

Patient Safety

Abstract: CQI in Hemodialysis; Method, Principles and Requirements.

Quality means different things to different people, depending on their focus, their values, their perspectives and their responsibilities. “Quality is the degree to which health services for individual and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Lohr, K.N 1990).

The complexity of health care systems and delivery of services, the unpredictable nature of health care, and the professional differentiation and interdependence among healthcare providers and the systems complexity make measuring quality difficult.

Continuous Quality Improvement (CQI) is a system that seeks to improve the provision of services with an emphasis on future results. Like total quality management, CQI uses a set of statistical tools to understand subsystems and uncover problems. It emphasizes improving quality in the future, in addition to controlling the current process. Once an area that needs improvement is identified, a specialized team is formed to assess and investigate the process. Once a specific expectation and the means to measure them have been established, the implementation aims at preventing future failures and meets the setting of goals. To achieve these goals there are different methods employed; that include; the Plan-Do-Study (Check) -Act (PDSA/PDCA) model., the Focus methodology (Find Organize-Clarify-Understand and Select), the Six Sigma methodology and others

In this presentation I will review the most used methods, discuss the components and the requirement for a successful CQI initiative implementation.

References:

1. B Axley& K C. Robins APPLYING Continuous Quality Improvement In clinical Practice 2nd Ed ANNA 2009.
2. S M Shortell et al Assessing the Impact of Continuous Quality Improvement /Total Quality Management: Concept versus Implimentation . The Milbank Quartely, vol.76 No.4, 1998. Published by BlakwellPupblishers.
3. NKDOQI; Clinical Practice Guidelines and Clinical Practice Recommendations 2006 Updates
4. End Stage Renal Disease Network of Texas; Recommended Criteria and Standards Dialysis Facility Specific Quality Management. End Stage Renal Disease Network of Texas, Inc. (#14) □ www.esrdnetwork.org972-503-3215, 14114 Dallas Parkway #660, Dallas, Texas, 75254...
5. Lohr, K.N (Ed.). (1990). Medicare: A strategy for quality assurance in Medicare. Washington, DC: National Academy Press.
6. B Axlley&. J Miller Introduction to Six Sigma; 2nd Ed ANNA 2009.
7. http://www.isixsigma.com/library/content/six_sigma-dmaic-quickref-define.asp

Patient Safety

Abstract: CQI in Hemodialysis arena; Factors to Consider!

More than 40 years ago, Donabedian proposed measuring the quality of health care by observing its structure, processes, and outcomes. **Continuous quality improvement (CQI)** became the system that seeks to improve the provision of services in healthcare field with an emphasis on the philosophy that most things can be improved and most incidents can be prevented.

CQI is not a onetime event; CQI is an ongoing effort that continues beyond meeting the mandates accreditation organizations or the local standards. In other hand, measuring quality to ensure patient safety and adequate practice, will track the progress of quality improvement initiatives that can be achieved by using two types of benchmarking that include:

1. Internal benchmarking; where the collected information and data are plotted on a control chart with statistically derived upper and lower limits to compare it with the identified standards of the organization or with the preset guidelines.
2. Competitive or external benchmarking involves using comparative data between organizations to judge performance and identify improvements that have proven to be successful in other organizations.

In this presentation I will review our experience in the hemodialysis units at KFSH&RC in developing and maintaining an efficient CQI program, the variable that we were measuring, and the data that were collecting to measure our practice which help us maintaining an outstanding reputation in the kingdom and the Gulf area for more than 25 years.

References:

- 1) B Axley & K C. Robins APPLYING Continuous Quality Improvement In clinical Practice 2nd Ed ANNA 2009.
- 2) Centers for Medicaid Services (CMS). 2008. ESRD facility condition for coverage, <http://www.cms.hhs.gov/CFCsAndCOPs/downloads/ESRDfinalrule0415.pdf>
- 3) M. S Shortell et al Assessing the Impact of Continuous Quality Improvement on Clinical Practice: What It Will Take to Accelerate Progress The Milbank Quarterly, Vol. 76, No. 4, 1998.
- 4) S M Shortell et al Assessing the Impact of Continuous Quality Improvement /Total Quality Management: Concept versus Implementation . The Milbank Quarterly, vol.76 No.4, 1998. Published by Blackwell Publishers.
- 5) NKDOQI; Clinical Practice Guidelines and Clinical Practice Recommendations 2006 Updates
- 6) End Stage Renal Disease Network of Texas; Recommended Criteria and Standards Dialysis Facility Specific Quality Management. End Stage Renal Disease Network of Texas, Inc. (#14)
□ www.esrdnetwork.org 972-503-3215, 14114 Dallas Parkway #660, Dallas, Texas, 75254
- 7) Lohr, K.N (Ed.). (1990). Medicare: A strategy for quality assurance in Medicare. Washington, DC: National Academy Press

Abstract: Developing Comprehensive Disaster Plan for Hemodialysis Unit

A disaster can be defined as a significant disruption to the health and safety of an institution or community caused by; natural forces, physical failure of machinery or infrastructures or the conduct of an individual that results in a significant disruption of the health and safety of a unit, institution, community or nation.

