Surviving Peritoneal Dialysis

The Journey from Novice to Expert

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Objectives
Peritoneal Dialysis Nursing

By the end of this session, the learner will be able to

• Differentiate a novice from an expert based on Benner’s classification of nurses
• Describe survival skills for a novice
• Discuss the development of expert skills based on knowledge & experiential learning


http://www.ajc.com/multimedia/dynamic/01139/2012-poster-min_1139293g.jpg
The success of a PD programme is dependent upon specialized nurses with appropriate skills in assessing and training patients for PD, monitoring of treatment and with sufficient resources to provide continued care in the community.

Dr Graham Woodrow & Prof Simon Davies

Peritoneal Dialysis in CKD

http://www.renal.org/Clinical/GuidelinesSection/PeritonealDialysis.aspx
The PD nurse is thus the key individual in the PD unit, & most activities involve & revolve around the nursing staff.

It is therefore not surprising that most nephrologists pay considerable attention to the selection of PD nurses, particularly in long-term PD programs such as continuous ambulatory peritoneal dialysis (CAPD).

The appointment of a PD nurse depends on finding an individual with the right attributes, broad general experience, & appropriate training.
Five Stages of Nurse Development from Patricia Benner’s Model of Novice to Expert (2001)
Educator’s Resource: Integration of Best Practice Guidelines

Registered Nurses’ Association of Ontario (2005)
Novice

- No experience for situations expected to perform
- Rigid adherence to rules or plans
- Little situational perception
- Unable to use discretionary judgement
- Focuses on pieces rather than the whole

http://scrubsmag.com/10-rules-for-nursing-students
The person who is afraid to ask questions is afraid of learning!

*Old proverb*
Back in time: Where does the fluid go?
Advanced Beginner

- Guidelines for action based on attributes or aspects
- Situational perception still limited
- Demonstrate marginally acceptable performance
- Notices change but cannot cope with it
- All attributes and aspects treated separately & given equal importance
- Unable to see entirety of new situation

Competent

• Aware of all the relevant aspects of a situation
• Sees actions at least partly in terms of long-term goals
• Conscious of deliberate planning
• Can set priorities
• Critical thinking skills are developing

http://www.jaxhealth.com/img/stock/NurseMentor_300px.jpg
Proficient

• Sees situations holistically rather than in terms of aspects
• Sees what is most important in a situation
• Perceives deviations from the normal pattern
• Decision making less laboured
• Uses guidelines and maxims for guidance
Expert

- No longer relies on rules, guidelines or maxims
- Intuitive grasp on situations based on deep tacit understanding
- Analytic approaches used only in novel situations or when problems occur
- Vision of what is possible
Novice
Building on existing foundations
Experiential Learning

- Making meaning from direct experience
- Active engagement in reflecting on experience
- Decision making & problem solving
Experiential Learning

• Eureka moments
  - “light bulb moments”
• Building knowledge
• Developing skills
• Intuitive approaches
Peritoneal dialysis (PD) center is not possible to operate if there is no availability of dedicated PD nurse. Generally, the nurse has to play many roles, including educator, coordinator, and sometimes leader.

As professionals, the PD nurses need to have both theoretical & practical skills.

Foundations

The learner has an understanding of

• Chronic kidney disease (stage V)
• Pharmacology related to patient population
• Impact of chronic illness
Foundations

The learner is

• Open to new learning
• Free to acknowledge learning needs
• Appreciate the learning curve
• Willing to embrace new experiences and build on foundations
And above all ...
Peritoneal Dialysis: Strategies to Maintain Competency for Acute & Extended Care Nurses (J. Farina)

- Basic principles of peritoneal dialysis
- PD assessment and documentation
- Aseptic technique
- Trouble shooting common problems

Nephrology Nursing Journal 35 (3) May-June 2008, p 271-275
Peritoneal Dialysis: Strategies to Maintain Competency for Acute & Extended Care Nurses *(J. Farina)*

**Procedures**

- Peritoneal catheter management
- CAPD
- CCPD
- Collecting samples

*Nephrology Nursing Journal* 35 (3) May-June 2008, p 271-275
PD procedures & the potential for patient success might be more robust if biomedical approaches to PD are more fluid. Fluidity does not mean that PD processes and procedures mutate into a free-for-all procedure where patients and nurses can do as they please.

