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Symposia

S2-1

Morphological, proteomic and transcriptomic changes in depression

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Structural and functional neuroimaging studies in major depression have identified alterations in key brain areas, predominantly in prefrontal cortex, the related nuclei in the basal ganglia and in the hippocampus. These findings have stimulated the search for their morphological and molecular pathological correlates. Findings in published studies have been reasonably consistent. In the prefrontal cortex a reduction in the density of glial cells in major depression has been reported in most studies in mid-life and mixed age groups but not in older adults. Conversely neuronal density has not been found to be different in those studies examining the prefrontal cortex in these younger subject groups but in older depressed subjects there is evidence for a reduction in neuronal density, especially of pyramidal neurones in cortical layers 3 and 5 of the orbitofrontal cortex, though not in our study of the dorsolateral prefrontal cortex, where there may be an increase in glial density. Gene expression profiling and proteomic studies have yielded less consistent results in mid-life subjects but our current investigations in late-life depression have identified alterations in several cell signalling and neurotransmitter and receptor systems.

S2-2

Do white matter lesions predict future depression? New data from the Ladis study

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Growing evidence from cross-sectional studies suggests a link between cerebral white matter changes and depressive symptoms in older people, though the temporal association between the two, in particular whether changes are causal, remains unclear. This study aimed to investigate the role of white matter changes on MRI as an independent predictor of depressive symptoms at one year after controlling for known confounders.

In a pan European multi-centre study of 639 non disabled older subjects MRI white matter changes, demographic variables and clinical variables including cognitive scores, quality of life, disability and depressive symptoms were assessed at baseline. Clinical assessments were repeated at 1 year.

Using logistic regression analysis, severity of white matter changes was shown to independently and significantly predict depressive symptoms at 1 year after controlling for baseline depressive symptoms, disability and other important potential confounders ($p < 0.01$).

White matter changes predate and are associated with the development of both depressive symptoms and future depressive episodes. These findings support the vascular depression hypothesis and have implications for treatment and prevention of depression in later life.

S2-3

Neuroimaging study focused on the prognosis of late-life depression

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Growing evidence has been reported the close association between cerebrovascular disease and late-life

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depression. The term 'vascular depression' has been used to describe a subtype of depression occurring later in life and characterized by the cerebrovascular changes that may be related to the onset and prognosis of depression. Neuroimaging has been a critical tool in exploring its pathophysiology, and may potentially be utilized at some point as a biomarker for late-life depression. It is often stated that depressive phenomenology and prognosis differ between elderly and younger depressed patients, in the direction of more severe symptoms and poorer outcome in elderly individuals. However, few studies addressed the relationship between cerebrovascular changes and long-term prognosis of late-life depression. In this symposium, we will present following our studies on the prognosis of late-life depression. 1) the effects of cerebrovascular changes on the course of depressive symptoms, rate of dementia and mortality for 10 years, 2) the relationship between brain function using fMRI and recurrence of depressive episodes in late-life, 3) the effects of depressive mood and loss of interest on functional recovery in elderly patients after stroke.

S2-4

Optimizing Treatment Outcomes in Old-Age Major Depression: Challenges that Remain

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This presentation will review the past decade's progress in improving the data base on the efficacy of treatments for non-psychotic, non-biploar major depression in old age. Overall, about 50% of elderly can experience complete response with first-line pharmacotherapy, leaving a substantial number with incomplete response. Incomplete response can be managed by adjunctive pharmacotherapy with other antidepressants, atypical antipsychotic agents, or via depression-specific psychotherapies (e.g., CBT, IPT, PST). All of the information available to us currently on incomplete response is, however, based upon open trial data. Thus, controlled studies of incomplete response must be high on the scientific agenda for our field. Such studies need to distinguish incomplete response from treatment non-adherence and self-medication with alcohol or other substances.

In a similar way, we have made progress in understanding how to keep older depressed people well, that is, how to prolong recover and delay recurrence. That said, however, a substantial minority of elderly still experience recurrence of major depressive episodes despite use of maintenance antidepressant pharmacotherapy. Predictors of brittle long term response including symptoms of anxiety, higher levels of medical burden, and possibly cognitive impairments like executive dysfunctions. Thus, additional controlled evidence is needed to improve the development of long term disease management strategies for depression in old age.

Finally, given that currently available treatments relieve only a relatively modest portion of the burden of illness in late life depression, it seems more important than ever to develop and test prevention strategies. Based upon current knowledge of the risk factors for depression in old age, it seems appropriate to target subsnydromal cases, that is, people who are already though not fully symptomatic. Doing so may be both efficient (in terms of number needed to treat) and effiective (in terms of attributable fraction of cases prevented by addressing subthreshold cases).

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S3-1

Elder abuse: Violence against elderly

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The elderly are often in a vulnerable situation because they depend on family members or others to help with personal care and financial management. The abuse to the elderly can take several forms such as physical, sexual, emotional, social, psychological, financial, abandonment and neglect. The authors intend by this work to give a short revision of different types of violence and abuse on the elderly, reframing the epidemiological reality in Portugal and giving clinical examples. The difficulty in affirming violence on the elderly is based on the fact that shakes the family conception of security, affection and respect. The bad treatment and neglect of this victim is usually kept quiet because they are afraid of

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loosing the carer and left alone, being put in home without privacy/family, being exposed to public inquiry or even misbelieved or blamed for bad behaviour. The professional health carer has the obligation to help prevent their elderly patients from abuse and neglect by family members and other home care providers.

S3-2

An exploratory study of help-line services for protection of elder abuse in Brazil

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Older person abuse is not a new phenomenon. Elder people are victims of different types of violence. They range from being insulted and beaten by their relatives and caregivers (domestic violence), to abuse suffered at public transportation and institutions (social violence). Even though Brazilian legislation is well developed, only after the Elder Individual Act (Estatuto do idoso) it became mandatory for health professionals and for any citizen to report cases of elder abuse. However, is unknown how are elder advocacy services equipped. Are there specific elderly advocacy services throughout Brazil? Are citizens and health professionals fulfilling their duty to report any sort of violence? What type of violence is most often reported? This exploratory study seeks to answer some of the above questions. With this purpose in mind, a preliminary assessment was made about availability and operation of telephone helpline services for older persons, called in Portuguese, Disque Idoso. The study found different forms of domestic violence against older persons. The most frequent type of abuse found in the study is abandonment of older persons. This suggests lack of information and proper ability of the family to care for them. On the other hand, public policies and ineffective or even non-existent, to support families and older persons.

S3-3

An overview of the phenomenon of elder abuse and neglect: What are the intervention options?

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The re-emergence of Elder Abuse and Neglect as a serious concern for the health establishment has only recently met with a political will to action interventions in many European Countries. However, North America and Australasia has well advanced intervention procedures. This presentation will overview the state of the art in understanding and responding to elder abuse and neglect. Recent research in the UK outlining the prevalence of elder abuse and neglect will be explored alongside new legislation: the Adult Support and Protection (Scotland) Act and the Mental Capacity Act.

S4-1

Changing Korean family and its implications for the elderly care

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Korean society is experiencing rapid changes which are certain to bring the changes in the lives of older people and their families. Until very recently, care for the elderly has been regarded as a family matter and the family has been the primary source of long-term care assistance for the frail elderly. Korean government's heavy reliance on private families in welfare also contributed to sustain this family value and phenomenon. However, rapid socioeconomic and demographic changes and consequent changes in family structure and family norm in recent. Korea tend to destabilize the basic conditions for the family care in old age and change the nature and directions of inter-generational care-giving exchanges within Korean families. Most notable changes in Korean family are: 1) Decreased family size and nuclearization of family structure, and subsequent decline of availability of family members for the elderly care. 2) Changes in family norm, specifically, decreasing importance of filial piety norm and decreasing willingness to care for elderly members of the family. This paper will look at how these changes in Korean family would specifically affect the nature and stability of family care for the frail elderly and address the need to integrate both formal and informal care in order to ensure effective care to the frail elderly while also helping the caregiving family in Korea.

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S4-2

Caregiver issues: A Japanese perspective

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The Japan's public Long-Term Care (LTC) insurance scheme, which has been in place for over the last 7 years, has undoubtedly been a radical departure from the traditional Japanese way of providing family care for the elderly. Despite some problems in its initial years, the LTC scheme has brought about a welcome shift in Japanese society from the Confucian mindset that family had the sole responsibility for care towards the viewpoint that society should bear the burden of coping with the world's fastest-aging population.

Nonetheless, it seems that the general public in Japan is still worried about being a burden to their family members. For example, in a survey conducted in 2005 by Arai et al. targeting a general population of 2,224 people, 40% of them (n = 816) did not wish to live long; 70% of these 816 people gave as a reason for not wanting to live long their wish not to be a burden to their own family members. And when asked what they would feel if diagnosed with dementia, approximately 70% stated they would feel embarrassed to become a burden to their family. Thus, the general public in Japan has considerable apprehension about being a burden to their family.

These worries have a foundation. Despite implementation of the LTC scheme, caregiver burden remains a social issue in Japan; 80% of older people with disabilities are cared for at home; and 200,000 people quit their jobs annually in order to provide care to their family members.

Our recent community-based observational study revealed that care services provided under the LTC insurance have been successfully reducing burden among family caregivers in the study area. However, at the same time, our study also revealed that people with behavioral and psychological symptoms of dementia (BPSD) were more likely to be a burden to family caregivers and were less likely to use care services provided under the LTC insurance. Apparently, this paradox was derived from LTC policies. Services under the LTC insurance are not targeted to "demented older people" but to "older people with disabilities in general", thus placing emphasis on ADL deficits rather than BPSD.

There is now an effort to modify the existing 7-year-old LTC insurance scheme, in order to extend appropriate care to older people with dementia and their families and to disseminating the new notion of "socialized care for older people," particularly among the general public.

S4-3

Change the care burden before and after drug therapies for BPSD

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Behavioral and psychological symptoms of dementia (BPSD) are highly prevalent in patients with dementia and are a major source of difficulty and distress for caregivers. BPSD are one of the main reasons for hospital or nursing home placement of patients, and thus contribute greatly to the cost of caring for dementia patients. While a number of intervention studies have aimed to reduce the burden of caring for patients with dementia through family support and counselling of caregivers, few studies have focused on using drug therapy to alleviate BPSD and reduce the care burden. Patients with dementia of different etiologies show the different patterns of BPSD. For example, patients with Alzheimer's disease (AD) have higher rates of delusions and wandering than vascular dementia patients. In dementia with Lewy bodies (DLB), visual hallucinations are prominent, whereas in frontotemporal lobar degeneration (FTLD) inappropriate eating behavior and aggression are more pronounced. BPSD arise from complex changes in central neurotransmitter levels, with particular categories of symptoms linked to certain neurotransmitter abnormalities. Thus, the choice of treatment should be based on the neurochemical target for each BPSD in each dementia etiology. Effectiveness of risperidone in the treatment of delusions of theft in AD and donepezil in that of visual hallucinations in DLB has important implications especially for demented outpatients, offering the possibility of

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reducing a patient's suffering and the caregiver's burden, and resulting in the continuation of at-home care. The BPSD, especially stereotyped behaviors of FTLD, significantly improved after fluvaxamine treatment without changing caregiver's burden. The early onset seen in FTLD and its marked BPSD might add to the burden and distress experienced by caregiver's.

S4-4

Interventions for caregiver burden: What works and what is next

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Despite the extensive interest in caregiving stress and burden, there are still relatively few systematic studies of interventions and almost no efforts to examine the effectiveness of interventions in different social and cultural contexts. Most interventions have been guided by stress process models, which identify risk factors and resources as targets for treatment to reduce emotional distress or other adverse outcomes. As we move toward studies in very different types of settings, there are important lessons from the available research on how to plan and evaluate treatment, and, particularly, to address the considerable variability among caregivers. Drawing on the available evidence, and using examples from our own studies of adult day care and psychosocial interventions, we propose several factors that are critical to positive outcomes. These factors include: (1) identification of appropriate dependent measures, including outcomes and mediating processes; (2) addressing the heterogeneity of risk factors among caregivers; (3) the use of tailored treatment approaches; (4) evaluation of the links between treatment processes and outcomes; (5) consideration of the amount or dosage of treatment; and (6) clarification of the goals of treatment. Better attention to these factors will lead to improved design of interventions in many different social and cultural contexts.

S5-1

Prevalence of psychotic symptoms and use of atypical antipsychotics in the nursing home (NH)

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Introduction: Psychotic symptoms are relatively common among NH residents. As well, the use of atipycal antipsychotics among NH patients approaches 40% in some surveys. However, atypical antipsychotics are not always used to treat psychotic symptoms. In fact, the preponderence of use may be to treat anxiety, irritability, agitation, aggressivity, and at times even sleep disturbance. In order to document the prevalence of psychotic symptoms and the prevalence and reasons for us eofatypical antipsychotics in the NH, we undertook this study.
Methodology: Records of patients who received atypical antipsychotics during the 5 year period- 2001–2006 were reviewed in detail at two large community NHs in the St Louis area. Indications for neuroleptic use, type and duration of neuroleptic agent used, as well as potential metabolic sequelae over time were recorded.
Results: Results will be presented for the first time at IPA Congress, Osaka, Japan, October 2007.

S5-2

Neuroimaging of elderly individuals with psychotic symptoms

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It is well documented that elderly people with dementia, including Alzheimer's disease or dementia with Lewy bodies, often have psychotic symptoms in their prodromal stage or during their clinical course. However, elderly patients with no signs of dementia also often manifest psychosis. For this latter type of psychosis, the brain dysfunction underlying its presentation remains to be elucidated. Recently developed functional neuroimaging methods, such as SPECT and PET, allow us to observe alterations in brain function in patients with late-life psychosis, and some studies using such methods have demonstrated that late-life psychosis occurs in association with brain dysfunction. For example, a couple of studies reporting cases with a diagnosis of delusional disorder, somatic type (DSM-IV), demonstrated hypoperfusion in several brain regions using SPECT. Moreover, statistical analysis of functional neuroimaging (SPM, eZIS, 3D-SSP) allows us to observe further details of regional cerebral blood flow (rCBF) alterations in patients with psychosis. Using such methods, we examined patients with

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delusional disorder, somatic type, and found increased rCBF in the primary sensory area as well as decreased rCBF in the anterior cingulate cortex. Likewise, patients with auditory hallucination showed increased rCBF in the temporal auditory area, and this increase was diminished in accordance with the improvement of clinical symptoms. Collectively, late-life psychosis occurs in association with alterations in brain function. Although thus far few neuroimaging studies have focused on late-life psychosis, functional neuroimaging such as SPECT is a useful method to detect such alterations.

S5-3

Benefit ratio of antipsychotics in elderly patients

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Since 1995, 18 placebo-controlled trials in addition to CATIE have examined the efficacy of atypical neuroleptics in people with AD, but only 10 are in the public domain and available for meta-analysis. Risperidone has the best evidence base; it is associated with a modest but significant improvement in aggression compared with placebo (e.g. 1 mg risperidone resulted in a mean improvement of 0.84 points [95% CI 0.40–1.28] on the Behavioral Pathology in AD rating scale), but shows limited benefit for other symptoms of agitation and psychosis. The results of the recent CATIE study are extremely important, as they indicate that the changes observed on specific rating scales in previous trials are too modest to be judged as meaningful benefits by clinicians. Recent meta-analyses of placebo-controlled trials of the treatment of neuropsychiatric symptoms in people with AD have confirmed that neuroleptics are associated with significant($P \leq 0.03$) increases in the risks of parkinsonism, sedation, edema, chest infections, accelerated cognitive decline, stroke and death in this population. The current presentation will summarise the evidence, and discuss the best balance between benefit and risk in the context of other available treatment approaches, particularly recent work suggesting that the use of neuroleptics can be halved without any increase in behavioural symptoms if a programme of training and psychological intervention is introduced.

S5-4

Psychosocial interventions for older persons with schizophrenia

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Unlike younger adults with schizophrenia, relatively little research has been done on psychosocial interventions for older people with schizophrenia. Our Interventions Research Center focusing on community-dwelling middle-aged and elderly patients with schizophrenia has developed and tested several innovative psychosocial interventions for this population (most patients receive antipsychotic medication). These interventions include: Cognitive Behavioral Social Skills Training (CBSST), Functional Adaptation Skills Training (FAST), Diabetes Awareness and Rehabilitation Training (DART), Work Rehabilitation, as well as an intervention specifically focused on Latino patients (Pedal). All of these interventions are manualized. Their efficacy has been demonstrated in randomized controlled trials and their results have been reported in peer-reviewed journals. CBSST, a 24-week group therapy with 2-hour weekly sessions, was compared with a treatment-as-usual control group. Results showed significantly greater improvement in CBSST skills and self-reported functioning in the CBSST group compared to the controls, and these gains were maintained 12 months after treatment ended. The FAST program also involved 24 weekly 2-hour group sessions that addressed patients' skills in communication, transportation, medication management, financial management, social skills, and organization and planning. Compared to a time-equivalent attention control, the FAST-treated patients showed significantly greater improvement in everyday living skills and social skills at the end of the treatment and 6 months later. The DART, a group intervention used in patients with type 2 diabetes, produced a significant reduction in body weight compared to controls and significant improvements in diabetes knowledge relative to a Usual Care + Information condition over 24 weeks. In the study of work rehabilitation, supported employment resulted in competitive work attainment for 69% of participants. Finally, among Latino

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patients, culturally adapted Pedal produced significantly greater improvement in functioning than regular FAST. These findings have limitations in terms of the generalizability of the results to other populations, and choice of control groups and of specific outcome measures. Nonetheless, these results show that psychosocial interventions are efficacious, practical, and acceptable to older patients with schizophrenia being treated with medications.

S6-1

Incidence and outcome of depressive symptoms, and related clinical characteristics, in nursing home patients in the Netherlands

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Objective: To assess incidence and outcome of depressive symptoms among nursing home (NH) patients and to identify clinical characteristics predicting onset and persistence of depressive symptoms.
Methods: Depressive symptoms (GDS > 10) and relevant correlates were assessed at baseline and at follow-up (6 months) in 350 NH-patients of 14 Dutch NHs with the Geriatric Depression Scale (GDS). Relevant demographic (age, gender, partner status, widowhood, education, urbanization, religious affiliation), health-related (cognition, vision, hearing, somatic morbidity, functional impairments), psychosocial (loneliness, social support, negative life events) and care-related characteristics (length of stay, antidepressants use, adequacy of care) were also measured. To identify which demographic, health-related, psychosocial and care-related characteristics predicted onset and persistence of depressive symptoms, chi-square statistics and multivariate logistic regression analyses were used.
Results: The prevalence of depressive symptoms decreased from 41.3% to 28.9% during six months follow-up. The onset of depressive symptoms in those without depressive symptoms at baseline was 4.7%, while the rate of persistence was 63.3%. Persistence of depressive symptoms was more frequent in patients with higher GDS-scores (18–30) at baseline. No baseline characteristics were associated with onset of depressive symptoms. Persistence of depressive symptoms was only associated with more years of education.
Conclusions: Pre-admission factors and transition may largely be responsible for depressive symptoms among nursing home patients. The observed substantial decrease in prevalence of depressive symptoms over six months, is largely due to remission of depressive symptoms present at baseline. Adaptation of nursing home patients to pre-admission factors, facilitated by the nursing home environment, may explain this observed decrease of depressive symptoms. Future studies should evaluate interventions targeted at patients with higher GDS-scores (18–30).

S6-2

Screening for depression in nursing home patients: The accuracy of the geriatric depression scale and the construction of a user-friendly nursing home version

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Objectives: To determine the diagnostic accuracy of the 30-item and shortened versions of the Geriatric Depression Scale (GDS) in diagnosing depression in older nursing home patients. Subsequently, a patient- and user-friendly shortened version of the Geriatric Depression Scale (GDS) that is especially suitable for nursing home patients was constructed.
Methods: This study is based on two different data bases including 23 Dutch nursing homes: AGED (n = 333) and Assess (n = 77). Data on the GDS, the Mini Mental State Examination and a diagnostic interview (SCAN), were collected by trained clinicians. In the AGED study, sensitivity and specificity, positive and negative predictive values, and the area

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under the receiver operating curve (ROC) for the various short forms were assessed, using DSM-IV diagnosis for depression as measured by the SCAN as gold standard. Cronbachs alphas were also calculated. Then, using the Assess data, the items of the GDS were judged on their clinical applicability by three clinical experts. Subsequently, items that were identified as unsuitable were removed and internal consistency was calculated. Secondly, with respect to criterion validity (sensitivity, specificity, area under ROC and positive and negative predictive values), the newly constructed shortened GDS was validated in the AGED data set.

Results: The GDS-30 was found to be a valid and reliable case-finding tool for both major and minor depression in nursing home patients with no cognitive impairment and in patients with mild to moderate cognitively impairment (MMSE $\geq$ 15).The sensitivity of most of the shortened versions was sufficient (88.9% to 100% for major depression; 63.8% to 97.9% for minor depression). The specificity rates for most of the shortened versions were found to be less satisfactory (18.9% to 74.1%). Sufficient internal consistency was found for the GDS-30, the GDS-15, the GDS-12 and the GDS-10 (Cronbachs alphas: .88 to .72).The new constructed GDS-8 showed good internal consistency in both the Assess data set ($\alpha = .86$) and the AGED dataset ($\alpha = .80$). In the AGED dataset, high sensitivity rates of 96.3% for major depression and 83.0% for minor depression were found, with a specificity rate of 71.7% at a cut-off point of 2/3.

Conclusions: Given that the GDS-8 has good psychometric properties, is less burdening for the patient, more comfortable to use and less time consuming, it may be a more feasible measurement instrument for the frail nursing home population.

S6-3

Depressive symptoms in newly admitted nursing home residents

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Objectives: To study the relationship between the prevalence of depressive symptoms in newly admitted nursing home residents and their previous place of residence.

Methods: In 65 nursing homes in the Netherlands trained physicians assessed 562 residents (mean age 78.5, range 28 to 101, 64.6% female) within 10 days after admission. Depressive symptoms were assessed with the Minimum Data Set (MDS) Depression Rating Scale (DRS), and the MDS items: diagnosis of major or minor depression, change in depression and indicators of persistent depressed, sad or anxious mood disorder present. Previous place of residence was categorized as own home, hospital or sheltered living facility. Adjustments were performed for demographic and health related factors measured with the MDS.

Results: The prevalence of depressive symptoms (DRS 3) for all 562 residents was 26.9%; it was higher in residents admitted from their own home (34.3%) than in residents admitted from the hospital (19.7%) ($p = 0.002$). Residents who were admitted from the hospital have an adjusted Odds Ratio for having many depressive symptoms of 0.54 (95% CI 0.31 to 0.94) compared to residents admitted from their own home. There is, after adjustment, no statistical significant difference between residents admitted from their own home, or residents admitted from a sheltered living facility.

