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Platforms

(P01) Assessing Disability Progression Using MS Functional Composite

Background: In the AFFIRM study, which was the pivotal phase 3 clinical trial of natalizumab monotherapy, change in Multiple Sclerosis Functional Composite (MSFC) was a pre-specified endpoint. MSFC is a measure of disability in multiple sclerosis (MS) that consists of a 25-foot timed walk, a 9-hole peg test, and a 3-second Paced Auditory Serial Addition Test (PASAT3). The clinical relevance of a significant change in this measure of disability has not been defined. Analyses of MSFC data from AFFIRM were conducted to explore prespecified degrees of sustained worsening from baseline MSFC scores as clinically relevant endpoints.

Methods: AFFIRM patients were randomized to receive natalizumab 300 mg ($n = 627$) or placebo ($n = 315$) intravenously once every 4 weeks. MSFC was performed at baseline and every 12 weeks. The proportion of patients with 10% and 20% worsening from baseline MSFC scores sustained for 12 weeks was determined using Kaplan-Meier analyses. **Results:** The estimated proportions of patients with 20% worsening in MSFC scores at 2 years (based on Kaplan-Meier analysis) were 5% in the natalizumab group and 9% in the placebo group (hazard ratio [HR] = 0.49, 95% confidence interval [CI] 0.28–0.84; $P = .01$). The estimated proportion of patients with MSFC progression increased to 11% in the natalizumab group and 19% in the placebo group (HR = 0.53, 95% CI 0.37–0.76; $P < .001$) when the 10% criterion was used. Data on the optimal cut point, which categorizes patients into those with no disease activity versus disease activity during the 2-year study, are presented. **Conclusions:** Defining the optimal cut point for sustained disability progression using MSFC scores may be a useful tool in demonstrating treatment effects in future clinical studies in patients with MS.

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(P02) Clinical Characteristics of Neuromyelitis Optica Spectrum Disorders

Background: The observation of cases of neuromyelitis optica (NMO) spectrum disorders has made possible the study of these disorders. **Objective:** Assess the clinical characteristics of relapsing NMO (R-NMO), monophasic NMO

(m-NMO), recurrent optic neuritis (r-ON), recurrent longitudinally extensive transverse myelitis (r-LETM), and associated symptoms of central nervous system (r-LETM-CNS). **Methods:** Sixty-two patients with NMO spectrum disorders were studied. Results of cerebrospinal fluid, magnetic resonance imaging, and somatosensory (SSEP), visual (VEP), and brainstem (BAEP) evoked potentials were registered. **Results:** Clinical forms were R-NMO (65.6%), r-LETM/r-LETM-SNC (21%), m-NMO (6.6%), and r-ON (6.6%). Black patients had a longer disease duration (16.4 ± 6.5 years, $P = .009$) and more relapses (8.2 ± 3.9 , $P = .0008$), and 90% had brain MRI abnormalities, whereas they were present in only 11 (42.3%) whites and 6 (40%) mulattoes ($\chi^2 = 7.600$, $P = .022$). These results suggested that there may be a higher resistance and tolerance in blacks for R-NMO. r-LETM had a more delayed age at onset, attained a higher physical disability, and had fewer relapses in a short period. Six (9.6%) coexistent diseases, 12 (19.3%) associated factors, 5 (8.1%) cases with familiar forms, and aggressive course were observed. Abnormalities of SSEP/VEP were in correspondence with the clinical localization. The possible use of VEP and SSEP in seeking optic nerve or spinal cord subclinical abnormalities could also be evaluated. The clinical form of MS was relapsing-remitting type 1b, and progressive forms were not found. A cooperative study is in progress to know the course and prognosis of NMO spectrum disorders in the Caribbean area.

