner et al., The Impact of Socio-Economic Status on Pain and the Perception of Disability Due to Pain, 15(1) EUR. J. PAIN 103 (2011).

[26] Rosie J. Lacey et al., Does Life Course Socio-economic Position Influence Chronic Disabling Pain in Older Adults? A General Population Study, EUR. J. PUB. HEALTH (Advance Access 2012) (adjusting for confounders like age, BMI, income, depression, and diabetes reduced the strength of but did not eliminate the association.)

social gradients, pain is therefore an enormous health problem. There is no serious suggestion from virtually any stakeholder denying this conclusion. Quite the contrary, cross-sectoral stakeholders at all geopolitical levels have devoted significant attention and resources to ameliorating the problem, from basic research (e.g., the National Institutes of Health Pain Consortium)[27] to calls for better access to medicines needed for the treatment of pain (e.g., the WHO Access to Controlled Medicines Programme).[28] The overwhelmingly dominant L&P approach to diminishing the burden of pain across the globe has tracked the latter, aiming to facilitate access to opioid analgesics and/or other pharmaceuticals used to treat pain. This is true both in the global North, as embodied in the paradigm of "balanced pain policy" championed by the University of Wisconsin's Pain & Policy Studies Group ("PPSG"),[29] and in the global South, as demonstrated by the WHO's so-called "opioid ladder" and their aforementioned access program.[30] Legal scholars addressing the issue have tracked the dominant L&P paradigm by focusing virtually all of their attention on the opioid regulatory regime, both domestically and as it regards global pain.[31]

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[27] See NIH PAIN CONSORTIUM, http://painconsortium.nih.gov/(last visited January 4, 2013).

[28] See WHO ACCESS TO CONTROLLED MEDICINES PROGRAMME, http://www.who.int/medicines/areas/quality_safety/access_to_cmp/en/index.html (last visited January 4, 2013).

[29] UNIVERSITY OF WISCONSIN, PAIN & POLICY STUDIES GROUP, http://www.painpolicy.wisc.edu/ (last visited January 4, 2013). The approach centering on balance is typically contained in its "Policy Evaluations," the latest editions of which are set for release in March 2013.

[30] See WHO PAIN RELIEF LADDER, http://www.who.int/cancer/palliative/painladder/en/ (last visited January 4, 2013); Paul Glare, Choice of Opioids and the WHO Ladder, 33(Supp.) J. PED. HEM./ONC. S6 (2011); WHO ACCESS TO CONTROLLED MEDICATIONS, supra note 22.

[31] E.g., Vence L. Bonham, Race, Ethnicity, and Pain Treatment: Striving to Understand the Causes and Solutions to the Disparities in Pain Treatment, 29 J. L. MED. & ETHICS 52, 59-60 (2001) (conceptualizing racial pain inequalities in terms of clinical medical treatments of pain); Amy J. Dilcher, Damned If They Do, Damned If They Don't: The Need for a Comprehensive Public Policy to Address the Inadequate Management of Pain, 13 ANNALS HEALTH L. 81, 83-90 (2004); Michael Finch, Law and the Problem of Pain, 74 U. CIN. L. REV. 285, 298-303 (2005); J. David Haddox & Gerald M. Aronoff, Commentary, The Potential Unintended Consequences from Public Policy Shift in the Treatment of Pain, 26 J. L. MED. & ETHICS 350 (1998); Macon Jones, Note, Protecting Dr. Smith While Treating the Chronic Pain of Mrs. Jones: Why the Indiana Medical Licensing Board Should Pass Guidelines for Using Controlled Substances for Pain Treatment, 9 IND. HEALTH L. REV. 695, 701-09 (2011); Timothy McIntire, Is the Pain Getting Any Better? How Elder Abuse Litigation Led to a Regulatory Revolution in the Duty to Provide Palliative Care, 11 ELDER L.J. 329, 338-46 (2003); Bhavani S. Reddy, The Epidemic of Unrelieved Chronic Pain, 27 J. LEGAL MED. 427, 433-41 (2006); Ben A. Rich, The Politics of Pain: Rhetoric or Reform, 8 DEPAUL J. HEALTH CARE L. 519, 527-35 (2001); Taylor, supra note 16 at 557-60.

It is crucial to note that the criticisms of such emphasis that follow herein are not intended to deny the importance and significance of access to evidence-based therapies that are needed for the treatment of clinical pain. No matter how social and economic life is structured, people across the globe will still become sick and/or experience pain, and ensuring adequate treatment for that pain is ethically imperative. Nevertheless, two important qualifications are needed. First, the fact that access to treatment for pain is ethically imperative does not imply it is ethically paramount; for many reasons other imperatives may simply be more important. Second, insofar as other imperatives are of greater moral significance, it follows that L&P interventions should in some rough sense correspond to the general hierarchy of such imperatives. Thus, while a bundle of laws and policies might be appropriate and necessary to alleviating the burden of pain across the globe, if those laws and policies track approaches that are less significant than others, said laws and policies are ethically suboptimal. To put it in terms of Benach et al.'s criteria, L&P interventions that at the same time promise to maximize improvements in overall health (by reductions in absolute burdens of pain) and to compress health inequities are preferable to those that do not.[32] The remainder of this article is devoted to arguing that L&P interventions that focus on ameliorating the structural determinants of pain across the globe are preferable to those that emphasize access to medical treatments for pain. And the magnitude of the quantum of preference, as it were, is stark.

III. SOCIAL EPIDEMIOLOGY, FUNDAMENTAL CAUSES OF DISEASE AND THE MEDICALIZATION OF PAIN

Goldberg and McGee argue that the medicalization of global pain is a somewhat curious affair given the obviousness of its qualification as a public and population health problem.[33] Of course, in a crucial sense a dichotomy between clinical and population health paradigms is artificial. Population health problems tend by definition to become clinical problems in populations to whom clinical care is provided just as clinical problems are constitutive of key population health problems.[34] Regarding pain as

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[32] See Benach et al, A New Typology, supra note 5.

[33] See Goldberg & McGee, supra note 9.

