

An instantaneous blood test at the patient's bedside

18 January 2018, 11:23

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Miniaturisation is a challenge for the Healthcare sector. Sirris is supporting a company in the development of a fluidic microdevice for extremely accurate blood analysis, to be used at the patient's bedside.

In hospitals, blood bags can be wrongly distributed or, for one reason or another, prove to be incompatible with the patient's blood group (ABO). Any such incompatibility can be extremely dangerous and, to avoid any risks, carers check the ABO group at the patient's bedside prior to initiating blood transfusion.

ABO cards are available on the market; however, they are entirely manual and require a certain command in handling and correctly interpreting results. A number of automatic systems are also available - Sirris has launched a patent search to identify developed technologies - but they all come with drawbacks and none of them is 100% reliable.

Antigon, a spin-off of ULB, has developed the Point of Care Testing device, which is easy to use and enables healthcare professionals to make the necessary checks to ensure blood transfusion safety, with a high degree of reliability.

In partnership with the firm, Sirris has contributed to the development of a demanding application involving strict constraints and major material aspects, particularly in the following fields:

- the design of a fluidic microdevice, facing all the difficulties associated with miniaturisation and the integration of the analysis process, choice of materials, production cost control and specification definition
- the realisation of a proof-of-concept model, based on fast prototyping techniques and, in particular, of high-precision machining, the result of which in terms of surface finish quality needed to be representative of the final device
- the integration (sealing, packaging, etc.) of the fluidic device within a user platform
- the realisation of a prototype mould for producing pre-series intended for initial validation out in the field

The new system developed by Antigon, with support from Sirris, will provide an instantaneous double check at the patient's bedside - that is electronic for links with the 'patient's' file at the blood bank and analytical for conducting tests to determine the patient's and the blood bag's ABO group - hence enabling the risk of ABO transfusion errors to be reduced.

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