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STEWARDSHIP
REPORT

**THE PACIFIC PARKINSON'S RESEARCH INSTITUTE PROFESSORSHIP
IN PARKINSON'S RESEARCH**

ENDOWMENT IMPACT REPORT

THE FACULTY OF MEDICINE

For the period ending August 31, 2011

Prepared for the Pacific Parkinson's Research Institute

SUMMARY

The Pacific Parkinson's Research Institute Professorship in Parkinson's Research Endowment was created in 2009 through a generous gift from the Pacific Parkinson's Research Institute to the UBC Faculty of Medicine. The purpose of establishing the professorship was to enable the Faculty of Medicine to recruit a promising junior clinician-scientist in the field of Parkinson's research to accelerate our contributions to understanding this debilitating neurodegenerative disorder of the brain.

Dr. Silke Cresswell, Assistant Professor in the Faculty of Medicine's Division of Neurology and the Pacific Parkinson's Research Centre (PPRC), was successful in the international competition for the Pacific Parkinson's Research Institute Professorship in Parkinson's Research and began the position in July 2010.

During her first year in the professorship, Dr. Cresswell demonstrated her outstanding abilities as a clinician and a teacher while building her clinical research program focused on the cognitive and neuropsychiatric aspects of Parkinson's disease. Among other projects, she is working to establish a prospective comprehensive database of the motor and non-motor symptoms of Parkinson's patients at the PPRC to provide the clinical basis for imaging, genetic, treatment and other biomarker and pathology studies in the future.

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THANK YOU

The Faculty of Medicine is grateful to the Pacific Parkinson's Research Institute for establishing the Pacific Parkinson's Research Institute Professorship in Parkinson's Research Endowment and continuing to support the PPRC for more than 20 years.

Pacific Parkinson's Research Institute

Professorship in Parkinson's Research

Dr. Silke Cresswell



Dr. Silke Cresswell
Professorship-holder

Dr. Cresswell received a full merit-based scholarship and completed her medical degree in the top two per cent of medical students in Germany. She trained as a neurologist in Germany at a teaching hospital of the University of Heidelberg, followed by a movement disorder fellowship with Dr. Andrew Lees at the prestigious National Hospital for Neurology and Neurosurgery, Queen Square, London, UK. During this time, she worked on impulse control disorders and dementia in Parkinson's disease patients. The work in impulse control disorders and dopamine dysregulation syndrome with Drs Lees and Evans led to a frequently quoted publication on the PET imaging of dopamine dysregulation disorder, the first functional imaging study of the condition. Further training in psychiatry in London (Charing Cross rotation), including neuropsychiatry at Queen Square, provided her with tools and bolstered enthusiasm for the investigation and treatment of brain diseases with symptoms in both the neurological and mental health realm. She relocated to Vancouver with her young family and embarked on a clinical research fellowship in movement disorders with Dr. Jon Stoessl at the Pacific Parkinson's Research Centre from 2008 to 2010. During this time she focused on non-motor/neuropsychiatric and cognitive symptoms in Parkinson's disease. She was then successful in the international competition for Pacific Parkinson's Research Institute Professorship in Parkinson's Research and started the position in July 2010.

EDUCATION

Dr.med, University of Heidelberg, Germany , 2000

MD, Universities of Giessen and Heidelberg, Germany, 1997

TRAINING HIGHLIGHTS

Clinical research fellow in movement disorders to Prof. Jon Stoessl, Pacific Parkinson's Research Centre, UBC, Vancouver, 2008-2010

Clinical fellow in paediatric neurology to Prof. Mary Connolly, British Columbia Children's Hospital, Vancouver, 2009

Charing Cross psychiatry training, London, UK, 2003-2007 (equivalent to two years of full-time training)

Clinical research fellow in movement disorders to Prof. AJ Lees, Reta Lila Weston Institute, University College London, UK, 2002-2003

Neurology residency and psychotherapy and psychosomatic training, Caritas Hospital, Bad Mergentheim, Academic teaching hospital of the University of Heidelberg, Germany, 1999-2002

