

A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO FUNCTION AND DISABILITY IN PRIMARY CARE

Selection of readings made by A/Prof Goh Lee Gan

CHILDHOOD & ADOLESCENCE

Reading 1

Farooqi A, Hägglöf B, Sedin G, Gothefors L, Serenius F. Chronic conditions, functional limitations, and special health care needs in 10- to 12-year-old children born at 23 to 25 weeks' gestation in the 1990s: a Swedish national prospective follow-up study. *Pediatrics*. 2006 Nov;118(5):e1466-77.

URL: <http://pediatrics.aappublications.org/cgi/reprint/118/5/e1466> (payment required)

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ABSTRACT

BACKGROUND: Children born extremely immature (gestational age < 26 weeks' gestation) increasingly reach school age. Information on their overall functioning and special health care needs is necessary to plan for their medical and educational services. This study was undertaken to examine neurosensory, medical, and developmental conditions together with functional limitations and special health care needs of extremely immature children compared with control subjects born at term.

METHODS: We studied 11-year-old children born before 26 completed weeks of gestation in all of Sweden from 1990 through 1992. All had been evaluated at 36 months' corrected age. Identification of children with chronic conditions lasting > or = 12 months was based on a questionnaire administered to parents. Neurosensory impairments were identified by reviewing health records. Information regarding other specific medical diagnoses and developmental disabilities was obtained by standard parent and teacher questionnaires.

RESULTS: Of 89 eligible children, 86 (97%) were studied at a mean age of 11 years. An equal number of children born at term served as controls. Logistic-regression analyses adjusting for social risk factors and gender showed that significantly more extremely immature children than in controls had chronic conditions, including functional limitations (64% vs 11%, respectively), compensatory dependency needs (59% vs 25%), and services above those routinely required by children (67% vs 22%). Specific diagnoses or disabilities with higher rates in extremely immature children than in controls included neurosensory impairment (15% vs 2%), asthma (20% vs 6%), poor motor skills of > 2 SDs above the mean (26% vs 3%), poor visual perception of > 2 SDs above the mean (21% vs 4%), poor learning skills of > 2 SDs above the mean (27% vs 3%), poor adaptive functioning with T scores of < 40 (42% vs 9%), and poor academic performance with T score < 40 (49% vs 7%).

CONCLUSIONS: Children born extremely immature have significantly greater health problems and special health care needs at 11 years of age. However, few children have severe impairments that curtail major activities of daily living.

Reading 2

Kirkegaard I, Obel C, Hedegaard M, Henriksen TB. Gestational age and birth weight in relation to school performance of 10-year-old children: a follow-up study of children born after 32 completed weeks. *Pediatrics*. 2006 Oct;118(4):1600-6.

URL: <http://pediatrics.aappublications.org/cgi/content/full/118/4/1600> (payment required)

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ABSTRACT

BACKGROUND: Children born extremely premature (<28 weeks) or with a very low birth weight (<1500 g) have a poorer school performance than children born at term with a normal birth weight. Much less is known about children of higher gestational ages and birth weights. We studied gestational age after 32 completed weeks and birth weight in relation to the child's school performance at the age of 10 years.

METHODS: We performed a follow-up study of 5319 children born between January 1990 and June 1992. We got the information on birth weight and gestational age from birth registration forms; when the children were between 9 and 11 years of age, we gathered information about their school performance (reading, spelling, and arithmetic) from questionnaires completed by the parents and the children's primary school teachers.

RESULTS: The association between birth weight and reading, as well as spelling and arithmetic disabilities, showed a graded relationship, with children who weighed <2500 g having the highest risks. Even children who weighed between 3000 and 3499 g had an increased risk of all 3 learning disabilities compared with children who weighed between 3500 and 4000 g. This association persisted after adjustment for potential cofounders and when the analyses were restricted to children born at term (39–40 weeks of gestation), suggesting that the association could not be explained by a low gestational age. Compared with children born at term, reading and spelling difficulties were more often found among children born at gestational age 33 to 36 weeks and 37 to 38 weeks, whereas there was no relation between gestational age and arithmetic difficulties.

CONCLUSIONS: Gestational age and birth weight were associated with school performance in the 10-year-old child and the association extended into the reference range of both birth weight and gestational age.

Reading 3

Macintosh MC, Fleming KM, Bailey JA, Doyle P, Modder J, Acolet D, Golightly S, Miller A. Perinatal mortality and congenital anomalies in babies of women with type 1 or type 2 diabetes in England, Wales, and Northern Ireland: population based study. *BMJ*. 2006 Jul 22;333(7560):177. Epub 2006 Jun 16.

