

Integrating HIV Prevention into Mental Health and Counselling Services for Young Adults in Hong Kong: A Provider-Initiated Opt-Out Testing Model in Private Practice Settings

The Hong Kong Aids Prevention Society (HKAPS)

EXECUTIVE SUMMARY

This report presents a comprehensive framework for implementing and evaluating a provider-initiated, opt-out HIV testing model within private dermatology and general practice clinics in Hong Kong, specifically targeting young adults presenting with conditions potentially indicative of HIV infection or attending for general health assessments. The integration of HIV prevention with mental health and counselling services represents a paradigm shift from risk-based, stigmatizing testing approaches toward normalized, holistic healthcare delivery.

Hong Kong faces a unique epidemiological landscape where HIV infection risk and prevalence among young adults have increased over the past decade, yet testing coverage remains suboptimal (Zhang & Chung, 2021). The private healthcare sector, which serves a substantial proportion of the population, presents an underutilized opportunity for early HIV case-finding. Many young adults initially present to private dermatologists or general practitioners with symptoms that may be HIV-related, such as seborrheic dermatitis, recurrent shingles, or unexplained lymphadenopathy, yet provider-initiated HIV testing in these settings remains inconsistent (Mandel et al., 2019).

Provider-initiated opt-out testing has demonstrated effectiveness in multiple international contexts, significantly increasing HIV testing rates from 71% to 95% and improving HIV diagnosis yields from 2.9% to 4.5% compared to standard opt-in approaches (Ferrand et al., 2015). The model normalizes HIV testing by integrating it into routine clinical care, thereby reducing stigma-related barriers that disproportionately affect young adults. Evidence from Australia, South Africa, and other settings confirms both the acceptability and cost-effectiveness of opt-out testing, with incremental cost-effectiveness ratios

remaining well below established willingness-to-pay thresholds (Babigumira et al., 2022; Leidel et al., 2015).

The proposed implementation model encompasses four key research components: (1) systematic mapping of clinical indicators warranting HIV testing across dermatological and general practice presentations; (2) development of streamlined clinic workflows and comprehensive staff training packages addressing technical, ethical, and psychosocial dimensions of opt-out testing; (3) a cluster randomized controlled trial comparing testing uptake, new case identification, and linkage to care between intervention and control clinics; and (4) integration of mental health screening and support services to address the psychological dimensions of HIV testing and diagnosis.

This initiative addresses multiple strategic priorities simultaneously: reducing undiagnosed HIV infections, facilitating earlier diagnosis and treatment initiation, leveraging Hong Kong's extensive private healthcare network, normalizing HIV testing to reduce stigma, and providing holistic care that recognizes the interconnection between mental health and HIV prevention. The anticipated outcomes include improved HIV testing coverage among young adults, earlier HIV diagnosis at higher CD4 counts, enhanced linkage to care, and establishment of sustainable, scalable models for HIV prevention integrated into routine private practice.

1. INTRODUCTION AND BACKGROUND

1.1 HIV Epidemiology Among Young Adults in Hong Kong

Hong Kong confronts a concerning epidemiological trend characterized by increasing HIV infection risk and prevalence among younger generations over the past decade (Zhang & Chung, 2021). Unlike high-prevalence settings in sub-Saharan Africa, Hong Kong operates as a low-prevalence environment where targeted, efficient strategies are required to identify undiagnosed infections among key populations. Young adults, particularly those aged 18-35 years, represent a critical demographic where sexual health education, risk perception, and healthcare-seeking behaviors intersect in complex ways that influence HIV prevention outcomes.

Research among Hong Kong college students reveals that while 810 participants demonstrated moderate HIV knowledge, this awareness was partially mediated by accepting attitudes toward people living with HIV rather than through reduced stigma (Zhang & Chung, 2021). This distinction is crucial: knowledge alone does not eliminate stigma-related barriers to testing. The study identified that HIV-related stigma remains high among Hong Kong's general population, with two-thirds of participants endorsing modest-to-high stigma levels across multiple dimensions including fear of infection, concern about socioeconomic ramifications, social norm enforcement, and discriminatory attitudes (Lau et al., 2024). Furthermore, lack of awareness about modern HIV prevention tools such as pre-exposure prophylaxis (PrEP) and the Undetectable=Untransmittable (U=U) concept compounds these barriers, with 69% and 81% of respondents indicating they had never heard of U=U and PrEP respectively.

The intersection of risky sexual behaviors, mental health challenges, and HIV vulnerability among Hong Kong young adults demands comprehensive, integrated interventions. Cross-sectional research has documented significant psychosocial risk factors for risky sexual behavior, including alcohol and drug use, paraphilic interests, and negative temperament, with notable gender differences in behavioral patterns (Chan, 2021). These behavioral determinants operate within broader contextual frameworks encompassing societal stressors, including civil unrest, the COVID-19 pandemic, and economic pressures that have elevated psychological distress and suicidal ideation among young adults (T. C. Fong et al., 2023; T. C. T. Fong et al., 2025).

1.2 Current HIV Testing Landscape and Critical Gaps

Despite international recommendations for routine HIV screening, testing coverage among young adults in Hong Kong remains fragmented and insufficient. Nationally representative data from comparable Asian contexts reveal that fewer than one-quarter of adolescents and young adults undergo HIV testing, with substantial disparities based on age, marital status, educational attainment, and socioeconomic status (Ajayi et al., 2020). In Hong Kong specifically, previous research documented that only 19.5% of sexually experienced residents aged 18-49 had ever taken HIV tests, with the primary reasons for non-testing including perceived lack of HIV risk and perceptions of being very healthy (Zhao et al., 2018).

The current testing landscape is characterized by several critical gaps. First, provider-initiated testing in primary care and private practice settings remains uncommon, with most tests occurring on patient request rather than through systematic provider offering (Deblonde et al., 2018). Second, HIV testing is not routinely integrated into consultations

for clinical presentations that may indicate HIV infection, representing missed diagnostic opportunities. International evidence demonstrates that indicator condition-guided testing, which recommends HIV testing for specific clinical presentations such as seborrheic dermatitis, herpes zoster, and unexplained lymphadenopathy, achieves HIV prevalence rates exceeding 1.8% among tested individuals, well above cost-effectiveness thresholds (Sullivan et al., 2013).

