The phenomenon of a genetic bottleneck, i.e. transmission of one or a few variants of the virus, has been widely studied for sexual transmission, but for people who inject drugs (PWID) the available data are not conclusive.

The objectives of the study were real-time detection and follow-up of individual cases of acute HIV-1 infection (AHI) and analysis of the genetic variability with SGA and NGA approaches.

We analyzed full-length env genes of transmitted strains using single genome amplification (SGA) and Bayesian Evolutionary Analysis Sampling Trees (BEAST) approach. We also implemented the PrimerID Illumina MiSeq approach for ultra-deep sampling of a fragment of the env gene to look for the presence of minor transmitted variants.

Among PWID screened for the study 25% were seropositive. The calculated AHI incidence was 9.3 per 100 person-years. We report 7 cases of acute HIV-1 infection among active PWIDs and 8 potential sexual partners of PWID. Among all the cases studied by SGA and PrimerID approaches we detected a homogeneous viral population likely produced from a single viral variant.

We also detected one case of a secondary infection from a different donor. Adding to previously published data we have analyzed 19 cases of AHI subtype A in St. Petersburg, and at least 74% had a homogeneous viral population confirming a strong genetic bottleneck during parenteral transmission.

The data confirm our original discovery of the genetic bottleneck in HIV transmission among PWID.

The purpose and objectives were to analyze the long-term incidence of VHB and VHC in the Arkhangelsk region and to study the prevalence of VHB and VHC markers among adult population in Arkhangelsk city.

The statistical data forms reported to the federal level were used and a population-based study was carried out as a part of the Norwegian–Russian project. A quota sampling method was used to recruit 1243 adults aged 18–39 years. All participants were tested on VHB Antigen (HBsAg), VHB core antibodies (anti-HBc), VHB surface antibodies (anti-HBs) and VHC (sum antibodies) using an enzyme-linked immunosorbent assay.

Over the past 30 years, the incidence of acute VHB (AVHB) in the Arkhangelsk region decreased in 40 times, the incidence of chronic VHB (CVHB) — in 2.8 times. Nowadays, the incidence of CVHB is in 15 times higher compared with the incidence of AVHB; the incidence of CVHC is in 87 times higher compared with the incidence of AVHC. The prevalence of VHB markers (HBsAg and/or anti-HBe) was 11.8% in men and 10.2% in women in a population-based study. Among men, 1.1 and 1.3% of women were positive on HBsAg; 41.8% of men and 50.9% of women were positive only on anti-HBs. All three tests were negative in 46.4% of men and 38.9% of women. Among men, the percentage of positive for VHC markers was 6.4%, among women — 4.3%. Co-infection of VHB and HCV was found in 1.5% of men and 0.3% women.

Despite the progress made in the control of VHB and VHC, a pool of sources of infections remains in the population. Therefore, preventive work should be continued.