



# Surviving Peritoneal Dialysis

## The Journey from Novice to Expert

*Betty Kelman RN-EC MEd C Neph (C)*

University Health Network: Toronto General Hospital

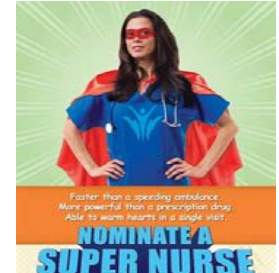
Toronto Ontario Canada





# 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



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**

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

The person who is afraid  
to ask questions is  
afraid of learning!  
*Old proverb*

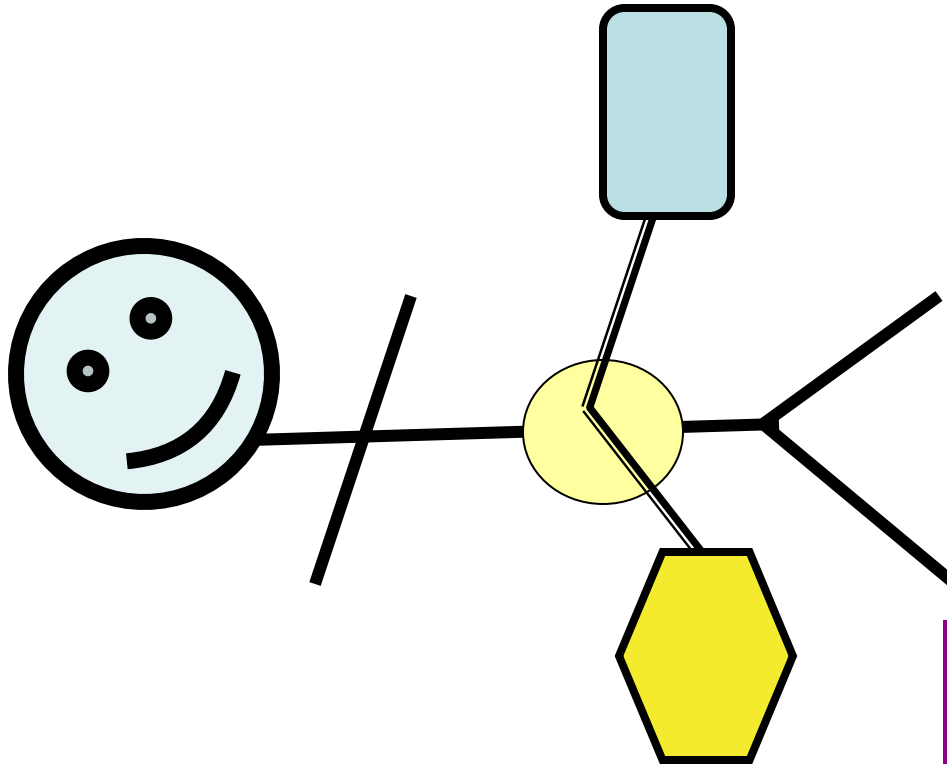


[www.hsl.virginia.edu/.../1951nursementor.jpg](http://www.hsl.virginia.edu/.../1951nursementor.jpg)



Figure 2 — Nurse P.C. Tan, a pioneer and the pillar of the CAPD program.