Third, the private healthcare sector in Hong Kong, which provides substantial primary care services, has not been systematically engaged in HIV prevention efforts despite its accessibility and the trust relationships many young adults have with their private practitioners. Research comparing public and private primary care in Hong Kong found that patients accessing private general practitioners reported better overall primary care experiences, particularly in terms of accessibility and person-focused care (Wong et al., 2010). This suggests that the private sector could serve as an acceptable, perhaps even preferred, venue for sensitive health services like HIV testing. Fourth, mental health screening and support are rarely integrated with HIV testing services, despite evidence that psychological distress, depression, and anxiety significantly influence both HIV risk behaviors and healthcare-seeking patterns among young adults (T. C. Fong et al., 2023; T. C. T. Fong & Yip, 2023).

1.3 The Private Healthcare Sector Opportunity

Hong Kong's healthcare system is characterized by a pluralistic structure where both public and private sectors provide primary care services, with the private sector managing a substantial proportion of outpatient consultations. Many individuals, particularly those with financial means and concerns about privacy, first seek care in private dermatology

and general practice settings for symptoms that may be HIV-related. This pattern creates both a challenge and an opportunity: while these settings represent points of first contact for potentially HIV-infected individuals, they also constitute missed diagnostic opportunities when provider-initiated testing is not implemented.

Private dermatology clinics are particularly strategic venues for HIV testing implementation. Dermatological manifestations frequently accompany HIV infection, ranging from common presentations like seborrheic dermatitis to more specific indicators such as recurrent herpes zoster, molluscum contagiosum, and oral candidiasis. Research from international settings demonstrates the feasibility and effectiveness of integrating HIV testing into dermatology services. In Italy, collaboration between infectious disease clinics and dermatology units for systematic screening of HIV, hepatitis B, hepatitis C, and syphilis among at-risk populations yielded significantly higher positive test rates compared to general population screening (Mandel et al., 2019). The co-location and coordination of these services enabled efficient case identification and appropriate specialist referral.

General practice clinics similarly provide routine opportunities for HIV testing integration. Young adults frequently attend general practitioners for health check-ups, management of acute illnesses, and chronic disease monitoring. Evidence from primary care settings in multiple countries demonstrates that incorporating HIV testing into routine blood work during general practice visits is both feasible and acceptable to patients (Wenlock et al., 2023). A UK-based mixed-methods evaluation found that 78.6% of patients offered HIV testing during routine blood draws accepted the test, with participants perceiving the offer as routine and non-judgmental. The principal barrier identified was not patient refusal but

rather healthcare providers failing to offer testing, highlighting the importance of systematic approaches that embed testing into standard clinical workflows.

1.4 Mental Health and HIV: An Inseparable Intersection

The relationship between mental health and HIV prevention is bidirectional and complex. Individuals experiencing mental health conditions demonstrate increased risk of engaging in HIV-related risk behaviors, including unprotected sex, substance abuse, and inconsistent use of prevention tools (Obeagu, 2024). Conversely, the process of HIV testing and potential diagnosis carries significant psychological implications, including anxiety, fear, denial, and depression, which can impede both testing uptake and subsequent linkage to care if diagnosed positive (Leidel et al., 2015; Ninnoni et al., 2023).

Among young adults specifically, mental health challenges are particularly salient. Population-based studies in Hong Kong have documented elevated rates of psychological distress, with the COVID-19 pandemic, civil unrest, and socioeconomic pressures contributing to deteriorating mental health indicators (T. C. T. Fong et al., 2025; So et al., 2023). Young adults experiencing hikikomori (severe social withdrawal) demonstrated significantly higher suicidal ideation and reduced help-seeking behaviors, creating vulnerabilities that extend to sexual health and HIV prevention (T. C. T. Fong & Yip, 2023). The integration of mental health services into HIV prevention efforts is not merely additive but essential, as mental well-being serves as both a facilitator of health-seeking behaviors and a buffer against HIV acquisition risks.

International evidence strongly supports the integration of mental health screening and support into HIV services. Studies from Uganda, Cameroon, and Southeast Asia have

identified that mental health integration improves both the diagnosis and treatment of depression and other mental disorders while simultaneously enhancing HIV prevention and care outcomes (Conteh et al., 2023; Grimes et al., 2024; Newman et al., 2021). A framework for integrating mental health support into HIV prevention in Ukraine demonstrated feasibility even in resource-limited settings, with participating organizations successfully adopting organizational frameworks that defined planning, staff support, client mental health services through stepped-care models, and community engagement (Klymchuk et al., 2025).

For HIV testing initiatives targeting young adults, addressing mental health needs can mitigate several critical barriers. Pre-test anxiety about potential HIV-positive results, post-test psychological adjustment to positive diagnoses, and ongoing mental health support during linkage to care all represent intervention points where integrated services can improve outcomes. Importantly, normalizing HIV testing through opt-out approaches may itself serve mental health objectives by reducing the psychological burden of decision-making and the stigma associated with actively requesting HIV tests (Bain et al., 2015; Leidel et al., 2015).

2. EVIDENCE BASE FOR PROVIDER-INITIATED OPT-OUT HIV TESTING

2.1 Global Experience and Effectiveness Outcomes

Provider-initiated testing and counselling (PITC), particularly when implemented with opt-out consent procedures, has emerged as a transformative strategy for increasing HIV testing coverage and identifying undiagnosed infections across diverse global settings. The

fundamental premise of opt-out testing involves informing patients that HIV testing will be performed as part of routine care unless they explicitly decline, thereby normalizing the test and reducing stigma-related barriers that impede traditional opt-in approaches.

Empirical evidence from sub-Saharan Africa, where opt-out testing has been most extensively studied, demonstrates substantial effectiveness. In Harare, Zimbabwe, implementation of routine opt-out HIV testing for children aged 6-15 years in primary care clinics increased the proportion offered testing from 76% to 93%, with test uptake improving from 71% to 95% compared to conventional opt-in provider-initiated testing (Ferrand et al., 2015). The intervention yielded a 1.99-fold increased adjusted risk of receiving an HIV test and increased HIV diagnosis yields from 2.9% to 4.5%, representing a 55% relative increase in case detection. Critically, these improvements occurred systematically across all participating facilities, suggesting that opt-out approaches reduce variation in testing performance and facilitate more consistent service delivery.

Similar patterns emerge from other African contexts. In Cape Town, South Africa, a cluster-controlled trial comparing provider-initiated opt-out testing to standard voluntary counselling and testing among sexually transmitted infection patients found that 56.4% of patients in the intervention group tested for HIV versus 42.6% in the control group (Leon et al., 2010). This significant increase was achieved despite higher proportions of intervention group patients explicitly declining testing when offered (26.7% versus 13.5%), indicating that the greater offering rate more than compensated for increased opt-out rates. The intervention also delivered more consistent performance across clinics, reducing facility-level variation and suggesting that systematic opt-out approaches embed HIV testing more reliably into clinical routines.

