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LETTER TO THE EDITOR

WILEY

Safety considerations for the use of Point-Of-Care diagnostics during SARS-CoV-2 pandemic

To the Editor,

Since the outbreak of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in December 2019 in China, the number of infections has increased causing a worldwide pandemic. On 23 August 2020, over 31 million cases worldwide have been recorded by the Johns Hopkins University.[1]

With an increasing rate of infections, a growing number of patients with associated coagulopathies have been reported. Of note, findings of a disseminated intravascular coagulopathy (DIC) in the early phase of the infection with substantially increased D-dimers have been observed.[2,3] Some studies suggest that the respiratory infection itself and different ventilation modes lead to inflammatory pulmonary micro-thrombus formation.[4,5]

Thus, a highly differentiated coagulation diagnostic in patients with SARS-CoV-2 infection should become the focus of current treatment strategies. In order to obtain quick results of patients on the intensive care unit (ICU), point-of-care testing (POCT) for rotational thrombelastometry/-graphy and platelet function is of great importance. Therefore, POCT analyses should also be used during the SARS-CoV-2 pandemic.[6-10]

For POCT analysis, healthcare personnel are handling with potentially infectious blood samples.[11] The SARS-CoV-2 virus may be transmitted while pipetting blood samples, and aerosol formation may be supported by heating of blood samples and the magnetic stirrer, rotating pin/axis, or rotating tubes. These potential sources of infection lead to major concerns regarding infection control for medical staff dealing with SARS-CoV-2-infected patients.

In order to minimize the risk of infection for POCT users, POCT analyzers with closed containers may represent a suitable option. However, re-opening or disposing of containers could cause another possible source of virus transmission.[12]

Therefore, POCT analyzers using an automated cartridge system should be considered. The use of cartridges ensures to keep the blood samples sealed. However, some flexible components of these cartridge systems may get in direct contact with blood samples, which poses a potential risk of infection. Devices using sonorheometry enable analysis without direct contact of the sample to movable parts of the device and thus may offer a special feature in this regard.

In light of the SARS-CoV-2 pandemic, the use of coagulation diagnostics and POCT analysis has gained increasing attention. However, analyzers entail a risk of virus transmission and infection of healthcare personnel. Thus, POCT devices based on cartridge system may be beneficial in reducing the potential risk of virus transmission and minimizing the risk of infection. In case of availability of different POCT devices, it should be considered to keep the one based on cassette structure on the isolation ward. Therefore, we designed a flowchart (Figure 1) for possible management of potential infectious probes depending on the availability of one or more POCT devices. The algorithm presented by us is not only intended for the COVID-19 pandemic but may also be used in the setting of other infectious diseases/pandemics.

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CONFLICT OF INTEREST

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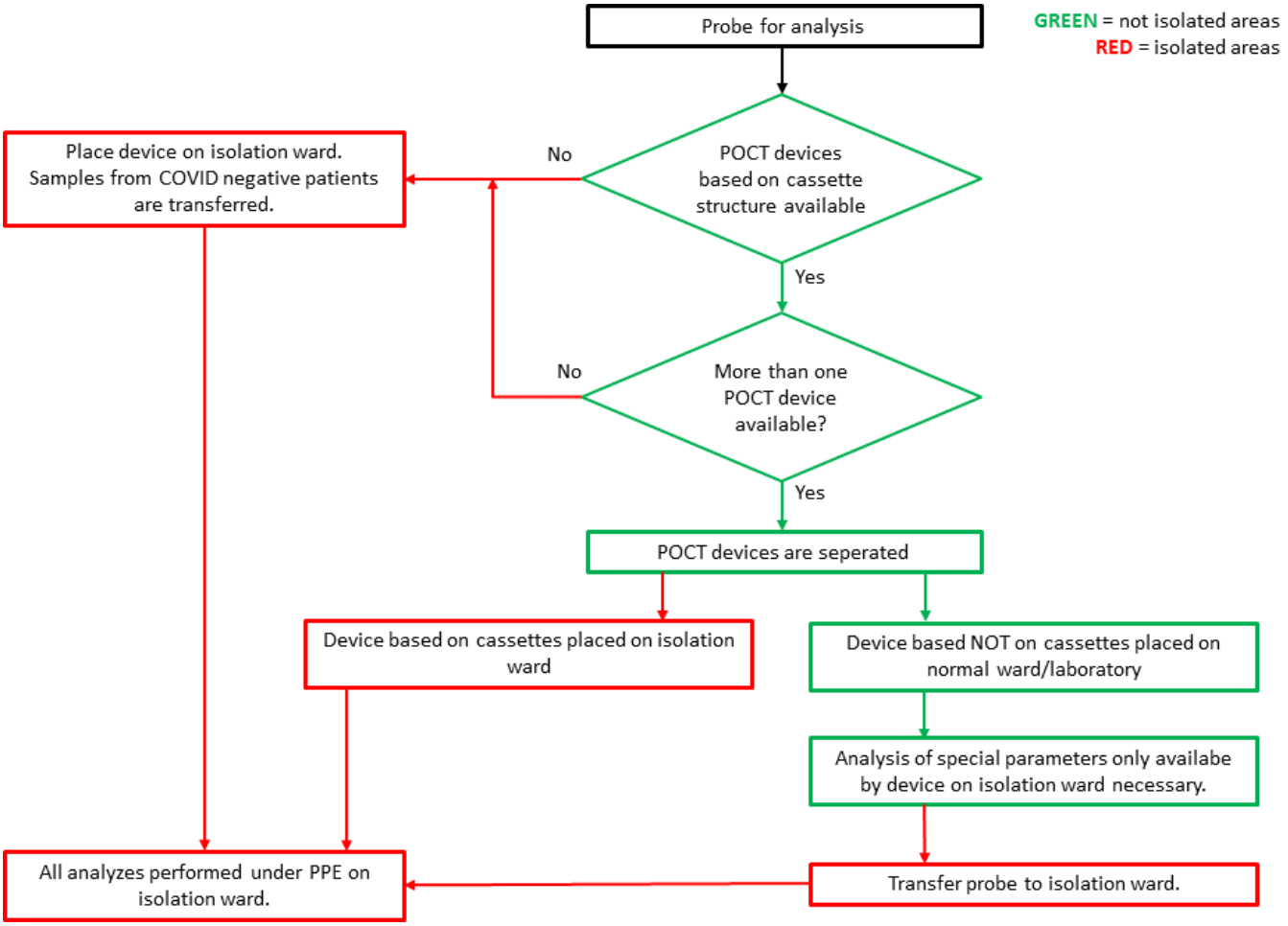

FIGURE 1 Flowchart. Green: not isolated areas; red: isolated areas; POCT, point-of-care testing; PPE, personal protective equipment

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