

Training the PD Patient

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Nurses as teachers:

- Most health professionals have little or no formal background in the principles of education
- The complexity of the task of teaching is often overlooked
- Many assume the skills will develop automatically (*especially MD*)
- Even with the best intentions, the results may be haphazard, inefficient and ineffective

Goals of Home Training

- Prepare the patient for self management of a chronic disease
 - well defined purpose of patient education
 - potential for the highest benefit

Bernardini J, Price V, Figueiredo A. ISPD Guidelines/Recommendations. Peritoneal Dialysis Patient Training, 2006. Perit Dial Int 2006;26(5):625-632

PD Patient Training Guidelines

- ISPD Nurse Liaison Committee developed a video for preparing nurses to teach patients to compliment the published ISPD Guidelines
- Guidelines and handouts available for download
- May be used for individual nurses or for groups of nurses

Preparing teachers

www.npr.org/assets/news/2013/teacher_prep

National Council on Teacher Quality study (NCTQ Teacher Prep Review)

- * $\frac{3}{4}$ of teachers mediocre
 - poor preparation to teach
 - their students had **poorer outcomes**

Teacher quality

The Smartest Kids in the World. Amanda Ripley. Simon and Schuster 2013

- Investigated 3 countries with excellent educational outcomes
 - Finland, S Korea, Poland
 - several years to master subject followed by 1 year teaching with a mentor
 - better teachers are also more satisfied
 - academic freedom to choose what to teach, not how to teach

Becoming a Patient Educator

- Learn the principles of adult education
- Develop training skills
- Find a mentor
- Never be complacent about acquiring new skills and new methods of teaching
 - After becoming experienced, be a mentor for other nurses.

What do we know about outcomes in PD patients related to their training?

New Directions in Peritoneal Dialysis Training

Hall G et al. NNJ 2004;31(2)

- Centers randomly assigned to
 - Enhanced training, 246 patients
 - Standard training, 374 patients
- Enhanced training group had lower peritonitis and exit site infection rates.

Pediatric Peritoneal Dialysis Training: Characteristics and Impact on Peritonitis Rates.

Holloway M. PDI 2001;21

- Evaluated 76 pediatric PD training programs
 - lowest peritonitis rates found in
 - ❖ programs with >15 patients
 - ❖ programs with longer training time focused on theory and technical skills

Influence of Peritoneal Dialysis Nurse's Experience on Peritonitis Rates.

Chow KM et al, CJASN;2:2007

- Retrospective study
- Evaluated nurse trainer's length of PD experience with patient incidence of peritonitis
 - Paradoxically, found that patients trained by nurses with the most experience had the highest rates of peritonitis
 - Speculated that those who have practiced PD for many years may not be as familiar with the substantial changes in our understanding of adult learning and curriculum

Longer training time is associated with decreased peritonitis rates in a large national cohort study: results from the BRAZPD II. Afigueiredo et al. 2013.

(in review)

- 2612 PD patients
- Mean training time 15 hours
- Significantly shorter time to 1st peritonitis when trained <8 hours compared to >8 hours, $p < 0.001$
- Significantly lower peritonitis rates if trained >20 hours (1 q 49 mo) versus trained >20 hours (1 q 37 mo), $p < 0.01$

Who is the learner?

- Patient only
- Patient with a partner
- Partner only
- Parent / Guardian

The Science of the Learner

Ballerini and Paris, KI, Nosogogy: When the learner is a patient with chronic renal failure, 2007, 70, 122-126.

<u>The Learner</u>	PEDAGOGY dependent	ANDRAGOGY independent	NOSOGOGY dependent aiming to independence
<u>Previous experience</u>	of little worth	rich resource for learning	something to modify
<u>Subjects</u>	learn what society expects	learn what they choose to know	learn what renal staff expects and what they need to perform

Visual learners



- fast talkers
- impatient, tend to interrupt

Teaching strategy

- demonstrations and visual materials

White L, Duncan G, Bawmle W. Fundamentals of Basic Nursing. 3^a ed. São Paulo. Cengage Learning; 2012. p 7-10.

Auditory learners



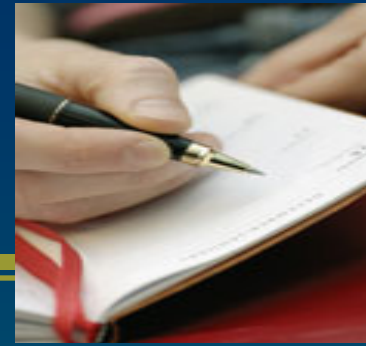
- speak slowly
- linear thinking

Teaching strategy

verbalize written steps

White L, Duncan G, Bawmle W. Fundamentals of Basic Nursing. 3^a ed. São Paulo. Cengage Learning; 2012. p 7-10.