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(P03) Safety of Novel Oral Fumarate BG00012 in Patients With Relapsing MS

Objective: Present results from a phase 2b safety-extension study of BG00012 in relapsing multiple sclerosis (MS) patients. **Background:** BG00012, an oral fumarate derivative, is an immunomodulator with a mechanism of action that seems to combine cytoprotective and anti-inflammatory properties. During the 24-week, placebo-controlled period of a randomized, dose-ranging phase 2b study in relapsing MS patients, BG00012 720 mg/day reduced the number of new gadolinium-enhancing (Gd+) lesions from Weeks 12 to 24 by 69% versus placebo ($P < .001$). **Methods:** During a 24-week safety extension, patients originally randomized to BG00012 continued on their BG00012 dose (120, 360, or 720 mg/day), and patients originally on placebo were tran-

sitioned to BG00012 720 mg/day. Safety assessments were performed every 4 weeks. Adverse event (AE) monitoring occurred throughout the study. **Results:** Of the 257 originally randomized patients, 235 completed the placebo-controlled period; 219 of 225 patients that entered the safety extension completed this period. Among all treatment groups, flushing (17%), MS relapse (16%), and nasopharyngitis (16%) were the most common AEs. For patients already on BG00012 during the placebo-controlled period, the incidence of flushing, headache, nausea, upper abdominal pain, and pruritus decreased over time, approaching the levels observed in the placebo group during the placebo-controlled period. In addition to nasopharyngitis, common infections included influenza (4%), upper respiratory tract infection (4%), and pharyngitis (4%) and were reported in a similar proportion of patients in each treatment group in both periods. Serious AEs occurred infrequently and affected similar proportions of patients in each treatment group. The proportion of patients relapsing was reduced by 18%, 26%, and 58% during the safety-extension compared with the placebo-controlled period for patients treated with BG00012 120, 360, and 720 mg/day during both periods. **Conclusion:** Over 48 weeks, BG00012 was a safe and tolerable treatment for patients with relapsing MS.

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(P04) Selecting Relapsing MS Patients for Natalizumab Therapy

In the AFFIRM study, natalizumab monotherapy reduced relapse rate by 68% and disease progression by 42% and was well tolerated in patients with relapsing multiple sclerosis (MS). Progressive multifocal leukoencephalopathy (PML) was reported in two MS patients treated with natalizumab in combination with interferon beta-1a. Based on an extensive safety evaluation of patients who were treated with natalizumab, the risk of PML associated with natalizumab was estimated to be 1 in 1000 patients (95% confidence interval [CI] 0–2, 2–8/1000) over a mean treatment period of 17.9 months. We present recommendations for selecting patients for natalizumab therapy in an effort to maximize benefits and minimize risk. Criteria for appropriate patient selection will help identify patients who need more efficacy and those who are likely to benefit. Subgroup analyses from AFFIRM demonstrated that patients who fulfilled the inclusion criteria benefited from natalizumab treatment, regardless of baseline disease activity. Nevertheless, patients with highly active disease at baseline (defined by a high number of prestudy relapses and the presence of Gd+ lesions on MRI) experienced reductions of 81% and 64%, respectively, in annualized relapse rate and sustained disability progression. Therefore, patients with relapsing forms of MS who are experiencing high disease activity, regardless of whether they are on active treatment with disease-modifying therapies, may be considered as the most appropriate candidates for natalizumab treatment. Similarly, patients who cannot tolerate other disease-modifying therapies may benefit from natalizumab. Assessment of

immune competence involves analyzing treatment history, comorbidities, and baseline laboratory values (complete blood count with differential). PML occurs predominantly in immunocompromised individuals, such as those with a history of human immunodeficiency virus, hematologic malignancies, organ transplant, and treatment with antineoplastic or immunosuppressive agents. Detailed recommendations on how to select patients for natalizumab therapy are provided.