Impact

The Pacific Parkinson's Research Institute's longstanding relationship with the Faculty of Medicine has facilitated collaboration among clinicians and investigators within Pacific Parkinson's Research Center, advancing our understanding of Parkinson's disease and the care our patients receive. Dr. Cresswell is a valuable addition to an exceptional team that is making groundbreaking discoveries for patients suffering from Parkinson's and other neurodegenerative diseases. The clinical database Dr. Cresswell has begun to create in her first year as professorship-holder will advance not only her own research, but also that of her current colleagues and successors at the PPRC. It will also become a model for integrated clinical care and research across the full spectrum of Parkinson's disease. An outstanding clinician, Dr. Cresswell is improving the quality of life of hundreds of Parkinson's patients, and as a passionate teacher, she is sharing her knowledge, skills and enthusiasm to inspire medical students and residents to provide the highest quality care to Parkinson's patients across BC and Canada. In her first year in the role, she has secured two research grants on Parkinson's disease as co-principal investigator, and she is co-investigator on another grant.



Activities in 2010-2011

CLINICAL

Dr. Cresswell's clinical work focuses on movement disorders and particularly Parkinson's disease. She engages in clinical activities three days per week at the Pacific Parkinson's Research Centre (PPRC) in the UBC Hospital, spending at least half her time on clinical work. PPRC delivers outstanding care to more than 1,500 Parkinson's patients and several hundred patients with atypical Parkinsonism.

Dr. Jon Stoessl, Professor and Head of the Faculty of Medicine's Division of Neurology and Canada Research Chair (Tier 1) in Parkinson's Disease, is Director of the PPRC and the National Parkinson Foundation Centre of Excellence. With Dr. Stoessl's leadership and mentorship, Dr. Cresswell also works closely with the multidisciplinary team at the PPRC, which includes nurse clinicians Sharon Yardley and Linda Grantier, physiotherapist Maggie Caunter and social worker Elaine Book.

Dr. Cresswell takes a holistic approach to both her clinical work and her research. Rather than focusing on only the motor aspects of the disease, she focuses on the whole patient including the non-motor and social aspects of living with Parkinson's. She intends to keep her clinical work and research closely connected by building what she calls the "treasure chest clinical database."

RESEARCH

Dr. Cresswell is investigating the cognitive and neuropsychiatric aspects of Parkinson's disease (PD), such as depression, anxiety, apathy, impulse control disorders and psychosis. In collaboration with her colleagues at the PPRC, she engages in functional and structural imaging ((f) MRI and PET) with Drs Jon Stoessl, Martin McKeown and Vesna Sossi and genetic studies with Dr. Matthew Farrer. Her aim is to advance the understanding of PD to improve diagnosis, treatment and care, and thus eventually to contribute to the prevention and cure of PD.

In her first year as professorship-holder, Dr. Cresswell laid the groundwork for two key projects - the clinical database (combined with the genetic database run by Dr. Farrer) and the MRI biomarker study with Dr. McKeown. She is also working with Dr. Grant Iverson on computerized cognitive testing in Parkinson's disease and Dr. Jason Barton on decision-making in PD, which is an important aspect for impulse control disorders. She is working with Principal Investigator Dr. Sossi on a large clinical and PET study on impulse control disorders in PD.



RESEARCH

Clinical Database

The comprehensive prospective database of motor and non-motor symptoms of Parkinson's disease that Dr. Cresswell is establishing at the PPRC will provide the future clinical basis for imaging, genetic, treatment and other biomarker and pathology studies. After writing the protocol and with Dr. Stoessel securing ethics approval, Dr. Cresswell is preparing to link the database to the existing electronic medical records of patients seen at the PPRC and the genetic database by Dr. Farrer. Dr. Cresswell secured industry funding to purchase tablet computers to enable patients to complete user-friendly questionnaires electronically and is applying for funding to submit the questionnaires securely to the electronic medical record system.

The information captured in the database will benefit the breadth of current and future research of the PPRC. It will serve as a screening tool for selecting appropriate patients for participation in particular research protocols. It will also ensure information is obtained in a standardized fashion across different protocols and form the basis of integrating the various disciplines researching Parkinson's disease (e.g., genetics, imaging, biomarkers, pathology). The clinical information obtained about motor and non-motor symptoms of Parkinson's patients will be used by future generations of investigators. The database is a good example of integrated clinical care and research as it will maximize the clinical resources and infrastructure (e.g., clinic set-up, electronic medical records, clinicians' time) to ensure that the large amount of clinical data obtained in a tertiary specialty clinic ("the treasure chest") is utilized for research purposes as well.

