

# Ability to Monitor from Afar, Key to Instrument Reliability in the Pandemic Period

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## Background

The challenge of having qualified personnel resources to perform pretransfusion testing and execute transfusion service operations continues to be an escalating issue. Transfusion services of all sizes and volumes have chosen to move to full automation solutions with instruments that perform the most labor burdensome activities of testing. Instrumentation is chosen with the full intent that the instrument is reliable and will deliver the highest degree of “uptime” to meet the laboratory’s testing, limiting the reliance on alternative approaches to testing. Preventative maintenance and services are a routine part of expected downtime. However, unexpected downtime can have dramatic impact on the operational performance of the laboratory. Creative solutions that anticipate and minimize that impact are integral to instrument selection. During the COVID-19 pandemic this was even more evident than at any other time.

## Study Design/Methods

Digital solutions which predict the potential for an instrument operational failure can provide the laboratory an opportunity to address an issue before failure. Along with software and reliability improvements offered and implemented, two solutions that provided for impact on unexpected service needs presented improvement opportunities. These digital solutions were developed for the ORTHO VISION® platform of fully automated immunohematology analyzers. Instrument remote monitoring through e-Connectivity® by the manufacturer, along with an “app”, Smart Service, for the field service technician, helped improve our uptime metrics across multiple instruments. Three metrics were evaluated; service needed frequency, average time to complete service and instrument availability statistics.

## Results/Findings

Between 2019 and 2020, after “app” implementation, there was a twenty five percent reduction on the frequency of service per instrument from 4.3 to 3.3 times/year on average. The overall average service time was 4.6 hours including operational qualification revalidation. Operational uptime showed on average a 98% ready to test availability. Further the “app” provided a readiness to service aspect that identified opportunity to address while the system was under service by the technician. The following charts (1, 2) show the % increase in app usage and instrument monitoring from afar by field service technicians for service orders (SO) of e-Connected instruments on a weekly basis. Chart 3 provides a regional picture of increased app deployment and application from late 2019 through 2020.

