

Organizational Aspects of CRRT  
Programs: Development and  
Implementation-  
Staffing Considerations

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# Options for Acute Renal Failure Treatment

- PD: Peritoneal dialysis
- IHF: Intermittent hemofiltration
- IHD: Intermittent hemodialysis
- CAVH: Continuous arteriovenous hemofiltration
- CVVH: Continuous venovenous hemofiltration
- CAVHD: Continuous arteriovenous hemodialysis
- CVVHD: Continuous venovenous hemodialysis
- CVVHDF: Continuous venovenous hemodiafiltration

# Identify Key Interests for the Program

- Hemofiltration vs hemodialysis
- Ronco type dosing
- Schedule flexibility (SHIFT or Extended Daily therapies)
- Benefits for staff
- Define program objectives

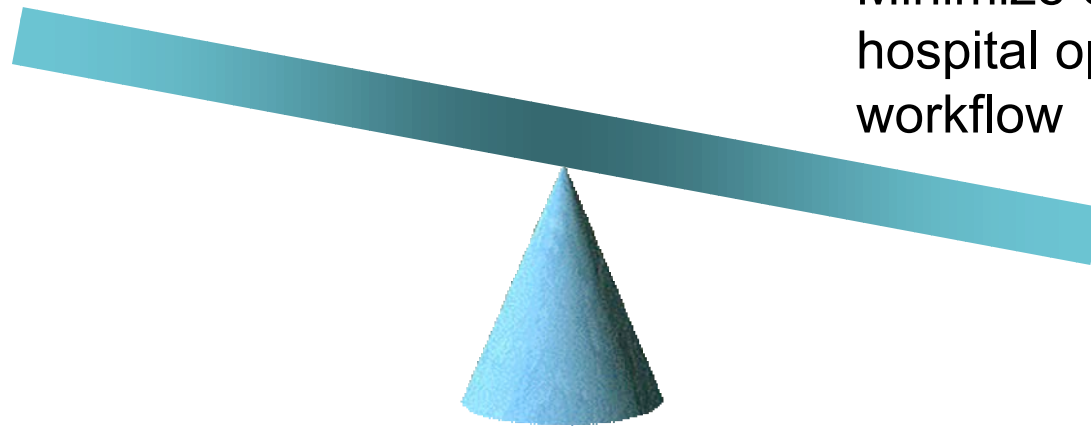
# Finding a balance

## *Improving therapy*

- Advance **standard of care** for patients with acute renal failure

## *Managing resources*

- Do not increase **staffing requirements** given current nursing crisis
- Manage **costs**
- Minimize **complexity** on hospital operations and workflow



# Reasons for Initiating a CRRT Program

- CRRT:
  - Ease of system use to treat ARF patients
  - Enables higher doses of therapy to be delivered, consistent with current clinical literature
  - Allows for 24 hour therapy
  - Hemodynamic stability
  - Volume reduction allowing for fluids & nutrition
  - Cytokine removal

# Key Players in Developing a CRRT Program

- Physicians- nephrologist, intensivist, cardiologist, surgeon, interventional radiologist
- Administration
- Nursing management- ICU &/or Acute Dialysis
- Nursing staff
- Pharmacy
- Dietitian
- Bio-med
- Purchasing
- Legal department

# Clarify Program Operation

- ICU based
- Nephrology based
- Nephrology/ICU partnership
  - Each has advantages- institution driven
- Identify number & type of ICUs (patient population)
- Number of staff for each unit

# Staffing advantages

*(incremental nursing time per patient day)*

Intermittent HD in ICU

*(1:1 dialysis staff, 2 tx/staff day; no change in ICU staffing)*

CRRT – ICU Administered

*(1:1 ICU staff vs. normal 2:1, 24 hrs/tx)*

EDT– Dialysis Administered

*(2 or 3:1 dialysis staff, 10 hrs/tx; no change in ICU staffing)*

EDT – ICU Administered

*(1:1 ICU staff vs. normal 2:1, 10 hrs/tx)*

ICU Staff	Dialysis Staff	Total
--	5 hrs	5 hrs
12 hrs	--	12 hrs
--	2:1 5 hrs 3:1 3.3 hrs	3-5 hrs
5 hrs	--	5 hrs

*Notable nursing requirement increase*

*Nursing-efficient more intensive therapy*



# Getting the Program Started

- Understanding of CRRT theory-physicians & nursing staff
- Policies & procedures
- Orders
- Flowsheets
- Protocols
- Equipment
- Nursing staff training

# Getting started

- Research CRRT
  - Understand why & who will benefit
- Articles
  - Guiliano, K and Pyszniak, E, Critical Care Nurse, February 1998, Vol 18, No. 1, pp 40-51.