[34] See generally Thomas Frieden, A Framework for Public Health Action: The Health Impact Pyramid, 100 AM. J. PUB. HEALTH 590 (2010); see also INSTITUTE OF MEDICINE, FOR THE PUBLIC'S HEALTH: INVESTING IN A HEALTHIER FUTURE (2012), available at http://www.iom.edu/Reports/2012/For-the-Publics-Health-Investing-in-a-Healthier-Future.aspx (last visited January 4, 2013); Steven H. Woolf, Social Policy as Health Policy, 301 JAMA 1166 (2009); Steven H. Woolf, The Power of Prevention and What it Requires, 2999 JAMA 2437 (2008).

both a clinical medical and a population health problem means that types of interventions belonging to each category are necessary. However, the fact that multiple kinds of interventions may be needed does not establish that each kind is of equal significance, either to positive health outcomes or from a normative vantage point. Additionally, in thinking about pain as both a medical and a population health problem, the fallacy of division must be avoided. Simply because "medical problems" are components of "population health problems" does not imply that population health as a phenomenon is nothing but an aggregate of medical problems. And, of course, the very ideas of what counts as a medical problem,[35] and what counts as a population in context of health is socially constructed, dynamic, and ambiguous over time, place, and culture.[36]

Even given its artificiality, a distinction between medical problems and population health problems is neither meaningless nor irrelevant because medical understandings of health problems and corresponding medical interventions tend to differ dramatically from population-based understandings and interventions. One basic way of understanding the divergence is via epidemiologist Sir Geoffrey Rose's concept of the "causes of the causes."[37]

The idea here can be illustrated simply in context of risk factors (i.e., smoking) and disease (i.e., lung cancer): while across a population, a primary risk factor for lung cancer may be smoking, focusing on the factor that is most proximal to the onset of disease can obscure epidemiologic perspectives critical to population health. Emphasis on the proximal cause can leave out or at least relegate to the background important issues related to the distribution of the cause or risk factor. This matters where we have evidence suggesting that upstream, macrosocial variables can profoundly determine that distribution, which in the case of smoking we most assuredly do. That is, even in countries and regions where smoking incidence has declined overall, smoking is increasingly concentrated among the most materially deprived.[38] Therefore, the risk factor of smoking itself and

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[35] This point is so foundational across social and cultural studies of medicine in a variety of different disciplines that it barely requires citation. Helpful starting points might include: JEREMY A. GREENE, PRESCRIBING BY NUMBERS: DRUGS AND THE DEFINITION OF DISEASE (2007); MICHEL FOUCAULT, THE BIRTH OF THE CLINIC: AN ARCHAEOLOGY OF MEDICAL PERCEPTION (A.M. Sheridan Smith trans., Vintage Books ed. 1994) (1973); BRUNO LATOUR, THE PASTEURIZATION OF FRANCE (Alan Sheridan and John Law trans.) (1993).

[36] See Nancy Krieger, Who and What Is a "Population"? Historical Debates, Current Controversies, and Implications for Understanding "Population Health" and Rectifying Health Inequities, 90(4) MILBANK Q. 634 (2012).

[37] See Geoffrey Rose, THE STRATEGY OF PREVENTIVE MEDICINE (1992); Venkatapuram et al, supra note 23, at 4.

[38] See Goldberg, supra note 4 (discussing inequities in smoking prevalence and citing

corresponding rates of smoking-related disease and resultant health outcomes follow a fairly steep social gradient, with the global slope generally increasing over time.[39]

In turn, what this suggests is that while smoking may be a primary cause of lung cancer, it is imperative to inquire as to what is causing the cause – what is responsible for shaping and determining the unequal distribution of smoking and corresponding rates of lung cancer (and other smoking-related diseases) across the globe. One of the earliest exponents of the "causes of the causes," Justin Joffe, argued in 1996 that

> [i]dentifying environmental causes of developmental defects—such as radiation, drugs and hormones, chemicals, infections, maternal metabolic disorders, and so on—does not lead to much insight into what can be done to prevent adverse outcomes. The problem seems to result from the fact that exposure to any of the agents or disorders that can produce adverse outcomes could arise in many different ways, each involving multiple determinants.[40]

Joffe concludes that what needs be done is to "identify the causes of the causes,"[41] and to direct resources and interventions to those upstream determinants. But which determinants? And how far upstream should attention be targeted?

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authorities); Gera E Nagelhout et al., Trends in Socioeconomic Inequalities in Smoking Prevalence, Consumption, Initiation, and Cessation between 2001 and 2008 in the Netherlands: Findings From a National Population Survey, BMC PUBLIC HEALTH 2012, 12:303, available at http://www.biomedcentral.com/1471-2458/12/303 (last visited January 4, 2013); Johan P. Mackenbach, What Would Happen to Health Inequalities if Smoking were Eliminated? BRITISH MED. J. 2011 342:d3460, available at http://www.bmj.com/content/342/bmj.d3460 (last visited January 4, 2013); CENTERS FOR DISEASE CONTROL, CDC HEALTH DISPARITIES AND INEQUALITIES REPORT — UNITED STATES, 2011: FACT SHEET: HEALTH DISPARITIES IN CIGARETTE SMOKING, available at http://www.cdc.gov/minorityhealth/reports/CHDIR11/FactSheets/Smoking.pdf; Richard Layte & Christopher Whelan, Explaining Social Class Inequalities in Smoking: The Role of Education, Self-Efficacy, and Deprivation, 25(4) EUR. SOCIOLOGICAL REV. 399 (2008).

[39] See Sam Harper, Global Inequalities in Tobacco Consumption, available at http://www.sph.umich.edu/rwjhssp/lectures/HarperPresentation.pdf. However, women belonging to richer population groups in middle-income countries are more likely to smoke than less affluent women. See N.L. Fleischer et al., Inequalities in Body Mass Index and Smoking Behavior in 70 Countries: Evidence for a Social Transition in Chronic Disease Risk, 175(3) AM. J. EPID. 167 (2012); Ahmad Reza Hosseinpoor et al., Socioeconomic Inequality in Smoking in Low-Income and Middle-Income Countries: Results from the World Health Survey, PLoS ONE 7(8): e42843 (2012), http://www.plosone.org/article/info:doi%2F10.1371%2Fjournal.pone.0042843 (last visited January 4, 2013). Notwithstanding this finding, each of the previous reports notes little question that global inequities in smoking generally track social gradients.

[40] Justin M. Joffe, Looking for the Causes of the Causes, 17(1) J. PRIM. PREVENTION 201, 202 (1996).

[41] Id at 201.

The first answer to the question of "which determinants?" is the social and economic conditions in which people work, play, and live. The evidence is overwhelming that these conditions are the prime determinants of health and its distribution in human societies.[42] Although there are myriad points of great contention within the social epidemiologic evidence base regarding the connections between social position, material deprivation, and health, the general idea that the first two profoundly determine the third is by this point beyond dispute.[43] This paper will touch more on these social determinants and their impact on clear thinking about global pain later, but for now, we can say that the "causes of the causes" are those social and economic conditions that determine the distribution of particular diseases. Thus, insofar as we have reason to believe that such conditions are significant determinants both of absolute burdens of pain and of its relative distributions – which we do, as noted above – then it follows that it is social and economic conditions which are the causes of the causes.

For example, while it is well known that a major cause of chronic low-back pain is repetitive and stressful lifting,[44] it is crucial to consider the kinds of life experiences that make it more likely that a particular person or group will be exposed to such repetitive and stressful lifting. Rudolf Virchow, a physician, anthropologist, and the founder of social medicine, adduced the same underlying point in his seminal 1848 report On the Conditions of a Typhus Epidemic in Upper Silesia.[45] Therein, Virchow observed the destitution and sickness among Silesian miners, an unsurprising finding given the hazards of the occupation.[46] Yet Virchow

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[42] See generally WHO CSDH, Final Report, supra note 17.