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(P05) Three-Year Efficacy of Natalizumab Monotherapy in Relapsing MS Patients

Background: The AFFIRM study demonstrated the efficacy of natalizumab monotherapy over 2 years of treatment in patients with relapsing multiple sclerosis (MS). Patients who completed AFFIRM were eligible to receive natalizumab in an open-label safety-extension study. We report efficacy data over 3 years of treatment with natalizumab in the AFFIRM and safety-extension studies. **Methods:** In the safety-extension study, all patients received natalizumab 300 mg intravenously every 4 weeks. Efficacy outcomes included relapses reported at unscheduled visits and as adverse events, and Expanded Disability Status Scale (EDSS) score assessment every 6 months. Brain parenchymal fraction (BPF) was also measured from magnetic resonance imaging scans taken as part of a safety evaluation after suspension of natalizumab dosing in February 2005. **Results:** Intent-to-treat analyses of data from all randomized patients (natalizumab $n = 627$, 531 dosed in safety extension; placebo $n = 315$, 259 dosed in safety extension) were conducted. Median total duration of natalizumab exposure was 2.72 years (min, max: 0.10, 3.15) for patients originally randomized to natalizumab in AFFIRM and 0.60 years (min, max: 0.23, 0.93) for patients originally randomized to placebo. Over the 3-year treatment period, the annualized relapse rate (ARR) was 0.23 in natalizumab patients, and Kaplan-Meier analysis showed the proportion of relapse-free patients was 67%. ARR was 0.26 in Year 0-1, 0.20 in Year 1-2, and 0.15 in Year 2-3. In patients who switched from placebo to natalizumab in the safety-extension study, the ARR in Year 2-3 was 0.27 (2-year ARR was 0.73). Kaplan-Meier estimates of the proportions of patients with 6-month sustained disability progression were 13% at 3 years in natalizumab patients and 23% at 2 years in placebo patients. BPF data are presented. **Conclusions:** Results from the safety-extension study strongly suggested that the beneficial effects of natalizumab monotherapy are sustained beyond 2 years.

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(P06) Severity-Based Classification for MS: Defining Benign MS

Objective: Establish uniform definition for historical benign multiple sclerosis (BMS) with predictive power. **Background:** BMS prevalence estimates range from 5% to 52%,

reflecting a wide variety of definitions applied to BMS. Follow-up of “benign” cohorts reveals significant progression to more severe disease, suggesting BMS definitions are too permissive. **Method:** Natural history data suggest that Expanded Disability Status Scale (EDSS) scores of 3.0–4.0 represent a watershed in disease evolution, and disability remains relatively stable after the third decade. Therefore, proposed BMS disability/duration coordinates were set at EDSS \leq 3.5 at 30 years from symptom onset. These coordinates, and other definitions of BMS, were applied to a severity algorithm, the Multiple Sclerosis Severity Scale (MSSS), which ranks patient cross-sectional EDSS scores on a decile scale compared to the distribution of disability in a large reference patient cohort with comparable disease duration. **Results:** The disability/disease duration coordinates proposed here yielded an MSSS score $<$ 1.7, considerably more restrictive than those proposed by most authors. MSSS 1.7 corresponded to approximate milestones: EDSS 1.0/3 years disease duration, 1.5/9 years, 2.0/14 years, 2.5/17 years, and 3.0/20 years. The proposed definition of MSSS $<$ 1.7 coincides most closely with a recent definition of BMS by Pittock et al. Because MSSS is a decile frequency rank score, 1.7 predicts prevalence of 17% for BMS in the reference population. Remarkably, this is precisely the prevalence measured by Pittock et al. in Olmsted County. **Conclusion:** Historical *benign MS* may be defined as MSSS $<$ 1.7, corresponding to EDSS \leq 3.5, disease duration 30 years from symptom onset. The predicted prevalence of BMS is 17%. Because of ambiguities in the term *benign*, we suggest substituting the term *mild MS*. This severity-based definition has the distinct advantage of predictive value, because MSSS may be assigned based on a single-point EDSS assessment after only 1 year disease duration.

