Viral respiratory infections and, above all, epidemic influenza are considered as a leading risk factor for pneumonia, as a kind of guide for bacterial infections. Up to the present primary diagnostics of viral and viral-bacterial influenza-associated pneumonia is difficult. High morbidity and mortality of children necessitates the search for informative methods of its diagnostics. This article provides an overview of native and foreign literature on the possibility of solving this problem.

Primary complicatων influenza infection can occur as primary viral and viral-bacterial pneumonia. Overall, primary viral pneumonia is characterized by early colds with dry spastic cough and the rapid development of acute respiratory failure. It is very important in diagnostics to take into account the relationship between epidemiological anamnesis, dynamics of clinic and acute respiratory failure. The disease progresses within 24 hours to severe pneumonia with acute respiratory distress syndrome and shock. The main criteria for respiratory distress in children are tachypnea, dyspnea, suprasternal, intercostal or subcostal retraction during breathing, the moaning, inflating nostrils, sleep apnea, impaired mental status, indicators of pulseoximetry <90%.

Viral-bacterial pneumonia develops on 6-8 day after the onset of the disease and meet at least three times more often than viral ones from which they are clinically indistinguishable. The highest diagnostic value in confirmation of bacterial etiology of pneumonia has a statement of severe general condition of the child due to the symptoms of "intoxication" in combination with local physical changes in the lungs. Symptoms that provide an opportunity to assess the severity of intoxication in a child with fever include: severe disturbance of general condition, reduction in the activity of the child, irritability, lethargy, drowsiness, lack of eye contact with the child during the examination, one refuses food and drink, bright light causes pain. When assessing the disease severity we should take into account: the degree of tachycardia, muted heart sounds, hypo - and hyperventilation, impaired microcirculation, peripheral cyanosis, slow capillary filling of the nail bed, persistent vomiting and signs of dehydration.
By far there is the most available rapid diagnostic of influenza, but in children with influenza, especially in those who require mechanical ventilation, initial results of testing of samples from the nasopharynx to the influenza virus can be negative, even when using PCR. Accepted proof of the viral etiology of pneumonia is the detection of nucleic acids of influenza using PCR in smears from the nasopharynx and posterior pharyngeal wall. In the case of viral replication in the lung tissues on the second week of the pneumonia the concentration of the virus in smears may already be sufficient for its detection. With the aim of simultaneous detection of viral and bacterial antigens, it is advisable to use a material of the lower respiratory tract. The etiology of primary viral pneumonia should be considered established in the case of detection by PCR of the RNA of influenza virus in the lower respiratory tract in case of negative bacteriological examination of blood, or in the absence of DNA of bacterial pathogens in blood in PCR. If it is failured to obtain the material of the lower respiratory tract influenza pneumonia etiology with a high probability may be proven in case of detection of RNA of influenza virus in smears from the nasopharynx and oropharynx.

Viral-bacterial etiology of pneumonia is considered proven in case of detection by PCR, RIM or immunochromatography of influenza viruses in the material from the lower respiratory tract in case of positive result of bacteriological research of blood (or DNA detection of significant concentrations in the blood or in the material of the lower respiratory tract in quantitative PCR).

The analysis of literature data demonstrates non-specific diagnostic laboratory (leukocytes, neutrophils, ESR, C-reactive protein, procalcitonin) and imaging (radiography of chest) methods, which creates ambiguity in the interpretation of etiological influenza-associated pneumonia. Therefore, the use of several of them in combination with clinical data will significantly increase the accuracy of diagnosis.

Diagnostic search for influenza-associated pneumonia in the outpatient setting should include the analysis of the epidemiological situation, the dynamics
of clinical symptoms and their nature, as well as the data of pulseoximetry. The oxygen saturation can predict pneumonia in children in resource-limited settings.