Conclusions: Depressive symptoms are very prevalent in nursing homes. Residents who are admitted from their own home, or from a residential facility, have more depressive symptoms than residents admitted from the hospital. This may reflect different conceptualizations or different adjustment patterns for those groups. For a better understanding of the factors associated with nursing home depression, future studies in detection, prevention and management of depressive symptoms should start prior to or directly after admission, especially for those who have no prior institutional history.

S6-4

Depression and mortality in nursing home residents

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Objectives: To examine the relationship depression and mortality among nursing home residents with a relative good cognitive functioning (MMSE $\geq$ 15).
Methods: Data were used of the Amsterdam Groningen Elderly Depression (AGED) study, in which 14 nursing homes in the North West of the Netherlands participated. 350 residents were included in the study of whom 73 were excluded from the analyses because of missing data. Depressive symptoms were assessed using the Geriatric depression Scale (GDS) and the Schedule of Clinical Assessment in Neuropsychiatry (SCAN) was used to diagnose minor and major depressive disorders. Survival time was calculated from baseline to date of death, or till one year after baseline for respondents who were still alive (N = 68 died in a year after baseline; 25.5%). Potential confounding variables included in the analyses were demographic (age, gender, education, partner status), health-related (cognition, somatic morbidity, functional impairments), psychosocial (loneliness, social support) and care-related characteristics (length of stay, adequacy of care). Cox proportional hazards regression models were used to examine the association between depression and mortality, adjusting for potential confounding variables.
Results: Mortality was bivariately predicted by sociodemographic (sex and age) and health-related variables (lung diseases, cardiovascular diseases, blood disorders, Central Nervous System diseases) but not by the severity of depressive symptoms, nor by depressive caseness (GDS $\geq$ 11) or depressive disorder. However, after adjusting for bivariately significant sociodemographic and health-related variables, the severity of depressive symptoms was significantly related to mortality ($p < .05$). This did not hold for depressive caseness nor depressive disorder.
Conclusions: This study showed that severity of depressive symptomatology is a risk factor for mortality among nursing home residents with a relative good cognitive functioning. Contradictory findings on the association between depression and mortality among institutionalized older people of present and previous studies will be discussed.

S7-1

Quality of life and active aging

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Population ageing is now the rapidly growing burden in both developed and developing countries on the earth except for sub-Saharan countries and a few other areas. It was triggered by increase in the population after the 18th century Industrial Revolution and exaggerated by the improved sanitation and advancement in medicine in the 20th century. In the health science field quality of life means the health-related quality of life (HRQoL). Physical functioning, social functioning, psychological functioning, overall life satisfaction/well-being and perceptions of health status are primary dimensions of the HRQoL. The World Health Organization defines "active ageing" as the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. The word "active" denotes continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force. Two important aims of active ageing are extension of healthy life expectancy and enhancement of the HRQoL. Successful aging could be defined as living long and living a life both subjectively satisfactory and objectively of the best level of functioning until the endpoint of the life. Although a variety of aspects of life should be met with in order for an individual to accomplish the successful aging, many researchers reached to the opinion that three domains are the basic requirements; physical domain (physical independence, disability), psychological domain (cognitive function, life satisfaction) and social domain (social independence, social participation). Active ageing, health-related quality of life in old age and successful ageing have many similarities and few differences in terms of concept and content. Active ageing is dependent on a variety of surroundings and individual characteristics: health and social services, behavioral determinants, personal determinants, physical environment, social determinants, and economic determinants. Biologically determined gender and cultural background are important, as well.

S7-2

Nursing policy for active aging: A review based on a few cases in Yamaguchi prefecture

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Purpose: The purpose of this study is to examine, from the active aging perspective, the effects and

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issues of the newly modified Japanese long-term care insurance system based on a few cases in Yamaguchi Prefecture.

Discussion: The long-term care insurance was launched in April, 2004 as a system to support the care for the elderly as a collective effort of society. Its user population has expanded in the past five years and its use has permeated in society steadily. However, with the expansion and permeation, it is expected that the amount of insurance benefits and the premium which supports it, will increase substantially. Since this means the increase of the financial burden on the part of the elderly, the system is currently under review. During this five-year period, the percentage of those with certification of long-term care need has increased by 80% and, in particular, the number of those with assistance need and long-term care need of degree 1 has more than doubled. Thus, the reform of the system is going to be focused on prevention. The system reform will consist of two aspects: (1) enterprises geared towards independent individuals and (2) reforming services for those with assistance need and long-term care need of degree 1. In the former, the main feature will be the community support enterprise of long-term care prevention by local governing bodies. In the latter, the benefits will be reviewed in light of the new program geared towards prevention. In view of the situation above, the usefulness of the new system was evaluated from the perspective of active aging, by analyzing a few cases of Yamaguchi Prefecture. In one of the cases, leg exercise strengthened the leg muscles and decreased the rate of falling. In the other cases, individualized training programs were implemented at visiting rehabilitation centers, and thereby the worsening of the degree of long-term care need was prevented.

Summary: Yamaguchi Prefecture, where community aging is advancing, is in need of active prevention of long-term care in order to promote the elderly QOL and independent lifestyle. Thus, active prevention will lead to attention and respect for conditions and individuality of the elderly, ensure the maintenance and improvement of their ADL, and support their active aging.

S7-3

Some related factors of successful aging: Results from Shanghai successful aging study

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Objective: 1. To investigate the distribution, and related factors, of successful aging in a Chinese urban elderly population. 2. To explore the possible mechanism of successful aging.

Methods: Part one: Based on a multi-dimensional definition of successful aging, some correlates of successful aging were investigated through the cross-sectional, community-dwelling elderly survey in Shanghai, China. Part two: The subjects included 230 elderly with successful aging (SA), 137 with usual aging (UA) and 58 with mild cognitive impairment (MCI). After 2.5 years, 156 elderly were followed up, among which there were 73 in SA group, 57 in UA group, 26 in MCI group. The psychosocial factors and neuropsychological functions were assessed. Some biological indexes were also carried out at baseline.

Results: Part one: The rate of successful aging was 46.2 %(95%CI:43.6~48.7) among community elderly aged 65 or above. Logistic regression analysis suggested that female gender, and older age were unfavorable factors for successful aging. A higher score on life satisfaction index A, more leisure activities, and being currently married related to successful aging. Part two: Comparing the neuropsychological scores between SA group and UA group according to the age (65~70 yrs, 71~75 yrs, over 76yrs), the differences at most were seen in the 71~75 year. The frequency of ACE I/I genotype and activity of telomerase in SA were significantly higher than the other groups. In fMRI scanning, SA showed special brain activation in prefrontal cortex especially dorsal lateral prefrontal cortex (DLPFC) and laterality index than that in UA and MCI elderly. At follow-up phase: The decline of cognitive function was different among three groups. Physical activity, cognitive function and mental status significantly correlated to the changes of outcome measurement of SF-36.

Conclusion: 1. The rate of successful aging in Shanghai, China is similar to that in studies from western countries. There are some potentially modifiable factors which may relate to successful aging. 2. Successful aging has some characteristics from the social-psycho-biological dimensions. Usual aging and MCI elderly still have potential plasticity on learning and memory. The 71~75 years old elderly should be targeted as sensitive stage for intervention of successful aging.

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S7-4

Social aspects of active aging - the view from Australia

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This paper considers current and future demographic trends especially for older Australians, the social conditions in which they live, their contribution to community well being through volunteerism, their leisure and employment options and the services available to support them to make the most of their later years.

Health, Economic Status, Personal and Social supports are vital elements in determining the possibility of 'active aging' and are unevenly experienced, especially by our indigenous population.

Cultural diversity is a feature of Australian society and social policy, the needs of older Australians whose first language is not English will be discussed. Services for older people with a mental illness have been integrated into mainstream health services for the past ten years in Victoria. The effect of this is examined.

S8-1

When Confucius meets Kant – how should the east respond to western ethics in the age of globalisation

Siu Wah Li

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Ethics, including medical ethics, are practised worldwide applying western standards and methods, especially those developed by Kant. However, in the East, especially in East Asia, the culture, along with ethics and code of behaviour, is still very much dominated by the teaching of Confucius. As a result, conflict and dilemma will arise. This presentation will attempt to address this dilemma using clinical situations commonly seen in the Psychogeriatric Department of Castle Peak Hospital. The following areas will be covered. Informed Consent, Confidentiality, the principle of Best Interest and Doctor-Patient relationship. The author will also try to cover some aspect of ethics as related to Buddhism and Taoism.

S8-2

An overview of the phenomenon of elder abuse and neglect: What are the intervention options?

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The re-emergence of Elder Abuse and Neglect as a serious concern for the health establishment has only recently met with a political will to action interventions in many European Countries. However, North America and Australasia has well advanced intervention procedures. This presentation will overview the state of the art in understanding and responding to elder abuse and neglect. Recent research in the UK outlining the prevalence of elder abuse and neglect will be explored alongside new legislation: the Adult Support and Protection (Scotland) Act and the Mental Capacity Act.

S8-3

Capacity and consent in dementia research

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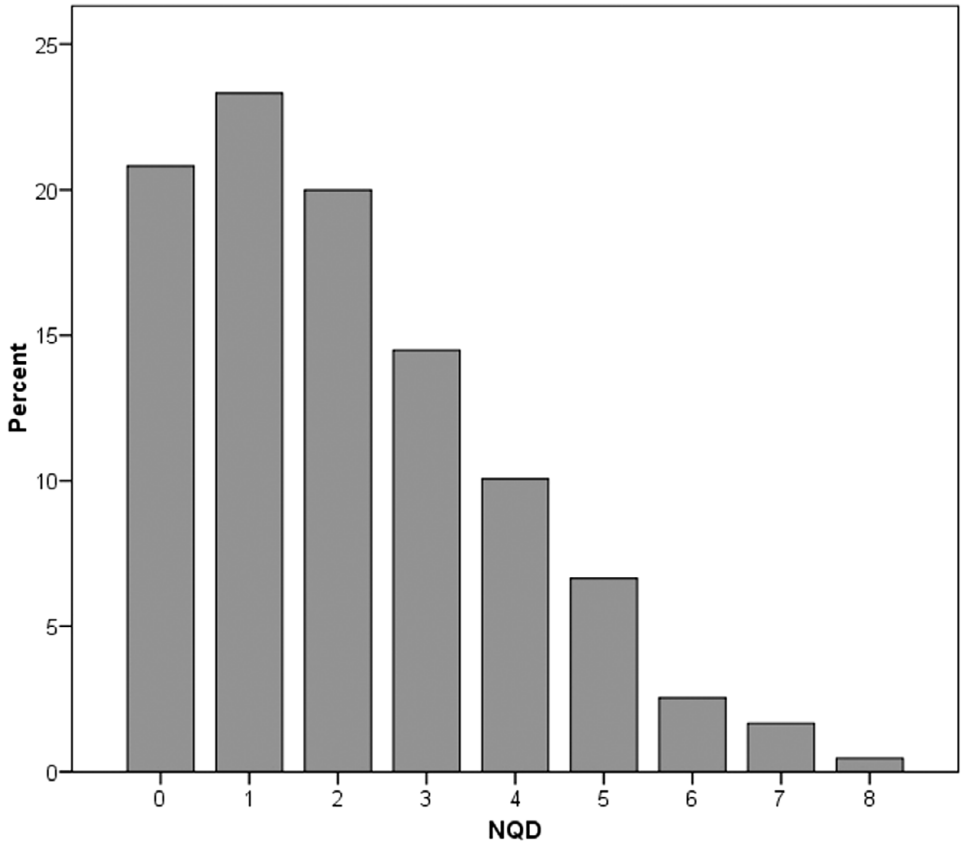
Many people participating in dementia research may lack capacity to give informed consent and the relationship between cognitive function and capacity remains unclear. Recent changes in English and Welsh law reinforce the need for robust and reproducible methods of assessing capacity when recruiting people for research.

We aimed to identify numbers of capacitous participants in a pragmatic randomised trial of dementia treatment; to assess characteristics associated with capacity; and to describe a legally acceptable consent process for research.

As part of a pragmatic randomised controlled trial of Ginkgo biloba for mild-moderate dementia, we used a consenting algorithm that met the requirements of existing case law and the exigencies of the new Mental Capacity Act. We decided who had capacity to give informed consent for participation in the trial using this algorithm and sought predictors of capacity.

Most participants (76%) with mild-moderate dementia in this trial were unable to give informed

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S8-4

consent according to the legal criteria. When adjusted for confounding, the Mini Mental State examination did not predict the presence of capacity.

Cognitive testing alone is insufficient to assess the presence of capacity. Researchers and clinicians need to be aware of the challenging processes regarding capacity assessment. We outline a procedure which we believe meets the ethical and legal requirements.

S8-4

Covariates of the use of restraints and quality indicators in Norwegian nursing homes, focusing on dementia

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Previous studies from Norway, show that 45% of the patients in special care units for person with dementia (SCU) and 37% of the patients in regular nursing homes units (RU) are subjected to at least one kind of restraints or coercive measurement and that more than 20% do not receive care according to the Norwegian quality of care requirement in 3 or more areas. The aim of this presentation is to describe whether ward characteristics as staffing, size (number of beds), type of ward (SCU or RU) and education level of the staff, and influence the uses of restraints and other coercive measurement and quality of care.

Data from 1926 patients in nursing homes was used to construct a linear variable consisting of four items of restraints and coercive measurements and four items describing lack of quality of daily care. Thus, this variable had a scale from 0 to 8 describing a number of what is called 'quality deficiencies' (NQD). A multi-level linear regression analysis was performed with NQD as outcome and patient

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characteristics and ward characteristics as explanatory variables.

The figure below shows the distribution of NQD in percentages of the 1926 patients. 30% of the variance of NQD is explained at ward level (variation between the wards) and 37% at patient level (variation between the patients). Patient characteristics such as degree of dementia, level of function in ADL, and the present of aggressive behaviour had a significant influence on the model. Of the ward characteristics, only staffing and type of ward (SCU or RU) had a significant influence on the model. Only 37% of the variation between the wards was explained by the model. This means that even when adjusted for patient characteristic and ward characteristics it is still a significant variation of NQD between the wards that cannot be explained by the explanatory variables.

Type of ward and staffing have a significant influence on NQD, but most of the variation between the wards cannot be explained by either patient characteristics or ward characteristics included in this study. 'Culture of care' is a new term, and it is possible that different cultures in different wards can explain the variation of NQD. However it is difficult to grasp what this culture of care exactly means. One definition can be that the culture of care represent the values the care of the patients in the ward are based on, implying that culture of care represent the ethical standard of a ward.

S9-1

Communication with severe demented patients

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The number of older individuals with dementia will likely increase significantly in the next decades, but there is currently limited information regarding many aspects of their life especially those with advanced or severe dementia. Definition of the term maybe qualitative and quantitative. People with severe dementia have problems communicating their experiences verbally and non-verbally, like pain. The severe demented subjects used more medicines of all kinds, especially more psychotropics, but recognition of depression was significantly lower. Pneumonia is the reported cause of death of a high proportion of AD patients. Our sample was 340 patients suspected to have cognitive impairment: 318 were demented according to MMSE criteria (score below 24) with mean value 13,09. Communication and all activities in severe demented patients would be therapeutic, enhance quality of life, arrest mental decline and generate and maintain self-esteem or create immediate pleasure, reestablish dignity, provide meaningful tasks, restore roles and enable friendships.

S9-2

Caring of the end of life for Alzheimer's disease patients: Some theoretical and practical issues

Jerzy Leszek

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End-of-life care for patients with Alzheimer's disease has implications for patients, caregivers and society. End-of-life care for patients with dementia is extremely demanding of family caregivers. During the severe stage of the illness, patients lose the ability to communicate their needs and require significant assistance in activities of daily living. Physical consequences of the progression of dementia predispose persons with advanced Alzheimer's disease to infection and fever, especially aspiration pneumonia and urinary tract infections. Families of patients at this stage of dementia must determine if they can provide care at home or if the patients should be cared for in an institution. Quality of care in patients with end-stage dementia is an important factor when deciding where these patients should receive care. According to some authors, a major obstacle to quality home care is a lack of adequate training for caregivers. Caregivers who take advantage of programs such as support groups keep their Alzheimer's patient at home longer than those who do not. Patients who receive hospice care and pain control stay at home longer and are more likely to die at home. Patients who die at home have fewer symptoms and less discomfort than those who received care in other settings. If satisfactory care cannot be provided at home, patients with progressive dementia should receive end-of-life care in an institution. Deaths of demented patients raise a lot of ethical considerations. It is always difficult to know demented patients' awareness of the end of life. It is really difficult to accompany these patients, with whom communication is essentially nonverbal. During this delicate phase of the end of life, how can

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formal health professionals help the family members who are afraid of both death and dementia? A majority of authors conclude that end-of-life care for Alzheimer's patients can be provided at their home. This care can be facilitated by hospice programs, effective pain control and psychiatric care. Very important is the improvement of our communication skills with the patient and the facilitation of interdisciplinary exchanges with the caregiver's team and with the family members to allow acceptance of the death.

S9-3

Should the physician give support to patient's wish to die?

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In the Hippocratic Oath, physicians swear not to prescribe a deadly drug or give advice to a patient that may cause death. Or, nowadays euthanasia and physician-assisted suicide have become sources of continuing controversy and are likely to be so far foreseeable future.

Once a physician swears to keep the patient alive, is it ethical when he/she administers a lethal dose of medication or another agent to a hopelessly ill or injured patient?

The achievement of modern medicine in terms off technology and treatment, enable physicians to prolong life and to delay even the presence of severely debilitating conditions. However, beneficial medicine technology may be harmful when used as a life-sustaining measure, in terminally ill patients. Elderly people themselves often fear and believe a zealous application of that kind of life-sustaining procedures will just prolong their suffering.

What should the physician do – undertake the treatment and the life-support systems or follow the "DO – NOT – RESUSCITATE" order?

S9-4

Ethics and quality of life in the caring of elderly mentally ill at the end of life

Nicoleta Tataru

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Psychiatrists have to face the appeared ethical challenges cutting mental health costs and treat the elderly with or without mental disorders, assuring them the best quality of life as it is possible during their life. We discussed about active ageing, versus morbid ageing, about the right to live versus the right to die with dignity and about ethics in the caring of elderly at their end-of-life. A morbid ageing is characterized by a process presenting clinical disorders which affects the health and mental health. Multiple losses in old age are important in decreasing of quality of life and increasing of mental health problems in the elderly. The physicians who deal with patients who approach the end have to cope with a number of dilemmas. When the patients and their families face impending death, some ethical issues arise caring for them, elderly or people with terminal disease, demented or non-demented, and may challenge the caring team. The interrelationship between the patients and their environment, the problem of their caregivers, our responsibility as doctors and patients social readjustment into society are important problems for the patient's quality of life. We try to improve the quality of life of all elderly mentally ill patients at their end-of-life, also solving the stigma and discrimination against them and their families.

S9-5

End life care of an AD patient – view of a caregiver experience in comparison with international results

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Objective: Combined quantitative and qualitative analysis of an individual caregiver view related to international scientific results of end life care of AD patients. Hypotheses: 1. Qualitative analysis of an individual perspective can suggest changes concerning empowerment of the caregivers. 2. Qualitative analysis of an individual perspective can suggest changes concerning quality of life aspects of caregivers. 3. Qualitative analysis of an individual perspective can suggest changes concerning self management of caregivers.

Methods: Analysis of an individual case during nine years. The couple participated in the SNF study: The psycho-educational program in 1998–2002. Data collection with: 1. Medical data collection (f.e. CERAD, MMS, Clock drawing, CDT). 2. Quality of life data collection (f.e. WHO-BREF). 3. Semi-structured interviews with integration of empowerment and self management aspects (f.e. KANFER, FKBS, F-SozU).

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Results: It could be documented: 1. A strong correlation between the data of the presented individual analysis of end life care of an AD patient and international results concerning quality of life aspects of caregivers. 2. Reduced international data concerning the theme empowerment of the caregivers and the management of end life care with AD patients. 3. Reduced international data concerning the theme self-management of the caregivers and the management of end life care with AD patients. 4. Qualitative analysis of an individual perspective could be used as a possible suggestion concerning empowerment of caregivers. 5. Qualitative analysis of an individual perspective could be used as a possible suggestion concerning self-management of caregivers.
Conclusions: To improve data concerning empowerment and self-management of caregivers and end life care of AD patients a qualitative analysis of individual perspectives could be useful and could be used as a possibility to empower professionals and clients in their daily care with aspects of the care at the end of life.

S10-1

Frailty and psychogeriatric disorders: Managing complexity

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Elderly people who are frail have, by definition, multiple, interacting medical and social problems. In medicine, two approaches to patients with complex problems are advocated. One is to divide the complex problems into their component parts, and address those component parts one at a time. By contrast, a second approach, commonly promoted in geriatric medicine, is to find means of embracing the complexity of elderly patents who are frail. This presentation explores the scientific basis for embracing complexity and illustrates clinical principles that manifest such an embrace. By way of example, a frailty index, which is a simple count of the deficits accumulated by an individual, has properties which are susceptible to precise mathematical description. A replicable increase in the value of the frailty index, regularity in the transitions between index values, and the presence of a limit each will be demonstrated. Some clinical consequences will be explored, for example, how the frailty index can be operationalized from data gathered in routine clinical encounters, or how an individual's frailty index value might affect the choice of therapy. The rationale for tracking not just attention and concentration, but mobility and balance in the course of a patient with delirium will be outlined as an additional example of how readily observable events can be used to evaluate more complex changes in brain function. In such ways, alternative to a strictly reductionist approach to managing the complexity of psychogeriatric patients can be implemented in daily practice.

S10-2

Frailty in relation to psychiatric illness: A population perspective

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Frailty can be defined as a constellation of multiple, interacting illnesses, impairments and disabilities, jointly referred to as deficits. How frailty relates to psychiatric illness in older adults is controversial. This presentation seeks to define frailty and its associations with psychiatric illness in order to addresses the question of such a link on a population level. For example, in a large cohort of older Canadians, frailty, defined as the accumulation of deficits and expressed as a frailty index, was associated with psychiatric illness. In this population, self-reported psychiatric illness (chiefly depression) was common, with a prevalence of 13%, and was strongly associated with high levels of frailty. People with psychiatric illness had a higher mean frailty index value than those who did not. There was a statistically significant association between increasing levels of frailty and psychiatric illness; each additional deficit present in an individual frailty profile was associated with increased odds of psychiatric illness. This association between frailty and psychiatric illness provides support for a multi-dimensional conceptualization of frailty, in which psychiatric illness is considered as a contributing factor to composite frailty. This suggests considerable overlap between the patient presentations in geriatric psychiatry and geriatric medicine, and has implications for service planning and provision. Service planners and health care professionals who work with older adults with psychiatric illness should expect frailty to be common. Frailty is complex, and thus demands complex care, extending from psychiatric illness to medical,

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functional, and social needs, met through interdisciplinary care.

