

MEET THE PROFESSOR

A sleep specialist's voice on sleep medicine—personalized medicine and sleep apnea

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Figure 1. Professor Doug McEvoy is speaking on the Third International Conference on Respiratory Diseases in October 2013.

Introduction

Professor Doug McEvoy (Figure 1) has been at the forefront of sleep medicine in Australia for over 25 years—as an academic, government advisor, and chairperson and member of national and international scientific advisory and professional committees. He is Director of the Adelaide Institute for Sleep Health, one of Australia's leading clinical and research sleep medicine centers, and is a Practitioner Fellow of the National Health and Medical Research Council. He is a past President of the Australasian Sleep Association and is a founding board member of the Sleep Health Foundation. For many years Doug has been a mentor and guide to emerging Australian and New Zealand clinicians and scientists in sleep medicine. In the last ten years alone his department has trained over 20 PhD students and sleep specialists, many of whom are now making significant contributions to the professional development of sleep medicine internationally and successfully forging their own independent research careers. Doug's major research roles currently are as Principal Investigator of the international Sleep Apnea cardio Vascular Endpoints study and as Theme Leader in “personalized sleep medicine” in the Australian Cooperative Research Centre in Alertness, Safety and Productivity.

The *Journal of Thoracic Disease* is honored to have an interview with Prof. McEvoy at the Third International Conference on Respiratory Diseases in October 2013. Now let us take a look at Prof. McEvoy's views on the development of sleep medicine and his experience as a tutor and government adviser.

Interview

JTD: *With the development of medicine and science, personalized medicine is promising in the future. How is the development of personalized medicine so far?*

Prof. McEvoy: Personalized medicine offers great promise for the future, but examples of how it benefits patients are limited at this moment. I am leading a team which is investigating how the concepts of personalized medicine might apply to sleep disorders, particularly sleep apnea. If we could understand better the various genetic and environmental factors that are responsible for sleep apnea and how it manifests differently in different individuals we would be in a better position to

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devise specific treatments for different individuals.

JTD: What are the major challenges in developing the personalized medicine and what should be done to overcome these challenges?

Prof. McEvoy: There are many challenges. We need to understand what the important phenotypes are in diseases such as sleep apnea. For example, the sleepy phenotype in sleep apnea. What is it that causes some sleep apnea patients to be vulnerable to sleepiness and other neurobehavioral abnormalities while other patients are seemingly spared these effects. If we knew the answers to this question we would be in a better position to devise and target our treatment to help those patients who are most sleepy from sleep apnea. And there is another potential phenotype, the cardiovascular phenotype. That is, patients who may have excessive cardiovascular and metabolic risks arising from sleep apnea. If we can identify the people who fit into these categories or phenotypes, and understand the mechanisms by that lead some people to be prone to sleepiness or cardiovascular complications and why some people are not we can better target our investigations and treatment for sleep apnea, thereby reducing medical costs and improving patient outcomes.

JTD: In 2010, you together with Prof. Nanshan Zhong published an article on the sleep apnea cardiovascular endpoint (SAVE) trial. Can you tell us how the study has progressed over the last three years?

Prof. McEvoy: We have continued to make very good progress with the study. I can report that the recruitment of new patients for the study finished in November this year. We recruited just over 2,700 patients into this study, and now need to follow these patients for another two years. So we will finish this study in the end of 2015. China has been the major contributor to the study contributing over 1,600 patients with the other patients coming from Brazil, Australia, New Zealand, Spain and the USA. It is a very important study as it will determine whether or not the treatment of the sleep apnea can prevent heart attacks, stroke and sudden death.

JTD: Prof. Steier had a speech on the new development on sleep in 21st Century. As you have been at the forefront of sleep medicine research for 25 years, what do you think is the major global issue in sleep of the 21st Century?

Prof. McEvoy: The big global issue in sleep is the fact that people are now getting less sleep. This causes safety issues for communities and reduced sleep may also be having adverse effects on metabolic and cardiovascular health. In children, lack of sleep may adversely affect their neural development

(e.g., learning and behavior). Insufficient sleep is a big issue for societies all over the world.

In terms of medical sleep disorders, sleep apnea is perhaps the biggest concern. Its prevalence is increasing in many countries where people are developing more obesity. We know that for about every 10% weight increased, there is a 25-30% increase in sleep apnea severity. This is worrying, because people in most countries around the world are gaining weight.

People need to be aware of the importance of sleep. Employers, particularly those in safety critical industries, must be aware of the importance of sleep and sleep disorders to their employees' safety and productivity. Shift work needs to be carefully managed to avoid excessive sleepiness. And employees also need to take responsibility to be well-rested when they go to work. However, in the industrial and technological age, there are some things that we can't change. We can't, for example, go back to a society without shift work, and shorter sleep times are probably here to stay, worldwide. We therefore need to be smart to manage sleepiness. Understanding the different phenotypic responses to sleep deprivation and sleep disorders such as sleep apnea will help identify people most at risk of accidents and ill health.

JTD: As a government advisor, what should be taken into consideration when you are making suggestions to the government?

Prof. McEvoy: First, we need to have very good evidence for the solutions we propose to government. If you want to change policy, you need also to have the people (e.g., patients, employers, employees) behind you. It is not sufficient to go alone as a medical expert or even as a professional society. You need to educate and convince government about the need for policy change—For example, changes to working hours, screening programs to identify and treat medical sleep disorders. The opportunity to improve safety and productivity and reduce health costs are strong messages to get across.

JTD: In your department you have trained many excellent students who have been making significant contributions to medical science. From your experience, what are the ingredients that make for a successful research student?

Prof. McEvoy: The most important thing to be successful research student is passion for research. People cannot be successful at research unless they have a real passion to discover new things, to try to make a difference and give back to society. This is the first thing students should know. Secondly, good mentorship provides the fertile soil for students to grow. Tutors need to provide sound, honest advice and the right facilities for the students to progress. But I would emphasize that unless the student or young doctor is naturally curious and is passionate

about research, it won't work. However, with the right guidance and right level of curiosity and passion great things can be achieved.

JTD: To be an independent researcher, what qualities are required?

Prof. McEvoy: Passion, independent thinking and new ideas

are the three important qualities to be a successful independent researcher.

JTD: Thank you very much!

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