衞生防護中心
Centre for Health Protection

Scientific Committee on AIDS and STI

Recommendations on the use of non-occupational post-exposure prophylaxis against HIV

Purpose

The purpose of this document is to provide recommendations on the use of post-exposure prophylaxis with antiretroviral drugs for adults following non-occupational exposure to HIV.

Background

2. In the 1990s, post-exposure prophylaxis (PEP) using antiretrovirals began to be prescribed in Hong Kong for exposure to HIV in the health care setting.[1] The management pathway has since been well established with Accident and Emergency Departments (AEDs) of major public hospitals providing initial assessment and, if indicated, initiation of PEP in the form of antiretroviral starter packs that bridge the gap before being seen by HIV specialists. By protocol, recipients of occupational PEP are referred to one of the two designated HIV services of Hospital Authority (HA), or the Therapeutic Prevention Clinic (TPC) of Department of Health.

3. In 2006, the Scientific Committee on AIDS and STI (SCAS) issued its position statement on the use of non-occupational PEP, also known as nPEP. In contrast to exposure in the health care setting, nPEP is intended for settings such as unprotected sexual exposure or injecting drug use. Limited by the paucity of scientific evidence back then, the statement advised that nPEP should not be routinely used and should be

considered only within 72 hours of high-risk exposure to a source already known to be HIV positive.[2]

4. Randomised clinical trials are not available to objectively evaluate the effectiveness of nPEP. However, extrapolation of data and experience with PEP tends to be supportive. It is also believed that a post-exposure protective effect exists to explain the effectiveness of antiretrovirals for prevention of mother-to-child transmission.[3,4] Consensus has now formed that antiretroviral drugs following non-occupational as well as occupational exposure reduces the risk of acquiring HIV infection and is likely to be cost-effective in high-risk groups.

5. In many regions of the world, the provision of HIV nPEP has become standard of care. In 2014, the World Health Organization updated its guidelines on post-exposure prophylaxis, providing recommendations across both occupational and non-occupational exposures. They advise simplification of prescribing approaches to encourage uptake and completion of treatment.[5] Similar recommendations are found in guidelines of the UK[6] and USA[7].

6. Meanwhile, the demand for nPEP in Hong Kong has been steadily rising, especially by those who have been sexually exposed. In TPC, clients put on nPEP outnumbered those on occupational PEP in 2007. Since then, the increase of nPEP has continued to outpace that of occupational PEP.[8]

Recommended practice of nPEP

7. Non-occupational exposure to HIV refers to exposure via blood, genital secretions, or other potentially infectious body fluids outside of healthcare settings. The aim of nPEP for HIV is to prevent HIV transmission. It is one of the prevention strategies targeted for individuals after significant exposures in circumstances such as sexual activity, shared needle use, needle stick injury outside of occupational settings, and trauma.

8. SCAS intends to provide a territory-wide approach to the appropriate and standardised use of nPEP. As such, it aims to overcome barriers to seeking services for those who have been subject to HIV exposure. These recommendations supersede its previous position statement on nPEP. For post-

exposure management in the occupational setting, including that for HBV and HCV, relevant guidelines by this Committee should be referred to.[9]

Management pathway

9. The management pathway of nPEP should leverage that of occupational PEP, in which individuals with potential non-occupational exposure to HIV attend the Accident and Emergency Department (AED) of major public hospitals for initial assessment. Those for whom nPEP is indicated should be immediately administered the treatment and given at least 5 days of supply. They are then referred to TPC of the Department of Health for continuation of treatment. However, if the source were known to be HIV infected and followed at Queen Elizabeth Hospital or Princess Margaret Hospital, the exposed client should be referred there. (Figure 1)

10. For nPEP to deliver its maximal effectiveness, its provision should be quickly accessible by those who need it. Rapid assessment of an individual with potential exposure to HIV should be offered, and nPEP initiated, whenever indicated, as soon as possible within a window of 72 hours after exposure. For this to happen, individuals presenting with potential HIV exposure should be given priority in triage at AED.

Eligibility for nPEP

11. nPEP is recommended for HIV-negative persons who present within 72 hours after exposure that carries a substantial risk of HIV transmission. Baseline HIV serological status of the exposed individual should therefore be obtained. As far as possible, attempts should also be made to determine the HIV status of the source. If positive, the plasma HIV viral load, resistance profile and treatment history should also be obtained.

12. Of note, if the source is HIV positive but on effective antiretroviral treatment with an undetectable viral load of at least 6 months, nPEP is generally not necessary for sexual exposure, unless there are additional risk factors that would increase the risk. On the other hand, nPEP can generally be discontinued if the source is determined not to have HIV infection.

