cyberREN offers a complete suite of hemodialysis functionality to automate and improve the hemodialysis clinical management program within a care facility.

Charting Efficacy, Completeness & Quality Assurance

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Charting Efficacy

✓ Documenting a complete hemodialysis treatment takes approximately **5 - 6 minutes** of charting time with cyberREN.

✓ **Automatic electronic import** of hemodialysis machine data to a session log measurably reduces charting effort and eliminates transcription errors. Supported machines include: Fresenius 2008H/K/T (direct link) / Gambro Phoenix / Braun Dialogue / Baxter Meridian / Althin System 1000 - Tina /Cobe CentryNet / Bellco Formula.

✓ Hemodialysis session data automatically entered into the chart is **standardized** for all patients and dialysis machine types.

✓ Dialysis parameters are charted from **coded systems**, speeding up charting (point and click) and allowing later statistical analysis.

✓ **Auto calculation** of actual KT/V, PRU, UFR, weight change, and excess weight.

✓ Automatic compensation for **wheelchair** and **prostheses** weights.

✓ Dynamic **hemodialysis facility** and **patient scheduling** and caregiver assignment.

✓ Automated printing of a **Hemodialysis Worksheet**, a paper record that is used at the bedside to guide the caregiver through all required treatment activities.

Charting Completeness

✓ Complete session record including **pre dialysis, intra dialysis** (session log) and **post dialysis charting**, order changes, incidents and session alerts, medications administered, heparinization, equipment preparation, nursing notes and access assessment.

✓ All charting required for complete reimbursement or regulatory compliance is mandatory. A **completeness check** is made at the end of treatment to ensure that everything, including the administration of all required medications, was charted properly.

✓ All changes to the hemodialysis order must be verified by the physician. All automatically imported data must be acknowledged by a responsible caregiver.

✓ All data related to hemodialysis orders, sessions, and hemodialysis access is **stored long term** for treatment monitoring, historical analysis, graphical trending, and data archiving.

✓ Support for charting of machine failure and replacement, dialyzer reuse.
Quality Assurance

- Automatically alerts the caregiver to **order parameters** that have been **modified** since the last hemodialysis session.

- A system of **alerts** ensures that all prescribed activities for the session are carried out.

- Only specific personnel can close a session record, & discharge the patient from treatment, ensuring a final review of the chart and **quality control** at the end of every treatment.

- All hemodialysis treatment data may be **exported to spreadsheets** in a detailed or summary format, providing physicians a further opportunity to monitor the effectiveness of treatment. User defined, high quality graphics and tables may be generated and displayed on-screen or printed.

Reimbursement / Financial

- All **charges** incurred during treatment are **captured** and **forwarded** to a third party billing system, eliminating all transcription activity as well as missed billings and justification errors. Treatment documentation **QA is shifted from the billing/financial staff to the clinical staff, where it belongs.**

- An individual session record cannot be closed in cyberREN until all **ordered medications** are given, or a reason is entered for not giving the medication.

- cyberREN is a hemodialysis machine **vendor neutral** solution, allowing the facility purchase flexibility in the future, and maintaining a level of competition for the clinic’s business. cyberREN can communicate with several different brands of dialysis machines simultaneously, **wireless dialysis machine communications is supported.**

- Complete hemodialysis machine **preventative maintenance** functionality.
**Hemodialysis Session Summary**

**Purpose:** To access an overview of past hemodialysis treatments.

**Workflow Integration:** Replaces the conventional paper-based hemodialysis record, serves as an index to view details pertaining to a past treatment.

**Usage:** Invoked through an icon on the Patient List, scroll back in time to find an individual treatment record

**Hemodialysis Session Summary Display**

- **Call up selected treatment parameters as a trend over time**
- **Summary information for all past sessions administered in the past may be shown in a tabular format**
- **Limits the shown information to those sessions that have dialysis adequacy calculated.**
- **Only summary information is presented**
- **This icon calls up details pertaining to a selected treatment record**
- **This icon creates a new hemodialysis record**
Hemodialysis Session Preparation

**Purpose:** To document and the preparation of the hemodialysis treatment equipment/dialysate baths.

**Workflow Integration:** completed by technicians in advance of the patient's arrival.

**Usage:** click on those machine checks that were performed, author and time stamp are automatically set to the current user.

**Hemodialysis Charting Display**

Prompts for checks to be performed in advance of dialysis treatment

Navigation during various treatment phases is accomplished using the tabs at the top of the display.

These values are compared with the hemodialysis order, alert generated if not consistent

Free text comments
Hemodialysis Alerts

**Purpose:** To inform the caregiver about all activities that must be completed during the hemodialysis session. To inform the caregivers about other related items that are not classified as orders.

**Workflow Integration:** This display is called up each time that the hemodialysis session record is called up, until the display is acknowledged. This replaces handwritten notes and a tag system which may have been used with a classic paper record.

**Usage:** This display always comes up automatically at the start of treatment and shows the user all items to be completed during the treatment, in addition to the treatment itself.

**Hemodialysis Alerts Display**
Days Hemodialysis Order

Purpose: This is a copy of the long term hemodialysis order, to be used for the current treatment. Changes made here for the day are not carried forward to the next treatment.

Workflow Integration: The Day’s Hemo Order is a copy of the active standing order that is generated with each new dialysis session. It allows the user to modify the hemo order for one session without causing long term changes.
**Predialysis Charting Display**

**Purpose:** Complete all predialysis charting, patient assessments, weight registration, hemodialysis access condition, etc.

**Usage:** This information is typically filled in before the session starts. Blood pressures, pulse as well as the exact start time of the dialysis is obtained directly from the dialysis machines, automatically.
**Intra-dialysis Log**

**Purpose:** To register and acknowledge all dialysis treatment parameters during actual treatment.

**Workflow integration:** nurses or dialysis technicians open this window to see if the treatment is progressing, to acknowledge incoming treatment readings, and to chart brief comments regarding the patient's status.

*Note:* A second page shows additional parameters including an area where subjective comments can be entered.
Medications Administered

**Purpose:** to prompt and support charting of medications to be given during treatment: only dialysis specific medications are shown.

**Usage:** Enter the time that a medication was given, choose the medication and confirm that the medication was given in a manner consistent with the order.

Click in the cell next to the medications to be administered. The cell will be highlighted in light blue and the order details will be displayed.

Some medications require two clinical staff to administer.

If the medication was not administered, the reason would be documented here.

Charting saline and anticoagulant administration is always available, does not require specific ordering.
Post Dialysis Charting

**Purpose:** To complete all dialysis session charting that is necessary before the patient can be discharged.

**Workflow Integration:** To chart the final patient weight, patient assessment, access condition etc. Set the session to “discharged”, when the treatment is over and the patient has left the unit. Respond to any prompts to enter missing data for chart completeness.

- The stop time is automatically set when blood is no longer sensed by the machine.
- The total treatment time is automatically calculated.
- This patient assessment is combined with the predialysis assessment and is used to generate a standard progress note documenting the treatment.
- Post dialysis blood pressures and pulses are again automatically retrieved from the dialysis machine.
- The patient's pain status is again documented post dialysis.