S10-3

Delirium in relation to frailty

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Delirium is a disorder of consciousness that is common in frail older people. Any discussion of etiopathogenesis of delirium typically involves invocation of a long list of conditions and/or medications. Unfortunately this strategy, borne of parsimonious thinking so important and meaningful in acute medicine, often obscures the complex interplay of conditions that lead up to delirium in an older person. The fact that the "cause" of delirium in older people is often multifactorial suggests a commonality with the concept of frailty. Frailty is variably conceptualized with definitions often having two features in common: one, that it is a state of vulnerability and the other that it is multifactorial. One conceptualization of frailty holds that it is an accumulation of multiple interacting illnesses, impairments and disabilities. Frail older people can be conceptualized as complex systems close to "system failure" where any further deficit accumulation is likely to lead to a failure of a higher order function such as consciousness. However, not all frail older people develop delirium. It is proposed that delirium results in a subset of frail older people in whom greater proportion of accumulated deficits have a specific impact on consciousness. Moreover, it is proposed that resulting subtype of delirium could result from degree of effect these deficits have in reducing arousal. For example, sarcopenia of aging, or progressive decline of muscle mass, strength and quality, is an important non-disease risk factor for frailty. It is known that tonic sensory and muscle spindle activity is important in maintaining wakefulness. In a frail older person with prominent sarcopenia, with system failure the delirium that emerges is likely to be associated with decreased arousal and thus more likely to clinically manifest as a hypoactive delirium.

S10-4

Vascular risk factors and late life psychiatric illness

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Cerebrovascular and other cardiovascular diseases are common in the elderly. The two most common cerebrovascular diseases are stroke and ischemic white matter lesions. Psychiatric disorders, such as dementia and depression are also common in elderly populations. After the age of 85, the prevalence of dementia is 30% and of depression 10%. The life-time prevalence of depression approaches 50% in women and 25% in men. Stroke increases the risk of both dementia and depression. Silent infarcts and ischemic white matter lesions are also common in the elderly and also increase the risk for dementia and depression. Alzheimer encephalopathy is characterized by neuronal degeneration, extensive amounts of beta-amyloid, senile plaques and neurofibrillary tangles. Only half of individuals with Alzheimer encephalopathy develop dementia. Several neuropathologal studies report that a high proportion of individuals with AD exhibit significant cerebrovascular lesions, which may increase the possibility that individuals with AD lesions in their brains will express a dementia syndrome. Hypertension is the main risk factor both for ischemic white matter lesions and stroke. Adding to the complexity, vascular factors, including hypertension, hypercholesterolemia, overweight, coronary heart disease, hyperhomocystemia and diabetes mellitus have been suggested to be risk factors for both clinical AD, Alzheimer encephalopathy and brain atrophy. Several of these diseases are also risk factors for depression. The association between vascular diseases and depression has led to the concept of vascular depression. However, it is controversial whether this is a real entity. Psychotic disorders may also be related to vascular diseases. The findings of associations between vascular risk factors and psychiatric disorders may have implications for prevention and treatment of both types of disorders.

S11-1

Maintenance interpersonal psychotherapy in major depression of old age

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Major depressive disorder in old age often occurs within an interpersonal context. Interpersonal or social role conflicts are a frequently identified

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problem, as are attachment bereavement, major transitions in social roles (such as retirement and increasing dependency on care givers. Interpersonal psychotherapy (IPT) is a short-term, manual-based, depression-specific psychotherapy, developed by Gerald Klerman and colleagues (1984), which can deal straightforwardly with each of these problems and which is amenable to use in long-term maintenance psychotherapy to prevent recurrence of depression. This talk will review data from two completed studies of maintenance therapies in late life depression: MTLD-I and MTLD-II. The following are the key observations to be discussed: 1. In the MTLD-I study, primarily of "young old" participants (mean age 67), once monthly IPT and antidepressant pharmacotherapy were superior to drug and clinical management in protecting patients from recurrence of major depressive episodes (Reynolds et al., JAMA, 1999). IPT with pill placebo was also superior to supportive clinical management with pill placebo in preventing recurrence, especially in subjects with interpersonal or role conflicts. 2. In the MTLD-II study, of older participants (mean age 77) mostly in their first episodes of major depression, we did not detect an effect of maintenance IPT in prolonging recovery or delaying recurrence (Reynolds et al., NEnglJMed, 2006). In older people living with depression, many with mild cognitive impairment and increasingly dependent on caregivers, more direct involvement of caregivers in the process of psychosocial interventions, including IPT, may be necessary and desirable. Interpersonal conflicts, often prolonged, may be mitigated by more concrete problem solving approaches, e.g., to instrumental activities of daily living, in which the carer (often depressed himself or herself) serves as a coach and is helped to gain perspectives on the executive impairments and slowing of information processing that usually persist even into remission of old age MDD. Supported by NIMH grants P30 MH71944; R37 MH43832, R01 MH37869; by the UPMC endowment in geriatric psychiatry; and by the John A. Hartford Foundation.

S11-2

The evidence for problem solving therapy

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Problem Solving Therapy (PST) has gained a considerable reputation over the years as a highly successful and flexible psychosocial intervention for treating late life depression. It's reputation is based in part by a growing body of research based evidence that finds PST to be (1) more effective in treating depression in older adults that other psychotherapies, (2) PST's adaptability across service settings, including primary care medicine, home health care, and assisted living, (3) the ease with which providers of all types can learn PST (nurses, social workers, even MAs), and (4) it's success in treating older adults who are minorities, are of low income, and/or have mild cognitive impairments.

This presentation will cover the evidence base of PST in treating late life depression. Data will include past and to-be-published data on the effects of PST across different geriatric groups. Three studies will be discussed; data from the IMPACT Study, a multi-site trial comparing collaborative care to usual care in treating late-life depression primary care settings; the COPED study, a study of PST compared to Supportive Therapy in treating depression in older adults with executive dysfunction; and The Home Health Care study, a project to disseminate PST to assisted living facilities. The research presented here will also provide an opportunity to discuss how to use community-based participatory research methods to design interventions and studies that are most likely to result in interventions that can be generalizable to the broader community.

S11-3

Cognitive behaviour therapy in the treatment of late life depression

Philip Wilkinson

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Cognitive behaviour therapy is a well-established treatment in the management of depressive illness in younger adults. It is beneficial in the treatment of the acute episode and in the longer term can help to reduce rates of recurrence and relapse. Despite its potential benefits in the treatment of late-life depression cognitive-behaviour therapy is underresearched in older adults with no large-scale studies to date. This presentation will summarise the different modes of delivery of cognitive behaviour therapy in the treatment of depression comparing acute phase treatment with continuation phase treatment, and individual with group approaches. An eight-session group cognitive behavioural therapy intervention will be presented that has been

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used in combination with antidepressant medication with older adults whose depression has remitted/recovered. Being group-based, the intervention used a psychoeducational format and was supported by a manual. A pilot randomised controlled trial of the intervention will be presented which showed the intervention to be feasible and that despite being used in remission/recovery participants were successful in applying behavioural and cognitive techniques. Relapse rates were lower when CBT was added to medication, but in this pilot study the difference did not achieve statistical significance. Larger scale evaluation of the intervention is required. Owing to its simplicity and group-based delivery it could, if efficacious, is an affordable and novel intervention in the longer term management of late life depression. This work was supported by a grant from the Health Foundation, United Kingdom.

S12-1

Medical end-of-life decisions among elderly people in six European countries

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Several developments in well-developed countries (e.g. in morbidity, medical technology, patients' wishes at the end of life) give rise to medical end-of-life decisions (ELDs) possibly or certainly hastening the patient's death. Notwithstanding the increased life expectancy in these countries, empirical data about ELDs specifically among elderly people are scarce. This study investigates frequency and characteristics of ELDs among people deceased at the age of 65 y or older in six European countries: Belgium (BE), Denmark (DK), Italy (IT), the Netherlands (NL), Sweden (SE), and Switzerland (CH). In each participating country a random sample was drawn from all deaths reported to the official registries. All deaths arose between June 2001 and February 2002. Physicians who signed a death certificate were asked to complete a mail questionnaire about possible ELDs preceding the death involved. Response rate varied from 44% in IT to 75% in NL. Total number of reported deaths was 20480 of which 16970 died at the age of 65 y or older (10250 were 80 y or older). In each country, about 1/3 of elderly people died suddenly and unexpectedly. Percentages of deaths of elderly people preceded by an ELD ranged between 22.4% in IT and 53.6% in CH. Frequency of drug use with explicit intention to hasten death varied between 0.1% in IT and 2.8% in NL. Alleviation of pain and symptoms with possible life-shortening effect ranged between 18.2% in IT to 26.7% in DK, and non-treatment decisions with such effect between 4.2% in IT and 29.8% in CH. Few differences were found between the old (65–79 y) and the very old (80 y+). In general, compared with the younger people (1–64 y), deaths of the oldest were more often preceded by a non-treatment decision and less often by using life-shortening drugs. Proportion of ELDs among competent elderly people that were preceded by a discussion with the patient or their relatives varied widely between countries (from about 30% for SE to 90% for NL), and was mostly lower than the involvement of competent younger people (1–64 y) and their relatives. We can conclude that death among elderly people is often preceded by a medical end-of-life decision with a possible or certain life-shortening effect in all participating countries. Compared with the younger people, the overall incidence figures of these decisions are similar but there are differences found for type of decision and involvement in the decision-making process, especially for the oldest.

S12-2

Quality of life at the end of life of the elderly

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When cure is no longer possible, care should be focused on the best possible comfort for patients and their families. Quality of life (QoL) is thus the most important outcome in palliative care. However, there does not seem to be much agreement on its conceptualisation, which hampers adequate assessment. In this paper, a useful paradigm for the conceptualisation of QoL in palliative care for the elderly is presented. In addition, studies are presented showing ways of assessing QoL in this population. Assessment of QoL in the elderly with dementia at the end of life will be discussed.

In conceptualising QoL, the hierarchical nature of QoL should be recognised. General QoL is

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largely determined by its components (e.g., physical, psychosocial, practical, and other aspects identified as problems for the patients), and these components are influenced by external factors such as aspects of disease and treatment. A hierarchical model will be presented that shows these relationships. This model may be useful in choosing the most appropriate assessment tool, and may show which aspects of QoL are lacking in the assessment of patients.

The concept of individual quality of life (IQoL) fits this model: patients are asked which QoL components are important and how the components contribute to overall QoL. The patients are asked which areas are most important for their quality of life, are asked to rate each area, and are asked to indicate its relative importance. Using the ratings and the importance of the areas, a single general QoL score can be calculated that is highly relevant to the individual patient. Two studies will be discussed briefly that show the usefulness of IQoL in palliative care settings. The studies were conducted in terminal care units in nursing homes, and in a hospital-based palliative care unit. These studies show that average IQoL levels and variation in scores among patients are high, and relationships with others and physical symptoms are most important components of IQoL.

In patients with cognitive limitations, such an individual approach to QoL assessment may not be feasible, and only specific components of QoL may be assessed using proxies. E.g., Satisfaction with Care, Symptom Management, and Comfort Assessment in Dying are components of the End Of Life in Dementia (EOLD) instrument that are relevant in palliative care. Characteristics of and studies with the EOLD will be discussed.

S12-3

Symptoms, signs and diseases of terminally ill nursing home patients

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Symptoms, signs and diseases of terminally ill nursing home patients: A nation-wide observational study in the Netherlands.

Background: Nursing homes (NHs) are less well studied than hospices or hospitals regarding palliative care. For palliative care, information is needed about the patients, symptoms, direct causes and underlying diseases, and incidence of terminal ill NH patients.

Methods: Prospective observational cohort study in 16 NHs representative of the Netherlands. All long-term care patients assessed by an NH physician to have a life expectancy of 6 weeks or less were enrolled (n = 516). The symptoms-and-signs list was constructed from the MDS-RAI2.0. The validated Dutch Classification of Diseases for Nursing Home Medicine (CvZ-V)16 was used for registration of the direct cause of the terminal phase and the underlying disease.

Results: The terminal disease phase was marked with symptoms of low fluid and food intake, general weakness, and respiratory problems or dyspnea. Patients were frequently in a state of somnolence and experienced recurrent fever. Direct causes of these conditions were diseases of the respiratory system (mainly pneumonia), and general disorders (e.g., cachexia, malaise, coma, fever, septicemia). The 2 main underlying diseases of the terminal phase were mental disorders (mainly dementia) and diseases of the circulatory system (e.g., stroke). For both groups, symptoms of (very) little/no fluid intake, generalized weakness, somnolence and cachexia/anorexia were common. For patients with mental disorders (mainly dementia), the beginning of the terminal phase was marked with problems of nutritional intake, and they experienced recurrent fever. In the circulatory group, this beginning was mostly the presence of respiratory problems and/or dyspnea. Cancer was the underlying disease in only 12% of the patients, showing a different pattern of symptoms (e.g. generalized weakness, cachexia, tiredness, nausea, loss of apatite, feeling sick) compared to those without cancer.

Conclusion: A wide variety of burdensome signs and symptoms are seen in the terminal phase of nursing home patients with fluid and food intake-problems, general weakness, and dyspnea, as the most important. For patients without cancer in Dutch NHs, the terminal disease phase is difficult to predict, and once diagnosed, patient survival time is short.

S12-4

Palliative care in Japan: Current status and future

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In the 1970s, a small number of physicians began to develop a special interest in palliative care in Japan. The first hospice facility was established in 1981. The Japanese version of the WHO Cancer Pain Relief was published in 1987. It had a profound impact on cancer pain management and palliative care in Japan. In 1990 palliative care services in Japan entered a new era when the national government authorized medical insurance coverage for palliative care. In 1996, the Japanese Society for Palliative Medicine was organized and members already number more than 5,500 at present. As of the start of April 2007, the fundamental law for cancer control was implemented in Japan. It aims at the realization of prevention, early recognition, and equality of treatment, including palliative care and cancer research. Thus, medical professionals and the government have begun to recognize the importance of palliative care.

S14-1

Educational program for general practitioners

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We experienced the training of general practitioners (GPs) for diagnosis, treatment and even management of patients with dementia, mainly Alzheimer's disease (AD). We discuss about the effect of the training.

More than 2 million elderly are suspected to be suffering from dementia in Japan. A cholinesterase inhibitor, donepezil, was approved in 1999 and Long-Term Care insurance system started and Adult Guardian System was renewed in 2000. Demented elderly became able to receive treatment and use social supports. However, many demented elderly and their families did not try to see medical doctors, because nearly half of the Japanese adults recognized that dementia is not an illness but aging. Moreover, many general practitioners (GPs) are not interested in the clinical practice of dementia and do not have enough skills for dementia diagnosis and treatment. Many dementia patients are overlooked by GPs, in spite of the presence of dementia symptoms in their clinics. GPs do not give advice to dementia patients and their families; even when the diagnosis of dementia is made. Long-Term Care Insurance system is not utilized effectively both clinically and economically. Adult Guardian System is used only by a few people. It is because only a limited number of GPs have the skills of the diagnosis and treatment of dementia.

We had started to make a program for the education of GPs from 2002. This program is about the clinical practice of dementia, and includes educational programs for GPs and training system of lecturers. It has been developed and improved by psychiatrists, neurologists, specialists of teaching material, and an advertising agency, and is supported by Eisai Co., Ltd, and Pfizer Japan Inc. We applied this program for the education of GPs with trained lecturers and achieved significant results.

We continue to examine the education effect of this program. We would like to spread the framework of this program (not just the program but the frame and methodology of the GP education) over other countries. If you think that the education of GP for the clinical practice for dementia is needed in your country, we are please to support your plan as our mission, because of our significant experiences.

The program is handled by the non-profit organization, Japan Society for Gerontology and Geriatrics.

S14-2

Services available in residential facilities to manage BPSD

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A high proportion of long-term care (LTC) facility residents have brain diseases, many having progressive dementia. Some have alcohol-related brain damage. Frontal lobe pathology is common. The International Psychogeriatric Association has provided guidelines on how best to alleviate behavioural and psychological symptoms of dementia (BPSD). Strokes, Parkinson's disease and dementia due to other causes are co-morbid with depression and/or paranoid psychosis in many cases. It is vital that staff of LTC facilities monitor for development of BPSD. Depression rating scales help

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in recognition of depression; behaviour disturbance scales enable staff to monitor changes in behaviour. A consultation-liaison team model of mental health service advice and intervention is widely preferred when considering how best to deal with such cases. Anti-dementia drugs and antidepressants have their place, but so do non-pharmacological approaches. Similar considerations are applicable even in countries that do not have residential care facilities.

S14-3

Cooperation with allied medical professionals in dementia care

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Because of the problem of health care professionals (doctors, therapists, nurses) to patient ratio, it is impossible to meet all the needs of people with dementia in the Philippines. Providing care in this Third World country is challenging and difficult. The ideal method of multidisciplinary approach may not be applicable at all times due to cost and unavailability of trained manpower. This presentation outlines the unique collaborative nature of physicians, psychologists, nurses, occupational, physical, and speech therapists as well as researchers in providing the best possible care to Filipino patients with dementia with a multidimensional approach through: a) an outreach teaching program (DSP module), b) home program (Home Occupational Therapy Program for the Elderly), c) multidisciplinary care in the St Lukes Medical Center and other medical facilities, and d) research focused on adaptation of foreign tools for local use. The outreach teaching program is based on the idea of increasing the awareness and information regarding dementia and related disorders to the medical professionals in the provinces. The teaching course was a consensus output of the Dementia Society of the Philippines (DSP) members – medical doctors, nurses, psychologist and occupational, physical and speech therapist so that the entire spectrum of problems were covered and analyzed. The module includes an introduction to dementia, overview on the brief screening tools, the roles of the different allied medical professions, situation-specific culturally-sensitive non-drug remedies and review of various drugs available. The home program for people with dementia was done to help make occupational therapy accessible and relevant within individualized settings. It was done with the family in mind and the belief that services provided within the home with the help of the primary caregivers improves quality of life. Aside from home based therapy, hospitals like St. Lukes Medical Center provide individualized team-based multidisciplinary therapy. Finally, as practice should be guided by evidence, the Philippines despite funding and other limitations continues to pursue research. It has preliminary adaptation of the Disability Assessment for Dementia and recently completed normative values for the ADAS-Cog and other standardized tools for assessment of dementia among Filipinos.

S14-4

Service networks and neurological disorders

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Current issues related to rapidly aging population are producing socioeconomic burdens and changing roles of the aged, family and communities. Demand for supportive national policies and programs to deal with the aged problems are increasing. We introduced the concept of one stop total services for dementia in geriatric community mental health model in Gwangju, Korea. Candidates in this model are 21000 elderly over-60 years old living in Gwangju city area. To improve detection rate of dementia and maximize utilization of available services we introduced the delivery systems for acute, crisis, continuing care, rehabilitation and intensive support services. Severance Mental Health Hospital, community mental health centers, community health centers, other governmental offices like regional offices for welfare services are organized in this model. We define the high risk group as mild cognitive impairment patients having any other known risk factors for dementia like hypertension (systolic blood pressure, diastolic blood pressure), DM (fasting blood glucose), hypercholesterolemia (total cholesterol, LDL cholesterol) and focal neurological signs. Psychosocial interventions like telephone counselling, education, case management would have been done in this high risk group.

S15-1

Suicide in China – focus on gender difference

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Around 900,000 deaths in the world are due to suicide annually and suicide has become a major public health issue in many countries. There is a great variation in suicide rates across countries, as well as cross-cultural differences in the age and gender structure of suicide rates. In China, the suicide rate is higher in females and the suicide rate in rural areas is 3 times that in urban areas. In addition, the suicide rate in rural older people is very high and is 5 times that of the urban rate. Indeed, the rate of suicide in rural older women is among the highest in the world. This pattern is quite unique as suicide rates are in general 3 to 4 times higher in males in many western developed countries, and the difference between rural and urban areas are less marked in most countries. This presentation will be an overview of the situation of suicide in China, focusing on the gender difference, and the various hypotheses leading to the higher suicide rate in females.

S15-2

High suicide risk of Korean elderly

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Objectives: The suicide rate among Korean people as well as Korean elderly has been rapidly increasing since 1990. According to the national statistical analysis, it has two peaks, one in 1998 and the other is 2002–2003. Although the numbers of suicides per 100,000 persons in Korea became the first stand among OECD countries, there are few studies on the epidemiology, causes, and strategies to help them. The aims of this study are to disclose current situation about suicide among Korean elderly, to identify etiology in biopsychosocial aspects, and finally to suggest measures to prevent the tragedy.
Methods: The data were collected by the internet search for the journals and documents of studies on suicide among aged Koreans from 1995 thru 2007. Data from 50 (28 females and 22 males) community dwelling Korean elderly aged over 65 obtained by Cheon et al in 2004 were also cited. In addition, data from 100 (50 females and 50 males) community dwelling Korean elderly aged over 60 obtained by Cheon et al in 2005 were used.
Results: 1) The suicide rate (36.1 per 100,000) in the Korean elderly aged over 65 has been increasing over 50% since 1998, which estimated as 19.9 times of that in the general population. 2) The biopsychosocial factors possibly related to the elderly suicide in Korea are age, depression, bereavement, physical illness, elder abuse, poor economy, and social support system. Among them, the economic poverty is the most important risk factor of elderly suicide.
Conclusions: The strategy including the reduction of risk factors and the establishment of welfare services and policy for the economically poor aged persons seemed to be needed for the prevention of elderly suicide in Korea.
Keywords: High suicide rate, Korean elderly, Poor economy, Depression, Poor social support system.

S15-3

Attempted suicide in late life: A case-control study – Psychiatric diagnoses and cognitive status

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While a number of case-controlled studies concerning completed suicide in later life have been published recently, studies focusing on attempted suicide in this age group are uncommon. The aim of this study was to examine psychiatric diagnoses in elderly persons who attempted suicide and in population controls. Cognitive status was also examined as it has been suggested that cognitive decline increases suicide risk. Participants admitted to medical/psychiatric wards in connection with a suicide attempt were asked to take part in an interview with a psychologist. They were recruited from five hospitals in the western part of Sweden. The cases were 103 persons aged 70+ (47 men and 56 women). Five controls per case were randomly selected from our ongoing population studies. They were matched for age and gender. Diagnoses were made according to DSM-III-R and cognitive status was examined with Mini Mental State Examination. Two thirds of the cases fulfilled criteria for major depression. The prevalence in the control group was 6%. Major depression was associated with a more than 30-fold increase in risk for suicide attempt. Dementia was diagnosed in 8 % of the cases and 14 % of the persons in the control group (n.s). Separate analyses

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for young (n = 71) and old elderly (n = 32) were carried out. There was no difference in proportions with dementia in the younger age group. While only 6 % of the suicide attempters in the older age group had dementia, this disorder was present in almost one third of the controls. Dementia was associated with decreased risk of suicide attempt in this age group (OR = 0.14). Results remained after adjusting for age, gender and education level. While mean MMSE scores were similar in cases (MMSE scores 26) and controls (MMSE scores 25) in the total group, younger elderly attempters scored lower on MMSE than the controls and the reverse was observed in the older group. Major depression is a very strong predictor for attempted suicide in late life. Cognitive decline may be a protective factor in the old elderly.