Disasters are unexpected, may occur at any time but most time it occurred when we are not prepared. There were over 2000 hemodialysis (HD) patients in Louisiana, (USA) were affected by Katrina Horicon when last time it attacks USA. Most patients needed to be evacuated without evidence of medical records or advance arrangements. There were more than 36 HD Units were affected. Unfortunately in our country most the time we don't purplish our experiences and we do not know per example; the number of affected HD patients by the 2006 ware in Lebanon? Each institution should have a detailed contingency plan that outline the institution response to different level of disaster this including internal and external disaster and delineate the role and the responsibility of each employee in the organization, from the Chief executive officer to the frontline staff.

In this presentation I will summarize our experience at KFSH&RC in developing an institutional disaster plan focusing in my experience in developing a unit specific disaster plan. In addition, I will discuss the action plan pre, during and post disaster, and then I finish by providing a brief recommendation for the development of a comprehensive contingency plan.

References:

- 1) B Norma Comez, et al. Emergency and Disaster preparedness; Core Curriculum for Nephrology Nursing 5th ed. 2008
- 2) Babajide Salako. Disaster preparedness for dialysis facilities; MARC Conference Feb.2008.
- 3) Centers for Medicare and medical serves (CMS) ; Emergency preparedness for dialysis facilities 2005.
- 4) Counts, C. (2001). Disaster preparedness: Is your unit ready? Nephrology Nursing Journal ,28(5),491-499
- 5) <http://www.googleyndicatedsearch.com/u/kidney?q=disaster+plan+for+dialysis+facilities&sa.x=18&sa.y=15&safe=active>
- 6) *Planning for Emergencies: A Guide for Dialysis. Facilities ...*
www.kidney.org/atoz/pdf/disaster_prepardness.pdf
- 7) *Planning for Emergencies: A Guide for Dialysis Facilities ...*
www.kidney.org/atoz/pdf/DisasterBrochure.

HCV ISOLATION IS THE RIGHT SENSE OF SAFETY!

Abstract:

The prevalence of Hepatitis C in dialysis patients is higher than the healthy population, probably due to the higher exposure to risky environments. HCV is the leading cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma in the USA. The use of EPO for anemia treatment has reduced the frequency of blood transfusion, but the prevalence of HCV has not declined in hemodialysis units. There is evidence to support nosocomial transmission by sharing hemodialysis equipments and supplies. Nosocomial acquired blood born infection due to improper attention to infection control have been well documented in the literature. (Widell, et al. 1999). Hepatitis C virus Transmission within the dialysis environment can be prevented by strict adherence to IC precaution recommended for HD, but that is not always feasible (e.g. The CDC recommends the usage of single blood pressure cuff for each patient)

An empirical review of the literature reveals that isolation of hemodialysis machines and or complete segregation of HCV Patients has direct effect on decreasing the seroconversion occurred in hemodialysis units implementing this practice. In addition to the literature review, I will explore in this presentation several practical scenarios that support the application of full isolation practice in hemodialysis units to help reducing the HCV prevalence to an acceptable level...

Learning objectives for the abstract: At the end of this presentation the participant will be able to understand:

- 1. A literature review that advocate hepatitis C isolation.**
- 2 How isolation can help reducing the seroconversion in HDU?**

References:

- 1) Centers for Disease Control [WWW.CDC](http://www.CDC).**
- 2) www.ASAhq.org/publicationsAndServices/**
- 3) Hepatitis C infection in nephrology practice Alfurayh et al Post Graduate Doctor Middle East 19:6 184-187 2000**
- 4) Impact of dedicated space, Dialysis equipment and nursing staff on the transmission of HCV Karkar et al Am J Infect Cntrol. 2003 Feb; 31(1):26-33**
- 5) Isolation effectively prevent the transmission of HCV IN Hemodialysis units Yang et al J Formos Med Assoc.2003 Feb:102(2):79-85**