URL: <http://www.bmj.com/cgi/reprint/333/7560/177> (free full text)

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ABSTRACT

OBJECTIVE: To provide perinatal mortality and congenital anomaly rates for babies born to women with type 1 or type 2 diabetes in England, Wales, and Northern Ireland.

DESIGN: National population based pregnancy cohort.

SETTING: 231 maternity units in England, Wales, and Northern Ireland.

PARTICIPANTS: 2359 pregnancies to women with type 1 or type 2 diabetes who delivered between 1 March 2002 and 28 February 2003.

MAIN OUTCOME MEASURES: Stillbirth rates; perinatal and neonatal mortality; prevalence of congenital anomalies.

RESULTS: Of 2359 women with diabetes, 652 had type 2 diabetes and 1707 had type 1 diabetes. Women with type 2 diabetes were more likely to come from a Black, Asian, or other ethnic minority group (type 2, 48.8%; type 1, 9.1%) and from a deprived area (type 2, 46.3% in most deprived fifth; type 1, 22.8%). Perinatal mortality in babies of women with diabetes was 31.8/1000 births. Perinatal mortality was comparable in babies of women with type 1 (31.7/1000 births) and type 2 diabetes (32.3/1000) and was nearly four times higher than that in the general maternity population. 141 major congenital anomalies were confirmed in 109 offsprings. The prevalence of major congenital anomaly was 46/1000 births in women with diabetes (48/1000 births for type 1 diabetes; 43/1000 for type 2 diabetes), more than double than expected. This increase was driven by anomalies of the nervous system, notably neural tube defects (4.2-fold), and congenital heart disease (3.4-fold). Anomalies in 71/109 (65%) offspring were diagnosed antenatally. Congenital heart disease was diagnosed antenatally in 23/42 (54.8%) offspring; anomalies other than congenital heart disease were diagnosed antenatally in 48/67 (71.6%) offspring.

CONCLUSION: Perinatal mortality and prevalence of congenital anomalies are high in the babies of women with type 1 or type 2 diabetes. The rates do not seem to differ between the two types of diabetes.

Reading 4

Krigger KW. Cerebral palsy: an overview. *Am Fam Physician*. 2006 Jan 1;73(1):91-100.

URL: <http://www.aafp.org/afp/20060101/91.pdf> (free full text)

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ABSTRACT

The presentation of cerebral palsy can be global mental and physical dysfunction or isolated disturbances in gait, cognition, growth, or sensation. It is the most common childhood physical disability and affects 2 to 2.5 children per 1,000 born in the United States. The differential diagnosis of cerebral palsy includes metabolic and genetic disorders. The goals of treatment are to improve functionality and capabilities toward independence. Multispecialty treatment teams should be developed around the needs of each patient to provide continuously updated global treatment care plans. Complications of cerebral palsy include spasticity and contractures; feeding difficulties; drooling; communication difficulties; osteopenia; osteoporosis; fractures; pain; and functional gastrointestinal abnormalities contributing to bowel obstruction, vomiting, and constipation. Valid and reliable assessment tools to establish baseline functions and monitor developmental gains have contributed to an increasing body of evidenced-based recommendations for cerebral palsy. Many of the historical treatments for this ailment are being challenged, and several new treatment modalities are available. Adult morbidity and mortality from ischemic heart disease, cerebrovascular disease, cancer, and trauma are higher in patients with cerebral palsy than in the general population.

Reading 5

Fraser R, Berger G, Killackey E, McGorry P. Emerging psychosis in young people - Part 3 - key issues for prolonged recovery. *Aust Fam Physician*. 2006 May;35(5):329-33.

URL: <http://www.racgp.org.au/afp/200605/5843> (free full text)

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ABSTRACT

BACKGROUND: After 18 months of specialist care only about half of all first episode psychosis patients achieve functional recovery, and about 10-20% patients will not respond to initial treatment and have persistent psychotic symptoms. These patients need special attention in order to minimise the burden of disease and prolonged disability.

OBJECTIVE: This article reviews the management of young first episode psychosis patients with incomplete recovery, and focuses on the general practitioner's role, how to deal with treatment resistance, vocational rehabilitation, and other aspects of patient care.