S15-4

A framework for development of late life suicide prevention programs

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The prevention of suicide in later life presents unique challenges. Older adults have higher rates of suicide than at any segment of the population, but also lower rates of attempted suicide and suicidal ideation. Suicidal behavior in later life is not only more lethal, but also more difficult to detect. These characteristics must be reflected in the design of late life suicide prevention programs, resources for which must be strategically allocated if benefit is to be derived at the population level.

A systematic approach to late life suicide prevention requires four elements: 1) an understanding of the developmental trajectory of suicidal states in older people; 2) knowledge of risk and protective factors pertinent to this population; 3) sites in which to access the target population; and 4) evidence-based preventive interventions keyed to developmental stage, sites of "capture," and specific risk/protective factors. As well, a late life suicide prevention program will be more effective if it is "multi-layered," including a combination of indicated, selective, and universal components.

Based on these principles, we offer a framework for suicide prevention designed to guide policy makers in setting priorities for older adult suicide prevention. Because of the close association between depression and suicide in seniors, a comprehensive program must include emphasis on early detection and effective treatment of late life affective illness. Collaborative care models implemented in primary care show particular promise. Because of the high lethality of suicidal behavior in older adults, however, emphasis must also be placed on interventions designed to prevent onset of symptomatic depressive illness and other "proximal" risk states. Preliminary evidence indicates that selective approaches to reduce social isolation and optimize function among older adults in the community also may reduce suicide risk. Finally, universal strategies should be included that are designed to reduce stigma associated with aging and mental health care, restrict access to lethal mean such as firearms, and provide open access to health care services informed by the special needs of older adults.

S16-1

Psychotherapy for older adults: Evidence base, application, and modifications for special populations

Patricia Areán

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Research into the efficacy of psychotherapy for mental illness in older adults has made several strides over the last twenty years. In the 1980's the work of Dolores Gallagher-Thompson and Larry Thompson shed new light on the potential for psychotherapy as a viable treatment alternative for depression in older people. Since then, there have been several more well-designed studies that have found support for psychotherapies like cognitive behavioral therapy, brief dynamic therapy, life review, and problem solving therapy. A recent review of the literature in late-life depression has found that cognitive behavioral therapies in particular are efficacious in treating late-life depression.

Despite these advancements, considerably more work is needed to understand the benefits of psychotherapy for mental illness in late life. A majority of the research to date has used relatively healthy, young-old samples that suffer from Major Depression. The benefits of psychotherapy for more complex presentations of late-life depression, for instance, depression in medically ill samples, depression and co-morbid cognitive impairments, and depression with co-morbid anxiety and personality disorder, have not been well explored. Further,

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research on the utility of psychotherapy for anxiety disorder, late life psychosis, and substance abuse is in its earliest stages. The role that culture and faith play in determining treatment outcome is a question that is of significant relevance to any treatment outcome. The purpose of this talk is to present the existing evidence base for psychotherapy in late life, and to discuss the latest research on the effects of psychotherapy in treating depression in older adults who have medical, cognitive, and socio-economic co-morbidities. This presentation will also discuss how to modify psychotherapy for these co-morbidities. Specifically, the integration of clinical case management, cognitive remediation, and alternative modes of service delivery (home health care, telemedicine and primary care integration) will be discussed.

S16-2

Life review therapy with older adults with mild depressive symptoms and feelings of meaninglessness

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Recent studies show that reminiscence may be an effective treatment of depression in the elderly (Bohlmeijer et al., 2003) but that there is a high inconsistency among studies (Hsieh and Wang, 2003). One of the promising theoretical developments suggests that it is not only necessary to make a distinction between unstructured reminiscence and structured reminiscence (life-review) but also between life-review and life-review therapy (Bohlmeijer et al; submitted; Cappeliez, 2002). When applied in a therapeutic setting, it may be necessary to integrate life-review with other therapeutic frameworks, e.g. cognitive therapy and problem solving therapy (Watt and Cappeliez, 2000). A new life-review intervention is presented that combines reminiscence with narrative therapy. A model, based on empirical data, is presented that explains how reminiscence may reveal life-stories and styles of autobiographical reasoning that can be linked to depression. The intervention is based on this model. It consists of 8 sessions of two hours. In each session a different theme is introduced. The participants have to answer life-review questions at home. The stories and memories are exchanged and discussed during the sessions. If the participants bring forth problem-saturated stories the counsellors ask questions aiming at deconstruction of these stories and the development of alternative, more coherent and authentic stories (Kropf and Tandy, 1998). In a quasi-experimental design the effects on depressive symptomatology, mastery and meaning in life were studied. The changes on these outcomes within the experimental group ($n = 64$) were compared to a waiting list control group ($n = 43$). After the intervention the participants showed significant less depressive symptoms and higher mastery, also in comparison with the control group. The participants were also found to be less negative about their past and more positive about their future. The effects were maintained at three months after completion of the intervention.

S16-3

An integrative model of group psychotherapy with the elderly: Developmental, dynamic and cognitive perspectives

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Mood disorders, depression and adaptation to loss are common challenges for the elderly. Depressive disorders demonstrate a high prevalence, morbidity and chronicity. Psychosocial interventions, in particular group psychotherapy, can play an important role in the acute, continuation and maintenance phases of treatment for this population. This presentation will address an integrative model of group psychotherapy that synthesizes developmental, psychodynamic and cognitive-behavioral approaches. The overarching objective of this approach is the implementation of a group therapy that addresses the elderly individual's needs for: i) restoration and stabilization of a sense of self ii) increased interpersonal competence and effectiveness iii) acquisition of cognitive and behavioral skills to cope with depression and demoralization.

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S17-1

Psychosocial predictors of mental health outcomes in later life

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Background: Physical activity has been consistently associated with good mental health outcomes in later life. People who exercise experience less cognitive decline with increasing age than sedentary people and are also less likely to develop dementia, including Alzheimer's disease. In addition, data from observational studies and a small number of RCTs have shown that physical activity decreases the prevalence of depression and reduces the severity of depressive symptoms amongst older adults. Nonetheless, older adults are the least active age group of the population, but the psychosocial factors that mediate their participation in physical activity programs remains poorly understood, as does their contribution to mental health outcomes.
Aims: 1) To investigate the association between physical activity and mental health outcomes in two independent Australian cohorts totalling over 30,000 older men and women. (2) To determine the role of psychosocial factors on the level of physical activity in these cohorts. (3) To determine the independent role of psychosocial factors on cognitive function and mood.
Study Design: The Health in Men Study (HIMS) is a cohort study and the Depression and Suicide in General Practice (DEPS-GP) project is a clustered randomised trial. Procedures and Measures: Physical activity was recorded in minutes of vigorous and non-vigorous exercise in a usual week. Participants were considered to be physically active if they reported engaging in 150 minutes or more per week of vigorous physical activity. Depression was defined according to DSM-IV criteria in the DEPS-GP project or a cut-point of 7 or more on the 15-item Geriatric Depression Scale in HIMS. Cognitive function was measured with the Mini-Mental State Examination (MMSE) in HIMS. Record linkage was used to monitor all health contacts/diagnoses of HIMS participants for up to 11 years. Measured psychosocial factors included marital status, living arrangements, participation in religious activities, satisfaction with the relationship with friends and family (APGAR), engagement in social activities and networks, Duke Social Support Index. The contribution of environmental factors (such as distance/access to shops, parks, etc.) was also ascertained.
Results: At the meeting, an overview of relevant previously published studies will be presented and the results of HIMS and DEPS-GP projects reported.

S17-2

Adiposity and late-life mental health disorders

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Adiposity may be a marker for mental health disorders in late life. A lower BMI among demented has been observed in cross-sectional studies, potentially due to a greater rate of BMI decline that occurs during the years immediately preceding dementia. However, high BMI may also increase risk for dementia when measured prior to clinical dementia onset, perhaps via vascular effects or via the bioactive hormonal compounds that are secreted by adipose tissue. The role of adiposity in late-life depression is less well understood due to the episodic nature of the disorder. In relationship to dementia and depression in late-life will be discussed: 1) evidence for a role of high BMI, obesity syndromes, and BMI decline or fluctuations; 2) biological mechanisms related to adiposity; and 3) the potential for hypothalamic dysregulation over the life course. Understanding the life course of adiposity among those who do and do not develop a late-life mental health disorder, is relevant for understanding disease etiology and for shaping prevention efforts to decrease risk for mental health disorders in late life. Summary and related hypotheses presented in Gustafson D. Lancet Neurology, 2006;5:713–20. Supported by National Institutes of Health/National Institutes on Aging 1R03AG026098-01A1; the Alzheimer's Association (IIRG-03-6168 and ZEN-01-3151); and the Swedish Brain Power Project.

S17-3

Interrelationship of depression, dementia and vascular disease

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Psychiatric disorders, such as dementia and depression are common in elderly populations. After the age of 85, the prevalence of dementia is 30 percent and of depression 10 percent. The lifetime prevalence of depression approaches 50% in women and 25% in men. There is a controversy on whether depression is a risk factor for dementia. Furthermore, dementia may increase the risk for depression. Cerebrovascular and other cardiovascular diseases are also common in the elderly. The two most common cerebrovascular diseases are stroke and ischemic white matter lesions. Stroke increases the risk of both dementia and depression. Silent infarcts and ischemic white matter lesions are also common in the elderly and also increase the risk for dementia and depression. The latter is a reason for the introduction of the concept of vascular depression in the elderly. However, most depressions in the elderly are not related to vascular disease. Hypertension is the main risk factor both for ischemic white matter lesions and stroke. Vascular risk factors, including hypertension, hypercholesterolemia, overweight, coronary heart disease, hyperhomocystemia and diabetes mellitus have been suggested to be risk factors for dementia disorders, including Alzheimer's disease. Several of these diseases are also risk factors for depression. Adding to the complexity, associations between cerebrovascular and psychiatric disorders may also go in the opposite direction as several studies report that depression may increase the risk for stroke, as well as myocardial infarction. There is thus a complex interaction between depression, dementia and vascular diseases.

S18-1

When elders abuse: The elderly criminal offender

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As our population ages, the number of elderly in conflict with legal authorities will consequently increase. Elderly accused pose specific problems for the criminal justice system. Elderly individuals often have a number of medical concerns which may interfere and indeed impede the legal process at many stages including investigation phase, the criminal trial process, sentencing, and ability to carry through with court ordered disposition. These problems are compounded when the older offender has dementia. The presence of cognitive impairments may affect an individual's capacity to effectively participate in the legal process and will raise ethical concerns regarding punishment. A special population are those individuals with early or unrecognized dementia who, having been found capable of participating in the legal process and responsible for their offending behaviors, find themselves incarcerated. These individuals will express ever increasing signs and symptoms of their dementia which not only further burdens an already overtaxed criminal justice system, but raises ethical concerns regarding their capacity for ongoing incarceration. The objective of this presentation is to provide an overview of the aforementioned issues, provide examples from different countries as to how their health care and criminal justice systems have attempted to solve some of these issues as well as stimulate discussion and hopefully the impetus for further research regarding this issue which will become ever more prevalent in the coming decades.

S18-2

The role of undue influence and its relationship to testamentary capacity in will changes

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Undue influence is a strictly legal concept that is often linked in will challenges to an allegation of lack of testamentary capacity. This presentation will discuss the legal concept and review the common indications of undue influence. Some have argued that the doctrine of undue influence allows the courts to maintain a relatively low threshold for testamentary capacity and thereby preserve the principle of autonomy and individual freedom with respect to the distribution of assets. Previous notions of undue influence emphasized the concept of coercion. However, a more appropriate concept may be that of subversion of will. This allows for a continuum of influence relating to the extent of cognitive impairment or emotional vulnerability. The greater the cognitive impairment and the greater the emotional vulnerability, then less influence is required to determine that it was undue. Conversely, for an individual with only mild impairment or stable emotional mental state, a very severe level of influence to the point of

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coercion or contentment would have to be demonstrated before the influence could be considered undue. This complex relationship between cognitive capacity, emotional vulnerability and undue influence will be discussed and described in graphic form. Specific guidelines for the expert clinician and case examples will be provided.

S18-3

Just sign here: Vulnerability of older impaired adults to influence in the will-making process

Carmelle Peisah

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Who hasn't been struck by the vulnerability of older impaired adults who are wealthy, or at least perceived as such by those around them? A common scenario witnessed by those working in old age psychiatry is the older impaired adult drawn into conflict between family members and friends vying for influence. Carers of community-dwelling cognitively impaired elderly, by virtue of their close and frequent contact, are often in unique positions of influence which are sometimes exploited to the carer's advantage. The carer may be paid, or be a family member who has lived with the older person for some time. The carer may be a friend, neighbour or more distant family member who was previously uninvolved until they became aware that the older person needed assistance. Often the relationship is newly formed or there has been a change in the impaired person's attitude to the other person, coinciding with the onset of the person's disability or frailty. When this involves a change in previous alliances, the older person may be persuaded to make changes in important legal documents such as wills. It is at this point (or after the person is deceased) that clinicians are brought in to make assessments of testamentary capacity. Indeed most wills are challenged on the basis of the will-maker's capacity to identify, evaluate and discriminate between the respective strengths of the claims of potential beneficiaries. The following paper will provide guidelines as to the assessment of this important aspect of testamentary capacity drawing on research relating to family conflict and dementia. A structured approach is recommended which examines the who and what of will-making, vis: (i) the will-making pattern; (ii) the nature of the disposal of property; (iii) the awareness of and rationale for changes or revocations of previous wills; and (iv) the history and appraisal of relationships. This must be placed in the context of an assessment of the testator's overall cognitive function as well as specific skills of memory, judgement and reasoning crucial to the will-making process. Our job as assessors is to facilitate the will-making of competent testators while protecting those who are not competent from making wills that are merely passive expressions of the voices of others.

S18-4

Psychogeriatrician at the court

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Issues of elder abuse and capacity of older people frequently result in psychogeriatrician contact with attorneys. In many cases attorneys request the clinician's expertise. The expert has a responsibility to convey an understanding of the case from a clinical, and often from a research perspective. Compounding the expert's challenge is that attorneys may make errors in the course of preparing documents for their clients to sign, or in representing them or their family members, if the drafted documents lead to future litigation. This presentation will describe the types of problems and how the expert meets these challenges. Finally, I will outline suggestions on how the expert can facilitate education of attorneys in the topics of eldercare.

S19-1

Prevalence and outcomes of MCI subtypes in a rural American community cohort

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Mild Cognitive Impairment (MCI) is a state of cognition that is more impaired than normal but less impaired than in dementia. Among patients in memory clinic samples MCI progresses to dementia at the rate of 12% to 15% annually. However, in community samples, the rate of progression is considerably lower and a substantial proportion of individuals with MCI remain stable or revert to normal over time. Increasing attention is now being focused on subtypes of MCI.

In a largely rural community-based cohort in Pennsylvania (USA), we characterized individuals as having MCI based on their performance on cognitive tests administered at study entry and every

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two years thereafter. Among individuals free of dementia, we recognized 4 focal cognitive subtypes of MCI (amnestic, aphasic, apraxic, and executive), based on scores at least 1.5 standard deviations below the mean on at least one test in a single domain, and a non-focal (multi-domain) subtype in individuals with test scores 1.0 SD to 2.0 standard deviations below the mean in at least two domains. We examined the risk of progression to Alzheimer's dementia from each MCI subtype and all subtypes combined, over four years and all years (up to 12) of follow-up, calculating odds ratios (OR) and 95% confidence intervals (CI) for both periods.

At baseline, amnestic MCI had a prevalence of 9%, an OR of 9.8 (CI 5.7, 16.7) over 4 years and an OR of 10.7 (CI 7.6, 15.0) over all years. Similar figures were calculated for all subtypes. Amnestic and aphasic focal subtypes, and the multi-domain subtype, were significantly associated with progression to AD over 4 years, whereas all subtypes were significantly associated with progression to AD over all years. All subtypes had high specificity (0.90 to 0.96) and low specificity (0.04 to 0.03) for Alzheimer's dementia. Positive predictive value of the cognitive subtypes was low and negative predictive value was high, as would be expected in a community sample.

It is clear that memory impairment is not the only deficit which leads to eventual diagnosis of Alzheimer's dementia. More attention should be paid to other cognitive subtypes of MCI.

S19-2

Prevalence and cognitive performances of CDR 0.5 and MCI and progression to dementia in Japan: The Osaki-Tajiri project

Kenichi Meguro[1,2]; Hiroshi Ishii[1,2]; Masashi Kasuya[1,2]; Satoshi Yamaguchi[1,2]; Mitsue Meguro[1,2]; Kyoko Akanuma[1,2]; Hiroyasu Ishikawa[1,2]; Naofumi Tanaka[1,2]

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We investigated the prevalence and neuropsychological features for Clinical Dementia Rating (CDR) 0.5 and amnestic MCI. For normal aging, the effects of age and educational level were examined. We examined 1,501 older residents (46.8%) in Tajiri aged 65 years and over. They performed the Cognitive Abilities Screening Instrument (CASI). Depressive scores and subjective memory complaints were also evaluated. There was no age effect but an educational effect on cognitive performance in healthy adults. We found the overall prevalence of CDR 0.5 to be 30.2%, whereas that of amnestic MCI was only 4.9%. All CASI domains were deteriorated except for long-term memory and visual construction. In the CDR 0.5 participants compared with healthy adults, suggesting that CDR 0.5 is similar to very mild Alzheimer's disease (AD). Memory complaints data suggested that it would be better to exclude memory complaints from the MCI criteria. Following a prevalence study in 1998, we investigated the incidence and associated factors in the same population in 2003 and 2005. Randomly selected 771 residents in Tajiri were targeted. The final participants included 204 (65.2%) healthy older adults (CDR 0) and 335 (73.1%) people with questionable dementia (CDR 0.5). We analyzed the incidence of dementia and dementing diseases, and possible risk factors. The risk factors included demographics, lifestyle-related factors, vascular risk factors, cognitive functions, and MRI findings. Overall, 3.9% of the CDR 0 and 37.0% of the CDR 0.5 participants developed dementia during the 5-year period, whereas 40.2% of the CDR 0.5 participants developed dementia during the 7-year period. Older adults had a higher incidence. Higher CDR Box scores had a higher incidence. Of the dementing diseases, 60.8% of participants developed AD, followed by vascular dementia (VaD). Logistic regression analyses showed that age, MMSE, cognitive functions such as short-term memory, and generalized atrophy were significant predictors of progression to AD. Similarly, predictive factors for progression to VaD were age, MMSE, cognitive functions such as frontal function, and white matter lesions and cerebrovascular diseases. A comprehensive system including CDR, cognitive tests, and MRI, is recommended in community-based health policy planning.

S19-3

Reduced awareness in Mild Cognitive Impairment: Does it exist?

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Increased risk for dementia has been associated with mild forms of cognitive impairment not fulfilling criteria for a dementia syndrome, frequently referred to as Mild Cognitive Impairment (MCI). There is ongoing discussion in the literature on how to best identify those within the MCI group who go on to develop dementia. A symptom frequently present, even in early dementia, is reduced awareness of cognitive, functional and behavioural changes. However there is a lack of knowledge on whether patients with MCI experience reduced awareness.

This paper will present cross-sectional data from an ongoing observational longitudinal study which aims to determine whether reduced awareness is a predictive marker for future cognitive decline. Participants are community dwelling volunteers with MCI or normal cognition, 65 years or older, living in the metropolitan area of Perth, Western Australia. Our hypothesis is that older adults with MCI demonstrate reduced awareness compared with healthy controls as measured on the Anosognosia Questionnaire for Dementia (AQD). This questionnaire collects information from the participant and from the next-of-kin (NOK) on intellectual functioning, interests and personality with higher scores indicating more severe impairment. The final score is the subtraction of the participants version from the NOK version with positive scores indicating the presence of reduced awareness. Ninety-six participants with MCI and 87 cognitively healthy participants were studied. MCI was defined by a score of 1.5 SD or below on at least one of the CEARD cognitive battery sub-tests and the absence of dementia.

Participants with MCI showed significantly more often reduced awareness of changes to their cognition, functional level and behaviour compared to healthy controls (16.7 versus 6.9%; $p = 0.042$). Logistic regression models did not identify any significant correlation between cognitive scores and the AQD score.

Community dwelling older adults with MCI demonstrated reduced awareness compared to healthy controls, however the overall prevalence of reduced awareness was low. Although small sample size and recruitment bias are factors which have to be considered, this result suggests that reduced awareness is probably not a common clinical phenomenon in MCI. The longitudinal follow-up of this cohort will determine whether reduced awareness can assist in prediction of clinical deterioration over time.

S19-4

Cognitive impairment not dementia in elderly Yoruba: Longitudinal community based study

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Cognitive Impairment Not Dementia (CIND) is presently the focus of research in Alzheimer's disease as it holds promise for earlier detection of disease onset. There is paucity of data on CIND among elderly Yoruba who were reported in our earlier studies to have significantly lower incidence of dementia. Since 1992, research teams of investigators from the University of Ibadan, Nigeria and Indiana University, United States have been conducting a longitudinal study on elderly Yoruba concurrently with African Americans resident in Indianapolis to determine cognitive profile and epidemiology of dementia. This study was undertaken to provide data on the types, risk factors as well as the stability of CIND diagnosis during follow up.

Consenting study participants aged 65 and above, living in the Idikan ward of Ibadan municipality were cognitively assessed using the Community Screening Instrument for Dementia (CSID). CIND was diagnosed by consensus from data aggregated through neuropsychological testing, informants interview and physicians assessment. The individuals were followed for up to 5 years. Classification of CIND was based on the identified etiology and according to the pattern of deficits. The associated medical and socio-demographic factors were analyzed using chi square tests or Fisher exact test as appropriate. Variables that had a p value of 0.10 or less were included in stepwise logistic regression models. Odds ratio and p values were obtained for the final models.

One hundred and fifty two of the 423 clinically assessed study participants (35.9%) received a diagnosis of CIND. Less than 10% had any education and 71% were female. Medically unexplained

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memory loss was the most common type. During follow up, 58.6% remained CIND and 16.1% developed dementia. The risk factors for incident CIND were older age, female gender and higher body mass index $p < 0.05$.

CIND which affected about a third of the study participants represents a high risk group for subsequent dementia among elderly Yoruba. This involved 16% of the subjects. Old age and female gender were significant risk factors for incident CIND. These factors were coincidentally found to be risk factors for dementia and Alzheimer's disease in the same study population in an earlier study. The risk associated with BMI warrants further studies on lipids and other components of the metabolic syndrome.

Study supported by grants from the National Institute of Aging and the Alzheimer's Association.