Abstract : Infection Control strategy in Hemodialysis Centers

Infection Control (IC) is a major concern for any health care institutions. IC is crucially important in hemodialysis centers because hemodialysis patients are prone to high risk infection due to several reasons: a) Alteration in their immune system. b) The process of hemodialysis procedure which mandate the presence of multiple patients receive hemodialysis concurrently, c) Frequent hospitalizations and exposition to surgical procedures, d) Hemodialysis procedure that involve multiple punctures of patients' skin to access the vascular access, and d) Multiple accesses to patients' central vascular system through Double Lumen Catheter (DLC). It is well documented that vascular access are one of the major cause of morbidity and mortality among Hemodialysis patients,(KDOQI) in this presentation I will overview infection control strategy in hemodialysis, and

- a. Emphasis on the importance of maintaining a good infection control policy in HD setting.
- b. Identify the elements of an infection control strategy in HD setting.
- c. Highlight the factors that help preventing the transmission of infection among HD patients.
- d. Overview the infection control measures related to
 - i. Hemodialysis water treatment system
 - ii. Hemodialysis vascular access
 - iii. Hemodialysis machines.
- e. Also highlighting measures that ensure staff compliance to the set up infection control policy and guidelines?

References

1. Daugirdas, J.T., Blake, P.G., Ing. T.S., Handbook of Dialysis: 44h Edition: 2007 Lippincott, Williams & Wilkins, New York.
2. Molzahn, A., Butera, E., Contemporary Nephrology Nursing: Principles and Practice, 2nd Edition: 2006, ANNA, Anthony J., Jannetti, Inc., Pitman, New Jersey, pp 464 – 481.
3. Barrows-Hudson, Sally, Prowant, Barbara F. Ed, Nephrology Nursing, Standards of Practice and Guidelines for Care 2005, ANNA, Anthony J., Jannetti, Inc., Pitman, New Jersey.
4. Centers for Disease Control WWW.CDC.
5. www.ASAhq.org/publicationsAndServices/
6. Hepatitis C infection in nephrology practice Alfurayh et al Post Graduate Doctor Middle East 19:6 184-187 2000
7. Impact of dedicated space, Dialysis equipment and nursing staff on the transmission of HCV Karkar et al Am J Infect Control. 2003

Abstract: Managing cardiopulmonary arrest during hemodialysis procedure

Hemodialysis (HD) patients' may experience several complications during the HD treatment. Some of these complications might lead to cardiopulmonary arrest.

To ensure safe working environment and promote patient safety; Each hospital should establish an emergency team (code team) that will responds immediately to emergency call.

HD nurses should be prepared to initiate Basic life Support and even Advance Cardiopulmonary Life Support to rescue HD patients until the hospital code team arrived.

In this presentation I will discuss the situation that might lead to cardiopulmonary arrest during HD procedure, review the prevention measures that can help to reduce the risk factors, and then outline the role of each member in hemodialysis team until the arrival of the code team to ensure good patient care and prevent failure to rescue.

Learning objectives; At the end of this presentation the participants will be able to:

1. Identify the major causes of cardiopulmonary arrest during hemodialysis procedure.
2. Prevent failure to rescue by identifying the role of each member on the rescue team.

Key word; Hemodialysis, Cardiopulmonary, Arrest, Team

References:

- 1) C Counts et al ; Core Curriculum for Nephrology Nursing , 5th ed. 2008
- 2) Emma Hitt, the 2010 AHA Guidelines: The ABCs of CPR Rearranged to C-A-B Medscape accessed on 30 Oct. 2010;
- 3) John M. Field; Part 1: Executive Summary: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care; Circulation. 2010; 122:S640-S656.
- 4) http://circ.ahajournals.org/content/122/18_suppl_3/S640.full.pdf+html.
- 5) Ruediger W. Lehmich, et al; Automated External Defibrillators and Survival from Cardiac Arrest in the Outpatient Hemodialysis Clinic; 2011 JASN 9.663
- 6) Patrick H. Et al; Survival after Cardiac Arrest in Outpatient Hemodialysis Clinics, Clin J Am SocNephrol 2: 491-500, 2007
- 7) Jasmeet Soar et al; European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances

Abstract : Building a Homogenous CRRT Team

Continuous Renal Replacement Therapy (CRRT) is indicated for the treatment of acute renal failure in intensive care unit (ICU) for patient who cannot tolerate intermittent hemodialysis procedure. These patients are usually hemodynamically compromised with severe fluid overload, hypercatabolic and or at risk of bleeding and with cerebral edema; Hence CRRT is favorable renal replacement modality for them and it is a distinctive critical care procedure.

In the other hand CRRT, as the name indicate, is a renal replacement therapy and remain a nephrology treatment and considered a slow hemodialysis procedure, thus the nephrology team involvement is required.

In this presentation I will review our practice at king Faisal Specialist Hospital and Research Center; based on the multidisciplinary approach to this treatment modality, and I will highlight the advantageous of multidisciplinary methodology for a successful implementation of a CRRT Program.

