

Commentary

Anthropology and epidemiology on drugs: the challenges of cross-methodological and theoretical dialogue

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Abstract

Many of the principal public health strategies for preventing HIV and substance use among injectors at the turn of the 21st century—such as needle exchange, rinsing syringes with bleach, distributing condoms, and prescribing methadone—were implemented with little knowledge of how, why, and even if they worked. Epidemiological researchers often document bizarre associations between behaviours, demographics and serostatus. From a pragmatic practical perspective epidemiologists might be able to collect and crunch statistics more effectively if they did not exclude from their design and their analysis the larger political economic contexts, cultural meanings, and explanatory dynamics for the socially taboo behaviours surrounding addiction and infection that their protocols attempt to document. Drawing on over a dozen years of participant-observation with street-based injectors, I discuss the practical dialogue, I engaged in with four epidemiological research projects that have documented unexpected dynamics requiring clarification: (1) dramatically disproportionate HCV seroconversion among young women injectors; (2) high HIV seroconversion rates among Canadian cocaine injectors who patronise needle exchange; (3) low HIV seroconversion among homeless heroin addicts in San Francisco who regularly engage in risky injection practices; and (4) unenthusiastic acceptance of heroin prescription by long-term street addicts in Switzerland. Quantitative and qualitative researchers concerned with the social suffering of street-based drug users have a great deal to offer one another. They both have to overcome their dogmatic methodological and theoretical blinders to address how social power relations propagate illness in identifiable patterns across vulnerable populations. The theoretical insights of Foucault, Bourdieu, Marx and Mauss—if not of postmodernism—might have practical applications on the street.

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Medical statistics will be our standard of measurement: we will weigh life for life and see where the dead lie thicker, among the workers or among the privileged. Rudolf Virchow, 1848

Introduction

The absence of a dialogue between epidemiological and qualitative researchers—especially ethnographers who engage in cultural anthropology's version of

participant-observation methods—is a failure from the perspectives of both the pragmatic positivism of public health and also the critical theory of anthropology. From the vantage point of rational scientific endeavour it is surprising that most epidemiologists and biostatisticians do not introduce a minor ethnographic component to their research projects in order to improve the precision of the data they collect or to augment the clarity of their analysis. One would think that training programs in epidemiological methods in schools of public health and medicine would want to expose students and faculty to a minimal dose of qualitative techniques—even if only to improve the language, logic and triangulation capacities of their questionnaires.

Of course, the converse is also true: it is surprising that most anthropologists know nothing about the

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quantitative methods to which they are often hostile. They do not recognise how useful it can be to consult already-existing, easily accessible quantitative databases that might allow them to situate their research subject with little effort and no expense. One would also think that training programs in ethnographic methods in departments of anthropology would require students and faculty to acquire minimal competence in quantitative techniques—even if only to gauge statistical significance and to locate basic demographic datasets on the web.

Power/knowledge and disciplinary boundaries

As an ethnographer who engages in the participant-observation methods that have been developed in the discipline of cultural anthropology over the past century, I have always been impressed by how deeply epidemiologists care about the precision of their data in contrast to ethnographers. Anthropology is premised on the cultural contingency of reality. Facts are treated as cultural constructions. Furthermore, the advent of postmodern theory in US anthropology during the mid-1980s has marginalised intellectually anyone who claims to have truthful data. The pursuit of truth is considered a naïve anachronistic holdover from 19th century enlightenment-thinking, which can also be dangerous and politically reactionary since the last century of colonialism, conquest, and genocide/ethnocide was all conducted in the name of progress, civilisation, and often even of science. “Objective facts”, especially those draped in the mantle of science need to be deconstructed ontologically and epistemologically in order to prevent them from becoming totalising cultural and ideological constructs.

Scientific knowledge that claims to be useful for reforming human behaviour is condemned for being yet another expression of what the French philosopher Michel Foucault calls “biopower:” the historical process by which the legacy of nation-building over the past three centuries has been increasingly based on controlling, disciplining and blaming unruly bodies in the name of science, health, progress and morality (Foucault, 1978). Applied medical and public health knowledge is especially distrusted by critical medical anthropologists since it so easily slides into what the Auschwitz survivor Primo Levi (Levi, 1988) calls the “Grey Zone” of banal everyday evil (see also Arendt, 1963). Working at the service of state or corporate forces (biomedical interest groups, pharmaceutical companies, hospitals, physician’s professional associations) the way epidemiologists do as they define and categorise and document physical illnesses and social sufferings, is considered to be only a step away from making the trains run on time.

With a refreshing, old-fashioned earnestness, epidemiologists are still convinced that it is possible to obtain accurate numbers that are useful for solving urgent social problems. They refer unselfconsciously and proudly to the “rigor of their science”. In a language that appears fetishistically hierarchical—if not phallogocentric to most anthropologists—they worry about the size of their “N’s”, and the “alpha” and “beta,” of their “robust power calculations.”