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(P07) Relationship Between Disease Activity and Quality of Life in Patients With MS

Introduction: The variable nature of multiple sclerosis (MS) has resulted in modest correlations between magnetic resonance imaging (MRI) results and clinical assessments (Expanded Disability Status Scale [EDSS]) or with measures of cognitive function. This study seeks to extend the earlier reports by assessing the relationship between measures of MS disease activity (EDSS and MRI) and patient-reported quality of life (QOL). **Methods:** Baseline data from 38 patients enrolled in the Veterans Health Administration (VHA) MS Center of Excellence–East Longitudinal Study with complete data were analyzed. Data from the baseline evaluations analyzed were Kappos et al.’s neurostatus, EDSS, MRI (American Academy of Neurology/National MS Society protocol), MS Impact Scale (MSIS-29; MS-specific QOL), and SF-36v (generic QOL). **Results:** Significant correlations were found between the brainstem, pyramidal, cerebellar, and sensory measures from the neurostatus and EDSS with the physical component subscales of MSIS-29 and SF-36v. The number of new lesions and total number of lesions were positively correlated with the MSIS-29 physical subscale. A qualitative measure of overall brain atrophy (0–3) did not correlate with any QOL measure. No significant correlations were found with the mental subscales of either MSIS-29 or

SF-36v. Stepwise multiple linear regressions revealed that 64% of the variance in the MSIS-29 physical subscale was accounted for by MS subtype and EDSS ($P < .001$). Similar results were obtained for the SF-36v physical subscale. However, no significant results were observed for the MSIS-29 and SF-36v mental component subscale scores. **Summary:** These preliminary analyses confirm previous findings showing that objective (MRI) and clinical (EDSS and MSFC) measures of disease activity are significantly related to the physical components of QOL. However, no such relationship was found between measures of disease activity and the mental components of QOL, which may be partly because of the relatively small sample size and/or the insensitivity of these measures to the life impact of MS.

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(P08) Pediatric MS Patients Seen at UAB Center for Pediatric-Onset Demyelinating Disease

Background: In January 2006, the National Multiple Sclerosis (MS) Society funded the Center for Pediatric-Onset Demyelinating Disease (CPODD) at the University of Alabama at Birmingham Children’s Hospital as one of six Pediatric MS Centers of Excellence to provide multidisciplinary care for children and adolescents with MS and related demyelinating disorders. **Purpose:** Twenty-five new patients \leq 18 years old with demyelinating disease were evaluated by CPODD in 2006. Twelve were diagnosed with MS: five with clinically isolated syndromes, five with acute disseminated encephalomyelitis, one with neuromyelitis optica, and two with indeterminate diagnoses. We compared the new MS patients evaluated in 2006 to our prior cohort of 18 MS patients followed at Children’s Hospital of Alabama from 1995 to 2005. **Methods:** MS patient records were systematically reviewed with respect to demographics, age at onset, symptoms, diagnostic criteria, exacerbations, disease-modifying therapy (DMT) usage, and CPODD services provided. **Results:** The 2006 pediatric MS cohort was 75% African American and 75% female and had a mean age at symptom onset of 12.6 ± 1.8 years. More than 58% lived outside Alabama, but these demographics were similar to our 1995–2005 Alabama pediatric MS cohort (66% African American, 66% female; mean onset age 13.1 ± 0.8 years). Eight (75%) of the 2006 cohort met Poser criteria at the time of diagnosis; four (33%) were diagnosed by McDonald criteria alone. Time from symptom onset to MS diagnosis was 1–32 months (mean 8 ± 3 months). Ten (83%) of these patients used DMTs; two did not. Total exacerbations ranged from one to seven (mean 3 ± 1). Provided services included neuropsychological testing, school psychology, psychiatry, and social services. **Conclusions:** MS has gained increased awareness as a pediatric-onset chronic illness. Knowledge gained from this review will be used to anticipate future patient needs and foster better ways to diagnose and treat pediatric MS.

