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Overcoming the Limitations of Lab-Based PCR

The limitations of lab-based PCR – **and how to overcome them**

Even before the onset of the coronavirus pandemic, the accuracy and reliability of lab-based PCR (Polymerase Chain Reaction) testing made it the "gold standard" for diagnosing COVID-19. Today it remains the most popular approach, and a highly effective one. But as the testing environment continues to evolve, the limitations of the lab-centric model may prevent caregivers from truly operating at their full potential.

In fact, the emerging post-COVID testing world already looks dramatically different, as consumer and provider awareness of their many options – and their demand for highly accurate results right away – have grown significantly. Healthcare is faced with new testing environments, new testing models, a rise in telehealth, and growing expectations surrounding testing for indications other than COVID-19. In the face of these changes, lab-based PCR testing seems hard pressed to keep up.

That's where new diagnostic technologies come in. Let's explore some of the lab- and machine-centric model's biggest limitations, and how the latest devices and platforms can help overcome them.

1. Speed

Traditional PCR testing requires sending samples out to a central lab location, which can be hundreds of miles away. Once they arrive, specially trained lab technicians and complex instrumentation are necessary to complete the test. And with the COVID-19 pandemic creating a rise in testing nationwide, there is often a queue at the lab. In many cases, it can take several days to receive accurate results – time that can seem like an eternity to a waiting patient or a physician trying to prescribe the best course of care.

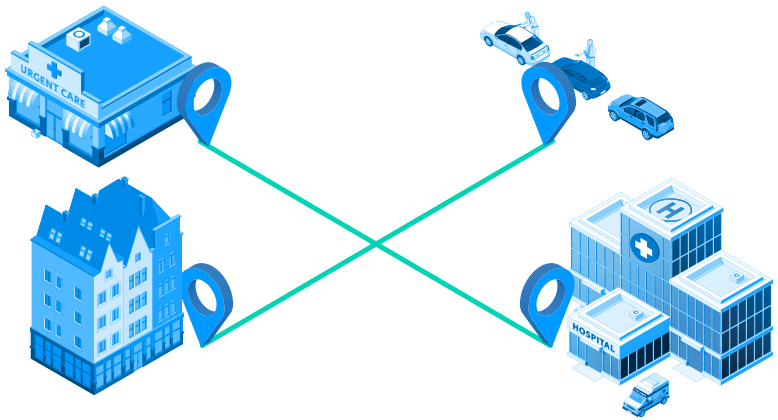
Total testing time **within fifteen minutes.**

However, with new molecular testing methods, **wait times are reduced significantly.** In fact, the entire test – from swabbing to results – can be completed within fifteen minutes. So patients get answers right away, and healthcare providers can make quick, informed decisions for more efficient care and better outcomes.

2. Truly Portable

By its nature, lab-based PCR testing requires sizeable equipment in a centralized location, along with trained professionals to perform the tests. But with the push to expand testing availability to more people in more places than ever before, there is a growing need for portable platforms that can be used by any clinician.

New benchtop tests are much more mobile. And while many still require an external power supply and separate reader, even newer options exist that are entirely self-contained and disposable – quite literally putting new **testing capabilities in the palm of caregivers' hands.** So testing can take place anywhere from hospital settings, to nursing homes, to mass testing sites and more.*

