Adequacy of Hemodialysis

Introduction

Providing adequate hemodialysis treatment is dependent on numerous factors ranging from type of dialyzer used to appropriate length of treatment at adequate blood flows. Ensuring that each patient receives an adequate dialysis treatment each time requires ongoing interdisciplinary team (IDT) effort, education, and communication.

The role of the caregiver in managing adequacy of hemodialysis includes:

- ♦ On-going assessment of the patient and his/her treatment parameters
- ♦ Timely and appropriate evaluation and intervention when issues arise
- ♦ Clear, specific and regular documentation of data, interventions and outcomes
- ♦ Patient and staff education

Check-Plan-Do-Check-Act-Cycle

To manage adequacy of dialysis in our patients, we use the CQI/QAPI process. The model that we use is the Check-Plan-Do-Check-Act-Cycle.

Module Guide

This adequacy of hemodialysis module or toolkit contains the tools that you will need to use during the CQI/QAPI process. Treatment goals, data and report sources, cause and effect (fishbone) diagrams, protocol, data collection tool and a sample action plan are provided.

As you read through this module, keep in mind that the goal of your actions is to provide high quality patient care and to be a “Best Practice” Facility in adequacy of hemodialysis management.

A Best Practice Facility

- ♦ Sets and achieves a hemodialysis adequacy goal: at least 96% of all patients will have an adequacy parameter of Kt/V ≥ 1.2 and/or URR ≥ 65%.
- ♦ Consistently follows a “state-of-the-art” adequacy protocol or algorithm to achieve goals.
- ♦ Monitors adequacy parameters monthly.
- ♦ Evaluates patients who fail to reach target using the CQI/QAPI process.
- ♦ Utilizes adequacy management analysis to identify the facility’s most common root causes for failure to achieve targets, as well as monthly progress toward goals.
- ♦ Documents patients’ outcomes in achieving adequacy targets as well as changes in their treatment plans.

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Hemodialysis Adequacy Management Goals

Individual patient:
Kt/V ≥ 1.2
URR ≥ 65%

Facility goals:
xx% of patients with Kt/V of ≥ 1.2
xx% of patient with URR ≥ 65%

Components of the Module or Toolkit

Overview of the use of the C-P-D-C-A process in adequacy management:

A step-by-step guide to using the CQI/QAPI tools provided.

Case Study:

A case study shows how a quality improvement team uses the CQI/QAPI process for improving hemodialysis adequacy outcomes.

Adequacy Cause and Effect (Fishbone) Diagram (Tool 1):

The Adequacy of Hemodialysis cause and effect diagram highlights the factors that may be responsible for failure to provide adequate hemodialysis.

Data Collection and Root Cause Documentation Tool for Adequacy of Hemodialysis (Tool 2):

This documentation tool provides a checklist format to document that the common reasons for failure to obtain adequacy target goals have been explored and identified (hopefully).

Adequacy of Dialysis Flowchart (Tool 3):

This tool from Network 7 guides you through the decision-making process to determine what to do to in order to achieve adequacy targets. <u>This tool requires physician review and approval prior to use with patients.</u>

Adequacy of Hemodialysis Protocol (Tool 4):

The *Adequacy of Hemodialysis Protocol* provides the guiding principles for providing adequate dialysis. When in doubt, ask the nurse in charge. <u>The protocol requires a physician's signature prior to use with patients</u>.

CQI/QAPI Project Action Plan (Tools 5 and 6 – samples):

An *Action Plan* template is part of a CQI/QAPI program. A written plan should be done for all patient specific (POC) issues and unit-wide QAPI/CQI projects. Unit level projects should be filed in the unit's QAPI book. Patient POC/action plans should be part of the patient's medical records. A sample of each is provided within this module. These are included for illustrative purposes only and are not intended to suggest or direct clinical practice.

A CQI/QAPI Approach to providing Adequate Dialysis

CQI (also called QAPI) provides a conceptual framework and systematic approach to the resolution of discrepancies between prescribed and delivered doses of dialysis and to ensuring that each patient obtains recommended standards on a regular basis.

Using the Check-Plan-Do-Check-Act-Cycle

Failure to meet adequacy targets of Kt/V ≥ 1.2 and/or URR ≥ 65% signals a need for a quality improvement initiative or project. The project may be for an individual patient (called plan of care (POC) or unit-wide QAPI project, if benchmarks are not being obtained. The CPDCA Cycle is a good model to follow for ensuring adequacy of hemodialysis.

Check

1. Review Kt/V and URRs on a monthly basis. Use a trending tool or lab reports to review your entire patient base. Trends for at least three (preferably six months or more) should be analyzed.

2. Identify and document patients who are not receiving adequate treatment. Try to do this as soon as possible after monthly lab results are reported and prior to the monthly QAPI meeting.

Plan

1. If the dialysis facility is not obtaining the target for adequacy of hemodialysis or individual patients fail to achieve adequacy targets, activate an interdisciplinary team (IDT) to address the quality gap.

2. Utilize the *Cause and Effect (Fishbone) Diagram* (Tool 1) to review common reasons or root causes for failing to reach adequacy targets.