I appreciate Foucault’s critique of science, civilisation and truth. Postmodernism in anthropology has been a useful correction to 19th century enlightenment thinking and to the naïve positivism of structural functionalism’s unwitting collaboration with colonial power in equities. Unlike most anthropologists, however, I respect epidemiologists for their humanistic commitment to seeking knowledge for the sake of the public’s health. It is a mystery to me, consequently, why most epidemiologists allow themselves to remain trapped in a reductionist ontology that prevents them from exploring the full value of their datasets with the aid of qualitative analysis. They appear to distrust or even to fear the dirty linen of their numbers. Rather than exploring intellectually the meaning of the limits of their data sets, they instead dismiss, ignore, or subject excessive rounds of “multivariate control” onto statistically significant associations between behaviours and outcomes that are counterintuitive or embarrassing. As a result, statisticians often neglect to mine their richest data by failing to stratify provocative associations via theoretically-informed anthropological social power categories—i.e. gender, sexuality, and ethnicity to name some obvious ones. For example, epidemiologists often do not examine patterns of statistical stratifications with respect to specific permutations of responses to ideologically or culturally loaded questions on their survey instruments.

Crunching numbers in a vacuum

Public health journals aggressively enforce the quantitative/qualitative divide by almost exclusively publishing quantitatively-based research. They subject the statistical data of the manuscripts they receive to rigorous mathematical peer review. They fail, however, to request authors to provide even the simplest qualitative, contextual information to explain how the data were collected or how the samples were structured. Aside from standardised slogans such as “with informed consent;” “targeted sampling;” or “street-recruited out-of-treatment IDUs,” epidemiologists usually do not provide basic information on the logistics for how a particular research team collected its data. This is a grave oversight because the practical and political organisation of research protocols and the wording of survey questions dramatically affect data. Epidemiolo-

gical projects have distinct office work cultures and research administration logistics that influence upon the numbers they collect. It is easy to document this ethnographically by visiting an office and its immediate surrounding street corners when an epidemiological questionnaire is being administered. A different type of response will be elicited on an interview protocol that pays respondents to answer questions asked by a formally-dressed scientist or bureaucrat in a well-lit office where smoking is prohibited versus a protocol that elicits answers in the context of larger ongoing rambling, friendly conversations about everyday life and injection practices conducted in a shooting encampment, parked car, or inner city apartment. Some projects employ unionised health workers to interview substance abusers and have almost no staff turnover; others hire graduate students on a part-time hourly wage and have high staff turnover rates; some projects hire militant community activists and harm-reduction service providers and deliver health and social services, while others purposefully separate service/advocacy from the interviews. Some projects employ 12-step recovered substance abusers who evangelise abstinence and self-help, while others employ active users and addicts. Finally, some projects purposefully hire sexually, ethnically and demographically diverse interviewers while others completely ignore identity politics.

All the models for administering epidemiological interview protocols have their advantages and disadvantages. There is no single, correct way to ask the socially taboo questions about sex, drugs, crime and self-esteem that drug surveys strive to document. Most epidemiologists are deeply concerned over how their protocols are administered and how that might affect response bias. They can usually explain the logic for how their samples are constituted and why their offices and interview sites are organised in specific ways. They are often critical of other projects, and even self-critical of their own past projects. They rarely address these important issues in print, however, to the detriment of their search for accurate numbers and truth. In other words by rejecting or ignoring qualitative methods and critical social theory they violate the positivist logic of their discipline.

As soon as epidemiological data is published in a reputable peer-review public health journal the field no longer seems to care about how the numbers were collected. Comparability across studies and across cities is assumed to be possible so long as the numbers are “rigorous” and the “power calculations robust.” I have seen epidemiologists spend dozens of hours polemically recalculating the numbers presented by rival researchers when they disagree ideologically with them. They virtually never ask qualitative questions, however, that might disarm the truth claims of an opponent’s project. The context or atmosphere of the interview site, the

phrasing of the questions, the rapport and social network access of the outreach workers who recruit respondents, or the demographics and identity politics of the interviewers remains a big black box. A minimalist descriptive paragraph—or even a few sentences—on how a protocol was administered and how a sample was recruited would allow readers to begin to evaluate the comparability of data sets across epidemiological projects. It might also explain some of the counter-intuitive or controversial associations between behaviour and serostatus.

Failed magic bullets: needle exchange, bleach, methadone and condoms

A polemic erupted in the 1990s around the pros and cons of needle exchange programs: Do they protect from HIV or spread HIV? This prominent harm reduction debate was waged almost exclusively on the basis of statistical re-analyses of published data presented in public health journals (see, for example, special issues of the *American Journal of Epidemiology*, 1999; *American Journal of Public Health*, 2000). Even a superficial qualitative analysis of the half dozen needle exchange studies that are repeatedly referenced to prove one side or another, however, reveals that inappropriate generalisations are being made on the basis of inadequate data.