Safe practice requires some boundaries.


http://1.bp.blogspot.com/_BEzjzFrkL6o/TECgDzezhTI/AAAAAAAAbwE/wYavTo9e_M/s1600/env+fluidity+the+cubes+maze1.png
Survival Knowledge

• **Principles**
  - Fluid removal by osmosis
  - Understanding use of solutions
• **Patient assessment**
• **Aseptic technique**
• **Therapeutic relationships**
Survival Skills

• Procedures
  - Safe demonstration of technical aspects of dialysis

• Problem-solving
  - Demonstrates basic approach to identification and management of problems
As time goes by

- Able to do more than perform
  - Interprets findings of PET
  - Interprets findings of adequacy studies
  - Discusses changes in prescription based on assessment of patient and findings
  - Applies to the individual

http://mymed.jp/disease_img.php?path=y6r/Image/%E3%82%B9%E3%83%A9%E3%82%A4%E3%83%897(1).JPG&mw=270
As time goes by

Follows guidelines for management BUT

• Incorporates experiential learning
  - Thinks beyond the guidelines
  - Reviews options
  - Adapts for the individual
As time goes by

Follows guidelines for management BUT

• Questions practice
• Analyzes recommendations
• Critiques literature
• Acknowledges own learning needs for higher levels
We developed this program for nurses who train patients in peritoneal dialysis. Because nurses have not been professionally trained as teachers, they inadvertently often begin teaching without considering what they specifically want their patients to learn or how they are actually going to teach them.

Judith Bernadini BSN
Mary Bird Nurse
University of Pittsburgh
Center of Instructional Development & Distance Education (CIDDE)
Nurses tend to teach as they were taught, following the model of “seeing one, doing one, teaching one.” We propose an alternative model of patient training that follows principles of learning and focuses on the nurse’s role as teacher.

Judith Bernadini BSN
Mary Bird Nurse
University of Pittsburgh
Center of Instructional Development & Distance Education (CIDDE)
Holistic Learning (Virginia Griffin)

Emotional

- Learning blocks
  - Frustration
  - Fear
  - Guilt
  - Hurt
  - Confusion
  - Anger
Lifelong Learning

Nurses as
• Teachers
• Facilitators
• Counselors
• Coaches
• Fellow Travelers
• Learners

http://www.bing.com/images/search?q=Nursing+Clip+Art&view=detail&id=5C026348DF1104B6489C8DEDD1822AD87FF65F8E&first=91&FORM=IDFRIR
Nurse as teacher

Compliance

• Less experienced
  (< 2 years in PD)
  - “nurse knows best”
  - patient recognition of the nurse’s authority is fundamental to own professional performance

“They do it without argument & they appreciate the effort that as nurses we put in.”

Nurse as teacher

Compliance

- More experienced (> 2 years in PD)
- Sensitized to rigid demands of PD

“But it’s not necessarily what the patient wants. . . .
You know, this is not an easy thing for people to incorporate into their lives ... it’s very difficult, very hard.”

Experiential Learning
Clinical Vignettes
The road to wisdom?

Well, it’s plain and simple to express:
Err and err and err again
but less and less and less and less.

Piet Hein
Foundations

- **Assessment**
  - Fluid balance
  - Assessment (weight/B/P/physical findings)
  - Application of learned guidelines

<table>
<thead>
<tr>
<th>Strength of Solution (%)</th>
<th>Osmolarity (mOsm/L)</th>
<th>Effect (60 min dwell time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>296</td>
<td>Less return</td>
</tr>
<tr>
<td>1.5</td>
<td>346</td>
<td>50 - 150 mL</td>
</tr>
<tr>
<td>2.5</td>
<td>396</td>
<td>100 - 300 mL</td>
</tr>
<tr>
<td>4.25</td>
<td>485</td>
<td>300 - 400 mL</td>
</tr>
</tbody>
</table>
Novice: CAPD bag selection for target weight