Drs Cresswell and Farrer are collaborating closely to link the (de-identified) clinical and genetic data in one database. Accurate clinical data is paramount for a meaningful genetic analysis. Dr. Farrer is an internationally renowned expert in the genetic aspects of Parkinson's disease. Since joining the Faculty of Medicine in 2010, Dr. Farrer made the first Parkinson's-related genetic discovery led by a Canadian team, a genetic mutation that causes late-onset PD, and made his sixth discovery of a gene involved in PD. His discoveries are targets for potential treatments.

Activities in 2010-2011

RESEARCH

Research Funding Secured

The funding provided by the Pacific Parkinson's Research Institute contributed to Dr. Cresswell's success in securing three grants this year:

- Parkinson's Society of BC (functional MRI of the hyperdirect pathway of the subthalamic nucleus, a key structure in PD), Co-investigator Dr. Cresswell, Principal Investigator Dr. McKeown.
- Parkinson's Society of Canada (apathy in PD), Co-principal Investigators Dr. Cresswell and Dr. McKeown.
- National Parkinson's Foundation (clinically informed MRI biomarkers in PD), Co-principal Investigators Dr. Cresswell and Dr. McKeown.

The two-year award (2011-2013) from the National Parkinson's Foundation in the US valued at nearly \$220,000 is particularly significant because an American organization chose to support leading-edge research conducted by top neurological experts in Canada. Drs Cresswell and McKeown will examine Parkinson's patients with novel MRI techniques. Among them are techniques to measure the shapes of deep structures in the brain critical in Parkinson's disease, with the goal of developing much needed imaging biomarkers for PD. Biomarkers are necessary to assess the effect of therapeutic interventions. The study's results are also expected to deepen the understanding of the pathophysiology of PD.

The grant from the Parkinson's Society Canada allows for the collection of MRI pilot data on apathy in Parkinson's disease. Apathy is common in PD and can have a profound influence on the quality of life of patients and their care partners. The results of the pilot study are expected to facilitate further research on the so far much neglected but important topic of apathy in PD.

PUBLICATIONS

Published Refereed Paper

Appel-Cresswell S, de la Fuente-Fernandez R, Galley S, McKeown MJ. Imaging of Compensatory Mechanisms in Parkinson's disease. *Current Opinion in Neurology*. 2010 August; 23(4): 407-12.

Accepted Refereed Paper

De la Fuente-Fernandez R, **Appel-Cresswell S**, Doudet DJ, Sossi V. Functional neuroimaging in Parkinson's disease. Accepted for publication in *Expert Opinion in Medical Diagnostics* January 2011.

Book Chapter

Appel-Cresswell S, Stoessl AJ. Ethical issues in the management of Parkinson's disease. In: Illes J, Sahakian BJ, editors. *Oxford Handbook of Neuroethics*. Oxford: Oxford University Press, June 2011: 575-600.

Published Abstracts

Langill MA, Iverson GL, **Appel-Cresswell S**, Stoessl AJ. Screening for Cognitive Impairment with the Montreal Cognitive Assessment in Parkinson's Disease Patients. Poster presentation at the National Academy of Neuropsychology, Vancouver, October 2010.

Langill MA, Iverson GL, **Appel-Cresswell S**, Stoessl AJ. Factors Associated with Low Montreal Cognitive Assessment (MoCA) scores in Patients with Parkinson's Disease. Poster presentation at the 7th International Congress on mental dysfunction and other non-motor features in Parkinson's disease and related disorders, Barcelona, December 2010.

Langill MA, Iverson GL, **Appel-Cresswell S**, Stoessl AJ. Traditional Versus Computerized Psychomotor Speed in Patients with Parkinson's Disease. Poster presentation at the 7th International Congress on mental dysfunction and other non-motor features in Parkinson's disease and related disorders, Barcelona, December 2010.

Sossi V, **Appel-Cresswell S**, Dinelle K, Mckenzie J, Floresco S, McKeown MJ, de la Fuente-Fernandez R, Stoessl AJ. Dopamine response to a hedonic stimulus/natural reward: a PET study. Poster presentation at the 7th International Congress on mental dysfunction and other non-motor features in Parkinson's disease and related disorders, Barcelona, December 2010.