S20-1

Lessons from neuropsychiatric symptoms factor analysis

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The observation that Neuropsychiatric symptoms in Dementia often occur together, rather than singly, is not new. Subtypes of Alzheimer's disease have been proposed based on groups of Neuropsychiatric Symptoms. Amongst studies of groups of symptoms The EADC thematic group has pooled NPI data on 2808 patients with Dementia; to examine the frequency of individual symptoms, to explore their interrelationships (by Factor analysis) and to examine the stability of the derived symptom groups across disease and severity. Apathy was the most common symptom (55%), whilst Euphoria (4.9%) was the least common. Four factors (hyperactivity, psychosis, affective, apathy) explained 51.8% of the variance. These factors were largely stable across disease groups (Alzheimer's disease, Vascular Dementia, Dementia with Lewy Bodies). Further exploration of such large data sets may explain more of the variance, for example by including symptoms not found in the NPI or by looking within the NPI domains. These factors may be said to intuitively reflect clinical experience but their relevance to clinical practice is yet to be established. There is some data (both pharmacological and non-pharmacological) to suggest that treating groups of symptoms rather than single symptoms in dementia may be effective.

S20-2

Neuropsychiatric symptoms and cultural differences

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There are two models to explain the discrepancy between the different patterns of behavioral and psychological symptoms of dementia (BPSD) among the ethnic groups. The first is the biological model and the second is the cultural model. However, the cross-cultural studies of BPSD are scarce. In general, these studies showed that neuropsychiatric manifestations were more or less similar among different ethnic groups; despite that differences do exist among some behavioral disturbances. Similar behavioral spectrums across different cultures suggested that the observed behaviors are more related to a common underlying biological dysfunction whereas differing patterns of behavior may indicate that cultural or environmental influences are more relevant. Agitation is one of the most troublesome behaviors in demented patients. Agitation is etiologically heterogeneous with varied associated behaviors. Several studies have found that agitation is linked to unmet needs such as poor health, depression or even pain. In different cultural backgrounds, the reasons for unmet needs might be quite different. Therefore, agitation is not a simple reaction, but rather a complex system of symptoms that derive from neurobiological changes in specific areas of the human brain as well as being derived in part from environmental/cultural factors and perhaps even genetic predisposition. The interpretation of some behavioral changes such as apathy might be culturally dependent. It makes the measurement of some domains of BPSD among different cultural backgrounds difficult and complicated. There is a need to appropriate develop cultural sensitive instruments for use in different ethnic groups.

S20-3

Results from the EADC studies and implication for clinical trial and real life assessment

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Neuropsychiatric symptoms also referred to as 'BPSD' (Behavioural and Psychological Symptoms of Dementia), are now proposed as a major component of the dementia syndrome and are as clinically significant as disorders of cognition. Behavioural changes are not only important at a symptomatic level but could be a key feature for the future disease modifying therapies. As neuropsychiatric symptoms become on average more frequent with the disease progression their assessment in the course of a trial is particularly relevant on the effect of disease- modifying agents. In this context the time is now ripe to include more specific measures for particular types of problem behaviour in future drug trials. Taking into account clinical practice as well as results from the ICTUS study the following points have been suggested by members of BPSD European Alzheimer's Disease Consortium (EADC):

- To avoid the use of BNPI total score
- To use NPI sub syndrome or single item score
- To separate the frequency and severity assessment
- To use in combination with the NPI specific behavioural domains scale to promote the combination of caregiver, clinician and patient point of view.

S20-4

BPSD end point in clinical trials: the IPA point of view

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It has been over a decade since a consensus conference of worldwide dementia experts convened by the IPA first proposed the term BPSD to refer to the panoply of behavioral and psychological symptoms accompanying dementias such as Alzheimer's disease (AD). Since the introduction of the BPSD terminology, IPA has sought to focus on the importance of BPSD as a source of excess disability, as a primary cause of caregiver burnout, and as a leading cause of institutionalization.

The costs of BPSD, both emotional and financial have also been highlighted.

This paper will focus on the evidence behind BPSD as an important cause of disability and the impact of current therapies. It is also the IPA's and the author's viewpoint that the impact on BPSD of dementia therapies may be more important than focusing on cognitive and global measures, which at the present time are the only areas of response required for the approval of anti-dementia therapies.

S21-1

Genetic studies of SORL1 in late-onset Alzheimer's disease

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About 1% of the cases have early-onset familial Alzheimer's disease (AD), genetic analyses of which have found three causal genes: APP, PSEN1 and PSEN2. The majority of AD cases are sporadic with onset after 65 years of age. APOE is well-replicated risk factor for this common form of AD. The most attractive AD gene candidates are involved in APP processing since altered APP metabolism is a unifying theme for all known genetic causes of AD. The generation of amyloid beta peptides mainly occur during the re-entry and recycling of APP from the cell surface via the endocytic pathway. We reasoned that inherited variants in the genes that are involved in these pathways might affect risk for AD. We investigated a set of seven genes known to be involved in directing the traffic of proteins inside cells; and reported that genetic variants in the neuronal

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sorting receptor SORL1 are associated with late-onset AD in different ethnic groups. We tested the inheritance of 29 SORL1 polymorphisms in nine different datasets. In total we genotyped ~6,800 DNA samples from Caucasians, Hispanics, Arab Israelis and African Americans. Our results uncovered two consistent patterns that linked SORL1 to AD. There are likely to be several different variants in the SORL1 gene that are associated with AD (as opposed to just one for APOE). AD associated variants may down-regulate tissue-specific expression of SORL1. In addition, our data demonstrate that SORL1 plays a key physiological role in the differential sorting of APP holoprotein. In the presence of SORL1, APP holoprotein is recovered via the retromer. In the absence of SORL1, APP is released into late endosomal pathways where it is subjected to beta and subsequently gamma-secretase cleavage that generate amyloid beta peptides. Hence, the inherited or acquired changes in SORL1 expression or function are mechanistically involved in causing the common late-onset form of AD.

S21-2

The genetic studies for Japanese sporadic Alzheimer's disease

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Several lines of evidence have suggested an association between Alzheimer's disease (AD) and cholesterol metabolism. Epidemiological studies have indicated that the use of cholesterol-lowering drugs may suppress the development of AD. Aside from the e4 allele of the Apolipoprotein E (Apo E) gene, which is a risk factor for sporadic AD, the genetic association between cholesterol and AD has not been proven. The genes causing familial hyperlipidemia are revealed recently. Direct association between plasma cholesterol level were not confirmed. Some proteins act as transporter of cholesterol through blood brain barrier. Multiple analyses of cholesterol, Apo E status and such proteins would be shown. The recent findings that neuronal sortilin-related receptor, SORL1 are genetically associated with sporadic AD are remarkable. SORL1 have functions for trafficking amyloid precursor protein (APP). Specific haplotype of the gene increase the risk for late-onset sporadic AD. Previous papers suggested there are inter-ethnic differences. We replicated case-control studies using our Japanese samples and would present the results. Furthermore, we addressed non-synonymous polymorphisms of the gene. Since the frequencies of Apo E status differ among ethnics, it is quite important to clarify the differences for SORL1.

S21-3

Genetic researches for Alzheimer's disease in Korea

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The proportion of the elderly people (over 65) in South Korea has been and will be growing rapidly: 3.8% in 1980, 8.7% in 2001 and an estimated 14.3% in 2020. With rapid ageing of the population, Alzheimer's disease (AD) emerges as a major health problem in Korea. A large volume of basic and clinical research activities has been directed to the field of AD including genetic researches. The Kwangju epidemiological study in elderly (KESEL) has been conducted as a series of surveys in the same geographic areas from 1999 in collaboration with 10/66 International Dementia Research Programme. Measures for all surveys include structured diagnostic instruments for ascertaining dementia (following 10/66 programme protocols), physical health, disability (WHODAS), caregiver interviews, depression, alcoholism, vascular risk factors, nutritional status and a DNA bank. Most measures have been repeated in the identical format at all examinations, allowing prospective analyses of both outcomes (dementia) and exposures (e.g. genotypes and blood assays).The associations have been evaluated and published between AD and genotypes for apolipoprotein E (Apo E), aldehyde dehydrogenase 2 (ALDH2), serotonin transporter gene linked promoter region (5-HTTLPR), brain-derived neurotrophic factor (BDNF), and methylenetetrahydrofolate reductase (MTHFR). Some aspects of gene-gene and gene-environment interactions have been reported as well. Along with the existing results, more recent findings will be briefly presented, based on the data set from KESEL.

S21-4

Gene expression profiles of metabolic enzyme transcripts in Alzheimer's disease

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The successfully functioning brain is a heavy user of metabolic energy. Alzheimer's disease, in which cognitive faculties decline, may be due, at least in part, to metabolic insufficiency. Using microarray analysis and quantitative RT-PCR, the expression of mRNA transcripts involved in glucose metabolism was investigated in Alzheimer's diseased post-mortem human hippocampal samples. Various members of the glycolytic, tricarboxylic acid cycle, oxidative phosphorylation, and associated pathways investigated were found to be statistically significantly down-regulated in Alzheimer's disease.

This finding suggests that reductions in the levels of transcripts encoded by genes that participate in energy metabolism may be involved in Alzheimer's disease processes, potentially causing or exacerbating cognitive decline. The genes involved, several of which are multifunctional, and some of the issues surrounding this type of study will be discussed.

S22-1

Modelling the cost-effectiveness of galantamine in the treatment of Alzheimer's disease in Korea

Guk-Hee Suh

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Objective: To estimate the long-term economic impact of galantamine treatment projected over 10 years in an Alzheimer's disease (AD) population based on the costs and outcomes of the prospective 1-year clinical trial of galantamine for mild to moderate AD.
Methods: the economic evaluation employs cost-utility analysis and thus calculates the incremental cost per quality adjusted life year (QALY) gained by the introduction of galantamine compared to usual supportive care using no anti-dementia drugs. This economic evaluation was performed from the 3rd party payer perspective. A disease progression model has been developed for patient population who has mild to moderate AD, was living in a non-institutional setting, and were in pre-full time care (pre-FTC) health state at the beginning. The model estimates the costs and QALYs using Monte Carlo simulations of a Markov process. A Korean literature search was undertaken to identify data of costs and health outcomes for modelling cost effectiveness analysis comparing galantamine plus usual supportive care with usual supportive care alone. The 1-year prospective study evaluated the impact of glutamine treatment on the caregiver time for patients with mild to moderate AD who were living at home. Key inputs were tested in sensitivity analyses.
Results: Incremental cost effectiveness ratio (ICER) is 4,939 US$ at base case scenario. The mean reduction in the time spent in the FTC health state (increased time in pre-FTC) is 4.6 months over 60 months. Further, 18.8% of the patient with usual care alone remained in the pre-FTC health state at 60 months, with 22.7% of the galantamine treatment group in the pre-FTC health state. This study reports the estimates ranged from 3,620 US$ to 6,740 US$ per QALY when considering only direct costs and applying the cost-effectiveness acceptability curve, and the results of sensitivity analyses against model assumptions requiring less than 10,000 US$ per QALY gained in any scenarios.
Conclusion: this study reports that the use of galantamine for mild to moderate AD is cost-effective from the 3rd party payer perspective.

S22-2

Changes in drug insurance complicate pharmacoeconomic analyses in the United States

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Medicare Part D is a federal program that subsidizes prescription medication acquisition costs for elderly persons in the United States. It went into effect January 1, 2006. Although optional, financial incentives for those currently privately paying for medications, and mandatory enrolment for those "dual eligible" (having both Medicare and Medicaid insurances to pay for their health care), led to a large majority of elderly Medicare beneficiaries in the United States being enrolled in this

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program. Because Medicare Part D is administered privately through dozens of Medicare prescription drug plans, it theoretically allows participants to choose a plan that best meets their individual needs. This adds great complexity, because each plan can chose to cover different drugs, and even different classes of drugs. They can chose to influence drug choice by requiring varying co-payments, and add barriers by requiring documentation on the part of the physician to obtain waivers of coverage. The formulary can change frequently. Certain drugs used for mental health, including benzodiazepines, are not covered at all. In part to protect the resident from the fact the formulary can change, nursing home residents can elect to switch Medicare prescription drug plans as often as every month. Non-nursing home residents can switch annually. "Dual-eligible" residents are randomly assigned to participating plans. This talk will discuss how this new program complicates pharmacoeconomics analysis of mental health related drug data from the United States, and how outcome analysis will also be more difficult to obtain and interpret given the complexity of this program.

S22-3

Are Cost of Illness studies relevant to pharmacoecconomics in mental health?

Ajit Shah

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The specific relevance of Cost of Illness studies to more specific pharmacoeconomic studies in mental health will be discussed. Cost of Illness studies can flag up disorders with a high economic burden and consequent need for investment in research to identify strategies for primary prevention or early identification, treatment and secondary prevention of the disorder. Moreover, if it can be shown that primary or secondary prevention in this context reduces the Cost of Illness then there may be real relevance to pharmacoeconomics. Cost of Illness studies can also help flag up disorders which appear to be inexpensive, but this may be because of poor investment in development of services, and there may be other evidence (like prevalence and disability) of a high burden. Here the challenge will be to increase the provision of services and the Cost of Illness may increase as a result. This too will have implications for pharmacoeconomics.

S22-4

Cost effectiveness of drug therapy in Alzheimer's disease

Anders Wimo

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The enormous economic impact of dementia worldwide stresses the need for evaluations of cost effectiveness since resources are scarce. The objective of this presentation is to review the cost-effectiveness literature of drug treatment of dementia. The main source is a systematic review as part of a dementia project in the Swedish Council on Technology Assessment in Health care (SBU). However, the views in this presentation are under the responsibility of the speaker. The initial database search resulted in more than 4,000 hits. 300 papers were fully evaluated and finally 22 pharmacoeconomic papers were included. The search has then been updated continuously. The included studies were of two main types: empirical clinical studies and pharmacoeconomic models. A complete health economic evaluation consists of at least two comparison alternatives and both costs and an outcome should be included. No empirical drug study was regarded as a complete health economic study. Of the four included prospective randomized controlled trials three showed a non significant difference regarding costs, while there was a significant cost reduction in a memantine study, mainly due a reduction in caregiver time. The majority of the complete pharmacoeconomic modelling studies indicated cost effectiveness for drug treatment with cholinesterase inhibitors and memantine. The methodological implications of the findings will be discussed.

S22-5

Determinants of choice of hospital care by families with dementia elderly

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With rapid aging, the number of dementia elderly is rapidly growing in South Korea. Families with dementia elderly often confront a choice of the way how the patients are treated. Among caring modes currently available, the most frequent choice of care is either hospital care or traditional home care. This study attempts to analyze the determinants involved

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in choice between hospital care and home care by families with dementia elderly. Data for analysis were collected from 228 primary caregivers who look after dementia elderly in her (his) family. Out of 228 cases, 138 cases were families that chose home care for dementia elderly, and 90 were families who selected hospital care programs in caring their dementia elderly. Economic model of household production is used for the analysis. Results suggest that family caregivers do systematically determine and choose types of caregiving for their dementia elderly. For example, consistent to a priori expectation, caregivers with dementia elderly with higher ADL and IADL scores are more likely to choose hospital care over home care. However, level of cognitive impairment and that of problematic behavior by dementia elderly were not statistically significant variables in explaining caregivers' choice of hospital care. Study also reveals that caregivers with higher level of education are more likely to choose hospital care. When a caregiver is spouse, compared to non-spouse cases, (s)he is less likely to choose hospital care. When daughter-in-law is a primary caregiver, a household (HH) is much less likely, more than the case of spouse, to choose hospital care. Economic factors show somewhat mixed results. If a caregiver is a paid worker, she (he) definitely prefers choosing hospital care. However, contrary to our expectation, HH income variable turned out to be statistically insignificant in explaining caregiver choice of hospital care. That is, a caregiver decision for hospital care is affected by her (his) employment but not by her (his) income level. Apparently, from the caregiver perspective, employment works as an important constraint in caring the dementia elderly at home.

S23-1

Mortality associated with delirium: A two-year follow-up study in elderly hip-surgery patients

Jos F. de Jonghe[1]; Martin G. Kat[1]; Ralph Vreeswijk[1]; Tjeerd van der Ploeg[1]; Willem A. van Gool[2]; Piet Eikelenboom[2]; Kees J. Kalisvaart[1]

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Objective: To study the long term effects of delirium in elderly hip-surgery patients on mortality.

Design: Prospective study.

Setting: Medical school-affiliated general hospital in Alkmaar, The Netherlands.

Methods: Participants (n = 603) from the *Haloperidol Prophylaxis for Elderly Hip-Surgery Patients at Risk for Delirium. A Randomized Placebo-Controlled Study*; (Kalisvaart et al., 2005). Patients with and without post-operative delirium were followed for 2 years. Mortality risk associated with delirium was estimated using a Cox proportional hazards regression model; the outcome was time to death.

Results: A total of 75/603 patients (12.4%) died during the study period. Incidence of delirium was higher in patients who died compared with those who survived (HR 2.16, CI 1.30–3.58). They were more often at risk for delirium as indicated by higher rates of cognitive impairment and visual impairment.

Conclusion: Delirium after hip-surgery and delirium risk factors are associated with mortality at follow-up.

S23-2

Long-term cognitive outcome of delirium in elderly hip-surgery patients. A two year prospective matched controlled study

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Objective: To study the long term effects of delirium in elderly hip-surgery patients on cognitive outcome, mortality and institutionalization.

Design: Prospective matched controlled cohort study.

Setting: Medical school-affiliated general hospital in Alkmaar, The Netherlands.

Methods: Participants from the *Haloperidol Prophylaxis for Elderly Hip-Surgery Patients at Risk for Delirium. A Randomized Placebo-Controlled Study* (Kalisvaart et al., 2005). Patients with post-operative delirium (n = 71) and matched controls without post-operative delirium (n = 41). were followed for 2 years. Patients were matched based on the presence or absence of pre-surgery risk factors for delirium including cognitive impairment. A geriatric psychiatrist and research nurse independently assessed patients at follow-up. The psychiatrist was

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kept uninformed about the patient's history of delirium. Primary outcome was dementia/MCI. Secondary outcomes were mortality and institutionalization.

Results: During follow-up 55% of delirium patients had died compared to 34% controls, P = 0.03, dementia or mild cognitive impairment (MCI) was present in 61.5 % versus 41%, P = .008, and no differences were found for rate of institutionalization. Although overall results show that delirium predicted future cognitive impairment, this association was lacking in a sub sample of delirium patients with relatively higher baseline MMSE scores.

Conclusion: Delirium in elderly hip-surgery patients is associated with cognitive impairment at follow-up.

S23-3

Proteomic profiling of plasma and serum of elderly patients with postoperative delirium

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Background: Delirium is a frequently observed postoperative complication in elderly patients, the pathophysiology of it is still poorly understood. The aim of this study was to compare plasma and serum protein profiles in patients with and without postoperative delirium and to identify corresponding protein(s).

Methods: Patients aged 65 years or more admitted for surgery following a hip fracture were included. Serum and plasma samples of eight patients with and eight patients without delirium were selected as testing group. A second group of eight patients with and eight without delirium was selected for validation. An additional sample was collected after the delirious episode. Protein profiles we regenerated by SELDI-TOF using CM10 and Q10 ProteinChip Arrays.

Results: Demographical and clinical characteristics of patients with delirium were not significantly different from patients without delirium, except for the number of medications before admission. After correction for multiple testing, significant protein profiles differences were found in the testing group. The largest difference was found in EDTA plasma using CM10 ProteinChip Arrays, which was confirmed in the validation group. Taking both groups together, three discriminating peaks were found in delirious patients. These peaks presumably correspond to haemoglobin-a (15.9 kDa), the doubly charged ion of the unmodified protein (7.97 kDa) and its glycosylated form (16.0 kDa). Diagnostic accuracies of the three peaks expressed as area under the curve were 0.84, 0.88, and 0.83, respectively (p-values 0.001).

Conclusions: Discriminating peaks, probably corresponding to hemoglobin-a, are found in plasma of delirious patients as compared to patients without delirium.

S23-4

Analysis of circadian rhythm in delirious and non-deliriousolder patients with a hip fracture

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Objectives: To determine whether there are disturbances in the diurnal activity and sleep inpost surgery hip fracture patients aged 65 years or older with and without delirium.

Design: pilot study within subject.

Setting: the department of Traumatology in a tertiary university teaching hospital.

Participants: 8 (2 men, 6 women) acutely admitted to hospital due to hip fracture.

Methods: Wrist actigraphic assessment of the rest-activity for a minimum of five days. Simultaneously to this assessment, delirium was assessed daily by the Confusion Assessment Method (CAM). Global cognitive function was assessed in patients by the MMSE and in caregivers by the IQCODE and functional ability by the Katz ADL.

Results: Mean age was 89.4 years (sd 7.6 years). The median score of the Mini Mental State examination measuring global cognition was 19 (range 8–30). The effects of delirium on actual sleep time were 21%; on sleep efficiency 21% and sleep latency 543%. Disturbances of circadian parameters have been demonstrated only in fragmentation of the circadian rhythm: effects of delirium on intradaily variability (IV) and relative amplitude (RA) are 40% and 30%, respectively (p-value < 0.05).

Conclusion: Sleep and the circadian rhythm are disturbed by delirium. Sleep quality is influenced as was found in all sleep parameters. For circadian

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rhythm, in contrast, delirium was predictive for the fragmentation of the rhythm.

S24-1

Neural stem cells: Their involvement in adult neurogenesis and CNS repair

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Neural stem cells (NSCs) are self-renewing, multipotential progenitor cells. A single NSC can give rise to a wide variety of CNS cells, including neurons, astrocytes, and oligodendrocytes. Because of these characteristics, there is an increasing interest in NSCs and neural progenitor cells, both from a basic developmental biology perspective and from a clinical one that is aimed at developing therapeutic applications for the damaged brain. Current research into the nature of the NSCs present in the CNS includes the study of the extracellular factors and signal transduction cascades involved in their differentiation and maintenance, their population dynamics, and their localization in the embryonic and adult brain. These lines of research, combined with other studies intended to permit the prospective identification and isolation of NSCs, and their induction into particular neuronal phenotypes – which will be introduced in my talk – should lead to the development of feasible strategies for manipulating NSC cells in situ to treat the damaged brain and spinal cord injury.