Seroconversion data from Vancouver and Montreal generated the bitterest statistical fireworks when Canadian epidemiologists in the early 1990s demonstrated that regular attendance at needle exchange was associated with seroconversion (Bruneau et al., 1997; Schechter et al., 1999). Brief conversations with volunteers working at the needle exchanges in any of the half dozen needle exchanges that were dragged into this statistical joust would have revealed that the rules and mechanisms for exchanging needles differed dramatically from city to city and needle exchange to needle exchange. Some have strict one-for-one exchange rules; others generously distribute needles; while still others work with legal pharmacy sales. Some of the epidemiologists involved in the debate did not even mention the street drug of choice that was driving the HIV epidemic in Canada, despite the fact that the peculiarity of the association between needle exchange patronage and seroconversion was primarily due to Canada’s unusually prolonged injection cocaine epidemic (Bourgois & Bruneau, 2000). Despite these significant organisational and contextual differences, all the distinct needle exchange programs and injector populations have been lumped together in the epidemiological literature as one big set of interchangeable numbers that can be crunched in a cultural and political vacuum. Right-wing politicians had a field day with the decontextualised numbers

manipulating them in the name of science and public health to justify ideologically-driven punitive paraphernalia laws (see critique by [Bruneau & Schechter, 1998](#)). This illustrates the high political stakes to epidemiology's methodological and theoretical blinders.

To be fair, the Canadian epidemiological data was path breaking because in the end it focused attention onto the different ways needle exchanges could be more or less effectively organised ([Bastos & Strathdee, 2000](#)). This is not the case for the literature on rinsing used needles with bleach to prevent the spread of HIV which was one of harm reduction's most touted interventions in the US during the mid-1980s and 1990s. In the mid-1980s, US-based researchers in the puritanical context of their nation's repressive paraphernalia laws desperately sought to be useful ([Chaisson, Osmond, Moss, Feldman & Bernacki, 1987](#); [Newmeyer, 1988](#)). They were unable to advocate effectively for needle exchange. In fact, it was illegal until 1992 to even use US. Federal funds to study needle exchanges ([Des Jarlais, Guydish, Friedman & Hagan, 2000](#); [Moss & Hahn, 1999](#)). Drug epidemiologists in the United States did not want to remain uselessly on the sidelines. For almost a decade, consequently, they seized upon the mantra of “condoms and bleach” to prevent the spread of HIV prevention among injectors. In the late 1980s and early 1990s dozens of journal articles routinely reported that bleach-rinsing practices were being adopted enthusiastically by street injectors ([Watters, 1994](#)). This proved to be an embarrassing boondoggle by the late 1990s and early 2000s.

In my dozen years of participant-observation fieldwork in shooting galleries and encampments in New York City and San Francisco, I have rarely seen injectors rinse their syringes with bleach. It is hard to use bleach when you do not have access to a spigot with running water—or even access to dirty water in a fast-food Styrofoam cup or bottle cap. I have seen injectors gratefully accept the bleach that outreach workers eagerly distribute so as not to hurt the feelings of well-meaning health workers. Sometimes they whiten their laundry with the bleach, but usually they simply forget about the little plastic bottles of bleach that litter their camps unopened. In one comical case, I met an injector who regularly returned a half dozen empty bleach bottles to the needle exchange each week—not because he used the bleach for disinfecting—but because the act of thoughtfully recycling plastic bottles generated goodwill from the ecologically-conscious needle exchange volunteers. He was able to parlay this green goodwill into extra needles. The volunteers were willing to violate the official directive that imposed one-for-one needle exchange rules for such an ecologically responsible client.

I have seen a similar dynamic operate with condoms. Most long-term, chronic male heroin injectors suffer from erectile dysfunction, yet almost every time they

visit needle exchanges they are urged to grab a fistful of condoms. As one addict told me when I offered him condoms at a San Francisco needle exchange site: “What do you people want me to do with these? Throw a balloon party?”