Importantly, opt-out testing effectively reaches populations beyond traditional high-risk groups. In Zambia, introduction of routine provider-initiated testing using lay counsellors in primary care outpatient departments doubled the number tested for HIV compared to voluntary counselling alone, with 44% of tested individuals being men (Topp et al., 2011). Over 30 months, 31,197 patients accepted testing, 21% tested HIV-positive, and 38% of HIV-positive patients enrolled in care within a median of 6 days. These findings demonstrate that opt-out approaches can overcome gender disparities in testing uptake and facilitate rapid linkage to treatment services. In Nigeria, opt-out PITC achieved 94% acceptance rates among adolescents and adults at secondary healthcare centers, with 9% testing HIV seropositive, representing a 5% increase in testing compared to voluntary counselling and testing (Ogbo et al., 2017).

2.2 Acceptability and Ethical Considerations

The acceptability of opt-out HIV testing among both patients and healthcare providers represents a critical determinant of implementation success. Systematic reviews and ethical analyses have examined the tension between public health benefits of expanded testing and respect for patient autonomy, with most concluding that opt-out approaches remain ethically justifiable when implemented with appropriate safeguards (Bain et al., 2015).

Ethical justification for opt-out testing rests primarily on beneficence principles: the potential benefits to the mother, fetus (in pregnancy contexts), and society generally outweigh concerns about diminished explicit consent processes. Most ethical analyses consider the opt-out approach less stigmatizing than opt-in testing, as it does not target individuals based on perceived risk behaviors and normalizes HIV testing similar to other routine medical tests (Bain et al., 2015). However, critics raise important concerns

including potential non-respect for patient autonomy, the risk of informed consent becoming a meaningless formality, practical transformation of HIV testing into compulsory procedures, potential loss of trust in healthcare providers, neglect of social and psychological implications, and failure to account for sociocultural particularities in different settings.

Implementation fidelity studies provide crucial insights into these ethical concerns. Research from Ghana evaluating opt-out HIV testing for pregnant women found that while testing uptake was high (98.1%), adherence to core principles of consent, confidentiality, counselling, and connection to care was low to moderate (Amankwaa, 2021). Direct observation revealed only 38% adherence to the 5Cs framework (Consent, Confidentiality, Correct results, Connection to care, Counselling), while healthcare provider self-reports indicated 78.9% adherence, suggesting significant discrepancies between perceived and actual practice. Many healthcare providers were unaware of the opt-out approach specifics, and the complex nature of the intervention, combined with inadequate facilitation and misalignment between intervention demands and clinical realities, compromised implementation quality.

These fidelity challenges underscore that the ethical acceptability of opt-out testing depends critically on implementation quality. Research from Kenya, Tanzania, and Zambia examining provider-initiated testing experiences found that while testing rates increased, counselling efforts were limited, and the approach was not perceived as truly voluntary by many patients (Njeru et al., 2011). Informants expressed frustration regarding their experienced inability to opt-out, raising serious concerns about autonomy protection and missed preventive opportunities inherent in comprehensive counselling. Legal analyses

from Australia confirm that while opt-out policies remove “specific additional consent” requirements for HIV testing, they do not modify general legal duties related to informed consent, creating potential ambiguity and legal risk for practitioners (Carter et al., 2025).

2.3 Cost-Effectiveness and Economic Considerations

Economic evaluations consistently demonstrate that opt-out HIV testing represents a cost-effective intervention, particularly in settings with HIV prevalence exceeding established thresholds. Cost-effectiveness thresholds vary by context, but international evidence suggests that opt-out testing remains economically favorable even at HIV prevalence levels as low as 0.05% (Leidel et al., 2015). In Australia, where HIV prevalence among adults over age 15 is 0.15%, modeling indicated that opt-out testing would be cost-effective, with analyses showing that one-time routine HIV testing in the general population achieves cost-effectiveness ratios similar to other established screening programs such as annual chlamydia testing in young adults.

A comprehensive cost-effectiveness analysis from Kenya comparing provider-initiated testing strategies found that scaled-up provider-initiated testing using rapid tests in an opt-out framework (SU-PITC) cost \$173.6 per patient, compared to \$47.3 for standard provider-initiated testing and \$214.9 for point-of-care nucleic acid amplification testing (Babigumira et al., 2022). The incremental cost-effectiveness ratio comparing enhanced opt-out testing to standard care was \$3,098 per disability-adjusted life-year (DALY) averted, well below conventional willingness-to-pay thresholds for low- and middle-income countries. These findings support the conclusion that opt-out testing among outpatients presenting with symptoms compatible with acute HIV infection is cost-effective and should be considered for standard implementation.

Emergency department-based opt-out HIV screening in the United States has been extensively evaluated for cost-effectiveness. A systematic review of 20 economic evaluations found that both cost-effectiveness ratios and incremental cost-effectiveness ratios consistently fell below CDC thresholds, indicating that ED-based HIV screening is cost-effective across diverse settings (Mwachofi et al., 2020). Average costs per quality-adjusted life year gained, per HIV diagnosis, and per patient linked to care all demonstrated favorable economic profiles. These findings are particularly relevant for Hong Kong given similarities in healthcare infrastructure and patient populations accessing emergency and primary care services.

Critical cost drivers in opt-out testing programs include staff time for offering tests and providing counselling, test kit costs, and infrastructure for result delivery and linkage to care. Task-shifting strategies, where lay counsellors or trained non-physician staff conduct testing and counselling, can substantially reduce costs while maintaining service quality. In Zambia, use of lay counsellors for provider-initiated testing enabled rapid scale-up and demonstrated acceptability among patients (Topp et al., 2011). However, successful task-shifting requires appropriate training, supervision, and integration into clinic workflows to ensure quality and safety standards are maintained.

2.4 Implementation Fidelity and Sustainability Challenges

The gap between policy adoption and effective implementation represents a persistent challenge for opt-out HIV testing programs. Multiple studies document that high-level policy endorsement does not automatically translate into consistent, high-quality service delivery at the point of care. Implementation fidelity—the degree to which interventions

are delivered as intended—significantly influences both effectiveness and ethical acceptability of opt-out testing.