13. A case-by-case evaluation for nPEP is necessary when the HIV status of the source is unknown and the reported exposure carries a risk for transmission. Under these circumstances, the local epidemiology should be referenced to help determine treatment eligibility. (Table 1 shows the estimated HIV prevalence in different population groups of Hong Kong)

14. Table 2 shows the general estimated risks of HIV transmission according to the nature of exposure, as inferred from cohort and modelling studies. It is prudent to be aware that not all exposures are the same and certain *aggravating factors* add to the risk of HIV transmission through the circumstances of exposure, infectivity of the source and host susceptibility. Specifically, (a) a high plasma HIV viral load in the source person as with acute infection or late, untreated infection, (b) active sexually transmitted infections, and (c) breaches of mucosal barriers (as from ulcerative sexually transmitted infections, trauma during sexual assault, etc.) should be considered during risk stratification. Where (d) repetitive exposures would likely have occurred, as with chemsex (the use of recreational drugs with sex) and multiple partners, the cumulative risk should also be taken into consideration.

15. When the HIV status of the source is unknown, the estimated risk is mainly based on the likelihood of the source being HIV infected multiplied by the per-act risk of acquiring HIV from an infected source. nPEP would be appropriate when the resulting risk estimate is high. In this regard, the British Association for Sexual Health and HIV[6] advises that:

(a) nPEP is <u>recommended</u> when the transmission risk >0.1%.
(b) nPEP is <u>considered</u> when the transmission risk is between 0.01% and to 0.1%. Generally speaking, nPEP should only be prescribed if there are aggravating factors that increase the likelihood of transmission.
(c) nPEP is not recommended when the transmission risk is <0.01%.
(d) nPEP is not recommended for sexual exposure if the source is on antiretroviral treatment with sustained (≥6 months) undetectable plasma HIV viral load (<200 copies/ml).
(e) Aggravating factors (e.g. high plasma HIV viral load in the source, sexually transmitted infections, breaches of mucosal barrier, repetitive exposures, etc.) that may increase the risk of HIV transmission should be looked for.

SCAS considers these rationales reasonable. They form the basis for its recommendations on the use of nPEP as listed in Table 3.

Choice of antiretrovirals for nPEP

16. A three-drug regimen for 28 days should be used for nPEP. Two antiretrovirals of the nucleoside reverse transcriptase inhibitor (NRTI) class (the backbone) in combination with a third drug of either the protease inhibitor class or integrase inhibitor class is recommended. Table 4 lists the preferred and alternative antiretroviral NRTI backbones for nPEP in adults. All the listed candidates for the third drug are given equal weight. Their selection should be based on availability, toxicity and individual patient profile including potential drug-drug interactions. Of note, dolutegravir may be associated with foetal harm and should not be given to women of childbearing potential. Currently, Truvada® and Kaletra® are stocked in AEDs of major public hospitals in Hong Kong, but this is subject to change.

Counselling and support

17. Should nPEP be indicated after initial assessment, its rationales of use, expected benefit and side effects should be explained. Individuals should be alerted to the importance of adherence throughout the 28-day course as poor adherence has been shown as a risk factor for subsequent seroconversion. The assessment for nPEP itself provides an opportunity for delivery of a combined package of prevention approaches tailored for that individual. Counselling on safe sex practices and harm reduction strategies should be redoubled for clients presenting for nPEP, whether or not nPEP is eventually indicated. Post-exposure prophylaxis should not be considered or encouraged as a sole method of HIV prevention.

18. Where indicated, individuals should also be referred to appropriate facilities for hepatitis A and B vaccination, screening and treatment of other sexually transmitted infections (e.g. syphilis, gonorrhoea and *Chlamydia*) and emergency contraception.

Follow-up arrangement

19. As aforementioned, nPEP recipients should be followed by TPC or the two designated clinics at QEH and PMH, where they will be reviewed for drug tolerance and adherence and treatment continued for a total of 28 days, with or without adjustment.

20. Follow-up HIV testing at 12 weeks post-exposure using a 4th generation laboratory assay is recommended. Additional sessions with or without HIV testing before 12 weeks may be considered for clients with considerable anxiety. Counselling, education on risk-reduction behaviours and support should be provided throughout the follow-up period.