Read / write learners



- prefer information in writing

Teaching strategies:

- *allow to read silently first
- *diagrams, charts and graphs
- *test knowledge with multiple-choice tests.

White L, Duncan G, Bawmle W. Fundamentals of Basic Nursing. 3^a ed. São Paulo. Cengage Learning; 2012. p 7-10.

Obstacles to learning:

- Chronic illness
- Anxiety / cognitive barriers
- Sensory deficits
- Low literacy
- Negative influence of the clinic itself
- Complexity of learning
- Personal characteristics of learner
- Age of learner
- Language barriers
- Others ??

Evaluating each patient before training- What to for:

- Emotional state
- Muscle strength
 - Connections
 - Clamps
 - Lifting bags
 - Opening boxes
- Visual and Auditory Acuity / depth perception
 - ❖ Reading instructions
 - ❖ Connections
 - ❖ Glasses required / Hearing aide
- Literacy
- Language issues

Assessing assets and barriers to learning

- Trainer begins to evaluate and adjust pace of training
- Is the learner to be totally independent?
- Is significant other to also be trained?
- Designation of responsibilities for each learner

A Teaching Plan

- An outline or a detailed course
- Teaching aids
 - Mannequin or apron with PD catheter
 - Blackboard, felt board or paper board

What is to be learned?

- Specific motor skills
- Concepts
- Procedures
 - which require both motor skills and concepts
- Problem solving

Learning is not just memorizing facts.

Where to train?

- the clinic
- the hospital
- home
- an alternate site

Training Room

No other activities in the room during training

A room with a door for
privacy and quiet



Chair
for
patient
rest

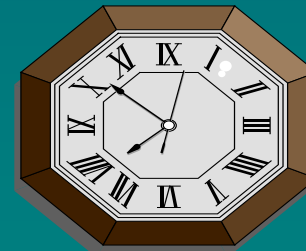
Work surface and sink
for hand washing



IV pole



scale



clock



Able to wash up spills

How long should training last?

- There are no randomized trials to compare the length of training with outcomes
- Training should continue until the patient can
 - safely perform all required procedures
 - recognize a contamination and an infection and appropriate responses

“Must-knows”

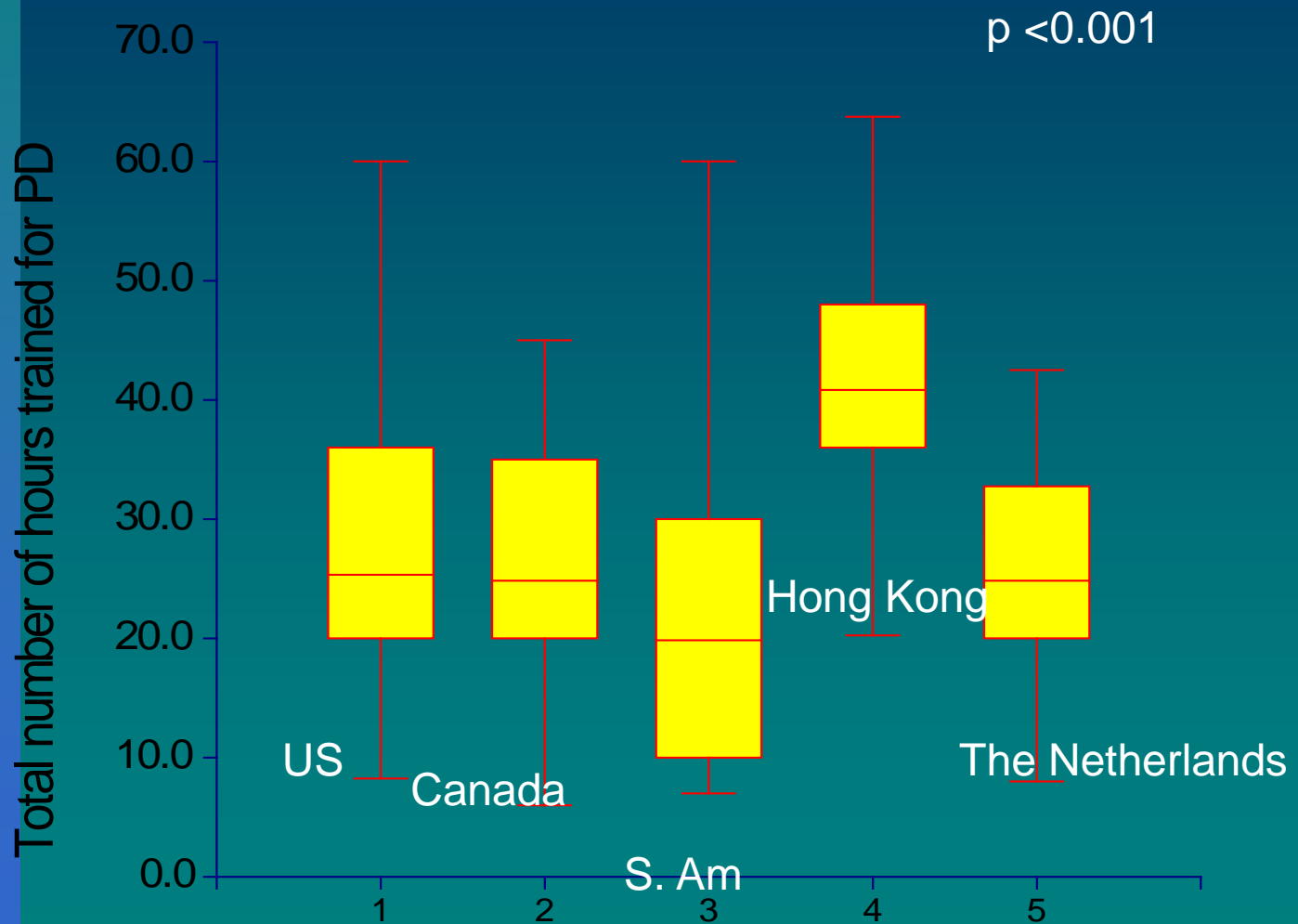
All else is nice-to-know.