[43] Indeed, Bernardino Ramazzini formally noted the connections between occupation and health status in 1713, and the foundations of modern public health in the West are literally built upon such recognition (although certainly many if not most modern public health reformers were not motivated primarily by a desire to improve the lives of the least well-off). On Ramazzini, see generally GEORGE ROSEN, A HISTORY OF PUBLIC HEALTH 71-2 (Expanded ed.,The John Hopkins Univ. Press 1993) (1958). On the motivations of early public health reformers, see generally CHRISTOPHER HAMLIN, PUBLIC HEALTH AND SOCIAL JUSTICE IN THE AGE OF CHADWICK: BRITAIN, 1800-1854 (1998).

[44] See Joan M. Stevenson, A Longitudinal Study of the Development of Low Back Pain in an Industrial Population, 26(12) SPINE 1370 (2001); J.W. Frymoyer et al., Risk Factors in Low-Back Pain: An Epidemiological Survey, 65(2) J. BONE AND JOINT SURGERY 213 (1983).

[45] See generally Rex Taylor and Annelie Rieger, Medicine as Social Science: Rudolf Virchow on the Typhus Epidemic in Upper Silesia, 15(4) INT'L J. HEALTH SERVICES 547 (1985). See Howard Waitzkin, One and a Half Centuries of Forgetting and Rediscovering: Virchow 's Lasting Contributions to Social Medicine, 1(1) SOCIAL MED. 5 (2006) (discussing the impact of Virchow's theory of social medicine).

[46] See Leon Eisenberg, Foreword, in FORMATIVE YEARS: CHILDREN'S HEALTH IN THE UNITED STATES, 1880-2000 xiv (eds. Alexandra Minna Stern & Howard Markel 2002). Mining remains extremely dangerous, widely acknowledged as one of if not the most hazardous occupation(s) in the world. See, Mining, INTERNATIONAL LABOUR ORGANIZATION

understood well that while the typhus bacillus might have caused the miners' deaths at greater rates and with more severity than other groups, the cause of the cause was the miners' calamitous working conditions.[47] Accordingly, though a physician himself, Virchow concluded that the primary solution was not the delivery of medical treatment to the miners, but was rather the remediation of the conditions in which the miners worked.[48] However, Virchow did not simply stop with the cause of the cause. He pushed further up the causal pathway, inquiring as to what factors shaped the distribution of the hazardous activity itself – why did some take up mining, and others not? What made people in Upper Silesia, and some groups more than others, socially vulnerable? Virchow is clear:

> There cannot be any doubt that such a typhoid epidemic was only possible under these conditions, and that ultimately they were the result of the poverty and underdevelopment of Upper Silesia. I am convinced that if you changed these conditions, the epidemic would not recur . . . [T]he answer to the question as to how to prevent outbreaks in Upper Silesia is quite simple: education, together with its daughters, freedom and welfare.[49]

Drawing on Virchow's insights, Anne-Emmanuelle Birn contends that what is most appropriate is emphasis on "the causes of the causes of the causes."[50] If it is patterns of deprivation that are the primary causes of the causes, Birn urges stakeholders to consider what factors structure such patterns, patterns which are in many places around the globe remarkably persistent over time.[51]

A particularly elegant framework that suggests a similar view is Link and

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http://www.ilo.org/global/industries-and-sectors/mining/lang—en/index.htm (last visited January 5, 2013) ("Despite considerable efforts in many countries, the toll of death, injury and disease among the world's mineworkers means that, in most countries, mining remains the most hazardous occupation when the number of people exposed to risk is taken into account').

[47] See Taylor and Rieger, supra note 45, at 549-50.

[48] See id. at 550.

[49] Rudolf Virchow, ON THE CONDITIONS OF A TYPHUS EPIDEMIC IN UPPER SILESIA (1848), translated in Taylor and Rieger, supra note 37, at 551.

[50] Anne-Emanuelle Birn, Making it Politic(al): Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health, 4(3) SOCIAL MED. 166, 172 (2009).

[51] See generally id. (Birn's approach intentionally evokes Marxist approaches to understanding of class and capital in the political economy of health. It is important to note that Engels's On the Conditions of the Working Class in England is rightly considered a classic text in the history of modern public health, and was published within a few years of Virchow's influential report. Many of the premises and conclusions in this paper are sympathetic to if not part and parcel of a neo-Marxist approach to global pain. Laying out the implications of such an approach is a task for future work).

Phelan's fundamental cause theory.[52] Proposed in 1995, Link and Phelan argue that social conditions are fundamental causes of disease.[53] Link and Phelan note several key characteristics of such causes. First, fundamental causes tend to cause multiple diseases.[54] Second, fundamental causes contextualize multiple risk factors.[55] Third, fundamental causes tend to persist.[56] Fundamental causes involve access to resources that can be used to avoid risks or minimize the consequences of disease once it develops.[57] Link and Phelan give the example of an individual forced into prostitution as a subsistence strategy; such a person may be entirely unable to avoid known risks.[58] But – and this is the key – the sex acts themselves are merely risk factors; they are intervening mechanisms rather than the upstream cause, which in the case of forced prostitution would likely be some combination of material deprivation, lack of adequate income, sexist and oppressive power structures, etc.[59] These factors, of course, are causes of the causes. A sufficient level of socioeconomic status ("SES") is a fundamental cause of sexually-transmitted disease, as the evidence documenting stark social gradients in such diseases implies.[60]

Moreover, such social gradients are robustly correlated with all manner of diseases in both the global North and the global South, as to both

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[52] See generally Bruce G. Link and Jo C. Phelan, Social Conditions as Fundamental Causes of Disease, 35(Extra) J. HEALTH AND SOC. BEHAV. 80 (1995); see also Andrew Wang et al., Fundamental Causes of Colorectal Cancer: The Implications of Informational Diffusion 90(3) MILBANK Q. 592 (2012); Jo C. Phelan, Bruce G. Link, and Parisa Tehranifar, Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications, 51(Supp.) J. HEALTH AND SOC. BEHAV. S28 (2010); Virginia W. Chang & Diane S. Lauderdale, Fundamental Cause Theory, Technological Innovation, and Health Disparities: The Case of Cholesterol in the Era of Statins, 50(3) J. HEALTH AND SOC. BEHAV. 245 (2009); Andrea E. Willson, 'Fundamental Causes' of Health Disparities: A Comparative Analysis of Canada and the United States, 24(1) INT'L SOCIOLOGY 93 (2009); Karen Lutfey & Jeremy Freese, Toward Some Fundamentals of Fundamental Causality: Socioeconomic Status and Health in the Routine Clinic Visit for Diabetes, 110 AM. SOCIOLOGY REV. 1326 (2005); Jo C. Phelan et al., "Fundamental Causes" of Social Inequalities in Mortality: A Test of the Theory, 45 J. HEALTH AND SOC. BEHAV. 265 (2004).