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Figure 1. Care pathway for people seeking post-exposure prophylaxis after non-occupational exposure to HIV

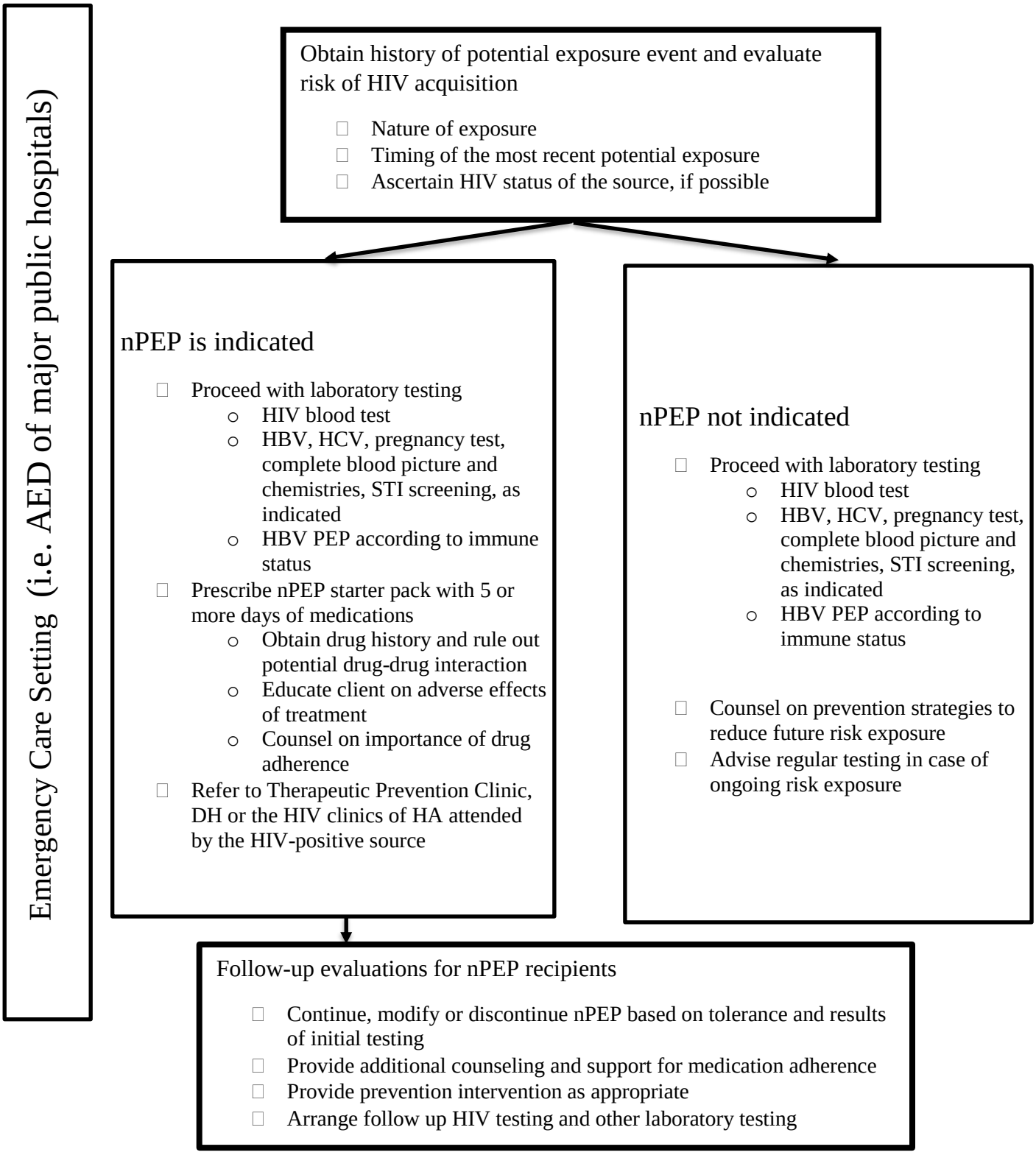

Table 1. Estimated HIV prevalence in different population groups in Hong Kong according to local surveys and programmes

Population group	Survey/Programmes	Prevalence (95% CI for Prevalence (%))
Men who have sex with men (MSM)	HARiS 2014	5.85% (4.2-8.1)
	PRiSM 2017	6.54% (5.66-7.42)
Female Sex Workers	HARiS 2013	0% (0.0-0.6)
Drug users attending methadone clinic	Universal testing programme in Methadone Clinics 2016	1.13 (0.852-1.458)
Drug users attending drug treatment centres/institutions	Unlinked anonymous screening 2016	0.623 (0.075-2.251)

Data from Special Preventive Programme, Centre for Health Protection, Department of Health, Hong Kong SAR. HIV Surveillance Report – 2016 Update[10]

Table 2. Risk of HIV transmission per exposure from a known HIV-positive individual not on ART (adapted from UK BASHH Guideline[6] and CDC Guideline[7])