How long do nurses train patients today?

Bernardini J, Price V, Figueiredo A, Riemann A, Leung D. International survey of peritoneal dialysis training programs, Perit Dial Int 2006;26(5);658-663.

- ISPD Nurse Liaison Committee distributed a survey in 2005 in US, Canada, S. America, China and The Netherlands.
- 317 responses from PD nurses

Total Hours Training for PD



Longer training time is associated with decreased peritonitis rates in a large national cohort study: results from the BRAZPD II. Afigueiredo et al. 2013. in review.

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How should the patient be taught?

■ Tell the patient

- what they are going to learn
- what they must do
- what the trainer will do
- how both will know that learning has occurred

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. In: Workshops I, II, III. 23rd Annual Dialysis Conference; 2003; Seattle, Washington. Audio tape available at <http://www.hdcn.com/symp/03adc/>

Example: The nurse says

- You are going to learn how to make a sterile connection from the bag to your catheter.
- First you will learn the steps of the procedure.
- You will watch me as I do the steps, and then read aloud each step as I do it.
- When you are able to say all the steps in the right order, you will perform the steps using the apron while repeating aloud each step.
- You will be ready to do the connection on your own catheter when you can perform the steps without a mistake 3 times in a row.

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003.

Enhancing learning:

Baer CL. Principles of patient education. In: Lancaster LE ed. ANNA Core Curriculum for Nephrology Nursing. 3rd ed. Pitman, 1995:143-51.

- The patient must believe he is capable of performing the required skills
- Encouragement
 - “Good, you are doing that correctly”
- Support
 - “Be careful where you place your fingers”
- Fear
 - “This kind of mistake could cause peritonitis”

Rehearsing new skills:

- Repetition of steps
- Use of practice apron
- Practice of procedures
 - Programs muscle movements

Acquiring PD Procedural Motor Skills

Tenbrink T. What Learning Theory and Research can teach us about teaching dialysis patients. 2003



- Muscles learn to follow the brain's instructions through 3 distinct stages of learning.

Learning Motor Skills

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003

- **STEP 1:** Patient describes or reads each step; then trainer performs them
- **STEP 2:** Patient does NOT practice procedure until able to describe each step
- **STEP 3:** Patient practices the procedure using the mannequin with PD catheter, describing each step as performed
- **STEP 4:** When able to perform Step 3 successfully, patient performs procedure using own catheter

Learning Procedures

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003

- A series of motor skills
- If demonstrated from start to finish, the mind sees them together and stores them that way.
- Each part of a procedure may be taught separately but must then be reassembled in order

Five Step Method for Teaching Clinical Skills

JH George, FX Doto. A Simple five-step method for teaching clinic skills. Family Medicine. 33(8);2001

- Step 1 Overview: why skill needed, how skill used for PD
- Step 2 Teacher demonstrates skill, start to finish, without talking
- Step 3 Learner reads aloud each step as teacher performs
- Step 4 Learner describes each step
- Step 5 Learner practices skills with supervision and feedback

Checking progress:

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003

- “Tell me the steps again...”
- “What do you need to do next?”
 - (a positive question)
- “What do you need to avoid doing now?”
 - (a negative question)
 - allow some silence after asking a question, particularly if a negative question (15 seconds)

Why is practice important ?