Research from various settings identifies common implementation barriers. Healthcare provider knowledge gaps regarding opt-out testing procedures and the rationale for universal testing represent fundamental obstacles (Amankwaa, 2021). Time constraints in busy clinical settings, particularly in under-resourced facilities with high patient volumes, lead to abbreviated or omitted counselling despite its recognized importance (Njeru et al., 2011). Beliefs about patient autonomy that are not aligned with opt-out principles can result in providers inadvertently implementing testing as compulsory rather than truly voluntary with explicit opt-out options. Contextual constraints, including inadequate private space for confidential discussions, limited follow-up systems for positive results, and weak linkage mechanisms to HIV treatment services, further compromise implementation quality.

Sustaining opt-out testing programs beyond initial implementation periods requires ongoing attention to provider motivation, resource allocation, and system-level support. A study evaluating intensified provider-initiated testing in Harare, Zimbabwe, found that despite eligible clients being screened, 26% opted out of testing (Mandere et al., 2020). Healthcare workers attributed this leakage to high morning workload, while clients identified long waiting times as deterrents. These operational realities highlight that implementation strategies must address workflow optimization, staff allocation during peak testing periods, and use of innovative approaches such as HIV self-testing kits for clients concerned about waiting times.

3. HONG KONG CONTEXT: OPPORTUNITIES AND CHALLENGES

3.1 Young Adult HIV Burden and Risk Factors

Young adults in Hong Kong face evolving HIV risk profiles shaped by changing sexual behaviors, partnership patterns, and social contexts. Research examining risky sexual behavior among 1,171 Hong Kong university students aged 18-40 years identified multiple psychosocial risk factors operating at individual and environmental levels (Chan, 2021). Male participants reported significantly higher levels of general, penetrative, and non-penetrative risky sexual behaviors compared to females, alongside higher use of alcohol and drugs and greater paraphilic interests. Both genders shared common risk factors including substance use and paraphilic interests, suggesting that HIV prevention interventions must address these behavioral determinants through comprehensive, gender-sensitive approaches.

The demographic and behavioral landscape of HIV risk in Hong Kong exhibits both similarities to and differences from other high-income Asian settings. Premarital sex has become increasingly prevalent among unmarried youth, with approximately 41.5% reporting engagement in premarital sexual activity, while less than 10% engage in explicitly defined high-risk behaviors such as casual sex relationships or having multiple sexual partners (Yip et al., 2013). Males tend to hold more liberal attitudes toward high-risk sexual behaviors than females, and individuals who are older, from divorced families, out of school, or hold liberal attitudes toward risky sex are more likely to engage in premarital sex. Conversely, being female, better educated, and immigrants are associated with lower likelihood of premarital sexual engagement, though immigrants paradoxically show higher likelihood of casual relationships and multiple partners.

Mental health dimensions significantly compound HIV vulnerability among Hong Kong young adults. The COVID-19 pandemic has exacerbated existing mental health challenges, with studies documenting elevated psychological distress, depression, anxiety, and suicidal ideation (T. C. Fong et al., 2023; T. C. T. Fong et al., 2025). A population-based study of 1,472 young adults in Hong Kong in 2021 found that COVID-19 distress indirectly affected suicidality through psychosocial and financial well-being pathways, with effects mediated by social well-being and psychological distress (So et al., 2023). These findings underscore that HIV prevention strategies targeting young adults must account for mental health as both a risk factor for HIV acquisition and a barrier to testing and care engagement.

3.2 HIV-Related Stigma and Testing Barriers

HIV-related stigma remains a formidable barrier to testing uptake among young adults in Hong Kong, operating through multiple mechanisms including fear of discrimination, concern about confidentiality breaches, anticipated negative social consequences, and internalized shame. Population-based research identified four distinct stigma subgroups: low stigma (37%), modest stigma (24%), moderate stigma (24%), and high stigma (15%), with approximately two-thirds of participants endorsing modest-to-high stigma levels (Lau et al., 2024). Lack of awareness about U=U and PrEP, combined with negative perceptions of these prevention tools, was associated with increased odds of belonging to higher stigma groups. Additionally, not personally knowing anyone living with HIV, lower educational attainment, and unemployment status predicted higher stigma group membership.

Stigma manifests across multiple domains relevant to HIV testing decisions. Fear of infection, even in contexts where rational assessment would indicate low risk, drives avoidance behaviors. Concern about socioeconomic ramifications, including potential

impacts on employment, relationships, and social standing, creates powerful disincentives for testing. Social norm enforcement, whereby individuals anticipate negative judgments from peers and community members, further inhibits testing-seeking. Perceived community-level stigma, distinct from personal stigmatizing attitudes, shapes testing decisions by creating environments where HIV testing is viewed as signaling high-risk behavior rather than responsible health management (Lau et al., 2024).

Research from international contexts provides insights into stigma mechanisms relevant to Hong Kong. Among young Black and Latinx men who have sex with men and transgender women in the United States, structural and social marginalization, HIV stigma, and medical mistrust created intersecting barriers to HIV prevention and treatment services (Arrington-Sanders et al., 2020). Youth service providers identified that interventions must use intersectional approaches simultaneously addressing multiple marginalized identities and social-structural needs. Similarly, studies among adolescents and young adults across diverse settings demonstrate that stigma reduction requires multilevel interventions targeting individual knowledge and attitudes, interpersonal relationships and communication, healthcare provider behaviors and clinic environments, and community norms and policies (Boakye & Adjorlolo, 2025).

Opt-out testing offers a specific stigma-reduction mechanism by decoupling HIV testing from risk behavior assessment and removing the need for individuals to actively request tests. The normalization achieved through routine offering of HIV tests alongside other standard investigations reduces the inference that testing reflects high-risk behavior. Evidence from Australia and other settings indicates that opt-out testing is perceived as less stigmatizing than opt-in approaches specifically because it does not target individuals

or their behaviors but rather applies universally (Leidel et al., 2015). This normalization effect is particularly important for young adults, who may be especially sensitive to perceived judgments about their sexual behavior.

3.3 Private Practice Landscape and Healthcare Provider Perspectives

Understanding healthcare provider perspectives, knowledge, attitudes, and practices regarding HIV testing is essential for effective implementation in private practice settings. Research from primary care contexts internationally reveals both enthusiasm for expanded HIV testing and significant implementation barriers that must be addressed through targeted interventions.

Studies examining general practitioner (GP) HIV testing practices in Europe identified that most tests performed in primary care remain patient-initiated rather than provider-initiated, with pretest counselling rarely conducted and post-test counselling offered mainly for patients receiving HIV-positive diagnoses (Apers et al., 2019). Multiple barriers obstruct provider-initiated testing, including personal discomfort discussing sexual health, fear of offending patients, limited knowledge about benefits of early HIV diagnosis, misconceptions about HIV risks among their patient populations, lack of official guidelines tailored to primary care settings, and time constraints in busy clinical practices. Difficulties identifying patients' sexual orientation and ethical concerns about targeted testing based on demographic characteristics further complicate provider-initiated approaches.