# Implementation key points

- ICU is a technical environment- CRRT requires clinical competence
- Careful planning & support
- Anxiety & comfort level
- Preparation- reading, discussion, hands on training, experience

# Implementation key points

- Equipment function
- Patient selection- unstable, sickest patients
- Mastering clinical skills
  - General skills- access, anticoagulation, drawing blood, giving medications
  - Troubleshooting

# Policies and Procedures: Development

- Purpose- safely initiate, maintain and discontinue CRRT
- Scope- who will be affected
- Policy statements- who will be delivering treatment, limitations, special considerations
- Related policies and support material
- Equipment
- Procedures and documentation

# Protocol: Development

- Purpose- provide for standardized care of CRRT patients
- Organization:
  - Overview of the disease process
  - Review of current evidence based clinical practice
  - Step by step treatment plan
- Ongoing process to review and revise

# Benefits of Protocol Use

- Educational resource for staff
- Improves continuity of patient care
- Nurses are able to make decisions and make changes in care based on clear evidence based guidelines
- Enhance nursing efficiency
- Improved nursing job satisfaction

# Protocol Development

- Access care:
  - Blood flow rates
  - Dressing changes
  - Addressing poor flow and clotting
- Anticoagulation:
  - Dosing
  - Lab draws
  - Making adjustments



# Methods of Staff Training

- Select the method best for your institution
  - “Train the world”
  - “Select” ICU
  - “Pilot group”

# Train the World

- Advantages
  - Everyone will “know” how
  - Ability to start in all ICUs
- Disadvantages
  - If no practical experience, lose knowledge & confidence
  - Initial cost of training for little benefit
  - Negative experience

# “Select” ICU

- Advantages
  - Focus on one staff & patient population
  - Identify staff available to cover all shifts
  - Identify key users to act as resources
- Disadvantages
  - Doesn't allow for other populations to be treated (may be biased)

# Example Scheduling

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1	1st Shift							
	C RRT Expert user							
	Backup							
	2nd Shift							
	C RRT Expert user							
	Backup							
Week 2	1st Shift							
	C RRT Expert user							
	Backup							
	2nd Shift							
	C RRT Expert user							
	Backup							
Week 3	1st Shift							
	C RRT Expert user							
	Backup							
	2nd Shift							
	C RRT Expert user							
	Backup							
Week 4	1st Shift							
	C RRT Expert user							
	Backup							
	2nd Shift							
	C RRT Expert user							
	Backup							

# Pilot Group

- Advantages
  - Pilot group can be evenly divided by shift & experience
  - Allows staff member to go where patient needs treatment
- Disadvantages
  - Accounting for staff time when performing CRRT in “other” units

# Train the World

- After program established: refine P/P, identify best practices & expert users
- Need to have all staff trained for CRRT
  - Train in small groups of 20 for supported experience
  - Utilize annual competencies- have “station” for CRRT training (allows you to train a large number of staff), then support staff with preceptors as they use the system

# Training staff

- Focus on what the learner needs to learn
- Concepts & principles:
  - Definitions
  - “if/then” relationships
  - Judgement & decision making
  - Problem solving- role playing
- Demonstration & practice
- Learning increases when learners are asked to discuss experiences or answer direct questions

# Initial Training

- CRRT theory
- Prescription plan & operating parameters
- Use of orders & flowsheet (documentation)
- Equipment training- system components & operation
- Troubleshooting- dealing with alarms, issues
- Bedside experience
  
- Consideration:
  - Training nephrology & ICU staff together or separate



# Training- helpful hints

- Encourage active participation (hands on) for staff
- Involve as many staff as possible in “hands on” (class size: 2-6 staff: 1 trainer)
- Engage staff by asking questions & encouraging their involvement
- Use orders & flowsheets during equipment training
- Provide time for additional follow up training
- If nephrology is involved- use dialysis staff in bedside training

# Patient treatments

- 1 staff in charge of CRRT- others observe
- 1<sup>st</sup> treatment- 1:1 or 2:1 if patient critical
- Encourage other staff to visit during treatment for “bedside training”
- Choose more stable patients to start
- Identify “champions”- utilize as educators & resource

# Follow up Training

- Additional troubleshooting classes as staff has experience & questions
- Weekly meetings- lessons learned
- Updates to staff
- Staff questionnaires

# Establishing your program

- Develop a CRRT committee (multi-disciplinary) to review issues & concerns
- Training class for new staff- theory & equipment
- Allow for "hands-on" by using "training stations"
- Use a preceptor in the clinical area for first treatment experience
- Skills checklist to document training & use
- Follow up class or newsletter to provide additional information
- Annual competencies

# Establishing your program

- Training your nursing staff & assuring competency & confidence is key to program success
- Nursing staff is on the front line 24 hours/day