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003

- Repeated practice, accomplishing correct movements, allows the brain to learn to recognize errors and give feedback.

Rules of Practice

TenBrink T. What learning theory and research can teach us about teaching dialysis patients. 2003

- Never unsupervised until patient is able to do successfully
- No practice until steps accurately described
- Always practice with apron until skill mastered
- Immediate feedback from the trainer
 - Tell what doing right
 - Stop when mistake made (NOT LATER)
 - Redirect learner to place where no mistakes made
 - Guide learner through problem areas
 - Avoid “don’t do this”
 - Do not teach why during motor skill learning

Tips from the pros...

of patient education. ANNA Core Curriculum for Nephrology Nursing. 1995 Baer CL. Principles

- Most people learn 1/3 of what is taught
- Combining visual and audio messages increases learning
- No more than 3-4 key messages / hour ---sessions ≤30 minutes---breaks every 2 hours.
- Try not to get ahead of the learner by telling them what to do.
- Most personal learning experiences are NOT helpful
- Education is not just repeating directions
- *Patient motivation* does not directly increase learning

Practice...

Cepeda NJ et al. Distributed Practice in Verbal Recall Tasks.
Psyc Bull 132(3);354-380

- Spaced practice required for proper acquisition and retention
 - ❖ For both concept and task learning
 - ❖ Simple tasks: learning interval ≤ 1 minute
 - ❖ Complex tasks: increased learning intervals (optimal rest period unknown)
- Supervision
 - ❖ One word cues (good, right, etc) with regular feedback
 - ❖ Testing to enhance learning: symptom leads to what action? Action leads to what reaction?

The Practice Effect

Donovan JJ, Radosevich DJ. A meta-analytic review of the distribution of practice effect: now you see it, now you don't. J App Psyc 84(5):795-805;1999

■ Learning tasks

- Continuous practice without rest
versus
- Spaced practice with rest intervals ➡
 - ** superior acquisition and retention
with spaced practice **

Notes from education specialists...

- Repetition of tasks (practice) causes the brain to learn both the cognitive and physical steps of procedures.
- Memory is in a labile state following early exposure to new information and is enhanced by returning to the learning context and cues for correct performance
- Retraining plays an important role in reducing mistakes.
- Psychological mechanism called “false memory”
 - illustrated by the patient who performs an exchange in front of the nurse but is not aware of mistakes being made and says this is the way they were taught.
- - Arndt J. From compliance and false memory. J Exp Psych 2010;36:66-69.
 - Concise Learning and Memory: the Editors Selection. John H Byrne, Academic Press of Elsevier, San Diego CA, 2009, Chapter 6 by S. Quadri.

A Study about teaching the patient APD

- 40 volunteers learning APD on a new cyclor
 - Computer guided with standardized script for nurse-trainer
 - animations, voiceover and subtitles to enhance comprehension
 - Learner can play, pause, stop, and repeat plus control volume of device.
 - Developed to facilitate learning under guidance of qualified nurse-trainer.

All able to meet objectives of learning to perform an APD treatment within 4-8 hours of training.

Participants with limited education, technical or computer experience no less able to meet study objectives than those with higher education and more advanced technical and computer skills.

Evaluation of a Computer Guided Curriculum Using Animation, Visual Images and Voice Guidance to Train Patients for Peritoneal Dialysis. J. Bernardini , D.J. Davis; Perit Dial Int. 2013

Teaching about peritonitis:

TenBrink, T. What learning theory and research can teach us about teaching dialysis patients. 2003

- Teacher describes a symptom:
 - ask patient to guess if it might be peritonitis

- Use pairs
 - One very likely, one very unlikely
 - Move on to another pair not so easily differentiated