However, GPs also express support for HIV testing when provided with appropriate tools, training, and support. Evaluation of an educational intervention for GPs in Belgium found that participants perceived combined strategies—integrating both target-group-based and

indicator condition-based testing supported by official screening recommendations—as the most successful approach for provider-initiated testing in primary care (Apers et al., 2019). GPs assessed the existing list of 64 indicator conditions as too difficult to integrate into routine care but deemed a reduced list of GP-relevant conditions as more feasible for implementation.

Training and support interventions can significantly improve provider testing practices. A quasi-experimental study in the UK found that Sexual Health in Practice (SHIP) training for general practitioners produced a 16% increase in HIV testing rates for every GP trained, with effects sustained over an 8-year observation period (Pillay et al., 2018). Compared to general population screening approaches, HIV tests conducted in routine clinical care demonstrated high probability of detecting HIV-positive persons, with approximately 1.42% of tests yielding positive results. The effectiveness of this training was attributed to peer-led teaching, use of communication approaches tailored to primary care settings, and provision of rapid risk assessment tools that could be efficiently deployed during consultations.

In private practice contexts specifically, healthcare providers may face unique considerations including financial incentives or disincentives for HIV testing, concerns about patient retention if testing is perceived as intrusive, and variability in clinic infrastructure and support staff availability. Research on private versus public healthcare performance in low- and middle-income countries found that private sector providers do not consistently outperform public sector in efficiency or medical effectiveness but frequently demonstrate advantages in timeliness and hospitality toward patients (Basu et al., 2012). These patient-centered qualities could be leveraged to make HIV testing more

acceptable in private settings, provided that providers receive adequate training and support to overcome knowledge and comfort barriers.

3.4 Linkage to Care and Treatment Outcomes

Identifying undiagnosed HIV infections through opt-out testing represents only the first step in the HIV care continuum; ensuring prompt linkage to care and treatment initiation is essential for realizing individual health benefits and population-level prevention effects. Evidence demonstrates that linkage rates following HIV diagnosis vary widely depending on the testing context, support services provided, and characteristics of diagnosed individuals.

Studies evaluating linkage outcomes following provider-initiated testing reveal both successes and persistent challenges. In Zambia, 38% of HIV-positive patients identified through opt-out testing in primary care outpatient departments enrolled in HIV care and treatment, with a median time between testing and enrollment of 6 days (Topp et al., 2011). While this rapid median time is encouraging, the modest overall enrollment rate highlights that identification alone is insufficient. In Tanzania, implementation of provider-initiated testing in pediatric inpatient settings achieved near-universal counselling (98.5%) and testing (98.2%) among eligible children, with 99.3% of identified HIV-infected children enrolling in HIV care (Dougherty et al., 2019). The dramatically higher enrollment rate compared to outpatient settings suggests that inpatient contexts, specialized pediatric programs, and intensive support systems facilitate more complete linkage.

Comparative research on linkage strategies demonstrates that peer-delivered case management and treatment navigation substantially improve outcomes. A retrospective

cohort study from Eswatini found that peer-delivered linkage case management (CommLink) resulted in 88.4% of clients initiating ART by 90 days post-diagnosis compared to 37.9% with standard linkage services, representing a 2.33-fold increase (MacKellar et al., 2022). By 18 months, 76.3% of CommLink clients versus 49.5% of standard services clients were initiated and retained on ART. Peer counsellors helped resolve 65% of identified barriers to care, and clients with all barriers resolved demonstrated 54% higher rates of ART initiation and retention compared to those with three or more unresolved barriers. These findings highlight that linkage services must address multifaceted barriers including perceived wellbeing, fear of partner responses, and stigmatization through intensive, personalized support.

Mental health considerations profoundly influence linkage to care following HIV diagnosis. Qualitative research from Ghana examining the psychological effects of HIV diagnosis identified overwhelming anxiety regarding impacts on self, family, and society, along with feelings of hopelessness characterized by suicidal ideation and self-harm thoughts (Ninnoni et al., 2023). Participants' initial reactions to diagnosis had negative potential for linkage to care, emphasizing the necessity of integrating mental health support services to manage immediate psychological responses and improve overall linkage outcomes. The absence of such integration may explain suboptimal linkage rates observed in many testing programs.

4. INTEGRATING MENTAL HEALTH INTO HIV PREVENTION SERVICES

4.1 Rationale for Integration: The Mental Health-HIV Prevention Nexus

The integration of mental health services into HIV prevention programming represents an evidence-based strategy addressing the well-documented bidirectional relationship between mental health conditions and HIV risk. Individuals experiencing mental health challenges, including depression, anxiety, and substance use disorders, demonstrate elevated rates of HIV risk behaviors such as unprotected sex, inconsistent condom use, multiple sexual partners, and engagement in transactional sex (Obeagu, 2024). Conversely, the process of HIV testing, potential diagnosis, and subsequent treatment engagement carries significant psychological implications that can either facilitate or impede care engagement depending on the availability of mental health support.

Evidence from diverse global settings establishes that mental health integration improves both mental health outcomes and HIV prevention metrics. A scoping review examining integration of mental health into HIV programs across high-, low-, and middle-income countries found that integrated care models resulted in reduced depression, decreased alcohol use, increased social function, decreased self-reported stigma, decreased psychiatric symptoms, improved mood, and enhanced healthcare worker comfort discussing mental illness (Conteh et al., 2023). These improvements occurred across single-facility integration, multi-facility integration coordinated through networked specialists, and integrated care coordinated by non-physician case managers, demonstrating flexibility in integration models adaptable to different healthcare contexts.

Specific to young populations, mental health integration addresses developmental vulnerabilities unique to adolescence and young adulthood. Qualitative research from Southeast Asia exploring HIV and mental health among young people identified cross-cutting challenges in healthcare, family, school, and peer domains amid fragmented and under-resourced HIV and mental health services (Newman et al., 2021). Strategic opportunities identified included development and integration of youth-friendly HIV and mental health services, programs promoting parent-adolescent communication about sex and HIV, teacher training to advance awareness and serve as first-responders, and youth-led peer education programs promoting HIV prevention, sexual health, and mental health awareness. These multilevel strategies recognize that effective integration requires addressing individual, interpersonal, community, and structural determinants simultaneously.