[53] Link and Phelan, Social Conditions as Fundamental Causes of Disease, supra note 42.

[54] Id. at 87.

[55] Id.

[56] See id.

[57] Id.

[58] Id. at 85.

[59] Id.

[60] See Hazel D. Dean and Kevin A. Fenton, Addressing Social Determinants of Health in the Prevention and Control of HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections, and Tuberculosis, 125 PUB. HEALTH REP. 1, 2-3 (Supp. 4 2010); See also WHO CSDH, Final Report, supra note 23, at 145-154.

infectious and noncommunicable diseases ("NCDs").[61] This is Link and Phelan's first criterion: the fact that SES is strongly correlated with myriad diseases suggests that it is a fundamental cause of disease. The second characteristic of a fundamental cause, that it contextualizes multiple risk factors, is also not difficult to grasp in the case of SES. Low SES is not simply a determinant of risky sexual behavior. It also substantially determines an array of other known risk factors for disease, including but not limited to, poor and dangerous housing,[62] low educational attainment,[63] smoking,[64] and poor nutrition,[65] as well as exposures to environmental[66] and occupational hazards,[67] violence,[68] and racism and discrimination[69] (each of

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[61] See generally, WHO CSDH, Final Report, supra note 23; WHO GLOBAL HEALTH OBSERVATORY, WORLD HEALTH STATISTICS 2012, 127-28, (2012) http://www.who.int/gho/publications/world_health_statistics/2012/en/index.html (last visited January 5, 2013).

[62] See generally, WHO CSDH, Final Report, supra note 23, at 60-71; James Krieger & Donna L. Higgins, Housing and Health: Time Again for Public Health Action, 92(5) AM. J. PUB. HEALTH 758, 758-60 (2002). For this note and notes 52-58 infra, it is important to note that the literature documenting connections between the mentioned variable and SES are immense and complex. For each of them, the few citations are merely illustrative, and serve to substantiate the general point that, whatever the complexity of the evidence base, robust correlations between SES and health are well-settled.

[63] See Nikki L. Aikens & Oscar Barbarin, Socioeconomic Differences in Reading Trajectories: The Contribution of Family, Neighborhood, and School Contexts, 100(2) J. ED. PSYC. 235 (2008); M. David Low et al., Can Education Policy Be Health Policy? Implications of Research on the Social Determinants of Health, 30(6) J. HEALTH POL., POL'Y AND L. 1131 (2005); Amy J. Orr, Black-White Differences in Achievement: The Importance of Wealth, 76 SOC. OF EDUC. 281 (2003).

[64] See supra notes 30-31 & accompanying text.

[65] See WHO CSDH, Final Report, supra note 23, at 49-55; see also Lindsay McLaren, Socioeconomic Status and Obesity, 29 EPI. REV. 29 (2007).

[66] See generally Marco Martuzzi et al., Inequalities, Inequities, Environmental Justice in Waste Management and Health, 20(1) EUR. J. PUB. HEALTH 21 (2010); Martina Kohlhuber et al., Social Inequality in Perceived Environmental Exposures in Relation to Housing Conditions in Germany, 101(2) ENVTL. RES. 246 (2006).

[67] See, generally, WHO CSDH, Final Report, supra note 23, at 60-83; see also M.G. Marmot et al., Employment Grade and Coronary Heart Disease in British Civil Servants, 32(4) J. EPI. & CMTY. HEALTH 244 (1978). This paper constitutes the first report of the results of the Whitehall I Study, which, along with its subsequent counterpart, Whitehall II, constitutes one of the most significant epidemiological studies of the last half-century. See Daniel S. Goldberg, In Support of a Broad Model of Public Health: Disparities, Social Epidemiology, and Public Health Causation, 2(1) PUB. HEALTH ETHICS 70 (2009); Gopal Sreenivasan, Health Care and Equality of Opportunity, 37(2) HASTINGS CTR. REP. 21 (2007) (discussing the importance of the Whitehall studies).

[68] See generally Mikko Aaltonen et al., Socio-Economic Status and Criminality as Predictors of Male Violence: Does Victim's Gender or Place of Occurrence Matter? 52(6) BRIT. J. CRIMINOLOGY 1192 (2012); Michael A. Koenig et al., Individual and Contextual Determinants of Domestic Violence in North India, 96(1) AM. J. PUB. HEALTH 132 (2006).

[69] See generally David R. Williams, Race, Socioeconomic Status, and Health The Added Effects of Racism and Discrimination, 896(1) ANNALS N.Y. ACAD. SCI. 173 (1999); Saffron Karlsen and James Y. Nazroo, Relation Between Racial Discrimination, Social

which is independently associated with adverse health).

The third characteristic of a fundamental cause of disease is that it persists over time. This is easy to perceive with regard to SES. Link and Phelan explain that in the 19th century, one of the most significant risk factors for disease was access to adequate sanitation and sewerage.[70] Availability of sanitation followed a social gradient, with the affluent having more and better access to such sanitation, and hence typically experiencing lower rates of waterborne disease.[71] As sanitation perfused through the social hierarchy, it ceased to act as a widespread and penetrating risk factor for disease. But the link between SES and disease persisted because new mechanisms arose that mediated the relationship (e.g., smoking and poor nutrition).[72]

Increasing empirical evidence bears out Link and Phelan's theory,[73] although, like any good theory, there remain both skeptics and a host of unanswered questions.[74] Regardless, rather than perceiving it as a grand unified theory of disease and social epidemiology, seeing a fundamental cause framework as offering a useful contribution to thinking through the problem of global pain may help illuminate more and less promising L&P interventions.

IV. PAIN, FUNDAMENTAL CAUSES, AND PREFERENCE FOR POPULATION HEALTH STRATEGIES IN GLOBAL PUBLIC HEALTH LAW

Understanding fundamental cause theory has stark implications both for thinking about global pain and for prioritizing remedial interventions. In the first case, it underscores the danger of medicalizing public and population health problems. It is here that the artificial distinction between clinical care and population health becomes quite meaningful. The mere fact that clinical medical interventions are undeniably important in treating pain does not establish that improving access to such interventions is the best pathway towards ameliorating burdens of pain and its inequitable distribution across the globe. In fact, moving from evidence of clinical

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Class, and Health Among Ethnic Minority Groups, 92(4) AM. J. PUB. HEALTH 624 (2002); Sandra J. Eades, Reconciliation, Social Equity and Indigenous Health, 24(3) ABORIGINAL AND ISLANDER HEALTH WORKER J. 3, 3-4 (2000).

[70] Link and Phelan, Social Conditions, supra note 52, at 86.

[71] See generally Simon Szreter, HEALTH AND WEALTH: STUDIES IN HISTORY AND POLICY (2004); Hamlin, supra note 43.

[72] Link and Phelan, Social Conditions, supra note 52, at 86.

[73] See Link and Phelan, Social Conditions, supra note 52.

