



White paper

Increasing echocardiography throughput in satellite sites during the pandemic

Deploying syngo Dynamics' Remote Workplace to enable off-site reading and reporting

siemens-healthineers.com/medical-imaging-it/syngo-carbon-products/dynamics

Remote Workplace: providing access at low bandwidths

Rady Children's Hospital is an institution committed to providing excellent pediatric care both inside and beyond the walls of the hospital. With 12 satellite locations from Murrieta to Chula Vista in southern California, Rady Children's Hospital offers many specialized programs and services, and performs over 15,000 echocardiography examinations per year. In terms of bed space, it is the largest pediatric hospital in southern California. Their mission is to serve all of the children in the county, no matter which health system they belong to or the level of care they require, ranging from outpatient visits and inpatient care which includes neonatal, pediatric, and cardiothoracic intensive care.



Pioneers in cardiology IT enabling visionaries in pediatric care

Dr. Ian Fraser Golding has used *syngo* Dynamics (formerly known as KinetDx) for over two decades to read, report, and post-process on pediatric and fetal cardiac examinations and provide guidance during prenatal, catheter based, and operative cardiac interventions. Furthermore, he has worked closely with the product since its early days as a long-term collaboration partner, contributing to product development.

Dr. Golding notes that highlights of using *syngo* Dynamics include:

- A single worklist where all orders from across the cardiovascular service line can be easily visualized
- Efficient workflows, enabled by the straightforward image viewing and quantification as well as guided reporting
- Ability to read and report from remote sites with the same performance and functionality as the main hospital, enabling study turnovers to remain constant

The echocardiography laboratory is comprised of a team of 11 physicians and 15 sonographers supporting 30 cardiologists and cardiac intensivists, and various paediatric specialists at Rady Children's Hospital. They started using *syngo* Dynamics VA10 back in 2004 and are currently on VA40. Their investment in *syngo* Dynamics has paid off, as the latest version has enabled the rollout of the Remote Workplace across all Rady Children's sites. This deployment has allowed the cardiology department staff to stay on top of the ever-increasing workload, even with new challenges brought by the Covid-19 pandemic.

What is *syngo* Dynamics Remote Workplace?

The *syngo* Dynamics Remote Workplace provides access when limited bandwidth or network latency may be of concern by loading compressed images. By implementing an advanced compression algorithm, the *syngo* Dynamics Remote Workplace is able to reduce the size of the required data transmission by an order of magnitude, while still preserving virtually all the image quality. Users can also selectively access the full DICOM images as required. It features image reading and reporting, auto-population of labeled measurements in the worksheet and report (both on- and offline), an enriched, docked Calc Palette and consistent study list, as well as same look

and feel compared to the enterprise workplace. In addition, third party applications that are licensed in the enterprise workplace can be launched from the Remote Workplace.¹



syngo Dynamics

the single, enterprise wide, multi-modality intelligent reading and reporting platform for cardiovascular care

Patient care and the community

Murrieta Medical Plaza is one of the larger satellite locations of Rady Children's, serving a population of over 100,000 residents. They offer a wide range of pediatric services including pediatric cardiology and fetal medicine, and it's located approximately 60 miles from the main campus in San Diego.

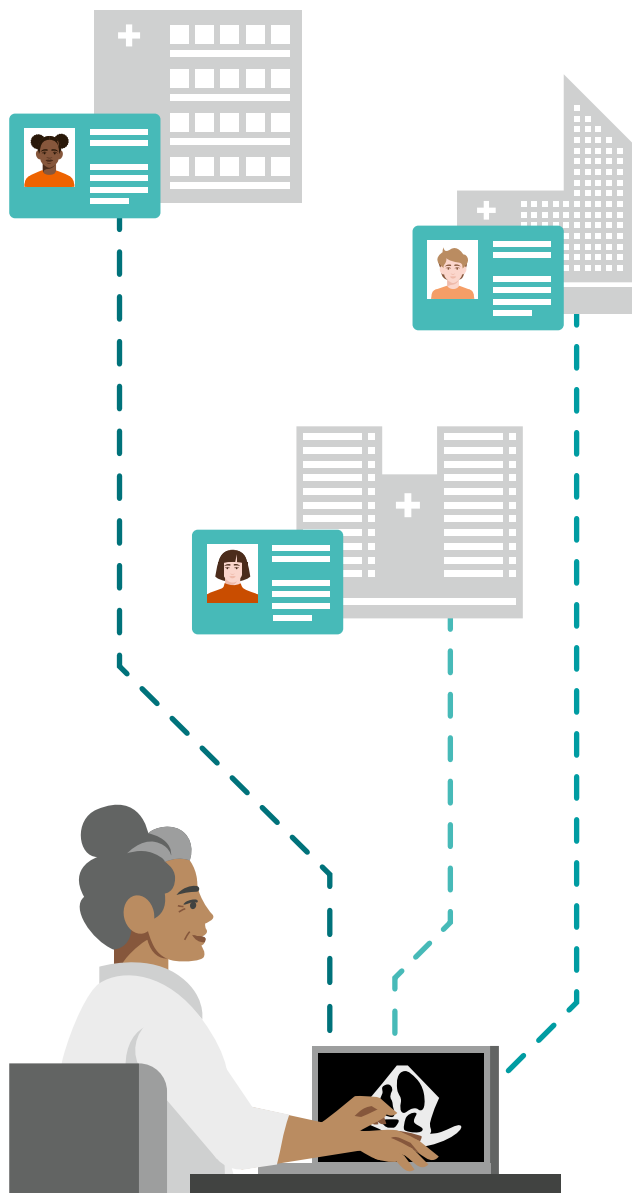
Prior to the installation of *syngo* Dynamics VA40, medical staff had been struggling to deal with completing daily exams, as reading and analysis of echocardiography images was done directly on the ultrasound cart due to network bandwidth and latency issues that prevented them from using the required digital platform and tools available at the main Rady Children's site. This led to decreased productivity and capacity, resulting in the clinic reducing scheduled patient volumes which resulted in patients traveling to the San Diego main site.