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(P09) Motivational Interviewing as Early Vocational Intervention in MS

People with multiple sclerosis (MS) experience physical, cognitive, environmental, social, and psychosocial barriers that lead to difficulties in maintaining employment. Even though 90% of people with MS have a history of employment, only 20–30% will be employed 5–15 years from diagnosis. Successful interventions need to take into account the complex interaction between functional limitations and programmatic barriers. Various vocational rehabilitation interventions have been tried to help people with MS retain employment but with mixed results. It was found that many people with MS did not participate in interventions designed to preserve employment until they experienced a work-related crisis because of fatigue, concern about disclosure, or preference to not anticipate future problems. We have identified motivational interviewing (MI) as a potential alternative intervention to assist in preserving employment. MI is a brief, client-centered, directive counseling approach that enhances intrinsic motivation to change by exploring and resolving ambivalence. The efficacy of MI to promote change across various populations for health behaviors ranging from substance abuse to fitness has been demonstrated. Given the complex barriers that confront people with MS seeking to preserve employment, MI may be a valuable tool in that effort. The University of Washington MS Rehabilitation Research and Training Center is providing brief telephone MI sessions to individuals with MS to explore the costs, benefits, and ambivalence of study participants toward making accommodations at work in efforts to stay employed through the progression of the disease. Based on a review of our pilot data, we believe MI has the potential to be a useful tool in preserving employment and have advanced to a randomized clinical trial with 60 subjects. We describe and/or demonstrate the intervention and review the qualitative results of the pilot work.

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(P10) Moderators of Disablement in People With MS

Cumulatively, findings from existing studies of progression of disablement in multiple sclerosis (MS) suggest that once a threshold of detectable functional limitation has been reached, typical clinical variables (eg, age, sex, symptoms and onset of disease, exacerbations) do little to explain further progression of functional limitation and disability. Few studies have examined psychological, behavioral, or social predictors of disability, which may be more modifiable than other previously identified factors. The purpose of this study was to explore how selected behavioral and psychological factors may influence the disablement process in people with MS. Specifically, we explored which contextual factors (age, length of diagnosis, comorbidities), resources (social support, use of assistive devices), barriers, and health behaviors predict functional limitations, disability, and quality of life (QOL) and which intraindividual factors might moderate the relationship between functional limitation and disability and disability and QOL. A sample of 442 people with MS (371 women, 71 men; mean age 56 years, mean time since diagnosis 19 years) completed a survey including measures of

demographic and disease-related variables, barriers, social support, health-promoting behaviors, functional limitations, disability, and perceived QOL. Regression analyses and structural equation modeling (SEM) were used to explore predictors and moderators of limitations, disability, and QOL. The predictors explained significant amounts of variance in functional limitations (38%), disability (13%), and QOL (67%), but there were no significant moderators of the relationship between functional limitations and disability and disability and QOL. A model testing the indirect effects of functional limitations and direct effects of disability and the proposed moderators explained a large amount of variance in QOL (66%; comparative fit index = .95, Tucker-Lewis index = .89, root-mean-square error of approximation = .09). Longitudinal data are needed to fully test the proposition that intraindividual factors moderate the disablement process.

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(P11) Service Models and Financing Methods for MS Adult Day Programs

Goals: We studied five multiple sclerosis (MS) adult day programs (MSADPs) in Los Angeles, CA; Denver, CO; Minneapolis, MN; Cleveland, OH; and Rochester, NY. The goals of this National MS Society (NMSS)-sponsored study were to study the range of service models, financing methods, and other factors promoting development and sustainability of MSADPs and to identify potential strategies for developing new MSADPs. **Methods:** We applied a case-study research design, including site visits to each MSADP and interviews with staff, patients, family members, staff of parent organizations, local NMSS chapter staff, and local medical providers. Planning, policy, and operations documents were reviewed at each site, along with reports to funding agencies. Detailed financial data were collected, including sources of revenue, direct and indirect costs, in-kind contributions, service volume, and unit costs. **Results:** We found a range of MSADP service models, including medical adult day, mixed social and medical, recreational therapy, and wellness models. Financing methods were also diverse, including Medicaid reimbursement, grants, charitable contributions, subsidies from parent organizations, in-kind staff support, patient fees, and cross-subsidies from related services. Clients included MS patients with advanced disabilities, although the percentage requiring wheelchairs varied from 32% to 92%. Patients and family members reported multiple quality of life, medical, and social benefits from the programs and had very high levels of satisfaction with MSADP services and staff at all five sites. **Discussion:** Efforts to develop new MSADPs have several models to choose from. This should facilitate efforts to match local community conditions to sustainable service and financing approaches. Future studies should include quantitative evaluation of MSADP outcomes to better document the range of benefits provided by these programs. This could support expanded funding options and increase reimbursement levels provided by Medicaid and other payers.

