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DIAGNOSTIC PATTERNS OF RAPID TESTS USED FOR DETECTING HIV INFECTION IN KAZAKHSTAN

Abstract. This article presents the results of the comparative analysis of sensitivity and specificity of five express test systems used in Kazakhstan to detect the markers of HIV infection. Currently, there are several express test-systems for HIV detection that are officially licensed for use in Kazakhstan. These are the following: «Alere Determine HIV ½ Ag/Ab Combo»; «Hexagon HIV 1+2»; «Abon HIV ½»; «HIV 1,2 Han Medtest»; «Geenius HIV ½ Confirmatory». The diagnostic systems listed above are fully compatible with current WHO requirements (sensitivity >99%, specificity >98%). The validation study results clearly indicate that these test systems can be used in Kazakhstan as a rapid HIV testing procedure for the key population groups conducted by the non-governmental organizations. The diagnostic characteristics obtained from the investigation of these express HIV tests could serve as a background information for the development and approval of the national standard protocols for rapid HIV testing in Kazakhstan.

Keywords: HIV infection, express tests, sensitivity, specificity, non-governmental organizations.

Currently, HIV infection and AIDS has acquired a global dimension. According to the report of the Joint United Nations Program on HIV/AIDS (UNAIDS), published in 2016 [1], around 36.7 million people in the world are HIV-positive, among them 17.8 million women and 2.1 million children under the age of 15.

As of 1 January 2018, the Republican AIDS Prevention and Control Center of the Ministry of Health of the Republic of Kazakhstan reported the total of 32,573 accrued HIV cases in the country. The total number of people living with HIV (PLHIV) is reported to be 20,841 with the prevalence of PLHIV per 100,000 of 117.7. The highest prevalence rates for PLWH were noted in Northern and Eastern Kazakhstan, Pavlodar, Karaganda and Kostanay regions as well as in Almaty and Astana cities [2].

The above-mentioned statistics provide clear evidence of a complex epidemiological situation regarding the HIV infection in the country: a high incidence rate coupled with a slow decrease of new HIV cases.

In this regard, timely detection of HIV infection, implementation of new diagnostic methods and improvement of existing ones are the key priority areas in accelerating the fight against HIV/AIDS epidemic in Kazakhstan. Currently, the World Health Organization (WHO) and the Joint United Nations Program on HIV/AIDS (UNAIDS) recommended a 90-90-90 treatment target, which stipulates that 90% of people living with HIV should be diagnosed; 90% of diagnosed people must be on antiretroviral therapy; 90% of treated people should be virally suppressed [3]. In order to reach the 90-90-90 target, WHO and UNAIDS recommend that the rapid HIV testing methodology to be administered by the non-governmental organizations as key target population groups use the services of non-governmental organizations [4]. The key target groups include: men who have sex with men (MSM), injecting drug users (IDUs), sex workers, people in penal institutions and transgender persons. In order to significantly scale-up the access to HIV prevention, treatment, care and support programs, it is important that the key target population know their current HIV status. The literature indicates that [5] the efficacy of rapid HIV