Background Paper

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Criminalisation of HIV Non-Disclosure, Exposure and Transmission: Scientific, Medical, Legal and Human Rights Issues

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on the Science and Law of Criminalisation
of HIV Non-Disclosure, Exposure and Transmission

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Disclaimer

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I. INTRODUCTION

1. Any application of the criminal law to non-disclosure, exposure or transmission of HIV should be informed by the latest evidence in science[i] and medicine regarding HIV and AIDS. Applying up-to-date and evidence-informed scientific knowledge to the criminal law's treatment of HIV-related harm, risk, intent, consent, proof and punishment is likely to result in a rational and just use of the criminal law in the context of HIV and also support public health strategies to effectively address the HIV epidemic.

2. At the same time, the application of the criminal law to non-disclosure, exposure or transmission of HIV should also be based on an understanding of broadly accepted concepts that determine the proper use of the criminal law in relation to elements such as intent to harm, seriousness of harm and the level of risk that harm will occur. This requires consideration of what type of facts are appropriate and sufficient to establish intent to cause harm, consent and wrongful conduct, particularly in the context of consensual sexual relationships. It further requires an understanding of accepted standards for what constitutes proof that this "culpable" intent and related "culpable" acts were the direct cause of a serious harm.

3. In most countries, the following three elements must be established for a person to be considered guilty of a criminal offence:
   (a) Proof of an intent to do wrong
   (b) Proof of engaging in prohibited conduct (or omission) to act on that intent; and
   (c) Proof that the conduct resulted in intended or forseeable harm.[ii]

4. This paper discusses how consistent application of sound science and criminal law principles in relation to the criminalisation of HIV non-disclosure, exposure and transmission can lead to outcomes that better serve both justice and public health. In particular, it can improve laws, policies, and practices relating to:
   (a) Understanding of harm and harmful conduct in the context of criminal prosecutions for HIV non-disclosure, exposure and transmission (harm)
   (b) The weight assigned to the risk that harm will occur in the application of criminal law to HIV non-disclosure, exposure and transmission (risk)
   (c) Knowledge of HIV status and its relevance in determining intent to cause harm (intent)
   (d) Disclosure and reliance on it as proxy for consent as a defence in HIV criminalisation cases (disclosure, consent and other defences)
   (e) The evidence on intent and harm-causing conduct that is required for establishing liability in cases involving people with HIV (proof); and
   (f) Punishment of those convicted of HIV non-disclosure, exposure and transmission (penalties).

5. Each section of the paper:
   (a) Summarises the practices by criminal justice systems in countries where the most prosecutions are occurring in relation to harm, risk, intent, defences, proof and penalties relating to HIV non-disclosure, exposure and transmission
   (b) Outlines relevant science and legal principles in an attempt to illustrate the problems with existing judicial practices, and suggests more appropriate options to address behaviours that place other at risk of HIV infection; and

(c) Outlines key questions for consideration during the expert meeting for which the paper is written.

6. Legislative and judicial characterisations of the harm caused by HIV and the risks and routes of its transmission are the main sources of concern relating to criminalisation of HIV non-disclosure, exposure and transmission. Consequently, the sections below dealing with harm and risk receive the larger focus in this paper.

7. There are differences in how civil and common law criminal justice systems introduce and prosecute cases, but fully addressing these differences is beyond the scope of this paper, and the project for which it was produced. The aim sought here is to highlight key scientific elements and legal policy responses rather than to attempt to address country-specific situations.[iii]

II. HARM

Criminal law's characterisations of the harm of HIV transmission

8. The fact that HIV non-disclosure, exposure and transmission is prosecuted and that HIV-specific criminal statutes exist reflect a view that HIV infection is a significant harm. The key question is: how harmful is HIV infection? Views range from a belief that infection with HIV is a "death sentence" to it being considered a chronic illness.

9. A number of United States courts have equated an HIV-positive person's bodily fluids – from saliva[iv] to semen[v] –as sources of very serious harm, e.g."deadly weapons", a "harmful biological substance" under a state anti-bioterrorism law.[vi] But HIV infection is not always regarded by Courts as "endanger[ing] the life" of a criminal complainant.[vii] In July 2011, an Ottawa judge dismissed four charges of attempted murder against a man accused of exposing others to HIV through unprotected sex without disclosing his HIV status, noting that death is "a possible" but not "an inevitable…or even a probable consequence" of contracting the virus.[viii]

10. Even viewed as a chronic illness, judges are likely to categorise HIV transmission as a "serious harm" within the meaning of criminal assault and related offenses.[ix] For example, a court accepted testimony that living with HIV "harms a woman's ability to have children". In a 2010 Scottish case a female complainant chose to terminate her pregnancy – allegedly on her doctor's advice[x] – when she discovered she was HIV-positive, and this was taken into consideration in sentencing.[xi]

HIV exposure/fear of HIV infection as harm

11. In some jurisdictions, the criminal law allows for conviction and imprisonment following an alleged exposure to HIV even when transmission does not occur. In these cases, the harm is fear of HIV transmission and associated psychological distress. In one recent US exposure-without-transmission case, the court, when called upon to determine whether the defendant had placed the complainant in "danger of death or serious bodily injury," agreed with a prosecutor's claim on appeal that "[i]t cannot reasonably be disputed that … HIV can be transmitted by exposure to bodily fluids of an infected person."[xii] In other areas, the criminal law also punishes exposing another to the risk of serious harm and the fear created by doing so, such as assault cases that are prosecuted when those placed in fear escape physical injury. But to the extent

that the law seeks to punish for the harm of inducing fear, HIV exposure cases are unique in that they rarely examine whether the fear is reasonable.[xiii]

12. "Psychological harm" is usually applied in non-criminal cases (torts or delicts) where one individual sues another rather than as an element of criminal law.[xiv] In tort law, there is usually a requirement that this fear of harm be reasonable and foreseeable, in addition to causing harm at a certain threshold (often "nervous shock" in England and Wales, or a "recognised psychiatric illness" in Canada). Simply being upset by something unpleasant or disturbing does not rise to the level of "actionable" in most tort cases.[xv] For instance, the Ontario Superior Court of Justice ruled in 2010 against patients who sued a hospital after being made aware that they had been exposed to tuberculosis, finding that, among other things, the alleged harm and fear was not enough to establish a triable claim and survive summary judgment.[xvi]

13. In sexual HIV exposure cases, HIV's harm is often based on the "betrayal" of non-disclosure, and fears of contagion that may sometimes persist long after the HIV antibody test window period has passed.[xvii] In spitting or biting cases, the complainant may reveal fears of contagion that have no foundation in the facts of how HIV transmission occurs. Where post-exposure prophylaxis (PEP)[xviii] has been taken, the focus is on the temporary "harm" caused by side effects of the drugs.[xix]

Nature of criminal charges in response to the harm of HIV exposure or transmission

14. There are differences in how civil and common law criminal justice systems introduce and prosecute cases. Significant differences that apply to HIV criminalisation include that: (a) in common law jurisdictions, judges may create and interpret law in the absence of a statute and are bound by precedent (earlier court decisions); (b) in civil law jurisdictions, judges must apply statutes, have limited authority to interpret those statutes and are not bound by precedent;[xx] (c) in civil law jurisdictions, there are rarely juries; (c) and in civil law jurisdictions, prosecutors, rather then police inspectors, usually direct criminal investigations.[xxi]

15. In both systems, police and prosecutors frequently treat alleged HIV exposure or transmission as the basis for serious charges, with potentially substantial sentences. The nature of the charges illustrates judicial or prosecutorial concepts of the harm involved,[xxii] or policymakers' beliefs concerning harm as reflected in HIV-specific statutes.[xxiii] Five categories of criminal laws, listed below, are most commonly applied to HIV exposure and transmission cases in common law jurisdictions. In civil law jurisdictions (e.g. France and Belgium), offences related to the "administration of substances dangerous to life" have been applied to HIV exposure and transmission.

16. *Intentional homicide and attempted homicide - manslaughter, reckless and negligent homicide*

    (a) Criminal prosecutions of cases in which transmission of HIV results in the death of the victim[xxiv] are rare, but have occurred.[xxv]

    (b) "Attempted homicide" and "attempted manslaughter" charges have been based on sexual contact between HIV-positive defendants and their sexual partners, including in the absence of transmission.[xxvi] A Finnish court convicted a man on 17 counts of attempted manslaughter for having unprotected intercourse with women while HIV-positive.[xxvii]

(c) In some jurisdictions, "attempted homicide" convictions can be obtained against defendants whose actions posed no risk of HIV transmission. This is because factual impossibility is not a defence in many jurisdictions to alleged "attempts" to kill someone.[xxviii] In the US case of *State v. Smith*,[xxix] for instance, the court held that it was irrelevant whether the defendant's biting of a prison guard posed any risk of HIV transmission, and upheld Smith's attempted murder conviction based on evidence that the defendant *subjectively believed* he could transmit HIV through a bite.

17. *Assault*

(a) Assault is an offence that, depending on the jurisdiction, may be defined as causing a fear of physical harm or that may include both causing that fear and the actual physical harm. Thus, in some jurisdictions "simple assault" has been defined as "knowingly engaging in conduct that places another person in reasonable fear of harmful or offensive physical contact". In these jurisdictions the focus would be on the fear of harm, and this offence would be applied to cases involving HIV exposure only.

(b) Where the offence of assault includes actual physical harm, the elements of the crime would require that, in committing assault, a person knowingly or recklessly causes serious bodily injury**.**[xxx] If serious bodily injury or a deadly weapon is involved, many jurisdictions will classify this as an "aggravated assault". [xxxi] [xxxii] These sorts of assault charges could be applied to actual transmission of HIV.

(c) The Canadian Supreme Court has ruled that to sustain an assault charge, the HIV-positive person must expose the partner to a "significant risk of serious bodily harm."[xxxiii] Lower courts have been divided as to what "significant risk" constitutes. Most courts categorically state that unprotected sex constitutes a "significant risk," but when there is a condom used, courts are divided on whether the risk is significant; and look to other factors, such as viral load.[xxxiv]

(d) In the US state of Texas, "high-risk" sex is assault-level harm, established through testimony that the sexual act posed a "high risk" of HIV transmission, although without quantifying that risk.[xxxv]

(e) Other jurisdictions, such as the US military[xxxvi] Switzerland[xxxvii] and New Zealand[xxxviii] have required evidence that the sex involved was "likely to result" in death or severe bodily harm.

18. *Reckless endangerment*

(a) The offense of reckless endangerment punishes behaviour that demonstrates "conscious disregard of a substantial and unjustifiable risk"[xxxix] that places another person in danger of "death or serious bodily injury".[xl]

(b) The charge of reckless endangerment has been relied upon in cases involving attenuated or minimal risk of transmission.[xli]

(c) A notable exception is in England and Wales, where the crime of "reckless" grievous bodily harm is not applicable unless the virus is actually transmitted.[xlii]

19. *Terroristic threats*

(a) In North American jurisdictions, individuals with HIV have been charged with making threats or statements indicating an intention to infect another with HIV. Here, the harm is that the defendant's statements terrify, or are simply intended to terrify, the intended victim.

(b) A Canadian court has ruled that the key element is the defendant's intent to cause terror; so whether HIV transmission was possible is irrelevant to establishing guilt.[xliii]

(c) In several US jurisdictions, courts have ruled that whether the defendant's statements *actually* caused terror is also irrelevant; it is the defendant's *intent* to cause terror that is the sole basis for the conviction.[xliv]

20. *HIV-specific criminal laws*

(a) Many of these laws prohibit what is described as "knowing", "intentional", "willing" or "attempted" transmission or exposure of HIV to another person, while generally remaining silent on what type of conduct that involves. Charges can hinge on an arresting officer's or prosecutor's beliefs, informed or otherwise, on how HIV can be transmitted.

(b) The majority of these laws treat both the risk of transmission/exposure to HIV and the actual HIV transmission as equally serious harms sufficient to merit substantial prison terms.

Harm – Applicable science, legal principles and problems with current approach

21. This section considers the prevailing expert views of the impact of HIV, and the criminal law's treatment of HIV's harm compared with the treatment of comparable or more severe harms[xlv].

What is the prevailing medical and scientific characterisation of the consequence of HIV infection and disease?

22. Prior to the discovery of effective HIV treatments in the mid-1990s and their subsequent rollout, infection with HIV almost always led to illness and an early death. This is still the case where HIV treatment is not available or affordable and/or where people are diagnosed too late to benefit from treatment.

23. Without treatment, a large proportion of HIV-positive people may live for a decade or more before the virus begins to take a noticeable toll leading to death.[xlvi] In addition, a small proportion of people with HIV have immune systems that can naturally resist replication of the virus for what currently appears to be an indefinite period of time.[xlvii]

24. Discovery and subsequent use of new classes of antiretroviral drugs in the late 1990s resulted in dramatic reductions in HIV-related illnesses and deaths where treatment became available.[xlviii] Recent cohort and modelling studies from high-income countries suggest that if people are diagnosed and begin taking antiretroviral therapy (ART) before significant damage has occurred to the immune system,[xlix] they may to go on to have a near-normal lifespan.[l li lii]

25. However, this is not a universal finding. One study of over 43,000 patients in 14 cohorts in Canada, Europe and the United States found that, whilst a 20 year old starting treatment could expect to live to be 63, this life expectancy was only two-thirds of that in the general population.[liii] Another study based on over 16,000 people in 23 European cohorts found that, whilst mortality rates were similar to the general population in the first five years after diagnosis, an increased risk of death became apparent with longer-term infection.[liv]

26. Such studies have identified groups of people with HIV who tend to have a poorer prognosis, including people who inject drugs, older people, those co-infected with hepatitis C, and people whose CD4 cell count is low when starting treatment. In addition, a recent United States study found that women and people of non-white ethnicity had significantly worse outcomes (compared with men and people of white ethnicity) that may be related to socio-economic disparities and the particular nature of the US healthcare system.[lv]

27. Consequently, the outlook for people with HIV depends on whether (and when) they are aware of their HIV status, receive treatment, live in places where high-quality health care is available and affordable, and have lifestyles that are supportive of good overall health. Thus, the impact of HIV on physical well-being may vary by setting and the individual's ability to obtain HIV-related treatment, care and support.

28. Treatment access is not the only determinant of the impact of HIV on physical well-being. Not everyone responds optimally to ART, and some who do may go on to develop drug resistance that can limit further treatment options, although clinically important drug resistance is now seen much less commonly due to earlier treatment initiation and better drugs.[lvi] [lvii]

29. Although fewer people with HIV are getting ill from, or dying of, AIDS-related illnesses due to ART, cohort and observational studies have observed an increased prevalence of some cancers,[lviii] as well as of cardiovascular[lix], bone[lx], liver[lxi] and kidney disease.[lxii] There is increasing evidence that inflammation related to HIV replication is implicated in the development of these diseases in people living with HIV.[lxiii] Further, some antiretroviral drugs predispose to diabetes[lxiv] and/or an increase in blood fats[lxv] - both of which pose increased risks of cardiovascular disease[lxvi] – and to bone loss.[lxvii] Thus, the impact of HIV and/or ART relative to traditional risk factors is still not well understood.

What are the realities of living with HIV?

30. The experience of living with HIV of course differs from setting to setting and person to person. Most people find that they need a period of adjustment following their diagnosis. But once they learn more about their condition and acquire the necessary skills to enable them to live with a chronic illness, life with HIV can be fairly normal. For those whose immune systems remain strong and/or who respond to treatment, there is little that chronic HIV infection prevents them from doing.

31. With appropriate and timely treatment and care, people living with HIV who know their HIV serostatus can and do:
    (a) Participate in education;
    (b) Continue with, or form new, close relationships, and/or families;
    (c) Have fulfilling sex lives;
    (d) Have children without putting their partners or children at risk of HIV;
    (e) Maintain employment and support themselves and their families; and
    (f) Make plans for the future.

32. As with the impact on physical wellbeing, the impact of HIV on mental/emotional wellbeing is highly variable. People living with HIV on ART in high-income countries can report good mental/emotional health[lxviii] [lxix]. However, treatment requires daily adherence and carries the potential for short- and long-

term side effects. Most individuals living with HIV understand that, because there is still no cure, the virus will always be a part of their future.[lxx]

33. Some people living with HIV may experience ongoing health concerns and other hardships and uncertainties, which are often dependant on individual realities and broader legal and policy environments, such as the presence or absence of legal protection from discrimination.[lxxi] [lxxii] Notably, HIV-related stigma may have a major impact on the well-being of an HIV-positive individual.[lxxiii] As one commentator recently noted: "People are scared of the virus in different ways now. It's a shameful thing to have, rather than a scary thing. People are not scared of dying any more."[lxxiv]

Should HIV infection be treated as a serious harm?

34. Limited understanding of all aspects of HIV's impact on health and current treatment appears to influence judicial responses to HIV.[lxxv] A 2009 analysis of court transcripts of cases involving criminal HIV transmission in England and Wales found that some judges did not understand how HIV differed from AIDS, and some believed HIV to be a terminal illness with an arduous and unproven treatment regime.[lxxvi]

35 HIV is highly stigmatised because of its association with early death and its methods of acquisition (including via sex and drug injection) that are perceived by some as being morally objectionable and blameworthy. HIV also remains incurable and requires lifelong monitoring and treatment that is expensive and associated with side effects that can reduce quality or length of life.

36. At the same time, there is broad agreement among HIV medical professionals and researchers that, where treatment is available, "[a]ntiretroviral therapy has brought about a substantial decrease in the death rate due to HIV-1 infection, changing it from a rapidly lethal disease into a chronic manageable condition, compatible with very long survival."[lxxvii] This transformation, for many, of HIV from a deadly disease to a long-term, chronic illness, is often not reflected in the characterisation of harm expressed by legislatures, prosecutors and courts.

Should HIV exposure be treated as a serious harm?

37. It is difficult to characterise the harm that results from exposure to HIV (without transmission). A significant portion of the harm may derive from emotional distress due to fear of having been infected. Some individuals who fear that they may have been infected with HIV may pursue post-exposure prophylaxis treatments that are expensive and that may cause side effects, although the risk of severe side effects following short-term use is negligible.[lxxviii] They also may find it necessary to change sexual practices or take other steps to avoid transmitting HIV to others until their HIV-negative status is confirmed.

38. Current HIV testing methods, such as fourth generation assays (combination HIV antibody/P24 antigen tests), can detect HIV within two to three weeks after HIV infection.[lxxix] Thus the period during which an individual exposed to HIV faces uncertainty and fear as to whether HIV has been transmitted may be relatively short.[lxxx] In such cases, the key question is whether there is significant enough harm to justify criminal prosecution.

39. Cases that treat bites, scratches, and hurling of body fluids at another person as attempted murder or aggravated assault are based on serious inaccuracies about the actual routes and risks of HIV transmission and would not seem to

warrant criminal prosecution.

How does the criminal law's treatment of HIV's harm compare with the treatment of comparable harms?

Criminal law's response to other sexually transmitted infections (STIs)

40. Unlike HIV, there seems to be widespread acceptance of the idea that other STIs are an implicit risk of sexual intimacy, and those individuals who know they have other STIs are rarely the focus of the criminal law. At the same time, there have been a number of tort (civil) cases brought by the aggrieved and infected partners of people with herpes, human papillomavirus (HPV) and other STIs; and monetary awards can be substantial.[lxxxi] Thus, while there have been a number of tort actions against partners who expose sexual partners to these types of STIs and very rare instances of criminal prosecutions, the preferred choice of remedy has been precisely the opposite in cases of alleged HIV exposure, i.e. hundreds of criminal cases in a number of high-income countries, but very few tort actions.

The harm of other sexually transmitted infections

41. STIs other than HIV present significant health risks and are at epidemic levels in many countries that have a strong law enforcement response to HIV:

    (a) Bacterial infection with chlamydia, gonorrhoea, or syphilis through sexual contact is treatable with antibiotics, but, if undiagnosed and untreated, can result in sterility, nervous system damage, spontaneous abortions, premature births and birth defects,[lxxxii] and can increase the risk of HIV acquisition.[lxxxiii]

    (b) Herpes simplex infection, also sexually transmitted, can be controlled but not cured, and can require that pregnant women forego vaginal childbirth for delivery by caesarean section. Herpes also can have severe consequences if contracted by newborns during delivery.[lxxxiv]

    (c) Hepatitis B and C viruses can be sexually transmitted, and result in liver disease, cancer and premature death in many cases.[lxxxv]

    (d) HPV, another sexually transmitted viral infection, can result in a number of types of cancer.[lxxxvi]

42. A closer look at HPV provides, by comparison, a useful illustration of the uniqueness of the response to HIV (see chart 1 below). Some key facts:

    (a) "Low-risk" HPV types cause genital warts[lxxxvii], and, rarely, recurrent respiratory papillomatosis.[lxxxviii]

    (b) "High-risk" HPV types are associated with 99% of cervical cancer cases, and are also associated with anal and other genital cancers.[lxxxix] According to one clinic-based study, at least 15 of the high-risk HPV types have statistically similar rates of causing cervical cancer.[xc]

    (c) HPV is acquired through genital contact. A higher risk of acquisition is associated with vaginal and anal sex, but it is also possible to acquire the virus through oral sex, genital-to-genital contact, and even vertically, during birth.[xci]

    (d) The probability of acquiring HPV during any unprotected sexual act is high. A recent study of HPV transmission amongst monogamous heterosexual couples in the US found that the overall rate of HPV transmission from the cervix to the penis was 17.4% per month and from penis to the cervix was

4.9% per month.[xcii] A recent mathematical model from the Netherlands estimates that the HPV transmission rate within a heterosexual couple is between 43% and 94% per partnership for all 14 high-risk types of HPV. For one of the primary HPV strains that lead to cervical cancer, the lifetime risk of transmission within a heterosexual couple was 80%.[xciii]

43. High-risk HPV is transmitted more easily and more frequently than HIV, and can cause cervical cancers, as well as anal and other genital cancers. According to the US National Cancer Institute, the median age of cervical cancer diagnosis is 48, and the median age of death from cervical cancer is 57. The five-year survival rate for cervical cancer is 68.6%. Fewer than 50% of black women survive five years after a cervical cancer diagnosis.[xciv]

44. Thus, although HPV transmission has rarely, if ever, been the focus of a criminal prosecution, women who have not been vaccinated against HPV have a high likelihood of contracting HPV infection, as do uncircumcised men, and may face real risks of shortened life expectancies through HPV-related cancers.

The harm of other types of infectious disease

45. Other infectious diseases resulting in significant mortality and health care costs do not receive the focus of the criminal law. Hospital-acquired methicillin-resistant staphylococcus aureus (MRSA), for example, has resulted in hundreds of thousands of deaths and billions of dollars in health care costs over recent years in the United States.[xcv] At the same time, there is no national or local legislation that punishes health care facilities or their medical staff for failing to comply with infection control recommendations, such as rigorous hand washing, despite studies indicating significant rates of noncompliance. Alternatives to the criminal law have been considered adequate to respond to the epidemic rates of hospital-acquired MRSA infection.[xcvi]

46. The chart below presents data comparing HIV infection to other STIs common in high-income countries. Notably, the transmission rates of HIV and herpes simplex virus type 2 (HSV-2) are similar, and neither virus is curable. The transmission rates of gonorrhoea and HPV far surpass the transmission rate of HIV. The chart also presents infection outcome of HIV, HPV, gonorrhoea, and HSV- 2. For the complete chart, with citations, see the Appendix.