# 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**



# 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

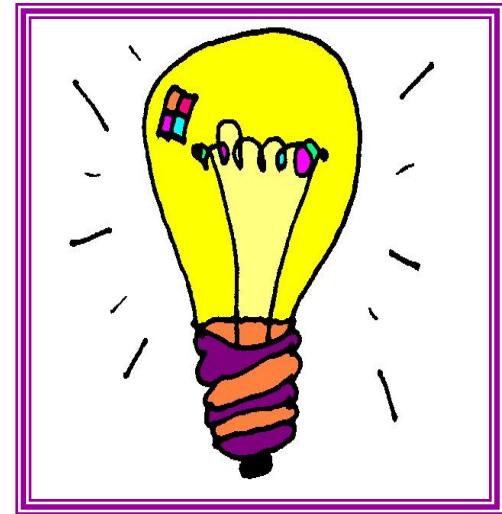
# Experiential Learning



- 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



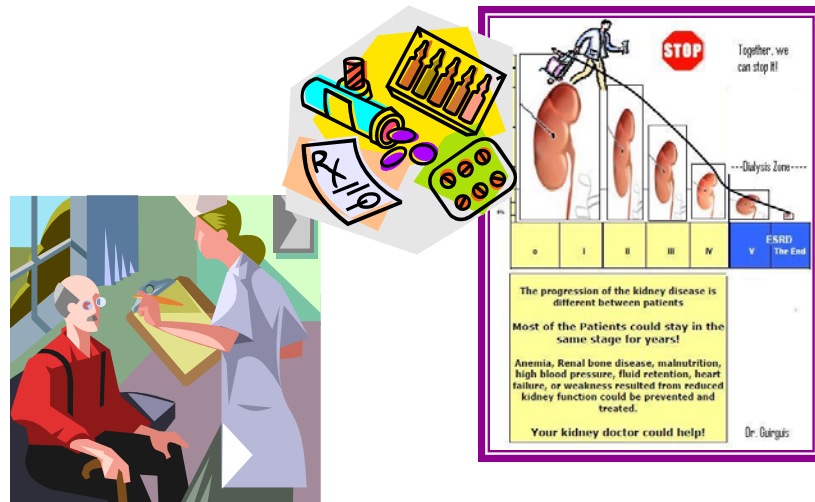
Peritoneal dialysis (PD) center is not possible to operate if there is no availability of dedicated PD nurse. Generally, the nurse has to play many roles, including educator, coordinator, and sometimes leader.

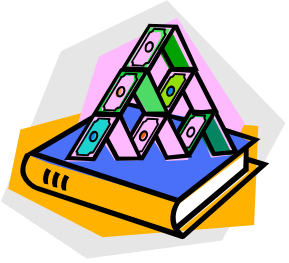
As professionals, the PD nurses need to have both theoretical & practical skills.



# 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*)

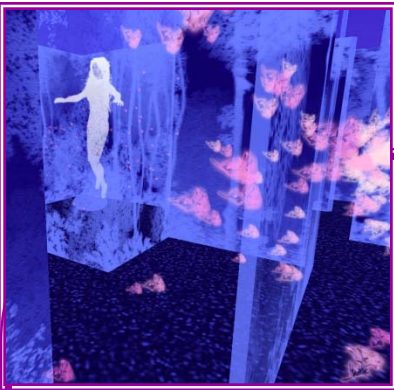
- Basic principles of peritoneal dialysis
- PD assessment and documentation
- Aseptic technique
- Trouble shooting common problems

# Peritoneal Dialysis:

Strategies to Maintain Competency for Acute & Extended Care Nurses (*J.Farina*)

## Procedures

- Peritoneal catheter management
- CAPD
- CCPD
- Collecting samples



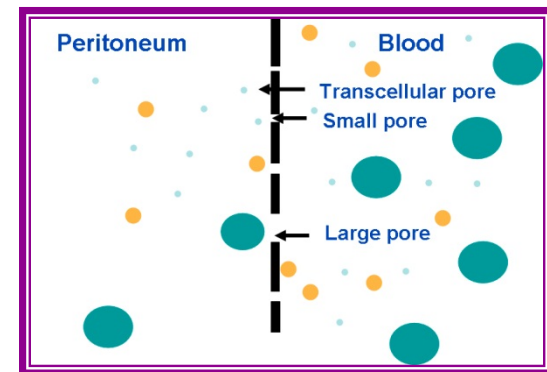
PD procedures & the potential for patient success might be more robust if biomedical approaches to PD are more fluid. Fluidity does not mean that PD processes and procedures mutate into a free-for-all procedure where patients and nurses can do as they please.

