

Value and Importance of ICU Pharmacists

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What is the history of Pharmacists practicing within Critical Care?

- “It’s always good to remember where you come from and celebrate it. To remember where you come from is part of where you’re going” – Anthony Burgess
- Critical care as a whole is fairly young
 - First NSICU opened in Maryland in the 1930’s
 - Critical care wasn’t recognized as a subspecialty until 1986
- Critical care pharmacy was started in the 1960’s and picked up in the 1970’s
- The Ninth Floor Pharmacy project
 - Started at UCSF in the 1960’s
 - William Smith, Robert (Bob) Miller, Richard DeLeon, and Joseph (Joe) Hirschmann
 - Began this project not in an ICU but in a general surgical unit
 - Started with Medication Reconciliations and then led to more involvement including, but not limited to: ACLS and TPNs
 - Pharmacists then started expanding to other types of units
 - Interprofessional organizations began to recognize Pharmacists
 - SCCM, APhA
 - This information began being implemented in curriculums in Schools of Pharmacy
- Critical Care pharmacy residency standards were first established in 1990
 - First described by Ohio State University in 1981
 - There are now 153 critical care residency programs (last updated: 2019)
 - Many of these programs also have more than 1 resident

Why are Pharmacists needed as members of the ICU multidisciplinary team? How would you justify this in one sentence/phrase?

- Value and safety
- Clinical impact:
 - Reducing mortality

- Reducing cost and waste
- Improving clinical outcomes
- Reduction in medication errors
- The presence of an ICU Pharmacist on multidisciplinary rounds improves patient care with a Number Needed to Treat (NNT) of 6

Why do Pharmacists still need to justify their value?

- “...because as we know, there are known knowns; there are things we know know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don’t know we don’t know.” – Donald Rumsfeld
- Many of us could likely go to our nursing or physician colleagues and they would gladly help support a new Pharmacist position
 - The issue could be with departments (Hospital administrators, Finance department) who don’t completely understand what we do or the services we can provide
- There is also a constant challenge with current metrics to capture Pharmacist’s true impact
 - Difficult to assign a dollar value that truly captures everything
 - Even when a dollar value/cost is assigned in studies, it likely falls short of our true value/impact

Do some of these challenges go back to the historical perception of Pharmacy and Pharmacists?

- It could also be a perception that Pharmacists try to correct mistakes and control costs from a Physician perspective
 - The Sheriff mentality
- Can likely overcome most of this easily through personal interactions
 - More interprofessional colleagues recognize Pharmacists as multi-dimensional
 - Beginning to appreciate Pharmacists as a resource
 - Hopefully these perceptions are antiquated

What was the purpose of the “Position paper on Critical Care Pharmacy Services” (aka the White Paper) and what is a summary of what it says?

- There is an update to this paper that will be published soon!
- At the time, this was the most formal attempt to capture the scope of our practice and the services that Critical Care Pharmacists provide
 - 4 pillars were created to formalize the mission of Critical Care Pharmacists
 - Clinical
 - Academic/Education
 - Research
 - Administration
 - Then created a framework to describe skills/services as being:
 - Fundamental
 - Prospective medication evaluation
 - Communication
 - Documentation
 - Drug therapy education
 - Collaboration with other disciplines for JCAHO visits
 - Hospital committee involvement
 - Desirable
 - Optimal
 - Facilitating discussion and informed decision around medication treatment with patients and their families
 - Teaching and involvement with ACLS
 - Pharmacoeconomic evaluations
 - Research, writing grants, peer-reviewed literature publication
 - Stressed spending dedicated time in the ICU with fewer commitments outside of the unit
 - The material is relevant and applies to all Critical Care Pharmacists, regardless of the type of hospital you work in
- Need to find a balance and focus on the things that highlight your strengths
 - There is no way you can do 100% of these things 100% of the time
- This document is not meant to stress everyone out about what is or is not happening
 - The purpose is to provide structure and framework to the Critical Care Pharmacist position

The position paper was published in 2000, how relevant are most of these recommendations?

- People would be surprised at how relevant most of these recommendations still are
- What was optimal in 2000, remains optimal today
- If you're interested in Critical Care Pharmacy or early in your career, this paper will still provide a wealth of information
- The services that are identified as fundamental are still key
 - Need to maintain softer language of “fundamental” versus something like “required”
- Agree that all recommendations should at least be attempted to be implemented
- Implementation of the suggestions remains a substantial challenge for all of us
 - None of the recommendations are wrong however routine implementation may be challenging and looking at this guidance document can be intimidating

How should your time be divided within each of the pillars? Is it an even split? Or does it depend on your practice site?