[74] See, e.g., Johan P. Mackenbach, The Persistence of Health Inequalities in Modern Welfare States: The Explanation of a Paradox, 75(4) SOC. SCI. & MED. 761, 764 (2012) (contending that fundamental cause theory does not identify specific pathways linking socioeconomic conditions to health).

effectiveness to analysis of causes is a convenient but fallacious manifestation of ex juvantibus ("from that which helps") reasoning; as social epidemiologist Ichiro Kawachi put it in the award-winning documentary Unnatural Causes, the fact that aspirin may relieve fever does not establish that lack of aspirin is the cause of fever.[75] Moreover, clear thinking about the causes of fever and pain requires a broader conception of the long causal pathway between upstream, macrosocial factors and onset of disease/disease outcomes, a pathway in which one can locate intervening mechanisms such as known risk factors. Such risk factors generally serve to mediate the persistent relationships between said upstream factors and pain prevalence, incidence, severity, and outcomes.

This implies what the empirical evidence largely suggests: however well-intentioned and even necessary efforts to improve access to pain treatments may be, there is little basis for concluding either that such efforts will substantially relieve absolute burdens of global pain, or that such interventions are likely to compress global pain inequities. Note that this argument is **not** contingent on the very significant concern that an important class of intervention previously deemed to be safe and effective for the relief of chronic non-malignant pain – opioid analgesics – increasingly appear to be, based on the best evidence, unsafe and ineffective.[76] The argument here shows that even if we assume that a particular clinical medical intervention is absolutely safe and effective – itself a perilous assumption given the well-known difficulties of evidence-based practice and concerns over the quality of the evidence base – because such an intervention cannot and is not intended to address the upstream, macrosocial factors that are fundamental causes of pain and its distribution, it has little chance of having a substantial, population-wide impact on pain.

Worse, there is solid evidence that many clinical medical interventions can increase health inequities even where they improve overall population health (this is why Benach et al.'s dual criteria for evaluating public health

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75. UNNATURAL CAUSES (California Newsreel 2008).

76. See generally Howard L. Fields, The Doctor's Dilemma: Opiate Analgesics and Chronic Pain, 69(4) NEURON 591 (2011) (summarizing the evidentiary trends). The issue of opioid analgesics has generated an enormous amount of writing and commentary in both professional and lay discourse. The fact that this paper avoids wading into the fray here encapsulates its thesis, viz., public health law stakeholders ought to resist rather than perpetuate the medicalization of pain policy. In any event, the larger point above is crucial. The argument does not critique the medicalization of pain policy on the grounds that the intervention most supported in such policy increasingly appears to be contraindicated by the best scientific evidence. Rather, the critique focuses on medicalization itself, regardless of whether the particular clinical intervention is safe and effective. Thus, as noted above, the validity of the critique does not depend on the quality of any particular intervention. Indeed, if successful, the critique applies even where a specific intervention is highly safe and effective.

policy are so important). For the achievement of the particular health benefits they bestow, many such interventions depend on the resources the individual agent is able to bring to bear. Thus, a particular type II diabetes drug, even if made widely available, may depend for its efficacy on the health literacy a particular diabetic person and his or her caregivers can marshal for managing the drug and taking it as indicated within the course of the complex and tedious regimen required for diabetes management.[77] But if this is so, it follows that agents with more and better resources are (more) likely to benefit more from what Capewell and Graham call "agentic interventions,"[78] a conclusion that is borne out by the available evidence.[79] The most obvious example of this is smoking cessation programs, interventions which, if they work at all, tend to benefit the affluent more than the poor.[80] In turn, this means that even where smoking prevalence and incidence decrease (thereby improving overall population health), inequities in smoking-related diseases actually increase.[81]

Accordingly, not only are clinical medical interventions known to be safe and effective unlikely to ameliorate substantially overall burdens of global pain, but they actually run a real risk of expanding global inequities in prevalence, incidence, and outcomes of pain.[82] Treating pain primarily as a medical rather than a population health problem is therefore a serious mistake, even where pain is undeniably both. The argument here is assuredly not that we ought to abandon clinical medical interventions for pain in favor of population health approaches; this is a rank instance of the false choice fallacy. We require both approaches; even if we intensively and collectively address the social determinants of pain across the globe, people will still suffer pain that ought to be treated adequately. The argument is one of priority; some policies, practices, and priorities for ameliorating global pain are more promising than others, and even where

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[77] See generally Julie A. Gazmararian, Factors Associated with Medication Refill Adherence in Cardiovascular-related Diseases: A Focus on Health Literacy, 21(12) J. GEN. INT. MED. 1215 (2006); Sharon L. Youmans & Dean Schillinger, Functional Health Literacy and Medication Use: the Pharmacist's Role, 37(11) ANN. PHARMACOTHERAPY 1726 (2003); Dean Schillinger et al., Association of Health Literacy With Diabetes Outcomes, 288(4) JAMA 475 (2002); see also Kelly W. Muir et al., Health Literacy and Adherence to Glaucoma Therapy, 142(2) AM. J. OPTHAMOLOGY 223 (2008) (finding that subjects with low health literacy were less adherent with their regimen of glaucoma medications than those with higher health literacy).

[78] See Simon Capewell & Hilary Graham, Will Cardiovascular Disease Prevention Widen Health Inequalities? PLOS MED. 7(8): e1000320 at 3, available at http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000320.

[79] Id.; see also Goldberg, Social Justice, supra note 4, at 108 (citing authorities).

[80] See Capewell & Graham, supra note 78.

[81] See Goldberg, Social Justice, supra note 4, at 109-110.

[82] See notes 77-80 supra & accompanying text.

we readily seek to implement both one might be preferable, and thereby might command more attention and resources. What Rose termed a "whole population" approach[83] is preferable to clinical medical approaches for ameliorating global burdens of pain, even where both ought to be implemented. And the attention and resources devoted to the alleviation of global pain has inverted this preference by overwhelmingly focusing on medical interventions for the treatment of pain, and the laws and policies that shape and regulate the dispensation of such treatment.

Accordingly, for public health law, the problem is almost exactly the same: laws and policies that regulate medical treatment for pain have dominated not simply the actual geopolitical L&P landscape, but, perhaps unsurprisingly, policy discourse and scholarship on the subject as well. In other words, it is not simply pain that has been medicalized, but pain policy as well. This is not a new concern. In an important 2007 paper, social epidemiologists Lantz, Lichtenstein, and Pollack decry the medicalization of health policy.[84] They note that "[c]urrent public policy responses to health vulnerability focus primarily (although not exclusively) on the procurement of medical care services, with a reduction in access barriers proffered as the central benchmark for success."[85] Directly referencing Link and Phelan's framework, Lantz, Lichtenstein, and Pollack observe that, "lack of access to health care is not the fundamental cause of health vulnerability or social disparities in health."[86]

Moreover, Lantz, Lichtenstein, and Pollack note the irony in the fact that while it is fundamental causes such as "housing, education, [and] nutrition" that are prime determinants of health vulnerability, inequalities in access to such resources are frequently wider than inequalities in access to health care services.[87] The medicalization of pain policy is apparent given the evidence addressed in Part II infra that the overwhelming majority of initiatives that purport to address inequitable burdens of pain both domestic and international have focused on access to essential medicines. The necessity of such programs is insufficient to justify the level of attention devoted to this category of L&P interventions, especially where L&P interventions directed higher up the causal pathway justify belief in greater efficacy as to

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[83] See Benach supra note 5; accord Theo Lorenc et. al., What Types of Interventions Generate Inequalities? Evidence from Systematic Reviews, 67(2) J. EPI. & COMM. HEALTH 190 (2013) (finding that "downstream" interventions are more likely to increase health inequalities than "upstream" interventions).