By the early 1990s dozens of epidemiological studies had found no protective association between seroconversion and bleach rinsing. Several major studies actually found statistically significant correlations between self-reported bleach rinsing and HIV infection ([Abdala, Gleghorn, Carney & Heimer, 2001](#); [Moss, Vranizan, Gorter, Bacchetti, Watters & Osmond, 1994](#); [Vlahov, Astemborski, Solomon & Nelson, 1994](#)). Almost predictably, as if following the unconscious biomedical diction of blaming chronic patients for failing to comply with medication practices epidemiologists began critiquing the ways injectors used bleach ([Gleghorn, Doherty, Vlahov, Celentano & Jones, 1994](#); [McCoy et al., 1994](#)). Harm reduction pamphlets began admonishing injectors to shake the bleach inside their syringes and to increase contact time to 30 s. This prompted laboratory-based retrovirologists to investigate whether or not bleach really killed HIV ([Shapshak et al., 1994](#)). Ironically, this expensive, molecular level research serendipitously demonstrated that the chemical properties of bleach were largely irrelevant. An *in vitro* laboratory study accidentally demonstrated that merely rinsing a syringe with water was sufficient to safely evacuate HIV from the syringe ([Flynn et al., 1994](#)). Subsequently, several studies have confirmed that “three washes with water were nearly as effective as a single rinse with undiluted bleach in reducing the likelihood that contaminated syringes harboured viable HIV-1” ([Abdala, Gleghorn, Carney & Heimer, 2001](#); [Bourgois and Ciccarone, under review](#)).

In other words, the amount of flushing with any liquid that an injector would automatically have to perform to rinse a syringe with any amount of bleach for any amount of time—shaking or not shaking—would cleanse the syringe mechanism sufficiently to render it statistically improbable—if not impossible—to contract HIV. To add an even more bizarre twist to the rinse-with-bleach harm reduction campaign, a 2000 laboratory study suggests that low concentrations of bleach may actually increase the infectivity of HIV ([Contoraggi, Jones, Simpson, Lange & Meyer, 2000](#)). In short, a decade and a half of multi-million dollar funded bleach promotion by public health outreach workers has been at best a waste of time and at worst iatrogenic.

More subtly—and perhaps more importantly—the bleach campaign was an act of what the late French sociologist Pierre Bourdieu calls symbolic violence whereby socially vulnerable populations are made to blame themselves for their subordination ([Bourdieu, 2001](#)). For half of the 1980s and most of the 1990s injectors in the US have taken the blame for serocon-

verting on the grounds that they rinsed inadequately with bleach. They have been obliged to nod politely at outreach workers who earnestly lecture them to “use bleach the right way.” Yet again, contact with institutionalised authority—no matter how well-intentioned—insults, alienates and redirects blame onto the pathological behaviour of street-based addicts.

There are dozens of other well-intentioned public health boondoggles generated by the epidemiological literature since the advent of AIDS. For example, researchers have not been able to explain why HIV has diffused differentially among injectors in the US despite its even geographical spread among men-who-have-sex-with-men (for an explanation see [Bourgois and Ciccarone, under review](#)). Methadone studies have revealed some of the most inconsistent data on the efficacy of the official US government public health magic bullet for curing heroin addiction ([Bourgois, 2000](#)). The US neurobiological model defines methadone as an “opioid agonist” ([Dole & Nyswander, 1967](#)). It is understood as being incompatible with heroin. Ironically, however, the Swiss Diversified Opiate Prescription Program regularly prescribes methadone as a voluntary supplement to heroin. One Swiss study documented that a plurality of long-term addicts who were receiving as much prescription heroin as they desired preferred instead to combine methadone with their heroin ([Uchtenhagen, 1997](#)). Predictably, the debates on the pros and cons of heroin prescription become arguments over the scientific rigor of the Swiss study’s quantitative methodology. This allows researchers who are ideologically hostile to legalised heroin prescription to dismiss the remarkable path-breaking Swiss initiative for “failure to meet scientific standards for a controlled clinical trial ([Satel & Aeschbach, 1999](#)).”

The surprises of heroin maintenance

My visits to heroin injection clinics in Geneva (not real participant-observation ethnography by any definition) suggest that heroin prescription stabilises most long-term heroin addicts, with the exception of some cocaine injectors. The most surprising preliminary ethnographic finding from the Swiss Diversified Opiate Prescription Program, is that a significant sub-group of the addicts complain that the pharmacological grade heroin prescribed to them is ‘bunk.’ This was further corroborated in the Dutch heroin maintenance trials ([Dehue, 2002](#)). They prefer the impure heroin they formerly injected on the street. If injection experiences—even pharmacological experiences—are socially and culturally mediated ([Becker, 1953](#)), it is not surprising that some street addicts will not enjoy injecting under the supervision of a nurse in a sanitary

clinic. Most provocatively, a few of the Swiss addicts in the Swiss program have developed allergic reactions to the clinic’s pure heroin, despite dozens of years of allergy-free impure heroin injection on the street.

My first fieldwork notes to one of the clinics provides a sense of what may be bothering some of the Swiss addicts who receive pharmaceutical grade heroin for free every day:

The nurse admits four people at a time into the injection room for sessions limited to 10 minutes. The addicts sit separately at individual Formica tables with plastic chairs. The nurse who remains standing the whole time walks around the room supervising silently. Each person first picks up from the counter by the entrance a plastic Tupperware-looking food container with their name written on top in black magic marker and an oversized sanitary wipe. They each carefully lay the sanitary wipe on the Formica table in front of them. The pharmacist distributes loaded syringes of perfectly clear liquid (pure heroin) to each individual.

