ATS Spotlight 2024:
Pulmonary Rehabilitation Assembly Early Career Professionals

Dr. Bryan A. Ross,
M.D., F.R.C.P.C., M.Sc. (Epi.),
M.SC. (Physiol.), B.Sc.H.
Clinician Scientist (RI-MUHC),
Respirologist (MUHC),
Assistant Professor (McGill),
Co-Director, COPD and PR
Clinical Program (MCI)
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Tell us about yourself. Avid runner, xc skier, hockey player! Former triathlete & varsity rower! *(I love sports!)*.
Is your research clinical, basic science, or translational? Clinical.
Tell us about your research. My clinical research program (launched in July 2022) is grounded in the disciplines of Epidemiology, Physiology and Digital Health. We aim to better understand, prevent, and facilitate timely treatment of exacerbations of COPD, with an emphasis on patients living with severe COPD.
Where do you see yourself in 5 years? Doing what I do now, but on an ever-larger scale! I would like to continue to grow and to generate new knowledge in order to improve the lives of my patients with COPD.
How has the Pulmonary Rehabilitation Assembly contributed to your career? I am so grateful for the opportunities made available to me through the ATS PR Assembly. The *Journal Club* has been a wonderful venue to gather, learn, and even present. I have found the *Outcome Measures* resource to be very helpful for researchers and clinicians alike. Formal (*Mentoring Program*) and informal mentorship opportunities foster and support career development. As the incoming Pulmonary Rehab ECWG Chair, I am keen to 'pay it forward'!

Published manuscripts *(N.B. * denotes BAR as the senior and corresponding author).*

1. Coutu FA *et al.* * Continuous characterisation of exacerbation pathophysiology using wearable technologies in free-living outpatients with COPD: a prospective observational cohort study. *eBioMedicine-Lancet* 2024.
2. Pankovitch S *et al.* * Peak inspiratory flow and inhaler prescription strategies in a specialized COPD clinical program: a real-world observational study. *Chest* 2024.
3. Iorio OC *et al.* * Feasibility, functionality, and user experience with wearable technologies for acute exacerbation monitoring in patients with severe COPD. *Front Signal Process* 2024.
4. Marciniuk J *et al.* * Long-term home noninvasive ventilation and exacerbations of chronic obstructive pulmonary disease: a real-world study. *Ann Am Thorac Soc* 2024.
5. Ross BA *et al.* Short-term air pollution exposure and exacerbation events in mild to moderate COPD: a case-crossover study within the CanCOLD cohort. *Thorax* 2023.

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Continuous characterisation of exacerbation pathophysiology using wearable technologies in free-living outpatients with COPD: a prospective observational cohort study

eBioMedicine
Part of THE LANCET Discovery Science

Felix-Antoine Coutu,[a,b] Olivia C. Iorio,[a] Seyedfakhreddin Nabavi,[a] Amir Hadid,[c] Dennis Jensen,[a,c] Sushmita Pamidi,[a,b,d,e] Jianguo Xia,[f] and Bryan A. Ross[a,b,d,e,*]

The objectives of the present study were to remotely measure and characterise respiratory, cardiac, autonomic, activity-specific and sleep-specific physiological patterns during a current exacerbation of COPD, over multiple weeks from the home environment using two wearable biometric devices, and to determine which physiological parameter(s) are associated with validated daily exacerbation symptom and recovery scores.
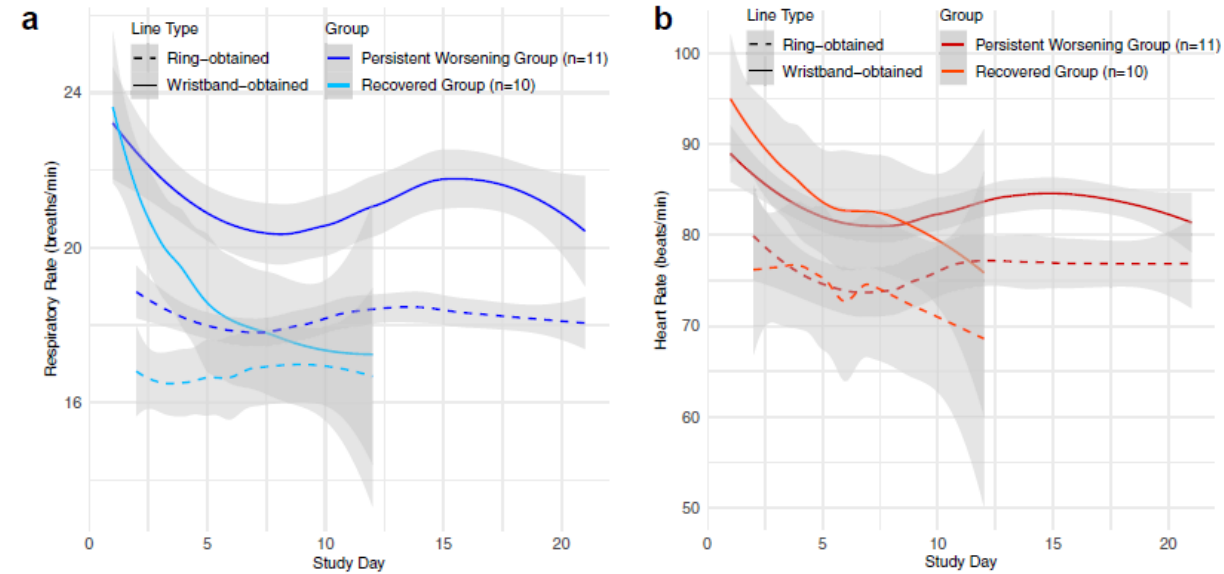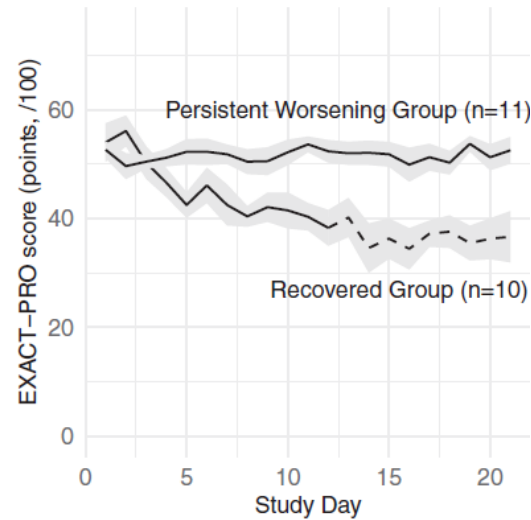
Interpretation This study provides a prospective continuous characterisation of exacerbations of COPD using remotely collected, ambulatory/free-living data. The physiological patterns presented may contribute to the understanding of exacerbations and may enhance the development of effective remote monitoring solutions.

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