Learning objectives : At the end of this presentation the participant will be able to;

1. Appreciate the role of multidisciplinary collaboration in achieving optimal patients' care?
2. Value the impact of role definition and established guidelines in creating healthy working environment, in a multidisciplinary patient care procedure.

References:

1. Golper T et al; Continuous renal replacement therapies: Overview, UpToDate June 4, 2010, Accessed May 2011.
2. Palevesky P et al; RRT in acute kidney injury, indications, timing and dialysis dose : Overview, UpToDate May 2010 , Accessed Nov. 2010.
3. Manns M, et.al; Continuous renal replacement therapies: an update, Am J Kidney Dis. 1998; 32(2):185.
4. Ronco C, et al; Continuous renal replacement therapy: opinions and evidence, Adv Ren Replace Ther. 2002; 9(4):229.
5. Kocjan M et al; Seeking Optimal RRT Delivery in Intensive Care Units American Nephrology Nurses';2010; 37 (1) 47-53
6. Mehta RL et.al; THE 12th International Conference on CRRT 7-10 March. 2007
www.karger.com Blood purification

Abstract: Importance of Role Definition in Safely Dialyzing Pediatric Patients in Adult Hemodialysis HD Unit

HD becomes a practical option for pediatric patients in 1971 when Dr. Kjellstrand found that 10% of the circulating blood volume could be spared in an extracorporeal circuit. This finding opened the door for chronic pediatric hemodialysis (CPHD).

The number of CPHD patients has increased over the past decades. This increase mainly due to failed peritoneal dialysis (PD), failed transplanted kidneys and or unsuitable patient's home environment (Goldstein 2003).

In the Arab World, the number of CPHD patients has increased as well, but mainly due to poor support for both transplant and PD programs.

Despite the increased demand for CPHD, the number of pediatric dialysis centers still very limited. And almost do not exist in several Arabic countries. As a result, most of pediatric HD patients are currently dialyzed in adult HD units.

Unfortunately, Children who are cared for in an adult HD facility are more likely to be on HD rather than PD (Leonard, Donaldson, & Geary 2003). In these units, pediatric nephrologists and nursing staff often find themselves practicing under poor condition and indirectly jeopardizing the standard of practice and more seriously the patients' safety.

To overcome this challenge, we worked, at King Faisal specialist and Research Center Riyadh, collaboratively to develop guidelines and a written policy specific for dialyzing pediatric patients in an adult HD unit. In this presentation I will review the major elements in our policy which enable us to safely dialyzing pediatric patients in adult HD unit...

Key wards; hemodialysis, pediatric, collaboration, guidelines,

Learning objectives: At the end of this presentation, the participants will be able to:

1. Demonstrate how collaboration can achieve optimal patients' care!
2. Appreciate the consequence of role definition in creating safe working environment.

References:

1. Lesley Rees, et al; Hemodialysis for children with chronic kidney disease, UpToDate, accessed ON 14/02/2012.
2. Tarak Srivastava, et al; Overview of the management of chronic kidney disease in children, UpToDate, accessed ON 14/02/2012.

3. C Counts et al ; Core Curriculum for Nephrology Nursing , 5th ed. 2008
4. Daugirdas, JT, Blake, et al. Handbook of dialysis, 4th ed, Lippincott Williams & Wilkins, Philadelphia 2007.
5. National Kidney Foundation. K/DOQI Clinical Practice Guidelines and Clinical Practice, 2006.
6. European Best Practice Guidelines part 2; Nephrology Dialysis Transplantation Vol.22,Suplement 2, May 2007
7. Jeffrey J. Fadrowski, et al; Children on Long-Term Dialysis in the United States: Findings From the 2005 ESRD Clinical Performance Measures Project, *pup med*, published online 31 October. 2007

Abstract; Anticoagulation for CRRT modalities

Continuous Renal Replacement Therapy (CRRT) is increasingly used to treat acute renal failure (ARF) in the Intensive care unit setting (ICU). The slow and steady removal of plasma water and/or uremic toxins is an inherent advantage for CRRT over intermittent Dialysis.

CRRT require extracorporeal blood flow; as in any other extracorporeal circuits, anticoagulation is essential to prevent activation of the clotting mechanisms within the extracorporeal circuit.

Anticoagulation adequacy plays a key role in the CRRT efficacy; (fluid and solute removal, filter longevity and patient management). Insufficient anticoagulation affects filtration performance, filter may eventually clot contributing to blood loss. On the other hand;

Excessive anticoagulation may result in bleeding complications reported to occur in 5 to 26% of the CRRT treatments. The ongoing necessity for systemic heparinization is a well-known as one of the main disadvantages of CRRT procedure.

