



Creating a Culture of Safety/Clinical Team Training

VA Pittsburgh Healthcare System Dialysis Program

Contact Information

Paul M. Palevsky, MD
Chief, Renal Section
VA Pittsburgh Healthcare System
University Drive
Pittsburgh, PA 15240
Telephone: 412-360-3932
Fax: 412-360-6130
E-mail: paul.palevsky@va.gov

Category:	Culture of Safety
Type of facility:	Inpatient and Outpatient
Number of Patients:	30-36 in-center hemodialysis 10-20 home dialysis 800-1,000 inpatient hemodialysis treatments/year

Background

It has been widely recognized that communication failure is a leading source of medical errors and adverse events in healthcare settings. Crew resource management (CRM) is a model developed in the airline industry to improve the safety, efficiency and morale of individuals working as a team. As developed in the airline industry, CRM focuses on interpersonal communication, leadership and decision-making in the cockpit. The CRM model has been utilized in healthcare settings, primarily in settings such as operating rooms and emergency departments. During discussions for the planning of the series of patient safety webinars developed by Keeping Kidney Patients Safe during the autumn of 2015 the question was raised whether any of the participants had experience applying the concepts of CRM within their dialysis facilities. None of the participants on the planning calls expressed experience implementing CRM within their dialysis facilities as a means of transforming the culture of safety.

These discussions led to interest in the possibility of implementing CRM in our dialysis program, a hospital-based dialysis unit that provides inpatient services (approximately 800-1000 treatments per year), outpatient in-center hemodialysis (9 stations with 4 shifts per week) and home peritoneal dialysis and home hemodialysis (10 to 20 patients). As an early step in educating ourselves regarding CRM, we contacted the Department of Veterans Affairs National Center for Patient Safety (NCPS). Through these discussions arrangements were made for trainers from the NCPS to train the entire dialysis program staff on the fundamentals of CRM and to use the NCPS as a resource for the implementation of a patient safety project focused on safe handoffs of patients.

Keeping Kidney Patients Safe

www.kidneypatientsafety.org



Implementation

After a 3-month planning process involving the chief of the renal section (Paul M. Palevsky, MD), the medical director of the dialysis program (Mohan Ramkumar, MD) and the nurse manager of the dialysis program (Marlene Van Buskirk, RN) along with staff from the NCPS (Gary Sculli, RN, MSN), Clinical Team Training sessions were held in February 2016.

The concept of CRM and Clinical Team Training was introduced to all Dialysis Program staff over a period of months prior to the actual training sessions. All dialysis program staff members (physicians, nursing staff, patient care technicians, social worker, dietician, program support assistant) participated in one of two full-day Clinical Team Training sessions run by NCPS staff that were held on successive days. Each full-day session consisted of three training modules:

- Module 1: Crew Resource Management – Culture of Safety – Error Paradigms – Fault Tolerance
- Module 2: Leadership and Followership
- Module 3: Situational Awareness Countermeasures

While there was some resistance to the required training sessions, comments following the training indicated that the majority of staff felt the training was highly successful with some of the more skeptical staff (including physicians) commenting that the training was the most useful of all the required training in which they are required to participate.

Following the Clinical Team Training sessions, daily safety huddles were implemented. In addition, checklists were developed and deployed for team briefing and debriefing, for routine steps at dialysis initiation (both pre- and post-initiation checklists) and for infrequent occurrences, including air in blood and dialyzer change.

As a pilot project developed in conjunction with the Clinical Team Training program a patient hand-off safety project was developed and implemented. Staff had identified communication issues between the dialysis unit staff and inpatient care teams as particular patient safety vulnerability. The project was initiated to improve communication and ensure that pertinent information required for safe patient care was obtained from the inpatient areas before dialysis and reported to the inpatient areas when dialysis was completed. Pre-dialysis and post-dialysis report checklists were developed. The charge nurse in the dialysis unit uses the pre-dialysis report checklist to obtain report from the inpatient nurse who is assigned to the patient. At the end of treatment the dialysis nurse assigned to the patient uses the post-dialysis report checklist to give report to the inpatient nurse caring for the patient on the floor. This information is then documented in a templated note in CPRS (the VA's EHR) to provide written documentation of dialysis treatment for providers and nurses.

