



Quanta™ helps the ICU program at a Southern California hospital implement extended dialysis therapies



Background

The Quanta Dialysis System is the first and only FDA-cleared device to provide standard dose IHD, SLED, and CRRT (CVVHD & SCUF). Its award-winning on demand dialysate generation technology is clinically flexible, requires minimal maintenance, and is easy-to-train for staff.

This case study focuses on a 200-bed hospital in Southern California, which has called on local dialysis services provider, Desert Cities Dialysis, to help perform treatments for more than 25 years.

At a glance

- The Southern California hospital's ICU program was previously unable to perform extended dialysis therapies and was fully reliant on outsourced partners for hemodialysis services.
- Quanta provided the hospital's ICU team with a **comprehensive training program over three months** to introduce extended therapy capabilities via the Quanta Dialysis System.
- A fleet of three systems enabled the ICU to perform **72 extended therapies from January through June 2024**, with maintenance and service easily managed by a local dialysis provider.
- The ICU team expressed high satisfaction with Quanta's training and support program, product performance and system reliability.

ICU Pain Points

Prior to 2024, the hospital's ICU program could only provide conventional intermittent hemodialysis therapies (IHD) to their patient population, which were performed under outsourced contract by Desert Cities Dialysis. SLED was not a practical option due to labor constraints of Desert Cities. **The lack of an extended therapy option (SLED or CRRT) made it challenging to optimally manage hemodynamically unstable patients that required kidney replacement therapy.**

The hospital's remote location in the High Desert region of Southern California was a barrier to transfer clinically unstable patients to other hospitals with CRRT capability. In addition, the use of outsourced contract nurses increased the chances of care delays for patients who needed to start kidney replacement therapy during nighttime hours.



Introducing Extended Therapies to the ICU

To provide more optimized and timely treatment options for its ICU patients, the hospital partnered with Quanta and Desert Cities Dialysis in summer 2023 to pilot the Quanta Dialysis System's capabilities. After this successful pilot, implementation with the ICU staff started in January 2024.



Quanta's approach to ensuring a successful ICU implementation involved:

1



Staff Education:

Quanta provided **12 on-site product training sessions** (four hours each) from January to March, with **30 ICU RN attendees** in total. In addition, since the hospital did not have an established CRRT program, Dr. Prashanth Kumar (community nephrologist), in collaboration with Quanta, also provided two **"fundamentals of CRRT"** education courses, with 24 attendees.

2



Fleet Allocation:

Quanta provided **three full-systems to cover a 20-bed ICU program** – each consisting of the Quanta Dialysis System, Cart, RO Device and Pre-Filtration Panel.

3



Go-Live Support:

To ensure the ICU staff became comfortable setting up, maintaining and terminating treatments, Quanta also provided **15 days of on-site support from a regional nurse specialist** to answer questions and troubleshoot.

4



Fleet Maintenance and Service:

The biomedical staff at Desert Cities provided routine machine maintenance activities, such as performing weekly hot-rinses for the Quanta machine, routine maintenance for the attached RO machine, monthly sediment filter changes, and quarterly carbon filter changes. Desert Cities **noticed a disinfection-efficiency for Quanta down to approximately one hour/week, versus eight hours/week for a traditional Fresenius machine.**

Insights & Conclusions

Positive ICU Training Experience:

Based on surveys, customers expressed **high satisfaction with the comprehensive clinical training and on-site support from Quanta:**

<h2 style="margin: 0;">92%</h2> <h3 style="margin: 0;">STRONGLY AGREED</h3> <p style="margin: 0;">Quanta provided useful on-site training prior to go-live.</p>	<h2 style="margin: 0;">92%</h2> <h3 style="margin: 0;">STRONGLY AGREED</h3> <p style="margin: 0;">Quanta provided exceptional on-site support during go-live.</p>	<h2 style="margin: 0;">100%</h2> <h3 style="margin: 0;">STRONGLY AGREED</h3> <p style="margin: 0;">Quanta’s clinical nursing team was professional and knowledgeable.</p>
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Flexible Prescriptions:

Despite the nephrologists practicing in a location that never had CRRT technologies available, Quanta’s “Rate Based” workflow was quickly adopted with **72 extended therapy treatments tracked by its digital portal from January to June**. No treatment terminations occurred from machine issues. Highlights include:

