

## 2020–2022 年 HIV 检测服务研究进展

刘毅 李东民 韩孟杰

中国疾病预防控制中心性病艾滋病预防控制中心, 北京 102206

通信作者: 韩孟杰, Email: mjhan@chinaaids.cn

**【摘要】** HIV 检测是艾滋病防治工作的关键环节, 是诊断发现 HIV 感染者的必要手段。新型冠状病毒感染疫情(新冠疫情)期间, 通过医疗卫生机构和社会组织等途径提供的 HIV 检测数量明显下降。HIV 自我检测需求在新冠疫情期间快速上升, 成为医疗机构等 HIV 检测途径的重要补充。HIV 检测在新冠疫情期间主要受到医疗机构服务、新冠疫情防控措施、人群检测意愿、性伴数量等供需两端多种因素的影响。本文从新冠疫情对 HIV 检测数量的总体影响, 对不同检测途径的影响、相关因素以及提高 HIV 检测的策略措施方面进行综述, 为优化传染病流行时期的 HIV 检测服务提供依据。

**【关键词】** 新型冠状病毒感染; 艾滋病病毒检测; 影响

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### Progress in research of HIV testing services between 2020 and 2022

Liu Yi, Li Dongmin, Han Mengjie

National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing 102206, China

Corresponding author: Han Mengjie, Email: mjhan@chinaaids.cn

**【Abstract】** As a key measure for the diagnosis of HIV infection, HIV testing is essential for AIDS prevention and control. During the COVID-19 pandemic, the number of HIV testing provided through medical health institutions and social organizations was significantly decreased. The demand for HIV self-testing increased rapidly during the COVID-19 pandemic, and HIV self-testing has become an important supplement to HIV testing in medical institutions. During the COVID-19 pandemic, HIV testing was mainly affected by medical services, COVID-19 prevention and control measures, individual's willingness to undergo testing, the number of sex partners and other factors in terms of both supply and demand. This article summarizes the overall impact of the COVID-19 pandemic on HIV testing, including different testing methods, the related factors and strategies for the improvement of HIV testing. The goal is to provide evidence-based insights for strengthening HIV testing services during infectious diseases pandemic.

**【Key words】** COVID-19; HIV testing; Influence

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随着新型冠状病毒感染疫情(新冠疫情)的蔓延, 截至 2022 年 12 月底全球累计报告病例近 6.6 亿例, 波及 210 个国家和地区<sup>[1-2]</sup>。新冠疫情期间, 全球各地的卫生服务体系受到了不同程度的冲击<sup>[3]</sup>, 艾滋病防治工作也受影响, 特别是 HIV 检测服务在多个国家出现减少或中断的情况<sup>[4-6]</sup>。新冠疫情带来的短期效应, 如医疗机构超负荷运转、HIV 检测服

务短缺, 会对 HIV 流行造成长期影响<sup>[7]</sup>。有模型估计, 在新冠疫情期间坚持提供 HIV 检测服务(10%~90% 的水平)可以避免 1.6%~17.2% 的 HIV 新发感染<sup>[8-9]</sup>。本文对国内外关于新冠疫情对不同 HIV 检测途径的影响、相关因素以及提高 HIV 检测的策略措施进行综述, 为优化传染病流行时期的 HIV 检测服务提供依据。

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### 一、新冠疫情对 HIV 检测的总体影响

新冠疫情出现以来,全球 HIV 防治服务数量增速明显减缓,HIV 检测服务可能是艾滋病防治工作中受影响最大的环节,2020 年 HIV 检测服务数量的增幅可能是 2009 年以来的最低值<sup>[10-12]</sup>。44 个艾滋病高负担国家的 HIV 检测数量在新冠疫情期间减少了 26.0%~44.0%<sup>[13]</sup>。南非多个城市 HIV 检测数量在新冠疫情初期下降 47.6%,但随着时间的推移和防控措施的放松逐渐恢复增长<sup>[12]</sup>。受美国 CDC 资助的美国部分州、波多黎各和美属维尔京群岛的卫生部门 HIV 检测数量 2020 年平均减少了 56.0%<sup>[14]</sup>。我国 HIV 检测服务也受到了影响。江苏省在 2020 年 1-3 月的 HIV 检测数量同比下降了 49.0%<sup>[15]</sup>。新冠疫情的前 3 周我国 HIV 检测数量总体下降了 35.0%<sup>[16]</sup>。