**Safe practice requires some boundaries.**

McCarthy, A., Cook, PS., Fairweather, C., Shahan, R., Martin-McDonald, K. (2009) Compliance in peritoneal dialysis: A qualitative study Of renal nurses. Inter Jour of Nursing Practice 15, p 219-226.

# Survival Knowledge

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





# Survival Skills

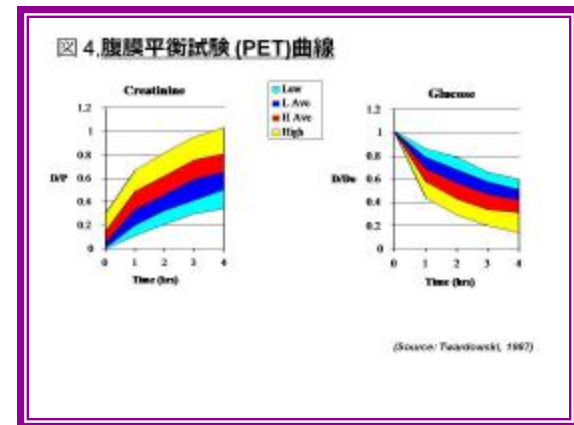
- **Procedures**
  - Safe demonstration of technical aspects of dialysis
- **Problem-solving**
  - Demonstrates basic approach to identification and management of problems





# 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





# As time goes by

Follows guidelines for management BUT

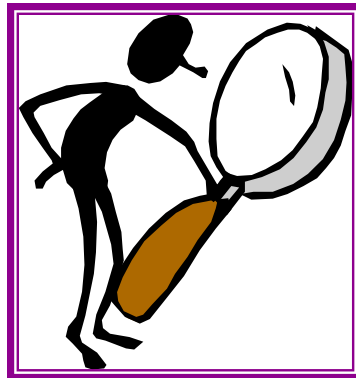
- Incorporates experiential learning
  - Thinks beyond the guidelines
  - Reviews options
  - Adapts for the individual



# As time goes by

Follows guidelines for management BUT

- Questions practice
- Analyzes recommendations
- Critiques literature
- Acknowledges own learning needs for higher levels



**TEACHING NURSES TO TEACH**  
*Peritoneal Dialysis Training*

---

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)



# TEACHING NURSES TO TEACH

## *Peritoneal Dialysis Training*

---

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



# 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."*

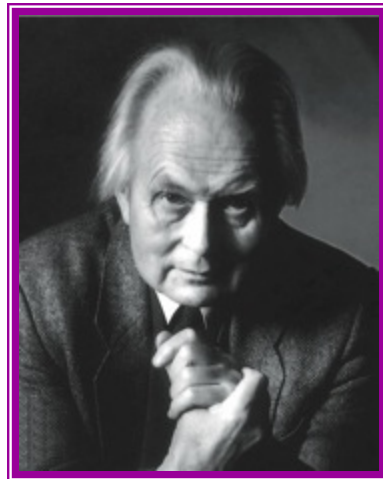


# Experiential Learning Clinical Vignettes

# The road to wisdom?

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

*Piet Hein*



# Foundations

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

Strength of Solution (%)	Osmolarity (mOsm/L)	Effect (60 min dwell time)
0.5	296	Less return
1.5	346	50 - 150 mL
2.5	396	100 - 300 mL
4.25	485	300 - 400 mL



# Novice:

## CAPD bag selection for target weight

Weight	Bag Selection
If more than 0.5 kg below TW	0.5%
If +/- 0.5 kg	1.5%
If 0.6 to 1 kg	2.5%
If greater than 1 kg	4.25% (or Icodextrin)

# 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

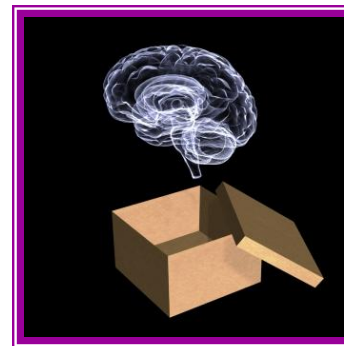
- **Assesses patient**
  - Determines discrepancy between patient's condition and bag selection guide
- Places call to have target weight reassessed