<h3 style="margin: 0;">Treatment Fluid Removed</h3> <p style="margin: 0;">Up to 13 L of fluid gently removed in a single extended treatment.</p>	<h3 style="margin: 0;">Active Treatment Duration</h3> <p style="margin: 0;">Up to 17 hours of therapy in a single extended treatment.</p>	<h3 style="margin: 0;">Dialysate Flow Rate</h3> <p style="margin: 0;">100, 200, and 300 mL/min settings were used, with the majority being 100 mL/min.</p>																										
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <h4 style="margin: 0;">Total UF Removed (L)</h4> </div> <div> <table border="1"> <caption>Total UF Removed (L) Data</caption> <tr><th>Statistic</th><th>Value</th></tr> <tr><td>Minimum</td><td>0.0</td></tr> <tr><td>Q1</td><td>1.8</td></tr> <tr><td>Median</td><td>3.9</td></tr> <tr><td>Q3</td><td>5.8</td></tr> <tr><td>Maximum</td><td>10.7</td></tr> <tr><td>Outliers</td><td>12.8</td></tr> </table> </div> </div>	Statistic	Value	Minimum	0.0	Q1	1.8	Median	3.9	Q3	5.8	Maximum	10.7	Outliers	12.8	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <h4 style="margin: 0;">Active Tx Duration (hh:mm)</h4> </div> <div> <table border="1"> <caption>Active Tx Duration (hh:mm) Data</caption> <tr><th>Statistic</th><th>Value</th></tr> <tr><td>Minimum</td><td>0:11</td></tr> <tr><td>Q1</td><td>3:11</td></tr> <tr><td>Median</td><td>6:22</td></tr> <tr><td>Q3</td><td>8:51</td></tr> <tr><td>Maximum</td><td>16:44</td></tr> </table> </div> </div>	Statistic	Value	Minimum	0:11	Q1	3:11	Median	6:22	Q3	8:51	Maximum	16:44	<h3 style="margin: 0;">Treatment Downtime</h3> <p style="margin: 0;">Less than 5% downtime from pauses and alarms once active treatment began.</p>
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Minimal Device Maintenance:

Since all dialysate mixing takes place on a fully disposable cartridge, the Quanta Dialysis System **simply requires a weekly hot-rinse without needing harsh chemicals**, minimizing staff time spent between treatments and allowing more time for patient care. Of the 64 hot-rinses tracked by Quanta, 94% completed successfully and the average interval between consecutive hot-rinses was 6.5 days.



Powerful Testimonials:

Building a new extended therapies offering from the ground-up is never easy. However, close coordination between Quanta, the hospital and Desert Cities Dialysis made this implementation a tremendous success. Below are three powerful testimonials from practicing board-certified nephrologists and nursing staff:

Quanta’s sustained low efficiency dialysis, in my opinion, has allowed us to provide the standard of **ICU level renal care this region has desperately needed.**

The ability to safely dialyze, in the ICU, what we would consider the sickest patients in the hospital truly gives us the opportunity to give **every patient a fighting chance at survival.**

Dr. Opeyemi Oladele
Nephrologist



Insourcing the Quanta Dialysis System into our ICU, and building a de novo CRRT program has resulted in both **timely initiation of renal replacement therapy and efficient volume status optimization.** Despite being a new program, initial observations highlight improved time to successful extubation and reduced length of stay in the ICU.

Our machine technicians have found working with the Quanta Dialysis System to be simple and time efficient. They have **observed several fold decreases in hours required for maintenance and disinfection protocol that accrues over the course of the work week when compared with our prior acute dialysis device.**

Dr. Prashanth Kumar
Nephrologist

This advanced technology has **greatly enhanced our ability to treat patients in the ICU,** by providing efficient and effective dialysis treatment. The slow-flow modalities have been particularly beneficial for patients who are unable to tolerate traditional intermittent hemodialysis, allowing us to tailor treatment to each individual’s needs.

The **training was comprehensive and hands-on,** ensuring that our staff felt confident and competent in using the machine. The **on-site support has been prompt and helpful** in addressing any issues that have arisen, further enhancing our experience with the product.

Our team is highly satisfied with the Quanta Dialysis System in terms of ease of use and performance during routine operation. The interface is intuitive and user-friendly, making it **easy to operate even in high-pressure situations.**

Ruben Orozco BSN, RN
Critical Care Manager