

Journal Club

Hello PRN-BC!

It has been a long time since we have sent one of these newsletters out, where has the time gone? But as the saying goes, it's better late than never!

In this newsletter, you will find a short piece on research in clinical settings; summaries of two research articles related to pulmonary rehabilitation; a new feature entitled "Clinician's Corner" where members of the pulmonary rehabilitation community share their insights and strategies, and a section on upcoming events.

Have a great summer everyone!

Yours truly,
Pat Camp, PT, PhD

Assistant Professor & Clinician Scientist, UBC
Director, UBC Pulmonary Rehabilitation Research Laboratory
Head, St. Paul's Hospital Pulmonary Rehab Clinic

Research Corner – Pat Camp

Recently, I was asked to give a talk for the Fraser Health Authority Research Week. The intent of the talk was to share with clinicians and stakeholders about how to conduct a research, evaluation, or quality improvement project. The talk centered around three questions:

1. How do you come up with a research question?
2. How do you get partners/collaborators?
3. How do you decide on where to get their participants for the study?

Over the next three newsletters, I will address each one of these questions in detail. Hopefully, if you are interested in doing a research study, or you just want to collect some information to learn more about the impact of your program on your patients, this column will be helpful to you.

QUESTION 1. HOW DO YOU COME UP WITH A RESEARCH QUESTION?

When I was first practicing in pulmonary rehab (PR) and acute care respiratory, I found I had a lot of 'clinical irritations'. These are questions that you find percolating in your head while you are caring for a patient – *Why do some patients have worse dyspnea than others for a given lung function and SpO₂? Do women have different outcomes than men? Is an absolute change in six-minute walk distance (say 50m) better than a relative change (10%)?* Sometimes the answers would be found in the literature (if I had time to look it up!) but sometimes not.

A mentor of mine suggested that I start writing these questions down. What a great idea! As I got more involved in research I made this a habit.

Now anytime I attend a talk related to PR, or have a 'clinical irritation' or something else tweaks my interest, I write it down (I might be at cardiovascular grand rounds and think "that's interesting. I wonder if anyone has thought of that for COPD?") I have a folder where I attempt to put these ideas. Maybe one day I'll actually get it into my smartphone! Most of these ideas I will never act on. Many have already been answered by previous researchers. But nevertheless I find that listening to clinicians, my patients, and other researchers, and thinking about what I am hearing and how it applies to my area keeps me constantly questioning. And writing it down with a big box around it reinforces it in my mind.

This approach is not just for research. If you are thinking about a quality improvement project for your PR program (e.g. what is the average improvement in 6MWD in our program?), write those questions down. At some point you may want to decide on a project and those ideas will be ready for you.

Next newsletter: How do you get partners/collaborators for your project?

Van Remoortel H, Raste Y, Louvaris Z, Giavedoni S, Burtin C, Langer D, Wilson F, Rabinovich R, Vogiatzis I, Hopkinson NS, Troosters T. Validity of Six Activity Monitors in Chronic Obstructive Pulmonary Disease: A Comparison with Indirect Calorimetry

There is increasing evidence that lower levels of physical activity are intrinsic to disease progression in patients with COPD. Monitoring physical activity through the use of portable devices which measure the body's acceleration has become common practice in rehabilitation. However, most monitors have not been validated in COPD populations. These authors decided to test the validity of some of the physical activity monitors most frequently used.

A total of 40 patients with a range in COPD severity (GOLD I-IV) were recruited across Europe. They wore 6 commercially available activity monitors (Kenz Lifecoder, Actiwatch, RT3, Actigraph GT3X, DynaPort MiniMod, and SenseWear) system simultaneously while performing both a six-minute walking distance test and a strict set of activities meant to mimic everyday tasks that people with COPD report as being problematic. These devices were compared against a portable metabolic system that is able to measure oxygen consumption and carbon dioxide production.

The authors found that the DynaPort MiniMod, Actigraph GT3X and SenseWear were the best devices to monitor physical activity in people with COPD. The device with the highest correlation between metabolic cost and activity monitor was the SenseWear. When comparing walking speeds, the DynaPort MiniMod and Actigraph GT3X proved most reliable.

Across all 6 devices there were no observed differences between mild-to-moderate COPD (GOLD I-II) compared to severe and very severe COPD (GOLD III-IV).

Previously, only the DynaPort MiniMod and SenseWear armband had been validated in people with COPD.

The authors consider the validation of these additional monitors in the laboratory setting an important step to their use. The next step is to confirm these findings in a field setting. The authors believe this knowledge will help guide the choosing of the correct monitor for research and clinical use for people with COPD.

Submitted by Andrew Ramsook, UBC MSc. Candidate, UBC Cardiopulmonary Exercise Physiology Laboratory

Wadell K, Webb KA, Preston ME, Amornputtisathaporn A, Samis L, Patelli J, Guenette JA, O'Donnell DE. Impact of Pulmonary Rehabilitation on the Major Dimensions of Dyspnea in COPD. *Journal of Chronic Obstructive Pulmonary Disease* 2013; 10:425-435.

Rationale: Dyspnea (sensations of breathlessness) is the hallmark symptom of COPD. Pulmonary rehabilitation (PR) programs incorporating exercise training have been shown to alleviate dyspnea but the mechanisms of improvement are unknown. Dyspnea is complex and has recently been divided into 3 major domains by the ATS: 1) sensory-perceptual experience; 2) affective distress; and 3) symptom impact or burden.

Purpose: To determine what physiological and psychological adaptations PR training would have on improving dyspnea and its main domains.