# Expert Nurse

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



# Assessing response

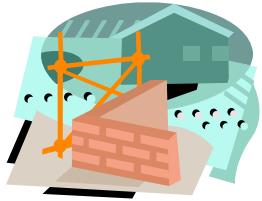
Strength	Volume infused (mL)	Volume drained (mL)	Balance (mL)	Cumulative u/f (mL)
4.25%	2000			
2.5%	2000	2700	-700	-700
4.25%	2000	2300	-300	-1000
2.5%	2000	2650	-650	-1650
4.25%	2000	2350	-350	-2000



# 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

Time	Strength %	Volume infused (mL)	Volume drained (mL)	Balance (mL)
0600	1.5	2000		
1200	1.5	2000	2200	-200
1800	1.5	2000	2100	-100
2200	1.5	2000	2250	-250
0600	1.5	2000	1600	+400



# 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



**Prune juice or enema.**



**Choose wisely.**

ICANHASCHEEZBURGER.COM

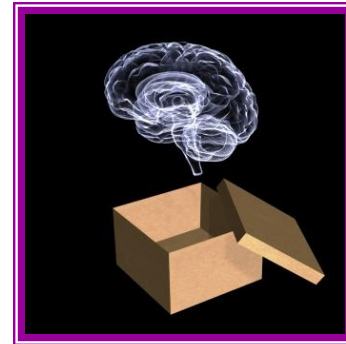
## MENTOR

“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



# 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

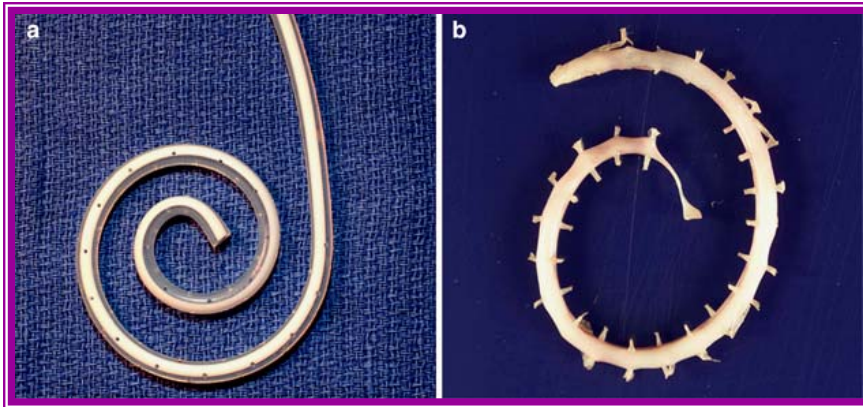


# Expert Nurse

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



# Fibrin affecting patency



[www.nature.com/.../v78/n9/images/ki2010236f1.jpg](http://www.nature.com/.../v78/n9/images/ki2010236f1.jpg)



## 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





# Novice

"We saved the bag for  
you.

It looked cloudy... oh,  
and it was brown  
coloured."