Chart 1: Relative risks of HIV and STI infection

Disease	Associated Risk of Transmission	Infection Outcomes
HIV	• Infection rate per sexual exposure to HIV: • Receptive vaginal intercourse: 0.10% • Insertive vaginal intercourse: 0.05% • Receptive oral intercourse: 0.00-0.04% • Insertive oral intercourse: ~0.00% • Receptive anal intercourse: 1.40% • Insertive anal intercourse: 0.065%	• Not curable • Untreated HIV infection almost inevitably leads to illness and premature death • Manageable as a chronic disease through the use of ART • HIV-positive individuals can lead normal lives with early detection and treatment

Human Papilloma Virus (HPV)	• Overall rate of HPV transmission from the cervix to the penis: 17.4% per month • Overall rate of HPV transmission from penis to the cervix: 4.9% per month	• More than forty types of HPV, some classified as high-risk based on association with cervical cancer • HPV causes 99% of cervical cancers, as well as anal cancer, penile cancer, and other genital cancers • 4,021 women died of cervical cancer in the United States in 2007 while 3,794 women in Western Europe and 2,094 in Northern Europe died of cervical cancer in 2008 • Cervical cancer ranks in the top 10 most prevalent cancers among Black, Hispanic, American Indian and Alaska Native women in the United States • Cervical cancer ranks between the second and fifth most prevalent cancers in Western and Northern Europe • Both a bivalent and a quadrivalent vaccine series offered to adolescent girls, and in some jurisdictions to adolescent boys, prevents acquisition of the HPV types most related to cervical and penile cancer
Gonorrhoea	• Estimated female-to-male transmission rate per sexual contact: 25.0% • Estimated male-to-female transmission rate per sexual contact: 50.0%	• Treatable with antibiotics, but drug resistance is growing • Untreated, can cause pelvic inflammatory disease, ectopic pregnancy, and infertility • Untreated, may increase susceptibility to HIV
Herpes Simplex Virus Type 2 (HSV-2)	• Male-to-female transmission rate per sexual contact: .089% • Female-to-male transmission rate per sexual contact: .015%	• Not curable • Can cause repeated outbreaks of genital sores and infant death if acquired during pregnancy • Can increase susceptibility to HIV infection and can increase infectiousness of HIV-positive individuals

The harm of exposing a person with HIV to other infectious diseases

47. Another disparity in the treatment of STIs and other diseases, as compared with HIV, is the presumed irrelevance of the disease status of the complainant. The possibility that this person, through unprotected sex, may have exposed the compromised immune system of his/her HIV-positive partner to a variety of dangerous pathogens – HPV among them – has not been considered by courts or prosecutors.

The criminal law's response to assaults that threaten comparable or greater harm

48. HIV exposure or transmission frequently is treated far more severely in comparison to other similar or even more serious harms by criminal justice systems. Several other prosecutable harms – drinking and driving, reckless endangerment, and vehicular homicide – are used as examples in the Appendix (Chart 2) which presents the comparable sentences for these crimes.

49. The crime of "simple assault", again defined as knowingly engaging in conduct that places another person in reasonable fear of harmful or offensive physical contact, is usually classified as a misdemeanour. Simple assaults, despite the direct risk of harm, are treated much less severely than exposure to the risk of HIV transmission, even where the fear that it might be transmitted is not objectively reasonable. One might argue that the harm that is risked (HIV infection) can be more serious than some other types of offensive physical contact. Nonetheless, other offenses involving actual risk of significant physical injury are routinely treated much less seriously than offenses involving the mere risk of HIV transmission.[xcvii]

The potential harm of HIV exposure compared to the harm of drunk driving

50. Offenses for exposing someone to HIV infection are often also treated much more severely than other criminal offenses involving behaviour that poses a risk of significant harm. In that sense, "drunk driving" offences (sometimes known as driving-under-the-influence, or DUI, offenses) are comparable to HIV

exposure offenses. Significant proportions (e.g. 39 percent of a total of 43,443 in 2005) of fatal traffic crashes in the United States are attributable to alcohol impairment.[xcviii] Yet state laws that prohibit driving under the influence of alcohol impose far less severe penalties than are imposed for risk of HIV transmission.

51. The difference in classification and sentencing of DUI offenses and HIV exposure offenses can be extreme. A first-time DUI offense in the US state of Illinois, for example, is a class A misdemeanour, which results in a jail sentence of no more than a year and a fine up to $2,500.[xcix] But for a first-time offender under the Illinois criminal HIV exposure statute,[c] conviction is a class 2 felony, resulting in a sentence of 3 to 7 years and a fine up to $25,000.[ci] Similarly, in Ontario, Canada, a first offense for drunk driving carries no prison time[cii], but exposing another to a "significant risk" of HIV (which some courts have interpreted as simply having unprotected sex) could lead to charges of assault, sexual assault, aggravated sexual assault, or even attempted murder, all of which carry a prison term.[ciii]

Issues for consideration

52. *Scientific and medical*

(a) How should the harm of HIV infection be characterised?
(b) Should availability of, access to, and adverse effects of HIV treatment, as well as HIV-related stigma, be relevant to the criminal law's characterisation of the harm of HIV?
(c) How should the harm of HIV exposure be characterised?
(d) Assuming that like harms should be treated alike, how should the harm of HIV infection and exposure be quantified in relation to that of other diseases/conditions, such as (1) other sexually transmitted viral infections (e.g. HPV), and (2) other serious chronic communicable diseases (e.g. hepatitis B and C viruses)?

53. *Legal and policy response*

(a) How should harm resulting from HIV exposure or transmission be understood and quantified for the purpose of criminal liability and sentence determination?
(b) How should the criminal law treat the alleged harm of HIV exposure where there has been (1) no transmission; and (2) where there is no or negligible possibility of transmission?
(c) Should the criminal law treat like harms alike so that its response to the harm of HIV is comparable to its response to equivalent or greater harms?
(d) Is the harm of wrongful HIV transmission sufficiently unique, serious and pervasive to warrant HIV-specific laws to address it?

III. RISK

The risk-harm relationship

54. There is a close link in legal discourse between risk and harm. The harm resulting from a particular conduct is typically part of the legal consideration of whether a risk is "significant."

55. However, in practice, much of the criminal law's response to HIV conflates elements of the harm of HIV transmission and the risk that transmission will occur. That is, beliefs and assumptions about the harm of HIV infection often influence assessments of risk. This is reflected in both laws and court decisions relating to HIV non-disclosure, exposure and transmission. Consequently, it is

not always possible to discuss courts' perception or treatment of HIV risk in isolation from its perceived harm.

56. In this regard, HIV infection is often deemed so serious that even no risk or the smallest risk of occurrence is sufficient to support a criminal prosecution and conviction. Thus, any risk of HIV transmission – no matter how attenuated or remote – can be deemed adequate to support serious criminal charges and convictions.

57. Not all courts conflate harm and risk in this manner. A recent case from British Columbia, Canada (see box below) resulted in acquittal because the judge, relying on expert testimony, found that HIV infection is now a chronic, manageable condition and that, as the severity of the possible harm decreases, the higher the risk of harm must be in order to warrant criminal prosecution. [civ]

A 2010 lower court ruling from British Columbia (Canada) found that the risk of insertive anal intercourse without a condom between two men – when the receptive partner was **not** on antiretroviral therapy – was not "significant" enough to warrant criminal liability under Canadian law. The judge accepted testimony from an expert witness that the risk of anal sex for the insertive partner was similar to that of insertive vaginal sex – 0.04% or 4 in 10,000. She ruled that unprotected sex took place three times, and that the cumulative risk – 12 in 10,000 – did not reach "the standard of significant risk of serious bodily harm that must be met to turn what would otherwise be a consensual act into aggravated sexual assault." [cv]

58. In Denmark, the Minister of Justice suspended a law used to prosecute HIV exposure and/or transmission once he became aware of both the improvements in life-expectancy *and* reduction in infectiousness as a result of ART. A working group is currently considering whether this statute should be revised or abolished.[cvi]

The criminal law's response to HIV risk

59. Although a few courts in Canada and jurisdictions in Europe have made use of scientific evidence in determining risk, most courts have not. Many rulings on "significant" sexual risk have come from Canadian courts where there have been major inconsistencies.[cvii]

60. Some Canadian courts have attempted to consider the risk of transmission as distinct from the harm of transmission, and determine the degree of risk necessary for culpability. Even then, there remains considerable difference of opinion on whether the risk is "significant" when it is reduced by the use of a condom[cviii] or undetectable viral load.[cix] Expert witnesses in other Canadian cases called upon to give evidence of individual risk estimates have also been inconsistent in their characterisation of risk – even during a single case with a single witness.[cx]

61. The Canadian Supreme Court in *R v. Cuerrier* ruled that, to sustain an assault charge, the HIV-positive person must expose the partner to a "significant risk of serious bodily harm."[cxi] Lower courts have been divided as to what "significant risk" constitutes. Most courts categorically state that unprotected sex constitutes a "significant risk," but even when there is condom use, courts have been divided on whether condom use reduces HIV transmission risk enough, and may look to other factors such as viral load in assessing transmission risk.[cxii]

62. Many courts do not actually consider statistical risk of transmission, but when they have done so, the determination of whether/when a risk is significant has varied. For example, in a 2001 Nova Scotia (Canada) case , the Crown's medical expert testified that unprotected oral sex between two men carries a 0.01% (or 1 in 10,000) risk. The judge found that, since such conduct carries only a "low risk" of HIV transmission, it would not be the basis for a prosecution.[cxiii] However, in 2008, an Ontario jury found a man (also on trial for first-degree murder) guilty of aggravated sexual assault for having unprotected oral sex with one woman, as well as vaginal sex with a condom with another woman, without disclosing his HIV-positive status.[cxiv]

63. In some jurisdictions, including Austria, Norway, Sweden, Switzerland and the US, arrest and conviction frequently depend on an individual's diagnosed HIV status. Knowing only that an individual is HIV-positive provides little information of the risk of HIV transmission, since it includes no information about viral load, treatment, co-existing STIs, or the behaviour at issue. [cxv] Only the law of one US state allows a defence when an individual's doctor has stated that that person is non-infectious.[cxvi]

Treatment of risk under HIV-specific statutes

64. Some HIV-specific statutes present a different problem by essentially removing the question of risk from the determination of culpability. These statutes typically define a set of behaviours that are prohibited, because they are considered to pose a *per se* risk of transmission. Prosecution and conviction are possible by proof of those behaviours, not by proof that a risk was significant.

65. For example, in the US, a law in the state of Illinois defines criminal transmission of HIV as "intimate contact with another" by a person who knows that he is infected with HIV. "Intimate contact with another" is defined as "the exposure of the body of one person to a bodily fluid of another person in a manner that could result in the transmission of HIV."[cxvii]

66. Such statutes thus adopt a "zero-risk" approach, and the use of condoms or evidence that there was no detectible viral load do not appear to be defences.[cxviii] Thus, there appear to be laws that criminalise behaviour that poses no, or only a theoretical, risk of HIV transmission.[cxix]

Criminal law treatment of HIV risk reduction

67. In some of jurisdictions, people living with HIV cannot reduce their level of criminal liability by taking measures to reduce or eliminate risk of transmission to a sex partner, e.g. engaging in zero/ near-zero risk activities (such as receptive oral sex, mutual masturbation or reliance on sex toys).[cxx]

68. Courts have expressed very different perspectives regarding how risk reduction efforts affect whether sexual contact presents a "significant" or "unreasonable" risk of HIV exposure or transmission. For example, a New Zealand judge ruled that an HIV-positive man using condoms for vaginal sex was not in breach of his legal duty to take "reasonable" precautions and care to avoid endangering human life in the absence of disclosure.[cxxi] In contrast, a Canadian judge ruled that an HIV-positive man could only be considered not guilty of aggravated sexual assault if he both used a condom and had an undetectable viral load in the absense of disclosure.[cxxii]

69. In the US, Louisiana's HIV-specific criminal statute[cxxiii] makes it unlawful to "intentionally expose another" to HIV "through sexual contact" or "through any means or contact" (including spitting, biting, stabbing with an "AIDS contaminated object", or throwing blood or "other bodily substances") without "the knowing and lawful consent of the victim." Several people with HIV have been arrested under this law for very low risk conduct: a husband for having oral sex with his wife[cxxiv]; a male sex worker for suggesting, but not actually having, unprotected sex[cxxv]; and an injured man for throwing a "blood-covered identification card into the face" of and "trying to spit" on a healthcare worker.[cxxvi]

Which risk can be considered "significant"?

70. One judge attempted to define the key, and often used, term "significant risk" as an "important, serious, substantial risk". That judge defined "significant risk" as the opposite of evidence of a "high probability of no infectiousness."[cxxvii]

71. Other courts have attempted to define the level of risk necessary for criminal liability based on statistical estimates. This effort is not without difficulty. As one judge confronted with the issue queried: "At which point can one say that the risk is 'significant'? 1 in 50,000, 1 in 10,000, 1 in 1000, 1 in 100, 1 in 10?"[cxxviii] Judges have great discretion in defining the risk threshold for the offense, with little or no affirmative guidance from public health authorities. This level of discretion and inconsistency leaves people with HIV without reliable direction on what behaviour is "significantly" risky to warrant criminal liability.

72. The emerging judicial trend in Canada appears to acknowledge that a statistically estimated risk of 1 in 10,000 (i.e. assigned in one case to the HIV transmission risk presented by oral sex) is not a significant risk. Thus, lower risk practices, such as protected sex and oral sex, as well as sex with an undetectable viral load, would likely eliminate the requirement of disclosure of HIV-positive status to avoid criminal conviction.[cxxix] In another, albeit earlier case, the court ruled that a risk of 1 in 143 *is* a significant risk.[cxxx] But the precise point at which the risk of transmission becomes significant has not been defined. Similarly, the New Zealand Supreme Court noted that the 0.1% chance of transmission during protected vaginal sex was not an "unreasonable" risk.[cxxxi]

73. In several cases, the US Supreme Court has considered the risk of harm posed by various criminal offenses, which could provide a useful benchmark. In one such case, the Supreme Court ruled that a "small risk," such as "1 in several thousand," is not a serious risk.[cxxxii] Risk of HIV transmission from some types of unprotected sexual contact presents a similarly low risk.[cxxxiii]

Discussion and options – reviewing the scientific and medical evidence

Difficulties in estimating individual HIV transmission risk per sexual act

74. Expert consensus on per-act risk of sexual transmission could be helpful in guiding lawmakers' and prosecutors' characterization of HIV risk. Where per-act risk estimates are currently given, they are usually at the midpoint of very wide confidence intervals (which indicate the range within which the true risk lies), reflecting how difficult it is to apply these estimates to individual cases.

75. It is possible to generalise from studies that include large numbers of people, and assess average risk reasonably confidently, but an average risk cannot be used to confirm individual risk, which can be affected by a large number of factors such as:

(a) The type of sexual activity;
(b) The roles during penetrative sex, i.e. who is the insertive partner and who is the receptive partner (receptive sex carries a higher risk of HIV acquisition than insertive sex);
(c) The amount of HIV in the bodily fluid to which the at-risk person is exposed;
(d) Whether or not a male or female condom has been used correctly and consistently;
(e) The presence or absence of other sexually transmitted infections (STIs) in both partners; and
(f) Whether or not the penis of the potentially exposed male partner has been circumcised.

76. This dilemma of risk determination is not unique to HIV transmission. Many acts risking harm have a range of possible outcomes determined by an array of factors. Per-act risk estimates may not be precise, but they can provide general guidance on the likely risk of acquiring HIV through unprotected sex in the absence of condoms or ART. The estimated risk involved is considerably lower than is often assumed by lawmakers, prosecutors, judges and juries.

77. *Vaginal intercourse* - A combined analysis of all studies of HIV transmission risk undertaken to date in high-income countries estimates that the per-act risk for a woman who engages in unprotected vaginal intercourse with a chronically infected, untreated HIV-positive man is 0.08% (1 in 1,250). The per-act risk for a man who has unprotected vaginal intercourse with a chronically infected, untreated HIV-positive woman is estimated to be 0.04% (1 in 2,500).[cxxxiv]

78. *Anal intercourse*
(a) The most widely cited study of per-act anal transmission risk[cxxxv] estimated that unprotected receptive anal intercourse with an HIV-positive insertive partner – the type of sex in which HIV transmission most easily occurs – involved a per-act risk of 0.82% (1 in 122). When the person with HIV is the receptive partner, the transmission risk is 0.06% (1 in 1,666) for the insertive partner.

(b) A more recent study estimates the per-act risks based on a wider variety of factors.[cxxxvi] The data support a recent meta-analysis of all previous studies of the per-act risk of receptive anal intercourse to ejaculation for both sex between men and sex between men and women, which was estimated to be 1.4% (1-in-70).[cxxxvii]

79. *Oral sex*
(a) Oral sex can mean *fellatio* (mouth-penis sex); *cunnilingus* (mouth-vulva/clitoris sex); or *aniligus* (mouth-anus sex). However, fellatio is the only type of oral sex that carries more than a theoretical risk of HIV transmission, although the receptive partner in fellatio (the person who takes the partner's penis into his or her mouth) is still much less likely to acquire HIV than the receptive partner in anal or vaginal intercourse. The risk for the insertive partner in fellatio virtually nonexistent. [cxxxviii]

(b) There is some disagreement about the receptive partner's exact risk level, with estimates ranging from zero risk (based on epidemiological studies amongst heterosexuals) to a 0.04% (1-in-2,500) risk of HIV (based on case reports amongst men who have sex with men).[cxxxix] The receptive partner's HIV risk level in oral sex would be higher if he or she has bleeding gums or other abrasions inside the mouth providing sites of access for HIV, but

there is no definitive evidence regarding the exact contribution of such factors.

Consensus on protective measures that should remove or mitigate criminal liability

80. Expert consensus on the value of risk-reduction methods to reduce HIV transmission risks and rebut the element of wrongful intent could be useful in harmonising the criminal law's response to HIV with actual individual and public health practice.

Condoms

81. Although condoms are not 100% effective in preventing HIV transmission, an extensive body of research has established that male condoms provide a high level of protection when used correctly and consistently. Real-life epidemiological studies suggest that using condoms consistently, though not necessarily perfectly (i.e. allowing for breakage and slippage) reduces the risk of HIV transmission by around 80% compared to not using condoms.[cxl] The small body of research to date suggests that the level of protection that female condoms provide against HIV is comparable to that of male condoms.[cxli]

82. Consensus on whether the use of condoms reduces HIV risk to below a legally significant threshold requires agreement regarding whether or not the residual risk is "significant", bearing in mind the already low per-act risk of transmission. Given that condom use is estimated to reduce the risk of HIV transmission through receptive vaginal sex by 80% – when the risk already is roughly only one in a thousand – should not sex with a condom be taken out of the range of "significant" risk?

Viral load

83. The association between HIV viral load and the risk of HIV transmission was first established in studies examining the impact of viral load on mother-to-child transmission.[cxlii] More recent studies have found a correlation between the amount of virus measured in the blood and the risk of heterosexual transmission.[cxliii] The key is that infectiousness increases or decreases in relation to the viral load level. [cxliv]

In 2005, the Supreme Court of the Netherlands took into account the defendant's viral load, the nature of the sexual contact, the lack of other sexually transmitted infections, and the number of sexual contacts the defendant had with the complainant and found that the defendant was not "infectious enough" to cause the "considerable chance" that he could infect the complainant during unprotected anal and oral sex. This reversed lower court rulings and rendered the defendant not guilty of manslaughter and attempted aggravated assault.[cxlv]

ART, viral load and infectiousness

84. There is no current scientific consensus regarding the impact of ART on individual sexual transmission risk. This is due to:
    (a) A lack of studies examining individual transmission risk;
    (b) Incomplete data for anal sex and/or sex between men;
    (c) Unknown threshold of viral load below which transmission cannot occur;
    (d) Potential for residual risks due to differences in viral load between the blood and sexual fluids[cxlvi] [cxlvii] related to drug level concentrations[cxlviii] and sexually transmitted infections;[cxlix] and

(e) Potential for residual risks due to variations in viral load between clinic visits due to poor adherence to ART.[cl]

85. Swiss HIV experts generated a great deal of debate[cli] following their 2008 consensus statement.[cliii] This statement proposed that a person's risk of acquiring HIV is negligible from an HIV-positive sexual partner who has an undetectable plasma viral load for at least 6 months and no other sexually transmitted infections. Accompanying materials suggested that such people could stop using condoms if their sexual partner agrees. [cliii]

In 2009, the Geneva Court of Justice quashed a lower court's conviction of a man on HIV exposure charges following expert testimony from one of the authors of the "Swiss statement" on the risks of HIV transmission when taking successful antiretroviral treatment.[cliv] It was Geneva's Deputy Public Prosecutor, who had called for the appeal and told Swiss newspaper, *Le Temps*: "On ne condamne pas les gens pour des risques hypothétiques" ("One shouldn't convict people for hypothetical risks").[clv] A primary purpose of the statement, according to one of its authors, was to prevent further prosecutions under Article 231 of the Swiss Criminal Code.[clvi] The Ministry of Justice in Austria has since confirmed their agreement with the "Swiss statement". [clvii]

86. The results of the recent HTPN 052 study confirm a significant preventive effect of HIV treatment on HIV transmission. The study found a 96 percent reduction in heterosexual HIV transmission in sero-discordant couples (couples in which one person has HIV infection and the other one does not) when the partner with HIV was started on ART before they were medically eligible for treatment based on the state of their immune system.[clviii]

87. It is currently unknown whether ART's impact on reduction in risk is as significant for anal sex[clix] and/or sex between short-term partners, and whether there is a threshold of viral load levels below which transmission is not possible.[clx] Although no studies have empirically examined the effects of HIV treatment on transmission risk for anal sex, this has been explored in a mathematical model.[clxi]

88. Figure 1 (below), adapted from data in this mathematic model, compares the risk over 100 sex acts of HIV transmission during anal sex between men where one partner is HIV-positive: with condoms; with an undetectable viral load on ART; with both; and with neither. The model estimates that an undetectable viral load on ART is likely to be as protective as 100% condom use.

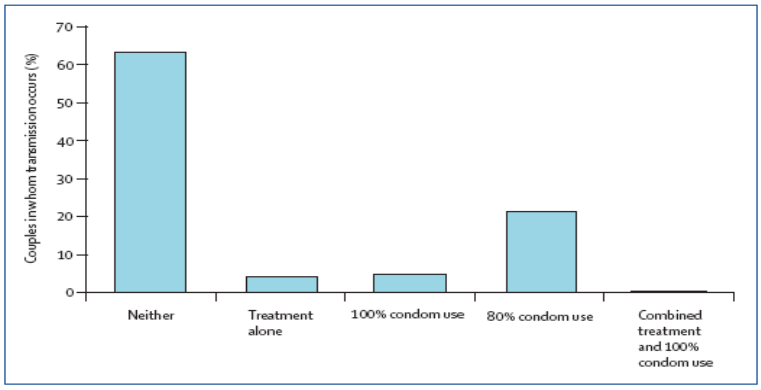

Figure 1: Risk of HIV transmission over 100 sex acts during anal sex between men where one partner is HIV-positive[clxii]

Pre-exposure prophylaxis (PrEP)

89. Pre-exposure prophylaxis (PrEP) is the use of antiretrovirals prior to exposure to HIV to prevent infection. PrEP is intended for use by people who may be at frequent risk for HIV. Although not currently approved by the World Health Organisation for this purpose, PrEP is already being used in some settings in the US based on interim guidelines from the US Centres for Disease Control.[clxiii] It has garnered increasing attention and debate in recent months focused on the efficacy, ethics and feasibility of its use as an HIV prevention tool.

90. A recent trial, known as "iPrEx", found a 42% reduction in HIV acquisition among men and transgender women who have sex with men who were randomised to take a daily pill combining two antiretroviral drugs (tenofovir and emtricitabine) compared to placebo. This was additional to the effects of a standard prevention package that both trial arms received, consisting of condoms, diagnosis and treatment of sexually transmitted infection, and monthly HIV testing and counselling. The efficacy in participants who, by self-report and pill count, took the drugs more than 90% of the time was 73%. Based on levels of the drugs in the blood, the investigators estimated that, if participants had taken their pills every time, the efficacy of the drug regimen would have been as high as 92%, compared with placebo.[clxiv]

91. Similarly, two recent studies (Partners in Kenya and Uganda, and TDF2 in Botswana) found that an HIV-negative man or woman taking a single antiretroviral drug (tenofovir) or two drugs (tenofovir plus emtricitabine) cut their risk of HIV infection through heterosexual transmission by between 62% and 78% in heterosexual couples. The Partners study compared the single drug regimen with the dual drug regimen with placebo in sero-discordant couples (one person HIV-positive, one HIV-negative) in Kenya and Uganda, while the TDF2 study compared the two drug regimen with placebo in sero-discordant couples in Botswana. The Partners study found that the single drug regimen had an efficacy of 62% in preventing HIV infection and the dual drug regimen an efficacy of 73%. In the TDF2 study, the dual drug regimen had an overall efficacy of 63%, but was 78% efficacious in patients who had last received study drugs less than a month ago and who therefore had pills available. In both studies, the medication was taken daily, and all participants received counselling on safer sex, both individually and as a couple, and received free condoms and monitoring and treatment for sexually transmitted infections.[clxv]

92. However, a PrEP study among women in Kenya, South Africa and Tanzania that was testing the same two-drug combination of Tenofovir and Emtricitabine closed in 2011 after investigators concluded that, even if the trial continued to its originally planned conclusion, it would not be able to detect a significant protective effect against HIV infection in this population.[clxvi]

93. Topical PrEP for women (also known as a vaginal microbicide) shows promise with a trial of 1% tenofovir gel conducted in KwaZulu Natal, South Africa reporting a 39% reduction in HIV acquisition in women in the tenofovir gel arm compared to the placebo arm over a 30-month period.[clxvii] Studies are underway to test topical PrEP in the form of rectal microbicides containing Tenofovir.