[84] Paula M. Lantz et al., Health Policy Approaches to Population Health: The Limits of Medicalization, 26(5) HEALTH AFF. 1253, 1253 (2007).

[85] Id. at 1254-55.

[86] Id. at 1256.

[87] Id.

both of Benach et al.'s criteria (i.e., both diminished overall burdens of pain and compressed global pain inequities).

In short, L&P approaches to ameliorating global pain are, like most clinical medical interventions themselves, by their nature only applicable proximal or subsequent to the onset of disease itself. They are therefore unlikely to substantially diminish – and indeed, by most reliable measures they have not diminished – global prevalence and incidence of pain. Worse, since L&P interventions designed to reduce access barriers to medical care will, if successful, generally facilitate agentic interventions, medicalized L&P schemes run a very real risk of expanding the very global pain inequities stakeholders are ethically charged with compressing.[88] This is unacceptable.

If the L&P interventions devoted to ameliorating global burdens of pain have tended to be those inserted significantly downstream on the causal pathway, the preferable policy correction is plain: categories of L&P interventions that address upstream distal factors that constitute fundamental causes of pain.[89] Of what would such interventions consist?

Recall that fundamental causes involve access to resources that can be used to avoid disease or to effectively manage its sequelae once it develops. Such causes tend to (1) cause multiple diseases (many of which may result in pain), (2) contextualize multiple risk factors for pain, and (3) persist over time.[90] It is not difficult to postulate social and economic conditions that are robustly correlated with pain outcomes and which satisfy these three characteristics.

In recommending health policy approaches that avoid medicalization, one obvious starting point is Rose's whole population approach.[91] The idea here is that implementing policy interventions at structural levels that resonate through an entire population as opposed to simply focusing on high-risk groups will result in more substantial improvements to overall population health at the same time they compress health inequities.[92]

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[88] See notes 77-80 supra & accompanying text.

[89] Fundamental cause theory is young, having first been proposed in 1995. Although the evidence base supporting the theory is growing, there are as yet no empirical studies specifically designed to assess how certain kinds of pain fit the framework. However, given that pain is comorbid with a host of diseases, some of which have been subjected to evaluation under a fundamental cause rubric, there is every reason to suspect a fit reasonable enough to generate the policy prescriptions adduced above. As noted in Part III, there is little doubt that patterns of pain in human populations are strongly determined by social and economic conditions. In any event, the notion that social and economic conditions are fundamental causes of global pain is offered as a potentially useful frame rather than asserted as a or the definitive explanation.

[90] See note 52 supra.

[91] See Benach et al., supra note 5; Theo Lorenc et. al., supra note 81.

[92] Moreover, approaches targeted at high-risk groups who also tend to be lower on the

Drawing on Rose's approach, in 1999 Al Tarlov sketched a framework for public policy interventions focused on population health.[93] The intervention framework features five categories: child development, community development, adult self-actualization, socioeconomic well-being, and modulated hierarchical structuring.[94] Each of these tracks multiple important SDOH, many of which qualify or are likely to qualify as fundamental causes of pain.

For example, the Lacey et al. study cited earlier points out that living conditions experienced during early childhood is a strong predictor of chronic pain over the life course (i.e., many decades later).[95] It is well-documented that early childhood is an epidemiologically "sentinel period," which means that early childhood as a phase of life is both extraordinarily sensitive to living conditions and exposures, and that such experiences can robustly predict health outcomes many decades later.[96] Accordingly, a promising L&P approach to ameliorating global burdens of pain that targets crucial upstream, macrosocial determinants would consist of the intensive direction of resources to strengthening early childhood development and/or alleviating deleterious exposures during early childhood. There is no shortage of specific L&P interventions that would satisfy such a directive, from programs to eliminate child physical abuse (itself correlated with chronic pain over the life course)[97] to structural interventions designed to

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social gradient also run a substantial risk of stigmatizing already socially disadvantaged groups. See Goldberg, Social Justice, supra note 4, at 110-11; MADISON POWERS & RUTH FADEN, SOCIAL JUSTICE: THE MORAL FOUNDATION OF PUBLIC HEALTH AND HEALTH POLICY, 169 (2006); Howard Leichter, "Evil Habits" and "Personal Choices": Assigning Responsibility for Health in the 20th Century, 81 MILBANK Q. 603, 622-23 (2003).

[93] Alvin R. Tarlov, Public Policy Frameworks for Improving Population Health, 896(2) ANN. N.Y. ACAD. SCI. 281, 284-85 (1999).

[94] Not coincidentally, Lantz, Lichtenstein, and Pollack cite Tarlov's framework as an example of an approach that avoids medicalizing health policy. Lantz et al., supra note 82, at 1256.

[95] See Lacey et al., supra note 26 at 5.

[96] See Dennis Raphael, Poverty in Childhood and Adverse Health Outcomes in Adulthood, 69(1) MATURITAS 22, 26 (2011); WHO CSDH, FINAL REPORT, supra note 23, at 50-59; Laurie M. Anderson, The Effectiveness of Early Childhood Development Programs: A Systematic Review, 24(3 Supp.) AM. J. PREV. MED. 32, 38 (2003). This general point is a feature of the life course hypothesis, a theory that enjoys so much support in the epidemiologic literature that it has essentially become a subfield in its own right ("life course epidemiology"). See, e.g., D. Blane et al., The Development of Life Course Epidemiology, 55(1) REV. EPIDEMIOLOGIE SANTE PUBLIQUE 31 (2007); Yoav Ben-Shlomo & Diana Kuh, A Life Course Approach to Chronic Disease Epidemiology: Conceptual Models, Empirical Challenges and Interdisciplinary Perspectives, 31(2) INT'L J. EPIDEMIOLOGY 285 (2002).

