Modifiable Risk Factors for PD Outcomes: Center Effect

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Why Might Size Unit Matter?

Ability to:
★ Individualize Rx
★ Problem solve
★ CQI
★ Improve knowledge base
★ Nursing / MD experience

Center Size and Risk for Technique Failure
PD Program Size Operational Efficiency and Retention

“U shaped curve for program outcomes”

Layering Heat Map Data Findings to Develop Action Plans for Intervention:

Program sizes:<10, 10-30,>30

Peritoneal Dialysis Center Characteristics: A Modifiable Risk Factor to Improve Peritoneal Dialysis Outcomes

- Small programs have higher technique failure rate
  - Program sizes: 6-12,13-24,>24
  - Program sizes: 15-25: <20 patients
  - Program sizes: <10, 10-30,>30
  - Program sizes:<25, >25
  - Centers adding <16 patients /yr. (lowest >48 new patients/yr.)**

* death, mortality transfer, death censored


**Conceptual Model for PD Services Based on Program Census**

- > 50 patients: comprehensive services
- 10-25 pts.: medium level services
- <10 pts.: fewest services
- 25-50 patients: most services

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**Small Program (<10 Patients)**

- At risk to fail
- Patient training at a larger alternate facility, if close
  - Greater staff efficiency, and more consistent training processes
- Assess viability semi-annually
- Action plan to grow
- Staff could share on-call duties with other regional small programs (e.g. consolidation)
- Staff needs continued support and education opportunities because their exposure to patients is limited

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**A Systematic Review of the Impact of Center Volume in Dialysis**

With respect to PD, center volume has an **effect on technique survival only**. There was no effect on mortality risk or patient survival, while the evidence for peritonitis was positive. A systematic review of the impact of center volume in dialysis is inconclusive due to a limited number of studies.

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Patient-related and Center-related Factors Influencing Technique Survival of Peritoneal Dialysis in The Netherlands

• Modifiable center-level factors
  – Clinical team-center size
  – Patient education
  – PD practice penetration (%)
  – Processes and procedures: prescriptions, catheters, infection
  – Trainings (#/quarter)/nurse clinical competence
  – Hospitalization rates
  – Rounding Nephrologist: PD clinical competence
  – Medical Director: Roles and responsibilities

How Should We Think About Modifiable Risk Factors?

Program size and the number of patient trainings is critical to quality care
A nurse's clinical competence is likely linked to the number of trainings and their clinical expertise
Causes of PD Dropout: Consider Impact of Center Size

Multiple factors can impact results for program dropout as a result of center size

Center Effects and Peritoneal Dialysis Peritonitis Outcomes: Peritonitis-treatment response

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR (95% CI)</th>
<th>P</th>
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<tbody>
<tr>
<td>Center-level characteristics</td>
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<td>PD proportion</td>
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<tr>
<td>&lt;18%</td>
<td>1.03 (0.90-1.17)</td>
<td>0.7</td>
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<tr>
<td>18-29%</td>
<td>1.00 (reference)</td>
<td></td>
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<tr>
<td>&gt;29%</td>
<td>1.21 (1.04-1.40)*</td>
<td>0.01</td>
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</tbody>
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* Catheter removal: <18%: 1.23, 18-29%: 1.0, >29%: 0.78 p=.03

Center Characteristics Associated with the Risk of Peritonitis in Peritoneal Dialysis: a hierarchical modelling approach based on the data of the French Language Peritoneal Dialysis Registry

Program size can impact patient education and Home visit ability
Predictors of Drop out from PD Program
Who is at risk??

- One in 5 transfer within 90 days of start

What Should the First 90 Days Look Like?

Start with the end in mind!!

First 90 Days...

What should the first 90 days look like?
Patient Safety: Program Size Matters…

- Do you effectively wash or sanitize your hands between patients 100% of the time?
- Do you perform Home visits in a timely fashion?
- Do you teach, engage, and partner with patients/families to optimize outcomes?
- Do you follow all infection control practices with your patients and their families in efforts to keep them safe?
- Do you let colleagues know when you observe them doing something that could endanger patients and ask them to do the same if they observe you exhibiting unsafe practices?
- In the unit we discuss ways to prevent complications from happening again?
- Do you track complication rates and network with other centers (SME-BDP)?

Reducing Hospitalizations/ Patient Volume: PD

- Increase training days/retraining on aseptic technique
- Use prophylactic antibiotics at the CES
- Require optimal PD catheter placement
- Leverage pre-procedural prophylaxis
- Use prophylaxis to prevent fungal infections
- Utilize bridge antibiotics within 2 hours of symptoms

Networking Based on Experienced Centers of Excellence

- Magnet training center
- Hub and spook: Quality Monitoring
- Collaborative Quarterly Quality Meeting
If You Are a Small Program, What Should You Do?

- Grow the program or redesign (hub and spoke model)
- Network with other centers: clinical competence/mentoring
- Think prevention
- Monitor metrics: patient losses, PTN rates, hospitalization, patient safety

......Thank you