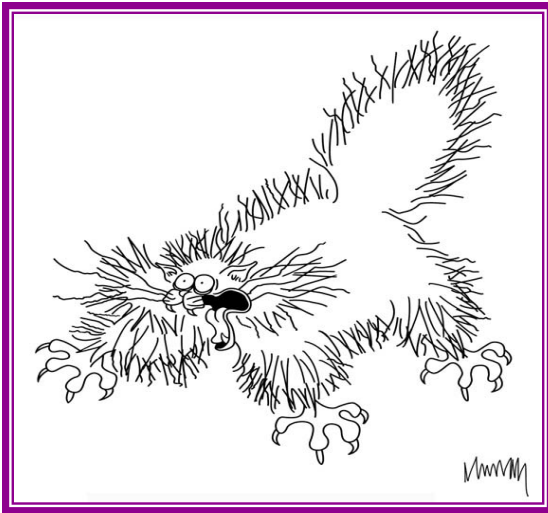


**Saved bag  
(overnight dwell)**



**Drained bag  
(2 hour dwell)**

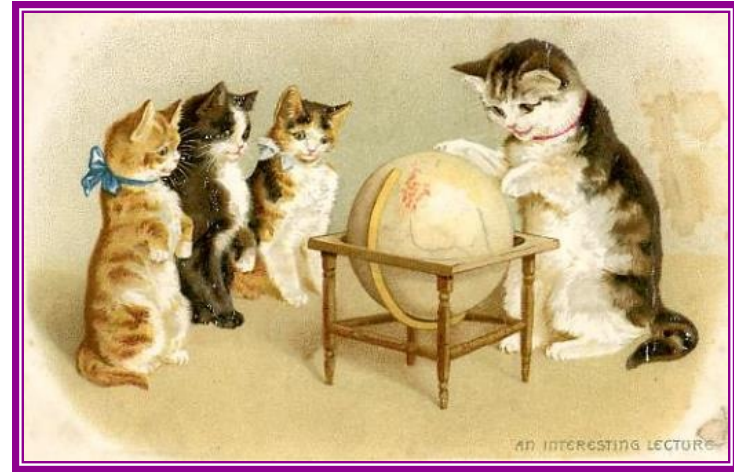
# Expert Response



**Inner voice**

**Not to be repeated**

[1.bp.blogspot.com/.../CALM-CAT-FINAL-amst.jpg](http://1.bp.blogspot.com/.../CALM-CAT-FINAL-amst.jpg)



**Outer Action**

**Clinician & Mentor**

[vintageholidaycrafts.com/wp-content/uploads/2..](http://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



1



2



3

# As time goes by

Dreyfus/Benner	Steinaker & Bell	RCOG (UK)
<b>Novice</b>	<b>Exposure</b>	<b>Observes</b>
Advanced Beginner	Participation	Assists
Competent	Identification	Direct Supervision
Proficient	Internalization	Indirect Supervision
<b>Expert</b>	<b>Dissemination</b>	<b>Independent</b>



# As time goes by ...

and efficacy of each procedure, the same as the doctors.'