94. PrEP is a new area of scientific advance with no international normative guidance under development. Issues related to the long-term impact of ART

on HIV-negative individuals (otherwise healthy or with other health conditions), the prophylactic use of antiretroviral drugs to prevent HIV acquisition in an era of severely limited resources and other ethical considerations are still to be resolved. Regardless, its use by the partner of a person with HIV could become both a factor in transmission risk calculation and strong evidence of consent to sexual HIV exposure.

Are there HIV risks that should never be criminalised?

95. Criminal law almost universally accepts the principle that a risk of doing harm must reach a threshold level to warrant punishment.[clxviii] Consideration of the seriousness of the harm and the likelihood that it will occur are calculated together to determine if the risk is significant. Criminalising the risk of even a severe harm is generally unwarranted if the actual likelihood that it will occur is very small.

96. Identifying HIV risks where the criminal law should not apply would be useful in guiding lawmakers and prosecutors. It may help, for example, to avoid the undue influence of individual expert witnesses in HIV criminal cases.

97. Many HIV-specific statutes are overbroad and do not rely on scientific evidence, focusing primarily on disclosure/consent rather than the public health approach favouring evidence-informed methods of HIV risk reduction. Such laws could be modified to reflect only scientifically proven – and epidemiologically important – HIV transmission risks.

98. Obtaining consensus on certain risks should be easier than others. There is little scientific debate regarding the negligible HIV risk of spitting or biting[clxix], scratching or fighting[clxx], or assault with bodily fluids that do not contain blood. There may be a small but unquantifiable risk if someone's saliva contains blood – for example, following a punch to the face – and this blood comes into contact with a mucous membrane or open wound. Even in such a scenario, the blood is likely to be mixed with saliva which contains a number of proteins that inhibit HIV,[clxxi] and no cases of HIV transmission resulting from the spitting of blood have ever been reported.[clxxii]

Criminal law definitions of culpable risk-- are they helpful?

99. Developments, such as those in Canada (British Columbia) and Denmark, indicate that a better understanding of risk and harm in relation to HIV transmission, particularly in light of scientific and medical evidence that ART increases life expectancy and reduces infectiousness, can have a significant impact for justice and public health.

100. The difficulty in determining an appropriate level of criminal risk stems from laws that refer to risk of harm in general, imprecise terms. The criminal law typically uses terms such as "substantial," "significant," "unjustifiable," "serious," and, in some contexts,"likely", to define the level of risk of transmission necessary to result in prosecution and conviction.

101. The range of possible interpretations, particularly to conduct that reasonably could be understood to be very low risk, appears unreasonable and can contradict and undermine the provision of evidence-informed risk-reduction information to people living with HIV.[clxxiii] [clxxiv]

Issues for consideration

102. *Scientific and medical*

(a) What are the per-act risks of HIV infection resulting from various sexual acts under different circumstances:
- Insertive and receptive vaginal sex?
- Insertive and receptive anal sex?
- Insertive and receptive oral sex?
- Other forms of sexual contact such as insertion of fingers into vagina and anus?
- All of the above with/without condom use?
- All of the above with either or both the infected and uninfected partner on antiretroviral drugs?

(b) Which of these sexual acts pose a "significant risk" of HIV transmission?

(c) How best to quantify the varying risks of different types of sexual acts to ensure public and policy maker understanding?

(d) Is further research required or potentially useful regarding per-act risk of sexual transmission of HIV (including when one or both partners are taking ART)?

103. *Legal and social response*

(a) Which HIV-related risk should be considered significant for the purpose of criminal liability?

(b) Should any of the following represent a "significant" risk for purposes of the criminal law?
- Biting?
- Spitting?
- Digital penetration of a partner's genitals?
- Sex while using a condom?
- Oral sex (receptive or insertive)?
- Protected or unprotected sex if the HIV-positive person has a low/undetectable viral load or is on effective antiretroviral treatment?

(c) Is it possible to reach a consensus about the varying risks of different types of sexual acts in defining "significant risk" under the criminal law?

(d) Is it ethical to base criminal liability on an individual's relative transmission risk – which in turn may be based on access to ART therapy?

IV. INTENT

104. Under some laws, in order to be convicted of an HIV-related offense, an individual's intent must be proved to be a specific intent to harm. Under other laws, knowledge of HIV status is considered sufficient to infer intent.[clxxv] Proving knowledge of HIV status at the time of the alleged criminal conduct is almost always the first step in proving intent, irrespective of what other element the prosecution may have to prove.[clxxvi]

Current criminal law treatment of intent in HIV cases

105. When enforcing an HIV-specific provision that does not expressly require intent to transmit HIV, no other specific purpose or mental state need be established beyond: (a) proving knowledge of HIV status, and (b) proving knowledge of performing the act of penetration, contact or "exposure" prohibited in a particular statute. No evidence of a belief, purpose, or intention

concerning the possible consequences of the prohibited act (or omission) is necessary for a conviction. The intent element is satisfied as long as the accused is aware, not that he or she is violating the law, but that he or she is engaged in sex or another prohibited act.[clxxvii]

106. There are other, less common, laws, that require a specific intent to infect, or a specific intent to harm.[clxxviii]
    (a) The State of California has a specific intent statute which states "Any person who exposes another to HIV by engaging in unprotected sexual activity (anal or vaginal intercourse without a condom) when the infected person knows at the time of the unprotected sex that he or she is infected with HIV, has not disclosed his or her HIV-positive status, and acts with the specific intent to infect the other person with HIV, is guilty of a felony punishable by three, five, or eight years imprisonment. A person's knowledge of his or her HIV-positive status, without additional evidence, is not sufficient to prove specific intent."[clxxix]
    (b) Since the Dutch Supreme Court rulings in 2005 and 2007, HIV transmission can be prosecuted in the Netherlands, but with a high burden of proof required to show that intention and pre-meditation were present.[clxxx]

107. Cases are rare where an individual harbours an intent,[clxxxi] provable by statements, action, or evidence, to infect another person, and actually succeeds in doing so.[clxxxii]

108. UNAIDS and UNDP issued a policy brief in 2008 which advises that only cases with the following elements should be subject to criminal prosecution: where a person knows his or her HIV positive status, acts with intention to transmit HIV, and does in fact transmit it.[clxxxiii] The policy brief excludes prosecution for non-disclosure and exposure alone. The policy brief states that prosecution should not occur where a person is unaware of his/her status or does not know how HIV is transmitted. The policy brief advises that there should be no application of criminal law to reckless behaviour. It does not address "knowing" or "willing" transmission where a person ostensibly knows they are infected, knows the risk involved, and continues to engage in the risky sexual behaviour in spite of that knowledge. After much discussion among experts involved in its development, the policy brief purposefully set the bar of intent for criminal liability high in an effort to limit the application of criminal law to cases where there is an intent to do harm and significant harm is actually caused.[clxxxiv] The brief recognised the legitimate goal of the criminal law to achieve justice but urged governments to avoid overly-broad criminal liability that can result in injustice and create disincentives to HIV testing, disclosure of status and uptake of prevention and treatment services.[clxxxv]

Problems and issues raised by current practice on intent

109. A person with HIV who engages in sex, protected or unprotected, may actually, and accurately, believe that he or she poses little or no risk of HIV transmission.[clxxxvi] It is also possible that s/he is experiencing denial (of HIV-positive status and/or that the sex is an HIV-related risk) as a self-protective psychological defence mechanism.[clxxxvii] [clxxxviii] Denial is an important and complex psychological defence mechanism commonly encountered in clinical practice among those dealing with serious illnesses.[clxxxix]

110. Compared to uninfected individuals, people living with HIV have disproportionately high rates of psychiatric disorders, with mood and anxiety

disorders being the most common.[cxc] Evidence also suggests that post-traumatic stress and bipolar disorders are also more prevalent in HIV-positive individuals relative to the general population.[cxci] [cxcii] Studies have found that people with psychiatric disorders, including depression and substance use, are more likely to engage in HIV-related risk-taking behaviours, despite knowing their HIV status.[cxciii] [cxciv] [cxcv] Evidence is emerging that effective mental health interventions can help people reduce HIV-related risk-taking behaviour.[cxcvi] [cxcvii] However, there is a marked lack of structured opportunities within HIV treatment and care settings that could help individuals with a dual diagnosis.[cxcviii] There is also a lack of capacity within the criminal justice system to recognise and deal effectively with mental health issues in the context of potential or actual HIV exposure or transmission.[cxcix]

111. The conflation of knowledge of HIV-positive status and knowledge that unprotected sex can risk exposing a sexual partner to HIV is an oversimplification of the underlying factors that may lead to HIV-related sexual risk-taking and/or non-disclosure. Not every action is preceded by rational thinking about what is "right", and leads people to behave altruistically and responsibly. Similarly, every "irresponsible" behaviour is not a conscious rejection of responsibility in favour of self-interest.

112. As with every other element of a criminal offense, wrongful intent should be proved beyond a reasonable doubt as a safeguard against deprivations of liberty that are arbitrary or founded on untruths or mere suspicions.[cc]

113. When there is an absence of any intent requirement in HIV criminalisation cases, it is the equivalent of imposing a standard of strict liability.[cci] This means that mere knowledge of HIV status plus otherwise legal conduct is enough to trigger criminal punishment. This is an extraordinary application of strict liability principles, particularly in the context of private consensual relationships.

114. "Strict liability" offenses make a person potentially criminally liable for actions and/or omissions for which he or she has no culpable mental state.[ccii] Strict liability is typically applied to "public welfare" offenses, which result in no direct injury to person or property, but which create the probability of harm or danger.[cciii] Examples of strict liability crimes include traffic offenses, fishing and game regulation, and loitering.[cciv] Penalties are typically small and do not carry the social stigma or damage to reputation of other criminal offenses.[ccv]

115. The majority of new HIV transmissions are from people who do not know their HIV positive status. Those who are aware of their status normally take precautions to prevent transmission to uninfected partners.[ccvi] Thus, the criminal law falls most heavily on those who "took the trouble" to get tested and may even be engaging in safe sex options. This may discourage those who do not know their status from having an HIV test.[ccvii]

116. The United Nations Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health recently noted that laws criminalizing HIV transmission should only be used when there is "intentional [and] malicious" transmission, and are inappropriate otherwise.[ccviii] In cases of intentional transmission, sentences should be comparable to those for other crimes involving comparable bodily harms.[ccix]

Issues for consideration

117. *Scientific and medical*

(a) How do factors, such as mental health issues and denial, affect a person's ability to have conscious knowledge and acceptance of HIV-positive status and/or behaviour that exposes others to HIV?

(b) From a psychological point of view, is there a meaningful distinction between the intent to do harm and disregard for possible harm of one's actions?

118. *Legal and social response*

(a) What combination of knowledge, belief, conscious action or omission should be the minimum basis for HIV-related criminal liability, e.g.
- Knowledge of positive HIV status and intent to have sex?
- Knowledge of positive HIV status, and/or belief that there is a significant risk of transmission, and action that in fact poses a significant risk?
- Knowledge of positive status, an intent to transmit, and action that poses a significant risk?

(b) Should intent to do harm be an essential element of liability? Or should knowledge of status and exposure to significant risk of transmission be enough to establish liability?

(c) To what extent should the HIV-positive individual's reasonable beliefs about actual transmission risk be relevant to a determination of intent to harm or reckless conduct for the purposes of criminal liability?

(d) Should people who announce or display an intent to harm by transmitting HIV, but act in a way that presents a negligible risk of transmission (e.g. biting and spitting) be prosecuted?

V. DISCLOSURE, CONSENT AND OTHER DEFENCES

119. Once the prosecution has rested its case in an HIV criminalisation trial, a defendant may attempt to prove a variety of conditions that will negate elements of a crime.[ccx] These are "defences". In most jurisdictions, the entire burden to prove a crime is on the State, which also must prove the absence of these defences.[ccxi] The defences most often used in HIV criminalisation cases are disclosure and consent. Some jurisdictions insist that the defendant raise a degree of evidence to claim a disclosure defence, and when the defendant does so, the State may or may not then bear the burden of disproving disclosure beyond a reasonable doubt.[ccxii] It is not always clear from the terms of HIV-specific statutes how a jurisdiction will allocate these burdens of proof; often this is left for courts to determine.[ccxiii] Accepted defences may provide partial or total relief from punishment.[ccxiv]

Current criminal law treatment of defences in HIV cases

120. Defences are often limited to whether the HIV-positive person can prove disclosure of his/her health status to the sexual partner before he or she engaged in conduct that may have exposed them to HIV.[ccxv] The tension between an individual's desire and need to maintain control over personal information and his/her ethical obligation to disclose the potential for HIV-related risk is central to the controversy of using criminal law to encourage disclosure or punish non-disclosure of HIV-positive status.

121. Prosecutors and judges often suggest that non-disclosure of HIV-positive status is a conscious effort to deceive or harm. However, such behaviour may result from "denial, lack of self-efficacy to disclose, or concerns over potential

negaive repercussions of disclosure."[ccxvi] Social and behavioural science strongly suggest that disclosure is not as unambiguous as it appears under the criminal justice approach.

122. In several recent cases, defendants have raised the defence of being in denial – including in Canada[ccxvii] , Australia, 2008[ccxviii]; and Scotland 2010[ccxix] – but have nevertheless been found to be criminally liable for their actions.[ccxx] In a recent Belgian case, the defendant was in a state of faith-inspired denial, believing he was cured by prayer, but was still found guilty of criminal HIV transmission.[ccxxi]

123. Proof of disclosure is often placed on the accused. In cases of consensual, intimate relationships, it is often difficult to prove, short of written documentation.[ccxxii] Many cases are settled on the conflicting testimony of the accused and accuser after the termination of a relationship. This is a problematic use of the criminal law as retribution for a failed relationship, as opposed to addressing situations where real harm was intended and/or achieved.[ccxxiii]

Problems and issues raised by current approaches to defences

124. There is often a presumption in the law that a person would not engage in a sexual relationship with someone if that partner was HIV-positive.[ccxxiv] This presumption is stigmatizing and fails to account for the subjective, personal decision-making that occurs in intimate relationships. This assumption makes proving consent, like proving disclosure, very difficult.

125. Although, as a general rule, consent is not available as a defence to a crime of violence, it can in practice play a role in assessing the degree, or even the existence, of a criminal defendant's culpability.[ccxxv] When someone engages in otherwise-legal conduct with another individual that poses the risk of serious physical harm – such as rugby or ice hockey – it is presumed that one consents to the risks involved. Although in both of these sports – among the five most dangerous in the world[ccxxvi] – it is unlikely that any of the players consciously consent to the risk of death, that level of harm is possible. However, it would not trigger criminal liability in the absence of evidence that another player specifically intended that result.

126. The US Model Penal Code, for example, includes consent as a defence to offenses that cause – or threaten – serious bodily harm when "the conduct and the injury are reasonably foreseeable hazards of joint participation in any concerted activity not forbidden by law."[ccxxvii] Does consensual sex fall within that category of activity, and if so, is it reasonable to single out the consensual sexual conduct of individuals living with HIV for criminalisation? Most adults are aware that engaging in sexual intimacy necessarily involves a degree of risk of infection with an STI, including HIV. [ccxxviii]

127. Disclosure of HIV status is a personal decision that is affected by many factors, including gauging trust, fear of rejection, and threat of violence. In certain situations, disclosure may actually lead to threats of physical safety, especially where there is unequal power in a relationship. Disclosure requirements often affects women disproportionately, as they are more likely to be subject to abuse, violence and stigma if they reveal their HIV status.[ccxxix] Under such circumstances of duress, it may not be reasonable to expect or require disclosure.

128. An emerging issue is whether an undetectable viral load and/or excellent adherence to ART decreases the risk of transmission enough that non-disclosure to sex partners may be excused.[ccxxx] Are proactive measures taken to reduce the risk of harm, including an undetectable viral load, relevant defences?

129. The criminal law's approach is to place sole responsibility on the person capable of causing the harm of HIV. In contrast, three decades of public health messages, supported by the World Health Organisation (WHO), the Joint United Nations Programme on HIV/AIDS (UNAIDS) and others, have stressed that every individual has a responsibility and opportunity for HIV prevention, regardless of known or perceived HIV status. This stance recognises that many people with HIV are not aware of their HIV-positive status and those who are aware are sometimes unwilling or unable to disclose before every sexual encounter.

130. Studies among men who have sex with men strongly suggest that criminal prosecutions are exacerbating misconceptions around responsibility for HIV prevention, "particularly the perception that the law now provides negative and untested [individuals] with added protection from HIV in sexual interactions"[ccxxxi] leading to a false sense of security.

Issues for consideration

131. *Scientific and medical*
   (a) What is the meaning of individual or shared responsibility in relation to HIV transmission?
   (b) Is disclosure of known HIV-positive status an effective HIV prevention tool?

132. *Legal and ethical response*
   (a) What should be the defences available to people criminally charged with HIV non-disclosure, exposure or transmission?
   (b) Should “consent” or “disclosure” operate as defences and what do they mean in the context of HIV transmission?
   (c) Is consent to have sexual intercourse sufficient to presume consent to the risk of exposure to STIs, including HIV?
   (d) Should non-verbal “disclosure” qualify as legally-sufficient disclosure?
   (e) Are there situations (e.g. fear of violence) in which failure to disclose is ethically and legally justified?

VI. PROOF

Current criminal law practice and issues

133. Being found guilty of a crime requires: (a) proof of intent to do wrong; (b) proof of engaging in prohibited conduct to act on that intent; and (c) proof that the conduct resulted in the intended or foreseeable harm. Proof of intent is primarily discussed above (see IV Intent). Practices and concerns surrounding other aspects of proof are addressed below.

Current practice in proving causation

134. Proving causation *of transmission* (i.e. that A transmitted HIV to B) comes up in few jurisdictions, mostly where there are statutes that require transmission for prosecution. Where such proof is required, the full complement of evidence that could help determine whether the complainant was actually

infected by the defendant is rarely fully investigated by police or examined in court.[ccxxxii]

135. A common misconception – often shared by police, prosecutors, defence and judges – is that scientific evidence that examines the genetic "fingerprint" of HIV in both complainant and defendant, known as phylogenetic analysis, can prove with certainty that the defendant infected the complainant.[ccxxxiii]

136. Jurisdictions that routinely use phylogenetic analysis as evidence in criminal cases – notably England, Wales, and Sweden – have now established that all sexual partners of the complainant(s) prior to their testing HIV-positive must be considered potential sources of infection. Cases where past partners cannot be traced to provide samples for testing, or where these samples are also closely related to the complainant(s), have resulted in acquittal[ccxxxiv], dismissal[ccxxxv], or abandonment.[ccxxxvi]

137. The direction of infection (that is, who was infected first and transmitted to the other person) is often assumed in criminal cases based on who tested positive first, or who the complainant is. These assumptions may mean that the prosecution fails to examine the possibility that other sexual partners may have posed other potential transmission risks.[ccxxxvii]

Problems and issues raised by current practice of proving causation

138. Phylogenetic analysis uses complex computational tools to create a hypothetical diagram (known as a phylogenetic tree) to estimate how closely related the samples of HIV taken from the complainant(s) and defendant are likely to be in comparison to other samples. There are a variety of methods by which scientists can increase their confidence that the viral samples are very closely related in comparison to other samples. However, they can never be completely confident that the defendant infected the complainant, based on phylogenetic analysis alone, because they cannot eliminate the possibility that a third (or fourth) party may have passed HIV to someone else who then infected the complainant.[ccxxxviii]

139. On the other hand, where the samples are not closely related with a high degree of confidence, this is evidence enough to show that the defendant could not, and did not, infect the complainant. Consequently, there is enough reasonable doubt to allow the prosecution to drop charges, or for the judge to recommend to the jury that they acquit. Experts in virology state that the only "safe" use of phylogenetic analysis in criminal HIV transmission cases is to exonerate the accused. [ccxxxix]

> ″As phylogenetic experts who advise courts worldwide, we are calling for guidelines on how phylogenetics should be used in criminal HIV investigations. The inappropriate use of such evidence in suspected transmission cases can have dire legal and social ramifications. The scientist's job is not to argue for or against a defendant's guilt: that is a task for lawyers. Phylogenetic investigators should limit themselves to an expert opinion on what information about viral transmission can be deduced from their analysis. This must be derived impartially, for example by blinding the identities of case subjects. Scientists must explain to courts that phylogenetic analysis cannot 'prove' any particular hypothesis, such as 'person A infected person B'. Rather, results may be compatible with several hypotheses, or support one over another. A priori hypothesis should be formulated by different independent epidemiological experts, based on contact possibilities between the purported

victim(s) and the defendant, and on any additional contacts or risk factors. Phylogenetic analysis alone cannot exclude the possibility that HIV was transmitted from A to B through unsampled persons. Although the direction of viral transmission can sometimes be supported, it does not prove direct transmission."
Thomas Leitner, Los Alamos National Laboratory, New Mexico, on behalf of eight co-authors, Nature, 19 May 2011.[ccxl]

140. Attempting to prove that one person caused the infection of another should require the use of a combination of factual, medical and virological evidence to support (or refute) testimony and other circumstantial evidence. However, the practice of using all available evidence to attempt to reconstruct the fact, timing and direction – i.e. did transmission take place, when, and who infected whom? – of the HIV transmission event(s) under investigation, unfortunately appears to be rare.

141. Someone who has recently been diagnosed HIV-positive may have no way of knowing the source of their infection. Determining that their most recent sexual partner is HIV-positive and did not inform them does not necessarily mean that they acquired their own infection from that partner. There is evidence that a patient's recall of the person most likely to be the source of their infection – often their most recent sexual contact – may be inaccurate.[ccxli] [ccxlii]

142. Complainants in criminal HIV transmission investigations may not have undergone HIV testing until after ending the relationship with the accused. However, unless medical history suggests no other possible prior HIV risks – sexually or otherwise – it would be incorrect to assume that a complainant was HIV-negative prior to his or her relationship with the accused in the absence of a documented previous negative HIV antibody test.

143. In some countries, scientific tests to estimate the likelihood of a recent infection in persons already diagnosed as HIV-positive – known generically as RITA tests (Recent Infection Testing Algorithm) – are used to calculate HIV incidence rates at the population level. Currently, only the United Kingdom returns results of RITA tests to newly diagnosed individuals. Those for whom the RITA test suggests that they may have been recently infected may as a result believe confidently that they know who was responsible for infecting them. However, because of the considerable uncertainty around the significance of RITA tests results at the individual level, this test alone is not adequate to base such assumptions on.[ccxliii]

144. RITA tests are not reliable as indications of timing of infection for individuals in the context of criminal proceedings because:
    (a) They are designed to estimate recency and calculate incidence rates at the population, not individual, level.
    (b) The immune responses of individuals (which are measured in RITA tests) vary; the RITA test for recency corresponds to an "average" response; hence, it is useful at the population level but unreliable at the individual level.
    (c) Significant rates of false recent results have been repeatedly documented in individuals, i.e. recent infection has been suggested by a positive RITA test, but other means/methods have then demonstrated that the RITA test result was incorrect in suggesting recent infection.[ccxliv]

145. Discussions about causation of harm (limited to HIV transmission) never examine to what extent the partner of the individual with HIV contributed to the fact or risk of transmission, for example through:
    (a) Untreated STIs
    (b) Negligence in attending to their personal health conditions; or
    (c) Insistence on higher risk sexual contact.

Current criminal law practice for using medical records as evidence

146. Key considerations in proving knowledge of HIV positive status are related to: (a) when an individual learned of his/her HIV status, and (b) whether this was before the contact at issue in a criminal case. Physicians' records of HIV diagnoses and consultations with the accused about their health condition are reasonably thought to be objective and reliable evidence on these matters. Therefore, investigations focus on securing records that would normally receive heightened privacy protection.