[97] See Gareth T. Jones et al., Adverse Events in Childhood and Chronic Widespread Pain in Adult Life: Results from the 1958 British Birth Cohort Study, 143 PAIN 92 (2009); Katrin Imbierowicz & Ulrich T. Egle, Childhood Adversities in Patients with Fibromyalgia and Somatoform Pain Disorder, 7 EUR. J. PAIN 113 (2003); Astrid Lampe et al., Chronic

reduce pediatric mortality and morbidity linked to road traffic accidents.[98]

Another L&P intervention that could be deployed to alleviate global pain might be improving educational attainment across a population. A 2001 review concluded that "[s]cientific evidence supports the hypothesis that less well educated people are more likely to be affected by disabling back pain."[99] Low educational attainment very likely qualifies as a fundamental cause of disease insofar as it robustly correlated with multiple diseases,[100] multiple risk factors,[101] and persists.[102] L&P interventions designed to increase educational attainment[103] could therefore have a salutary effect in

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Pain Syndromes and their Relation to Childhood Abuse and Stressful Life Events, 54 J. PSYCHOSOMATIC RES. 361 (2003); but see Karen G. Raphael et al., Is Childhood Abuse a Risk Factor for Chronic Pain in Adulthood?, 8 CURR. PAIN & HEADACHE REP. 99 (concluding that any link between childhood abuse and adult chronic pain is modest in magnitude if it exists at all).

[98] See, e.g., Jones et al, supra note 93, at 93 (noting that children hospitalized after a road traffic accident faced an adjusted risk increase of experiencing pain as an adult of 40% as compared to the control group); WORLD HEALTH ORG., WORLD REPORT ON CHILD INJURY PREVENTION (Margie Peden et al. eds., 2008) available at http://www.who.int/violence_injury_prevention/child/injury/world_report/en/index.html. The WHO Report notes that road traffic injuries in 2004 accounted for 262,000 deaths among children aged 0-19 (30% of all injury deaths among children and nearly 2% of all deaths among children). Id. at 31. And although 93% of child road deaths occur in low and middle-income nations, road traffic injuries still account for a fifth of all childhood injury deaths in the European Union. Id. These are mortality statistics, yet the fact that adult pain is linked with childhood road traffic injuries suggests the latter's linkage with (pain) morbidity as well.

[99] C.E. Dionne et al., Formal Education and Back Pain: A Review, 55 J. EPIDEMIOLOGY & COMM. HEALTH 455, 466 (2001); see also Randy S. Roth & Michael E. Geisser, Educational Achievement and Chronic Pain Disability: Mediating Role of Pain-Related Cognitions, 18 CLINICAL J. PAIN 286 (2002) (concluding that low educational attainment mediates chronic pain disability by increasing maladaptive coping strategies); see also Randy S. Roth et al., Educational Achievement and Pain Disability Among Women with Chronic Pelvic Pain, 51 J. PSYCHOSOMATIC RES. 563 (2001) (finding links between educational attainment and pain disability among women with chronic pelvic pain)

[100] See Andy I. Choi et al., Association of Educational Attainment With Chronic Disease and Mortality: The Kidney Early Evaluation Program (KEEP), 58(2) AM. J. KIDNEY DISEASE 228 (2011) ; Low et al., supra note 63, at 1137-1143.

[101] Id.

[102] WHO CSDH, Final Report, supra note 17, at 56-59; Low et al., supra note 63.

[103] It is essential to avoid conflating improving educational attainment across the life course with improving health education. Despite sounding similar, these are two very different kinds of health interventions, with the former focused on improving general education and literacy across the life course, while the latter is focused on specific kinds of knowledge about specific health risks. Conceptualized in terms of the causal pathway utilized here, emphasis on improving general education is targeted at an upstream factor much higher in the pathway, while efforts at health education are typically located much lower, proximal/subsequent to the onset of disease. Unsurprisingly, the evidence suggesting efficacy is also quite different, with that supporting broad educational attainment much more favorable than the more narrowly-focused health education interventions. Compare Low et al., supra note 63, 1143-1147 with Goldberg, Social Justice, supra note 4, at 107-109 (discussing the general ineffectiveness of health education interventions).

diminishing burdens of and inequities in pain across the globe. Moreover, note a crucial policy implication of ameliorating a fundamental cause of disease: precisely because the cause determines multiple diseases, alleviating said cause offers the potential to ease the health burdens posed by multiple diseases. Not only would improving general educational attainment therefore be a promising means of reducing overall pain burdens and compressing pain inequities, but L&P interventions that improve educational attainment across a population would also be likely to improve health outcomes overall as well as outcomes specific to a variety of different education-linked diseases. Finally, because the affluent are typically better educated than the least well-off, the poor and socially disadvantaged are likely to gain greater benefit from improved educational attainment than the affluent. Were this to happen, education-linked health inequities would contract.

The above examples demonstrate the superiority of a whole population approach to public health policy intended to ameliorate pain across the globe. Such advantage is not altogether surprising; Rose proposed such an approach over two decades ago, and there is no shortage of scholarship applying and evaluating it.[104] Indeed, the recent movement towards the consideration of "Health in All Policies"[105] ("HiAP") is arguably cousin to a whole population approach to the extent it is built upon the acknowledgement that upstream socioeconomic and political factors are major determinants of health that require express and dedicated political attention.

However, advocating that global public health law efforts to ameliorate pain target such upstream factors runs into what is likely to be the most common objection to my claim: the boundary problem.

V. THE BOUNDARY PROBLEM

The most likely objection to calls to broaden the public policy framework as to population health references the boundary problem. Namely, emphasis on upstream, macrosocial determinants and the laws and policies that shape their influence on health and its distribution quickly runs into the fact that virtually every conceivable L&P domain impacts health. Indeed, this is the point of departure for the aforementioned HiAP approach. Because most laws and policies exert influence on public and

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[104] E.g. Lantz et al., supra note 82; Benach et al., A New Typology, supra note 5; Benach et al., Beyond Rose's Strategies, supra note 5.

[105] See Health in All Policies, NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS, http://www.naccho.org/topics/environmental/HiAP/index.cfm (last visited January 6, 2013); Pekka Puska, Health in all Policies, 17 EUR. J. PUB.HEALTH 328 (2007).

population health, the HiAP movement urges overt and considered analysis of the health implications in policymaking domains that seem, on the surface, to have little to do with organized public health (i.e., housing, education, labor, anti-discrimination, etc.).[106] This is apparently thought to be a problem because it carries a significant risk of overreaching, of expending valuable public health resources and credits on politically controversial issues, and therefore undermining whatever quantum of public credibility organized public health enjoys.[107]

This article has consistently argued that these concerns are unpersuasive.[108] The alternative, of narrowing the scope of public health practice and policy and targeting public health interventions lower down the causal pathway and farther away from collective action on fundamental causes of disease, virtually guarantees that ensuing interventions (including L&P) will have only a small impact in improving public health and in compressing health inequities. Even if the concerns posed by the boundary problem were highly significant – which is doubtful – they would not suffice to legitimate a public health scheme that would do relatively little to actually improve the public's health.