S24-2

Cannabinoid receptor 1 prevents neurotoxicity by inhibiting microglial activation in the MPTP mouse model of Parkinson's disease

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The present study examined whether cannabinoid receptor 1 (CB1) could prevent the loss of dopaminergic neurons in the substantia nigra (SN) of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) mouse model of Parkinson's disease (PD). MPTP treatment resulted in a significant loss of dopaminergic neurons and microglial activation visualized by tyrosine hydroxylase (TH) or Mac-1 immunocytochemical staining in the SN, respectively. Western blot analysis and double-label immunohistochemistry show that the up regulation of membrane (gp91phox) and cytosolic (p47phox and p67phox) components, translocation of cytosolic proteins (p47phox, p67phox, and Rac1) to the membrane in the SN in vivo, indicating the activation of NADPH oxidase. Additional reactive oxygen species (ROS) production, assessed by hydroethidine histochemistry, were observed in the SN in which degeneration of dopaminergic neurons occurred. However, treatment with cannabinoids inhibited NADPH oxidase and increased survival of nigral dopaminergic neurons and striatal dopamine levels in MPTP-treated mice. However, all of these effects were reversed by treatment with CB1 antagonists AM251, indicating involvement of CB1 receptor. These results suggest that cannabinoids system may be beneficial for the treatment of neurodegenerative diseases, such as PD, that are associated with microglial activation.

S24-3

A possible link between mood affective disorders and neural stem cell behavior in the adult brain

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In rodents, adult neurogenesis occurs in the olfactory bulb and the dentate gyrus of the hippocampus. It has been shown that exposure to psychosocial stress reduces cell proliferation in the dentate gyrus. However, little is known about how stress affects the proliferation kinetics of neural stem cells (NSCs) in the subventricular zone (SVZ) which provide new neurons to the olfactory bulb. We utilized a forced swim model of stress in the mouse and found that chronic stress decreased the number of NSCs in the SVZ. The reduction of NSC number persisted for weeks after the cessation of stress, but was reversed by treatment with antidepressant drugs, fluoxetine and imipramine. The effects of antidepressants on NSCs were indirect and seemed to be mediated via the action of serotonin. In contrast, mood stabilizing drugs, which are used to treat patients with bipolar disorder, acted directly on NSCs and enhanced the self-renewal capability of the NSC as revealed by

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an in vitro colony-forming neurosphere assay. This enhancement was achieved at therapeutically relevant concentrations in the cerebrospinal fluid and the pharmacological effects mood stabilizers were mediated by the activation of Notch signalling in the NSC. These results suggest that pharmacological action of drugs used to treat mood affective disorders is tightly correlated with the size of NSC pool and subsequent neurogenesis in the adult brain. We also suggest that treatment with mood stabilizing drugs could be used to activate endogenous NSCs in the adult brain and facilitate regeneration following insult to the central nervous system.

S24-4

Neural stem cell therapy for function recovery after stroke

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Stroke is an acute neurodegenerative disorder and represents one of the leading causes of death and disability in adult humans in developed countries. Most commonly stroke occurs due to the occlusion of a cerebral artery which leads to focal ischemia in a restricted brain region and death of different types of neurons and glial cells. There are virtually no treatments to support efficient functional recovery in stroke patients. Recently, cells from different sources have been tested for their ability to reconstruct the stroke-damaged forebrain and improve function after transplantation in animal models of ischemic stroke. The transplanted cells can survive and partly reverse some behavioral impairments. However, the underlying mechanisms of this improved recovery are unclear and there is little evidence for neuronal replacement. Recent findings in rodents that stroke leads to increased, long-term generation of neurons from neural stem cells (NSCs) in the subventricular zone, suggest the ability of brain for self-repair and puts forward an alternative approach of cell therapy in stroke. The newly formed immature neurons migrate into the stroke-damaged area, where they express markers of those mature neurons which died due to ischemic insult. Whether the newly formed neurons are functionally integrated into the existing brain circuitry and contribute to the functional recovery is currently unknown. However, even re-establishment of only a fraction of damaged neuronal circuitries could have significant implications. The optimum strategy for functional recovery after stroke would probably be to combination of transplantation of NSCs with stimulation of neurogenesis from endogenous NSCs. However, before clinical trials are initiated, we need to know much more how to control stem cell proliferation and differentiation into specific phenotypes, induce their integration into existing neural and synaptic circuits, and optimize the functional recovery in animal models closely resembling the human disease.

S25-1

Subjective cognitive impairment (SCI): The pre-mild cognitive impairment (MCI) stage of subsequent Alzheimer's disease (AD)

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Subjective cognitive impairment (SCI), also called subjective memory complaints (SMC), is very common, occurring in a large proportion, perhaps a majority, of persons over the age of 65. Several recent studies have noted an increased prevalence of subsequent dementia in persons with SCI. There have not been any published studies longitudinally examining both MCI and/or dementia outcomes in persons with SCI in comparison with older persons free of SCI. A consecutive series of healthy persons fulfilling rigorous inclusion and exclusion criteria evaluated between Jan. 1, 1984 and December 31, 1997, were studied. Subjects (N = 222) were categorized as either being free of subjective complaints (non-SCI equivalent to Global Deterioration Scale [GDS] stage 1) (n = 56), or as having SCI (GDS stage 2) (n = 166). Follow-up was conducted at approximately two year intervals until Dec 31, 2001. At baseline non-SCI subjects were younger than SCI subjects (64.4 versus 67.5 years) and had higher MMSE scores (29.6 versus 29.0). Gender and education did not differ between the groups. Nine subjects were lost to follow-up (all non-SCI). The remaining subjects (n = 213), were followed over a mean (+/− S.D.) interval of 6.8 +/− 3.4 years. Of non-SCI subjects, 14.9% progressed, versus 54.2% of SCI subjects (p less than 0.0001), Fisher exact

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test). Mean time to decline was longer for non-SCI (8.8 years) than SCI subjects (5.3 years). After controlling for age, gender, MMSE scores, and education in a logistic regression model, SCI subjects were 5 times more likely to decline than non-SCI subjects. These results support the hypothesis that SCI is the pre-MCI stage of subsequently manifest AD. In 1986, we published an estimate that the duration of this SCI stage is 15 years. This estimated temporal course has been supported by independent longitudinal studies conducted on this NYU Alzheimer's Disease Center cohort. These findings have considerable relevance for prevention studies in Alzheimer' disease. Supported in part by U.S. National Institutes of Health (NIH), grants AG03051 and AG08051 from the National Institute on Aging and M01 RR00096 from the General Clinical Research Center Program of the National Center for Research Resources, by grants 90AZ2791, 90AM2552 and 90AR2160 from the U.S. DHHS Administration on Aging, by the Fisher Center for Alzheimer's Disease Research Foundation, and by grants from Mr. William Silberstein and Mr. Leonard Litwin.

S25-2

Complaints of cognitive impairment, white matter lesions and depressive symptoms in older patients

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Subjective memory complaints (SMC) are common in older people and have been associated with depressive symptoms, cerebral white matter lesions (WML) and objective cognitive impairments, though the relationship between all these features remains unclear.

Recent studies in this area will be reviewed. Data will be presented from a cross-sectional study of 60 older subjects without dementia who underwent MRI, a memory complaint questionnaire, the geriatric depression scale and a comprehensive neuropsychological assessment and from a prospective study of older people with depression who had serial MRI and repeat cognitive assessments.

SMC were associated with depressive symptoms ($p < 0.001$) and WML ($p = 0.029$). Objective cognitive performance was not significantly associated to SMC after adjusting for WML and mood. On recovery from depression, cognitive impairments persist suggesting a relationship with underlying brain pathology rather than mood state.

Complaints of cognitive decline are associated with both WML and depression. The increase of WML may predispose some elderly subjects to depression and to cognitive complaints and impairment.

S25-3

Are subjective memory complaints (SMC) useful in screening for mild cognitive impairment (MCI) and predicting further cognitive deterioration in Chinese community?

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Background: Mild Cognitive Impairment (MCI) is a transitional state between normal aging and dementia. Subjects with MCI may be insightful about their cognitive deterioration. However, the significance of Subjective Memory Complaints (SMC) in predicting cognitive decline has been inconsistently reported. In the following studies, SMC are investigated through a brief memory inventory for the Chinese (aMIC). The validity of aMIC in community dwelling subjects with MCI has been examined in a cross sectional and prospective manner.

Methods: Community dwelling subjects (aged older than 60) were recruited from social centres, hostels and epidemiological survey. aMIC is a brief questionnaire (5 questions) developed to evaluate SMC. The correlation between aMIC scores and performance of objective cognitive tests were evaluated. Predictive significance of SMC was further examined in a subgroup that completed 2 year follow up.

Results: In a group of volunteers (normal control, NC = 168, MCI = 129), MCI subjects had significantly higher scores in aMIC (2.64 versus 2.20, $p = 0.013$). aMIC scores were significantly associated with Chinese version of MMSE ($p = 0.002$) and ADAS-Cog total scores ($p = 0.004$)(partial correlations, controlled for age and educational levels). For subjects (n = 465) recruited randomly from a community survey, aMIC scores were significantly associated with MMSE ($p < 0.001$), delay recall ($p < 0.001$) and ADAS-Cog total scores ($p < 0.001$)

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(partial correlations controlled for age and educational levels). For volunteers who have completed 2 year follow up, a higher aMIC score was associated with deterioration in NC subjects, compared with subjects who remained cognitively intact (2.56 versus 1.94, t-test, $p = 0.025$). The association between aMIC scores and deterioration was not significant in subjects with MCI at baseline (1.94 versus 2.44, t-test, $p = 0.13$).

Conclusions: The use of a brief memory inventory (aMIC) appeared to be useful in screening for MCI in the community dwelling subjects. Its predictive significance was apparently more significant in cognitively intact subjects who would deteriorate to MCI. It would be worthy of further research to identify the basis of SMC as the earliest marker for cognitive decline for older persons in the community.

S25-4

Trial designs in subjective cognitive impairment studies

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Although there is no functional impairment associated with subjective cognitive impairment (SCI) and little objective evidence of cognitive decline, an argument can be made that this clinical state can be associated with loss of confidence in social and occupational activities, causing anxiety. Furthermore SCI can be a prodromal stage to Alzheimer's disease (AD) or other dementias.

Improvement of SCI symptoms could be obtained using non-pharmacologic intervention such as structured cognitive training. Randomized studies comparing subjects who received such treatment vs subjects on "waiting list" can be done, using cognitive measures as endpoints, possibly supplemented by depression and quality of life scales.

Improvements could also be obtained using pharmacological compounds acting on neurotransmitters involved in attention and working memory. Randomized placebo-controlled studies can be done, with similar outcomes.

Secondary prevention studies aiming at delaying incident dementia can also be done, using SCI as mean of enriching the population to be treated. Such a study is under way in France comparing Ginkgo Biloba to placebo over 5 years.

S26-1

Care system of late stage dementia

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Care system of late stage dementia is composed of institutional care and home care services. Half of people with moderate or severe dementia are stayed in nursing homes or facilities for elderly people in Japan. Because compared to European people, Japanese elderly people are stayed at home with families supported by long term care insurance services. Respite care is very useful to continue living at home. Visiting nurse, home helper and visiting bathing services are selected by care manager and families with care needs. Care managers make care assessment and care plan for people with severe dementia. This care management system works well for using and handling services.

Recently primary care physicians are try to communicate with patients 24 hours supported by health insurance. Home hospice care is trying to provide terminal care for patients with cancer or dementia. Also we can select new small multi-function home care services including day care and short-stay.

Elder abuse is another problems in late stage dementia due to care burden or economical problems. Recently community based comprehensive support services have roles of protecting Elder Abuse and supporting families burden of dementias. We developed a new check list of Elder Abuse.

In conclusion comparison among countries is important and to learn care in other countries are very useful to improve care system.

S26-2

Treatment strategies in severe dementia

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In developed countries, where elderly patients constitute an escalating proportion of the population, the prevalence of AD is increasing. Treatment regimens throughout the different stages of dementia vary, with objectives broadening as the disease progresses and patients experience a deterioration of their symptoms. In the early stages of AD, an

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active patient role is encouraged and residual abilities are important. In severe dementia, in addition to treating the patient, means of reducing the burden on both the caregiver and health system must be considered. The pharmacoeconomic aspects of dementia are important. The cost of treating AD is high and the financial burden increases as the disease progresses. Hospitalisation and nursing home placement account for the most significant direct costs; therapies that delay the institutionalisation of patients will result in significant cost savings. Acetylcholinesterase inhibitors have been approved for the treatment of mild-to-moderate AD. Two studies have been positive in moderately severe and severe AD. The recent study in Swedish nursing home residents demonstrates the clinical utility of donepezil in a very severe population (patients with Mini-Mental State Examination scores of 1 to 10 inclusive). Significant differences favouring donepezil treatment were observed at the end point of this 6-month double-blind, placebo-controlled study on the 2 primary outcome measures; the Severe Impairment Battery (SIB) and modified Alzheimer Disease Cooperative Study Activities of Daily Living Inventory for Severe AD (ADCS-ADL-severe). The NMDA-antagonist memantine has shown to be effective in moderately severe-to-severe AD. A pharmacoeconomic study showed that treatment with memantine reduced caregiver time and delayed institutionalisation, i.e. was cost effective. Furthermore a study in moderately severe and severe AD with the combination donepezil and memantine was very positive. Memantine is the only drug approved on the indication severe Alzheimer disease by European authorities, while both memantine and donepezil are approved on the same indication by US authorities.

S26-3

Pharmacologic treatment of BPSD in severe dementia

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While the core diagnostic feature of dementia is persistent cognitive impairment, up to 90% of patients meeting criteria for dementia suffer from concomitant behavioral and psychological symptoms of dementia, or BPSD. These BPSD include agitation, aggression, apathy, depression, aberrant motor behaviour, delusions, hallucinations, disinhibition, anxiety, sleep disturbances and appetite changes. The presence of these BPSD has a negative impact on the patient, and both formal and informal caregivers. As the dementia progresses from mild to severe stages, BPSD become increasingly prevalent and can dominate care issues. Once nonpharmacologic treatments have been implemented and significant BPSD remain, there are 6 main therapeutic classes of medications that have varying degrees of evidence supporting them: antipsychotics, cholinesterase inhibitors, NMDA receptor antagonists, antidepressants, benzodiazepines and mood stabilizers. The therapeutic classes with strongest evidence will be highlighted. Additional pharmacotherapies with limited evidence supporting efficacy and safety will be briefly mentioned. During the presentation, the emphasis will be on randomized controlled trials and meta-analyses. The evidence establishing efficacy will be reviewed in the context of drug-responsive symptoms. Importantly, safety issues of particular concern will also be highlighted, including the most recent evidence around the use of atypical antipsychotics in patients with dementia. A great deal of evidence around risks and benefits of pharmacotherapy for BPSD in severe dementia has recently emerged warranting review and consideration in making treatment choices.

S26-4

Associations between work characteristics of nursing staff and the prevalence of behavioural symptoms among people with dementia

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There is growing evidence suggesting that factors other than patients' characteristics contribute to explain the variance of behavioural symptoms and associated measures such as physical restraints and amount of neuroleptics. Some of the variance could be explained by patients' characteristics, but staffs' characteristics such as attitudes, knowledge and their experiences of the ward climate also contribute to explaining the variance since a higher prevalence of physical restraints and use of neuroleptics are found in units where staff rate their ward climate less positive. Furthermore, it has been shown to be a significant difference in how and with whom people with dementia spend their time in residential care units where the organizational climate of

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staff is rated as being either creative or stagnated. In conclusion, what these studies indicate is that, in addition to patients' characteristics, variables such as the physical and psychosocial care environment, the characteristics of the nursing work, and characteristics of nursing staff needs study in order to further understand what influences the well-being of people with dementia.

The aim of this study was to investigate associations between work characteristics of nursing staff and the prevalence of behavioural symptoms among people with dementia in residential care settings (group livings) in the north of Sweden.

A total of 40 residential care units for people with dementia participated in the intervention study, providing cross-sectional baseline data on self-reported job strain, caring climate, knowledge of staff in caring for people with dementia, the possibilities at work to have discussions of ethical conflicts and challenges at work and, and measures of the prevalence of behavioural symptoms among the residents therein. This study provides evidence for an often cited clinical experience, that the well-being of nursing staff is associated with the well-being of people with dementia in residential care settings. The findings showed that there were significantly less behavioural symptoms among people with dementia residing in environments rated by nursing staff as having a more caring climate, where nursing staff experience lower job strain, and where nursing staff had greater possibilities to discuss difficulties and ethical conflicts in their daily work.

S27-1

Managing BPSD in residential care: A non-pharmacological approach

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It is well recognized that behavioural and psychological symptoms of dementia (BPSD) place significant burden on relatives and care workers. In residential care facilities many care workers lack the training necessary to manage residents with moderate to severe BPSD, thus leading to increased stress for the care workers, the resident and their relatives. In some cases this can place the residents' accommodation at risk. In response to this identified need, the Residential Support Program (RSP), part of St Georges Aged Psychiatry Service, St Vincents Health in Melbourne Australia was established. The RSP provides intensive services that aim to assist residential care facilities to more effectively manage residents with BPSD. To achieve this aim, the RSP assists care workers in managing individual residents, provides education and consultation to enhance the skills of care workers in managing BPSD and also undertakes research. This presentation will discuss the individual management of residents referred to the program. The process used initially entails the completion of a comprehensive assessment of the resident, their behaviour, the environment and the care workers. As part of this, the RSP works along side the care workers in order to gain an understanding of the difficulties they and the residents are experiencing. The program then assists care workers in identifying non-pharmacological strategies that may assist in more effectively managing the residents' behaviour. The factors contributing to the residents' behaviours together with these identified management strategies are incorporated into an individualized management plan that staff then implement with support, modelling and education from the RSP. Where possible, relatives are engaged in this process. The outcomes of this service together with case study examples will be presented.

S27-2

Building skills to manage BPSD non-pharmacologically in residential care

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Prior to the 1990s many Australian people with moderate to severe behavioural and psychological symptoms of dementia (BPSD) were housed in extended care wards of large psychiatric institutions, often for indefinite periods of time or until their death. With deinstitutionalization many of these individuals were moved into residential care facilities and community based aged psychiatry services were developed to provide assessment and short term support. Despite this shift in care provision, many care workers are still not specifically trained to manage these individuals and this is particularly concerning given the rapidly ageing population. As a result of this identified gap in practical knowledge, the Residential Support Program, which is part of St Georges Aged Psychiatry, St Vincents Health in Melbourne, Australia, developed an innovative

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4 module education program. Based on Kitwoods person centred care, this education program focuses on empowering care workers to comprehensively assess and more effectively manage residents with BPSD. Care workers are engaged in developing individualized Action Plans that focus on using non-pharmacological approaches including but not limited to maximizing communication, using activities to provide meaning and purpose for the resident, shifting from task based care to maximizing the residents' abilities and addressing environmental issues. This presentation will focus on the components of the education program and discuss its effectiveness within residential care facilities. The difficulties that are encountered in implementing the program within different care cultures will also be discussed.

S27-3

Non-pharmacological behavioural management as an adjunctive treatment for patients with BPSD

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The benefits of non-pharmacological approaches for managing patients exhibiting behavioural and psychological symptoms of dementia (BPSD) have been discussed for many years. However, putting the concept into practice as a model of care can be challenging as it involves applying the principles of change management to staff, families and carers. Within the acute hospital setting, many facilities have not received appropriate education nor do they have adequate staffing levels to adopt this model of care, and even when they do, it is often a model that is difficult to sustain. Yathong Lodge is government funded 16 bed acute assessment unit for patients with moderate to severe BPSD. The unit is located in Wagga Wagga, a large rural town in southern New South Wales, Australia. In 2004, this facility was changed from being a Confused and Disturbed Elderly (CADE) unit where patients tended to remain sometimes indefinitely, despite their behaviour settling. Now a Dementia Behavioural Assessment and Management Service (DBAMS), it aims to provide short term assessment of patients and facilitate their return home or to residential care. To facilitate the shift from a CADE model to a DBAMS model all staff were provided with education in 2005. This education focused on assessment and non-pharmacological management of people with BPSD and was provided by the Residential Support Program, from St Georges Aged Psychiatry Service, St Vincents Health, Melbourne, Australia. Since this time, the Unit Manager of Yathong Lodge has successfully engaged all staff in implementing a model of care that focuses on using non-pharmacological approaches in the management of BPSD. Whilst psychotropic medication continues to be used for many patients within the unit, the increased use of non-pharmacological approaches has allowed medication management to be maintained at minimal levels thereby producing the best possible outcome for the patient. This presentation will demonstrate how change was effected within an environment that historically relied predominantly on medication management of patients who presented with moderate to severe BPSD.

S28-1

Involvement of ER stress in neurodegeneration: application in therapeutic strategy

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From time to time, unfolded/misfolded proteins accumulate in the endoplasmic reticulum (ER) to cause ER stress. Eukaryotes utilize the unfolded protein response (UPR) to overcome the critical status. The UPR consists of three pathways: 1) suppression of protein translation to prevent the generation of more unfolded proteins; 2) facilitation of refolding of unfolded proteins by the induction of ER chaperones; and 3) activation of ER-associated degradation (ERAD) to degrade the unfolded proteins accumulated in the ER, by the ubiquitin-proteasome pathway. If these strategies are unsuccessful, cells go into ER stress-induced apoptosis. Recent reports show that dysregulation of the UPR is implicated in much important pathology, including some neurodegenerative diseases. Previously we reported that the ER transducers IRE1, PERK and ATF6, were down-regulated in presenilin-1 mutant neurons, causing the vulnerability to ER stress seen in cases of familial Alzheimer disease (AD). These data concerning the involvement of ER stress in neurodegenerative process encouraged us to

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investigate this field in an effort to identify therapeutic targets for the treatment of these disorders. In a screen for compounds that induce the ER-mediated chaperone BiP/GRP 78 (BiP), we identified BiP inducer X (BIX). BIX induced BiP, in a dose-dependent manner, without induction of other molecules involved in the ER stress response. The induction of BiP mRNA by BIX was mediated by activation of ER stress response elements (ERSEs) upstream of the BiP gene, through the ATF6 pathway. Pretreatment of neuroblastoma cells with BIX reduced cell death induced by ER stress. Intracerebroventricular pretreatment with BIX in mice reduced the area of infarction due to focal cerebral ischemia, which was reported to be strictly relevant to ER stress. In the penumbra of BIX-treated mice, ER stress-induced apoptosis was suppressed, leading to a reduction in the number of apoptotic cells. Considering these results together, it appears that BIX induces BiP to prevent neuronal death by ER stress, suggesting that it may be a potential therapeutic agent for cerebral diseases caused by ER stress.

S28-2

Oxidative stress and mitochondrial dysfunction in neurodegeneration

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Oxidative stress and mitochondrial dysfunction are considered to be the key features of the pathogenesis of several neurodegenerative disorders including Alzheimer's and Parkinson's diseases. Whereas no genetic forms of Alzheimer's disease directly implicate mitochondrial dysfunction, mutations in the DJ1, PINK1 and Htra2/Omi gene directly implicate mitochondrial dysfunction in the pathogenesis of Parkinson's disease. Mitochondrial dysfunction leads to the metabolic compromise of neurons, intracellular calcium disturbance, secondary (slow) excitotoxicity, impairment of repair mechanisms against oxidative insults and the generation of reactive oxygen species. Furthermore, oligomeric forms of amyloid-β and α-synuclein may interfere directly with mitochondrial function, leading to the generation of reactive oxygen species and triggering calcium and synaptic dysfunction. Mitochondrial dysfunction and reactive oxygen species have already been addressed in clinical trials for Parkinson's disease and Alzheimer's dementia. A phase II trial for Coenzyme Q10 has shown dose-dependent beneficial effects for the treatment of Parkinson's disease, whereas treatments with other anti-oxidants, specifically vitamin E and MAO-B inhibitors have failed so far to show protective effects. Studies using idebenone and vitamin E in Alzheimer's disease and mild cognitive impairment have failed to show an unequivocal positive effect of these substances.