Figure 1: ORTHO VISION Global Smart Service Usage

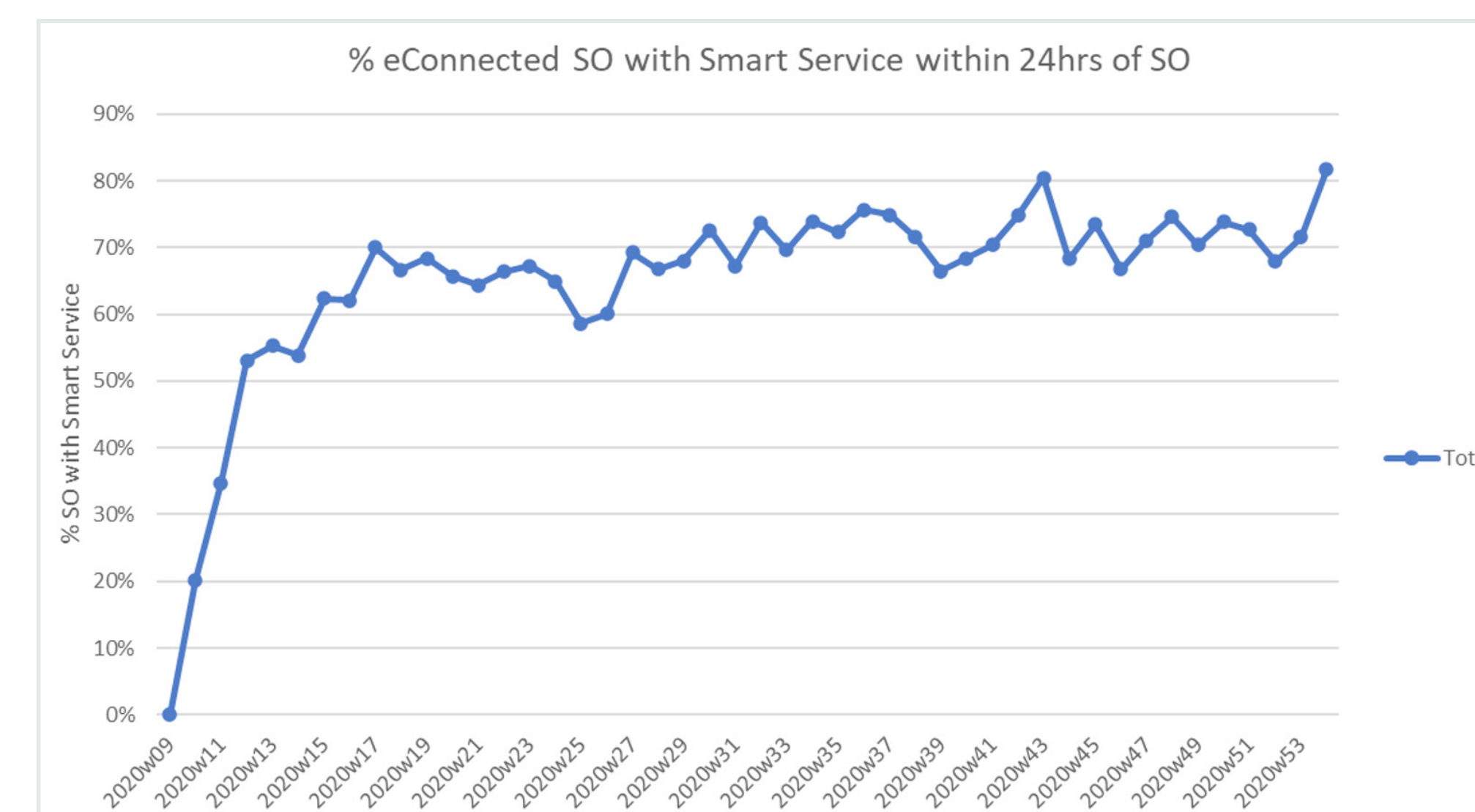


Figure 2: ORTHO VISION North America Smart Service Usage

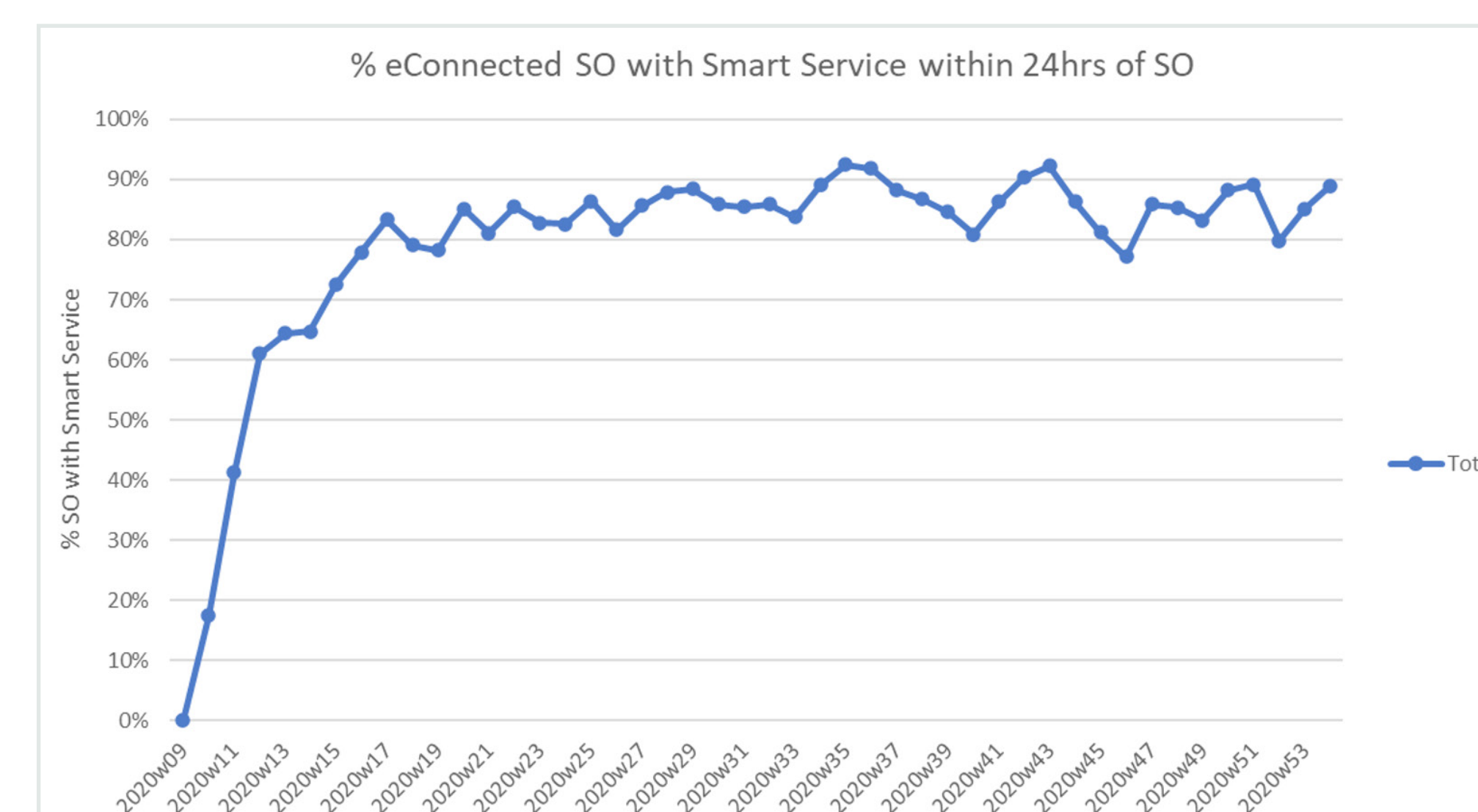
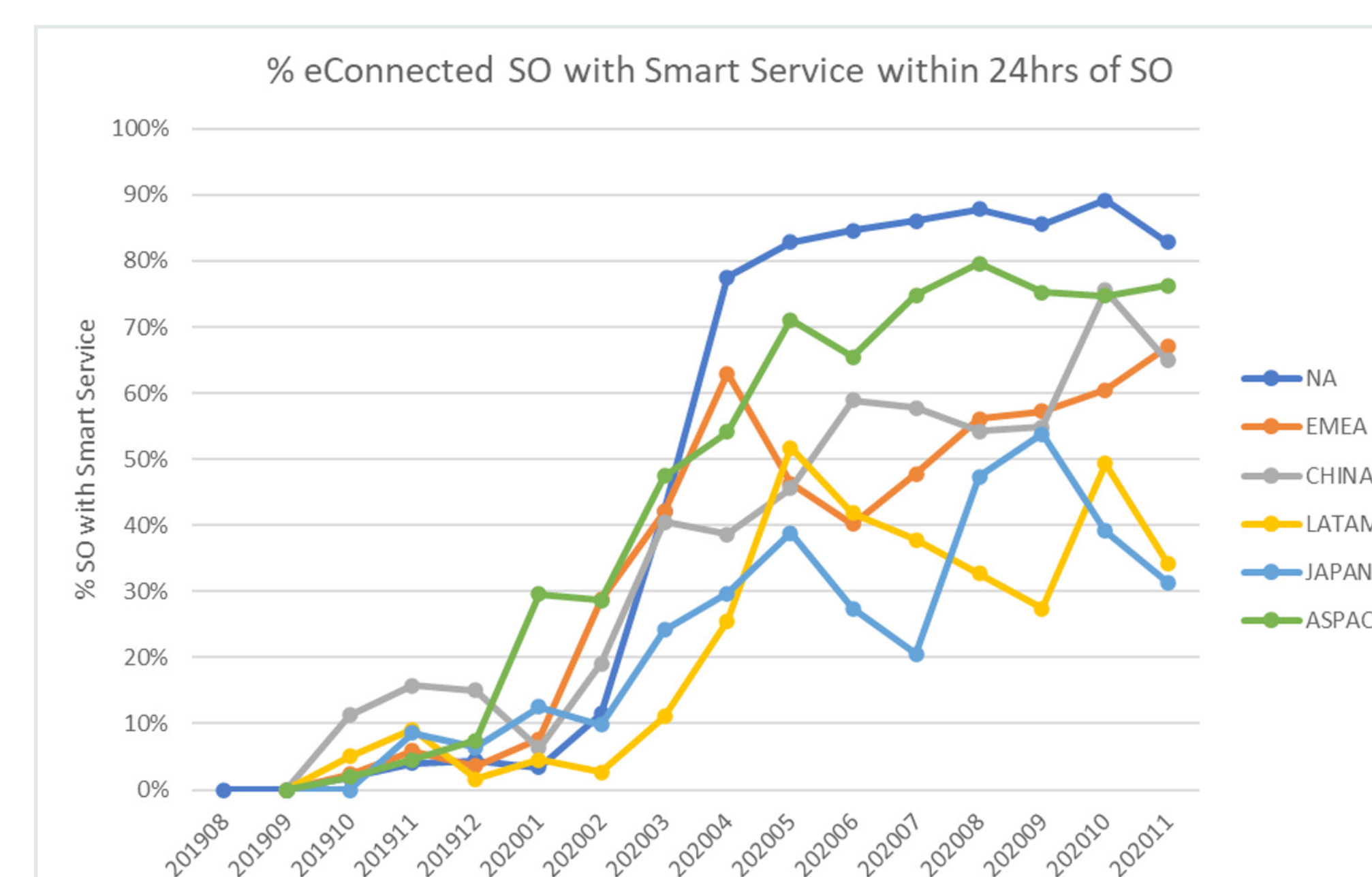


Figure 3: ORTHO VISION Regional Application of Smart Service



## Discussion

Addressing unanticipated downtime of laboratory instrumentation that performs critical immunohematology tests for pretransfusion testing purposes is essential to maintaining a high level of service to clinical staff and their patients. Utilizing a preexisting e-Connectivity capability to monitor ORTHO VISION platform instruments along with an “app” developed for proactive service monitoring enhanced this capability. This two-solution digital approach provided significant impact with a 25% reduction in service incidence along with a return to service including instrument revalidation in less than 5 hours. Key to having an average 98% ready to test operational uptime was the deployment and usage of the “app”. The combination of using e-Connectivity and the Smart Service “app” significantly facilitated the return to service experience.

## Conclusion

Reducing unscheduled instrument out of service time is critical to maintaining operations of the transfusion service laboratory. During the COVID19 pandemic the implementation of a preemptive service “app” along with preexisting monitoring capability by the manufacturer enhanced substantially instrument availability to perform testing.