A man with scars on both cheeks and up and down his arms, either from knife fights or self-mutilation is having a hard time locating a vein in the crook of his left arm. He keeps slipping in and out of his veins as he pokes into his scar tissue and then pulls back on the plunger to check for blood. The nurse explains to me in a loud voice so that he hears—almost as a warning, “Our policy allows patients to make three injection attempts before the nurse takes over and administers the injection.”

The unsuccessful injector ignores her, switching arms to continue poking at least three or four more times to no avail. His needle is now completely bloodied and the pricks on his arm are oozing blood. The nurse walks over to him. He stands up and waves his arm around like a helicopter presumably in order to get the blood flowing, “Please just let me try one more time. I’ll use the tie,” and he sits back down. She says nothing, but walks closer to him now standing immediately over him.

He quickly opens his Tupperware container and pulls out the program’s regulation-sized, two-and-a-half foot long strip of quarter-inch pale yellow rubber tubing. It has an automatic plastic one-way release mechanism on one end so that the tube can be pulled through. He tightens this around his arm and his veins bulge through his scar tissue. He finally manages to register a vein from which his needle does not slip. The nurse bends over, presses the release mechanism, and he injects.

She has noticed that he has a terrible case of impetigo between the fingers of his right hand as he settles in his plastic chair. The nurse tells him, “I want you to

get up and go see the doctor now.” He startles out of his nod, “Why? It’s not hurting me.”

She starts explaining the two theories of how to treat impetigo. One is to burst the pustules, and the other is to just let them dry into a crust.

During the second session an emaciated couple dressed in all-black clothes walks in. The man is covered with tattoos including some on his forehead. The woman is dressed in a high-heeled boots and a mini-skirt slit on both sides. Neither has a full set of teeth. The woman hastily injects directly through fishnet stockings into the muscle of her upper thigh. The man attempts unsuccessfully to find a vein in his left forearm. He pulls a red cloth tie out of his pocket and wraps it around his bicep several times, grabbing it by his teeth to pull it more tightly so that his veins bulge.

An injector at another table rolls his eyes at the tattooed man and remarks so that everyone hears, “The rubber tie the Program provides is a lot more practical and sanitary than that [curling his lips in distaste at the tattooed man.]”

This attracts the attention of the nurse who walks over to the tattooed man, “Are you ready yet for me to administer you the injection?”

She looks up at me to explain, “We try to break them of the habit of their gestures by administering the injections for them.” He nods meekly and allows her to complete the injection for him. He then turns to me and talks about how much “progress” he is making by disassociating himself from the gesture of injecting.

When everyone has completed their injections the nurse announces, “I am not happy with what I saw today. I saw no hand washing. Why did nobody wash their hands? I want to see more of an effort at hand washing!”

Everyone jerks out of their post-injection nods and several people shift their bodies uncomfortably in the plastic chairs to nod. The man with impetigo—intermittently shifting his gaze from the nurse to me—mumbles defensively, “Ninety percent of the time I remember to wash my hands. I just forgot today.” The man with tattoos protests that he had in fact rinsed his hands, but with the iodine in his sanitary packet at his table, “You just didn’t see me do it.” The woman in the mini-skirt says, “Okay, okay,” but in an overly polite passive-aggressive tone.

The room returns to silent activity. Everyone dutifully packs up their Tupperware kits to return them to the counter and throws out their sanitary wipes

before filing out of the room, some silent and sullen, others cheery and ebullient.

The Swiss Diversified Opiate Prescription Program serves well most of the long-term street addicts who are assigned to it. To everyone’s surprise, however, there was no waiting list to get onto the program in Geneva in 2001. Most addicts still choose the methadone maintenance program instead of heroin.

Qualitative data cannot be ignored if we want an accurate gauge of the efficacy of heroin prescription—let alone an understanding of how and why it works so effectively, but unenthusiastically, in Switzerland. Conversations with doctors, nurses and pharmacists in various Swiss clinics suggest that the attitudes of public health practitioners in the Program towards the substance abuse and treatment vary significantly. Furthermore, one would expect to find different cultural atmospheres and enforcement of rules across clinics. This presumably results in distinct types of therapeutic relationships and even of prescription regimes. By 2002, heroin maintenance programs were also operating in various permutations of experimentation in at least three additional industrialised countries including Holland, Germany and England. Epidemiological attempts to evaluate comparatively these heroin prescription programs, across countries, and even across individual practitioners, will prove as problematic as have been epidemiological attempts to evaluate needle exchanges.