The burden of mental health challenges among PrEP candidates and people living with HIV further supports integration imperatives. A systematic analysis argued that inattention to mental health stands to undermine global PrEP scale-up efforts, as psychosocial factors including co-occurring mental illness and substance use have been shown to undermine PrEP persistence and adherence (Ikeda et al., 2021). Integration of mental health screening and treatment within PrEP services represents an important strategy for maximizing PrEP effectiveness while addressing the high burden of mental illness among at-risk populations. For young adults specifically, who experience elevated rates of depression, anxiety, and psychological distress, integrated services can reduce barriers to both HIV prevention tool uptake and ongoing engagement with prevention services.

4.2 Models of Integration: Lessons from International Experience

International experience with HIV and mental health integration has generated diverse service delivery models, each with distinct advantages, challenges, and contextual appropriateness. Understanding these models informs adaptation for Hong Kong's private practice settings.

Single-facility integration, where HIV and mental health services are co-located and coordinated within one facility, enhances multidisciplinary teamwork and reduces access barriers for patients who would otherwise need to navigate multiple service sites (Chuah et al., 2017). This model enables comprehensive care addressing multiple comorbidities within convenient, familiar settings. However, the practicality and cost-effectiveness of providing a full continuum of specialized mental health care on-site for patients with complex needs is debatable, particularly in smaller private clinics where specialized mental health staffing may not be feasible. Research from Cameroon examining factors influencing mental health integration into HIV clinics found that providers were motivated to screen clients for mental disorders and believed mental health service provision could improve quality of HIV care, yet they reported feeling ill-equipped to conduct mental health screening and indicated needs for additional training and resources (Grimes et al., 2024).

Multi-facility integration, based on collaborative networks of specialized agencies, serves patients with multiple comorbidities by connecting them to appropriate specialists while allowing primary HIV or mental health providers to maintain their core expertise (Chuah et al., 2017). However, fragmented and poorly coordinated care can pose barriers, particularly when referral pathways are unclear, communication between providers is

inadequate, or patients face difficulties navigating between facilities. In Uganda, mental health professionals working with people living with HIV identified major challenges including poor mental health infrastructure, lack of providers, limited financial resources, and minimal integration into other health services (Knippler et al., 2024). Proposed solutions emphasized investment in mental health care systems and interventions integrated into routine HIV services to mitigate barriers.

Case manager-coordinated integration, where a single non-physician case manager coordinates care across HIV and mental health domains, can enable continuity of care for patients and personalized support addressing individual barriers (Chuah et al., 2017). This model requires appropriate training and ongoing supervision for case managers to ensure competency across both HIV and mental health dimensions. Research demonstrates that case managers can effectively address practical barriers including appointment scheduling, transportation assistance, medication management, and connection to social services, while also providing emotional support and reducing isolation experienced by patients.

Stepped-care models represent an emerging integration approach particularly relevant to resource-constrained settings. These models triage patients based on symptom severity and needs, providing least intensive interventions likely to achieve health gains initially, then stepping up to more intensive interventions as needed. Implementation of stepped mental health care in Australian primary care demonstrated high acceptability and feasibility, with providers rating services as effective for early detection of undiagnosed anxiety and depression and helpful for developing mental health treatment plans (Anderson et al., 2019). Initial cost-effectiveness evaluation suggested the service was cost-saving over 12-month periods.

4.3 Mental Health Screening and Support in HIV Testing Contexts

Effective integration of mental health into HIV testing services requires systematic screening to identify individuals experiencing psychological distress and appropriate referral or on-site intervention pathways. Research examining depression screening integration into HIV and diabetes clinics in Botswana provides instructive insights (Molebatsi et al., 2022). Clinicians and patients perceived depression screening as appropriate and acceptable within medical clinics, recognizing connections between mental health and chronic disease management. However, several barriers emerged including stigma as an important obstacle, with negative associations attached to depression potentially impeding screening uptake. Recommendations to facilitate screening included improving knowledge and awareness about depression, offering incentives to complete screening, providing comprehensive staff training, ensuring adequate resources for treatment referral, preserving confidentiality, and securing leadership endorsement.

Practical approaches to mental health screening in busy clinical settings emphasize brief, validated instruments that can be efficiently administered. The Patient Health Questionnaire-4 (PHQ-4), a 4-item measure of psychological distress, has been validated among Hong Kong young adults, demonstrating good psychometric properties, factorial validity, and measurement invariance across gender, age, and distress subgroups (T. C. Fong et al., 2023). The PHQ-4 showed a substantial mediating role in relationships between meaning in life and suicidal ideation, supporting its clinical relevance as a brief screening tool. Such brief instruments enable systematic screening in time-constrained primary care and private practice settings without substantially disrupting clinical workflows.

Beyond screening, integrated models must establish clear pathways for mental health intervention or referral. HIV counseling and testing staff in Uganda described diverse roles already encompassing mental health support, recognizing that mental health is vital to their work and inseparable from HIV management itself (Martin et al., 2020). Staff practiced common techniques including behavioral interventions and approaches to changing thinking styles, but identified needs for further training in suicide risk assessment and identification of depression, along with greater clinical supervision. Critically, participants described significant role conflict between time demands to achieve HIV testing targets versus the need to offer adequate mental health support, highlighting that integration requires realistic workload adjustments and performance metrics that value quality over quantity.

4.4 Stigma Reduction Through Service Normalization

Provider-initiated opt-out testing offers a specific stigma-reduction mechanism by normalizing HIV testing and disconnecting it from high-risk identity labels. Unlike risk-based or targeted testing approaches that may reinforce perceptions that HIV tests are only for “those people” engaged in stigmatized behaviors, opt-out testing frames HIV screening as routine preventive care appropriate for all young adults accessing healthcare.

Evidence supporting the stigma-reduction effects of opt-out testing comes from multiple sources. In Australia, opt-out testing was conceptualized as making HIV testing similar to testing for non-stigmatized diseases such as diabetes, using a normalized, morally neutral approach to increase testing rates and reduce late diagnosis (Leidel et al., 2015). The approach does not target individuals or their behaviors, thereby avoiding the implicit judgment that accompanies risk assessment-based testing. Research suggests that people

are less likely to test for stigmatized diseases like HIV because it implies engagement in atypical or immoral behavior; opt-out testing circumvents this barrier by framing testing as standard medical practice rather than response to acknowledged risk.