S28-3

Possible mechanism of neuronal cell death via nitrosative stress

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Protein quality control functions as a critical system of intracellular homeostasis. Particularly, misfolded proteins produced in ER lumen are rapidly degraded by the ubiquitin-proteasome pathway. Free radicals including nitric oxide (NO) are known to induce the accumulation of misfolded proteins in cells. We have demonstrated that protein-disulfide isomerase (PDI), a TRX-related ER chaperone, functions as a protective protein against apoptotic neuronal cell death triggered by hypoxia/ischemia. Furthermore, we found that PDI is *S*-nitrosylated in cells by treatment with NO/glutamate but also in brains manifesting sporadic Parkinson's or Alzheimer's disease. NO-induced S-nitrosylation of PDI attenuates the enzymatic chaperone and isomerase activities, leads to accumulation of poly-ubiquitinated proteins, and activated the unfolded protein response (UPR) in primary cortical neurons. *S*-nitrosylation also abrogates PDI-mediated attenuation of cell death induced by ER stress or proteasome inhibition in human neuroblastoma SH-SY5Y. Thus, PDI can prevent neurotoxicity associated with ER stress and protein misfolding but NO blocks this protective effect in neurodegenerative disorders via S-nitrosylation. We will discuss the other NO-target proteins that are involved in the apoptotic neuronal death.

S28-4

Alzheimer's disease: Towards an immunization therapy

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Lowering brain beta-amyloid is a major target for treatment or prevention of Alzheimer's disease (AD). Current attempts to reduce brain beta-amyloid plaques include the development of specific inhibitors of beta- and gamma-secretase processing, aggregation inhibitors, antioxidants, NSAIDs, modulators of amyloid clearance as well as antibody-based immunization approaches. Both active and passive immunization protocols effectively removed amyloid plaques from brains of transgenic mice expressing AD-causing mutants of the APP gene. Moreover, immunization-induced decrease in brain amyloid burden was associated with improvements in learning and memory in tg mice. In patients with AD, however, beta-aymloid immunization was associated with severe side effects in terms of aseptic meningoencephalitis in 6% of the cases. On the other hand, biochemical, clinical and neuropathological investigations demonstrated the generation of specific antibodies against beta-amyloid in serum of vaccinated patients, clinical stabilization in patients with such antibodies, alterations in brain volumes as well as indications for clearance of beta-amyloid from brain through activated microglial cells.

S29-1

fMRI in Alzheimer's disease: Early detection and rapid assessment of treatment efficacy

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To date, structural and functional imaging in Alzheimer's disease (AD) has concentrated almost exclusively on group-level differences between patients with AD and healthy older controls. Given the lack of reliable serum or csf biomarkers in AD there is a pressing need for imaging techniques that can inform physicians about individual patients with memory loss. This talk will consider recent advances in functional MRI that hold promise in addressing three fundamental clinical questions: whether a patient reporting mild cognitive loss has prodromal AD; whether a patient with mild dementia has AD or some other neurodegenerative disease; and whether an AD patient is responding to treatment. The strengths and limitations of PET with and without amyloid-binding tracers will be contrasted with those of novel fMRI approaches with a particular focus on measures of resting-state activity. In the fMRI domain a number of complementary resting-state methods will be discussed, including region-of-interest approaches and independent component analysis. These and other imaging approaches tend to converge upon, and so implicate, a specific network, the default mode network, as being particularly prone to AD pathology. The implications of this striking, multimodal convergence will also be considered.

S29-2

A quantitative near-infrared spectroscopy for detection of low cerebral hemoglobin oxygenation in MCI and AD

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Background: Multi-channel near-infrared spectroscopy (NIRS) monitoring for cerebral hemoglobin (Hb) oxygenation is currently limited to non-quantitative measurements, restricting its clinical use.

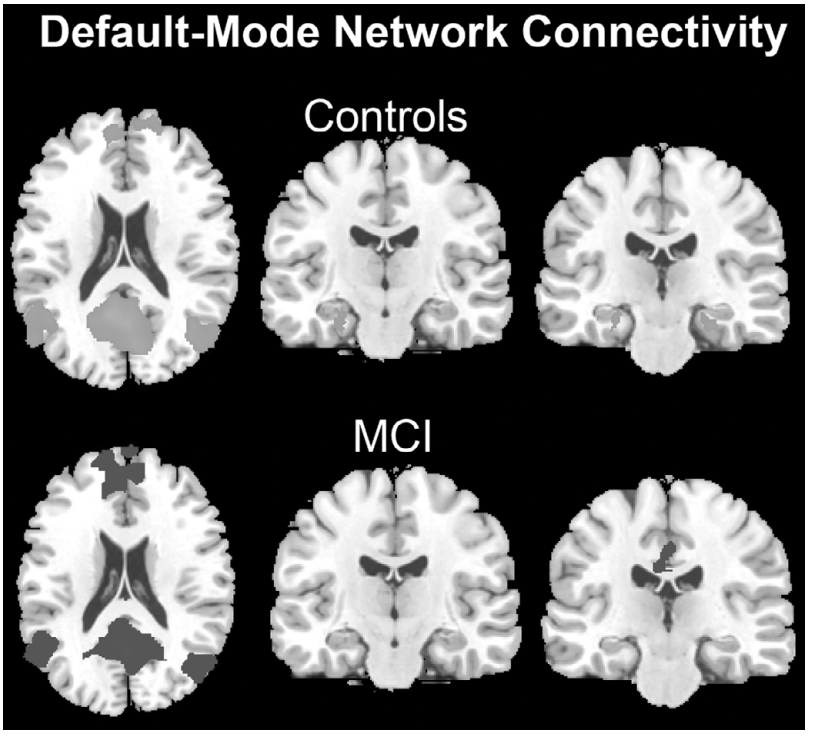
Objective and Hypotheses: We have developed the first quantitative NIRS system and used it to study changes in Hb oxygenation in patients with Alzheimer's disease (AD) and mild cognitive impairments (MCI).

Methods: In a total of 56 healthy controls, 15 subjects with MCI, and 15 patients with AD the whole head type multi-channel NIRS system was used to measure the changes of Hb oxygenation in the frontal, right and left parietal, and occipital lobe areas during performance of the Verbal Fluency Task. The amplitude of changes in oxy-Hb waveform during the task was expressed as the activation index (A-Index), which was calculated by a signal processing method.

Results: Compared to the mean value of the A-Index in the control group, that in the AD group was significantly lower in the frontal, bilateral parietal and occipital areas, whereas that in the MCI group was significantly lower only in the right parietal area. However, certain overlaps in the distribution of the A-Index were found among the three groups.

Conclusions: Taken together with the cost-performance of NIRS, the present quantitative NIRS system is suggested to be a potential clinical

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S29-1

tool for primary screening of subjects with AD or MCI.

S29-3

New electrophysiological approach for detection of the early signs of AD and MCI

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Although the electroencephalography (EEG) is not often used in clinical practice of dementia, there are recent accumulating reports suggesting that EEG analysis might be able to detect mild Alzheimer's disease (AD) and mild cognitive impairment (MCI). Digital EEG recordings allow us to localize the abnormal brain activities by reformatting the original referential montage to bipolar montages and to analyze the current source density by using standardized low resolution brain electromagnetic tomography (sLORETA). Some other reports indicate that the magnetoencephalography (MEG) might be also quite useful to increase diagnostic accuracy when used with other imaging techniques. These electrophysiological methods have some advantages, like non-invasiveness and excellent time resolution, against regional cerebral blood flow measurements. In this paper, recent advantages and future application of these electrophysiological approaches for detection of the early signs of AD and MCI are reviewed.

S29-4

Early diagnosis of AD and PET-amyloid imaging

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Alzheimer's disease is the most common dementia disorder. It is estimated that the prevalence of the disease will increase 4 times worldwide until 2050. It is therefore urgent to find early diagnostic makers

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and effective treatment. AD is characterized by an aggregation of amyloid-β (Aβ) peptide in brain that probably starts preferentially in neocortical areas years before cognitive problems appear. The critical role of different forms of Aβ, soluble Aβ oligomers and fibrillar Aβ deposits is still not yet fully known. It is a great challenge to try to detect Aβ in AD in its earliest stages. In vivo amyloid imaging technology may contribute to a further understanding of Aβ protein aggregation and plaque formation. This is of utmost importance now when new AD therapies are under development. So far the small molecular approach positron emission tomography (PET) studies has been promising and PET tracers such as ^{18}F-FDDNP, ^{11}C-PIB, and ^{11}C-SB-13 and ^{11}C-BF-227 have been tested for amyloid imaging in AD patients. A robust difference in ^{11}C-PIB retention was observed in cortical but also subcortical brain regions of AD patients compared to age-matched controls. Cortical ^{11}C-PIB retention inversely correlates with deficits in cerebral glucose metabolism. AD patients who underwent repeated PET scans with ^{11}C-PIB and ^{18}F-FDG 2 year later showed stable PIB retention despite further impairment in cerebral glucose metabolism (^{18}F-FDG uptake) especially in AD patients with progression in cognitive impairment. PIB studies in patients with mild cognitive impairment have revealed MCI patients with both high and low PIB retention. It suggest a different time course in brain for amyloid load compared to cerebral glucose metabolism, which appears to be more closely related to cognitive function. PIB studies in patients with mild cognitive impairment (MCI) show intermediate PIB retention compared to AD and controls. MCI patients that later converted to AD showed high PIB retentions comparable with AD patients. Significant correlations were found between episodic memory and cortical PIB retention as well as CSF Aβ1–42 and tau levels and PIB retention. Studies in patients at risk for developing AD will provide further understanding of the evolution of amyloid in brain and its relation to functional changes including impairment in cognitive function. Amyloid imaging will be used for evaluation of anti-amyloid therapy.

S30-1

PD, PDD and DLB within the spectrum of Lewy body disease

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In 1980 I proposed the term Lewy body disease (LBD) and classified it into three types according to the distribution of Lewy bodies: a brain stem type, a transitional type and a diffuse type. The brain stem type of LBD is equal to Parkinson disease (PD), and the diffuse type was later designated as diffuse Lewy body disease (DLBD), the term of which I proposed in 1984. My concept of LBD is as follows: LBD is a chronic progressive neuropsychiatric disease, characterized clinically by parkinsonism with or without dementia of senile or presenile, but rarely of younger onset and neuropathologically by the presence of many Lewy bodies and Lewy neurites in the central and autonomic nervous systems. In 1996 the term dementia with Lewy bodies (DLB) was proposed as a generic term including DLBD, Lewy body type of senile dementia (Perry) and Lewy body variant of Alzheimer's disease (Hansen). Recently, the relationship between DLB and Parkinson disease with dementia (PDD) has been topical. As I have insisted, PD, PDD and DLB should be understood within the spectrum of LBD. Very recently, the Consortium of DLB (Neurology, 2005) and the DLB/PDD working group (Neurology, 2007) have agreed with me, and reported that the term LBD is used as the generic term including PD, PDD and DLB. In this symposium I will talk about the history and some of our studies of LBD.

S30-2

Diagnosis and treatment of DLB and PDD

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The clinical diagnosis of DLB and PDD is driven by recently published operational criteria which concur that the only fundamental difference between the two syndromes is the temporal evolution of the core features i.e. dementia, neuropsychiatric symptoms and extrapyramidal motor signs. There is emerging evidence of minor histopathological and neurochemical differences between DLB and PDD which may in part be explained by the different temporal course and which may impact upon symptom formation and treatment responsiveness. The low sensitivity of the 1996 Consensus clinical criteria for discriminating patients with DLB from other types of dementia has been addressed in a 2005 revision by the inclusion of three additional features said to be suggestive of a diagnosis of DLB,

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namely, rapid eye movement sleep behaviour disorder, severe neuroleptic sensitivity and dopamine transporter activity in basal ganglia demonstrated by SPECT or PET imaging. Abnormal (low uptake) MIBG cardiac scintigraphy may also be a useful diagnostic investigation with potential for early case detection but the confounding effects of other cardiac disease have not yet been fully evaluated in an elderly population. Evidence based management guidelines for PDD have been published which reflect the relative lack of level I clinical trial data in this population. Levodopa monotherapy, avoidance of neuroleptics and use of cholinesterase inhibitors have been advocated in good practice guidelines for DLB. Data will be presented from a series of uncontrolled studies which suggest that DLB and PDD patients have similar cholinesterase inhibitor response and adverse effect profiles, that the three cholinesterase inhibitors have broadly similar effects in DLB and that rapid drug withdrawal can cause rebound worsening of psychiatric symptoms.

S30-3

Biochemical study of Lewy bodies

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The widely-spread appearance of Lewy bodies (LBs), as well as neuronal loss in the substantia nigra, limbic system and cerebral cortex, is a hallmark of Parkinson disease with dementia (PDD) and Dementia with Lewy bodies (DLB). LBs are thought to be a site of the aggregation of unfolded and insoluble proteins, in which the ubiquitin-proteasome pathway is involved. Mutations in the α-synuclein genes are detected in a few families with autosomal dominant forms of PD. Parkin is another gene responsible for autosomal recessive forms of juvenile PD. Parkin carries a ubiquitin-protein ligase (E3) activity of glycosylated α-synuclein and synphilin-1, the α-synuclein-interacting protein. We have shown that the stress of unfolded protein involved in the ubiquitin-proteasome pathway, such as Pael-R, can play a part in LB formation. Actually, these molecules that are related to PD, including α-synuclein, synphilin-1, Parkin, and Pael-R, have been shown to be present in LBs Multiple system atrophy (MSA) is a progressive, neurodegenerative disease characterized clinically by parkinsonism, ataxia, autonomic dysfunction, and pathologically by accumulation of α-synuclein in oligodendrocytes (glial cytoplasmic inclusions, GCIs). PD, PDD, DLB, and MSA are now summarized as α-synucleinopathy, and a common cascade arising from the aggregation and accumulation of α-synuclein to the formation of neuronal or glial inclusions leading to the cell death is suggested. Recently, PINK1, PTEN-induced putative kinase 1, has been identified as a new gene causative of hereditary early-onset PD (PARK6). In the present study, we show that PINK1 is also present in LBs and GCIs, suggesting a possibility that this novel protein is accumulated in these inclusions and might be involved in the inclusion formation in α-synucleinopathy.

S30-4

The future of the Lewy body disorders

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Alpha-synuclein containing Lewy bodies may be found in cortical and subcortical regions in Lewy Body Dementia as well as Parkinson's disease and Alzheimer's disease. These three conditions often overlap clinically and can all cause dementia with motor dysfunction. Recently diagnostic criteria for the alpha-synucleopathies have been developed which are being actively investigated and therapeutic trials are underway. Genetic studies have contributed important information about proteins other that alpha-synuclein which are involved in the pathogenesis of Lewy bodies and pathological studies are beginning to reveal clues to mechanisms. Misfolding of alpha-synuclein, the amyloid Beta peptide and TAU may be found, and it is likely that the alpha-synucleinopathies reflect dysfunction in protein folding quality control mechanisms. Epidemiological studies of these disorders have not been especially revealing, but new work from Douglas Galasko, Amy Borenstein and colleagues concerning Guamanian neurodegenerative disorders suggests that early life exposure to neurotoxic plants and changes in gene expression or protein phosphorylation may be relevant. Fritz Heinrich Lewy (later Frederic Henry Lewey) first reported the eosinophilic inclusions for which he is remembered in 1913. Hopefully progress in the field will continue and by the centenary of his contribution we will have progressed to a more complete

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understanding of the proteomics of the alpha synucleinopathies and be able to better diagnose, treat and prevent these disorders.

S30-5

The improved diagnostic accuracy of dementia with Lewy bodies by the combination of 123I-metaiodobenzylguanidine (MIBG) myocardial scintigraphy and 99mTc-ethylcysteinate dimmer (ECD) brain perfusion SPECT

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In consequence of a discussion at the 3rd international workshop, revised criteria for the clinical diagnosis of dementia with Lewy bodies (DLB) adopted abnormal 123I-metaiodobenzylguanidine (MIBG) myocardial scinitigraphy as one of the supportive features together with generalized low uptake on SPECT/PET perfusion scan with reduced occipital activity. We performed MIBG scinitigraphy and 99mTc-ethylcysteinate dimmer (ECD) brain perfusion SPECT in patients with DLB and analyzed the results to investigate the clinical usefulness of them in diagnosing DLB. The subjects were 31 patients with probable DLB according to the consensus diagnostic criteria. Informed consent was obtained from all subjects and/or their relatives. For the analysis of the results, following previous reports, we considered H/M < 2.0 and washout rate (WR) equal or higher than 18% as positive findings. The results of ECD brain perfusion SPECT were analyzed by 3DSRT, a fully automated regional cerebral blood flow (CBF) quantification program, and fine SRT which has more precise constant 1394 regions of interest (ROIs). The heart-to-mediastinum ratio (H/M) of MIBG uptake was reduced in both early (eH/M) and delayed (dH/M) images, 29/31 (93.5%) and 28/31 (90.3%), respectively. WR was equal or higher than 18% in 26 cases (83.9%). To investigate a correlation of the values of eH/M, dH/M and WR with clinical symptoms, we divided the subjects into subgroups based on the severity of cognitive impairment, presence/absence of visual hallucination and parkinsonism, and performed statistical analyses. These analyses revealed no significant correlations. Among 21 DLB patients that were not taking donepezil, 3DSRT analysis of brain perfusion SPECT showed reduced CBF in occipital lobe in 16 cases (76.2%). Furthermore, the analysis of CBF by using fineSRT revealed decreased perfusion in primary visual field in 17 patients (81.0%). As a result, all DLB patients had abnormalities in at least one of these two radioisotope imagings. Our results demonstrated that reduced cardiac MIBG uptake and decreased blood perfusion in occipital lobe were observed in DLB with high frequency and combination of these two modalities could be a useful diagnostic tool in the diagnosis of DLB.

S30-6

Dementia of Lewy bodies and Parkinson's disease dementia: The first report in Chinese population

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Objective: To review the prevalence, diagnoses and challenges of treating patients of dementia with Lewy bodies (DLB), and Parkinson's disease dementia (PDD) in Parkinson's disease in Chinese population. DATA Collection: Hong Kong Hospital Authority Clinical Data CDARS databases of an outpatient clinic of a local general hospital were searched from 1 January 2006 to 31 December 2006 for patients with diagnosis of Parkinson's disease and dementia. Search items include Parkinson's disease, dementia, and the use of antipsychotic. Clinical notes were retrieved for review and clarification for the diagnosis and treatment of DLB and PDD.
Result: There were totally 510 cases of Parkinson's disease. 72 of them were labelled Parkinson's disease and Dementia. Only 31 (43%) clinical notes can be retrieved. 4 of them failed to fulfil the diagnosis of Spontaneous Parkinsonism or Dementia. 27 patients fulfilled the diagnosis of spontaneous Parkinsonism and Dementia. The age was 79.9 ± 6.8 years old with male predominance, of male: female ratio at 2.5:1. Only 13 of them fulfil the revised

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criteria of the Third report of the DLB consortium for the diagnosis of probable DLB. One patient met the criteria of possible DLB, and 13 patients were diagnosed as PDD. The Mini-mental state scores were 13.9 ± 5.8. Fluctuation of consciousness and/or visual hallucination presented in 85% (23 patients) of the DLB and PDD. 22 patients were on L-dopa, but only 14 patients (52%) were mobile. 20 (74%) patients also presented with behaviour problems. Totally, 15 patients (55%) were treated by Acetylcholinesterase inhibitor, but 13 patients (48%) were given neuroleptic and/or atypical neuroleptic to control the symptoms. 6 patients (22%) suffered from depression and required treatment.

Conclusion: This is the first report in Chinese population, in which dementia affect 12.3% of Parkinson's disease. The number of DLB was similar to PDD and there were high prevalence of fluctuation of consciousness, visual hallucination and behaviour problems. There was high morbidity in patients with DLB and PDD, and the treatments can be improved.

S30-7

Prevalence, incidence and prediction of falls in dementia and Parkinson's disease: A prospective study in the elderly

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The objective of the study was to identify potentially modifiable risk factors for falling in older people with mild to moderate dementia according to dementia subtype. 225 participants: 38 Alzheimer's disease (AD), 32 Vascular dementia (VAD), 116 Lewy body disorders (46 Parkinson's disease without dementia (PD), 40 Parkinson's disease with dementia (PDD), 30 Dementia with Lewy bodies (DLB) and 39 healthy controls, aged over 65 years, were recruited from Neurology, Old Age Psychiatry and Geriatric Medical outpatient clinics, Northern Region, United Kingdom. Baseline risk factors were assessed and fall diaries were completed prospectively for 12 months. Outcome measures were annual prevalence and incidence of falls and proportional hazard ratios for the occurrence of falls for each risk factor in participants with dementia, and multivariate proportional hazard ratio model incorporating significant univariate risk factors. The annual prevalence of falls in controls was 35.9%. The prevalence (adjusted for age and sex) of any fall was not significantly higher in AD than in controls (relative hazard ratio 1.51, 95% confidence intervals 0.749–3.05) and not significantly higher in VAD than in controls (HR 1.99, 0.945–4.18). The prevalence of falls was significantly higher in Lewy body disorders than in controls (DLB: HR: 4.31, 2.20–8.44; PDD: HR 7.45, 3.94–14.1; PD: HR 2.33, 1.21–4.47). Incidence of falls/1000 person years in controls was 1023; AD: 2486; VAD: 3135; DLB: 9087; PDD: 19000; PD: 4617. Incidence of falls was not higher in AD than in controls (incidence density ratio 1.59, 0.937–2.71), but was higher than in controls in all the non-AD dementias (VAD: IDR 1.73, 1.15–2.62; DLB: IDR 7.08 4.52–11.1; PDD: IDR 25.6, 15.3–43.0) and PD (IDR 4.82, 3.40–6.82). In multivariate analyses, significant predictors of falls in dementia were diagnosis of Lewy body disorder (HR: 4.04, 95% CI: 2.42–6.77), history of recurrent falls in the preceding 12 months (HR: 2.72, 95% CI: 1.65–4.50) and symptomatic orthostatic hypotension (HR: 1.87, 95% CI: 1.02–3.42).

Conclusion: Falls were very common in dementia, and those with a history of previous recurrent falls or a Lewy body dementia were at highest risk. This study suggests that the identification and management of symptomatic orthostatic hypotension will be the most fruitful strategy in the development of falls prevention programmes for people with mild to moderate dementia.