Positive experiences of cross-methodological dialogue

Gender power relations and HCV seroconversion

Qualitative methods are not superior to quantitative methods. It would be impossible to know much of anything of importance in the field of public health without following the dictum of the founder of epidemiology quoted in the epigram: “. . . weigh life for life and where the dead lie thicker. . . (Virchow, 1848, cited in Farmer, 1999).” I am currently collaborating with Andrew Moss’s UFO [author: in full] project which is an epidemiological cohort study documenting HCV seroconversion among youth injectors in San Francisco (Hahn, Page-Shafer, Lum, Evans & Moss, 2001). Our preliminary ethnographic data suggested dramatically different experiences of risk across gender. Compared to men, women face higher levels of interpersonal violence, lower levels of police harassment and have access to distinct income-generating options. This presents them with different imperatives for romantic engagement and imposes distinct locations and obligations within social networks. To explore this the primary ethnographer on the project, Bridget Prince, began devoting about a third of her fieldwork notes to detailed descriptions of every-

day manifestations of gender power relations: love, sex and violence. At first the fieldwork notes appeared trivial to our epidemiological colleagues who dismissed them as “politically correct soap opera.” Eight months into the project, however, the epidemiological numbers revealed that we needed even more basic information on gender dynamics—and specifically on romantic relationships and sexual predation: Women have been seroconverting to HCV at almost two times the rate of men for no clearly statistically discernable reason (Hahn, Page-Shafer, Lum, Ochoa & Moss, 2001).

Similarly, early in the collaboration, the epidemiological data began revealing distinct associations with HCV seroconversion that normally would have been dismissed as “random noise” because they were so counterintuitive. For example, self-reported risky injection practices (as well as other risky behaviours) associated discordantly across genders with respect to seroincidence and seroprevalence: (1) For women, pooling money to buy drugs predicted seroconversion—but not seroprevalence, whereas for men this same behaviour predicted both seroprevalence and incidence consistently. (2) Sharing needles predicted seroconversion for women, whereas it was protective for the men during the first 2 years of the study. Rather than dismissing these discordant and counterintuitive sero-associations as random fluctuations we are mining them to determine whether they reveal gendered patterns with respect to: (1) delivering socially desirable responses on the questionnaire; (2) accommodating authority figures and mainstream biomedical institutions; and (3) developing more sanitary and responsible behaviours following knowledge of HCV infection.

Gendered power dynamics are too complicated to reduce to discrete linear variables. They emerge out of historically-embedded social structural processes and cultural value systems. Nevertheless, our collaboration allows us to show how patriarchy becomes embodied in an almost two-fold higher HCV seroincidence rate among young women. In addition to being intellectually and politically compelling our systematic documentation via participant-observation of gendered experiences of infection, illness, healing and every day social suffering and violence may prove useful for preventing infection at the practical, applied level of the clinician and outreach worker.

The Moral Economy of Street Addicts and the Relative Safety of Sharing Ancillary Paraphernalia

I am engaged in another epidemiological collaboration with Brian Edlin, which draws on over 15 years of HIV seroprevalence monitoring of out-of-treatment injectors in San Francisco by the University of California’s Urban Health Study. The relatively low, long-term HIV seroincidence and seroprevalence rates among

homeless heroin injectors in San Francisco has allowed me to use my ethnographic data to rethink standard public health warnings about the transmissibility of HIV via ancillary paraphernalia sharing. Every single day, due to the logic of a moral economy of reciprocal obligations of giving one another heroin (see Mauss, 1967), the injectors I study ethnographically share ancillary paraphernalia two or more times a day (Bourgois, 1998). Without the Urban Health Study’s epidemiological data the injectors I have studied would have appeared to be engaging in illogically self-destructive injection practices when in fact they were effectively protecting themselves from HIV. The tacky, resinous consistency of the Mexican black tar heroin that predominated on the streets of San Francisco required that it be dissolved in water in order for it to be measured fairly. Consequently, to reciprocate gifts of heroin and thereby remain in a supportive social network, injectors had to share cookers, cotton filters and water promiscuously. The homeless injectors I studied also occasionally shared used needles, but usually only after vigorously rinsing them with water.

Seven years ago when I initially observed these risky practices, I admonished injectors about HIV risk until one of them became angry: “Shut up, Philippe. I know you are in the AIDS business and all, but water works. I know water works; I’ve been rinsing with it for years. We all have. None of us have HIV. Water works. I know it. Trust me.” When I suggested they might contract HIV from the cookers and cottons they shared, they looked at me as if I were crazy and politely changed the subject. At the time, I was convinced the injectors were in denial. I did not have access to the Urban Health Study’s epidemiological statistics. I braced myself, consequently, to have to passively document the HIV infection of a hitherto inexplicably uninfected social network of some 50–75 homeless injectors whom I had befriended. I was scared by the ethical and emotional quandaries lying ahead of me and debated the ethics of serotesting these structurally vulnerable individuals whose lifestyle imposed risky practices on them that allowed them only marginal room for maneuver.