### 二、新冠疫情对不同 HIV 检测途径的影响

目前 HIV 检测服务的获取途径主要有医疗机构主动提供检测服务,如医务人员主动提供 HIV 检测咨询(PITC)、选择退出检测(Opt-Out);检测服务需求者主动寻求检测如自愿咨询检测(VCT)、选择参加(Opt-In)和 HIV 自我检测(HIV 自检)。

1. 对医疗机构主动提供检测服务的影响:国外医疗机构 HIV 主动检测服务数量大幅下降。多家医疗机构将资源和人员转移到应对新冠疫情当中<sup>[17-18]</sup>,中断了 HIV 检测服务。英国性病服务门诊数据显示,其 2020 年 1-4 月提供的“Opt-Out”HIV 检测次数较 2019 年同比下降了 77.1%<sup>[19]</sup>。美国佛罗里达州医疗系统的“Opt-Out”HIV 检测量较新冠疫情之前下降了 35.9%<sup>[20]</sup>。我国相关研究也相似,江苏省接受 PITC 的 MSM 人数较新冠疫情前下降了 59.0%<sup>[21]</sup>,宁波市通过 PITC 发现的病例数较 2019 年同期下降 28.8%<sup>[22]</sup>,以 PITC 报告为主的南宁市,2020 年 1-2 月报告的 HIV/AIDS 病例数减少 28.1%<sup>[23]</sup>。

2. 对检测需求者主动寻求检测的影响:HIV 高风险人群主要通过主动寻求检测来了解自己的感染状况,在新冠疫情期间,主动寻求检测数量明显下降<sup>[24-27]</sup>。澳大利亚墨尔本性健康中心的 HIV 咨询人数在新冠疫情期间下降了 40.0%,HIV 检测次数下降了 31.0%<sup>[28-29]</sup>。波兰 2020 年 VCT 服务数量比前一年减少了 44.0%,VCT 使用率由 75.3 次/10 万~108.9 次/10 万降至 60.0 次/10 万<sup>[30]</sup>。在东欧和中欧地区,仅 6 个国家的 HIV 诊所正常运转,10 个国家的诊所仅维持分发抗病毒药物<sup>[31]</sup>。美国阿肯色州、密苏里州和俄克拉何马州的性健康中心 VCT 数量减少了 58.7%<sup>[32]</sup>。非洲地区采取严格管控的国家,VCT 数量下降接近 50.0%<sup>[33]</sup>。我国在新冠疫情期间也采取了严格的管控措施,宁波市 2020 年 1-3 月 VCT 数量较 2019 年同期下降 31.5%,暗娼、MSM、外来务工人员 and 吸毒者的检测人数均在近 10 年来首次出现不同程度下降<sup>[22]</sup>。

3. 对 HIV 自检的影响:新冠疫情期间,HIV 自检需求量总体呈上升趋势,提供 HIV 自检试剂盒成为医疗机构、社会组织等开展 HIV 检测的主要方式<sup>[34-35]</sup>。美国一项调查中有

超过 1/2 的受访者认为,HIV 自检有利于在新冠疫情期间获取 HIV 检测,98.5% 的受访者愿意推荐他人使用 HIV 自检试剂盒<sup>[36]</sup>。2020 年 4-9 月,英国通过互联网获取 HIV 检测的比例由 2019 年同期的 25.0% 增加到 63.0%<sup>[19]</sup>。新冠疫情初期,我国 HIV 自检试剂盒在线购买下降超过 50.0%,在防控政策放松后迅速恢复,HIV 自检试剂盒销量 2020 年下半年出现增长,到 2021 年增长超 100.0%<sup>[37-38]</sup>。国内一项在线调查显示,新冠疫情初期,只有 64.9% (277/427) 的 MSM HIV 检测需求得到满足,其中通过 HIV 自检途径完成检测的比例为 84.1% (233/277)<sup>[39]</sup>。

### 三、新冠疫情期间影响 HIV 检测的因素

1. 检测意愿:Jiang 等<sup>[40]</sup>的研究发现,新冠疫情期间,MSM 更愿意使用 HIV 自检试剂盒,使用 PITC 和 VCT 服务的人数明显下降。有检测需求者担心因前往医院感染新型冠状病毒而受到歧视<sup>[41]</sup>。HIV 高风险人群认为自身免疫系统脆弱,害怕因外出或者前往服务机构感染新型冠状病毒<sup>[32,36,42-43]</sup>。这都造成了医疗机构 HIV 检测数量的下降。国内研究发现,40.1% 的调查参与者由于担心感染新型冠状病毒而放弃使用医疗机构 HIV 检测服务<sup>[40]</sup>。与医疗机构的 HIV 检测服务相比,HIV 自检因其简单化和隐私性更易被检测需求者接受<sup>[44]</sup>。菲律宾对 MSM 的调查显示,新冠疫情期间经历隔离的调查对象使用 HIV 自检的意愿增加 (aOR=4.25, 95%CI: 2.46~7.43)<sup>[45]</sup>。因此,需要加强 HIV 检测的宣传,鼓励有检测需求者在做好防护措施的情况下,前往机构接受 HIV 检测。