Langill MA, Iverson GL, **Appel-Cresswell S**, Stoessl AJ. Feasibility of Computerized Cognitive Testing in Parkinson's Disease. Presentation at the International Neuropsychological Society Meeting, Boston, February 2011.

Kok J, **Appel-Cresswell S** (presenting author), Chen J, Beg F, Wang Z, McKeown MJ. Altered Cortico-putaminal DTI connectivity patterns in Parkinson's Disease and their association with motor impairment. Poster presentation at the Movement disorder congress, Toronto, June 2011.

Activities in 2010-2011

TEACHING AND MEETING PRESENTATIONS

The Faculty of Medicine

Dr. Cresswell is a passionate teacher who frequently receives highly positive reviews from her students. She is actively involved in teaching medical students, residents and neuroscience graduate students. In her first year as the professorship-holder, she taught clinical skills to 2nd and 3rd year medical students and taught geriatric, psychiatric and neurological residents in her movement disorder clinic at UBC. She also delivered a session to UBC neurology residents at the academic half-day and lectured at the national residents' movement disorder course in Montreal. She was course coordinator for Directed Studies in Experimental Medicine (MEDI 548) for a Master's student in neuroscience.

In addition to clinical and classroom teaching, Dr. Cresswell is also part of three Master's committees for neuroscience students studying the following topics: manual tracking in PD: implications for L-dopa-induced dyskinesias; the role of cerebellum in compensatory mechanisms in PD; and motor effects of Galvanic Vestibular Stimulation (GVS) in PD. Dr. Cresswell is also part of the UBC neurology resident rotation committee, which has involved drawing up the goals, organizing the rotation and mentoring residents.

Dr. Cresswell presented at the Grand Rounds of three Faculty of Medicine programs in her first year as professorship-holder. For Neuropsychiatry Grand Rounds, she presented on the topic of impulse control disorder in PD. For Geriatrics and Neuroscience Grand Rounds, she presented on the management and pathophysiology of non-motor symptoms in PD.

TEACHING AND MEETING PRESENTATIONS

The Neuroscience and Parkinson's Communities

Dr. Cresswell also extended the reach of her teaching beyond the Faculty of Medicine to the provincial and national neurology and Parkinson's disease communities. In September 2010, she presented on impulse control disorders in PD at Forefronts Neurology, the annual BC neurology meeting. Together with Dr. McKeown, she organized and presented at the Parkinson's disease summit in Vancouver in November 2010. The summit was very well-received by the neurologists, other physicians and nurses interested in Parkinson's disease from around BC who attended. Drs Cresswell and McKeown will repeat the event this November and plan to expand it to a yearly event for western Canada. Dr. Cresswell also chaired and presented at the movement disorder special interest group session at the Canadian Neurological Sciences Federation congress in Vancouver in June 2010.

In addition to the education of medical professionals, Dr. Cresswell also takes her teaching into the realm of patient education. She presented at the scientific day of the PPRI and gave two presentations with an update on Parkinson's disease to donors of the PPRI.

Through her enthusiasm for her specialty and her natural ability to teach, Dr. Cresswell has already built substantial enthusiasm and excitement about advancing care for Parkinson's patients among her students, residents and colleagues at UBC and across Canada.

Looking Ahead to 2011-2012

Dr. Cresswell will continue and build upon her clinical and teaching activities. In her research, data collection will begin for the clinical-genetic database and the biomarker studies. She is planning to examine the effects of exercise in Parkinson's disease, both clinically and with PET and MRI imaging studies in collaboration with her colleagues at the PPRC. In October, Dr. Cresswell will lead a workshop for newly diagnosed Parkinson's patients organized by the Parkinson's Society BC, and she has been asked to speak at a similar event in April.

Thank You

The Faculty of Medicine, the Pacific Parkinson's Research Center and Dr. Silke Cresswell extend our sincere appreciation to the Pacific Parkinson's Research Institute for your longstanding support and for creating the Pacific Parkinson's Research Institute Professorship in Parkinson's Research Endowment. Your investment has broadened the scope of opportunity for Dr. Cresswell at UBC, where she is improving the lives of BC Parkinson's patients, inspiring the next generation of Parkinson's clinicians and researchers, and establishing a program of research that will advance our understanding of this debilitating neurodegenerative disease.

