

Title	Zika virus RT-PCR testing in blood and urine
Agency	HAS, French National Authority for Health (Haute Autorité de Santé) 5 avenue du Stade de France – F 93218 La Plaine Cedex, France Tel.: +33 (0)1 55 93 70 00, contact.seap@has-santé.fr , www.has-sante.fr
Reference	Link to full report: http://www.has-sante.fr/portail/jcms/c_2613150/fr/detection-par-rt-pcr-du-virus-zika-dans-le-sang-et-les-urines?xtmc=&xtcr=1

Aim

The Zika virus is a *flavivirus* transmitted by mosquito bites. Since May 2015, this virus has been the source of a major epidemic in Brazil, which then quickly spread in Central and South America, as well as in the Caribbean, and today affects the French Departments of the Americas (DFA), in particular Martinique and Guyana. Most infected individuals do not have any symptoms and in symptomatic cases, the disease is usually mild. However, an unusual increase in cases of foetal or neonatal microcephaly as well as Guillain-Barré syndrome (GBS), concurrent with the Zika virus epidemic, led the WHO to declare that this epidemic constituted a “public health emergency of international concern”, even if the causal links are not fully demonstrated to date. In this context, considering the current epidemiological situation in the DFA and the potential risk in mainland France in areas where the mosquito is present, HAS was asked by the Ministry of Health to urgently obtain an opinion on the direct detection test of the virus by RT-PCR in blood and urine. This test can confirm or refute the diagnosis of Zika virus infection in a subject suspected to be infected due to the occurrence of certain suggestive symptoms. This opinion will allow the registration of this test in the Nomenclature of Procedures in Laboratory Medicine (NABM).

Conclusions and results

HAS gives a favourable opinion to the registration of this procedure in the following indication and conditions of use:

Indication:

- suspected Zika virus infection in a patient who is:
 - symptomatic: as a reminder, the signs of a Zika infection are maculopapular rash with or without fever, with at least two of the following symptoms: conjunctival hyperaemia, arthralgia, myalgia in the absence of another aetiology;
 - And located in a Zika virus transmission area or returning from a transmission area (up to two weeks after this return);

- for blood sampling up to seven days from the time of onset of symptoms and the collection of the sample; in urine up to ten days from the time of onset of symptoms and the collection of urine;

Conditions of use:

- respect and compliance with the indication (presence of symptoms and their date of onset) by the prescriber in his/her order;
- for blood, use of either serum or plasma (in EDTA tube); sample (blood and urine) stored at + 4°C ;
- RT-PCR technique capable of detecting both Zika virus strains (African and Asiatic);
- in case of risk of co-circulation of the dengue and chikungunya virus, Zika testing in combination with testing for these two viruses by a laboratory with a capacity to also test for these two viruses.

HAS nevertheless highlights the scarcity of evidence currently available, in particular for periods of viraemia and viruria. The reservations also address the lack of standardized calibration and therefore homogeneous detection threshold between laboratories (qualitative result only). Finally, due to the likely brevity of viraemia and viruria, and the occasional difficulty in determining the first day of symptoms, a negative RT-PCR result should be interpreted with caution. If new data regarding these various points is brought forth, this opinion may be revised.

Methods

To respond within the time desired for this request involving a public health emergency, HAS conducted a critical analysis of the synthetic literature from a systematic search of the literature, then obtained the position of the National Reference Centre for Arboviruses to identify the items.

Written by

Carole Giraud, HAS (French National Authority for Health - Haute Autorité de Santé), France.