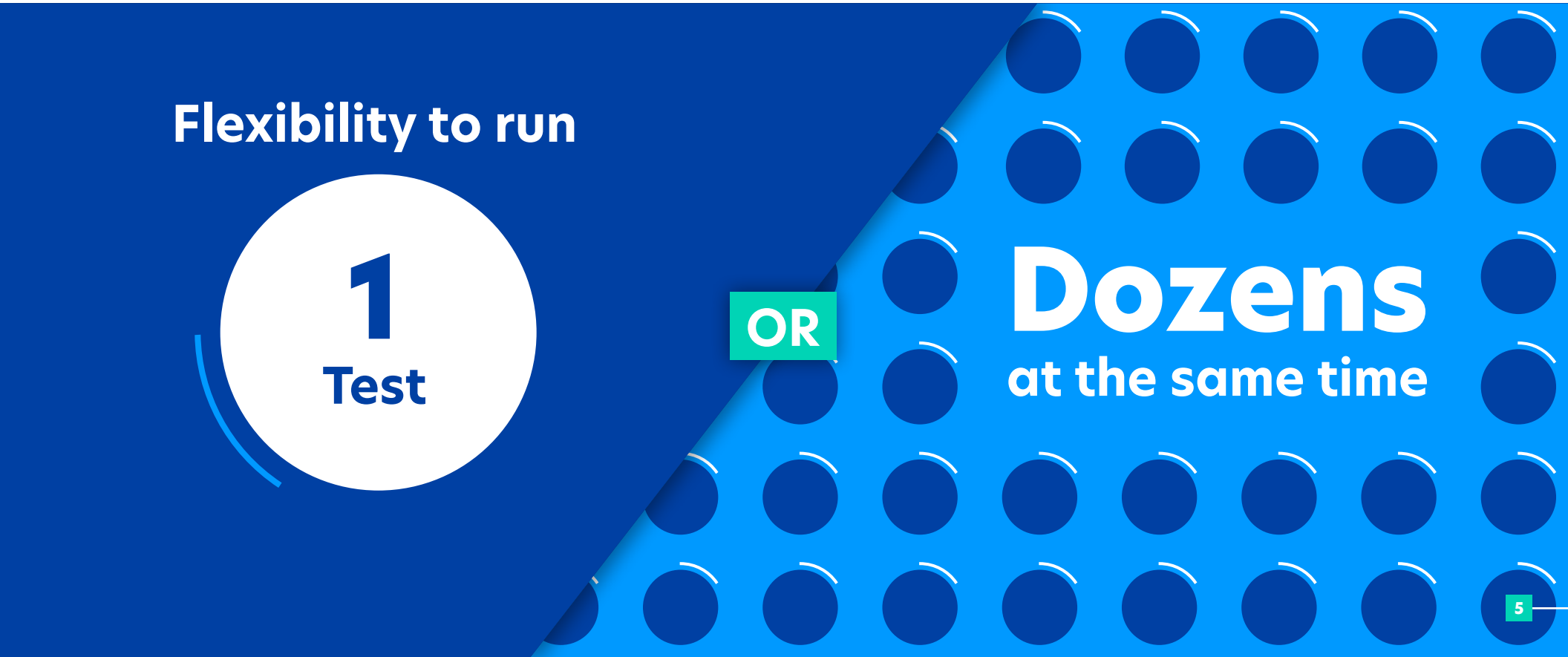


*Professional use, patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation.

3. Throughput

With central lab testing, throughput is limited by the speed at which clinicians can collect samples, then package and send the samples to the lab. The newer classes of benchtop instruments are also limited in how many tests can be run simultaneously, and often have sample-to-result times that exceed scheduling in typical clinics. This can make it more difficult to achieve fast testing and patient satisfaction on a large scale, a capability that's proven increasingly important throughout the COVID-19 pandemic and beyond.

But with the evolution of new portable technologies, **there's no longer a limit.** Clinicians can run anywhere from one test to dozens of tests at the same time – with much shorter per-test times. That way, healthcare organizations can have the flexibility they need to adapt to today's continuously evolving care landscape, and deliver that care wherever it's needed.



4. Costs

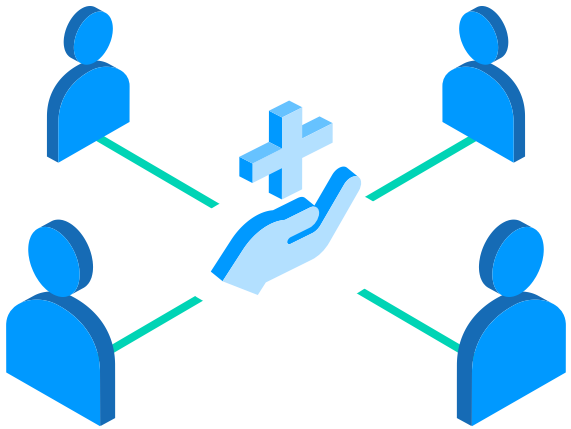
Today's lab model comes with significant overhead costs – like paying for equipment, transportation to the lab, service contracts, machine downtime for calibration and repairs, and specialized labor or training. These costs can add up quickly, and eliminating them can be a key step towards a more efficient healthcare organization.

By removing the need to maintain expensive instruments or send tests out to third party companies, **new diagnostic technologies help reduce many of the biggest expenses**. Now, healthcare organizations only bear the cost of the test itself, allowing freed-up resources to be invested in other areas of care. Plus, with fast, accurate treatment available earlier in the care pathway, providers may be able to reduce the incidence of more complex and expensive care later on.

5. Accessibility

Finally, due to a combination of the previous factors, lab-based PCR testing is simply inaccessible to many. High costs, lower throughput and limited speed and mobility make it difficult for providers to reach everyone, especially under-served and under-resourced communities. This can impact healthcare as a whole, obstructing the path to better overall population health.

With these barriers removed, diagnostic testing can be performed in more, new and different sites – finally reaching the places and the people that need it most. **It's what makes new testing platforms not just valuable, but revolutionary.** Providers are now able to open the care pathway to everyone, and truly transform healthcare in the process.



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Want to learn more about how Sense is addressing the limitations of lab-based PCR, and transforming healthcare **by redefining diagnostics™**?

Visit www.sense-bio.com to explore our company and talk to a company representative.