

DIALYSIS CENTER SAVES TIME AND MONEY WHILE IMPROVING PATIENT CARE AND WATER QUALITY

Microbiological control is essential for ultra-pure water, especially endotoxin control. This is the story of how a dialysis center was able to reduce the amount of hours disinfecting, and improve patient care by reducing the risk of complications from bacteria and endotoxin.

Background:

Bacteria and its endotoxin byproducts are a universal problem in all dialysis water systems and require a concerted effort to maintain them at low levels. The AAMI committee recently approved new lower microbiological standards that will require much better filtration of contaminants than most dialysis centers currently have in place.

This case study focuses on a center that had microbiological issues with its portable reverse osmosis systems. Although most portable water treatment systems are designed to meet high water quality standards, they are often idle for long periods of time, increasing the chance for the buildup of bacteria. Because of this, acute dialysis patients are more often at risk to water-borne contaminants.

Situation:

A nursing care center for seniors used portable reverse osmosis systems for their dialysis needs. Since the RO systems usage was sporadic, they sometimes sat idle for periods of time. Microbiological tests on the RO water (LAL and endotoxin levels) consistently had levels exceeding the AAMI standards for dialysis water. This required them to constantly disinfect their system. The following is the sequence of events that lead up to the Nephros filter being installed on the RO.

October 2009

Water samples were taken from the portable RO. The CFU count was >200, and the LAL endotoxin level was 5.24...both well above the AAMI standards. The center changed their disinfection schedule from monthly, to every other week.

Test Dates	CFU	LAL
October 4, 2009	>200*	5.24*
November 3, 2009	>200*	1.95*
December 3, 2009	1	1.95*

*Exceeds AAMI standards for dialysis water.

November 2009

Water samples from the portable RO were taken and again showed a level that exceeded AAMI standards. The CFU count was still >200 with an endotoxin level of 1.95. Even though the endotoxin level had improved, it was still above the AAMI action level.

The director of the center was getting desperate for answers and a solution. The RO could not be used as long as the results were above the AAMI action levels. She decided to have the RO disinfected every week, hoping this would help solve the problem.

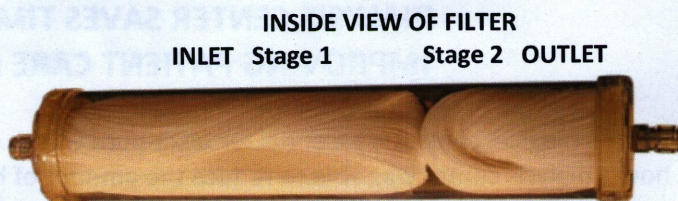
December 2009

The December 2009 results showed a great improvement for the CFU count, which was now 1 (below AAMI's action level) but the endotoxin level was still above the action level at 1.95.

The director was at a complete loss on what to do next, so she contacted AmeriWater for advice. AmeriWater provided her with a Nephros dual stage microbiological filter. The Nephros filter has nearly four times the filtering capacity of comparable filters and filters all the way down to 0.005 microns. It is the only dual stage filter on the market and provides up to 12 months of performance life with frequent use.

Results:

The center installed the new Nephros filter on the portable RO and was amazed with the results. The CFU count was zero, and the endotoxin levels were <0.5.



Because of these results, the center decreased the amount of disinfections (saving them time and money), and now has the comfort of knowing they are providing water of the highest quality during their dialysis treatments. They also love the fact that the Nephros filter can withstand multiple disinfections...even when disinfected with ozone.

Since installing the filter, the monthly water test results have continued to be well below AAMI standards for dialysis water.

LAL/Endotoxin Test Results

Test Dates	CFU	LAL
October 4, 2009	>200*	5.24*
November 3, 2009	>200*	1.95*
December 3, 2009	1	1.95*
January 4, 2010	0	<0.5
February 9, 2010	0	<0.5
March 2, 2010	0	<0.5
April 4, 2010	0	<0.5

December 15, 2009 – Nephros filter installed on RO. The result... perfect test results!

* Results greater than AAMI standards for dialysis water.
 Colony Forming Units Action Level ≥ 50
 Endotoxin Units Action Level ≥ 1

Conclusion:

With the low-level test results, the director finally felt at ease knowing that her patients’ risk of complications from bacteria and endotoxin had been greatly reduced. The center has continued to purchase portable reverse osmosis systems from AmeriWater with the Nephros filters factory installed. In addition, they are also having the filters installed at each central system wall box as a final safeguard for point of use patient safety.

For more information on water treatment products and accessories for dialysis contact AmeriWater Inc.