Seven years later, none of the members of the social network I studied seroconverted. Most importantly, Urban Health Study statistics demonstrated that they were not an anomaly: HIV prevalence rates among injectors in San Francisco have remained constant from the mid 1980s through the early 2000s at between 9 and 14% (Kral, Bluthenthal, Lorvick, Gee, Bacchetti & Edlin, 2001). Combining this quantitative data with my ethnographic data on the moral economy of sharing suggests that the routine risky drug preparation practices I documented in my network of homeless addicts are quite rational and effective from an HIV-prevention perspective, contrary to my initial hyper-sanitary judgments. The public health HIV-prevention community

was trapped in a hyper-sanitised moral panic with respect to the importance of rinsing syringes with bleach and also exaggerated the danger of contracting HIV from ancillary paraphernalia such as cookers, cottons and rinse water.

As ethnographers struggling to make sense of behaviours that appear outrageous to a middle-class observer, epidemiological statistics can render our data more effective, relevant and, above all, more meaningful. I would be much less confident of the representativity of my long-term participant-observation study of a single extended social network of homeless heroin addicts if I were not able to situate it within the Urban Health Study's demographic and behavioural database of the larger injector population of the San Francisco Bay Area. Similarly, Moss's interview protocol actually operationalised epidemiologically my ethnographic observations that a moral economy of reciprocal gift-giving drives risky injection practices. His cohort study demonstrated that "pooling money" strongly predicted HCV seroconversion (Hahn, 2002). Many epidemiologists might be embarrassed when a variable that has nothing immediate to do with the mechanics of risky behaviour predicts seroconversion more strongly than sharing needles and ancillary paraphernalia. As a result, statisticians often fail to explore the meaning of their most interesting proxy variables that might help explain the social processes that define or cause risk-taking.

Cocaine's exceptionalism

In another collaboration which is attempting to understand the 'exceptionalism' of Canada's HIV epidemic the quantitative data collected by Julie Bruneau on her epidemiological cohort in Montreal and Martin Schechter on his prospective cohort in Vancouver has allowed us to confirm the remarkably disproportionate risks associated with injecting cocaine due to the compulsive dynamic of multiple injections during binge episodes (Bourgois & Bruneau, 2000). Most importantly, from an applied perspective it has allowed us to develop a persuasive argument for needle distribution rather than one-for-one needle exchange to stem the spread of HIV, in cities where cocaine is the drug of choice among street-based injectors. According to Bruneau's unpublished statistics, HIV incidence ceased to be associated with needle exchange patronage at the same date that the city's largest needle exchange program liberalised its rules to become, as we documented ethnographically, a de facto distribution program instead of a restrictive one-for-one exchange program with maximum limits.

The theoretical politics of epidemiology

Over the past century and a half of rapid urbanisation and industrialisation, epidemiology has a better record than ethnography with respect to critiquing the social structural power relations that make the socially vulnerable suffer. Arguably, the field of epidemiology was founded as a radical social critique of inequality and injustice under capitalism. Virchow (cited in the epigraph) unabashedly proclaimed his political humanitarian purpose for counting the sick and dying, "... to see where they lie thicker, among the rich or the poor." In contrast, anthropology has a sketchy record with respect to documenting power and social suffering over the past 150 years. Arguably, anthropology as an academic discipline emerged as a product of colonialism, international conquest, and upper-class voyeurism rather than as social critique. Some ethnographers have even argued that anthropology and its privileged method—participant-observation—was "built up in the face of colonial and post-colonial genocides, ethnicities, population die-outs and other forms of mass destruction (Scheper-Hughes, 2001)." For the most part, anthropologists have failed to address—or even to document—the extraordinary levels of social suffering imposed upon their traditional research subjects. They prefer instead to emphasise the beauty of the Exotic Other as if tradition existed in a pristine vacuum. Arguably, anthropology's postmodern philosophical turn exacerbates this tradition of obfuscating global power relations. Postmodern debates are theoretically rich and intellectually fascinating, but they have little relevance to the blood, sweat and tears of substance abusers.

While anthropology has followed in the footsteps of its elitist colonial origins, epidemiology can be said to have betrayed its subversive pragmatic origins. Invoking the myth of apolitical positivist science, epidemiology swerved off Virchow's track to become a purposefully atheoretical contract-research industry dependent on government funding and shunted to the margins of biomedicine. In the process, epidemiology has unconsciously erased its early concerns over unequal power relations. Critical theoretical analysis of socially significant power categories (such as racism, classism, homophobia, patriarchy, sexism, state repression, etc.) is now largely ignored by epidemiologists. Claims of causality and analysis of process are curtailed in favour of mathematical formulas of probabilistic sampling that link discrete variables. This disciplinary refusal to address social power and causal processes has been eloquently critiqued by one of epidemiology's leading public intellectuals, Nancy Krieger, (Krieger, 1994) who attempts to re-inscribe an understanding of the social processes of unequal relations into the core of the discipline (see also critique by Tesh, 1988).