<table>
<thead>
<tr>
<th>Weight</th>
<th>Bag Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>If more than 0.5 kg below TW</td>
<td>0.5%</td>
</tr>
<tr>
<td>If +/- 0.5 kg</td>
<td>1.5%</td>
</tr>
<tr>
<td>If 0.6 to 1 kg</td>
<td>2.5%</td>
</tr>
<tr>
<td>If greater than 1 kg</td>
<td>4.25% (or Icodextrin)</td>
</tr>
</tbody>
</table>

Nurses interpret order

- Patient weighs 70 kg
  - Remember, target weight is 72 kg
- B/P is 180/100
- Short of breath
- Peripheral edema

**Doctor's Orders**

CAPD 2 L QID
TW = 72 kg (full)
(taken from clinic 2 months ago)

By scale, use 0.5%
Novice Nurse

- Assesses patient
- Studies guidelines
- Hangs 0.5%
- Later places call to MD that patient has increasing shortness of breath
Proficient Nurse

• **Assesses patient**
  - Determines discrepancy between patient’s condition and bag selection guide
• **Places call to have target weight reassessed**
Expert Nurse

- Assesses patient
- Advises MD about documentation of weight and need to re-assess
- Suggests alternate prescription for weight removal

http://alexwhalley.com/wp-content/uploads/2010/03/think_outside_the_box_brain_cp.jpg
## Assessing response

<table>
<thead>
<tr>
<th>Strength</th>
<th>Volume infused (mL)</th>
<th>Volume drained (mL)</th>
<th>Balance (mL)</th>
<th>Cumulative u/f (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.25%</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5%</td>
<td>2000</td>
<td>2700</td>
<td>-700</td>
<td>-700</td>
</tr>
<tr>
<td>4.25%</td>
<td>2000</td>
<td>2300</td>
<td>-300</td>
<td>-1000</td>
</tr>
<tr>
<td>2.5%</td>
<td>2000</td>
<td>2650</td>
<td>-650</td>
<td>-1650</td>
</tr>
<tr>
<td>4.25%</td>
<td>2000</td>
<td>2350</td>
<td>-350</td>
<td>-2000</td>
</tr>
</tbody>
</table>
Problem Solving

- Patient achieves new target weight
- Changed to 1.5% to maintain weight
Foundations

Problem solving

Approach

- Defining issue
- Using rules and regulations to manage
- Lack of context for situation
Assessing response

<table>
<thead>
<tr>
<th>Time</th>
<th>Strength %</th>
<th>Volume infused (mL)</th>
<th>Volume drained (mL)</th>
<th>Balance (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0600</td>
<td>1.5</td>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>1.5</td>
<td>2000</td>
<td>2200</td>
<td>-200</td>
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<tr>
<td>1800</td>
<td>1.5</td>
<td>2000</td>
<td>2100</td>
<td>-100</td>
</tr>
<tr>
<td>2200</td>
<td>1.5</td>
<td>2000</td>
<td>2250</td>
<td>-250</td>
</tr>
<tr>
<td>0600</td>
<td>1.5</td>
<td>2000</td>
<td>1600</td>
<td>+400</td>
</tr>
</tbody>
</table>
Assessing response

• **Call to MD**
  - Patient not draining
  - Catheter not working

Any other explanation?
Novice Nurse

- Notes decreased drainage
- Repositions patient
- Calls MD for advice
- Remembers common cause of slow drain

http://4.bp.blogspot.com/_bhjF5J7Nwck/TVHirMiqkXI/AAAAAAAAAC4/_ej_jVcLJVo/s1600/nursing+student.jpg
MENTOR
“Don’t ever forget that the reason people don’t drain is most often related to constipation!!”
Expert Nurse

- Reviews records
- Considers reason for decreased drain volume
  - Absorption overnight
  - Incomplete filling
    - Assesses abdomen
    - Checks a.m. weight,
      - compares with p.m.
  - Catheter dysfunction
    - Considers irrigation

http://alexwhalley.com/wp-content/uploads/2010/03/think_outside_the_box_brain_cp.jpg
Foundations

• Problem solving
  - Catheter management
  - Dialysis issues
  - Assess problem
    • Determine if correct approach
    • Trial and error
    • More experience = more options
Clinical Context

- **Patient admitted**
  - CCPD, but not dialyzing at home
  - **CCPD initiated**
    - Low drain alarms
    - Reposition patient
    - Continuing low drain alarms
Novice Nurse