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(P12) Invisible or Visible Disabilities: Predicting Support and Distress

Many individuals with multiple sclerosis (MS) have invisible symptoms, such as fatigue, pain, or depression. Others have more visible symptoms, such as decreased mobility or difficulty lifting. Invisible disabilities may be more distressing and affect the amount of social support that an individual receives. If the disability is visible, individuals may receive more social support. Data were obtained from 145 individuals with MS who were recruited through a chapter of the National MS Society. Individuals indicated how they wanted to complete the survey. Twenty individuals were interviewed by telephone, 103 completed a mailed paper-and-pencil survey, and 22 completed an Internet survey. Measures used to assess MS symptoms, social support, and health distress included the abbreviated five-item Modified Fatigue Impact Scale, the five-item Pain Effects Scale, the Mental Health Inventory, four items to assess health distress from the MS Quality of Life Questionnaire-54, and the full-length Modified Social Support Survey. Using stepwise regression, depression was the only invisible disability that predicted the amount of social support one received ($\beta = .358$, $t = 4.124$, $\rho < .0001$), and it explained almost 12% of the variance. When predicting health distress, pain ($\beta = -.955$, $t = -3.177$, $\rho = .002$), mobility limitations ($\beta = .970$, $t = 3.714$, $\rho < .0001$), and depression ($\beta = .679$, $t = 8.467$, $\rho < .0001$) all contributed and explained almost 52% of the variance. Depression appeared to be a powerful predictor of obtaining social support and a major contributor to health distress.

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(P13) Targeted Cognitive Interventions Improve Cognitive Functioning in Patients With MS

More than half of patients diagnosed with multiple sclerosis (MS) experience cognitive impairments directly attributable to MS. Impairments can appear early in the disease course and continue to decline with disease progression, underscoring the need for effective cognitive interventions that can stem or slow the tide of cognitive impairment. The current study targeted three main areas of cognitive impairment in MS: secondary memory, working memory, and speed of processing. Sixteen subjects recruited from the MS Center at NYUHJD participated in 14 hourly sessions meeting biweekly. Seven sessions focused on memory strategies emphasizing active organization of information through use of mnemonics, semantic categorization, distinctive imagery, context associations, and schema elaboration. Seven sessions conducted in a computer lab included exercises designed to improve processing speed and working memory. With accuracy and/or reaction time to perceptual/cognitive tasks as a measure, feedback was provided after each trial, task, and session to encourage faster and more accurate responses. Specific tasks were repeated within and across sessions to enable charting of improvement and were also given in graded difficulty to maximize progress. Program effectiveness was evaluated by computing pre-post intervention differences for standardized assessment measures, which included the California Verbal Learning Test (CVLT-II) to evaluate short- and

long-term memory, the Processing Speed Index (PSI), and Working Memory Index (WMI) components of the Wechsler Adult Intelligence Scale (WAIS III). Significant differences were obtained for the short- and long-delay indices of CVLT-II ($P < .04$ and $< .01$, respectively) and for PSI ($P = .03$). Overall, WMI improved but did not attain significance ($P = .08$). However, a highly significant difference was obtained on the Digit Span subtest of WMI ($P < .01$). These results showed that cognitive remediation targeting specific impairments in MS is effective in improving cognitive functioning. We are currently evaluating the durability of intervention in a 6-month follow-up.