147. Prosecuting authorities can obtain records of diagnoses, track viral load trends, document a history that may include other STIs, and access health care providers' notes about behavioural changes recommended to the defendant through warrant, subpoena, or application under one of the HIV-specific health privacy laws that often authorize disclosure of medical information for broadly defined "law enforcement purposes".[ccxlv]

148. Medical records or other documents (such as client acknowledgment forms[ccxlvi]) are routinely used to prove a defendant's knowledge that s/he tested HIV-positive. These may also be used as evidence that the defendant:
    (a) Knew how HIV was transmitted;
    (b) Knew how to avoid exposing others to the virus;
    (c) Knew they were infectious; and/or
    (d) Previously engaged in behaviours criminalised in that jurisdiction.

149. Guidelines for healthcare professionals regarding issues of confidentiality and disclosure of health information in cases of investigations into alleged criminal HIV exposure or transmission exist in several countries, including Australia[ccxlvii], Canada[ccxlviii], the United Kingdom[ccxlix] and the United States.[ccl]

Problems and issues raised by current practice of using medical records

150. Widespread use of medical records in criminal proceedings has the potential to reduce trust between patients and physicians. Reduced trust may diminish opportunities for sexual health screening and support to decrease HIV-related risk-taking activities.[ccli] [cclii]

151. Healthcare professionals have expressed concerns that engaging patients in discussions about their risk-taking behaviour will obligate them to share what they learn with law enforcement agencies and perhaps even testify against patients in court.[ccliii] [ccliv] Concerns of this nature also appear to inhibit HIV-positive individuals' willingness to provide researchers with information that can potentially inform HIV prevention strategies.[cclv]

152. UNAIDS recommends that "details of the accused person's communications to a health-care professional, spiritual adviser or other counsellor" should be exempt from the legal discovery process, "so as to minimize the potentially detrimental impact on access to counselling and support services that assist in avoiding risky behaviour."[cclvi]

Issues for consideration

153. *Scientific and medical*
   (a) What are the uses and limitations of phylogenetic analysis in determining causality?
   (b) What scientific evidence, if any, other than phylogenetic analysis may be useful to prove causality?
   (c) What are the implications and limitations of the Recent Infection Testing Algorithm (RITA) that is sometimes used to estimate the timing of HIV transmission for the prosecution of alleged cases of criminal transmission of HIV?

154. *Legal and social response*
   (a) What should be an accepted baseline for proving causation of transmission under the law?
   (b) How should the limitations of existing scientific methods used to establish causation be represented in court cases?
   (c) What are appropriate standards under which medical records can be accessed for criminal law purposes?

VII. PENALTIES

Current criminal law practice and issues

155. The sentences prescribed for HIV transmission vary widely among jurisdictions and countries, such that a fair overview of them lies beyond the scope of this paper. However, some comparative sentences can be found below in Chart 2.[cclvii]

156. Examples of prison sentences include an HIV-positive man in Australia who was sentenced to 12 months in prison for smearing faeces on a police officer.[cclviii] Similarly, an Indiana court convicted an HIV-positive man of battery by bodily waste and sentenced him to six years imprisonment for throwing his urine and faeces at a nurse in his detention facility.[cclix] An HIV-positive inmate in New Jersey was found guilty of attempted murder for biting a corrections officer and received a twenty-five year sentence.[cclx]

157. Being prosecuted in an HIV non-disclosure, exposure or transmission case carries numerous consequences, including:
   (a) Publicity that may reveal name, address, health status, sexual orientation and sexual practices;
   (b) Long and time-consuming trials, including time off of work;
   (c) Deprivation of liberty through imprisonment or civil detainment; and
   (d) Measures aimed at containing “sex offenders” (regularly reporting to police, prohibition of certain jobs, etc).

158. Persons with convictions or sentence enhancements due to HIV status are vulnerable to restrictions on liberty that persist as long as they are considered dangerous, or even longer, under civil commitment or sex offender registration schemes.
   (a) Nushawn Williams, the New York State resident whose prosecution for rape and reckless endangerment was the subject of highly sensationalised media coverage (in the US and beyond), remains in custody at this writing pursuant to a civil commitment statute enacted long after his sentencing.[cclxi]

(b) Johnson Aziga, convicted of first-degree murder in an Ontario court (Canada), testified in May at a "dangerous offender" hearing after which, if the Crown prevails, his concurrent sentences for aggravated assault will be made indefinite.[cclxii]

(c) In Sweden, public health laws have been used to isolate at least 100 people living with HIV. In 2005, the European Court of Human Rights held that Sweden had violated the right to liberty and security of an HIV-positive man by detaining him for up to 7 years.[cclxiii]

159. The United States and Canada have expansive sex offender registry laws.[cclxiv] In the US, sex offender statutes operate free of the constitutional constraints that apply to penal statutes, allowing legislatures to impose reporting requirements, residency and job restrictions, and other hardships on registrants, regardless of how long ago their criminal cases were concluded.[cclxv] Sex offender regimes are dedicated to singling out, publicly tagging, monitoring, and indefinitely controlling, to the greatest extent possible, the individuals who fall within their scope.[cclxvi]

160. The following chart compares the sentencing schemes for HIV exposure, non-disclosure and/or transmission laws in select high-income countries with laws punishing drinking and driving, recklessly or negligently endangering others, and vehicular homicide. In comparison with HIV *exposure*, which often carries negligible risk,[cclxvii] the danger posed by these crimes is similar or greater.[cclxviii] As the chart below shows, the punishment for HIV exposure can be much more severe. For the full chart with citations, see Appendix.

Chart 2: Comparing HIV sentencing with other offences

	HIV Exposure Laws & Prosecutions	**Drinking & Driving Laws**	**Reckless Endangerment**	**Vehicular Homicide**
USA	• Range: **5-25** years in prison • Some states have **mandatory sex offender registration** • Example statutes: o Georgia: maximum **20 years** in prison o Oklahoma: max **5 years** o California: max **8 years** • Actual prosecutions: o Georgia: **8 years** in prison o Oklahoma: **life** sentence	• First offense: <**1 year** in prison • Subsequent offense: <**3 years** • Examples o Georgia: **10 days - 1 year** in prison for first offense; **90 days - 1 year** for second offense o Oklahoma: **48 hours - 1 year** in prison for first offense; **1-5 years** for second offense o California: **96 hours - 6 months** in prison for first offense; **96 hours - 1 year** for second offense	• Misdemeanor: ~**2 years** in prison • Felony: ~**10 years** in prison	• Range: **1-99 years** in prison • Examples: o Georgia: maximum **1 year** in prison o Oklahoma: max **1 year** o California: max **4 years**
Canada	• Prosecuted under general criminal laws: o Assault: maximum **5 years** in prison o Sexual assault: max **10 years** o Assault causing bodily harm: max **14 years** o Aggravated assault: max **14 years** o Sexual assault causing bodily harm: max **14 years** o Aggravated sexual assault: max **life** in prison o Attempted murder: max **life**	• Punishment for o First offense: Max **5 years** in prison o Second offense: **30 days - 5 years** o Subsequent Offenses: **120 days - 5 years** • If bodily harm results: Max **10 years** in prison	• Criminal negligence: max **10 years** in prison	• Impaired driving causing death: max **life** in prison

	o Murder: max **life** • Actual sentences have reached **49 years** and **life** in prison • Range (majority of sentences): **2-8 years**			
England & Wales	• Prosecuted under general laws: o Intent to do grievous harm: **3-16 years** in prison o Recklessly inflicting bodily harm: max **4 years**	• Dangerous driving: <**2 years** in prison	N/A	• Causing death by careless driving when under the influence: **0.5-14 years** in prison
Australia	• Victoria (HIV-specific law): max **25 years** in prison	• First offense: <**6 months** in prison • Subsequent offenses: **<1 year**	• Max **10-20 years** in prison	• Max **10-20 years** in prison
Germany	• Prosecuted under general criminal law: o Bodily injury: maximum **5 years** in prison o Aggravated assault: max **10 years**	• Max **5 years** in prison	N/A	N/A

Problems and issues raised by current practice

161. The term of incarceration the court will impose, after an admission of guilt or a conviction, can vary greatly. Even in jurisdictions that use guideline systems to promote uniformity of punishment, judicial discretion in sentencing is typically very broad.[cclxix]

162. As can be seen in the above chart, punishment is disproportionate to the sentences for what many people would consider similar or lesser harms. An individual in Oklahoma can be sentenced to life in prison for HIV exposure[cclxx] (not transmission), but will be sentenced to no more than a year for killing someone with their car.[cclxxi]

163. Sending people to prison who, because of the nature of their actions or because of measures they took to reduce infectiousness, could not have transmitted HIV, may be the starkest symbol of the misapplication of the criminal law in this context. But other penalties may prove equally burdensome or worse, because they are indefinite and can vary according to the identity and the discretion of the official supervising the offender. The use of penalties such as probation supervision, sex offender registration, and civil commitment are often highly intrusive and indefinite in duration.

164. The experience of detention may involve a choice between stigmatising segregation from other inmates[cclxxii] and exposure to threats of violence in a jail's general population. Medical confidentiality may be disregarded there, by design or through negligence; and antiretroviral drugs may be dispensed too openly, at inappropriate intervals, or, at least in the short term, not at all.[cclxxiii]

165. ***Issues for consideration***

(a) How can penalties be made proportionate to the actual harm caused in HIV non-disclosure, exposure and transmission cases?

(b) What other types of harms are sufficiently comparable to provide a useful framework for making HIV-related criminal punishments proportionate to similar harms?

(c) Should quasi-criminal penalties, such as probation supervision and sex offender registration requirements, be applied in HIV exposure cases

involving adult consensual sex? Is it a category of penalty that makes sense? If so, should it be applied to STIs beyond HIV?

VIII. CONCLUSION

166. The application of criminal law to HIV non-disclosure, exposure and transmission should have the following goals:

(a) To allow society to "right a wrong" (achieve justice) where the behaviour is blameworthy and punishment makes sense from a retributive and deterrence perspective, that is, where the person realized that his or her actions were likely to cause a serious harm and acted either with the intent to cause that harm or serious disregard for the likely harmful consequence;

(b) To be based on the actual level of risk and harm involved in the particular acts of non-disclosure, exposure or transmission;

(c) To treat HIV-related behaviour consistently in terms of harms, risk and proof, based on scientific evidence and understanding, as well as to treat HIV-related behaviour and harms in a manner that is proportionate to comparable behaviour and harms other than HIV;

(d) To support pubic health goals to encourage the greatest number of people to discuss their HIV concerns fully with health care professionals, get tested for HIV, practice safe behaviour whether infected or not infected, to be able and willing to disclose when appropriate, and be able and willing to take up and remain on HIV treatment; and

(e) To minimise unwarranted State intrusion into adult consensual relations.

167. Based on the scope and variability of laws and practice, it can be argued that these goals are not currently being achieved in the context the application of criminal law to HIV non-disclosure, exposure and transmission. Rather, the law often appears shaped by ignorance and/or prejudice regarding the aetiology of HIV and its impact. This results in overly harsh charges, miscarriages of justice, disproportionate sentences, and unhelpful and incorrect public information and messages about HIV and those who live with HIV.

168. Scientific and medical evidence relating to HIV, its modes of transmission and the impact of treatment should guide and circumscribe the application of criminal law to HIV non-disclosure, exposure and transmission. Principles of proportionality, foreseeability, intent, causality and non-discrimination should similarly be applied. Only through such considerations can there be an evidence-informed and human rights-based application of the criminal law in the context of HIV that achieves both justice and public health goals.

APPENDIX: FULL CHARTS AND ENDNOTES

Chart 1: HIV infection and relative risks, from page 10
The chart below presents data comparing HIV infection to other sexually transmitted infections common in high-income countries. These data illustrate that other sexually transmitted infections can pose similar, and sometimes equally great or greater, risks than HIV. As outlined below, herpes simplex virus type 2 (HSV-2) and human papillomavirus (HPV) are more prevalent than HIV in all countries included in this chart. Gonorrhoea and HPV are far more easily transmissible than HIV during unprotected sexual activity. Like HIV, HSV-2 is not curable. Potential consequences of HPV, gonorrhoea, and HSV- 2 include cancer, pelvic inflammatory disease, infertility, and infant death.

Disease	Prevalence	Associated Risk of Transmission	Infection Outcomes
HIV	**Country/Territory:** • Canada: 0.2%[cclxxiv] • Western and Central Europe: 0.2%[cclxxv] • United States: 0.6%[cclxxvi]	• Infection rate per sexual exposure to HIV:[cclxxvii] • Receptive vaginal intercourse: 0.10% • Insertive vaginal intercourse: 0.05% • Receptive oral intercourse: 0.00-0.04% • Insertive oral intercourse: ~0.00% • Receptive anal intercourse: 1.40% • Insertive anal intercourse: 0.065%	• HIV is not curable[cclxxviii] • Untreated HIV infection will almost inevitably lead to illness and premature death[cclxxix] • HIV can be managed as a chronic disease through the use of HAART (Highly Active Antiretroviral Therapy)[cclxxx,cclxxxi] • Early awareness of seroconversion and initiation of HAART before significant deterioration of the immune system begins may allow HIV-positive individuals to experience a near-normal life span[cclxxxii]
Human Papillomavirus (HPV)	**Country/Territory:** • Denmark (Copenhagen):[cclxxxiii] • Low-risk and/or high-risk types: 26.4% • Germany:[cclxxxiv] • Low-risk and/or high-risk types: 22.28% • Italy (Turin):[cclxxxv] • Low-risk and high-risk types: 13.0–14.0% • Netherlands:[cclxxxvi] • High-risk types: 5.6% • Spain (Valencia):[cclxxxvii] • Low-risk and/or high-risk types: 12.99% • United States:[cclxxxviii] • Low-risk and/or high-risk types: 26.8%	• Overall rate of HPV transmission from the cervix to the penis: 17.4% per month[cclxxxix] • Overall rate of HPV transmission from penis to the cervix: 4.9% per month[ccxc]	• There are more than forty types of HPV, classified as low-risk or high-risk based on strength of association with cervical cancer[ccxci] • High-risk HPV types cause 99% of cervical cancer cases, as well as anal and other genital cancers[ccxcii] • The advent of HPV screening and prevention technology has greatly reduced the number of cervical cancer deaths in high-income countries[ccxciii] • In 2007, 4,021 women died of cervical cancer in the United States[ccxciv] • In 2008, 3,794 in Western Europe and 2,094 in Northern Europe died of cervical cancer[ccxcv] • Cervical cancer ranks in the top 10 most prevalent cancers among Black, Hispanic, American Indian and Alaska Native women in the United States[ccxcvi] • Among women age 15-44, cervical cancer ranks between the second and fifth most prevalent cancers in the countries of Western and Northern Europe[ccxcvii]
Gonorrhoea	**Country/Territory:** • Denmark, Iceland, Norway, and Sweden:[ccxcviii] • 1.9% self-report ever having gonorrhoea • United Kingdom:[ccxcix] • 133 cases in women per 100,000 population • 196 cases in men per 100,000 population • United States:[ccc] • 105.5 cases in women per 100,000 population • 91.9 cases in men per 100,000 population	• Estimated female to male transmission rate per sexual contact: 25.0%[ccci] • Estimated male to female transmission rate per sexual contact: 50.0%[cccii]	• Gonorrhoea is treatable with antibiotics[cciii] • Treating gonorrhoea continues to become more difficult as drug resistance grows – Cephalosporins, currently in use, are the fourth line of treatment for gonorrhoea infection[cciv] • The United States Centers for Disease Control (CDC) now recommends dual therapy for gonorrhoea utilizing a cephalosporin and either azithromycin or doxycycline, as certain strains are demonstrating resistance to cephalosporins alone[ccv] • Untreated gonorrhoea can cause pelvic inflammatory disease, ectopic pregnancy, and infertility[ccvi] • Untreated gonorrhoea can increase susceptibility to human immunodeficiency virus (HIV) infection[ccvii]

Herpes Simplex Virus Type 2 (HSV-2)	**Country/Territory:**
	• Australia:[cccviii]
	  • 12.5% overall prevalence among adults
	  • Affects 1 in 6 women and 1 in 12 men
	• Western Europe:[cccix]
	  • Overall prevalence as high as 18.0% among women and 13.0% among men
	• United States:[cccx]
	  • 16.2% overall population prevalence
		• Male to female transmission rate per sexual contact: .089%[cccxi]
		• Female to male transmission rate per sexual contact: .015%[cccxii]
			• HSV-2, like all other types of herpes, is not curable[cccxiii]
			• Can cause repeated outbreaks of genital sores and lead to infant death if acquired during pregnancy[cccxiv]
			• Can increase susceptibility to HIV infection and can increase infectiousness of HIV-positive individuals[cccxv]

Chart 2: Comparing HIV sentencing with other offences, from page 31

	HIV Exposure Laws & Prosecutions	Drinking & Driving Laws	Reckless Endangerment	Vehicular Homicide
USA	• Range: **5-25** years in prison[cccxvi] • Some states have **mandatory sex offender registration**[cccxvii] • Examples statutes: o Georgia: max **20 years** in prison[cccxviii] o Oklahoma: max **5 years**[cccxix] o California: max **8 years**[cccxx] • Actual prosecutions: o Georgia: **8 years** in prison[cccxxi] • Oklahoma: **Life** sentence[cccxxii]	• First offense: <**1 year** in prison[cccxxiii] • Subsequent offense: <**3 years**[cccxxiv] • Examples o Georgia: **10 days - 1 year** in prison for first offense; **90 days - 1 year** for second offense[cccxxv] o Oklahoma: **48 hours - 1 year** in prison for first offense; **1-5 years** for second offense[cccxxvi] • California: **96 hours - 6 months** in prison for first offense; **96 hours - 1 year** for second offense[cccxxvii]	• Misdemeanour: **~2 years** in prison[cccxxviii] • Felony: **~10 years** in prison[cccxxix]	• Range: **1-99 years** in prison[cccxxx] • Examples: o Georgia: max **1 year** in prison[cccxxxi] o Oklahoma: max **1 year**[cccxxxii] • California: max **4 years**[cccxxxiii]
Canada	• Prosecuted under general criminal laws:[cccxxxiv] o Assault: max **5 years** in prison[cccxxxv] o Sexual assault: max **10 years**[cccxxxvi] o Assault causing bodily harm: max **14 years**[cccxxxvii] o Aggravated assault: max **14 years**[cccxxxviii] o Sexual assault causing bodily harm: max **14 years**[cccxxxix] o Aggravated sexual assault: max **life** in prison[cccxl] o Attempted murder: max **life**[cccxli] o Murder: max **life**[cccxlii] • Actual sentences have reached **49 years**[cccxliii] and **life** in prison[cccxliv] • Range (majority of sentences): **2-8 years**[cccxlv]	• Punishment for o First offense: Max **5 years** in prison[cccxlvi] o Second offense: **30 days - 5 years**[cccxlvii] o Subsequent Offenses: **120 days - 5 years**[cccxlviii] • If bodily harm results: Max **10 years** in prison[cccxlix]	• Criminal negligence:[cccl] max **10 years** in prison[cccli]	• Impaired driving causing death: max **life** in prison[ccclii]
England & Wales	• Prosecuted under general laws: o Intent to do grievous harm:[ccliii] **3-16 years** in prison[ccliv] o Recklessly inflicting bodily harm:[cclv] max **4 years**[cclvi]	• Dangerous driving:[cclvii] **<2 years** in prison[cclviii]	N/A	• Causing death by careless driving when under the influence:[cclix] **0.5-14 years** in prison[ccclx]
Australia	• Victoria (HIV-specific law): max **25 years** in prison[ccclxi]	• First offense: <**6 months** in prison[ccclxii] • Subsequent offenses: **<1 year**[ccclxiii]	• Max **10-20 years** in prison[ccclxiv]	• Max **10-20 years** in prison[ccclxv]
Germany	• Prosecuted under general criminal law: o Bodily injury: max **5 years** in prison[ccclxvi] o Aggravated assault: max **10 years**[ccclxvii]	• Max **5 years** in prison[ccclxviii]	N/A	N/A

[i] The term 'science' in this paper relates to basic and clinical HIV science, HIV medicine, HIV social science, and HIV-related public health science.
[ii] *See, e.g.*, Legal Services Commission of South Australia, Elements of a Criminal Offense, http://www.lawhandbook.sa.gov.au/ch10s03.php (last visited Nov. 7, 2011).
[iii] Because this meeting seeks to identify broadly applicable solutions rather than country-specific recommendations, it is impractical to devote significant space to the differences between the various criminal justice systems. To the best of our ability, we identify trends and ideas shared by all of the relevant high-income countries.
[iv] *See* Campbell v. State, 2009 WL 2025344 (Tex. App. 2009) (presenting the Texas Court of Appeals an opportunity to revisit whether or not the saliva of an HIV-positive person could be considered a "deadly weapon"); Weeks v. State, 834 S.W. 2d 559 (Tx. Ct. App. 1992) (The same Texas court upheld the attempted murder conviction of an HIV-positive man for spitting on a prison guard, allegedly believing that his saliva could kill the guard. The defendant was sentenced to life in prison because he had two former felony convictions). In both the *Campbell* and *Weeks* cases, the state medical witness testified that there was a theoretical possibility of HIV transmission through saliva, *Id*.
[v] Mathonican v. State 194 S.W.3d 59, 6 (Tex. App. 2006) (citing Najera v. State, 955 S.W.2d 698, 701 (Tex. App. 1997)). The court found that evidence of unprotected sex by an HIV-positive man, even if there was no evidence of ejaculation by the defendant, is sufficient for a finding that penis and seminal fluids are deadly weapons under the aggravated assault statute.
[vi] People v. Odom, 740 N.W.2d 557 (Mich. Ct. App. 2007). HIV-positive blood is considered a “harmful biological substance” under Michigan’s bioterrorism laws, and exposing others to HIV-positive blood may increase prison sentences for assault or may be prosecuted as a crime of its own.
[vii] *See* R. v. Mabior [2010] M.J. 308, 2010 M.B.C.A. 93 (Can.) (questioning whether HIV transmission endangers life under the aggravated assault laws of the Canadian Crimes Code).
[viii] However, the defendant is still facing sex and assault charges for his alleged behaviour. Adrian Humphreys, *HIV Not a Death Sentence: Judge*, NAT’L POST, July 14, 2011, http://news.nationalpost.com/2011/07/14/hiv-infection-not-a-death-sentence-judge.
[ix] *See, e.g.,* D.C. v. R., [2010] QCCA 2289 (Can.) (citing approvingly *R. v. Mabior*, 2010 M.B.C.A. 93, that HIV transmission is a serious harm under assault laws of the Canadian Crimes Code).
[x] Gail Cameron, *Evil HIV Beast Took My Babies Away From Me*, SCOT. SUN, Jan. 21 2010.
[xi] *Ten years Jail for "Utterly Irresponsible, Dangerous and Selfish" Infection of Women with HIV Virus*, FIRM MAGAZINE, Feb. 25, 2010, *available at* http://www.firmmagazine.com/news/1883/Ten_years_jail_for_%22utterly_irresponsible,_dangerous_and_selfish%22_infection_of_women_with_HIV_virus.html.
[xii] Commonwealth v. Cordoba, 902 A.2d 1280 (Pa. Super. Ct. 2006).
[xiii] In prosecutions where causing fear of HIV transmission appears to be the harm, the actual risk of transmission is often irrelevant, and thus convictions can be obtained even though there is no risk of transmission. In *Commonwealth v. Walker*, 836 A.2d 999 (Pa. Super. Ct. 2003), for example, the court affirmed a terroristic threat conviction for behaviour that posed no risk of HIV transmission but was accompanied by a threat to transmit HIV. The court implied that whether the victim was put in fear of infection was irrelevant; the only relevant question was whether the evidence supported the inference that the defendant “intended” to cause terror from fear of HIV infection. See discussion in section below addressing Risk.
[xiv] *See, e.g.,* Wilkinson v Downton [1897] 2 Q.B. 57 (establishing the tort of intentional infliction of mental shock).
[xv] *See* BLACK’S LAW DICTIONARY, ASSAULT (8th ed. 2004) (stating that there must be a reasonable fear of injury, the usual test applied being whether the act would induce such apprehension in the mind of a reasonable person).
[xvi] Healey v. Lakeridge Health Corporation, [2010] ONSC 725 (Can.). Although the uninfected persons did not test positive for TB and none of them were diagnosed with a recognizable psychiatric illness caused by the TB notification, approximately 3,500 uninfected persons have claims for damages for psychological injury as a result of being notified of exposure to TB. The court held that plaintiffs who are simply upset by something unpleasant or disturbing generally are not entitled to this compensation.
[xvii] For example, in a 2009 Canadian case where an HIV-negative man was informed by his partner that she was HIV-positive after a condom broke, the man wrote in his victim statement: "I am no longer able to sleep through the night due to anxiety and stress...[T]he year of doing blood work to make sure I was OK has affected me the most. The waiting period of a whole year felt like an eternity to me. Waiting to see if I was affected by the disease has had the most fearful impact on my life. I am still not 100% sure in my mind that I am OK." Michelle Mandel, *Woman Kept HIV Status to Herself*, TORONTO SUN, Sept. 11, 2009.
[xviii] Post-exposure prophylaxis (PEP) is a short course of antiretroviral drugs that is offered to individuals who are believed to have been exposed to HIV either during the course of their work (occupational PEP) or through sex (non-occupational PEP). Limited studies have shown that it greatly reduces the risk that HIV exposure will result in infection. However PEP guidelines, availability and prescribing practice vary within and between countries.
[xix] For example, in a 2009 biting case from the United States, the judge focused on the "eight anxious

months" before doctors told the bitten policeman he was HIV-negative and the (irrational) fear that he might transmit HIV via "any contact with his wife or children. The policeman later told reporters: "For three months afterward, I had to take a cocktail of medication three times a day, causing diarrhea, vomiting, nausea – everything you can think of." (It should be noted that he may have received incorrect medical advice – Post Exposure Prophylaxis is typically prescribed as once or twice-daily medication for no longer than 28 days.) David Ovalle, *HIV-Positive Drifter Gets 15 Years for Biting Miami Cop,* MIAMI HERALD, Aug. 26, 2009.