- Looks at manual
- Determines ongoing alarms
- Patient complains not able to sleep
- Turns machine off

http://4.bp.blogspot.com/_bhjF5J7Nwck/TVHirMiqkXI/AAAAAAAAAC4/_ej_jVcLJVo/s1600/nursing+student.jpg
Expert Nurse

- Bypasses one cycle, still poor flows
- Disconnects patient
- Assesses catheter flow
  - Notes resistance with irrigation
- After successful irrigation
  - Manual exchanges x2
Fibrin affecting patency

Flush
- 10 mL volume
- Retry with 30 mL volume
  - In & out irrigation
  - Fibrin plug removed
  - Flow re-established
Foundations: Assessment

- Don’t forget the basics
- Infection
  - Exit site examination
Foundations

Assessment

• Infection
  – Peritonitis
    • Assessment of patient
    • Assessment of fluid returns
"We saved the bag for you.

It looked cloudy... oh, and it was brown coloured."
Saved bag
(overnight dwell)

Drained bag
(2 hour dwell)
Expert Response

Inner voice
Not to be repeated

Outer Action
Clinician & Mentor

1.bp.blogspot.com/.../CALM-CAT-FINAL-amst.jpg
vintageholidaycrafts.com/wp-content/uploads/2..
Vignette: the unexpected

63 year old female

- Admitted for management of calciphylaxis
- Developed pleural effusion
- Pleural tap done
- Patient drained for procedure
- CAPD resumed post procedure
First drain of 1.5 L volume
Approach to patient

• Query perforation of blood vessel
• Physical exam
  • Vital signs stable
  • Abdomen
    • No tenderness
    • No distension
    • No rebound
• Assessment of peritoneal fluid
  • In & out flushes
Subsequent flushes
As time goes by

<table>
<thead>
<tr>
<th>Dreyfus/Benner</th>
<th>Steinaker &amp; Bell</th>
<th>RCOG (UK)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice</strong></td>
<td><strong>Exposure</strong></td>
<td><strong>Observes</strong></td>
</tr>
<tr>
<td>Advanced</td>
<td>Participation</td>
<td>Assists</td>
</tr>
<tr>
<td>Beginner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competent</td>
<td>Identification</td>
<td>Direct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervision</td>
</tr>
<tr>
<td>Proficient</td>
<td>Internalization</td>
<td>Indirect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervision</td>
</tr>
<tr>
<td>Expert</td>
<td>Dissemination</td>
<td>Independent</td>
</tr>
</tbody>
</table>

[http://www.umdnj.edu/idsweb/idst5340/models_skills_acqusition.htm]
As time goes by ...

King's College senior sisters
Elaine Bowes (right) and
Maxine Keddo

The nurses only operate on selected patients who do not have other medical problems.

Ms Bowes says, "If I thought a patient had a problem which I knew nothing about, I would ring the doctors."

A unique aspect of the procedure is the same as the doctors.

Renal revolution
As time goes by

Centre Effect

• Nationwide survey (Netherlands, Huisman, 2002)
  - Clear cut increased risk of PD failure in centres with less than 20 patients

• Hong Kong
  - 11 publicly funded centres
  - Range of patients 79-417
  - Better outcomes given high percentages on PD

Li & Chow, How to have a successful PD program PDI Vol 23, S 2, 2003
As time goes by

Nurses’ experience & peritonitis

• Higher experience
  - associated with progressively increased risk

• Striking negative association
  - between time in practice & peritonitis

Kaplan-Meier survival curves demonstrating the probability of Gram-positive peritonitis-free survival among patients who were trained by nurses with various levels of experience.
Through many years of experience, the PD staff have learned that initial successes can slide unless vigilance is applied to constantly monitor, assess, & act as needed.

The team will continue to ground their interventions using sound principles of chronic disease management, emphasizing respectful partnerships and recognizing the key role that patients must play in maintaining their health.

It takes a team...
Novice to Expert
“To our beginners good courage, to our dear old workers peace, fresh courage too, perseverance: for to persevere at the end is as difficult and yet needs better energy than to begin new work.”

Florence Nightingale