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(P14) Four-Year Study of Berg Balance Test Scores in Sample With EDSS Score ≥ 4

Background: Many people with multiple sclerosis (MS) report balance as being nearly as problematic as fatigue in causing difficulty with activities of daily living. Balance relies on the integration of inputs from many systems and then the motor responses that result from these inputs. Any or all of these systems can be damaged via the demyelinating lesions that are characteristic of MS. The Berg Balance Test (BBT) includes 14 tasks that determine a person's ability to maintain positions of increasing difficulty. The maximum score is 56.

Methods: Subjects were in the MS-F202 Fampridine-SR study continuing with the open-label study. At each visit, they completed the BBT. **Results:** Nine subjects completed 10–11 BBTs over a 4-year period (6 women/3men, mean age 52.89 years; mean Expanded Disability Status Scale [EDSS] score 5.78 at the start of the study). BBT mean scores ranged from 13 to 48. All subjects demonstrated a range (5–25 points) in scores over the 4 years, although the range within any 1 year was usually < 10 points. There was also a significant (.026) but small correlation (-0.225) between the mean BBT score and EDSS. **Discussion:** BBT is a test of functional balance skills that are often impaired in subjects with MS. These subjects all reported falling, and all used assistive devices at least part time for ambulation. A score of < 48 on the BBT indicates that the subject is at risk for falls, which is validated in this study. The negative correlation also indicates that the BBT is measuring balance impairment. **Conclusion:** Balance impairments cause functional limitations in many people with MS. This study demonstrated that the BBT is a valid measure of balance for use over time in a sample with MS. Objective measurement of these impairments will allow for early intervention and perhaps delay the onset of dependence.

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(P15) Epidemiology of Sexual Dysfunction in MS in the United States

We report findings on the first epidemiologic study of sexual dysfunction in multiple sclerosis (MS) conducted in the United States. The MS Intimacy and Sexuality Questionnaire (MSISQ) was used as the outcome measure. It assesses primary (directly stemming from MS symptoms), secondary (indirectly stemming from MS symptoms or symptomatic treat-

ments), and tertiary (stemming from psychosocial and cultural issues) sexual concerns. We analyzed 8580 NARCOMS MS registry spring 2006 survey responders, of whom 5976 completed the MSISQ. Completers were more likely to be younger (50.4 vs 56.7 years, $F_{(1,8521)} = 708, P < .001$), employed ($\chi^2 = 22.7(2), P < .01$), have higher incomes, and be less disabled ($F_{(1,8540)} = 481, P < .001$), which may reflect a bias toward underestimating sexual dysfunction in the current study. There were no meaningful differences between completers and noncompleters on sex or level of psychological distress. Participants were from all 50 states and Washington, DC, with the greatest number ($n = 649$) from California and the fewest ($n = 17$) from Hawaii; 75.4% of respondents were female. Clinically significant sexual dysfunction (SD) was defined as the endorsement of one or more symptoms that have interfered with sexual activity or satisfaction "almost always" or "always" over the past 6 months. In this analysis, 69.7% of the 5976 responders had sexual dysfunction. The most frequently reported sexual dysfunctions were orgasmic difficulty (38.7%), erectile difficulty or inadequate vaginal lubrication (38.6%), diminished pleasure (36.2%), loss of libido (32.0%), problems with moving one's body during sex (30.2%), and genital numbness (28.9%). Controlling for age and disability severity, there were no differences between men and women on total MSISQ scores, although women reported higher primary dysfunction ($F_{(1,5405)} = 21.6, P < .001$) and secondary dysfunction ($F_{(1,5405)} = 6.3, P < .05$), whereas men reported higher tertiary dysfunction ($F_{(1,5405)} = 24.5, P < .001$). Symptoms of SD correlated moderately with MS symptoms.