[xx] MICHEL FROMONT, GRANDS SYSTÈMES DE DROIT ÉTRANGERS 8 (Paris: Dalloz 4th ed. 2001).

[xxi] ERIK LUNA & MARIANNE WADE, EDS. THE PROSECUTOR IN TRANSNATIONAL PERSPECTIVE (Oxford Univ. Press 2011).

[xxii] Melissa Woodroffe, *Criminal Transmission of HIV in Australia*, *in* THE CRIMINALISATION OF HIV TRANSMISSION IN AUSTRALIA: LEGALITY, MORALITY AND REALITY (Sally Cameron & John Rule eds., 2009).

[xxiii] Global Network of People Living with HIV, The Global Criminalisation Scan Report (2010).

[xxiv] Under the American Law Institute's Model Penal Code, a homicide can either be murder (a homicide committed purposely, knowingly, or with extreme recklessness), manslaughter (a reckless homicide), or negligent homicide (a homicide committed negligently). MODEL PENAL CODE § 210.2 (1985), MODEL PENAL CODE § 210.3 (1985), MODEL PENAL CODE § 210.4. *See also* MODEL PENAL CODE § 2.02 (general requirements of culpability: definitions of "purposely," "knowingly," "recklessly," and "negligently").

[xxv] In 2009, a Canadian man was convicted on two counts of first-degree murder for having unprotected sex with and failing to disclose his HIV status to two women who later died of AIDS-related cancers. Barbara Brown, *Guilty Verdict in Hamilton HIV Murder Case*, TORONTO STAR, Apr. 4, 2009. A similar case occurred in Italy in 2000, where a man was convicted of "culpable homicide" for infecting his wife, who subsequently died. The Rise of Prosecutions in High-income Countries, http://www.aidsmap.com/The-rise-of-prosecutions-in-high-income-countries/page/1442066/#_Italy_1 (last visited Nov. 6, 2011).

[xxvi] Annette Houlihan, *Offences against the (Moral) Person: HIV Transmission Offences in Australia*, *forthcoming in* Proceedings of the 2010 Australian and New Zealand Critical Criminology Conference (discussing Crown v. Michael Neal, cr-07-00656, unreported Parsons J., County Court, 19 Jan. 2009).

[xxvii] Inga Saffron, *In Finland, HIV Case Makes Headlines*, PHILA. INQUIRER, Apr. 7, 1997, at A03. State v. Hinkhouse, 915 P.2d 489 (Or. Ct. App. 1996). Defendant was convicted of attempted murder based on having had unprotected vaginal sexual intercourse with several different women over a period of years and continuing to do so after being counselled not to; in one case he refused to use condoms and lied to his sexual partner about his HIV status.

[xxviii] MODEL PENAL CODE § 5.01(1)(b). That is to say, the fact that a result, such as HIV transmission, cannot be the outcome of an action does not provide a defence to the crime of attempting to bring about that result, at least "if such crime could have been committed had the attendant circumstances been as such person believed them to be." N.Y. Penal Law § 110.10. Some jurisdictions do, however, retain the common law defence of impossibility. In such jurisdictions, the defence can argue that the means by which the defendant attempted to transmit the virus were inherently unlikely to succeed.

[xxix] State v. Smith, 621 A.2d 493 (N.J.App. 1993).

[xxx] MODEL PENAL CODE § 211.1(1) (1985). In many jurisdictions, "battery" is the charge for physical harm; while "assault" is creating a fear that a battery is about to occur. Most jurisdictions merge the concepts.

[xxxi] MODEL PENAL CODE § 211.1(2) (1985).

[xxxii] Canadian Criminal Code § 268.

[xxxiii] R. v. Cuerrier [1998] 2 S.C.R. 371 (Can.).

[xxxiv] Eric Mykhalovskiy et al., *HIV Non-Disclosure and Criminal Law: Establishing Policy Options for Ontario* 21-22 (2010), *available at* www.catie.ca/pdf/Brochures/HIV-non-disclosure-criminal-law.pdf.

[xxxv] Henry v. State No. 08-05-00364-CR, 2007 Tex. App. LEXIS 6791, 2007 WL 2405798 (Tex. Ct. App. Aug. 23, 2007), rev. denied, 2008 Tex. Crim. App. LEXIS 104 (Tex. Crim. App. Jan. 23, 2008).

[xxxvi] United States v. Upham 66 M.J. 83 (C.A.A.F. 2008), aff'g 64 M.J. 547 (C.G. Ct. Crim. App. 2006). An officer in the Coast Guard was convicted of aggravated assault based on allegations that he had unprotected, vaginal sex with a female officer without disclosing his HIV status. The court of appeals disagreed based on evidence that the officer's low viral load made the risk of HIV transmission too remote, i.e., he had not engaged in an activity that was likely to produce "death or grievous bodily harm." The court did affirm a conviction for a lesser offense, assault consummated by a battery.

[xxxvii] S. v. Procureur General, Chambre penale [ACJP] [Court of Justice Penal Division] Feb. 23, 2009 (Switz.). Man with HIV was acquitted of the attempted spread of bodily disease and attempted serious bodily harm despite unprotected sex with a woman, because he was taking ARVs and thus had an undetectable viral load, thus there was "no risk of contamination."

[xxxviii] New Zealand Police v. Dalley, [2005] 22 CRNZ 495 (D.C.). Dalley was charged with criminal nuisance for not disclosing his HIV-positive status before having unprotected oral intercourse and protected vaginal intercourse. The court acquitted the defendant based on the fact that the risk of transmission during both acts was very low.

[xxxix] Model Penal Code §2.02(2)(c).

[xl] Model Penal Code §211.2 (1985).

[xli] *See* Burk v. State, 478 S.E.2d 416 (Ga. Ct. App. 1996) (administering a felony conviction in case in which defendant bit a police officer). *See also* Shelley Hadfield, *HIV Man Guilty of Unsafe Sex May*

Avoid Jail, HERALD SUN, June 20, 2008, http://www.heraldsun.com.au/news/victoria/hiv-man-guilty-of-unsafe-sex/story-e6frf7kx-1111116684296 (describing a case in Australia where a 29-year-old man pled guilty to "reckless conduct" for having unprotected sex with a female while knowing he was HIV-positive; the woman did not get infected). Another man in Sweden was sentenced to 10 months in prison for "reckless endangerment" for having unprotected sex with another man; the man also did not get infected. *HIV-Positive Doc Gets Jail for Sex*, The Local, http://www.thelocal.se/27366/20100621 (last visited Nov. 6, 2011).

[xlii] NATIONAL AIDS TRUST, PROSECUTIONS FOR HIV TRANSMISSION: A GUIDE FOR PEOPLE LIVING WITH HIV IN ENGLAND AND WALES 3 (2009), *available at* http://aidslex.org/site_documents/CR-0079E.pdf. Someone can be charged with "attempted intentional transmission" of HIV when he or she purposefully wanted to give another person HIV. *Id.*

[xliii] *E.g.,* Beauford v. People, 2d Crim. No. B196860, 2008 WL 5091389 (Cal. Ct. App. Dec. 4, 2008). A man in Edmonton, Canada was sentenced to eight months in prison for threatening police officers with a needle purportedly containing HIV. Tony Blais, *Eight Months for HIV-Syringe Threat*, EDMONTON SUN, May 12, 2009.

[xliv] *E.g.* People v. Shawn, No. 02CA2394, 2004 WL 2004085 (Colo. Ct. App. Sept. 9, 2004) (affirming a felony menacing conviction on basis of defendant's verbal threats to store employee, while pinching and scratching employee in attempt to escape); Commonwealth v. Walker, 836 A.2d 999 (Pa. Super. Ct. 2003) (affirming a terroristic threat conviction on basis of defendant's threatening statement to police officer, while attempting to dig fingernails in police officer's hands during arrest).

[xlv] MATTHEW WEAIT, INTIMACY AND RESPONSIBILITY: THE CRIMINALISATION OF HIV TRANSMISSION (2007) ("The way in which the 'harm' of HIV is constructed and reproduced through law . . . is no different from being beaten or poisoned. And yet is this the experience of infection?").

[xlvi] UNAIDS/WHO estimate that the average number of years that people living with HIV survive without treatment has increased from nine to eleven years. UNAIDS, AIDS EPIDEMIC UPDATE: DECEMBER 2007 (2007).

[xlvii] Jason F. Okulicz et al., *Clinical Outcomes of Elite Controllers, Viremic Controllers, and Long-Term Nonprogressors in the US Department of Defence HIV Natural History Study*, 11 J. OF INFECTIOUS DISEASES 1714-1723 (2009).

[xlviii] For example, the age-adjusted HIV-related death rate in the United States dropped from 17 per 100,000 people in 1995 to about five per 100,000 people by the end of the decade. US CENTERS FOR DISEASE CONTROL AND PREVENTION, TRENDS IN ANNUAL AGE-ADJUSTED RATE OF DEATH DUE TO HIV DISEASE, UNITED STATES 1987−2006, *available at* http://www.cdc.gov/hiv/topics/surveillance/resources/slides/mortality/slides/mortality5.pdf.

[xlix] National and local guidelines on the recommended time to start treatment can vary, but most high-income guidelines currently recommend treatment at a CD4 count < 350-500 cells/mm3. Charlotte Lewden & Mortality Working Group of COHERE, *Time with CD4 Cell Count Above 500 cells/mm3 Allows HIV-infected Men, But Not Women, to Reach Similar Mortality Rates to Those of the General Population: A 7-year Analysis*, *in* SEVENTEENTH CONFERENCE ON RETROVIRUSES AND OPPORTUNISTIC INFECTIONS (San Francisco, Feb. 16-19, 2010).

[l] *Id*.

[li] Ard van Sighem et al., *Life Expectancy of Recently Diagnosed Asymptomatic HIV-infected Patients Approaches That of Uninfected Individuals*, *in* SEVENTEENTH CONFERENCE ON RETROVIRUSES AND OPPORTUNISTIC INFECTIONS (San Francisco, Feb. 16-19, 2010).

[lii] Margaret May et al., *Impact of Late Diagnosis and Treatment on Life Expectancy in People with HIV-1: UK Collaborative HIV Cohort (UK CHIC) Study*, 343 BRIT. MED. J. (2011).

[liii] The Antiretroviral Cohort Collaboration, *Life Expectancy of Individuals on Combination Therapy in High-income Countries: A Collaborative Analysis of 14 Cohort Studies*, 372 LANCET 293 (2008).

[liv] Krishnan Bhaskaran et al., *Changes in the Risk of Death After HIV Seroconversion Compared with Mortality in the General Population*, 300 J. AM. MED. ASS'N 51 (2008).

[lv] Kathleen Harrison et al., *Life Expectancy After HIV Diagnosis Based on National Surveillance Data from 25 States, United States*, 53 J. ACQUIRED IMMUNE DEFICIENCY SYNDROME 124 (2010).

[lvi] Vikram Gill et al., *Improved Virological Outcomes in British Columbia Concomitant with Decreasing Incidence of HIV Type 1 Drug Resistance Detection*, 50 CLINICAL INFECTIOUS DISEASES 98 (2010).

[lvii] UK Collaborative Group on HIV Drug Resistance and UK CHIC Study Group, *Long-term Probability of Detecting Drug-resistant HIV in Treatment-naïve Patients Initiating Combination Antiretroviral Therapy*, 50 CLINICAL INFECTIOUS DISEASES 1275 (2010).

[lviii] Nancya Crum-Cianflone,*Trends in the Incidence of Cancers Among HIV-infected Persons and the Impact of Antiretroviral Therapy: A 20-year Cohort Study*, 23 AIDS 41 (2009).

[lix] Nina Friis-Møller et al., *Predicting the Risk of Cardiovascular Disease in HIV-infected Patients: The Data Collection on Adverse Effects of Anti-HIV Drugs Study*, 17 EUR. J. CARDIOVASCULAR PREVENTION & REHABILITATION 491 (2010).

[lx] Ighovwerha Ofotokun & M. Neale Weitzmann, *HIV and Bone Metabolism*,11 DISCOVERY MED. 385 (2011).

[lxi] Monia Mendeni et al., *Evaluation of Liver Fibrosis: Concordance Analysis Between Noninvasive Scores (APRI and FIB-4) Evolution and Predictors in a Cohort of HIV-infected Patients Without Hepatitis*

C and B Infection, 52 CLINICAL INFECTIOUS DISEASES 1164 (2011).
[lxii] Joan Carles Trullas et al., *Dialysis and Renal Transplantation in HIV-infected Patients: A European Study*, 55 J. ACQUIRED IMMUNE DEFICIENCY SYNDROME, 582 (2010).
[lxiii] Phyllis Tien et al., *Inflammation and Mortality in HIV-infected Adults: Analysis of the FRAM Cohort Study*, J. ACQUIRED IMMUNE DEFICIENCY SYNDROME (July 2010) (advance online publication).
[lxiv] Adeel Butt, *HIV Infection and the Risk of Diabetes Mellitus*, 23 AIDS 1227 (2009).
[lxv] Judith Shlay et al., Long-term Body Composition and Metabolic Changes in Antiretroviral Naïve Persons Randomized to Protease Inhibitor-, Nonnucleoside Reverse Transcriptase Inhibitor-, or Protease Inhibitor Plus Nonnucleoside Reverse Transcriptase Inhibitor-based Strategy, 44 J. ACQUIRED IMMUNE DEFICIENCY SYNDROME 506 (2007).
[lxvi] Signe Westring Worm et al., *Risk of Myocardial Infarction in Patients with HIV Infection Exposed to Specific Individual Antiretroviral Drugs from the 3 Major Drug Classes: The Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) Study*, 210 J. INFECTIOUS DISEASES 3108 (2010).
[lxvii] Rein Jan Piso et al., *Markers of Bone Turnover are Elevated in Patients with Antiretroviral Treatment Independently of the Substance Used*, 56 J. ACQUIRED IMMUNE DEFICIENCY SYNDROME 320 (2011).
[lxviii] Kitty Chan et al., *Combination Antiretroviral Therapy and Improvements in Mental Health: Results from a Nationally Representative Sample of Persons Undergoing Care for HIV in the United States*, 33 JAIDS 104 (2003).
[lxix] Joel Tsevat et al., *Change in Quality of Life After Being Diagnosed with HIV: A Multicenter Longitudinal Study*, 23 AIDS PATIENT CARE & STDS 931 (2009).
[lxx] Lisa Power, *Will a Long Life be a Good One?*, HIV TREATMENT UPDATE (July 2010).
[lxxi] Robert Remien & Claude Mellins, *Long-term Psychosocial Challenges for People Living with HIV: Let's Not Forget the Individual in our Global Response to the Pandemic*, 21 AIDS (Supp. 5 2007).
[lxxii] Peter Weatherburn et al., *What Do You Need? 2007-2008: Findings from a National Survey of People with Diagnosed HIV*, SIGMA RES. (2009).
[lxxiii] *See generally*, People Living with HIV Stigma Index, http://www.stigmaindex.org/ (last visited Nov. 11, 2011).
[lxxiv] Philippa Roxby, *'Medical Triumph' of Prolonging HIV Positive Lives*, BBC NEWS, June 17, 2011.
[lxxv] Robert James & Yusef Azad, *Do Judges Understand HIV? A Review of Court Transcripts from Cases Involving HIV Transmission*, NAT (2009).
[lxxvi] *Id.*
[lxxvii] Samuel Broder, The Development of Antiretroviral Therapy and Its Impact on the HIV-1 AIDS Pandemic, Antiviral Research (2010), http://hivlawandpolicy.org/resources/view/590. *See also* CDC, Guide to Primary Care for People with HIV/AIDS, http://www.hab.hrsa.gov/tools/primarycareguide/index.htm (noting that although there is no cure for HIV infection, treatment options help people with HIV experience long and productive lives) (last visited Nov. 11, 2011).
[lxxviii] The U.S. Centers for Disease Control and Prevention recommends post-exposure prophylaxis for only 28 days, and notes that "[i]nitial concerns about severe side effects and toxicities have been ameliorated by experience with health-care workers who have taken PEP after occupational exposures." CDC, Antiretroviral Postexposure Prophylaxis After Sexual, Injection-Drug Use, or Other Nonoccupational Exposure to HIV in the United States, 54 MMWR 1-20 (RR02, 2005), http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5402a1.htm (last visited Nov. 11, 2011). Post-exposure prophylaxis is accessed increasingly by HIV-negative individuals after potential exposure incidents. *Putting PEP into Practice*, AIDSMAP.COM, *available at* http://www.aidsmap.com/Putting-PEP-into-practice/page/1746602/; Elizabeth Hamlyn & Philippa Easterbrook, *Occupational Exposure to HIV and the Use of Post-exposure Prophylaxis*, 57 OCCUPATIONAL MED. 329 (2007). Several recent studies suggest the potential efficacy of extended use of ARVs by HIV-negative individuals in decreasing HIV transmission between sero-discordant couples without significant side-effects. *TDF2 Study of Pre-Exposure Prophylaxis (PrEP) Among Heterosexual Men and Women in Botswana: Key Facts*, CENTERS FOR DISEASE CONTROL & PREVENTION, July 13, 2011, *available at* http://www.cdc.gov/nchhstp/newsroom/docs/PrEP-Heterosexuals-Factsheet.doc; Keith Alcorn & Gus Cairn, *Two Major Studies Show that HIV Drugs Prevent Infection*, AIDSMAPS.COM, July 13, 2011, *available at* www.aidsmap.com/Two-major-studies-show-that-HIV-drugs-prevent-infection/page/1870585/.
[lxxix] Stefano Butto et al., *Laboratory Diagnostics for HIV Infection*, 46 ANN IST SUPER SANITÀ 24 (2010).
[lxxx] This situation is analogous to that presented by civil claims for compensation based on negligent infliction of emotional distress resulting from exposure to HIV but where HIV has not been transmitted. Many courts in the United States, where such claims have been frequently litigated, allow emotional distress claims only from date of exposure to the date it is medically determined that transmission did not occur. Additionally, for such a claim to be viable, the claimant's fear of HIV infection must have a reasonable basis in fact. AIDS AND THE LAW § 8.03[B] (David W. Webber ed., 4th ed. 2008).
[lxxxi] *See, e.g.*, Behr v. Redmond, 193 Cal. App. 4th 517, 2011 WL 721465 (4th Dist. 2011) (involving negligence and fraudulent misrepresentation claims by woman against former boyfriend for herpes transmission without disclosure of his condition, where the woman was awarded $1.576 million in compensatory damages and $2.75 million in punitive damages); B.N. v. K.K., 312 Md. 135, 144, 538

A.2d 1175, 1180 (1988) (intentional infliction of emotional distress claim from woman against man for herpes transmission without disclosure of his condition); McPherson v. McPherson, 1998 ME 141, 712 A.2d 1043 (Me. 1998) (negligence claim by woman against man for HPV transmission without disclosure of his condition). *See also* R.A.P. v. B.J.P., 428 N.W.2d 103 (Minn. Ct. App. 1988) (awarding $50,000 for herpes transmission).

[lxxxii] *See generally* CDC, Trends in Sexually Transmitted Diseases in the United States: 2009 National Data for Gonorrhoea, Chlamydia and Syphilis, http://www.cdc.gov/std/stats09/trends.htm (detailing how each year, STDs cause at least 24,000 women in the U.S. to become infertile; untreated syphilis can lead to serious long-term complications, including brain, cardiovascular and organ damage; syphilis in pregnant women can also result in congenital syphilis (syphilis among infants), which can cause stillbirth, death soon after birth, and physical deformity and neurological complications in children who survive; untreated syphilis in pregnant women results in infant death in up to 40 percent of cases) (last visited Nov. 11, 2011); CDC, STDs & Pregnancy - CDC Fact Sheet, http://www.cdc.gov/std/pregnancy/STDFact-Pregnancy.htm (STDs can cause cervical and other cancers, chronic hepatitis, pelvic inflammatory disease, infertility, and other complications.) (last visited Nov. 11, 2011); CDC, STDs & Infertility, http://www.cdc.gov/std/infertility/default.htm (An estimated 2.8 million cases of chlamydia and 718,000 cases of gonorrhoea occur annually in the United States.) (last visited Nov. 11, 2011).

[lxxxiii] CDC, HIV & STDs, http://www.cdc.gov/std/hiv/default.htm (Persons who are infected with STDs are more likely than uninfected persons to acquire HIV infection.) (last visited Nov. 11, 2011).

[lxxxiv] CDC. Sexually Transmitted Diseases Treatment Guidelines 2010, http://www.cdc.gov/std/treatment/2010/genital-ulcers.htm#hsv (last visited Nov. 11, 2011).

[lxxxv] CDC, Hepatitis B FAQs for the Public, http://www.cdc.gov/hepatitis/B/bFAQ.htm# (800,000 to 1.4 million persons have chronic Hepatitis B virus infection in the United States, and hepatitis B is 50–100 times more infectious than HIV.) (last visited Nov. 11, 2011); CDC, Hepatitis C FAQs for the Public, http://www.cdc.gov/hepatitis/C/cFAQ.htm#cFAQ04 (3.2 million persons in the United States have chronic Hepatitis C virus infections; risk of transmission from sexual contact is believed to be low, but is more commonly believed to be transmitted by sharing needles or syringes.) (last visited Nov. 11, 2011).

[lxxxvi] CDC, Human Papillomavirus (HPV)-Associated Cancers, http://www.cdc.gov/cancer/hpv (HPV is associated with cervical, vulvar, vaginal, penile, anal, and a few head and neck (oropharyngeal) cancers; each year, more than 20,000 HPV-associated cancers occur in women and more than 11,000 in men.) (last visited Nov. 11, 2011).

[lxxxvii] C.D. Scarbrough Lefebvre et al., *Appraisal of the Burden of Genital Warts from a Healthcare and Individual Patient Perspective*, 125 PUBLIC HEALTH 464 (2011).

[lxxxviii] Daniel A. Larson & Craig S. Derkay, *Epidemiology of Recurrent Respiratory Papillomatosis*, 118 APMIS 450 (2010).

[lxxxix] Jan Walboomers et al., *Human Papillomavirus is a Necessary Cause of Invasive Cervical Cancer Worldwide*, 189 J. PATHOLOGY 12 (1999).