Integration with mental health services provides additional stigma-reduction opportunities. When HIV testing occurs within a broader health assessment that includes mental health screening, substance use evaluation, and other wellness checks, the HIV component becomes one element of comprehensive care rather than a singular focus implying risk. This holistic framing may be particularly acceptable to young adults who may simultaneously address multiple health concerns including stress management, sexual health, relationship issues, and general wellness. Private practice settings, where patient-provider relationships often develop over time and across multiple health issues, may be especially conducive to this integrated, normalized approach.

Importantly, stigma reduction through service normalization must be accompanied by genuine respect for autonomy and opt-out rights. Research from Ghana and Kenya demonstrates that when opt-out testing is implemented in ways that make patients feel unable to decline, or when the opt-out option is not clearly communicated, the approach may exacerbate rather than reduce stigma by creating perceptions of compulsory testing and loss of control (Amankwaa, 2021; Njeru et al., 2011). Effective stigma reduction through normalization requires that opt-out testing be implemented with fidelity to voluntary principles, clear communication about the right to decline, and supportive environments that respect patient autonomy.

5. PROPOSED IMPLEMENTATION MODEL FOR HONG KONG

5.1 Clinical Indicators for HIV Testing in Dermatology and General Practice

Systematic identification of clinical indicators warranting HIV testing forms the foundation for effective provider-initiated opt-out testing in private practice settings. Indicator condition-guided testing, recommended by international guidelines including the British HIV Association and WHO, targets HIV testing to individuals presenting with clinical conditions associated with undiagnosed HIV infection or elevated HIV prevalence.

Table 1: Proposed Clinical Indicators for HIV Testing in Private Dermatology and General Practice Clinics

Category	Specific Indicator Conditions	HIV Prevalence Among Presenters	Rationale	Dermatological
Seborrheic dermatitis (severe/recurrent)	>1.8%	Common early HIV manifestation; included in European indicator condition studies (Sullivan et al., 2013)	Herpes zoster (especially if age <50 or recurrent)	>2%
Associated with immune dysfunction; strong indicator (Sullivan et al., 2013)	Oral candidiasis (non-denture related)	>5%	Suggests immunosuppression	Recurrent/severe folliculitis
Variable	May indicate immune impairment	Persistent or extensive molluscum contagiosum	>2%	Unusual extent suggests immunodeficiency
General Practice	Sexually transmitted infections (any)	3-5%	Shared factors and biological	Unexplained lymphadenopathy

Category	Specific Indicator Conditions	HIV Prevalence Among Presenters	Rationale	Dermatological
>3%	May indicate acute or chronic HIV	Mononucleosis -like illness	cofactors (Mandel et al., 2019; Permatasari et al., 2025) >2%	Compatible with acute HIV syndrome (Sullivan et al., 2013)
Unexplained weight loss	Variable	Constitutional symptom	Routine Health Checks	General health assessment (ages 18-35)
Varies by prevalence	Normalized testing opportunity	Laboratory Abnormalities*	Unexplained leukocytopenia /thrombocytopenia	>1.5%

The selection of clinical indicators for Hong Kong private practice settings must balance sensitivity (identifying most HIV cases) with feasibility (avoiding excessive testing that burdens clinics). European indicator disease studies found that all eight tested conditions—including sexually transmitted infections, seborrheic dermatitis, and herpes zoster—exceeded the 0.1% HIV prevalence threshold considered cost-effective for routine testing (Sullivan et al., 2013). Implementation in Hong Kong should prioritize indicators most commonly encountered in dermatology and general practice while ensuring providers receive training to recognize presentations that may be atypical or subtle in early HIV infection.

5.2 Clinic Workflow and Staff Training Package

Successful implementation requires carefully designed workflows that integrate opt-out HIV testing seamlessly into existing clinical practices without creating unsustainable burdens on providers or staff. The workflow must address patient flow, information provision, consent procedures, specimen collection, result delivery, and linkage pathways.

Proposed Workflow Components:

1. **Patient Check-In and Screening:** Reception staff provide informational materials about routine health screenings offered at the clinic, including HIV testing, establishing normalization from first contact.
2. **Clinical Assessment:** Healthcare providers conduct standard clinical assessment and identify patients meeting clinical indicator criteria or presenting for general health checks.
3. **Opt-Out Testing Offer:** Providers inform patients that HIV testing will be included in recommended investigations unless they prefer not to be tested, using scripted language ensuring clear communication of opt-out rights.
4. **Streamlined Consent:** Verbal consent is obtained and documented in medical records, eliminating separate written consent forms while maintaining documentation requirements (Carter et al., 2025).

5. **Integrated Specimen Collection:** HIV testing is incorporated into routine blood draws when other laboratory tests are ordered, or rapid point-of-care tests are offered when appropriate.
6. **Mental Health Screening:** Brief validated instruments (e.g., PHQ-4) are administered to identify psychological distress requiring support (T. C. Fong et al., 2023).
7. **Result Delivery:** Results are communicated through pre-arranged patient-preferred methods with appropriate counseling for both negative and positive results.
8. **Linkage to Care:** Patients testing positive receive immediate linkage support including same-day referrals, navigation assistance, and mental health support as needed (MacKellar et al., 2022).

The staff training package must address knowledge, skills, and attitudes across technical, ethical, and psychosocial domains. Training curricula should cover: HIV transmission and natural history; recognition of clinical indicator conditions; opt-out testing procedures and ethical principles; communication skills for offering tests non-judgmentally; mental health screening and crisis response; linkage to care procedures; and confidentiality and documentation requirements. Evidence from primary care training interventions demonstrates that peer-led, interactive training incorporating communication skills practice and rapid risk assessment tools produces sustained improvements in testing rates (Pillay et al., 2018).

5.3 Mental Health Integration Components

Integration of mental health services into this HIV testing model operates at multiple levels. At the screening level, all patients undergoing HIV testing complete brief mental health assessments identifying depression, anxiety, and psychological distress. This universal screening normalizes mental health assessment alongside HIV testing, reducing stigma for both domains.

For patients testing HIV-negative, mental health screening results inform counseling about risk reduction, with recognition that psychological distress, substance use, and relationship challenges may increase HIV vulnerability. Referral pathways connect patients screening positive for mental health concerns to appropriate services, either within the clinic if available or through established referral networks with mental health providers.

For patients testing HIV-positive, immediate mental health support becomes critical. Research demonstrates that newly diagnosed individuals experience overwhelming anxiety, hopelessness, and potential suicidal ideation requiring urgent intervention (Ninnoni et al., 2023). The integration model must ensure that positive result delivery occurs in supportive environments with trained counselors capable of crisis response, provision of immediate emotional support, and connection to ongoing mental health services alongside HIV treatment linkage (Knippler et al., 2024).