Type of exposure	Estimated risk of HIV transmission per exposure from a known HIV-positive individual not on ART
Receptive anal intercourse	1 in 90
Receptive anal intercourse, with ejaculation	1 in 65
Receptive anal intercourse, no ejaculation	1 in 170
Insertive anal intercourse	1 in 666
Insertive anal intercourse not circumcised	1 in 161
Insertive anal intercourse and circumcised	1 in 909
Receptive vaginal intercourse	1 in 1,000
Insertive vaginal intercourse	1 in 1,219
Semen splash to eye	<1 in 10,000
Receptive oral sex (giving fellatio)	<1 in 10,000
Insertive oral sex (receiving fellatio)	<1 in 10,000
Blood transfusion (one unit)	1 in 1
Needlestick injury	1 in 333
Sharing injecting equipment (includes chemsex by injection)	1 in 149
Human bite	<1 in 10,000

Table 3. Summary table of recommendations on the use of nPEP based on local epidemiology and risk of HIV transmission per exposure

	HIV status of source			
	HIV positive		Unknown HIV status	
	HIV viral load unknown/detectable	HIV viral load undetectable for ≥6 months	MSM[a]/ individuals from areas of high HIV prevalence (≥10%)[b]	Risk groups or individuals from areas with HIV prevalence at 1% to 10%[b]
Receptive anal sex	Recommend	Not recommended	Recommend[a]	Consider[c]
Insertive anal sex	Recommend	Not recommended	Consider[c]	Not recommended
Receptive vaginal sex	Recommend	Not recommended	Consider[c]	Not recommended
Insertive vaginal sex	Consider[c]	Not recommended	Consider[c]	Not recommended
Giving fellatio, i.e. receiving penis into oral cavity with or without ejaculation	Consider[c]	Not recommended	Consider[c]	Not recommended
Receiving fellatio, i.e. inserting penis into another's oral cavity with or without ejaculation	Not recommended	Not recommended	Not recommended	Not recommended
Splash of semen into eye	Not recommended	Not recommended	Not recommended	Not recommended
Cunnilingus	Not recommended	Not recommended	Not recommended	Not recommended
Sharing of injection equipment (including chemsex by injection)	Recommend	Not recommended	Recommend	Consider[c]
Human bite	Not recommended	Not recommended	Not recommended	Not recommended
Needlestick from a discarded needle in the community			Not recommended	Not recommended

a Local surveys have identified a rising trend in the general prevalence of HIV infection among MSM, mostly recently at 6.54% (95% CI 5.66%-7.42%). The risk is further elevated in those practising chemsex (use of recreational drugs with sex) or with new sexually transmitted infections.

b Local survey has recently shown an HIV prevalence of 1.13% among drug users attending Methadone Clinics. Country-specific HIV prevalence in the general population and amongst IDUs may be available at UNAIDS (www.unaids.org)[11]

c Aggravating factors that may further increase risks: (a) high plasma HIV viral load (e.g. during primary HIV infection or late stage of disease), (b) active sexually transmitted infections, (c) breaches of mucosal barriers (as from ulcerative sexually transmitted infections, trauma during assault, etc.), and (d) repetitive exposures as likely with chemsex or multiple partners

Table 4. nPEP regimens for adults and their major adverse effects

nPEP regimen = NRTI backbone + third drug

Antiretroviral	Dosage	Major adverse effects
Preferred NRTI backbone		
Truvada® • Tenofovir 300mg • Emtricitabine 200mg	1 tablet daily	GI intolerance; headache; rarely renal insufficiency and Fanconi syndrome
Alternative NRTI backbone		
Combivir® • Zidovudine 300mg • Lamivudine 150mg	1 tablet BD	Bone marrow suppression (anaemia, neutropaenia); GI intolerance; headache; insomnia; myopathy; rarely lactic acidosis and hepatic steatosis
Candidates for third drug		
Kaletra® • Lopinavir 200mg • Ritonavir 50mg	2 tablets BD	GI upset, especially diarrhea; elevated transaminases; hyperglycaemia; dyslipidaemia; arrhythmia, prolonged QT, risk of drug-drug interaction
Ritonavir-boosted Atazanavir • Atazanavir 300mg • Ritonavir 100mg	1 tablet each daily	Indirect hyperbilirubinaemia; nephrolithiasis; hyperglycaemia; GI intolerance; risk of drug-drug interaction
Ritonavir-boosted Darunavir • Darunavir 800mg • Ritonavir 100mg	1 tablet each daily	GI intolerance; headache; risk of drug-drug interaction
Raltegravir 400mg	1 tablet BD	Mild GI intolerance; headache; sleep disturbances; myositis, rarely rhabdomyolysis
Dolutegravir 50mg	1 tablet daily	Mild GI intolerance; malaise; headache; sleep disturbances; not indicated for women of childbearing potential (risk of foetal harm)

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