## The Non-Motor Parkinson's Disease Study Group: Almost 10 Years and Where Are We?

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The Non-Motor Parkinson's Disease Study Group (NM-PD-SG), led by Prof. K. Ray Chaudhuri, was proposed to the International Parkinson and Movement Disorder Society (MDS) in 2010 and subsequently became the first MDS study group, serving as a roadmap for the development of other study groups within the Society. The NM-PD-SG is based on the principles of the MDS being global, gender and ethnicity balanced, as well as a global network of research members, who are key opinion leaders.

The NM-PD-SG has led several initiatives on advancing non-motor Parkinson's disease research across a broad range of areas, such as non-motor outcomes with deep brain stimulation, infusion therapies, non-motor endophenotypes, biomarkers and non-pharmacological research, including exercise, dance and acupuncture.  A key project has been the Society commissioned global development of the MDS Non-Motor Rating Scale (MDS-NMS), an updated, improved, and refined



*The MDS Non-Motor Parkinson's Disease Study Group meeting in Nice, France in 2019.*

version of the existing Non-Motor Symptoms Scale (NMSS), with a recent publication of the United Kingdom and USA validation. A new MDS webinar, "The MDS Non-Motor Rating Scale (MDS-NMS): A new measure for non-motor Parkinson's disease," is also available. The MDS-NMS will now undergo a global translation program and is likely to become a companion tool for motor assessments in clinical trials and clinical research. The process will further champion formal measurement of the burden of non-motor symptoms in Parkinson's in real life and the long overdue recognition of the impact of non-motor symptoms by policymakers around the world.

We have also started highly popular short presentations during the annual study group meetings from key Industry partners who are developing treatments or trials addressing non-motor symptoms in PD. These slots have proven very successful for all stakeholders and also extremely informative for the committee and allows discussion on future evolution of treatments for non-motor symptoms in PD.

In addition, in order to engage junior researchers in non-motor PD research, the NM-PD-SG have now created a trainee research subgroup of theme-led research initiatives. In total, 12 themed subgroups (Table) addressing a broad range of non-motor symptoms have been created, with two subgroups taking on a crosscutting role (on artificial intelligence in non-motor symptoms and statistical/analytical support). The groups range from non-motor outcomes and interventions, such as DBS, infusion and other therapies for PD, to clinical subtyping, and personalised medicine, driven by specific non-motor symptoms, such as sleep, fatigue, pain and cognition, and will be led by a range of gender-balanced and diverse junior researchers selected by NM-PD-SG committee members. The aims in the short term are to produce high-quality reviews and pragmatic real-life practice/case based guidelines

complimenting the MDS evidence-based guidelines task force initiatives. As an example, the artificial intelligence group will explore home monitoring, wearables, and other technologies, which may indirectly monitor non-motor symptoms and to develop a traffic-light-system for non-motor monitoring in Parkinson's disease. To ensure statistical and methodological robustness of all data generated through the subgroups, Dr. Carmen Rodriguez-Blazquez and Dr. Joao Forjaz, from Madrid, Spain, will provide oversight across the subgroups.

Special initiatives are the role of complementary therapies, nutrition and effects on non-motor symptoms in Parkinson's as well as the impact on occupation, lifestyle and income related to non-motor symptoms. This collaborative effort will involve interdisciplinary working across neurology, movement disorders, and allied health specialists, and will mark a novel foray in non-motor research in PD. In the years to come we therefore hope the work from the trainee led research subthemes of the NM-PD-SG will enrich many unmet needs related to non-motor symptoms of PD.

## The 12 Newly Formed Themed Subgroups

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| Pain and sensory symptoms | Complementary therapies for NMS |
| Sleep dysfunction | Pharmacology and basic neuroscience of NMS |
| Advanced therapies | Artificial intelligence as applied to NMS |
| Depression, anxiety, and psychosis | Biomarkers for NMS |
| Professional occupation and links to NMS | Autonomic and gastrointestinal dysfunction |
| Cognition and apathy | Cross-cutting analytical subgroup |