In this presentation I will review the different anticoagulation approach employed in critical care arena for a successful CRRT treatment.

Learning objectives: At the end of this presentation the participant will be able to:

1. Identify the ACG methods used in CRRT modalities
2. Review the advantage and disadvantage of the currently used methods.
3. Discuss the recommended monitoring guidelines for a safe ACG administration of the CRRT Procedure.

References;

1. Suranyi M & Chow J; Review: Anticoagulation for hemodialysis; Journal compilation © 2010 Asian Pacific Society of Nephrology, Article first published online: 19 FEB 2010. accessed on May 2011
2. Mehta R; Principle and Methods of anticoagulation in CRRT. The sixth International CRRT online; Accessed on line on May 2011
3. Mehta R; Practical Issue in Citrate Anticoagulation in CRRT. The sixth International CRRT online; Accessed on line on May 2011
4. Morabito S, et al; CRRT: anticoagulation in the critically ill at high risk of bleeding. J Nephrol. 2003 Jul-Aug;16(4):566-71
5. Lucchese GF: Heparin-associated thrombocytopenia during continuous venovenous hemofiltration Nephron, 1996, 74(1):241-2.

Abstract: Overview of Renal Replacement Therapy (CRRT) in critical care units.

Acute kidney injury (AKI) is a frequent complication of hospitalization that is associated with significant morbidity, mortality and health care expenditures. The treatment of AKI is largely supportive in nature, and renal replacement therapy (RRT) remains the cornerstone of management for patients who have severe AKI especially in critical care setting.

Intermittent Hemodialysis (IHD), Continuous Renal Replacement Therapies (CRRT) and Sustained Low-Efficiency Dialysis (SLED) are the principal RRT modalities that are used in the acute setting.

Over the last three decades, CRRT have evolved from experimental method to a well-established technique. Evidences have indicates that CRRTs are superseding peritoneal dialysis and conventional forms of hemodialysis for the t employed treatment of AKI in critical care setting.

In this presentation I will overview the principles, the different modalities, the indications, the advantages and disadvantage of CRRT (mainly in adult population).

Learning objectives: At the end of this presentation the participant will be able to:

- 1) Define the different form of CRRT modalities.
- 2) Outline the indication of each modality.
- 3) Identify the requirement for a successful CRRT treatment

References;

1. Golper T et al; Continuous renal replacement therapies: Overview, UpToDate June 4, 2010 , Accessed May 2011.
2. Palevesky P et al; RRT in acute kidney injury, indications, timing and dialysis dose : Overview, UpToDate May 2010 , Accessed Nov. 2010.
3. Manns M, et.al; Continuous renal replacement therapies: an update, Am J Kidney Dis. 1998;32(2):185.
4. Ronco C, et al; Continuous renal replacement therapy: opinions and evidence, Adv Ren Replace Ther. 2002;9(4):229.
5. Kocjan M et al; Seeking Optimal RRT Delivery in Intensive Care Units American Nephrology Nurses';2010; 37 (1) 47-53

BUTTONHOLE TECHNIQUE REVEAL THE VEIL

Abstract:

For most nurses and patients inserting the Arterio-Venous Fistula (AVF) needles are the most unpleasant parts of hemodialysis procedure. Rope Ladder Technique or Rotating sites that is based on sticking a new site each hemodialysis treatment; currently is the most frequently used cannulation method used in most of the hemodialysis center across the ward. Advocators of this technique claim that it helps expand the life span of the AVF because changing the cannulation sites gives the previous stick site time to heal. In addition, it helps the fistula mature more evenly and prevents aneurisms forming. Which occur when the needle stick is repeatedly done in a small area? In other hand, constant site or Buttonhole technique, which is an old new technique, start gaining more popularity and become a hot topic in the cannulation of hemodialysis vascular access especially in-home hemodialysis and in some chronic hemodialysis units? Advocators of buttonhole technique claim that this technique is less painful to the patient, is performed easily and has fewer infiltrations.... I will review in this presentation the advantage and disadvantage of each technique criticize both technique and provide some recommendation.

Learning objectives: At the end of this presentation the participant will be able:

- **To value the used technique to cannulate an Arterio-Venous Fistula (AVF) and an Arterio-Venous Graft (AVG)**
- **To appreciate the advantage and disadvantage of each technique.**
- **To outline the recommendation for the preferable technique**

References:

1. Ball, L.K 2006: The Buttonhole Technique for AVF (NNJ)
2. Toma ST 2005 A time saving technique (03.symposium)
3. Goovaerts T 2005 long term experience with BHT cannulation (03 symposium)
4. Ball, L.K 2004: Using the buttonhole technique for your AVF
5. Scribner BH D&T 1984; 13 625
6. Kronung, g 1984 plastic deformation of Cimino fistula by repeated puncture D&T
7. Twardoski z et & al Pol Arch Med Wewn 1977.
8. WWW.nwrenalnetwork.org/first/buttonhole
9. www.hemodialysis.org
10. www.kidneyschool.org Kidney School

On Line Hemodiafiltration (OL HDF).

