Population Health Sciences at the DZNE

An important focus within the DZNE is on population research, in addition to its major programs in basic research and clinical research. Population research is distinct from clinical research in that its research domain is the population at large whereas in clinical research the domain is the individual patient. Population research is different from basic research in that it is primarily concerned with finding the causes and prevention of disease and the improvement of health, whereas basic research is primarily oriented towards understanding of biological mechanisms. Under the umbrella of “population health sciences” a range of disciplines are gathered, including epidemiology, demography, public health and health policy research. Although the scope of research differs between these different areas, they share the goal of understanding, preserving, and improving the health of human populations and individuals.

The director of DZNE Population Health Sciences is Prof. Monique M.B. Breteler

**Epidemiologic research** into neurodegenerative diseases was virtually non-existent in Germany at the time the DZNE was constructed. Breteler and her team are building up this area of research at the DZNE in Bonn, in close collaboration with local partners from several faculties of the University Bonn as well as other research institutions in the area. To this end, a new prospective cohort study, the Rhineland Study, is being established. The Rhineland Study will include up to 30,000 people, aged 30 years or over at baseline, from up to 30,000 people, aged 30 years or over at baseline, from three geographically defined areas in and around Bonn. All German-speaking inhabitants in the appropriate age-range in those areas will be invited to participate in the study. The study will be coordinated as a single center study, and will use three fully equipped recruitment centers for examinations of the study participants. Beuel, a stable mostly residential area of Bonn on the right bank of the river Rhine, has been selected as the first recruitment site. The other sites are currently being chosen. Data collection will emphasize quantitative and objective measurements. Core elements are extensive structural and functional brain imaging on 3 study-dedicated 3T MRI scanners, detailed cognitive assessments (focusing on assessment of several aspects of memory function and executive function, as well as on a wider range of cognitive functions that may be affected by neurodegenerative processes) and extensive collection of biomaterials (including blood, cells, urine and, where possible, CSF). This will be complemented with detailed investigations of other organ systems, notably the cardiovascular, renal, immune, and metabolic systems. It is intended to recruit 10,000 participants per year, so the first round of examinations will take approximately three years. Thereafter, participants will undergo full re-examinations every three years, supplemented with continuous monitoring through record linkage and in-between.

**Demographic research**, with its focus on the causes and consequences of demographic factors on health and health care in the European context of welfare state regimes, is being conducted in the DZNE Rostock under the leadership of Prof. Dr. G. Doblhammer-Reiter. The group uses population-based social science surveys to understand societal causes and consequences of early life and childhood circumstances on cognitive functioning at old age. A special focus is on the effect of early life and childhood circumstances on cognitive functioning at old age. Analyses is the European survey SHARE (Survey of Health, Ageing and Retirement in Europe) which covers eleven European countries with a special emphasis on the family situation, the type of care, the welfare regime, health and cognitive functioning. The data that are being generated by the team are crucial for any prognostic modeling regarding dementia related societal health care needs in Germany in the years to come.
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