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

incision is made through the skin

(right) and  
Maxine Keddo



## Renal revolution

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



# 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



# As time goes by

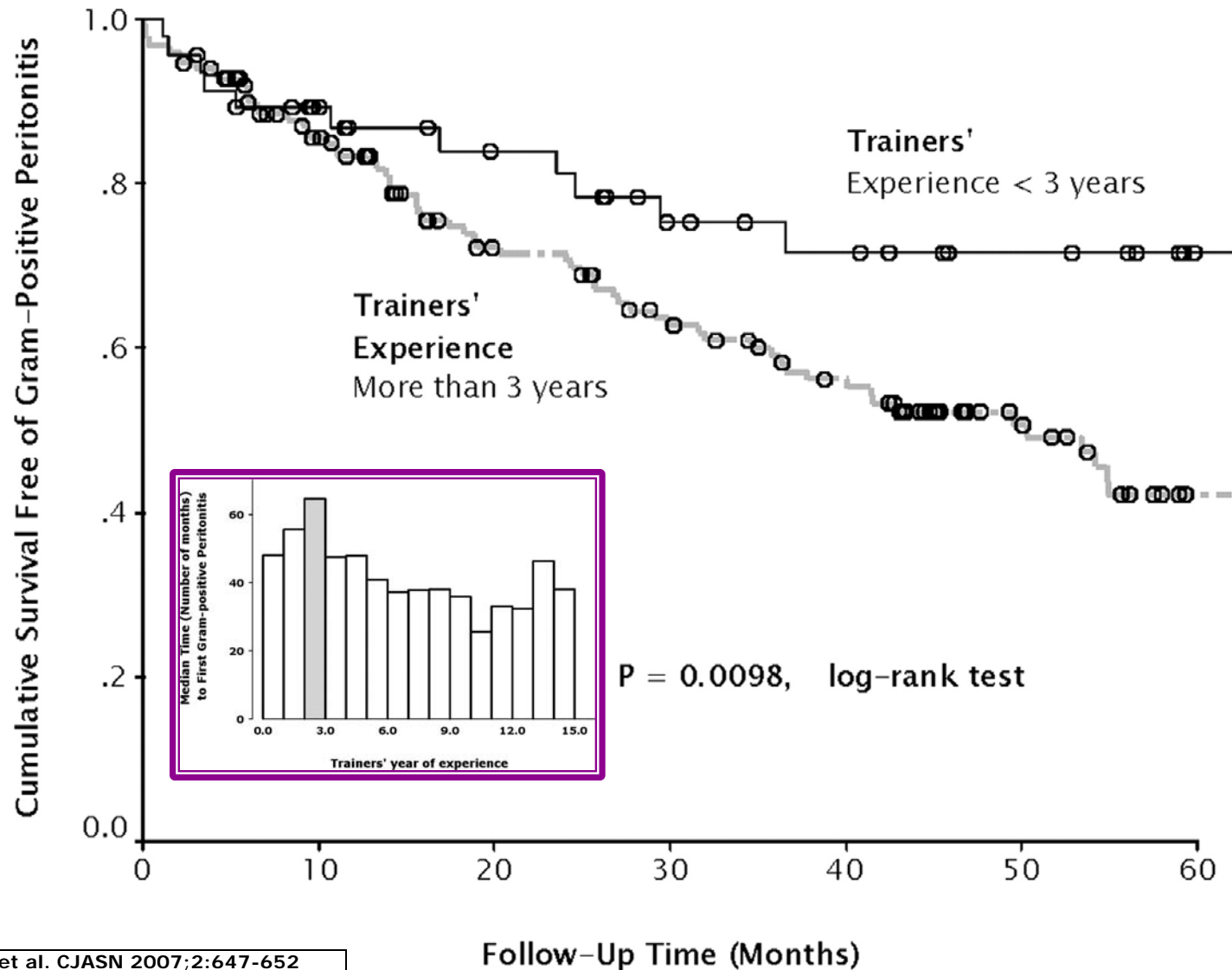
## Nurses' experience & peritonitis

- Higher experience
  - associated with progressively increased risk
- Striking negative association
  - between time in practice & peritonitis

Chow et al (2007) Influence of PD Training Nurses' Experience on Peritonitis Rates, CJASN, 2:647-652,

<http://www.google.ca/imgres?q=passage+of+time&um>

**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.**



Chow K M et al. CJASN 2007;2:647-652

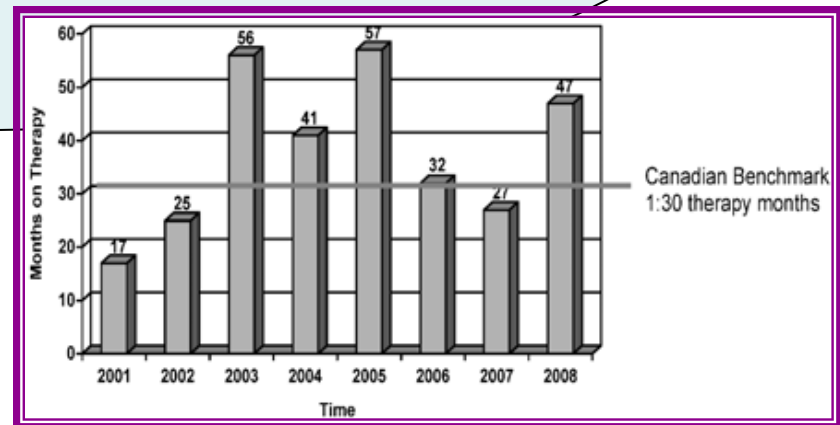
©2007 by American Society of Nephrology

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*

It takes a team..

Novice to Expert