Abstract:

Conventional diffusive-based dialysis modality, using both Low and High Flux membrane, are limited in their capacities to remove middle and large size molecular weight uremic toxin. Hence there is growing interest in the convective dialysis therapies. Convective method is able to achieve better clearance because it tries to mimic the glomerular filtration that occurs within the native kidney. The large volume of Ultrafiltration (UF) is the condition for convective transport. Convective methods include the Hemofiltration (HF), hemodiafiltration (HDF) and Online Hemodiafiltration (OLHDF). In the HDF the convection is combined with the diffusion. The OLHD add to the HDF the benefit of producing a large amount of biocompatible intravenous (IV) fluid at a cost effective level ready for IV administration as a substitution replacement fluid. There are several special requirements needed for the three convective therapies. Dialysis membrane that is highly permeable to fluid as well solutes is primary needed, In addition to other several elements. In this presentation I will review the benefit of the hemodiafiltration and the basic requirement for a safe implementation of an effective OLHDF practice.

Learning objectives for the abstract: At the end of this presentation the participant will be able to realize

- 1) The advantage of the hemodiafiltration.
- 2) The risks accompany with the OLHDF
- 3) The requirements for safe practice of the OLHDF.

References:

- Review of HD for nurses and Dialysis personnel Judith z. Kallenbach et al 7th ed 2005.
- AAMI Dialysis Edition 2008
- Handbook of Dialysis 4th Ed J T. Daugirdas et al. 2007
- Canaud B, et al Mortality risk for patients receiving Hemodiafiltration versus Hemodialysis: European results from DOPPS. Kidney Int 2006a;;2087-2093.
- Vincenzo Panichi, et al 2008: Chronic Inflammation and Mortality in Hemodialysis: Effect of Different Renal Replacement Therapies. Results from the RISCVID study <http://www.medscape.com/viewarticle/578593>.
- Ahrenholz P, et al 2008 Online Hemodiafiltration Versus Acetate -Free Biofiltration: A Prospective Study Artificial Organs V 26; issue 2: 169-180

QUESTIONS

I) Which of the following statement are potential benefits of the Online HDF?

- a) Decrease of morbidity
- b) Decrease of intra-dialectic symptoms
- c) Decrease of infection
- d) Better middle molecular toxin removal
- e) Better preservation of residual renal function

Options for answer

- 1) a, b & d
- 2) a, b, c & d
- 3) a, b, d, & e
- 4) All the above.

Correct answer is # 3

II) Which of the following items are mandatory requirement for Online Hemodiafiltration procedure?

- a) Ultrapure Dialysis Water
- b) High Dialysate flow
- c) High blood flow
- d) Big size needle
- e) Cellulose membrane.

Options for answer

- 1) a, b & d
- 2) a, b, c & d
- 3) a, c, d, & e
- 4) All the above.

The correct answer is # 2

Abstract: Challenge to Dialyze in Critical Care Units

The development of Acute Kidney Injuries (AKI) increase the mortality rate associated with any primary disease. AKI developed in 5% of all hospitalized patients and from 10- 30% of critical care patients. Approximately 20-60% of hospitalized patients who developed AKI required dialysis support.

Dialyzing in acute setting represent one of the most complicated and demanding domain in nursing profession. The acute care setting can present patients of any age group, from any background needing any type of renal replacement /extracorporeal modalities at any time. (Hemodialysis (HD), Hemofiltration, Hemodiafiltration Continuous Renal replacement therapy, Hemoperfusion, plasma exchange....)

The challenging issues facing the nephrology nurse in an acute setting are numerous and contradictable. As a part of a multidisciplinary team; the acute nephrology nurse has to “fit in” while “standing out” in order to provide her/his unique and important service in the most effective way. She/he needs to constantly teach while she is constantly learning.

The acute nephrology nurse must integrate a basic understanding of both acute and chronic kidney disease and possess the theoretical, practical, technical and mechanical skills and being flexible while maximizing the application of her/his critical thinking skills.

Learning objectives: At the end of this presentation the participant will be able to;

1. Delineate the HD nurse role when dialyzing in an acute setting.
2. Identify the main challenges that HD nurse encounter when dialyzing in acute setting
3. Outline some recommendation for safely dialyzing in an acute setting.