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(P16) Pain in People With MS Residing in Long-Term Care: Traits and Treatments

Background: Although scientific literature is emerging regarding the assessment and management of pain for people with multiple sclerosis (MS) living in the community and for elderly people living in long-term care (LTC), little exists for those with MS who are in LTC. **Objective:** The purpose of this study was to describe the pain people with MS in LTC experience, discover whether pain varies by person/disease characteristics, and delineate the patients' perspectives of current pain assessment and management techniques. **Methods:** Forty-one MS patients living in seven facilities in a metropolitan area were interviewed about demographic factors, MS disease-related factors, psychosocial factors, pain factors, pain medications, and staff/self-employed pain-management techniques. **Results:** About half (56%) of the MS residents were currently in mild-to-moderate pain on a continual basis, mainly in the legs, hips, and back, and found pain to be one of the most bothersome symptoms. MS-related symptoms, namely fatigue, difficulty swallowing, and urinary tract infections, were highly associated with pain. Fewer than 25% of the residents reported ever being asked to measure their pain. The patients rated most of their prescribed pain medications as effective but were often unable to name the medications they were taking. Nonmedicinal pain-management techniques offered by staff, such as ice

and pillows, were not considered helpful. The patients' greatest concern was in regard to the side effects associated with the pain medications, such as drowsiness and additional weakness, which patients weighed when deciding whether to accept medications. Several patients reported supplementing their pain medications with their own interventions, such as herbal remedies and self-developed exercises. **Conclusions:** Pain is of considerable significance to LTC residents with MS. More information on how they view the effectiveness and drawbacks of staff-provided interventions, as well as the benefits of self-treatment, might be useful in guiding best practice in pain management.

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(P17) Cognitive Impairment in MS: New Neuropsychological Screening Instrument in Spanish: Validation of MS Neuropsychological Screening Questionnaire for Latin American Population

Background: Cognitive impairment occurs in 40–60% of all patients with multiple sclerosis (MS). Impaired cognition greatly impacts the conduct of activities of daily living, leading to poor quality of life. To our knowledge, there is no sensitive instrument available in Spanish to screen for possible cognitive impairment (CI) during a routine outpatient appointment. The MS Neuropsychological Screening Questionnaire (MSNQ) is an instrument consisting of 15 questions administered in 5 minutes to screen for CI in MS, developed by R. Benedict. **Objective:** Validate the Argentinean Spanish version of MSNQ using the Argentinean version of the Brief Repeatable Battery (BRB) of neuropsychological tests as reference. **Design/Methods:** We assessed 125 MS patients and their informants with the MSNQ. A subgroup of 36 patients and their informants was tested twice. Patients were also assessed with the BRB, the Expanded Disability Status Scale (EDSS), and the MS Functional Composite (MSFC). **Statistical Analysis:** We used two sample and paired t tests for comparing groups. Pearson's r was used to assess association between outcomes. Nonparametric equivalences are reported when necessary. Internal consistency was tested using Cronbach α analysis. **Results:** MS patients had a mean disease course of 8.7 years (SD 6.7), and 86.4% of them had a relapsing-remitting condition with a mean EDSS score of 3.2 (2.2) and mean MSFC of 0.24 (1.2). Internal validity: Cronbach α was ≥ 0.90 for all patient and informant MSNQ scores. Test-retest reliability: both patient and informant MSNQ test and retest scores showed high correlations (Spearman's $\alpha = .88$ and $.94$, respectively). Criterion validity: all BRB scores were negatively associated with the informant's MSNQ score (Spearman's $\alpha = -0.2$ to -0.4). A score of ≥ 17 in the MSNQ is a cut off that shows high sensitivity (0.82) and acceptable specificity (0.65) to discriminate patients with possible CI as assessed with the BRB. **Conclusions:** The Argentinean MSQN is a reliable, valid, and easy-to-administer questionnaire to screen MS patients with possible CI.

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