S30-8

Striatal alpha-synuclein accumulation in dementia with Lewy bodies

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The striatum is the major projection site of nigral dopaminergic neurons. Abnormally phosphorylated alpha-synuclein is accumulated in the striatum of Parkinson's disease (PD) and dementia with Lewy

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bodies (DLB) in the forms of Lewy neuritis, threads, dots and grains. Accumulation of alpha-synuclein in the striatum is more abundant in DLB than in PD. We investigated alpha-synuclein accumulation in the striatum with immunohistochemistry, immunoelectron microscopy and the immunoblot analysis. Brains of 11 patients with PD, 6 with DLB and 7 with Alzheimer's disease (AD) were employed. The ultrastructure and the biochemical nature of alpha-synuclein accumulated in the striatum were similar to those of alpha-synuclein accumulated in the temporal neocortex in DLB. Of 17 cases showing alpha-synuclein pathology in the striatum, the substantia nigra tissue was available in 16 cases. Alpha-synuclein accumulation in the striatum parallels fairly well the occurrence of alpha-synuclein positive neurons in the substantia nigra. While a small proportion of Lewy neurites and threads were co-localized with tyrosine hydroxylase, we found that a number of alpha-synuclein positive grains/dots were co-localized with vesicular glutamate transporter. The striatum receives massive innervation by small to medium sized neurons in the cortical layers 5–6, neurons which are most vulnerable to Lewy body formation in the cerebral cortex. The heavy accumulation of alpha-synuclein in the striatum in DLB but not in PD may be derived from in part the cortico-striatal projections.

S30-9

Value of analyzing deep gray matter and occipital lobe perfusion to differentiate dementia with Lewy bodies from Alzheimer's disease

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Purpose: We compared regional cerebral blood flow (rCBF) in the deep gray matter and cortical cortex in patients with dementia with Lewy bodies (DLB) and Alzheimer's disease (AD) using SPECT with 3D-SSP technique. We then investigated the diagnostic utility of SPECT study in differentiating between two groups.
Methods: The study population comprised 30 patients with probable DLB and 49 patients with probable AD underwent SPECT. The data were analyzed using 3D-SSP, and each brain was standardized anatomically to match with a standard brain atlas while preserving regional perfusion activity. We established a template of the region of interest (ROI) presenting the bilateral basal ganglia, thalamus and occipital lobe on the standard brain atlas. To measure rCBF differences, the mean Z-score of each ROI for each patient was automatically calculated using 3D-SSP. We then compared this Z-score in each ROI between DLB and AD.
Results: The DLB group showed significant rCBF increase in the bilateral basal ganglia and thalamus, and significant rCBF decrease in the bilateral occipital lobe compared to the AD group. Receiver operating characteristic analysis revealed that determining the rCBF increase in the basal ganglia and thalamus, together with the rCBF decrease in the occipital lobe enabled more accurate discrimination between DLB and AD than studying changes individual areas.
Conclusions: Studying the increase of rCBF in basal ganglia and thalamus, and the decrease of that in occipital lobe achieved a high discrimination between DLB and AD.

S30-10

How common is dementia with Lewy bodies? The new revised DLB criteria applied on a Norwegian cohort

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Background: Dementia with Lewy bodies (DLB) accounts for 0 to 30,5% of the dementias, but very few epidemiological studies using rigorous methodology have focused on DLB and none have used the revised clinical criteria. Furthermore, it is not known whether the proportion with DLB differs in groups with different dementia severity. The 1996 criteria have low sensitivity for DLB, and new revised clinical diagnostic criteria have been presented to increase the sensitivity of the clinical DLB-diagnosis.
Goal: To find the proportion of probable DLB using the revised clinical criteria in a referral cohort from psychiatry, geriatric medicine and neurology outpatient clinics using the revised clinical criteria and to find the proportion of DLB in mild (MMSE 20 to 24) and very mild (MMSE 25 to 29) dementia.
Methods: Selection procedures: We screened all patients referred for cognitive impairment or dementia, in out-patients clinics in geriatric medicine, neurology, and old age psychiatry/memory clinics in the counties of Rogaland and Hordaland in

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western Norway. We offered inclusion for those diagnosed for the first time with mild dementia with an MMSE-score of 20 or more. Based on the MMSE, patients were classified as mild (20 to 24) or very mild (25 to 29) dementia. Neuropsychiatric assessment: The patients and carers were interviewed by a psychiatrist, geriatrician, or neurologist experienced in diagnosing dementia using a semi-structured interview, and a clinical examination was applied, including the UPDRS3, the Clinician Assessment of Cognitive Fluctuations and the NPI. We used the Mayo Sleep Questionnaire to screen for RBD.

Results: Demographic characteristics: Age (mean) 76,08 years SD 7,54 Male, % 39,1% MMSE (mean) 23,8 SD 2,4 Mild dementia N = 116 Very mild dementia N = 80.

Conclusions: Using the revised consensus criteria, the proportion with probable DLB was 29.3%. This is higher than earlier reported from clinical cohorts and from community based epidemiological studies focusing on DLB. The prevalence of DLB was similar in mild dementia and very mild dementia. The findings suggest that the revised criteria for clinical DLB have higher sensitivity than the original version.

S31-1

Risks and interventions: Their impact on age-related cognitive decline

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Research on the relations between age and cognitive decline has revealed the importance of factors that elevate or reduce the chances that cognitive decline will result in functional limitations or disability. These factors include: 1) long-standing behaviors or attributes of an individual, and 2) actions that may be taken in response to changes in cognitive functioning that to reduce or mitigate their impact. The first group of factors (risks) includes certain biological, psychological, behavioral, life-style, social and environmental characteristics of an individual that influence not only the presence of impairment, but associated functional limitations and/or disability. The second set of factors, that are mobilized to reduce or off-set the impact of cognitive decline, may be internally generated (operate within a person) or may be dependent on others (external to the individual). These concepts are central to understanding how behavioral interventions for healthy older adults and those with mild cognitive impairment (MCI) can be used to optimize functioning and well-being, minimize the risk of disability, and prevent the development of dysfunctional family or social functioning. The many influences (e.g., life-style, psychosocial, compensatory) that may affect the consequences of cognitive decline for an individual, and whether or not benefits from interventions are likely to be derived, will be addressed in this presentation.

S31-2

Aerobic exercise and memory

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Over the past decade, there has been increasing studies which dealt with the influence of life-style related factors including intellectual engagement, nutrition, and physical activity on the cognition of the elderly individuals. Some of these studies examined whether such factors reduce the risk or delay the onset of dementing illnesses. First, among these studies, I review the human epidemiological studies which examined the effect of exercise and physical activity on cognition and dementia. Second, I review some human randomized clinical trials that attempted to determine the effect of exercise on cognition with special attention to aerobic exercise. Next, I discuss animal researches that have examined the molecular, cellular, and behavioral effects of exercise. Finally, I make a presentation of our 3-year intervention study for community-dwelling elderly people. For this study, we employed a newly developed aerobic exercise as an intervening method. In this study, we evaluated the effect of the aerobic exercise on cognitive and emotional status as well as fitness level. As the result, we found that aerobic exercise is efficacious to cognitive function including memory of the elderly individuals. In summary, it appears to be the cause that the benefits of exercise promote brain and cognitive vitality well into older adulthood.

S31-3

Enhancing attentional control in sedentary older adults through physical fitness training and cognitive intervention

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Age-related deficits in attention and control aspects of cognition have often been reported. Nevertheless, cognitive decline is heterogeneous in older adults. In fact, some individuals enjoy a high level of cognitive vitality even in very old age, which suggests that one can build cognitive reserve to minimize the deleterious effects of chronological aging. Recent studies have identified modifiable and manageable factors that are thought to enhance cognition as one grows older, such as engagement in intellectually stimulating activities or increased physical activity. However, whether managing lifestyle in old age could have a significant positive impact on cognitive vitality deserves further investigation. Also, the specific effects that these factors might have on cognitive functions (e.g., memory, attention etc.) remain to be documented. In this presentation, we will review recent findings on the positive effects of laboratory-based cognitive intervention and aerobic fitness training on cognitive functioning in older adults. Particular emphasis will be made on attentional control mechanisms often involved in executive control tasks, which have been shown to be precociously impaired in older adults.

S31-4

Episodic memory training in persons with mild cognitive impairment

Sylvie Belleville[1]; Brigitte Gilbert[1]; Francine Fontaine[1]; Samira Mellah[1]; Francis Clement[1]; Sophie Blanchet[2]; Nicole Caza[1]; Serge Gauthier[3]

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There is increasing empirical support that cognitive training increases memory efficacy in healthy older adults. Recently, we have shown that persons with mild cognitive impairment benefit from memory training to the same extent as healthy older adults. We will report data investigating the brain correlates for the episodic memory improvement exhibited by persons with MCI following training. Memory training involving a range of encoding and retrieval strategies was provided over a 6-week period. Participants with MCI were tested pre- and post-intervention on behavioral memory tasks. Furthermore, brain activation was recorded during a word recognition task with Evoked related potentials (ERPs) and functional magnetic resonance imaging (fMRI). Results indicated changes in brain activation at post-training relative to pre-training. At post-intervention, there was evidence for increased ERP amplitudes of the P200 brain waves during retrieval. This may index increased efficacy of active retrieval initiation. Furthermore, fMRI indicated that memory improvement after training was associated with changes in the activation of the parietal cortex. Changes were found in the brain areas involved in mental imagery and visual working memory. Thus, adaptive brain plasticity is found when MCI persons use memory strategies.

S32-1

Biochemical and neuroimaging markers in MCI and early Alzheimer's disease

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The pathophysiological process leading to neurodegeneration in Alzheimer's disease (AD) is thought to begin long before clinical symptoms develop. The amnestic subtype of mild cognitive impairment (aMCI) has a high risk of progression to AD, and it could constitute a prodromal stage of this disorder. Therefore, aMCI subjects are studied in both biomarker and neuroimaging development looking at disease progression, prediction and conversion to early clinical AD. Existing therapeutics for AD improve symptoms, but increasing efforts are being directed toward the development of therapies to impede the pathologic progression of the disease. Although these medications must ultimately demonstrate efficacy in slowing clinical decline, there is a critical need for biomarkers and imaging derived measures that will stratify pre-clinical and clinical patient populations for trials, indicate whether a candidate disease-modifying therapeutic agent is actually altering the underlying degenerative process. A number of in vivo neurochemistry and neuroimaging techniques, which can reliably assess aspects of physiology, pathology, chemistry, and neuroanatomy, hold promise as biomarkers. These neurobiological measures appear to relate closely to pathophysiological, neuropathological and clinical data, such as hyperphosphorylation of tau, abeta metabolism, lipid peroxidation, pattern and rate of atrophy, loss of neuronal integrity, functional and cognitive

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decline, as well as risk of future decline. As this work has considerably matured, it has become clear that biological measures may serve a variety of potential roles in early clinical and pre-clinical diagnosis, clinical trials of candidate therapeutic agents for AD, depending in part on the question of interest and phase of drug development. In this presentation, the conceptual framework of current multimodal biomarker research is reviewed, as well as established mono- versus emerging multicenter data related to a range of core feasible neurochemical, as well as neuroimaging markers of AD and potential applications of these techniques in future clinical practise and in clinical studies, particularly with respect to early diagnosis, patient stratification, classification, prediction, as well as monitoring of disease progression in trials of disease-modifying therapies.

S32-2

Is analysis of glycosilated protein useful for diagnosis of early dementia?

Katsuya Urakami

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Background: With the aging population in Japan, the inevitable increase in the prevalence of dementia. The marketing of acetylcholinesterase inhibitor has allowed for the treatment of AD. However, it is very difficult to diagnose the condition and reliable early diagnostic biomarkers for early stage of dementia are needed.
Method: We examined a total 570 CSF samples from a variety of diseases, including AD, other types of dementia and controls to quantitate levels of tau protein phosphorylated at serine 199 by sandwich ELISA. We also measured WGA-binding glycoproteins in CSF samples with AD and other types of dementia by western blot analysis.
Results: The CSF phosphorylated tau protein levels in the AD group were significantly elevated compared to those in all the other non-AD groups. CSF phosphorylated tau protein levels in the AD progressed from mild cognitive impairment (MCI) group were significantly elevated compared to those in no progression AD from MCI groups and controls. A comparison of the phosphorylated tau protein/WGA-glycoprotein fragment (a) ratio for AD and other tauopathies showed that this ratio has potential for differentiating between AD and other tauopathies, particularly dementia with Lewy bodies.
Conclusion: Our data showed that the measurement of WGA-binding glycoprotein in CSF may provide a useful tool for differentiating AD from dementia with Lewy bodies and other tauopathies. References1. Urakami K, et al: Dement Geriatr Cogn Disord 9: 294–298, 1998.2. Itoh N, Arai H, Urakami K, et al: Ann Neurol 50: 150–156, 2001.3. Urakami K, et al: Jpn J Geriatr Psychiatr 13: 5–10, 20024. Urakami K: Psychogeriatrcs 6: 26–29, 2006.

S32-3

CSF tau and Aβ as biomarkers for MCI and early Alzheimer's disease

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With new therapeutic compounds against Alzheimer disease (AD) such as g-and b-secretase inhibitors and vaccination we will have access to more effectively treatment regimes acting on the disease mechanism and thus give a better hope for arresting the progression of the disease. As the disease and cell death starts decades before the first symptoms emerge a correct clinical diagnosis of (AD) is of importance to initiate the treatment as early as possible when these and other treatment principles will reach the clinic. This has made the need of improving the diagnostic accuracy of AD and not least those patients with mild cognitive impairment (MCI) that has incipient AD demanding and thus, among other possible approaches, diagnostic markers in the cerebrospinal fluid (CSF) have become a rapidly growing research field. Three cerebrospinal fluid (CSF) biomarkers; total tau (T-tau), phospho tau (P-tau) and the 42 amino acid form of b-amyloid (Ab42) have been evaluated in numerous scientific papers. These CSF markers have high sensitivity to differentiate early and incipient AD from normal aging, depression, alcohol dementia and Parkinson disease, but lower specificity against other dementias, such as frontotemporal and Lewy body dementia. The evaluation of these markers is rather cost effective and with the commercial laboratory kits available, do not exceed 100 euros. If these biomarkers are used together with a careful history, clinical examination, standard laboratory tests, imaging techniques of the brain the diagnostic accuracy may be acceptable for the clinical evaluation of MCI

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cases. Data on BACE1 activity and APP isoforms will also be discussed.

S32-4

The levels of Beta-Secretase (BACE1) in cerebrospinal fluid of mild cognitive impairment

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Objective: Recently, we and others have discovered elevated β-secretase (BACE1) activity in brains of patients with sporadic Alzheimer's disease (AD) compared to healthy control (HC) individuals. Now we are particularly interested in whether BACE1 could be identified in the cerebral spinal fluid (CSF) of patients with mild cognitive impairment (MCI), a population at high risk for AD. The possible presence of BACE1 in the CSF of AD and MCI has so far gone unreported.
Methods: We evaluated the cerebrospinal fluid (CSF) BACE1 levels, enzymatic activities as well as total Aβ level from 80 sporadic AD patients, 59 MCI patients, and 69 healthy controls (HC) recruited from two independent research centers.
Results: We found significant increases in both CSF BACE1 level ($p < 0.001$) and activity ($p < 0.001$) in MCI compared to AD and HC. Elevated total Aβ level ($p < 0.001$) in CSF of MCI patients was also found compared to AD patients and HC. CSF BACE1 activity was significantly correlated with BACE1 protein level ($r = 0.166$, $p < 0.05$). CSF Aβ level was also correlated with CSF BACE1 activity ($r = 0.315$, $p < 0.001$) as well as CSF BACE1 protein level ($r = 0.149$, $p < 0.05$). Using CSF BACE1 level and activity, MCI patients can be distinguished from both AD and HC.
Conclusion: Significant elevation of CSF BACE1 levels and activities in CSF of MCI patients is a predictor of early stage of AD.

S33-1

How we can avoid physical restrains in hospitals for the old

Mitsuru Yoshioka

Japan Association for Restraint-free Longterm Care, Japan

1. The feature of physical restrain for the aged demented patients in Japan. 2. Unhappy personal history in Japan of geriatric medical service. Recently, the population of aged demented patients have been increasing with the high speed compared to the other countries in Japan. But the suitable care system has not established for the lack of knowledge, experience, information and shorthand of the care staffs. Therefore, the restrain had spread in the hospitals as an easy care way. 3. FUKUOKA DECLARATION OF RELEASE FROM THE RESTRAIN and No restrain in the nursing-care-for-elderly-people institution under elderly care insurance we proposed the FUKUOKA DECLARATION to let the aged demented patients be free from the restrained state in 1998. This declaration is a first memorial campaign against restrain in the world. This campaign caused a decrease in restrained patients to almost zero percent in the 10 common geriatric hospitals within 1 year. Japanese government also propose the abolishment of restrain in the public insurance of the elderly care in 2000. 4. The present state of care system and restrain for the aged demented patients in Japan. 5. A future subject.

S33-2

The environmental evolution and the movement for the abolition of physical restrains in a geriatric hospital of Japan

Michiyasu Ariyoshi

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I have been concerned with geriatric medicine for about 20 years. In the meantime, through the geriatric hospital system of Japan started in the designated hospital for the elderly, evolved into the geriatric hospital which reinforced the care staff and the geriatric sanatorium styled hospital. Mitsuru Yoshioka MD, a doctor of the Kamikawa hospital, educated us in 1997 about excellent nursing and the care method which releases the patients from the restrain. These activities fruited to publish "FUKUOKA DECLARATION OF RELEASE FROM THE RESTRAIN" in October, 1998. At this time, we realized the five important matters are: 1. Sending a daytime without lying down on a bed, 2. Eating using a mouth, 3. Excretion

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not using a diaper, 4. Keeping the body clean and 5. Promoting the activities of patients. We have practiced in the daily working of these matters in order to abolish physical restrains. However, concerning the improvement of the care of excretion, there were many unsolvable problems in a multi-bed room. Therefore, we began to improve medical-treatment environment. I got acquainted with the late Prof. Tadashi Toyama of the Kyoto University graduate school, and learned the care method to use a single room and unit which consists of a few patients in 2001. Under the influence of him, we began to improve the care ward system. The new ward care system unit was completed in autumn, 2003. Reconstruction of the new ward from old one was also ended in the winter of the same year. Concerning the care ward, all rooms turned into single rooms. In these results our terminal care could have played a role efficiently without having the patients move into medical wards. I believe that this is just a role of our care wards, to take care of the patients through 24 hours until the terminal stages in the same institution or hospital.

S33-3

The unit care system for abolishing physical restrains

Yasuko Hashimoto

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The unit care system for abolishing physical restrains 1. We have provided the nursing service in a dementia ward by the unit care system. 2. The utility of the unit care is capable of performing in a small unit. And also good points are shown as follows; 1) We can make a familiar relationship between a patient and the staff. 2) It enables us to a good care focusing on a patient. 3) An individual care is easy to be done. 4) A patient entrains the circadian rhythm. 3. Physical restrains to the demented elderly disappear naturally. 4. The unit care system is applicable not only the care of demented elderly but also in a rehabilitation ward and a general ward. 5. The demerit of unit care system is needs an increase of the number of staff and of the expensive finance accompanying it.

S33-4

Effects of a staff-education programme on physical restraint use in dementia care

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Background: Physical restraints are commonly used to promote physical safety for frail residents living in geriatric care settings, especially for those suffering from dementia. However, over the years the use of physical restraints has been challenged, partly from an ethical perspective and partly because it's preventive effects has not been proven. Furthermore, a range of negative effects and consequences of restraint use in this age group has been described. Factors that have been pointed out to be related to restraint use are resident and staff characteristics, facility types and organization of care. Some research has also shown that nursing staff knowledge about and attitudes towards physical restraint use are one strong factor that can discriminate high-use from low-use wards.

Objective: The aim of this study was to evaluate the effects of a staff education programme on the use of physical restraints.

Methods: Forty group dwellings for persons suffering from dementia were randomized to a control or an intervention group. The intervention group consisted of 228 residents and the control group of 193 residents. The intervention consisted of an education program for nursing staff including one recorded seminar per month over six months, with themes such as complications of dementia, fall prevention and legislation about-, alternatives to- and side effects of- the use of physical restraints. Data on the use of physical restraints were collected during three weeks before and three weeks after, information of fall incidences were collected during the whole study period and data on resident characteristics once before and after.

Results: There were no baseline differences between the groups, regarding the prevalence of physical restraints or fall accidents. At follow-up the intervention group showed a reduction in physical restraint use by 30% (from 24% to 17%) while the use had increased with 32% (from 25% to 33%) in the control group. In the intervention group, 24% of the residents subjected to physical restraints at baseline were in the follow-up restraint free, compared to 7% in the control group. There were no significant differences in number of fallers or total number of falls between the two groups.

Conclusion: These results suggest that staff education can be one effective method for reducing the use of physical restraints in the care of elderly suffering

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from dementia, without increasing the incidence of fall accidents.

S33-5

Present condition of the physical restraint for the demented old and its abolition in the Republic of Korea

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1 Our(indirect)activity in the past: 1. Investigation for the recognition about a physical restraint to the staff in a welfare institution for the aged (1) Investigation purpose: Understanding the recognition concerning the physical restraint for the worker in a nursing home (2) The period of investigation: From 17th to 30th of May, 2005 (3) The candidates for investigation: The head of institution, office manager, social worker (life counsellor), nurse, care worker in all the domestic welfare institutions for the aged (142 institutions) (4) The main investigates: South Korean dementia care research institute Investigation items: The 13 items were used. (15 items which the Kamikawa hospital investigated in 1998 were changed according to the South Korean actual condition.) 2. This investigation was appealed by the presentation in congress to the candidates. The announcement in the joint scientific congress in Autumn of Korean clinical social work society and Korean dementia care research institute. 3. The movement for the abolition of physical restrains by "KOMI care". "KOMI Care" is utilizing KOMI theory and a KOMI chart system (tool for care management), and is a general term for the care which tries to aim at improvement in quality. KOMI theory is aimed at realizing the state of the care which uses Nightingale's thought as a base. The object is to perform the following "5 Measures of care" in actual care management. (1) Support for the maintenance process (recovery process) of life (2) Support that protects life from hazards; (3) Support that minimizes the expenditure of vitality (4) Support that extends the power of life; (5) Support that fully utilizes a person's remaining health and power In other word, the abolition of physical restrains for the aged demented patients could be needed to carry out the those above mentioned cares. And good changes will be shown in the institution which practices KOMI care.

2 Future activity plan: 1. Cooperating to the realization in a model institution, and publicizing the result as a model. 2. To collect the additional practice institution and co-operator (Cooperation in Educational Implementation and Practice etc.). 3. The advertising by publication.

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