2. 性伴数量:多项研究显示,新冠疫情期间约 1/2 的受访者约见性伴的次数减少<sup>[46-48]</sup>,HIV 高风险人群性伴的平均数量也出现了明显下降<sup>[29]</sup>。MSM 的性接触活动减少,降低了相关人群 HIV 检测需求,也降低了感染 HIV 的可能性<sup>[49]</sup>。但也有文献报道,被要求居家的 MSM 平均增加了 2.1 个肛交性伴<sup>[50]</sup>,这可能在一定程度上会增加 MSM 的 HIV 检测需求和感染风险。

3. 新冠疫情防控措施:新冠疫情期间各国政府采取了不同的防控政策<sup>[51-54]</sup>。居家隔离、旅行限制、交通管制以及对前往医疗机构等公共场所的限制措施阻碍了医疗机构 HIV 检测服务的获取<sup>[11,55]</sup>。MSM 在新冠疫情期间获取 VCT 服务更困难 (OR=1.98, 95%CI: 1.14~3.42)<sup>[56]</sup>。同时,部分 HIV 防治工作人员因防控措施而无法正常工作,造成了 HIV 检测服务提供不足<sup>[57]</sup>。相比而言,由于不完全依赖于固定的场所,HIV 自检受到的影响则较小<sup>[58]</sup>。

4. 医疗机构服务:医疗机构 HIV 检测数量下降,主要还是 HIV 检测服务供应不足所导致。部分医院暂时关闭常规临床检测服务、转移大部分医疗资源或减少非急诊服务,以满足新型冠状病毒感染防治需求<sup>[59-61]</sup>。在俄罗斯、埃及、东欧和中欧等国家或地区,部分 HIV 检测服务机构被改为新型冠状病毒防治中心<sup>[31,62-63]</sup>。在我国广西壮族自治区的调查,超过 1/2 的 HIV 防治工作人员认为其所在机构的服务受到影响,25.0% 的人员认为其所在机构 HIV 防治工作无法

维持<sup>[57]</sup>。医疗机构向新型冠状病毒感染防治的资源倾斜影响了医疗机构 HIV 检测服务的提供,部分人群失去了获得 HIV 检测服务的机会。

5. 人员调动: HIV 防治工作人员被抽调从事疫情防控工作影响了医疗机构提供 HIV 检测服务<sup>[20,23,28]</sup>。东欧和中欧地区 11 个国家的 HIV 门诊医生同时参与新型冠状病毒感染防治工作<sup>[31]</sup>。印度的一项调查中,45% 的 MSM 报告在新冠疫情期间 HIV 防治工作人员数量出现下降<sup>[64]</sup>。新冠疫情期间,我国各级 CDC 的 HIV 防治工作人员也被抽调或兼职参与新冠疫情防控工作中<sup>[22,65]</sup>。

6. 经济因素:新冠疫情影响了不平等,使低收入群体和高危人群更难以获得政府提供的医疗机构 HIV 检测服务<sup>[50,66-67]</sup>。肯尼亚“协助项目”参与者在新冠疫情期间由于无法负担新冠疫情防控相关的支出而放弃前往 HIV 诊所接受检测<sup>[68]</sup>。新冠疫情影响了区域不平等,尽管在流行早期城市的 HIV 检测下降幅度大于农村(发生率  $OR=0.52$ ,  $95\%CI:0.44\sim0.61$ )<sup>[12]</sup>,但城市能够较快地恢复 HIV 检测服务,并以 HIV 自检试剂盒作为补充手段<sup>[69]</sup>。这导致了 HIV 自检数量出现了一定上涨。而贫困地区人群对 HIV 自检的认识较少,缺乏获取 HIV 自检试剂盒的途径,而失去了获得 HIV 检测的机会。