[xc] F. Xavier Bosch and Silvia de Sanjosé, Chapter 1: Human Papillomavirus and Cervical Cancer-burden and Assessment of Causality, 31 J. OF NAT'L CANCER INSTITUTE MONOGRAPHS 3 (2003).

[xci] CDC, What is HPV?, http://www.cdc.gov/hpv/whatishpv.html (last visited Nov. 11, 2011).

[xcii] Brenda Y. Hernandez et al., *Transmission of Human Papillomavirus in Heterosexual Couples*, 14 EMERGING INFECTIOUS DISEASES 888 (2008).

[xciii] Johannes A. Bogaards et al., *Model-based Estimation of Viral Transmissibility and Infection-induced Resistance from the Age-dependent Prevalence of Infection for 14 High-risk Types of Human Papillomavirus*, 171 AM. J. OF EPIDEMIOLOGY 817 (2010).

[xciv] National Cancer Institute, Surveillance Epidemiology and End Results, SEER Stat Fact Sheets: Cervix Uteri, http://seer.cancer.gov/statfacts/html/cervix.html (last visited Nov. 11, 2011).

[xcv] Keith L. Cummings et al., *Hand Hygiene Noncompliance and the Cost of Hospital-Acquired Methicillin-Resistant Staphylococcus aureus Infection*, 31 INFECTION CONTROL & HOSP. EPIDEMIOLOGY 357 (2010); Michael R. Eber et al., *Clinical and Economic Outcomes Attributable to Health Care–Associated Sepsis and Pneumonia*, 170 ARCH. INTERN. MED. 347 (2010).

[xcvi] CDC, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html (last visited Nov. 11, 2011).

[xcvii] For example, under Illinois law, battery is defined as causing bodily harm to an individual or making physical contact of an insulting or provoking nature with an individual, and it is classified as a class A misdemeanour. As a matter of common sense, the crime of battery thus involves a significant risk of physical injury, and in some instances actual bodily harm, yet this offense is classified as a far less serious offense than the Class 2 felony "criminal transmission of HIV" statute. 720 Ill. Comp. Stat. 5/12-5.01 (2011). A conviction for a class 2 felony results in a sentence of not less than 3 and not more than 7 years and a fine up to $25,000. 730 Ill. Comp. Stat. 5/5-4.5 (2011).

[xcviii] Robert B. Voas & John C. Lacey, National Highway Traffic Safety Administration, Alcohol and Highway Safety 2006: A Review of the State of Knowledge 17 (2011), http://www.nhtsa.gov/staticfiles/nti/pdf/811374.pdf (last visited Nov. 11, 2011).

[xcix] 625 Ill. Comp. Stat. 5/11-501 (2011).

[c] 720 Ill. Comp. Stat. 5/12-5.01 (2011).
[ci] 730 Ill. Comp. Stat. 5/5-4.5 (2011).
[cii] ON DWI LAWS IN OTHER COUNTRIES, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (March 2000), http://www.nhtsa.gov/people/injury/research/pub/dwiothercountries/dwiothercountries.html.
[ciii] Mykhalovskiy, *supra* note 34, *at* 6.
[civ] In *R. v. J.A.T.*, *[2010] BCSC 766 (Can.),* Justice Lauri Ann Fenlon ruled: "I am not satisfied that a 0.12% risk of transmission of a virus that, while still a serious lifelong harm, is now largely treatable, constitutes endangerment to life. It follows that the Crown has not proved aggravated sexual assault."
[cv] Edwin J. Bernard, *Canada: Gay Man Acquitted of HIV Exposure in Vancouver, Risk Not Significant Enough for Liability*, CRIMINAL HIV TRANSMISSION, May 7, 2010, *available at* http://criminalhivtransmission.blogspot.com/2010/05/canada-gay-man-acquitted-of-hiv.html.
[cvi] Edwin J. Bernard, *Denmark: Justice Minister Suspends HIV-specific Criminal Law, Sets up Working Group,* CRIMINAL HIV TRANSMISSION, Feb. 17, 2011, *available at* http://criminalhivtransmission.blogspot.com/2011/02/denmark-justice-minister-suspends-hiv.html.
[cvii] This disparity is even clearer when compared with the hepatitis C virus (HCV). There has only been one prosecution of sexual HCV transmission in Canada, and yet in this case (R. v. Jones, New Brunswick Court of Queen's Bench 340, 2002), a trial judge accepted expert medical evidence that the per-act risk via unprotected sex was less than 1% (1 in 100) for vaginal sex and from 1– 2.5% (1 in 40 to 1 in 100) for anal sex. Although these estimates are higher than expert testimony provided for the per-act risk of sexual HIV transmission in Canadian cases before and since, the judge found that the risk was "so low that it cannot be described as significant. Therefore, the positive duty to disclose does not arise." Canadian HIV/AIDS Legal Network, Criminalisation of HIV Exposure: Canada, Global Criminalisation Scan, Jan. 2010.
[cviii] E.g., R. v. Cuerrier, [1998] 2 S.C.R. 371 (implying that use of a condom reduces the risk of transmission below the level of being "significant").
[cix] E.g., D.C. v. R., No. 500-10-004068-084 (C.A. Dec. 13, 2010), citing approvingly R. v. Mabior [2010] M.J., No. 308, 2010 M.B.C.A. 93 (HIV transmission is substantial harm, but risk of transmission is not significant if defendant's viral load is undetectable and presented a 1 in 10,000 risk from a single act of unprotected sexual intercourse).
[cx] Mykhalovskiy, *supra* note 34, *at* 19.
[cxi] [1998] 2 S.C.R. 371 (Can.)
[cxii] Mykhalovskiy, *supra* note 34.
[cxiii] R. v. Edwards, 2001 NSSC 80 (Nova Scotia Supreme Court) at para. 6.
[cxiv] Sandra Ka Hon Chu & Richard Elliott, *Man Convicted of First-degree Murder Sets Disturbing Precedent*, 14 HIV/AIDS POL. L. REV. 42 (2009).
[cxv] The U.S. has multiple jurisdictions with HIV-specific criminal laws that prohibit conduct that poses not even a theoretical risk of transmission. For example, in the state of Michigan, a person with HIV who performs "any…intrusion, however slight, of any part of a person's body or of any object into the genital or anal openings of another person's body" is guilty of a felony. Mich. Comp. Laws Ann. § 333.5210 . Austria has a similar law: committing an "action" that can cause the risk of spreading a transferable illness among humans can be punished with imprisonment for up to three years or with a fine." Strafgesetzbuch [StGB] [Penal Code] § 178 (Austria).
[cxvi] IDAHO CODE ANN. §39-608 (2011).
[cxvii] 720 Ill. Comp. Stat. 5/12-5.01 (2011).
[cxviii] The Illinois statute's only affirmative defence, which is typical of many HIV-specific statutes, is that "the person exposed knew that the infected person was infected with HIV, knew that the action could result in infection with HIV, and consented to the action with that knowledge." 720 Ill. Comp. Stat. 5/12-5.01(d) (2011). See also White v. State, No. CR06-1187, 2007 Ark. LEXIS 386, 2007 WL 1775699 (Ark. June 21, 2007) (affirming conviction under HIV-specific statute for "exposing another to HIV by sexual penetration" without having first disclosing HIV infection and rejecting defendant's argument that use of a condom required reversal).
[cxix] For a critique of the over-inclusiveness of such laws, see Carol L. Galletly & Steven D. Pinkerton, *Toward Rational Criminal HIV Exposure Laws,* 32 J. L. MED. & ETHICS 327 (2004); Carol L. Galletly & Steven D. Pinkerton, *Conflicting Messages: How Criminal HIV Disclosure Laws Undermine Public Health Efforts to Control the Spread of HIV*, 10 AIDS BEHAVIOUR 451 (2006).
[cxx] *See e.g.* R. v. Mekonnen, [2009] ONCJ 643 (Can. Ont.) (holding that vaginal intercourse with a condom but without HIV disclosure is an aggravated sexual assault, without considering evidence of risk of HIV transmission). Ark. Code. Ann. § 5-14-123 (Which makes any "sexual penetration" by someone with HIV a felony unless they disclose, and defines "sexual penetration" as "sexual intercourse, cunnilingus, fellatio, anal intercourse, or any other intrusion, however slight, of any part of a person's body or of any object into a genital or anal opening of another person's body.")
[cxxi] New Zealand Police v Dalley, District Court of Wellington, Court File No. CRI-2004-085-009168, October 4, 2005.
[cxxii] R. v Mabior, [2008] MBQB 201 (Can.). However, the latter ruling was reversed on appeal, which found there is no significant risk if either a condom is used or the defendant has an undetectable viral load. (Canadian HIV/AIDS Legal Network. Court of Appeal Decision on Mabior Case in Manitoba,

http://www.cpaoc.ca/?p=152, Nov. 2, 2010.) The Crown has appealed that decision and the case will now be heard in the Supreme Court of Canada with a tentative date for the appeal hearing of February 2012 (SCC Case Information Docket 33976, Her Majesty the Queen v. Clato Lual Mabior.)
[cxxiii] La. Rev. Stat. Ann. § 14:43.5.
[cxxiv] *Husband Held on Rape, HIV Charges*, TIMES-PICAYUNE, Feb. 12, 2008.
[cxxv] Matthew Pleasant, Houma Man Accused of Attempted HIV Exposure, DAILYCOMET.COM, June 21, 2009.
[cxxvi] Associated Press, *Louisiana Man Arrested After Allegedly Trying to Expose Hospital Staff to AIDS Virus*, FOX NEWS, Dec. 29, 2009.
[cxxvii] R. v. Mabior [2010] M.J., No. 308, 2010 M.B.C.A. 93, ¶ 127 (Can.).
[cxxviii] D.C. v. R., No. 500-10-004068-084, ¶ 113 (C.A. Dec. 13, 2010).
[cxxix] Global Network of People Living with HIV, Case Study: Criminalisation of HIV Transmission in Canada 5-6 (2009).
[cxxx] R. v. Thornton, [1991] 1 O.R. (3d) 480, [1991] O.J. No. 25 (Ont. C.A.) (QL), aff'd (1993), 82 C.C.C. (3d) 530, [1993] S.C.J. No. 62 (S.C.C.) (QL).
[cxxxi] New Zealand Police v. Dalley, (2005) 22 CRNZ 495.
[cxxxii] Chambers v. United States, 555 U.S.122 (2009) (The Court found "a small risk of physical violence (less than one in several thousand) to not qualify as a "violent felony.").
[cxxxiii] Marie-Claude Boily et al., *Heterosexual Risk of HIV-1 Infection per Sexual-Act: Systematic Review and Meta-Analysis of Observational Studies*, 9 LANCET 118 (2009).
[cxxxiv] *Id.*
[cxxxv] Eric Vittinghoff et al., *Per-contact Risk of Human Immunodeficiency Virus Transmission Between Male Sexual Partners*,150 AM. J. EPIDEMIOLOGY 306 (1999).
[cxxxvi] *Id.*
[cxxxvii] Rebecca F. Baggaley et al., *Systematic Review of Orogenital HIV-1 Transmission Probabilities*, 37 INT. J. EPIDEMIOLOGY 1255 (2008).
[cxxxviii] *Id*.
[cxxxix] *Id.*
[cxl] Karen Davis-Beaty & Susan C. Weller, *Condom Effectiveness in Reducing Heterosexual HIV Transmission*, 1 COCHRANE DATABASE OF SYSTEMATIC REVIEWS (2002).
[cxli] Pamela French et al., *Use-Effectiveness of the Female Versus Male Condom in Preventing Sexually Transmitted Disease in Women*, 30 SEXUALLY TRANSMITTED DISEASES 433 (2003).
[cxlii] Barbara Weiser et al., *Quantitation of Human Immunodeficiency Virus Type 1 During Pregnancy: Relationship of Viral Titer to Mother-to-child Transmission and Stability of Viral Load*, 17 PROCEEDINGS OF NAT'L ACADEMY SCIENCES US 8037 (1994).
[cxliii] Maria Wawer et al. *Rates of HIV-1 Transmission Per Coital Act by Stage of HIV-1 Infection, in Rakai, Uganda*, 191 J. INFECTIOUS DISEASES 1403 (2005).
[cxliv] A 2009 systematic review of eleven studies to date in heterosexual couples where one partner was HIV-positive at the start of the study – but where only some of the HIV-positive partners were receiving antiretroviral therapy (ART) – found no evidence of HIV transmission if the HIV-positive partner was treated with ART and had a viral load below 400 copies/ml, but the data were also compatible with a maximum of one transmission per 7,900 sex acts if the couple had sex, on average, 100 times a year, and the probability of transmission remained constant. Suzanna Attia et al., *Sexual Transmission of HIV According to Viral Load and Antiretroviral Therapy: Systematic Review and Meta-analysis*, 23 AIDS 1431 (2009).
[cxlv] Karin Bruinenberg & Willemijn van Kouwen, *Supreme Court of the Netherlands, Criminal Division (Hoge Raad der Nederlanden, Strafkamer) HIV Transmission: Criminalisation. Judgment of 25 March 2003, Case No: LJN AE 9049, Judgment of 18 January 2005, Case No: LJN AR 1860*, 70 J. OF CRIM. L. 485 (2006).
[cxlvi] Seth C. Kalichman et al., *Human Immunodeficiency Virus Load in Blood Plasma and Semen: Review and Implications of Empirical Findings*, 35 SEXUALLY TRANSMITTED DISEASES 55 (2008).
[cxlvii] Awewura Kwara et al., *Antiretroviral Drug Concentrations and HIV RNA in the Genital Tract of HIV-infected Women Receiving Long-term Highly Active Antiretroviral Therapy*, 46 CLINICAL INFECTIOUS DISEASES (2008).
[cxlviii] Sophia Davies & Steven Taylor, *Antiretroviral drug concentrations in the male and female genital tract: implications for the sexual transmission of HIV*, 5 CURRENT OPINION HIV AIDS 335 (2010).
[cxlix] Prameet Sheth, *Persistent HIV RNA Shedding in Semen Despite Effective Antiretroviral Therapy*, 23 AIDS 2050 (2009).
[cl] Combescure C et al. How reliable is an undetectable viral load? HIV Medicine 10: 470-76, 2009.
[cli] Edwin J. Bernard, *Swiss Statement that 'Undetectable Equals Uninfectious' Creates More Controversy in Mexico City*, AIDSMAP.COM, Aug. 5, 2008.
[clii] Pietro Vernazza et al., *Les Personnes Séropositives ne Souffrant D'aucune Autre MST et Suivant un Traitment Antirétroviral Efficace Ne Transmettent Pas le VIH par Voie Sexuelle* [HIV-positive Individuals Not Suffering from Any Other STD and Adhering to an Effective Antiretroviral Treatment do Not Transmit HIV Sexually], 89 BULLETIN DES MEDECINS SUISSES (2008).
[cliii] Swiss AIDS Federation, Advice Manual: 'Doing Without Condoms During Potent ART,' Jan. 30, 2008.

[cliv] S v. S & R, Geneva Court of Justice (Feb. 23, 2009).
[clv] Edwin J. Bernard*, Swiss Court Accepts that Criminal HIV Exposure is only 'Hypothetical' on Successful Treatment, Quashes Conviction*, AIDSMAP.COM, Feb. 25, 2009.
[clvi] Edwin J. Bernard, *Swiss Statement on Sexual HIV Transmission was Inspired by HIV Exposure Prosecutions*, CRIMINAL HIV TRANSMISSION, Feb. 29 2008.
[clvii] International AIDS Society, Statement on Austrian Laws Impacting People Living with HIV/AIDS (PLHIV) from AIDS 2010, July 12, 2010 (last visited Nov. 11, 2011).
[clviii] Myron Cohen, *Prevention of HIV-1 Infection with Early Antiretroviral Therapy*, 365 NEW ENGLAND J. MED. 493 (2011).
[clix] David P. Wilson, et al., *Relation Between HIV Viral Load and Infectiousness: A Model-based Analysis*, 372 LANCET 314 (2008).
[clx] David P. Wilson, *Data are Lacking for Quantifying HIV Transmission Risk in the Presence of Effective Antiretroviral Therapy*, 23 AIDS 1431 (2009).
[clxi] Wilson, *supra* note 159.
[clxii] Geoffrey Garnett & Brian Gazzard, *Risk of HIV Transmission in Discordant Couples*, 372 LANCET 270 (2008).
[clxiii] Interim guidance from the US Centers for Disease Control and Prevention (CDC) was issued in January 2011 based on the results of a randomised controlled trial (iPrEx) amongst men who have sex with men in six countries. CDC, *Interim Guidance: Preexposure Prophylaxis for the Prevention of HIV Infection in Men Who Have Sex with Men*, 60 MMWR WEEKLY 65 (Jan. 28, 2011).
[clxiv] Robert Grant et al., *Preexposure Chemoprophylaxis for HIV Prevention in Men*, 363 NEW ENGLAND J. MED. 2587 (2010).
[clxv] Jared Baeten, *Antiretroviral Pre-Exposure Prophylaxis for HIV-1 Prevention Among Heterosexual African Men and Women: The Partners PrEP Study*, SIXTH INTERNATIONAL AIDS SOCIETY CONFERENCE ON HIV PATHOGENESIS, TREATMENT AND PREVENTION (Rome 2011); Michael Thigpen et al., *Daily Oral Antiretroviral Use for the Prevention of HIV Infection in Heterosexually Active Young Adults in Botswana: Results from the TDF2 Study*, SIXTH INTERNATIONAL AIDS SOCIETY CONFERENCE ON HIV PATHOGENESIS, TREATMENT AND PREVENTION (Rome 2011).
[clxvi] Keith Alcorn, *Study of HIV Drug for Prevention in Women Closes, Judged Unlikely to Show Effect*, AIDSMAP.COM, Apr. 18 2011.
[clxvii] Karim Abdool, *Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women*, 329 SCIENCE 1168 (2010).
[clxviii] DOUGLAS HUSAK, OVERCRIMINALISATION (Oxford Univ. Press 2008).
[clxix] I.A. Pretty et al., *Human Bites and the Risk of Human Immunodeficiency Virus Transmission*, 20 AM. J. FORENSIC MED. PATHOLOGY 232 (1999).
[clxx] V.L. Gilbart, *Unusual HIV Transmissions Through Blood Contact: Analysis of Cases Reported in the United Kingdom to December 1997*, 1 COMMUNICABLE DISEASE & PUB. HEALTH 108 (1998).
[clxxi] Daniela Malamud & Sharon Wahl, *The Mouth: A Gateway or a Trap for HIV?* 24 AIDS 5 (2010).
[clxxii] Nancy Padian, *Transmission of HIV Possibly Associated with Exposure of Mucous Membrane to Contaminated Blood*, 11 MORBIDITY & MORTALITY WEEKLY REPORT 620 (July 1997).
[clxxiii] Mykhalovskiy, *supra* note 34.
[clxxiv] Eric Mykhalovskiy, *The Problem of 'Significant Risk': Exploring the Public Health Impact of Criminalizing HIV Non-disclosure*, 73 SOC. SCI. & MED. 670 (2011).
[clxxv] For example, in Switzerland a person can be prosecuted for attempting to, or "deliberately spread[ing] a dangerous transmissible human disease." (Schweizerisches Strafgesetzbuch [StGB] [Criminal Code] RS 311.0, art. 231 (Switz)). In Singapore, regardless if a person knows they are HIV-positive or not, if they have 'reason to believe' that they could be infected and have not disclosed this information to their partner or taken precautions against transmission, they can be convicted of a crime. (Simeon Bennett, *HIV Ignorance is no Defence in Singapore Plan to Curb Risky Sex*, BLOOMBERG, http://www.bloomberg.com/apps/news?sid=auBh4JRNuC5k&pid=newsarchive. (last visited Nov. 11, 2011)) Italy considers non-disclosure before unprotected sex indirect intent, which is punishable by law. (Edwin J. Bernard, *Southern Europe, HIV and the Criminal Law*, http://www.aidsmap.com/Southern-Europe/page/1444976 (last visited July 14, 2011)).
[clxxvi] Rare exceptions include a man in Switzerland who was not aware of his HIV status yet was convicted of causing bodily harm through negligence. The court held that because the man engaged in unprotected sex and knew that a previous sexual partner tested positive for HIV, he was criminally liable for transmitting HIV to a female sexual partner despite his ignorance of his HIV positive status. *Court Rules in HIV Case*, SWISSINFO, July 1, 2008, available at: http://www.swissinfo.ch/eng/swiss_news/Court_rules_in_HIV_case.html?cid=6771144.
[clxxvii] The problem of ascertaining exactly what a defendant has to know or intend to be criminally culpable is exacerbated where the relevant statute prohibits "exposure" of another to HIV through enumerated acts. More often than not, the mere performance of one of these acts by an HIV-positive person would be held to constitute an "exposure" regardless of the actual probability of transmission in a given case.
[clxxviii] *See e.g.* HR 18 januari 2005, Criminal Section no. 02659/03 IV/SB. (Neth.). *See also Offences Against the Person, Incorporating the Charging Standard*, The CROWN PROSECUTION SERVICE,

http://www.cps.gov.uk/legal/l_to_o/offences_against_the_person/#P242_19963 (the English crime of "causing grievous bodily harm with intent" requires proving specific intent of causing some harm to another person)

[clxxix] Cal. Health & Safety Code § 120291 *Unprotected sexual activity by one who knows self to be infected by HIV.* In September 2010, a 41-year-old man pleaded guilty to having unprotected sexual activity while knowing he was HIV-positive and acting with the intent to infect his sexual partner. This is the only case on record of anyone ever being charged or convicted under California's statute. Tomoya Shimura, *Gang Member Pleads Guilty to Spreading HIV*, Highdesert.com, Sept. 7, 2010, available at http://www.highdesert.com/articles/spreading-21626-vvdailypress-gang-victorville.html.

[clxxx] HR 18 januari 2005, Criminal Section no. 02659/03 IV/SB. (Neth.). *See also Netherlands,* GLOBAL CRIMINALISATION SCAN, http://www.gnpplus.net/criminalisation/index.php?option=com_content&task=view&id=68&Itemid=42

[clxxxi] For definitions and further discussions of intent *See Offences Against the Person, Incorporating the Charging Standard*, The CROWN PROSECUTION SERVICE, http://www.cps.gov.uk/legal/l_to_o/offences_against_the_person/#P242_19963 (the English crime of "causing grievous bodily harm with intent" requires proving specific intent of causing some harm to another person); CHARLES E. TORCIA, WHARTON'S CRIMINAL LAW § 695 (15th ed. 2010) ("Although a murder may be committed without an intent to kill, an attempt to commit murder requires a specific intent to kill."); SWEET AND MAXWELL, ARCHBOLD CRIMINAL PLEADING, EVIDENCE AND PRACTICE § 19-91 (2002) ("The intention which the prosecution have to prove on a charge of attempted murder is an intention to kill.").

[clxxxii] England and Wales can prosecute intentional transmission or attempted intentional transmission under the Offences Against the Person Act, 1861, 24 & 25 Vict. c. 100 § 20 (Eng.), but due to difficulty of proof, no prosecutions for intentional (or attempted intentional) transmission have succeeded. Sally Cameron, *Criminalisation of HIV Transmission and Exposure – Risk, Negotiation and Consent*, AUSTRALIAN FEDERATION OF AIDS ORGANIZATIONS, http://www.afao.org.au/view_articles.asp?pxa=ve&pxs=103&pxsc=127&pxsgc=139&id=692. The Netherlands allows prosecutions for assault and homicide for HIV transmission only in cases of intentional transmission, based on a 2005 Supreme Court ruling. The only prosecution for HIV transmission since 2005 was for an intentional transmission via rape and injection. Edwin J. Bernard, *Western Europe*, HIV AND THE CRIMINAL LAW, (2010) http://www.aidsmap.com/Western-Europe/page/1444983/#ref1512034. *See also* the American cases *State v. Schmidt*, 771 So. 2d 131 (La. Ct. App. 2000) (affirming conviction of attempted second degree murder and sentence of 50 years at hard labour on the basis that a physician purposefully infected his patient with HIV though he told the female patient, a former sexual partner, that the injection was vitamin B) and *State v. Stewart,* 18 S.W.3d 75 (Mo. Ct. App. 2000) (HIV-negative man was convicted of attempted murder and sentenced to life imprisonment for injecting his son with HIV-positive blood). Both American cases are anomalous in that neither defendant was HIV positive, but used HIV as a means of causing the harm of HIV infection to others. Additionally, the circumstances of the transmission supported the inference that the defendants had an intent to cause harm to their victims.