Instead of following the logic of epidemiology's numbers to prove in concrete, pragmatic and useful terms the ways different forms of social inequality sicken and kill, most statistical researchers confine themselves instead to asking compartmentalised questions about minutely-dissected individual risk behaviours outside of their social context. Following the larger, ideological value system of the US (which is the country that funds the vast majority of all epidemiological drug research across the globe) professors of public health tend to write research grants that adhere to a psychological-reductionist model of individual rational choice decision-making. This displaces the onus of responsibility and blame for poor health onto the vulnerable individuals who are defined as 'choosing' to take drugs dangerously. The political, social structural and cultural constraints that prevent people from engaging in sanitary practices are not considered to be legitimate research subjects because they cannot be translated into measurable behaviour change interventions via double-blind randomised control trials.

My collaborations with epidemiologists confirm that critical social theory needs to be brought back into public health research. Most epidemiologists might laugh or roll their eyes at the suggestion that gender inequality, sexual violence and patriarchal romantic love cause specific patterns of infection. They might dismiss an analysis of the moral economy of social solidarity among street addicts as yet more evidence of biased thinking. On several occasions epidemiologists have accused me of wasting precious time and money on ideological constructs because I am not identifying discrete variables that can be translated into practical behaviour change interventions—condoms? Bottles of bleach? Precise dosages of methadone? One-for-one needle exchange?

The UFO documentation, however, of an utmost two-fold HCV seroconversion rate of young women injectors versus young male injectors on the streets of San Francisco proves that social theory that addresses unequal power relations has practical health consequences. The dialogue with UFO offers a classic opportunity to demonstrate theoretically how gender power relations and social solidarity translate into hepatitis C—but not into HIV—and it calls for concretely rethinking outreach messages and harm reduction services to young women on the street.

The symbolic violence of HCV prevention

Hepatitis C is a particularly problematic virus because no magic bullet solution prevents its spread. At a 40% per year seroconversion rate among young homeless women in San Francisco it becomes almost impossible for street injecting youth to escape HCV infection unless

they are anti-social outcasts. It is useless to tell young injectors "Never share cookers, cottons or rinse water" when they are living in a city where the heroin consists of black tar requiring it to be put into solution in order for it to be shared in a fair manner. Finally, this vulnerability to HCV infection is exacerbated by a gender dynamic that locks young women into abusive, predatory relationships with older men—most of whom are already HCV infected.

An HCV prevention intervention might be more effective if it focused on providing housing infrastructure and a social awareness of gender oppression thereby allowing young women to break out of cycles of romantically defined violence and psychological abuse. Otherwise, yet again, hyper-sanitary and unrealistic public health interventions become merely one more element in the symbolic violence that persuades victims to blame themselves for their ill health (Bourdieu, 2001). Addicts are given just enough scientific knowledge to realise they are engaging in self-destructive practices. They are pressured to find out that they are seropositive (because knowledge is power in upper class ideology), yet, there is no real cure for hepatitis.

Most epidemiological cohort studies pay injectors to have their blood tested and they administer long questionnaires that require detailed confessions of risky practices that might have caused them to seroconvert. Epidemiologists unproblematically refer to 'informed consent' and 'counseling' despite the fact that street injectors will often engage in behaviour they abhor in order to earn enough money for their next dose. At the end of a confessional follow-up interview session in which an injector has been told (s)he is seropositive the injector is given a card with a toll-free hotline number and ushered out the door back onto the street. The interviewer does not have practical advice for the infected injector because clinicians, retrovirologists and epidemiologists do not understand the progression of HCV infection: "Good luck! Remember, alcohol can be hard on your liver—but the epidemiological literature documents that most drinkers survive just as long as teetotalers. You might try the medicine Interferon, but it only works on some people—and it makes you feel sick and you have to take it for a whole year."

Postmodern tolerance

In the name of straightforward positivism as well as intellectual and political logic, quantitative drug researchers have to be the ones to reach out to their qualitative brothers and sisters. In the field of public health, epidemiologists hold the institutional power and set the agenda. Qualitative researchers usually cannot garner significant sources of research funding. They are excluded from publishing in the field's prestigious

journals. Qualitative researchers can be frustratingly slow to understand the significance of numbers. They often prefer to debate postmodern angst rather than ask practical questions about blood, sweat and tears. Nevertheless, if epidemiologists can force themselves to tolerate the theoretical ramblings, intellectual arrogance, and political righteousness of anthropologists they will better understand their numbers. First, however, epidemiologists have to welcome participant-observation researchers into public health—even if not as equal partners.

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