Methods: RCT involving 48 clinically stable COPD patients assigned to either 8 weeks of PR (n=20) or usual care control group (CTRL, n=28). Visit 1 involved pulmonary function tests (PFTs) and an incremental cycle exercise test. Visits 2 and 3 were conducted immediately pre and post completion of 8 weeks PR including: symptom-related questionnaires, PFTs, tests of functional ability (6MWT, endurance shuttle walk tests & peripheral muscle strength), and a constant-work rate (75%max) cycle exercise test (CWR).

Detailed physiological measures were recorded during exercise tests. Dyspnea was evaluated during and after exercise tests.

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Results: Pre and post intervention PFTs and physiological measurements collected during the CWR test were similar within and between groups. Both groups stopped exercise primarily due to breathing discomfort, this did not change significantly with PR. CWR cycling endurance time increased by 106s within the PR group. 6MWT distance increased significantly post intervention for the PR group, and was significantly greater than CTRL. In regards to the dyspnea domains: no significant changes in sensory-perceptual experience for either group; affective distress was significantly reduced in the PR group compared to CTRL; symptom impact – all activity related dyspnea improved significantly after PR compared to CTRL. Health status and affective questionnaires showed improvement with PR compared to CTRL.

Conclusion and Clinical Significance: PR is associated with improvements in the affective and impact domains of dyspnea. The lack of improvement in the sensory-perceptual dyspnea domain is likely because of inconsistent improvements in ventilation, breathing pattern and operating lung volumes.

Hopefully these articles are available through your hospital library. Unfortunately, copyright law prevents us from emailing articles to interested readers.

Submitted by Sabrina Wilkie. MSc, UBC Cardiopulmonary Exercise Physiology Laboratory

"If You Don't Come, You will Die!"

How do you get your clients to complete their Pulmonary Rehabilitation Program? It would be awesome if scare tactics worked but that is not an ethical solution even if it were true.

So, your client is enrolled in the program. You have done your best to resolve transportation issues. You have reduced the cost of the program for those that can't afford it. You have come up with a strategy to work around their appointments so that they can attend most classes. You are friendly and welcoming but after a few classes, someone stops coming. The reason for their absence is not specific. What can you do?

At VGH, we stress the importance of coming to as many classes as possible. We let them know that graduates of programs can expect a 40% improvement. We inspire them with stories. We tell them about the guy who had to stop for breath three times when he walked from his sofa to his bathroom. After completing Pulmonary Rehab., he could walk a few blocks. We make sure that they have our phone number and we stress that we want to hear from them if they can't make it to class. If they don't come and they don't call, we give them a friendly call that goes something like this: "Hey, Joe, you weren't at class today. We missed you. I hope that nothing is wrong. Will you be able to come to your next class?" If they have started to form a relationship with one of the class members, we mention that a class mate was asking about them. If there is new barrier, we try to find a solution.

We have some success with this strategy but we still have many dropouts that are not due to specific reasons. This is likely the nature of chronic illness.

Nancy Haynes, RRT CRE. Champion Lung Fitness Program, VGH

Events, Resources & Opportunities

UPCOMING WEBINAR

The Canadian Respiratory Health Professionals (CRHP) presents webinars on lung disease.

CRHP webinars consist of a 40-minute presentation, plus time for questions and discussion (total duration 60 minutes). Participation is limited, so sign-up now!

To join CRHP (it's pretty inexpensive) go to:

http://www.lung.ca/crhp-pcsr/member-adhesion_e.php

INTERSTITIAL LUNG DISEASE

The American Thoracic Society has developed some nice materials on interstitial lung disease. They are, how can I say it? a little more optimistic than some of our locally developed patient education pamphlets! They can be accessed here:

<http://www.thoracic.org/education-center/ild/index.html>

OPPORTUNITIES

Interested in being involved in research? The Pulmonary Rehabilitation Research Laboratory is recruiting candidates for the MSc and PhD programs in Rehabilitation Sciences. Part-time study might be possible, please contact me: pat.camp@hli.ubc.ca

WEBSITE

Visit our lab website at prrl.rehab.med.ubc.ca

Pulmonary Rehabilitation Programs in BC

CHASE. Chase Primary Health Care Services. 250-679-1419

CHILLIWACK. Chilliwack General Hospital. 604-795-4141 ext. 4261

DUNCAN. Duncan Community Centre. 250-737-2004

KAMLOOPS. Kamloops Lung Health Program. 250-851-7976

KELOWNA. Interior Health COPD/PR Program. 250-862-4066

LADYSMITH. Home and Community Care, VIHA. 250-739-5783

LANGLEY. Langley Memorial Hospital. 604 534-4121 Ext. 745273

MAPLE RIDGE. Ridge Meadows Hospital . 604-463-1820

NANAIMO. Nanaimo General Hospital. 250-755-7691 Local 53640

NEW WESTMINSTER. iConnect Health Centre FHA . 604-523-8800

NORTH VANCOUVER. Lions Gate Hospital. 604-984-5888

QUESNEL. G.R. Baker Memorial Hospital

PENTICTON. Integrated Health Centre. 250-276-2181

RICHMOND. Richmond Health Services- Garratt Wellness Centre. 604-204-2007

SURREY. Jim Patterson Outpatient Care and Surgery Centre. 604-582-4565

VANCOUVER. St. Paul's Hospital. 604-806-9032

VANCOUVER. Vancouver General Hospital. 604-875-4111 ext 63099

VANCOUVER. Kerrisdale Community Centre. 604-267-4430

VERNON. Vernon Jubilee Hospital 250-503-3712

VICTORIA. Royal Jubilee Hospital 250-519-5300 ext 13166

UPCOMING: AN UPDATED LIST WILL BE POSTED AT:

<http://prrl.rehab.med.ubc.ca/bc-pr-network/>

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