While it is dubious that the boundary problem is a significant conceptual difficulty, it may indeed be a practical concern, with implications that require careful political analysis and considered action. But the pragmatics of the problem does not somehow nullify the ontology of population health – the fact that social conditions are fundamental causes of disease. If the evidence supporting the notion that structural factors are far and away the prime determinants of health and its distribution in human populations is correct, then it is difficult to see how engaged stakeholders have any real choice but to pursue the remediation of those factors. If indeed the practical difficulties posed by the boundary problem are significant, then we should endeavor to resolve them as best we can. But it is no answer at all to simply refuse such an endeavor from the beginning, for doing so neuters

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[106] See NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS, supra note 101; WHO CSDH, Final Report, supra note 17, at 110-113; Puska, supra note 101.

[107] See, e.g., LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT 41 (2d ed. 2008) Richard Epstein, In Defense of the "Old" Public Health, 69 BROOK. L. REV. 1421, 1425-6 (2004); Mark A. Rothstein, Rethinking the Meaning of Public Health, 30 J. L. MED. & ETHICS 144, 145 (2002); See generally Lawrence O. Gostin & James G. Hodge, The Public Health Improvement Process in Alaska: Towards a Model Public Health Law, 17 ALASKA L. REV. 77 (2000).

[108] See Daniel S. Goldberg, Against the Very Idea of "Politicization" in Public Health Policy, 102(1) AM. J. PUB. HEALTH 44, 44 (2012); see also Goldberg, In Support of a Broad Model, supra note 67 at 70. As noted in the 2012 paper, I am particularly unmoved by concerns of "politicizing" public health, a claim I find to be either vacuous or truistic. See Goldberg, Against the Very Idea of "Politicization" in Public Health Policy, supra note 104 at 45-6.

global public health.

The same analysis applies to the legitimate concerns that generating needed buy-in from policy stakeholders regarding structural determinants of global pain will be much more difficult than that needed regarding access to essential treatments for pain (the latter of which has hardly proved facile). Even if the scope of such problems is significant, that significance does not somehow justify a decision to avoid action on the social determinants of pain precisely because such a decision ensures that meaningful improvement in ameliorating burdens of global pain is extremely unlikely to occur.

These concerns reflect what this article has termed the "ethics of health policy paradox": what we can do is not what we ought to do, and what we ought to do is not what we can do.[109] The ethical dictum that "ought" implies can help create the moral quandary; yet it is literally no answer to the normative claim that we ought to act on structural determinants of health to simply assert that we should only do what we can. Indeed, this is simply a restatement of the moral problem, which is that what we are apparently capable of doing at any one time may not be what we ought to do. And while ought implies can, what we are in fact capable of doing does not exhaust the set of what we ought to do. Averring as such is an instance of the naturalistic fallacy.

Of course, this article does not claim to have the answer to the ethics of health policy paradox, if any such answer even exists. However, it is possible to argue that stakeholders, if not globally than certainly within countries, are in fact capable of taking action on the SDOH in ways that would be likely to ameliorate pain. The history of public health is replete with such examples, and, as for contemporary examples, there are countries around the globe whose welfare apparatus and social protection policies are both more developed and seem better able to ameliorate (the health effects of) deleterious social and economic conditions.[110] Even assuming arguendo that stakeholders are in fact incapable of acting on the structural determinants of pain, it does not necessarily follow that cosmetic L&P interventions are morally justified.

VI. CONCLUSION

There is little dispute that pain is an enormous and growing global health

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[109] See Goldberg, In Support of a Broad Model, supra note 67, at 70.

[110] See generally Dennis Raphael, The Political Economy of Health Promotion: Part 1, National Commitments to Provision of the Prerequisites of Health, 28 HEALTH PROMOTION INT'L 95 (2011); Dennis Raphael, The Political Economy of Health Promotion: Part 2, National Commitments to Provision of the Prerequisites of Health, 28 HEALTH PROMOTION INT'L 112 (2011) .

problem, nor that it is a significant global health priority. Given the global growth trajectories of overall pain prevalence and incidence and the general expansion of pain inequities, there should be similarly little dispute that however well-intentioned, global efforts have made little appreciable impact. The apparent lack of efficacy is unsurprising when one considers that the globally dominant intervention paradigm with regards to pain both domestic and international has focused on increasing access to clinical medical treatments. Although there is no doubt such treatments are necessary, there is also little reason to believe that expanding clinical access will significantly diminish global burdens of pain.

Efforts to lessen global pain must instead take note of the ample social epidemiologic evidence suggesting that the prime determinants of health within and between countries are the social and economic conditions in which people and communities live, work, and play. Social and economic conditions are likely fundamental causes of pain. But if so, public policy interventions – whether hard or soft law – must be targeted at the root, distal causes that determine patterns of pain in human populations. L&P interventions targeted proximal or subsequent to the onset of pain are not likely to improve substantially global pain because they leave the fundamental causes of pain untouched and unremediated.[111]

The medicalization of pain is a significant problem because while medicine is certainly important for remediating pain, pain cannot be conceived of as a purely medical problem.[112] Pain is most properly conceptualized as a major public and population health priority, which, like many such priorities, has significant clinical medical implications. There is reason to believe that the medicalization of pain is connected to the medicalization of pain policy.[113] However, Lantz, Lichtenstein, and Pollack argue persuasively that health policy should not be medicalized for the simple reason that medical care is only a minor determinant of health and its distribution in human populations.[114]

The dilemma posed by the ethics of health policy paradox is clear. If we

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[111] The difficulty of remediating such fundamental causes is a poor justification for intentionally taking action lower down the causal pathway with the full awareness of the likely lack of efficacy.

[112] Indeed, it is not purely a health problem at all, although its impact on health is the focus of this paper.

[113] Given the close connections between ideas regarding health, disease and illness and public health policy, this dual medicalization is unsurprising. Ideas about health and disease are social actors, in the sense that they actively influence public health policy. See Daniel S. Goldberg, On Ideas as Actors: How Ideas about Yellow Fever Causality Shaped Public Health Policy Responses in19th-Century Galveston, 29(2) CANAD. BULL. MED. HIST. 351, 352 (2012).

[114] See generally Lantz et al., supra note 82.

wish to have a significant impact in reducing overall burdens of pain and compressing pain inequities across the globe, L&P interventions must be targeted higher up the causal pathway, at the social and economic conditions that determine global pain.[115] L&P interventions targeted at increasing access to medical treatments for pain leave these conditions unaddressed; yet the policy difficulty may be that such interventions are dearly-bought and that broader, more far-reaching policy initiatives on the SDOH are simply unlikely on the geopolitical scale.

There is likely no magic bullet solution to this quandary. The central claim of this paper is that avoiding the problem by reaching for the low-hanging fruit is unacceptable. The practical problems posed in assessing the root causes of global pain and in developing L&P interventions that stakeholders are justified in believing can reduce overall burdens of pain and compress pain inequities are of course quite real. The fact that global pain is worsening suggests the difficulty of identifying, producing, and implementing successful interventions. But intervening at points in the causal pathway which we have no reason to believe will materially assist in ameliorating global burdens of pain is no answer at all.

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[115] Indeed, I assume without argument that this is what we ought to do. The detailed ethical justification for this normative claim awaits future work.