[clxxxiii] UNAIDS & UNDP, *Criminalisation of HIV Transmission: Policy Brief* 3 (2008), available at http://data.unaids.org/pub/basedocument/2008/20080731_jc1513_policy_criminalization_en.pdf**.**

[clxxxiv] *Id*.

[clxxxv] *Id*.

[clxxxvi] *See* earlier discussion on Risk. *See also* LAURA PINSKY & PAUL HARDING DOUGLAS, THE COLUMBIA UNIV. HANDBOOK ON HIV/AIDS 36 (2009).

[clxxxvii] J. Buzz von Ornsteiner, *D for "Diagnosis" or for "Denial"? Coming to Grips with Being Newly Diagnosed*, BODY POSITIVE, Oct. 2001.

[clxxxviii] Deborah Konkle-Parker et al., *Barriers and Facilitators to Medication Adherence in a Southern Minority Population with HIV Disease*, 19 J. ASSOC. NURSES AIDS CARE 98 (2008).

[clxxxix] Ranier Goldbeck, *Denial in Physical Illness*, 43 J. PSYCHOSOMATIC RESEARCH 575 (1997).

[cxc] Björn Owe-Larsson et al., *HIV Infection and Psychiatric Illness*, 12 AFR. J. PSYCHIATRY 115 (2009).

[cxci] D.M. Israelski et al., *Psychiatric Co-morbidity in Vulnerable Populations Receiving Primary Care for HIV/AIDS*, 19 AIDS CARE 220 (2007).

[cxcii] J. Hampton Atkinson et al., *Psychiatric Context of Acute/Early HIV Infection. The NIMH Multisite Acute HIV Infection Study: IV*, 13 AIDS BEHAV. 1061 (2009).

[cxciii] Mark V. Bradley et al., *Depression Symptoms and Sexual HIV Risk Behavior Among Serodiscordant Couples*, 70 PSYCHOSOMATIC MED. 186 (2008).

[cxciv] Eduardo E. Valverde et al., *Sex Risk Practices Among HIV-positive Individuals in Buenos Aires, Argentina*, 23 AIDS PATIENT CARE STDS 551 (2009).

[cxcv] Sari L. Reisner et al., *Stressful or Traumatic Life Events, Post-traumatic Stress Disorder (PTSD) Symptoms, and HIV Sexual Risk Taking Among Men Who Have Sex With Men*, 21AIDS CARE 1481 (2009).

[cxcvi] Seth C. Kalichman, *Co-occurrence of Treatment Nonadherence and Continued HIV Transmission Risk Behaviors: Implications for Positive Prevention Interventions*, 70 PSYCHOSOMATIC MED. 593 (2008).

[cxcvii] Kathleen J. Sikkema et al., *Effects of a Coping Intervention on Transmission Risk Behavior Among*

People Living with HIV/AIDS and a History of Childhood Sexual Abuse, 47 J. ACQUIRED IMMUNE DEFICIENCY SYNDROME 506 (2008).

[cxcviii] Kathleen J. Sikkema et al., *Mental Health Treatment to Reduce HIV Transmission Risk Behavior: a Positive Prevention Model*, 14 AIDS & BEHAVIOR 252 (2010).

[cxcix] Individuals have been prosecuted despite clear evidence of a mental health status that interfered with their ability to protect their partner. *See* Edwin J. Bernard, *Canada: Ryan Handy gets eight months in prison for HIV exposure*, CRIMINAL HIV TRANSMISSION, Mar. 28, 2008, http://criminalhivtransmission.blogspot.com/2008/03/canada-ryan-handy-gets-eight-months-in.html. (Where a 26 year-old HIV-positive gay man in Canada was sentenced to eight months in prison for not disclosing his HIV status before unprotected sex whilst experiencing an episode of schizophrenia. Although the judge noted that his case was "unusual...because you suffered from a mental illness that affected your judgment and because you have expressed genuine remorse", he was told he still deserved a custodial sentence because he "selfishly and recklessly had unprotected sex with [another man, who was not infected] and exposed him to a deadly virus.") *See also* Alistair MacDonald & Heather Worth, *Mad and Bad: HIV Infection, Mental Illness, Intellectual Disability, and the Law*, 2 SEXUALITY RESEARCH & SOC. POL'Y 51 (2005).

[cc] *See* Kevin M. Clemont & Emily Sherwin, *A Comparative View of Standards of Proof,* 50 AM. J. COMP. L. 243 (2002). For instance, in the United States and many other common-law jurisdictions, the standard for criminal cases is "proof beyond a reasonable doubt." In many civil law countries the equivalent standard is *intime conviction*. "Intime Conviction" literally translated means "reasonable conviction; reasonable certainty; state of being satisfied beyond reasonable doubt (personally convinced); personal conviction of the court (after considering all the evidence)." F.H.S. BRIDGE, THE COUNCIL OF EUROPE FRENCH–ENGLISH LEGAL DICTIONARY 173 (2002). However, there is a stark difference in who analyses the proof in common versus civil law jurisdictions in that common law jurisdictions require the use of juries and civil law jurisdictions use judges.

[cci] Strict liability makes a person legally responsible for the damage and loss caused by his or her acts and omissions regardless of intent. In criminal law, strict liability is most often seen in vehicular traffic offences, where, for instance, knowledge of the speed limit or intent to break a speed limit is irrelevant to guilt. Similar to strict liability, the proscribed behaviours are treated as dangerous *per se* -- even where the prohibited conduct poses no risk of HIV transmission.

[ccii] Culpable mental states in criminal law include the intention to commit a prohibited act or bring about a prohibited result, the knowledge that a prohibited result will result or a prohibited circumstance exists, and the recklessness or negligence with respect to a prohibited result or circumstance. Strict criminal liability is criminal liability without intention, knowledge, recklessness and negligence. Kenneth W. Simons, *When is Strict Criminal Liability Just*, 87 J. CRIM. L. & CRIMINOLOGY 1075, 1079-80 (1997).

[cciii] CHARLES E. TORCIA, WHARTON'S CRIMINAL LAW § 23 (15th ed. 2010).

[cciv] *Id*.

[ccv] *Id*.

[ccvi] CENTERS FOR DISEASE CONTROL AND PREVENTION, MMWR RECOMMENDATIONS AND REPORTS, REVISED RECOMMENDATIONS FOR HIV TESTING OF ADULTS, ADOLESCENTS, AND PREGNANT WOMEN IN HEALTH-CARE SETTINGS (Sept. 22, 2006) ("The majority of persons who are aware of their HIV infections substantially reduce sexual behaviours that might transmit HIV after they become aware they are infected. In a meta-analysis of findings from eight studies, the prevalence of unprotected anal or vaginal intercourse with uninfected partners was on average 68% lower for HIV-infected persons who were aware of their status than it was for HIV-infected persons who were unaware of their status."). *See also* UNAIDS, Policy Brief, Criminalisation of HIV 2 (citing authorities showing that persons who learn they are HIV-positive tend to take measures to avoid transmission of the virus).

[ccvii] Changing the criminal law to punish those who did not know, "should have known," or deliberately avoided knowing their HIV status would violate the basic principles of mental culpability and liability for criminal actions. In a 2007 meeting, there was consensus that "people who are unknowingly transmitting HIV should not face criminal prosecution." UNAIDS & UNDP, Criminalisation of HIV Transmission: Policy Brief 3 (2008). *See also* Bermuda, Criminal Code Act § 324 (2011) (If "before he [engages in a sexual act] he does not inform the other person that he has the disease," he is criminally liable.). *See also* CDC, *supra* note 206.

[ccviii] Human Rights Council, *Report of the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health* 58, U.N. Doc. A/HRC/14/20 (Apr. 27, 2010) [hereinafter Report of the Special Rapportuer].

[ccix] *See supra* note 182 for cases where there has been a demonstrated intent to do harm.

[ccx] *See* TORCIA, *supra* note 203

[ccxi] *See* 21 AM. JUR. 2d *Criminal Law* § 182 (1984).

[ccxii] *See* DAVID BRODY ET AL., CRIMINAL LAW 241 (2001).

[ccxiii] In this context, the terms "defence" and "affirmative defence" may complicate legal analysis because they have different technical meanings in different jurisdictions.

[ccxiv] *See* DANIEL E. HALL, CRIMINAL LAW AND PROCEDURE 224 (5th ed. 2010).

[ccxv] Infectious Disease Act ch. 137, sec. 23 (Sing.) ("A person who knows that he has AIDS or HIV Infection shall not engage in any sexual activity with another person unless, before the sexual activity

takes place —(a) he has informed that other person of the risk of contracting AIDS or HIV Infection from him; and (b) that other person has voluntarily agreed to accept that risk."); IDAHO CODE ANN. § 39-608 (West 2011) ("It is an affirmative defence that the sexual activity took place between consenting adults after full disclosure by the accused of the risk of such activity."); 720 ILL. COMP. STAT. ANN. 5/12-5.01(d) (West 2011) ("It shall be an affirmative defence that the person exposed knew that the infected person was infected with HIV, knew that the action could result in infection with HIV, and consented to the action with that knowledge.") ; Bermuda, Criminal Code Act § 324 (2011) (if "before he [engages in a sexual act] he does not inform the other person that he has the disease," he is criminally liable).

[ccxvi] *See* Carol Galletly & Steven Pinkerton, *Conflicting Messages: How Criminal HIV Disclosure Laws Undermine Public Health Efforts to Control the Spread of HIV*, 10 AIDS & BEHAVIOR 451-461 (2006); GLOBAL NETWORK OF PEOPLE LIVING WITH HIV, THE GLOBAL CRIMINALISATION SCAN REPORT: 2010 30-31 (2010) (outlining reasons why people fail to disclose HIV-status, including: 1) alternatively using risk reduction strategies such as condoms, 2) believing that having low viral load equates to low or no transmission risk, 3) believing that certain behaviours such as oral sex contain no risk, 4) fearing rejection, including sexual rejection and the end of a long-term relationship; 5) fearing violence and/or abandonment, 6) fearing loss of privacy and that the information would spread). *See also* Catherine Dodds & Peter Keough, *Criminal Prosecutions for HIV Transmissions: People Living with HIV Respond*, 17 INT'L J. STD & AIDS 315, 318 (2006) (noting that fear of stigma is a concern for people living with HIV having to disclose their HIV status); ATHENA NETWORK, 10 REASONS WHY CRIMINALISATION OF HIV TRANSMISSION HARMS WOMEN 3 (2010) (noting particularly harms that women face in having their HIV status disclosed, including that HIV-positive women are ten times more likely to experience violence); JEFFREY GRIERSON ET AL., THE AUSTRALIAN RESEARCH CENTRE IN SEX, HEALTH AND SOCIETY, HIV FUTURES SIX: MAKING POSITIVE LIVES COUNT 35 (2009) (reporting that 51% of HIV-positive people in Australia have had their HIV status disclosed without permission, highlighting the legitimate fear of loss of privacy).

[ccxvii] Edwin J. Bernard, *Canada: Carl Leone Was 'In Denial' Testifies Psychiatrist*, CRIMINAL HIV TRANSMISSION, Feb. 15, 2008, http://criminalhivtransmission.blogspot.com/2008/02/canada-carl-leone-was-in-denial.html.

[ccxviii] Edwin J. Bernard, *Australia: Guilty Plea for HIV Exposure Likely to Save Melbourne Man from Jail,* CRIMINAL HIV TRANSMISSION, July 2, 2008, http://criminalhivtransmission.blogspot.com/2008/07/australia-guilty-plea-for-hiv-exposure.html.

[ccxix] BBC News Online, *Man Guilty of 'Reckless' HIV Sex*, Jan. 19, 2010, http://news.bbc.co.uk/2/hi/uk_news/scotland/north_east/8468354.stm.

[ccxx] Edwin J. Bernard, *Canada: Owen Antoine Sentenced to Five Years Following One-night Stand*, CRIMINAL HIV TRANSMISSION, Apr. 15, 2008, http://criminalhivtransmission.blogspot.com/2008/04/canada-owen-antoine-sentenced-to-five.html.

[ccxxi] Edwin J. Bernard, *Belgium: First Criminal Conviction Under Poisoning Law, Advocates Caught Unawares*, CRIMINAL HIV TRANSMISSION, June 13, 2011, http://criminalhivtransmission.blogspot.com/2011/06/belgium-first-criminal-conviction-under.html.

[ccxxii] *See* Ginn v. State, 667 S.E.2d 712, 713 (Ga. Ct. App. 2008) (holding that HIV-positive woman sentenced to 8 years in prison for unprotected sex without disclosure, despite the fact that two witnesses testified her partner was aware of her HIV-status and her HIV-status was published in a newspaper); R. v. Wright, [2009] BCCA 514 (Can.). HIV-positive man claimed he disclosed his HIV status to his partners, but his partners had conflicting testimony. He was found guilty of aggravated assault.

[ccxxiii] *See* Todd Heywood, *Michigan's HIV Disclosure Law: Overly Broad and Open to Abuse*, MICH. MESSENGER, May 1, 2009, *available at* http://michiganmessenger.com/18101/michigans-hiv-disclosure-law-sex-criminalisation-holder-open-to-abuse (describing the criminal case of a man who was sentenced to 10-15 years in jail for sexual penetration of an uninformed partner, despite the fact that the accuser admitted during the trial that she had known of his HIV status prior to any sexual contact but wanted revenge after the break up and lied to the police); R. v. D.C., [2008] QCCQ 629 (Can.). An HIV-positive woman who went to the police after her boyfriend of seven years began being abusive, was found guilty of sexual assault for not telling her partner that she was HIV-positive at the beginning of their relationship. After being arrested on assault charges, the boyfriend, who never tested HIV-positive, told law enforcement that the woman did not tell him she was HIV-positive until two years into their seven-year relationship. She was convicted despite the fact that her partner, after knowing her status, continued to have a sexual relationship and never contracted HIV.

[ccxxiv] R. v. D.C., [2008] QCCQ 629 (Can.).

[ccxxv] VERA BERGELSON, VICTIMS' RIGHTS AND VICTIMS' WRONGS: COMPARATIVE LIABILITY IN CRIMINAL LAW 50, 99 (2009).

[ccxxvi] *See* International Medical Insurance, http://www.international-medical-insurance.com/news/?p=30.

[ccxxvii] MODEL PENAL CODE § 2.11.

[ccxxviii] Scott Burris & Edwin Cameron, *The Case Against Criminalisation of HIV*, 300 J. AM. MED. ASS'N 578, 579 (2008) ("[R]ational people operating with genuine autonomy should recognize exposure [to HIV] as a normal risk of sexual behaviours").

[ccxxix] *See* ATHENA NETWORK, 10 REASONS WHY CRIMINALISATION OF HIV TRANSMISSION HARMS WOMEN 3 (2010) (noting particularly harms that women face in having their HIV status disclosed, including that HIV-positive women are ten times more likely to experience violence.)

[ccxxx] There have been developments in Canada where courts have begun to balance the weight of the harm presented versus the failure to disclose one's HIV status. *R. v. Mabior* [2010] M.B.C.A. 93 (Oct. 10, 2010) (review granted). Here the court assessed the individual risk to the accuser based on the conduct in question. The *Mabior* court found error in the lower tribunal's ruling that only a combination of low viral load and proper condom use could reduce infectiousness enough to excuse non-disclosure of HIV status. It held that either factor, by itself, could bring the potential injury from intercourse below the threshold of "significant risk of bodily harm" prohibited by the statute. It undertook separate analyses of the several complainants' contentions, sustaining some of the defendant's convictions and reversing others depending on the specifics of each complainant's interactions with the defendant.

[ccxxxi] Catherine Dodds et al., *Sexually Charged: TheViews of Gay and Bisexual Men on Criminal Prosecutions for Sexual HIV Transmission,* SIGMA RESEARCH (2009), *available at* http://www.sigmaresearch.org.uk/files/report2009a.pdf.

[ccxxxii] Chris Morley, *Canada: Johnson Aziga and Questions About the Virological Evidence*, CRIMINAL HIV TRANSMISSION, Apr. 29, 2009, http://criminalhivtransmission.blogspot.com/2009/04/canada-johnson-aziga-and-questions.html.

[ccxxxiii] AB Abecasis, *Science in Court: The Myth of HIV Fingerprinting*, 11 Lancet Infectious Diseases 78 - 79 (Feb. 2011).

[ccxxxiv] Michael Carter, *Prosecution for Reckless HIV Transmission in England Ends with Not Guilty Verdict*, aidsmap.com, Aug. 9 2006, http://www.aidsmap.com/Prosecution-for-reckless-HIV-transmission-in-England-ends-with-not-guilty-verdict/page/1424549/.

[ccxxxv] *HIV-Positive Doc Gets Jail for Sex*, THE LOCAL, June 21, 2010, *available at* http://www.thelocal.se/27366/20100621/.

[ccxxxvi] Edwin J. Bernard, *UK: HIV Transmission Case Dropped Against Gay Doncaster Man*, CRIMINAL HIV TRANSMISSION, May 19 2010, http://criminalhivtransmission.blogspot.com/2010/05/uk-hiv-transmission-case-dropped.html.

[ccxxxvii] *See* First Coast News, *Jacksonville Man Arrested for Criminal Transmission of HIV*, FirstCoastNews.com, July 5, 2010, http://www.firstcoastnews.com/news/local/story.aspx?storyid=158235 (describing the case of a 39-year old, HIV-positive man arrested after he allegedly had unprotected sex with a woman without disclosing his HIV status); *see also* Vince Tuss, *Assault Charges in HIV Case*, STAR TRIB., Mar. 25, 2010, at 1B (detailing the story of a 28-year old, HIV-positive man charged with third-degree assault after he engaged in sexual intercourse with two men without disclosing his HIV status, where at least one of the men tested positive for HIV a month after the encounter but no investigation was done to determine if another person could have exposed the complainant to HIV); *HIV Trial Hears Women May Have Contracted Virus from Other Men*, CP24, Feb. 20, 2009, http://www.cp24.com/servlet/an/local/CTVNews/20090220/090220_HIV_trial/20090220/?hub=CP24Home (The defendant was accused and later convicted of transmitting HIV to 7 women. Crown relied on evidence that the infected women and the defendant shared the same subtype of HIV, but defense pointed out that another man with the same subtype of HIV had sex with two of the women.). *See additionally* State v. Gonzalez, 796 N.E.2d 12 (Ohio Ct. App. 2003) (convicting the defendant of two counts of felonious assault and sentencing him 16 years imprisonment for failing to tell his sexual partner, who tested positive for HIV, that he was HIV-positive, although no investigation was done to determine the source of the complainant's infection).

[ccxxxviii] Gerald H. Learn & James I. Mullins, *The Microbial Forensic Use of HIV Sequences*, HIV SEQUENCE COMPENDIUM 22 (2003), *available at* http://www.hiv.lanl.gov/content/sequence/HIV/COMPENDIUM/2003/partI/Learn.pdf.

[ccxxxix] Deenan Pillay et al., *HIV Phylogenetics: Criminal Convictions Relying Solely on This to Establish Transmission Are Unsafe*, 335 BMJ (2007), *available at* http://homepages.ed.ac.uk/eang09/AJLB.Publications.(.pdf.files)/Pillay_et_al_2007_BMJ.pdf.

[ccxl] Thomas Leitner et al., *Guidelines for HIV in Court Cases*, 473 NATURE 284 (2011).

[ccxli] A study in Cuba found that around two-thirds of heterosexuals who named their most recent sexual partner as the likely source of their infection during routine contact tracing appeared to be mistaken because phylogenetic analysis suggested that this partner was unlikely to have been the source of their infection. Sonia Resik et al., *Limitations to Contact Tracing and Phylogenetic Analysis in Establishing HIV Type 1 Transmission Networks in Cuba*, 23(3) AIDS RESEARCH & HUMAN RETROVIRUSES 347-56 (200&).

[ccxlii] Similarly, a study of gay men in California who had been very recently infected found that a third were mistaken when they assumed that their most recent sexual partner was the most likely source of their infection because phylogenetic analysis suggested that this partner was unlikely to have been the source. Davey Smith et al., *A Public Health Model for the Molecular Surveillance of HIV Transmission in San Diego, California*, 23 AIDS 225 (2009).

[ccxliii] Edwin J. Bernard et al., *HIV Forensics II: Estimating the Likelihood of Recent HIV Infection – Implications for Criminal Prosecution*, NAT, (2011), *available at* http://www.nat.org.uk/Media%20library/Files/Policy/2011/RITA%20Testing%20Report.pdf.
[ccxliv] *Id*.
[ccxlv] Health privacy statutes covering HIV-related information usually exclude from protection information needed for a criminal investigation or prosecution. *E.g.,* 45 C.F.R. § 164.512(f) (2010); Privacy Act 1988 (Cth) sch 3 (Austl.); Health Records and Information Privacy Act 2002 (N.S.W.) (Austl.); Data Protection Act, 1998, c. 29, sch. 1-2, (Eng.); *see also* CANADIAN HIV/AIDS LEGAL NETWORK, PRIVACY PROTECTION AND THE DISCLOSURE OF HEALTH INFORMATION: LEGAL ISSUES FOR PEOPLE LIVING WITH HIV/AIDS IN CANADA 27-28 (2004) (describing confidentiality exception for criminal investigations involving HIV information held by health care providers).
[ccxlvi] For example, the Missouri Department of Health and Senior Services requires that all individuals who test positive for HIV sign and initial every paragraph of a form in which HIV-positive individuals must acknowledge potential criminal liability, punishable by 10 to 30 years or life imprisonment, if they "create a risk of infecting another person…with the virus through sex, needle sharing, biting or other established means of transmitting the virus." Center for HIV Law & Policy, Resource Bank, What You Need To Know About Missouri Laws On HIV, Missouri Department of Health and Senior Services, http://www.hivlawandpolicy.org/resources/view/558 (last visited Nov. 8, 2011).
[ccxlvii] Australasian Society for HIV Medicine. Guide to Australian HIV Laws and Policies for Healthcare Professionals, www.ashm.org.au/HIVLegal/Default.asp? (last visited Nov. 8, 2011).
[ccxlviii] Alana Klein, *Criminal Law, Public Health, and Governance of HIV Exposure and Transmission, 2*3 INT'L J. HUMAN RIGHTS 251 - 278 (2009).
[ccxlix] Mary Poulton et al., *HIV Transmission, the Law and the Work of the Clinical Team,* BHIVA & BASHH (2010), *available at* http://www.bhiva.org/documents/Guidelines/HIV%20Transmission/HIVTransmission.pdf.
[ccl] James Hodge & Lawrence Gostin, *Handling Cases of Wilful Exposure Through HIV Partner Counselling and Referral Services*, 23 WOMEN'S RIGHTS LAWS REPORTER 45-62 (2001).
[ccli] David Menadue, *The Impact of the Criminalisation Issue on HIV-positive People*, *in The Criminalisation of HIV Transmission in Australia: Legality, Morality and Reality*, NAPWA (2009).
[cclii] Mykhalovskiy, *supra* note 34, *at* 50.
[ccliii] Ruth Lowbury & George Kinghorn, *Criminal prosecution for HIV transmission: A Threat to Public Health,* 333 BMJ 666–67 (2006).
[ccliv] Eric Mykhalovskiy, *The Problem of 'Significant Risk': Exploring the Public Health Impact of Criminalizing HIV Non-disclosure*, 73 SOCIAL SCIENCE & MEDICINE 670-677 (2011).
[cclv] Damien Ridge et al., *Positive Prevention: Contemporary Issues Facing HIV-positive People Negotiating Sex in the UK*, 65 SOCIAL SCIENCE & MEDICINE 755-770 (2007).
[cclvi] UNAIDS, Criminal Law, Public Health and HIV Transmission: A Policy Options Paper, Geneva (2002).
[cclvii] Useful compilations of laws criminalizing HIV are available from The Center for HIV Law and Policy (cataloguing laws in the United States) and from the Terence Higgins Trust (listing laws in Europe).
[cclviii] R. v. Barry (1989) unreported, QLD CCA (Austl.).
[cclix] Nash v. State, 881 N.E.2d 1060 (Ind. Ct. App. 2008).
[cclx] State v. Smith, 621 A.2d (N.J. Super. Ct. App. Div. 1993).
[cclxi] *See* Danny Hakim, *Man Who Spread HIV May Be Held,* NY TIMES, Apr. 13, 2010 (describing the case of Nushawn Williams, who served the entire term of his original sentence, but has been held in prison without a hearing, pending resolution of a motion to have him indefinitely civilly committed as a dangerous sex offender, due in significant part to his HIV status, multiple previous partners, and "lack of remorse"). However, whether because of financial cost, or because of constitutional limitations on their use, civil commitment has been employed relatively infrequently in the United States. *Kansas v. Crane*, 534 U.S. 407 (2002); *but see* U.S. v. Comstock, 130 S. Ct. 1949 (2010) (upholding civil commitment statute applicable to sexually dangerous offenders).
[cclxii]Susan Clairmont, *Aziga Finally Apologizes, in Bid to Avoid Dangerous Offender Status*, SPEC.COM, May 26, 2011.
[cclxiii] ILGA Europe, Sweden Violated Human Rights by Compulsory Isolating HIV Positive Person, http://www.ilgaeurope.org/home/news/for_media/media_releases/sweden_violated_human_rights_by_compulsory_isolating_hiv_positive_person (last visited Nov. 10, 2011).
[cclxiv] *See, e.g.,* United States Department of Justice, Office of Justice Programs, Sex Offender Registration and Notification Act (SORNA) Information Page (detailing, among other aspects of program, features of state registration laws that are required to meet federal standards); *HIV Fiend who had Unprotected Sex with 8 Women Jailed in Canada*, NEW ZIMBABWE, Dec. 11, 2009, http://www.newzimbabwe.com/pages/canada2.18566.html; Kevin O'Connor, *Woman with HIV Gets House Arrest*, TORONTO SUN, Nov. 20, 2009, http://www.torontosun.com/news/torontoandgta/2009/11/20/11837006.html.
[cclxv] Smith v. Doe, 538 U.S. 84 (2003) (Alaska sex offender statute did not violate prohibition on *ex post facto* laws). For an example of a state sex offender registry statute setting forth criminal penalties for

failure to maintain registration or to observe residency and employment restrictions, see O.C.G.A. § 42-1-12 *et seq*.

