# Diagnosing COVID-19 - How OHSU Pathologists Launched Testing in 15 Days

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**Julie McDowell:**

As US laboratories expand their testing capabilities, many pathologists are eager to share lessons learned from their own experiences. In this CAPcast interview, Dr. Richard Scanlan discusses his experiences bringing COVID-19 testing online at his institution, including some of the lessons learned. Dr. Scanlan is the medical director of the Oregon Health and Sciences University Hospital laboratory in Portland.

Dr. Scanlan, thanks for speaking with us. So let's start with where your lab is today in terms of capacity. How many tests would you estimate you are processing daily?

**Dr. Richard Scanlan:**

We actually started testing just today, March 24th, with an initial test run of 40 cases and plan to begin testing at about 200 per day with an eventual capacity of 400 samples per day if relay agents and collection kits are still available.

**Julie McDowell:**

So can you take us back to when you first started bringing the testing online and walk us through that process please?

**Dr. Richard Scanlan:**

Yeah, this was a harrowing process. We first took action to bring COVID testing up on the 9th of March. So just 15 days ago we identified available research laboratory space and converted it into a BSL2 clinical facility in just about three days. This involved installing two BSL2 hoods, and extraction equipment was obtained and placed in a separate smaller room closed off from the main laboratory space. This isolated extraction procedures with the risk of aerosol formation, and that was important to us because we had a very open laboratory space where it really wasn't suitable for an infectious agent such as this.

We also obtained new amplification instruments, which were put in a second isolation room to control contamination of the DNA transcripts. We have safety cabinets that were inspected and certified over the weekend and inspected by the institution safety folks to make sure all was in order. In the second week, we validated all the instruments using the CDC supplied primers and probes and did parallel testing on samples supplied from the state. Meanwhile, we continued work on policies, procedures, forms, and information system configuration, and in only 15 days we brought this project up, which I never in my strongest dreams would've ever thought that was possible.

**Julie McDowell:**

So what were some of the challenges you faced?

**Dr. Richard Scanlan:**

Well, the tight time schedule was the major challenge we faced with the amount of illnesses up in Washington and California. We fully anticipated that we were going to get a surge of cases, and so it was very important that we brought this up quickly. Resources were identified to do this by tapping into our research community where we had a virology and immunology laboratory and we formed a team of five PhDs and the one MD PhD pathologists with extensive testing experience in molecular virology. We integrated laboratorians familiar with the clinical testing requirements and computer systems into this team, and they just did a fantastic job. So just getting this done in the short period of time was the real challenge that we were facing.

**Julie McDowell:**

What are some lessons learned that you would like to share?

**Dr. Richard Scanlan:**

Assembling a team of dedicated professionals with the right expertise and ability to work cooperatively as a team is essential to the success of any project, but particularly a project with this amount of pressure and time control issues. Within the team, delegating responsibilities for discrete activities such as equipment purchases, inventory controls and informatics is crucial. Regular conferences to identify any gaps and close them are important. And finally, someone who can keep upper management informed of the state of progress is also important and must not be neglected.

**Julie McDowell:**

So let's look forward. Are you planning on scaling up your testing capabilities to meet increased demand? If so, how and what challenges do you expect to face?

**Dr. Richard Scanlan:**

We are starting with a non-automated system with 40 samples to help work out any issues on workflow with clinical samples and wet bench testing. Once this is ironed out, we will be able to test 200 samples per eight hour shift. As demand increases, we are training additional people so that a second shift can be added as needed. To further scale up our testing and turnaround, we are hoping to implement a more automated solution in our core lab. This would add additional capacity of 500 tests per day with existing equipment and about 1000 per day when we get a second module on this automated system. This all assumes that enough reagent kits are available to do this volume of testing.

**Julie McDowell:**

Finally, any parting words of wisdom for your fellow pathologists who are likely at different stages of either launching or expanding their COVID-19 testing capabilities?

**Dr. Richard Scanlan:**

Assemble a good team and lead them, is my advice. The pathologist has to take control of the team and make sure that all responsibilities are identified and provide positive feedback when people are doing a good job. Scarcities of supplies is going to be a problem for everyone bringing these tests up and operating them in the near future. My advice is to consider having more than one method in place so you are less reliant on a single provider to meet all your needs.

**Julie McDowell:**

Great. Well thank you Dr. Scanlan for discussing your experience today. Thank you for listening to this CAPcast. Be sure to listen to our other CAPcasts from the CAP on our SoundCloud channel by downloading the SoundCloud app on your mobile device. And we're also on Apple Podcasts and the Stitcher app. To find this podcast, search for the word CAPcast on these apps. Once you find our podcast, be sure to click the subscribe button so you don't miss new CAPcast episodes.