References;

1. Helen F. Williams et al. Program management in the Acute care setting Core Curriculum for Nephrology Nursing 5th ed. 2008
2. C Counts et al ; Core Curriculum for Nephrology Nursing , 5th ed. 2008
3. Jina L. Bogle et al. Hemodialysis in the Acute Care Setting Core Curriculum for Nephrology Nursing 5th ed. 2008
4. Maria Luongo et al. Peritoneal Dialysis in the Acute Care Setting Core Curriculum for Nephrology Nursing 5th ed. 2008
5. Maureen Craig; SLEDD & CRRT. Core Curriculum for Nephrology Nursing 5th ed. 2008
6. Phillip Ramos et al. Acute hemodialysis prescription www.uptodate.com accessed 1/9/2011.

Abstract : Disinfecting HD Machines

Disinfection of HD machines between successive patients' shifts remains contradictory among the dialysis centers in world. We found this practice is mandatory in most of the European countries, we found that CDC do not recommended it and most dialysis centers in USA look to it as "a loss of time". In other hand disinfection of hemodialysis machines at the end of each days it is well recommended practice in the literatures. It is an important element in controlling the contamination of the dialysate system.

Maintaining low bacterial counts in the dialysate should focus on four maneuvers that have to be well observed to prevent bacterimia, and pyrogenics reaction due to contaminated dialysate:

- 1) The use of an adequate, approved disinfectant agent/procedure that destroys bacteria and bacteria's spores if possible.
- 2) The avoidance of the development of organic and inorganic precipitation on the hydraulic system of the hemodialysis machine in which bacteria build its nestle and generate biofilm where it can multiply freely.
- 3) The prevention of long stagnation which enhance the bacteria duplication and biofilm development.
- 4) The availability of a well maintained water system.

These goals are closely connected and most of them depend on the protocol used to disinfect the hemodialysis equipment (machine and water system) and on the type of the chemical used to disinfect and clean these equipments.

On this presentation I will present an overview of the agents used for the HD machines disinfection, the advantage and disadvantage of each agent and provide some recommendations based on our experiences and on the literatures review.

References:

- 1) Ames RG, and Stratton JW. Effect of Chlorine Dioxide water disinfection on hematologic and serum parameters of renal dialysis patients. Arch.Environ.Health 42:280-285, 1987
- 2) AAMI STANDARDS AND RECOMMENDED PRACTICE 2003 EDITION
- 3) Ward DM. Chloramine Removal from Water used in Hemodialysis. Adv. Renal Replacement Ther.3:337-347,1996
- 4) Klein E ET AL Microbial and Endotoxin Contamination in water and dialysate in the central United States. Artif.Organs 14:85-94, 1990
- 5) Centers for Disease Control [WWW.CDC](http://www.CDC).

Hemodialysis Water Treatment System.

Abstract :

Hemodialysis Water system (HDWTS) is an integral part of the hemodialysis facilities. They are crucial to the safe and effective hemodialysis procedure. It has direct impact on the hemodialysis well being and on the patients morbidity and mortality. There are two main techniques used for water treatment in hemodialysis facilities:

- a) The Deionizer (DI) system and**
- b) the Reverse Osmosis (RO) system.**

Both systems required additional supporting component from the pretreatment stage to the main RO or Deionizer then from the main water system to the hemodialysis machines that's include softener, carbon filter the RO membrane, the DI, the Ultra-Violet (UV) light, the ultra pure filter, the reservoir, and the piping system. Each component should meet special requirement to ensure safe operation and good water qualities. In this presentation I will present an overview of the recommended standards.

Learning objectives for the abstract: At the end of this presentation the participant will be able to understand:

- 1) The available HD WTS.**
- 2) The principle of the HD WTS.**
- 3) The components of HD WTS.**
- 4) The requirements for each component of the HDWS**

References:

- 1) AAMI STANDARDS AND RECOMMENDED PRACTICE 2003 EDITION**
- 2) OUT BREAK OF GRAM Negative Bacterial Blood stream Infection Traced to Probable contamination of Hemodialysis Machines IN Canada USA (1995-1997)**
- 3) Centers for Disease Control [WWW.CDC.](http://www.cdc.gov)**
- 4) Ward DM. Chloramine Removal from Water used in Hemodialysis. Adv. Renal Replacement Ther.3:337-347,1996**
- 5) Klein E ET AL Microbial and Endotoxin Contamination in water and dialysate in the central United States. Artif.Organs 14:85-94, 1990**
- 6) Andrysiak Ph, Design Requiremnets for a Water Distribution System in a Hemodialysis Center Dialysis &Transplant 10:31, 2002**

Abstract : Monitoring Hemodialysis Water Quality.