[cclxvi]"This [practice] helps align communicable disease statutes with the evolving standards of both antidiscrimination law and constitutional law, by allowing only those measures that are reasonably necessary to contain a significant risk to others." Lawrence Gostin, *The Law and the Public's Health: A Study of Infectious Disease Law in the United States*, 99 COLUM. L. REV. 59, 124 (1999)..

[cclxvii] The risk of transmission for a single act of unprotected sex between a man and a woman is less than 0.1%. Julie Fox et al., *Quantifying Sexual Exposure to HIV within an HIV-serodiscordant Relationship: Development of an Algorithm*, 25 AIDS 1065 (2011).

[cclxviii] For example, a person with a .08 BAC is almost 3 times more likely to get into an accident compared to a person with no alcohol in his or her system. NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, NATIONAL SURVEY OF DRINKING AND DRIVING ATTITUDES AND BEHAVIOURS: 2008 5 (2010), *available at* http://www.nhtsa.gov/staticfiles/nti/pdf/811342.pdf.

[cclxix] Recent United States precedents hold that sentencing enhancements having the effect of raising the maximum penalty allowed by a statute, which some states have enacted for sex offenders whose conduct purportedly threatens HIV transmission. *See, e.g.,* CAL. PENAL CODE ∫ 12022.85, which can only be imposed pursuant to a jury finding of proof beyond a reasonable doubt. Apprendi v. N.J., 530 U.S. 466 (2000). Outside of the US, punishments for crimes involving HIV have also been know to be harsh. In Finland, a man who was convicted of attempted homicide for having unprotected sex with and infecting 5 women was sentenced to 14 years in prison, despite the fact that the normal maximum sentence for the crime was 9 years. John Henley Helsinki, *Fins Avenge Fatal Attraction of Women for HIV Stranger*, N.Y. OBSERVER, July 13, 1997, at 6. An Australian Judge recently called the 5-year maximum sentence for recklessly transmitting HIV "not really an adequate reflection" of that crime and advocated for longer sentences. Natasha Robinson, *Penalty for Reckless HIV Sex 'Inadequate'*, THE AUSTRALIAN, Dec. 4, 2007, http://www.theaustralian.com.au/news/penalty-for-reckless-hiv-sex-inadequate/story-e6frg6of-1111115025563.

[cclxx] OKLA. STAT. ANN. tit. 21, § 1192.1 (2011) (knowingly engaging in conduct likely to transfer HIV).

[cclxxi] OKLA. STAT. ANN. tit. 47, § 11-902 (2011).

[cclxxii] Onishea v. Hopper, 171 F.3d 1289, 1297, 1299 (11th Cir. 1999) (en banc), *cert. denied sub nom;* Davis v. Hopper, 528 U.S. 1114 (2000) (United States Court of Appeals rejects challenge under federal antidiscrimination statute to segregation of prison inmates from broad range of programs and activities, at once endorsing and disclaiming the argument that even a vanishingly small risk of HIV transmission is "significant" because death is the presumed outcome of infection). Note that *no* European country currently segregates HIV-positive prisoners. *Aids in China: Double Jeopardy*, THE ECONOMIST, Apr. 19, 2007, http://www.economist.com/node/9045387.

[cclxxiii] *See* Estelle v. Gamble, 429 U.S. 97 (1976) (articulating high "deliberate indifference" threshold for upholding constitutional claims involving detainee medical care); *compare* Davis v. Powell, 2010 WL 3221877 (M.D. Ga. July 19, 2010)(No. 7:09-CV-73), *recommendation adopted,* 2010 WL 3221874 (dismissing as legally insufficient HIV-positive detainee's allegations that his prescribed medication regimen was provided only sporadically and incompletely).

[cclxxiv] Global Report: UNAIDS Report on the Global AIDS Epidemic: 2010, UN Joint Programme on HIV/AIDS (2010).

[cclxxv] *Id* at 188.

[cclxxvi] *Id* at 202.

[cclxxvii] Julie Fox et al., *Quantifying Sexual Exposure to HIV within an HIV-serodiscordant Relationship: Development of an Algorithm*, 25 AIDS 1065 (2011).

[cclxxviii] Basic Information about HIV and AIDS, United States Centers for Disease Control and Prevention, http://www.cdc.gov/hiv/topics/basic/index.htm (last visited Nov. 8, 2011).

[cclxxix] Samuel Broder, *The Development of Antiretroviral Therapy and its Impact on the HIV-1 AIDS Pandemic*, 85 ANTIVIRAL RES. (2010).

[cclxxx] *Id*.

[cclxxxi] http://www.hab.hrsa.gov/tools/primarycareguide/index.htm

[cclxxxii] Sighem, *supra* note 51. Life expectancy of recently diagnosed asymptomatic HIV-infected patients approaches that of uninfected individuals.

[cclxxxiii] Study population was women age 15-95, the mean age of infected individuals was 36.4 and peak prevalence was 50.2% in women age 20-24. Susanne Kruger Kjaer et al., *Population-based Prevalence, Type- and Age-specific Distribution of HPV in Women Before Introduction of an HPV-vaccination Program in Denmark,* 123 INT'L J. CANCER 1864–1870 (2008).

[cclxxxiv] Prevalence studied among women age 10-30. Peak prevalence was 28.3% in women age 20-22. Thomas Iftner, *Prevalence of Low-risk and High-risk Types of Human Papillomavirus and Other Risk Factors for HPV Infection in Germany within Different Age Groups in Women up to 30 Years of Age: An Epidemiological Observational Study*, 82 J. MED. VIROLOGY 1928–1939 (2010).

[cclxxxv] Prevalence in women age 25-39. Guglielmo Ronco et al., *Prevalence of Human Papillomavirus Infection in Women in Turin, Italy*, 41 EUR. J. CANCER 297 (2005).

[cclxxxvi] Prevalence in women age 14-65. Peak prevalence was 24.0% at age 22. V.M.H. Coupé, et al., *Age-dependent Prevalence of 14 High-risk HPV Types in the Netherlands: Implications for Prophylactic Vaccination and Screening*, 98 BRIT. J. CANCER 686 (2010).
[cclxxxvii] Study population was females age 18-64 visiting gynecology clinics. Miguel Martorell et al., *Prevalence and Distribution of Human Papillomavirus Findings in Swab Specimens from Ggynaecology Clinics of the East Coast of Spain,* 42 SCANDINAVIAN J. INFECTIOUS DISEASES 549 (2010).
[cclxxxviii] Prevalences were among women age 14-59. Prevalence of low-risk types was 15.2%, Prevalence of high-risk types was 17.8%. Some women were infected with both low-risk and high-risk types. Eileen F. Dunne, et al. *Prevalence of HPV Infection Among Females in the United States*, 297 J. AMER. MED. ASS'N 813 (2007).
[cclxxxix] Brenda Y. Hernandez et al., *Transmission of Human Papillomavirus in Heterosexual Couples*, 14 EMERGING INFECTIOUS DISEASES 888 (2008).
[ccxc] *Id.*
[ccxci] J.M. Walboomers, et al., *Human Papillomavirus is a Necessary Cause of Invasive Cervical Cancer Worldwide*, 189 J. PATHOLOGY 12 *(*1999).
[ccxcii] *Id*; *see also* http://www.cdc.gov/std/stats09/other.htm
[ccxciii] Department of Health and Human Services, Centers for Disease Control and Prevention, United States Cancer Statistics: 1999–2007 Cancer Incidence and Mortality Data (2010), http://apps.nccd.cdc.gov/uscs/ (last visited Nov. 9, 2011).
[ccxciv] *Id.*
[ccxcv] World Health Organization, Human Papillomavirus and Related Cancers Summary Report Update, http://apps.who.int/hpvcentre/statistics/dynamic/ico/SummaryReportsSelect.cfm (last visited Nov. 9, 2011).
[ccxcvi] American Cancer Society, Cancer Facts and Figures 2011, http://www.cancer.org/Research/CancerFactsFigures/CancerFactsFigures/cancer-facts-figures-2011 (last visited Nov. 10, 2011).
[ccxcvii] World Health Organization, *supra* note 295.
[ccxcviii] Study population was women 18-45 years old. Mette Tuxen Faber et al., *Genital Chlamydia, Genital Herpes, Trichomonas Vaginalis and Gonorrhoea - Prevalence and Risk Factors Among Nearly 70,000 Randomly Selected Women in Four Nordic Countries*, SEXUALLY TRANSMITTED DISEASES (2011) (in press).
[ccxcix] Study population was women age 16-19 and men age 20-24. John Moran, *Gonorrhoea*, CLINICAL EVIDENCE 1604 (2007).
[ccc] U.S. Centers for Disease Control and Prevention, 2009 Sexually Transmitted Diseases Surveillance: Gonorrhoea, http://www.cdc.gov/std/stats09/gonorrhea.htm (last visited Nov. 10, 2011).
[ccci] Mark Chen et al., *Mind the Gap: The Role of Time Between Sex with Two Consecutive Partners on the Transmission Dynamics of Gonorrhoea*, 35 SEXUALLY TRANSMITTED DISEASES 435 (2008).
[cccii] Herbert W. Hethcote & James A. Yorke, *Gonorrhoea Transmission Dynamics and Control*, 56 LECTURE NOTES IN BIOMATHEMATICS (1984).
[ccciii] UNITED STATES CENTERS FOR DISEASE CONTROL AND PREVENTION, CEPHALOSPORIN SUSCEPTIBILITY AMONG *NEISSERIA GONORRHOEAE* ISOLATES: UNITED STATES, 2000-2010 (2011), *available at* http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6026a2.htm?s_cid=mm6026a2_w.
[ccciv] *Id.*
[cccv] *Id.*
[cccvi] D. Fleming & J. Wasserheit, *From Epidemiological Synergy to Public Health Policy and Practice: The Contribution of Other Sexually Transmitted Diseases to Sexual Transmission of HIV Infection*, 75 SEXUALLY TRANSMITTED INFECTIONS 3 (1999).
[cccvii] *Id.*
[cccviii] A.L. Cunningham et al., *Prevalence of Infection with Herpes Simplex Virus Types 1 and 2 in Australia: A Nationwide Population Based Survey*, 82 SEXUALLY TRANSMITTED INFECIONS 65 (2006).
[cccix] Population of people aged 15-49. Katherine Looker et al., *An Estimate of the Global Prevalence and Incidence of Herpes Simplex Virus Type 2 Infection*, WORLD HEALTH ORGANIZATION, *available at* http://www.who.int/bulletin/volumes/86/10/07-046128/en/.
[cccx] Prevalence among men and women age 14-49. U.S. Centers for Disease Control and Prevention, Genital Herpes Fact Sheet, http://www.cdc.gov/std/herpes/STDFact-Herpes.htm (last visited Nov. 10, 2011).
[cccxi] Anna Wald et al*., Effect of Condoms on Reducing the Transmission of Herpes Simplex Virus Type 2 From Men to Women*, 285 J. AM. MED. ASS'N 3100 (2001).
[cccxii] *Id*.
[cccxiii] CDC, *supra* note 310.
[cccxiv] *Id.*
[cccxv] *Id*.
[cccxvi] *See* FLA. STAT. ANN. § 384.24(2) (2011) (knowingly transmitting HIV, third degree felony, up to five years in prison); WASH. REV. CODE ANN. § 9A.36.011 (assault via intentionally transmitting HIV, Class A felony, 93-318 months in prison); *see also* ARK. CODE ANN. § 5-14-123 (2011) (knowingly transmitting HIV, Class A felony, minimum 6 years in prison with maximum 30 years); *see also* IOWA CODE § 709C.1

(2011) (knowingly transmitting HIV, class B felony, up to 25 years in prison).
[cccxvii] These states include, but are not limited to: Arkansas, ARK. CODE ANN. § 12-12-903 (12)(A)(i)(P); Iowa, IOWA CODE ANN. § 692A.102(1)(c)(22); Ohio, OHIO REV. CODE ANN. § 2950.01(G)(1)(c)(West 2010); Louisiana, LA. REV. STAT. § 541(24)(2005) (modified with minor changes by 2010 La. Sess. Law Serv. Act. 387 (H.B. 825)); South Dakota, S.D. CODIFIED LAWS § 22-24B-2 (West 2010); Tennessee, TENN. CODE ANN. § 40-39-202(28) (2004).
[cccxviii] GA. CODE ANN. § 16-5-60(D) (2011) (person with HIV who knowingly uses bodily fluids against a correctional officer).
[cccxix] OKLA. STAT. ANN. tit. 21, § 1192.1 (2011) (knowingly engaging in conduct likely to transfer HIV).
[cccxx] CAL. HEALTH & SAFETY CODE § 120291 (2011) (unprotected sexual activity by one who knows self to be infected by HIV**).**
[cccxxi] Ginn v. State, 667 S.E.2d 712, 713 (Ga. Ct. App. 2008) (unprotected sex without disclosure, even though two witnesses testified the "victim" knew of defendant's HIV status).
[cccxxii] Bill Braun, *Tulsa Man Imprisoned for Life on Sex Counts*, TULSA WORLD, May 24, 2000 (HIV exposure in conjunction with several counts of child sexual abuse).
[cccxxiii] *See, e.g.*, CONN. GEN. STAT. § 14-227(g) (subsequent offense carries a fine as well as a prison sentence of at least 2 days and a maximum of 6 months); PA. CONS. STAT. § 3802 (first offense carries a fine as well as prison sentence of at least 3 days and maximum of 6 months). *See also* NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, A STATE-BY-STATE ANALYSIS OF LAWS DEALING WITH DRIVING UNDER THE INFLUENCE OF DRUGS (2008).
[cccxxiv] *See, e.g.*, CONN. GEN. STAT. § 14-227(g) (second offense carries a fine as well as a prison sentence of at least 120 days with a maximum of 2 years); PA. CONS. STAT. § 3802 (second offense carries a fine as well as prison sentence of at least 90 days and maximum of 5 years). *See also* NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, A STATE-BY-STATE ANALYSIS OF LAWS DEALING WITH DRIVING UNDER THE INFLUENCE OF DRUGS (2008).
[cccxxv] GA. CODE ANN. § 40-6-391 (2011).
[cccxxvi] OKLA. STAT. ANN. tit. 47, § 11-902 (2011).
[cccxxvii] CAL. VEH. CODE § 23152 (2011).
[cccxxviii] *See, e.g.*, COLO. REV. STAT. § 18-3-208 (class 3 misdemeanour, maximum 6 months in prison); PA. CONS. STAT. § 2705 (class 2 misdemeanour, maximum 2 years in prison).
[cccxxix] *See, e.g.*, N.Y. PENAL LAW § 120.25 (first degree reckless endangerment, class D felony, maximum 7 years in prison); TENN. CODE ANN. § 39-13-101 (class E felony, maximum 6 years in prison).
[cccxxx] *See* MADD, PENALITIES FOR DRUNK DRIVING VEHICULAR HOMICIDE (2011), *available at* http://www.madd.org/laws/law-overview/Vehicular_Homicide_Overview.pdf.
[cccxxxi] GA. CODE ANN. § 40-6-393(C) (2011) (2nd degree vehicular homicide)
[cccxxxii] OKLA. STAT. ANN. tit. 47, § 11-903 (2011) (negligent homicide).
[cccxxxiii] CA. PENAL CODE § 191.5(B) (2011) (vehicular manslaughter while intoxicated).
[cccxxxiv] RICHARD ELLIOTT, CRIMINAL AND HIV/AIDS: FINAL REPORT 98 (1996), *available at* http://www.aidslaw.ca/publications/publicationsdocEN.php?ref=30.
[cccxxxv] Canada Criminal Code, R.S.C. 1985, c. C-46 § 265 ("without the consent of another person, he applies force intentionally to that other person, directly or indirectly").
[cccxxxvi] Canada Criminal Code, R.S.C. 1985, c. C-46 § 271.
[cccxxxvii] Canada Criminal Code, R.S.C. 1985, c. C-46 § 267.
[cccxxxviii] Canada Criminal Code, R.S.C. 1985, c. C-46 § 268.
[cccxxxix] Canada Criminal Code, R.S.C. 1985, c. C-46 § 272.
[cccxl] Canada Criminal Code, R.S.C. 1985, c. C-46 § 273.
[cccxli] Canada Criminal Code, R.S.C. 1985, c. C-46 § 239.
[cccxlii] Canada Criminal Code, R.S.C. 1985, c. C-46 § 229. *See also* Sandra K.H. Chu & Richard Elliott, *Man Convicted of First Degree Murder Sets Disturbing Precedent*, 14 HIV/AIDS POL'Y & L. REV. 42 (2009), *available at* http://www.aidslaw.ca/EN/lawyers-kit/documents/3.Chu2009.pdf.
[cccxliii] *See HIV-Positive Man Gets 49 Years in Prison*, VANCOUVER SUN, April 8, 2008, http://www.canada.com/vancouversun/news/story.html?id=8dcfee0d-a973-4340-944c-414ead835c21.
[cccxliv] *See* Barbara Brown, *Guilty Verdict in Hamilton HIV Murder Case*, TORONTO STAR, Apr. 4, 2009, http://www.thestar.com/article/613920.
[cccxlv] GLOBAL NETWORK OF PEOPLE LIVING WITH HIV, CRIMINALISATION OF HIV EXPOSURE: CANADA 3 (2010), *available at* http://www.aidslaw.ca/EN/lawyers-kit/documents/Canadianlaw.pdf.
[cccxlvi] Criminal Code, R.S.C. 1985, c. C-46 s.255(1); Criminal Code, R.S.C. 1985, c. C-46 s.259(1).
[cccxlvii] Criminal Code, R.S.C. 1985, c. C-46 s.255(1); Criminal Code, R.S.C. 1985, c. C-46 s.259(1).
[cccxlviii] Criminal Code, R.S.C. 1985, c. C-46 s.255(1); Criminal Code, R.S.C. 1985, c. C-46 s.259(1).
[cccxlix] Criminal Code, R.S.C. 1985, c. C-46 s.255(2).
[cccl] Criminal Code, R.S.C. 1985, c. C-46 s.219 (Can.).
[cccli] Criminal Code, R.S.C. 1985, c. C-46 s.221 (Can.).
[ccclii] Criminal Code, R.S.C. 1985, c. C-46 s.255(3) (Can.).
[cccliii] Offenses Against the Person Act, 1861, 24 & 25 Vict. c. 100, § 18 (Eng.).
[ccccliv] SENTENCING GUIDELINES COUNCIL, ASSAULT: DEFINITIVE GUIDELINE 4 (2011), *available at* http://sentencingcouncil.judiciary.gov.uk/docs/Assault_definitive_guideline_-_Crown_Court.pdf.

[cccliv] Offenses Against the Person Act, 1861, 24 & 25 Vict. c. 100, § 20 (Eng.).
[ccclv] SENTENCING GUIDELINES COUNCIL, ASSAULT: DEFINITIVE GUIDELINE 7 (2011), *available at* http://sentencingcouncil.judiciary.gov.uk/docs/Assault_definitive_guideline_-_Crown_Court.pdf.
[ccclvi] Road Traffic Act 1988, c. 62 § 2 (Eng.)
[ccclvii] SENTENCING GUIDELINES COUNCIL, CAUSING DEATH BY DRIVING: DEFINITIVE GUIDELINE 13 (2008), *available at* http://sentencingcouncil.judiciary.gov.uk/docs/Magistrates_ Guidelines_including_update_1__2__3_4_web.pdf.
[ccclviii] Road Traffic Act, 1991, c. 40 § 3A (Eng.)
[ccclix] SENTENCING GUIDELINES COUNCIL, CAUSING DEATH BY DRIVING: DEFINITIVE GUIDELINE 13 (2008), *available at* http://sentencingcouncil.judiciary.gov.uk/docs/web_causing_death_by_driving_definitive_guideline.pdf.
[ccclx] *Crimes Act 1958* (Vic) s 19a (Austl.) ("A person who, without lawful excuse, intentionally causes another person to be infected with a very serious disease is guilty of an indictable offence").
[ccclxi] *See, e.g.*, *Road Safety Act 1986* (Vic) s 49(2) (first offense punishment is a fine and possible prison time, with maximum sentence of 3 months); *Road Traffic Act 1961* (SA) s 47(1)(a)(i) (first offense punishment is a fine and possible prison time, maximum sentence of 3 months); *Transport Operations (Road Use Management) Act 1995* (Qld) s 84 (Austl.) (under a "dangerous driving" law, maximum 6 month sentence).
[ccclxii] *See, e.g.*, *Road Safety Act 1986* (Vic) s 49(2A) (subsequent offense punishment is a fine and possible prison time, with maximum sentence of 12 months); *Road Traffic Act 1961* (SA) s 47(1)(a)(ii) (subsequent offense punishment is a fine and possible prison time, maximum sentence of 6 months).
[ccclxiii] *See, e.g. Criminal Law Consolidation Act 1935* (SA) s 29 (Austl.) (maximum sentence of 15 years for basic offense, 18 for aggravated offense); *Crimes Act 1958* (Vic) s 22 (Austl.) (maximum sentence of 10 years); *Criminal Code* (NT) s 174C (maximum sentence of 10 years for basic offense, 14 for aggravated offense).
[ccclxiv] *See, e.g.*, *Road Traffic Act 1975* (WA) s 59 (Austl.) (if committed in circumstances of aggravation and leading to the death of someone, dangerous driving can result in a prison sentence of 20 years); *Criminal Law Consolidation Act 1935* (SA) s 19(a)(1) (Austl.) ("reckless and dangerous driving" leading to grievous harm and death carries a maximum sentence of 10 years in prison; 15 years for a second offense).
[ccclxv] Strafgesetzbuch [StGB] [Penal Code], Nov. 13, 1998, Bundesgesetzblatt [BGBl.] 3332, § 223 (Whoever physically abuses or damages the health of another person will be punished with imprisonment for up to five years or with a fine).
[ccclxvi] Strafgesetzbuch [StGB] [Penal Code], Nov. 13, 1998, Bundesgesetzblatt [BGBl.] 3332, § 224 (committing bodily injury through administration of poison or other substances dangerous to health brings a maximum sentence of ten years in prison).
[ccclxvii] ON DWI LAWS IN OTHER COUNTRIES, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (March 2000), http://www.nhtsa.gov/people/injury/research/pub/dwiothercountries/dwiothercountries.html.

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