Water Safety and Usage Group

Renal Update

Report period January to April 2024 (inclusive).

All water testing was carried out in accordance to the guidelines set out in the: Clinical Practice Guidelines by the UK Renal Association and Association of Renal Technologists 2016.

CWPs

Chemical/trace metal analysis

Every 6 months the chemical contaminants and trace metals in the water used for the preparation of dialysis fluids are tested according to **BS ISO 23500-3; 2019: Water for haemodialysis and related therapies**.

The next tests will be carried out by the Renal Technical Department during June 2024 on the raw water supplies to and the product water supplies from all of our CWPs.

Microbiological quality of the dialysis water

Every month the microbiological contaminants in the product water used for the preparation of dialysis fluids are tested according to **BS ISO 23500-3; 2019: Water for haemodialysis and related therapies**. This states that dialysis water shall contain a total viable microbial count (T.V.C.) of less than **100 CFU/ml** and an endotoxin concentration of less than **0.25 EU/ml**.

These tests were carried out by the Renal Technical Department during the reporting period on all the CWPs within the Trust. The 3 areas are the Dialysis Unit BCH, Dialysis Wards Level 11 BCH, and Children's Dialysis Ward RBHSC. In the Dialysis Unit 50 samples were taken out of which there was one failure. SN 2100207 returned a high TVC on the sample taken (4/1/24). This CWP was disinfected and resampled on (16/1/24) and the result was within the required limits. In level 11, 32 samples were taken with no reported failures. In Children's 24 samples were taken with no reported failures. **Total 106 samples with 1 failure.**

WRO300H

Chemical/trace metal analysis

Every 6 months the chemical contaminants and trace metals in the water used for the preparation of dialysis fluids are tested according to **BS ISO 23500-3; 2019: Water for haemodialysis and related therapies**. The next tests will be carried out by the Renal Technical Department during June 2024 on the raw water supplies and all the product water supplies from our portable WRO 300Hs.

WROs (Water Quality testing)

We currently have 21 portable WRO300Hs for use with our [redacted] dialysis machines within the Belfast Trust. The water produced by these WROs is used for on-line priming and HDF treatments. Dialysis water containing a total viable microbial count of less than 100 CFU/ml and an endotoxin concentration of less than 0.25 EU/ml is a starting point in the production of ultrapure dialysis fluid or for on-line infusion fluid used in haemodiafiltration (HDF). To meet the appropriate requirements, the dialysis fluid requires further filtration by ultrafilters ([redacted]) incorporated in the [redacted] dialysis machine. Testing of replacement fluid for on-line HDF is difficult and it is more important to check that the quality assurance procedures are in place for monitoring filter integrity.

All 21 portable WROs were tested during the reporting period (Jan.-April 2024) to ensure they met the minimum requirement of a total viable microbial count of less than 100 CFU/ml and an endotoxin concentration of less than 0.25 EU/ml. During January we took 28 samples with 1 failure on s/n 7297 on (15/1/24). The WRO was disinfected and resampled and passed on (29/1/24). During February we carried out 22 samples with no failures. During March we took 24 samples with 2 failures on s/n 7301 on (12/03/24) and on s/n 11189 on (11/03/24) both were disinfected and resampled and passed on (20/03/24). The WROs were disinfected and resampled and passed on (20/03/24). During April we carried out 32 samples with no failures. **Total of 106 samples with 3 failures.** Currently all 21 WROs are providing water that meets the required standards. Also all the [redacted] filters on the [redacted] dialysis machines have been exchanged at the correct time intervals.

Pre-treatment of the raw water supply

The maximum allowable concentration for total chlorine in dialysis water is 0.1 mg/L. If the level exceeds this, clinical problems affecting the dialysis patients can arise e.g. (Haemolysis).

Pre-treatment water plant rooms

[redacted] the company who manufacture the CWPs that we currently use in the dialysis areas within Belfast Trust state that the RO membranes will not remove chlorine from the inlet water. Therefore in order to ensure the total chlorine does not exceed 0.1 mg/L, carbon filtration (GAC) is used to pre-treat the water prior to it reaching the RO. The Renal Technical department monitors the levels of total chlorine in both the raw water supply and the post GAC treated water in all the dialysis areas within the BCH and in RBHSC. During the reporting period the total chlorine post GAC treated water in the Level 11 BCH was no higher than 0.02 mg/L .In the BCH Dialysis Unit the total chlorine post GAC began to rise around the beginning of January to 0.08 mg/L.GAC media exchange was carried out on all 3 GAC vessels. Currently the total chlorine post GAC in the BCH dialysis Unit is <0.02 mg/L. In Children's Dialysis RVH the total chlorine post GAC began to rise during the end of January to 0.08 mg/L GAC media was exchanged in one GAC vessel. Currently the level for total chlorine in Children's dialysis RVH is <0.02 mg/L. Currently all levels of Total chlorine in all Belfast Trust dialysis areas are within limits. The total chlorine in the raw water supplies to the Belfast trust dialysis areas during the reporting period was approx. 0.4 ppm.

Pre-treatment GAC media exchange

[redacted]) carried out a GAC exchange on all 3 GAC vessels in Dialysis Unit BCH pre-treatment plant room. GAC no. 1 (09-01-24) GAC no. 2 (04-02-24) and GAC no. 3 (18-02-24).

[redacted] carried out a GAC exchange one GAC vessel in Children's Dialysis RVH pre-treatment plant room. GAC no. 2 (15-02-24).

Pre-treatment service

[redacted] carried out services in all pre-treatment water plants within the Belfast Trust dialysis areas. Level 11 BCH and in the dialysis unit BCH were both carried out on 14-04-24. In the RVH children's dialysis unit they were carried out on 11-01-24 and 11-04-24. Currently all pre-treatment water plants in the Belfast Trust are working well with no issues to report.

Pre-treatment portable ROs

[redacted] the company who manufacture the WRO 300s that we currently use to provide dialysis within Belfast Trust state that the RO membranes will not remove chlorine from the inlet water. Therefore in order to ensure the total chlorine does not exceed 0.1 mg/L carbon filtration is used to pre-treat the water prior to it reaching the RO membrane. The Renal Technical department currently have two carbon filters fitted on the water inlet to the 19 portable WROs, (a [redacted] 5 micron and a [redacted] 0.5 micron). These filters are currently tested and exchanged after one month in use. During the reporting period all the filters have been exchanged on time and no levels of total chlorine were detected above 0.1 mg/L. The level of total chlorine in the product water was <0.02 ppm.

The Renal Technical Department has also implemented as an extra safe guard the use of an extra portable carbon filter (a [redacted] 25 micron) to be used in all dialysis treatments during which the portable WRO300Hs are used. 5 of these Filters were replaced during Jan./April 2024 and all others were within date and removing total chlorine to <0.10 ppm.

Training

Nothing to report.

Adverse incident

No adverse incidents to report.

A.O.B

Estates

Proposal by Belfast Trust Estates Department to change from using Chlorine dioxide to using Monochloramine for disinfecting the water supply to the Hospital wards. This will have implications for dialysis areas throughout the trust with regards to removal from the supply water and testing for. The current setup for Chlorine removal both in the 3 permanent Dialysis areas supplied by the CWPs and the Temporary dialysis areas supplied by the portable WRO300Hs will need to be checked to ensure they are suitable for removing the monochloramine.

Report for Jan. 2024 to April 2024 inc. compiled by:

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Dialysis Unit

BCH

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