- Critical care pharmacists have to be multidimensional
 - Helps Critical Care Pharmacists to adapt and justify worth
- Your specific practice site and your specific role within this site will be the biggest determinant in how your time is spent
 - Likely won't be an even 25/25/25/25 split
- Intertwining the other pillars into the Direct Patient Care pillar is what we should be trying to do
 - Because patient care drives everything that Critical Care Pharmacists do
 - Gives us a wealth of teaching/research
- No matter how you look at it, everything should come together with the ultimate focus on patients

How can Critical Care Pharmacists avoid being seen as the Sheriff?

- There is no easy or right answer
- It all comes down to approach
 - Be collegial and encouraging

- One bad or poor interaction can leave lasting negative impressions on the interprofessional team members
 - Explain why you are having that conversation
 - Make sure they understand why
- Larger issues may need a Physician Champion to help institute real change
 - Collaborative meetings make some of those other interactions much better
- Remember the phrase “Tomorrow is another day”
 - Lower-hanging interventions can wait for another day
 - Try to focus on bigger things/tasks to tackle

What are some examples in the literature of Critical Care Pharmacists demonstrating value?

- There is more than people realize
 - Some examples: (but there are many, many more):
 - Improvements in thromboembolic and infarction related events
 - Both clinical and economic
 - Reduction of drug-drug interactions and ADE prevention
 - Improvement in infectious disease-related economic and clinical outcomes specifically related to morbidity, mortality, and cost
 - Improvements in protocol-driven outcomes:
 - Analagosedation and time on the ventilator
 - Glucose control
 - Anticoagulation
 - HTN crisis management
 - Resolving shock management
 - Disease prevention (SUP and VAP)
 - Culture follow-up in the ED
 - Code stroke
 - Code sepsis
 - Code blue
 - Trauma
 - RSI

- The literature suggests when Pharmacists are involved things get better
- Create a folder and save these studies, because it creates almost a manifesto of why Pharmacists are needed on multidisciplinary teams within the hospital and ICU

How do we continue creating high-quality research studies demonstrating the value of Pharmacists?

- A non-all encompassing list of Pharmacists who contributed so much to the profession of Clinical Pharmacy:
 - Rob MacLaren, Ishaq Lat, Bill Dager, Gretchen Brophy, Brian Erstad
- More recent examples include: Drayton Hammon, Megan Rech, and Alex Flannery
 - Their paper regarding a scoping review of interventions in the ICU and ED is a framework for what Pharmacists can provide
 - There is more to come from them so keep your eyes out
 - Specifically focusing on cost avoidance
- Cost avoidance is key
 - Crucial to justify why we are needed
- Also keep evaluating areas where Pharmacists aren't and are there deficits there?
 - Difficult to evaluate prospectively
- Capture impact on driving therapy once a diagnosis is confirmed
 - Next step to Pharmacist provider status in the ICU

Where do you see Clinical Pharmacy going in the next 5-10 years?

- Growth, substantial growth!
- Just beginning to tap the potential of Critical Care Pharmacists
 - Research
 - Evolve and optimize patient care
 - Collaboration
- Our presence
 - Pharmacists are more appreciated in interprofessional organizations (e.g. SCCM)
 - It is critical that Pharmacists are present on ICU teams
 - Provider status? Driving therapies once diagnoses are established
 - Developing a critical care pharmacotherapeutic stewardship

- “Roles and responsibilities will expand to include ensuring the accuracy and applicability of clinical economic and pharmacogenetic drug information. The phrase Clinical Pharmacist will be replaced by ICU Pharmacotherapy Knowledge Manager.” – Joe Dasta
 - This may help with reimbursement
- Genomics
 - This may help Critical Care Pharmacists evolve
 - May be doing patient-specific pharmacotherapy and that is where they would need Pharmacists to be a steward to these likely complex approaches

What are some tips/tricks for Pharmacists to demonstrate their value as a member of the ICU multidisciplinary team?

- There is no single right answer
- Make sure you have a presence in the ICU
 - If you’re willing to invest time in the operations of the ICU people will notice and begin to appreciate you
- Go beyond the more basic or fundamental components
 - Incorporate desirable or optimal components
- BE PRESENT!
 - Work up patients in the unit
 - Pre-round at the patient’s bedside
 - Ask interprofessional members if there’s anything you can do to help
- Be a resource
- Develop a systematic approach to drug information questions
- Provide literature behind suggestions
- Don’t be afraid to admit that you don’t know something
 - No one knows everything
 - Humility will keep you level in the ICU
- Find ways to be involved with interprofessional education series
- Be involved with ICU or hospital committees
- Research and publications
 - Display an additional layer of expertise
 - Familiarity with landmark ICU studies
- Remember that most won’t be able to implement all of these components at once!