Among the specific tools implemented (see attached) as part of the project were the following:

- Clinical Team Training Resource Pocket Cards:
 - Effective Followership Algorithm Pocket Card – tools covered during the Clinical Team Training sessions to empower staff to intervene when potential safety issues are observed. This includes the 3W's tool (What I see; What I'm concerned about; What I

Keeping Kidney Patients Safe

www.kidneypatientsafety.org



- want) and the 4-Step tool (Get attention; State concern; Offer solution; Pose question) to improve assertive communication.
- Situational Awareness Pocket Card – tools covered during the Clinical Team Training sessions to assist staff as countermeasures when situational awareness may be impaired including the 1-2-3 Rule (1. Step back; 2. Analyze; 3. Use resources) and Red Flags to impaired situational awareness (Failed cross check; Confusion; Not following policy; Failure to meet targets; Not communicating)
- Checklists
 - Team briefing checklist
 - Debriefing checklist
 - Dialysis pre-initiation checklist
 - Dialysis post-initiation checklist
 - Dialyzer change checklist
 - Alarms: air in blood checklist
- Patient handoff project tools
 - Pre-dialysis report checklist
 - Post-dialysis report checklist

Follow-up

As there were no baseline data available regarding “near-misses” or actual patient safety events related to interventions implemented, effectiveness has been assessed based on surveys of the patient care staff. Nine (6 RNs and 3 patient care technicians) of 14 staff (64 percent) completed the anonymous survey.

All staff who completed the survey agreed that the morning huddle was valuable:

- 44 percent of respondents stated that they altered care that day as a result of the huddle;
- 67 percent felt that patient safety has improved as a result of the huddle; and
- 44 percent stated that they learned something new about their patients that day as a result of the huddle.

Furthermore, 67 percent of respondents indicated that they used the 3W’s tool (What I see; What I’m concerned about; What I want) in the work area and that the 3W technique has made it easier to deal with uncomfortable situations. Additionally, 67 percent of respondents reported that the use of the Post-Dialysis Initiation Check list had prevented an error.

Recommendations

The tools of CRM have been under-utilized in the dialysis setting. When implemented in the airline industry, the full effect of these concepts on airline safety took a generation to be manifested. The use of CRM in healthcare will not provide an “over-night” transformation of patient safety within the dialysis unit but is an important tool that can and should be widely implemented to improve safety within

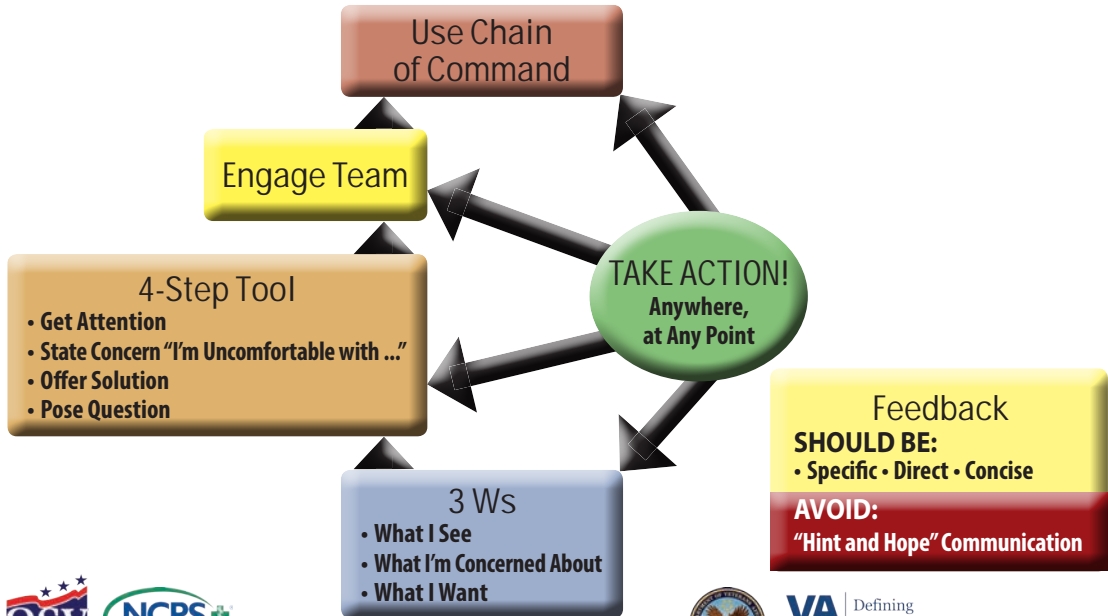


Keeping Kidney Patients Safe

www.kidneypatientsafety.org

dialysis facilities. We were fortunate that we had access to the resources of the VA NCPS to facilitate the implementation of CRM within our Dialysis Program. Based on our preliminary experience we believe that CRM is a powerful paradigm for advancing a culture of safety within the dialysis setting and would encourage other facilities and provider organizations to embrace this paradigm.