Use of Pairs



Clear



Very cloudy

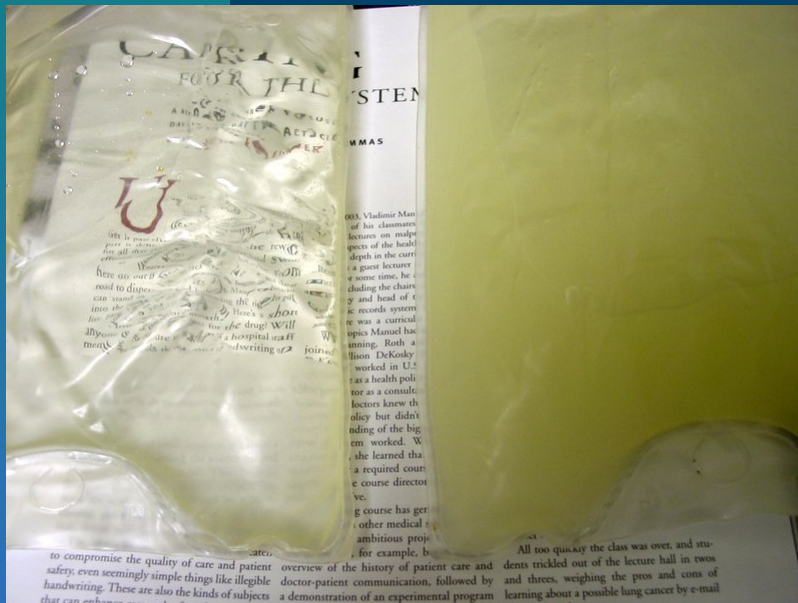


Clear



Slightly cloudy

Pairs with use of print:



Clear vs very cloudy



Clear vs slightly cloudy

Use of pairs:



Clear

vs

slight hemoperitoneum

Problem Solving

- Define problem
- List solutions---have patient pick one
- Evaluate results
- Try another solution if needed
- Encourage to seek advise from others

Example of problem solving:

Nurse: “You wake up one day with a pain in your hip.
Should you--

- call the dialysis nurse?
- call an ambulance?
- see if it still hurts after moving around?”

Nurse: “What do you think might be the problem?”

- Peritonitis
- Not enough dialysis
- Stiffness from lying in bed

Example of problem solving:

Nurse: “You notice that the fluid is not clear when you check it before going on the cycler one night. What should you do?”

- Wait until morning to see if you feel sick?
- Check the next day to see if it is still not clear?
- Call the dialysis nurse right away?

Nurse: “What do you think might be the problem?”

- You have the flu
- You have peritonitis
- There is nothing wrong

Re-Training

Russo R, Manili L, Tiraboschi G, Amar K, De Luca M, Alberghini E, Ghiringhelli P, DeVecchi A, Porri MT, Marinangeli G, Rocca R, Paris V, Ballerini L. Dialysis: why and when it is needed. Kidney Int Suppl. 2006 Nov;(103):S127-32.

- Analysis of compliance to identify need for retraining
- 2 phase study:
 - Patient Questionnaire (353 patients)
 - Home visit / score card
- Re-training needs greater for patients
 - <55 years old
 - lower education
 - <18 months on PD
 - >36 months on PD

This is the ONLY study of re-training.

Impact of the bag exchange procedure on risk of peritonitis. Dong J, Chen Y, PDI 2010;30:440-7.

■ study of compliance with the exchange procedure

6 months after start of PD

- majority taking shortcuts or simply veering off prescribed steps they were so carefully taught at the start of PD
- 1/2 patients did not wash hands according to procedure
- nearly half did not check bag for leaks
- 1 in 10 forgot to wear their mask.
 - ❖ associated with subsequent peritonitis risk

When should the patient be retrained?

Opinion-based

- Once a year at a minimum
- Mini-retraining opportunities
 - At each clinic visit
 - Before the average interval between peritonitis episodes at your clinic
 - For example, current peritonitis rate is 1 episode every 24 months, then retrain at 12 months
 - After any poor outcome event:
 - ❖ peritonitis
 - ❖ exit site or tunnel infection
 - ❖ hospital admission
 - ❖ contamination

Re-training

- Repetition causes the brain to learn both the cognitive and physical steps of procedures
- Learning specialists say that re-training plays important role in reducing mistakes
- Memory in labile state following early exposure to new information
 - enhanced by returning to the learning context and cues for correct performance

Reinforcement: reducing risks

- Use clinic visit to your advantage
 - Hand hygiene review
 - Review signs of peritonitis and appropriate responses
 - Quick Quizzes --what if....?

- Nurses: do-as-you-teach the patient to do
 - All staff must be consistent with all protocols of care
 - ❖ Always wash hands according to center protocol
 - ❖ Always make connections as you taught patient to do
 - Follow all steps

Evaluating your training program:

- Track patient outcomes
 - Infection rates
 - ❖ peritonitis, ESI, TI
 - Hospitalization rates
 - Deaths
 - Transfers off home therapy
- Periodic reassessments of patient technique and problem solving

“Tell me, and I will forget.
Show me, and I may remember.
Involve me, and I will understand.”

Confucius, circa 450 BC