Water treatment is an integral part of the hemodialysis prescription because of the large volume of water the hemodialysis patient's blood is exposed to during each hemodialysis session. Monitoring the water for impurities is the responsibility of a multidisciplinary team that includes doctor, nurse, biomedical engineer, and utilities and maintenance personnel. Clinical staff play an important role in the on-going monitoring and evaluation of the tests that are carried out to ensure safe, high quality water standard is maintained. In this presentation I will review; why we have to monitor the hemodialysis water qualities? who should monitor the hemodialysis water treatment? What elements we have to monitor? And how we can ensure adequate monitoring? to guaranty safe water quality for the hemodialysis facility.

References:

- 1) AAMI Standards DIALYSIS EDITION 2008 ISBN 1-57020-315-6**
- 2) R A Ward et al; Maintaining Water quality for Hemodialysis; 2010 Up-To-Date www.uptodate.co Accessed 10 April 2011.**
- 3) R A Ward et al; Water Purification system in Hemodialysis; 2011UpToDate www.uptodate.co Accessed 10 April 2011. R A Ward et al; Maintaining Water quality for Hemodialysis; 2011 UpToDate www.uptodate.co Accessed 10 April 2011.**
- 4) R A Ward et al; Ultrapure Dialysate ; 2011 UpToDate www.uptodate.co Accessed 2 April 2011.**
- 5) Northwest Renal Network; Monitoring Your Dialysis Water Treatment**

System Published June 2005 www.nwrenalnetwork.org

- 6) The Cari Guidelines-Caring for Australians with Renal Impairment; Water Quality for Hemodialysis; Published, Oct. 2005
<http://www.cari.org.au/guidelines.php>
- 7) Centers for Disease Control and Prevention , CDC; Water Use in Hemodialysis www.cdc.gov/healthwater/other/medical/hemodialysis. Accessed on 6 Nov. 2010.
- 8) European best practice guidelines on hemodialysis, www.ebp.com

Clinical Supervision (CS) has been a highlighted item on the nursing agenda since early 1980. Clinical supervision in midwifery is well established; it is a UKCC statutory requirement for all practicing midwives since 1993. The nurse's understanding of supervision was colored by misinterpretations of the term, and it was often used interchangeably with managerial supervision (Platt-Koch 1986, cited by Fulton and Oliver 2001). Ford and Jones (1987) point out that there are many lessons learned from history and the shared experiences of CS in social work practice where the emphasis has moved from administrative towards an educative and supportive framework.

An empirical review of the literature reveals that there are many definitions of CS. All agree that it is a formal process of support and learning that involves discussion and reflection with colleagues in a safe environment with the purpose of developing competence taking responsibility for one's own practice and ensuring quality patient services (Smith G. 2000). The Department of Health (DOH, 1993) defines the Clinical supervision as: "A formal process of professional support and learning which enables individual practitioners to develop knowledge and competence." Fyffe et al. (1998) maintains that the philosophy of CS is based on the relationship between personal/professional development and clinical practice, with an emphasis on enabling practitioners to reflect on practice. Cottrell (2000) acknowledges the continuity feature of CS by stressing that "It is an ongoing activity of the qualified nurse ... and an ongoing commitment that will extend throughout the career of the practitioner".

Learning objectives: At the end of this presentation the participant will be able to:

- a. Understand the Clinical Supervision (CS).
- b. Identify the benefit of CS.
- c. Recognize the aim of CS.
- d. Relate the CS to the concept of learning.

References:

1. **Ashworth**, P. & Morrison, P. (1991) Problems of competence-based nurse education. *Nurse Education Today* 11,256-260
2. **American** Nurses Association, (1976). Code for nurses with interpretive statements. Kanas City, MO: Author.
3. **Barber**, P. & Norman, L (1987) Skills in supervision. *Nursing Times* 83; 83(2), 3-4
4. **Barker** P (1992). Psychiatric Nursing. In: Butterworth T and Faugier J (Eds). *Clinical Supervision and Mentorship in Nursing* p 65-79 Chapman & Hall.
5. **Benner** P. (1984) From Novice to Expert. Excellence and power in Clinical Nursing. California Addison-Wesley. USA. Bodley, D.E. (1992) Clinical supervision in psychiatric nursing: using the process record. *Nursing Education Today* 12(2), 148-155.
6. **Bond** R and Holland S (1997). *Skills of Clinical Supervision for Nurses*. Buckingham, Open University Press.
7. **Borrill**, C.S. et al. (1996) mental health of the workforce of NHS Trusts-Phase 1 final report Institute