Effective Followership Algorithm



Situational Awareness

1-2-3 Rule

1. Step Back

2. Analyze

3. Use Resources

Red Flags

- **Failed Cross Check**
 - Conflicting input - Two things that should agree do not agree
- **Confusion**
 - "This doesn't make sense"
- **Not Following Policy**
 - Operating outside of established policy
- **Failure to Meet Targets**
 - Expectations after an intervention are not met
- **Not Communicating**
 - People on the team stop talking - obvious tension - no one saying anything



Team Briefing Checklist

- ☐ **Greet team**
- ☐ **Goals**
 - Safety
- ☐ **Rules**
 - Follow Standard Policy and Procedure -- “NO SHORT CUTS”
 - Speak Up
 - Acknowledge Communications
- ☐ **Roles**
- ☐ **Expected threats**
- ☐ **Any questions**

Debriefing Checklist

- ☐ What went well?
- ☐ What did not go well?
- ☐ Did we have what we needed?
- ☐ Did equipment function properly?
- ☐ What can we do better next time?
- ☐ Other?

DIALYSIS PRE-INITIATION

1. Patient correctly identified.
2. Machine check completed:
 - a. pH and conductivity levels.
 - b. Completed pre-set alarm check.
 - c. Absence of bleach at drain line before AM shift, and PM shift if machine is bleached.
3. Dialyzer verified.
4. Acid bath verified:
 - a. Potassium
 - b. Calcium
5. Prescription verified:
 - a. Sodium
 - b. Bicarbonate
 - c. Heparin
 - d. Profiling

DIALYSIS POST-INITIATION

1. Ordered treatment time verified.
2. Target ultrafiltration goal verified.
3. Ordered blood flow achieved.
4. Ordered dialysate flow set.
5. Heparin pump settings verified.
6. UF /Sodium profiling activated.

DIALYZER CHANGE

- Press RINSEBACK Action Key and CONFIRM.
- When the desired amount of blood has been rinsed back, press CHANGES Selection Key.
- Press DIALYZER PRIME Selection Key and CONFIRM.
- Wait for Venous Line Clamp to OPEN and Pt Sensor Icon to change from RED to WHITE.
- Replace Dialyzer and Cartridge Blood Set.
- Press MANUAL PRIME, PRIME w/ UF, or PRIME w/o UF Action Key.

NOTE: Wet Patient Sensor procedure does not function during Dialyzer Change procedure.

- Connect Dialysate Lines to dialyzer.
- Press BYPASS Action Key to take dialysate out of BYPASS.
- Once dialysate and blood sides are primed, press PATIENT CONNECT Action Key. Press CONFIRM.
- Connect patient to dialyzer circuit.
- Press Blood Pump ON/OFF button.
- Press DIALYSIS Action Key.
- Adjust Blood Pump to prescribed speed.

Alarms: AIR IN BLOOD

- Press MUTE button.
- Clamp venous line (below any visible air).
- Clamp venous dialyzer line.
- Attach syringe to venous access line.
- Open venous access line clamp.
- Aspirate until venous pressure is at least -40 to -50 mmHg.
- Close the venous access line clamp.

NOTE: Venous pressure > -150mmHg will not allow the venous line clamp to open.

Perform the following steps within 30 seconds:

- Press OVERRIDE button.
Venous Line Clamp opens.
- Open clamp on venous blood line, air is drawn into venous chamber.
- Verify air is removed and aspirate additional air, if necessary, with syringe on venous access line.
- Remove clamp on venous dialyzer line.
- Press RESUME button to start blood pump.
- Adjust level of blood in Cartridge chambers.

PRE DIALYSIS REPORT

1. Patient condition.
2. Labs ordered.
3. Medications during dialysis.
4. Isolation status.
5. Diagnostic testing post dialysis.

POST DIALYSIS REPORT

1. Patient condition.
2. Medications given.
3. Fluid status.