“Murrieta is one of our big satellite sites and syngo Dynamics VA40 has helped us to maintain efficiency in our cardiac workflows during the COVID-19 pandemic”

Dr. Ian Fraser Golding

Pediatric cardiologist at Rady Children's Hospital San Diego, associate clinical professor of pediatrics at UC San Diego School of Medicine





Patients had to travel over an hour each way by car, severely extending the time they would have allotted for their medical appointment, needing to take a day off work, and not being seen by their familiar healthcare provider. This went against the philosophy of Murrieta Medical Plaza to serve and support their local community and build relationships with their patients by providing the same level of comprehensive cardiac care locally.

Prior to the current deployment of *syngo* Dynamics, clinicians working remotely from home would use their laptop to review urgent consultation requests, typically in the evenings and on weekends. Studies could be slow to load due to older software version levels and other IT hurdles. This would lead to frustration, as individual images might take several minutes to load, and a need to page through the entire study to check progress.

These network issues also affected cardiologists when teaching or during care conferences, interrupting the flow of discussions during case presentations in conference rooms or when attending remotely.

Remote Workplace: supporting cardiology workflows from a distance

The Fetal Cardiology Clinic at Murrieta Medical Plaza was at risk of further reductions to access and consideration was given to closing the clinic given ongoing performance concerns. When the new *syngo* Dynamics Remote Workplace was introduced, the landscape changed completely. Modalities could once again be dedicated to acquiring studies and patients could be seen in a timely manner. Meanwhile, reading and reporting of studies could be carried out wherever the diagnosing cardiologists were located², and measurements were supported either on- or offline when bandwidth is a concern, with minimal image load times. In cases of complex cases at the Murrieta site, echocardiographers at the main campus could readily provide opinions to the remote team. Additionally, when clinical loads were very high at the main campus, a remote cardiologist in Murrieta was able to review and report studies taking place at the main campus, ensuring patient and clinician satisfaction.

Patients served by this site now rest assured that the high-quality care that they are accustomed to is easily accessible in their local community. They are saved from the burden of needing to travel a long distance with small children or while pregnant, as well as needing to take extra time off from work.

Cultivating relationships

Nurturing relationships and clinical collaborations inside and outside the Rady Children's network is a priority for this care network as a major pediatric clinical research center, constantly working together and with world-renowned institutions.

Having the ability to review medical images acquired at distant sites has not only improved workflows inside the Rady network, but it has also allowed them to continue to cultivate long-standing relationships with hospitals locally and as far afield as Hawaii and Saipan. For infants and children seen in NICUs or outpatient clinics, studies would be transmitted electronically to Rady's, where the reading and reporting would be carried out. This meant that hospitals or clinics without onsite expertise in pediatric and fetal cardiology services would have their operations and workflows supported by a dedicated team of subspecialized pediatric and fetal cardiac echocardiographers at Rady Children's San Diego.



COVID-19 pandemic

The implementation and use of the Remote Workplace meant that different medical sites were able to adapt very quickly as the COVID-19 pandemic started, placing unforeseen pressure on healthcare institutions as efforts shifted to providing medical attention to the population affected by the virus. With the Remote Workplace, the daily readers in the Rady Children's Heart Center were able to reduce their onsite presence by initiating remote reading from home for two readers and having a single inhouse team member at the main campus for emergencies and procedures such as transesophageal echocardiography. Despite a normally crowded reading room, the team was able to adhere to CDC guidelines for social distancing which provided protection to both patients and staff.

Individuals infected with COVID-19 have higher risk of suffering from cardiovascular complications, leading to a general increase in the number of echocardiographic examinations that need to be carried out in patients with suspected or confirmed infection³. This makes minimizing the number of people on site and ensuring that staff stay healthy even more crucial to ensure that imaging operations are minimally impacted. Dr. Golding notes that the program at Rady Children's were able to maintain their activities despite surges in demand caused by multisystem inflammatory syndrome in children (MISC) and for routine cardiac care that patients deferred in the early stages of the pandemic. The Rady's echocardiography laboratory did not have to be closed down, or limit volumes, despite extraordinary pressures placed on healthcare providers and institutions by the pandemic. The implementation of *syngo* Dynamics Remote Workplace played a key role in Rady Children's ability to maintain capacity without impacting reporting turnover while maintaining the high quality of medical services that patients expect.

References

- 1 Third party applications must be installed on the remote place.
- 2 *syngo* Dynamics Remote Workplace allows users reading and reporting in low bandwidth environments. Additionally, lossy compressed images are not intended for diagnostic use.
- 3 Zheng, YY., Ma, YT., Zhang, JY. et al. COVID-19 and the cardiovascular system. *Nat Rev Cardiol* 17, 259–260 (2020). <https://doi.org/10.1038/s41569-020-0360-5>

Want to learn more about *syngo* Dynamics?

➤ Visit our website.

Siemens Healthineers Headquarters

Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim, Germany
Phone: +49 9191 18-0
[siemens-healthineers.com](https://www.siemens-healthineers.com)