3. Complete the *Data Collection and Root Cause Documentation Tool for*

Adequacy of Hemodialysis (Tool 2) for each patient to determine the root cause(s) contributing to his/her failure to reach target. Again, do this prior to the QAPI meeting in order to be able to report the most common root causes for the unit as a whole.

4. Work with the IDT to address the reasons for failure to reach target. If adjustments in the treatment regimen are required, use the *Adequacy of Dialysis Protocol* (Tool 4) to guide treatment changes. This requires physician approval.

5. Use the *Action Plan/POC (Tool 6 provides a sample)* to develop an action plan for each patient.

6. Review root causes found for all patients to identify root causes related to overall facility practice when adequacy goals are not consistently achieved. Based on the common causes identified, develop an adequacy management action plan for facility-wide adequacy management improvement projects.

Do

1. Educate patients, physicians, nurses, technicians, dietitians and social workers about adequacy of dialysis management and the specific quality improvement activities to be undertaken. See the Network 7education tool for a sample.
2. Implement the plan(s).

Check

1. Check Kt/V and URR monthly per policy to track and trend response to the action plan (POC) and/or changes in treatment regimen.
2. Document which patients respond to the quality intervention and those who fail to respond. Use the clinical reports discussed earlier.
3. Utilize adequacy of dialysis reports to track parameters.

Act

1. For patients who respond, make the action plan or POC part of their routine care.
2. For patients who continue to fail to respond to the plan, refer to the *fishbone diagram* (Tool 1) *and data collection tool* (Tool 2) to continue to assess for correctable causes of failure to reach adequacy targets.
3. Document patient quality efforts in the appropriate medical records as well as in the unit's clinic's CQI/QAPI book if a unit-wide project.
4. Implement routine practice guidelines to ***prevent*** failure to reach adequacy targets in the future. Track data and causes monthly.
5. Repeat the CPDCA Cycle.

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QAPI at Work: An Adequacy of Dialysis Case Study – Patient Specific

Problem Statement: Patient on hemodialysis is failing to consistently reach adequacy of dialysis targets.

Check

Kt/V and URRs are routinely monitored monthly on all patients. The unit-wide goal of 95% of patients reaching adequacy targets (URR ≥ 65% and Kt/V ≥ 1.2) is routinely being met, but it is noted that Ms J's URR was 55% and Kt/V was .98 during her second month of treatment. The URR was repeated to rule out lab error. Both were still low – URR = 57% and Kt/V = .98. The interdisciplinary team (IDT) initiates the quality improvement process. The IDT consists of the nephrologist, RN team leader (primary nurse), dialysis technician who routinely cares for Ms J, dietitian, and social worker.

Plan

Possible root causes for failure to reach adequacy targets were reviewed using the *Adequacy of Hemodialysis Cause and Effect Diagram* (Tool 1).

The first data collected focused on the potential root causes. Possible root causes for her failure to reach adequacy targets were identified as 1) duration of dialysis and 2) blood flow rate (BFR).

It was noted that Ms J's prescribed dialysis time was 3 hours, BFR = 300 ml/min and dialysate flow rate = 500 ml/min.

The dialysis technician notes that the needles seem well placed each treatment and the prescribed BFR is easily obtained. The patient dialyzes the full treatment time.

Based on the information presented by the technician, the nephrologist extends the treatment time to 3.5 hours and the BFR to 400 ml/min. The staff carefully monitors her response to changes. The patient is taught the reasons for the prescription changes and the importance of adhering to the new plan of care (POC). (The same process is followed for other patients not achieving adequacy targets).

Tools Used by the CQI/QAPI Team:

- Interview
- Brainstorming
- Trend analyses
- *Cause and Effect (Root Cause) Diagram* (Tool 1)
- *Data Collection and Root Cause Documentation Tool for Adequacy of Hemodialysis* (Tool 2)

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- Plan of Care (POC) for individual patients and CQI/QAPI Action Plan for unit-wide projects (Tools 5 and 6)

Root causes for Ms J:

- Inadequate blood flow rate and treatment time

Ms J's Plan of Care update:

- Increase treatment time to 3.5 hours
- Increase BFR to 400 ml/min and observe integrity of vascular access
- Teach the patient the reason for the treatment change and importance of adhering to the treatment plan
- Recheck Kt/V and URR in one month
- Evaluate response to dialysis prescription changes

DO

The updated patient POC is implemented.

Check

- Lab work
- Patient's overall physical and psychosocial condition

Follow-up laboratory data at months 1 and 2 for Ms J were URR of 66 and 67% and Kt/V of 1.2 and 1.3, respectively. (Other patients with similar intervention showed similar improvement while a few, those with adherence issues, continued below target).

Act

Because the targets were obtained after the intervention, the patient treatment regimen was continued.

CQI at Work: An Adequacy of Dialysis – Unit Wide

Patient -specific root causes identified during the above and similar CQI processes, are "rolled up" and reviewed by the team to determine the most common root causes or reasons why patients overall are failing to obtain target Kt/V. Once the common root causes are identified and documented, a unit-wide CQI/QAPI action plan is developed to specifically address each major root cause. See Tool 5 for an example.

The C-P-D-C-A process is followed and documented.

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