Background The Greater Hobart region (42.5°S) of Tasmania has consistently had the highest recorded prevalence and incidence rates of MS in Australia. We re-assessed MS epidemiology in 2009–2019 and assessed longitudinal changes over 68 years.
Methods Cases recruited from clinic-based datasets and multiple other data sources. 2019 prevalence and 2009–19 annual incidence and mortality rates estimated, and differences assessed using Poisson regression.
Results 436 MS cases resident on prevalence day were identified. Prevalence 197.1/100,000 (147.2/100,000 age-standardised), a 48% increase since 2009 and 4.6-fold increase since 1961. 2009–19 incidence rate 5.9/100,000 person-years (6.1/1000,000 age-standardised), a 2.8-fold increase since 2001–9 and 60% since 1951–61. 2009–19 mortality rate 1.5/100,000 person-years (0.9/100,000 age-standardised), comparable to 2001–9 (1.0/100,000) but reduced by 61% from 1951–59 (2.1/100,000). Standardised mortality ratio decreased from 2.0 in 1971–79 to 1.0 in 2009–19. Female:male prevalence sex-ratio was 2.8, comparable to the 2009 value (2.6), incidence sex-ratio (2.9) increased from 2001–9 (2.1). Comparisons with Newcastle, Australia (latitude=32.5°S) demonstrate a near complete abrogation of the latitudinal prevalence gradient (ratio=1.0) and incidence (ratio=1.1), largely attributable to changing Hobart demography.
Conclusions Prevalence and incidence of MS continue to increase significantly in Hobart, alongside marked reductions in mortality and increased case longevity. The marked increase in incidence is of particular note and may reflect changes in MS risk behaviours decades ago including changes to sun exposure, obesity rates, and smoking behaviours, particularly in females. Falling mortality contributes to increase longevity and prevalence and likely reflects improved overall MS health care and implementation of DMT therapy.

2225 HIGHER DIET QUALITY ASSOCIATED WITH SHORT AND LONG-TERM BENEFITS ON HEALTH STATE UTILITIES OVER 5 YEARS' FOLLOW-UP IN PEOPLE WITH MULTIPLE SCLEROSIS

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Purpose Diet has been investigated for its effects on health-related quality of life (HRQoL) in people with multiple sclerosis (MS), but there is limited research of its impact on Health State Utility (HSU), a metric for HRQoL. We aimed to investigate cross-sectional and prospective associations between diet quality and HSU in an international cohort of people with MS over the course of five years.
Methods HSUs were estimated by the SF-6D, and diet quality was estimated by the Diet Habits Questionnaire (DHQ). Cross-sectional relationships of DHQ with HSU and the short- and long-term effects of baseline DHQ with subsequent HSU were evaluated by linear regression at 2.5- and 5-year reviews. Prospective associations between DHQ and HSU were evaluated via lagged panel-data linear regression at 2.5- and 5-year reviews. Analyses were adjusted for relevant demographic and clinical covariates.
Results Among a sample of 839 participants, DHQ was cross-sectionally associated with higher HSU: participants in the top DHQ quartile had 0.06 higher HSU at 2.5-year (aβ:0.06,95% CI:0.04–0.08) and 0.04 at 5-year reviews (aβ=0.04,95% CI:0.01–0.07). Prospectively, highest quartile DHQ was associated with 0.03 higher HSU (aβ=0.03,95% CI:0.01–0.04). Highest baseline DHQ quartile was associated with a 0.03 higher HSU 2.5 (aβ=0.03,95%CI:0.01–0.05) and 5 years later (aβ=0.03,95%CI:0.00–0.05). The Pain HSU subdomain had the strongest associations with diet quality, while Fat and Fruit/vegetable DHQ subscores had the strongest associations with HSUs.
Conclusions Higher diet quality is associated with improved quality-of-life in people with MS indicating the potential of diet as a valuable adjunct to the management of MS.

2226 CANOMAD: A CASE REPORT

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A previously well 52-year-old-man developed insidious onset of imbalance resulting in falls over 2 years, particularly in low light settings. Additional symptoms included fluctuating horizontal diplopia, patchy sensory changes in the limbs, dysgeusia, postural light-headedness, and 10kg weight loss. Examination revealed a complex variable ophthalmoparesis, anisocoria with poorly reactive pupils, mild distal weakness, global areflexia, glove and stocking distribution reduction in pin-prick and temperature sensation, pseudoathetosis of the fingers, and positive Romberg's test. Appendicular coordination with eyes open was preserved, alongside distal vibration and joint position sense. Unaided gait in daylight was normal. Nerve conduction studies revealed a sensory-predominant axonal neuropathy affecting upper more than lower limbs. MRI brain with gadolinium was unremarkable. Blood tests revealed a significant IgM kappa paraprotein (13g/L). Anti-ganglioside GQ1b IgG was negative, however anti-GQ1b IgM and anti-GD1b IgM were positive. Cold agglutinin antibodies were detected. A diagnosis of CANOMAD (chronic ataxic neuropathy, ophthalmoplegia, IgM paraprotein, cold agglutinins, and disialosyl antibodies) was made. Bone marrow aspiration and trephine identified a population of abnormal medium-sized lymphocytes. MYD88 mutation lead to a diagnosis of Waldenstrom's macroglobulinemia. A trial of intravenous immunoglobulin induction (2g/kg over 5 days) resulted in no symptomatic improvement. The patient underwent 6 cycles of rituximab-bendamustine chemotherapy with stabilisation of diplopia and sensory changes and improvement in balance. This case is a useful reminder of the features of CANOMAD, a rare paraproteinaemic neuropathy representing a chronic form of Miller-Fisher syndrome, and highlights the importance of assessing paraprotein and anti-ganglioside antibodies in patients presenting with atypical neuropathy.