5.4 Linkage to Care Pathways and Sustainability

Robust linkage to care pathways must ensure that patients diagnosed with HIV transition rapidly into treatment services while receiving ongoing mental health support. Evidence demonstrates that same-day or rapid ART initiation following diagnosis significantly

reduces time to viral suppression and improves retention in care (Halperin et al., 2018; Ilagan et al., 2021). The median time from diagnosis to viral suppression decreased from 137 days to 76.5 days when rapid treatment protocols were implemented, with the critical factor being reduction in time from first clinic visit to ART initiation.

For Hong Kong implementation, linkage pathways should include: immediate referral to HIV specialist services with expedited appointment scheduling; patient navigation support assisting with appointment attendance, addressing practical barriers, and providing ongoing counseling; connection to peer support services facilitating adjustment and adherence; and integrated mental health follow-up ensuring psychological support during the challenging initial period following diagnosis. Private clinics implementing opt-out testing must establish formal partnerships with HIV treatment centers, ensuring clear communication channels and warm handoffs that minimize patient burden and maximize linkage success.

6. RESEARCH DESIGN AND EVALUATION FRAMEWORK

6.1 Cluster Randomized Trial Methodology

A cluster randomized controlled trial design is proposed to evaluate the effectiveness and implementation of provider-initiated opt-out HIV testing in Hong Kong private practice settings. Cluster randomization, where entire clinics rather than individual patients are randomized to intervention or control conditions, is appropriate when interventions target provider behavior or clinic-level processes and when contamination between conditions would occur if randomization occurred at the patient level.

The trial would randomize approximately 24-30 private dermatology and general practice clinics to either: (1) intervention condition receiving comprehensive training, workflow implementation support, and ongoing monitoring for opt-out HIV testing integrated with mental health screening, or (2) control condition maintaining standard care practices. Randomization would be stratified by clinic type (dermatology versus general practice) and clinic size to ensure balance. The stepped-wedge design could be considered as an alternative, where all clinics eventually receive the intervention but at staggered times, providing both between-cluster comparisons and within-cluster before-after assessments.

Primary outcomes would include: proportion of eligible patients offered HIV testing; proportion accepting testing among those offered; number of new HIV diagnoses identified; and proportion of diagnosed patients linked to care within 30 days. Secondary outcomes would assess: time from diagnosis to linkage; cost per HIV diagnosis; patient acceptability and satisfaction; healthcare provider acceptability; mental health screening uptake; and integration fidelity measures. Implementation outcomes following the RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, Maintenance) would evaluate: reach to target populations; effectiveness in achieving testing and linkage outcomes; adoption by providers and clinics; implementation fidelity to intervention protocols; and maintenance and sustainability beyond the study period.

6.2 Evaluation Framework and Success Metrics

Table 2: Key Evaluation Outcomes and Measurement Approaches

Domain		Specific Metrics	Data Source	Target		Testing Uptake
%	eligible patients offered HIV test	Clinic records	≥90%	%	offered patients accepting test	Clinic records

Domain	Specific Metrics	Data Source	Target	Testing Uptake
≥85%	Case Identification	Number of new HIV diagnoses	Laboratory records	Measure increase vs. control
% HIV-positive among tested	Laboratory records	Document yield	Linkage to Care	% diagnosed linked within 30 days
Patient tracking	≥80%	Median time to linkage (days)	Patient tracking	≤14 days
Mental Health Integration	% patients screened for mental health	Clinic records	≥80%	% screening positive receiving referral
Clinic records	100%	Cost-Effectiveness	Cost per HIV diagnosis	Economic analysis
<\$5,000 USD	Incremental cost-effectiveness ratio	Economic analysis	<\$50,000/QALY	Sustainability

Cost-effectiveness analysis would adopt a healthcare system perspective, capturing costs of training, workflow modifications, testing supplies, staff time, and linkage support services, compared against benefits measured in HIV diagnoses, quality-adjusted life years gained, and prevented secondary transmissions (Mwachofi et al., 2020). Sensitivity analyses would examine cost-effectiveness across varying HIV prevalence scenarios and different implementation intensity levels.

6.3 Implementation Science Considerations and Long-Term Sustainability

Beyond effectiveness evaluation, understanding implementation processes is essential for translation and scale-up. Qualitative research with participating providers and patients would explore barriers and facilitators encountered during implementation, adaptation strategies employed, and contextual factors influencing success. Mixed-methods evaluation combining quantitative outcome data with qualitative implementation insights

provides comprehensive evidence to guide policy recommendations and broader dissemination.

Sustainability planning must address financing mechanisms, workforce development, and integration into standard practice. The model must demonstrate feasibility within existing private practice business models, whether through patient fee-for-service, insurance reimbursement, or public health subsidies for preventive services. Staff training must be designed for scalability, potentially using train-the-trainer approaches or online learning platforms that can reach the broader private practice community cost-effectively (Pillay et al., 2018).

7. CONCLUSIONS AND POLICY IMPLICATIONS

This comprehensive report establishes a robust evidence base and actionable framework for implementing provider-initiated opt-out HIV testing integrated with mental health services in Hong Kong private practice settings. The model addresses critical gaps in current HIV prevention efforts by normalizing testing, leveraging the private healthcare network, reducing stigma, and providing holistic care responsive to young adults' needs.

Evidence demonstrates that opt-out testing substantially increases testing uptake, improves case identification, and can be implemented cost-effectively even in low HIV prevalence settings (Ferrand et al., 2015; Leidel et al., 2015). Integration with mental health services addresses the psychological dimensions of HIV testing and supports both prevention and care engagement (Conteh et al., 2023; Obeagu, 2024). Private practice settings offer accessibility, patient trust, and person-centered care environments that may enhance acceptability compared to public clinical services (Wong et al., 2010).

Successful implementation requires careful attention to training, workflow integration, ethical safeguards, and linkage systems ensuring that identified cases receive appropriate care. The proposed cluster randomized trial will generate crucial evidence on effectiveness, cost-effectiveness, and implementation requirements specific to Hong Kong's context, informing policy decisions about broader scale-up.

By pioneering this integrated, normalized approach to HIV prevention in private practice settings, Hong Kong can advance toward UNAIDS 95-95-95 targets, reduce late HIV diagnoses, and establish models of comprehensive sexual and mental health care for young adults that address the interconnected nature of health, well-being, and disease prevention.

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