7. 保险保障:新冠疫情期间,HIV/AIDS 患者、HIV 高风险人群容易失去 HIV 检测服务机会<sup>[70]</sup>。因为这部分人群获得医疗保险的机会有限或没有既定的医疗保险<sup>[71]</sup>,其获取医疗机构 HIV 检测服务的机会也较小。既往研究中,缺乏医疗保险保障的人更愿意选择使用 HIV 自检试剂盒( $aOR=1.22$ ,  $95\%CI:1.06\sim1.40$ )<sup>[72]</sup>。因此,当医疗机构的 HIV 检测服务在新冠疫情期间大量中断时,这些人群可能会选择 HIV 自检。

8. 社会组织运转:MSM 社会组织是 MSM 获取 HIV 检测服务的重要途径<sup>[73]</sup>。社会组织在一定程度上可以填补医疗机构 HIV 检测服务的不足<sup>[74]</sup>。但在新冠疫情期间,社会组织原有的服务流程被限制,导致 HIV 检测数量减少<sup>[42]</sup>。公益服务项目暂停造成部分依赖政府项目支持的社会组织预算短缺,无法维持正常运转<sup>[17]</sup>,这部分社会组织的 HIV 检测服务出现中断。

#### 四、新冠疫情期间提高 HIV 检测的策略与措施

1. 新型冠状病毒感染防治与 HIV 检测相结合:许多国家和地区出台了加强 HIV 防治的诸多举措。各地出现了提高 HIV 检测率的新手段,尽管这不足以减轻新冠疫情影响对 HIV 检测的负面影响<sup>[13,31,75-76]</sup>。美国加利福尼亚州将 HIV 检测纳入低收入社区的新型冠状病毒核酸检测点中<sup>[77]</sup>。美国芝加哥大学医学院急诊科在新型冠状病毒筛查项目中加入 HIV 检测,弥补了 HIV 防治服务的减少<sup>[78]</sup>。我国也有类似的方案,云南省元谋县、四川省会理市等地将新型冠状病毒疫苗接种与 HIV 主动检测服务相结合,其 2021 年的 HIV 检测率达到历年最高水平。在 HIV 感染流行的高风险地区,探索将 HIV 检测与公共卫生服务相结合对扩大 HIV 检测有一

定借鉴意义,但其是否可作为推广策略尚需进一步研究。

2. 加强检测服务提供创新:新冠疫情改变了检测提供者和公众对 HIV 自检和基层社区服务等创新的想法。这些创新在一定程度上减轻了医疗机构和实验室设施的负担,可能对 HIV 检测治疗产生重要影响,改善对边缘化人群的服务提供<sup>[42,79]</sup>。在巴西、美国等国家,医疗机构通过远程医疗服务系统为 HIV 高风险人群提供基本的咨询服务<sup>[13,80]</sup>。

3. 加强 HIV 自检推广:加强对人群 HIV 检测的宣传,鼓励更多的人使用 HIV 自检试剂盒。HIV 自检试剂盒使用率高的国家,其整体检测水平受新冠疫情影响较小。多项研究表明,在新冠疫情期间,HIV 自检的需求量增加<sup>[36,39-40]</sup>,其原因是自检试剂盒可以通过网络等途径获取,并在家庭内使用,最大限度避免新型冠状病毒暴露<sup>[81]</sup>。所以,加强 HIV 自检宣传推广,提高 HIV 自检的使用率能够更好地应对传染病流行对 HIV 检测的影响。

4. 增强社会组织活力:调查研究显示,社会组织成员之间良好的“连通性”能够提高其服务群体在新冠疫情期间 HIV 检测意愿<sup>[39]</sup>。因此,社会组织在为群体提供服务的同时,促进社会组织成员良好的沟通和信息交流,有助于提高社会组织 HIV 防治活动的稳定性,维持其在传染病流行时期的 HIV 检测率。

#### 五、小结

总体上,新冠疫情在一定程度上影响了 HIV 检测服务的开展。特别是 PITC 和 VCT 等通过医疗机构和社会组织提供的检测在新冠疫情期间数量明显下降。这主要受到医疗机构服务、新冠疫情防控措施,人群检测意愿、性伴数量等供需两端多种因素的影响。为了应对这种负面影响,部分地区开始探索基于新冠疫情防控措施的 HIV 检测手段。HIV 自检的需求量在新冠疫情期间呈现上升趋势,提示 HIV 自检可能是维持传染病大流行期间 HIV 检测的有效手段。现阶段国内关于新冠疫情对 HIV 检测影响的研究还比较少,需要开展更深入的研究调查,为制定 HIV 检测应对策略提供参考。

利益冲突 所有作者声明无利益冲突

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