DISCUSSION: Once the acute episode has been treated, it is important to avoid complacency and address other aspects contributing to a patient's wellbeing including social welfare, physical health and vocational rehabilitation. The prevention of relapse and the psychosocial development of the individual are key in fostering and promoting a healthy lifestyle, leading to improved quality of life. Treatment refractory patients need specialist care.

ADULT & ELDERLY

Reading 6

Saxena SK, Koh GC, Ng TP, Fong NP, Yong D. Determinants of length of stay during post-stroke rehabilitation in community hospitals. *Singapore Med J.* 2007 May;48(5):400-7.

URL: <http://smj.sma.org.sg/4805/4805a3.pdf> (free full text)

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ABSTRACT

INTRODUCTION: Length of stay (LOS) in hospitals is the largest contributor of direct stroke care cost. Rehabilitation accounts for 16 percent of healthcare cost in the six-month post-stroke period. It is important to determine factors extending LOS in rehabilitation hospitals to identify focus areas of cost-control strategies. The aim of the study was to ascertain the predictors of LOS of post-stroke patients admitted into two community hospitals offering rehabilitation.

METHODS: An observational cohort study was conducted on 200 stroke patients admitted from acute hospitals into two community hospitals. Data collected included baseline sociodemographical variables, and the National Institute of Health Stroke Scale, Abbreviated Mental Test, Geriatric Depression Scale and Barthel Index were used to assess neurological impairment, cognitive impairment, depressive symptoms and functional disability, respectively. Medical complications (defined as new or exacerbated medical problems that generated additional physician evaluation, a change in medication or additional medical intervention), after patients were admitted to the community hospitals until discharged, were recorded. The outcome variables measured were length and cost of stay.

RESULTS: The mean LOS in our study was 34.4 (standard deviation [SD] 18.4) days, and the mean cost of hospital stay was S\$2,410.83 (SD S\$2,167.26). Length and cost of hospital stay were significantly correlated (r equals 0.52; p -value is less than 0.01). On multiple linear regression analysis, the significant variables positively associated with LOS were medical complications and functional dependence on admission. Significant variables negatively associated with LOS were unplanned discharge and recurrent strokes.

CONCLUSION: Medical complication is a key reversible determinant of increased LOS of post-stroke patients receiving rehabilitation in community hospitals. Strategies for prevention, early detection and treatment of medical complications during stroke rehabilitation are discussed.

Reading 7

McLean R. Employment status six months after discharge from inpatient rehabilitation for a mild-to-moderate physical disability. *Ann Acad Med Singapore.* 2007 Jan;36(1):18-21.

URL: <http://www.annals.edu.sg/pdf/36VolNo1Jan2007/V36N1p18.pdf> (free full text)

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ABSTRACT

INTRODUCTION: Physical disability presents unique challenges to the individual, family and community. One of these challenges is returning the individual to work. The current study looks at individuals with a mild-to-moderate physical disability 6 months post-discharge from inpatient rehabilitation and their employment status and perceived barriers to returning to work.

MATERIALS AND METHODS: Prospective study of consecutive Singaporean patients, aged 21 to 65 years, discharged from the acute inpatient Rehabilitation Medicine Service at Changi General Hospital with a mild-to-moderate physical disability, as determined by discharge Modified Barthel Index score, and their employment status 6 months after discharge.

RESULTS: There were 68 patients who met the study criteria; of these, 31 (45.6%) were successfully employed by 6 months post-discharge from inpatient rehabilitation. There was a statistically significant difference ($P = 0.0004$) between the 2 groups based on gender, with more males likely not to return to work as compared to their female counterparts.

CONCLUSION: In this small prospective study, males were more likely not to return to work than females. Those of slightly younger age with more advanced education were more likely to return to work and fear of worsening of physical disability was the most common reason cited for not returning to work after a mild-to-moderate physical disability.

Reading 8

Ng YS, Jung H, Tay SS, Bok CW, Chiong Y, Lim PA. Results from a prospective acute inpatient rehabilitation database: clinical characteristics and functional outcomes using the Functional Independence Measure. *Ann Acad Med Singapore*. 2007 Jan;36(1):3-10.

URL: <http://www.annals.edu.sg/pdf/36VolNo1Jan2007/V36N1p3.pdf> (free full text)

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ABSTRACT

INTRODUCTION: Rehabilitation improves functional outcomes, but there is little data on the profiles and outcomes of patients undergoing inpatient rehabilitation in Singapore. The aims of this paper were to document the clinical characteristics and functional outcomes, using the Functional Independence Measure (FIM), of all patients admitted to an inpatient rehabilitation unit in a tertiary teaching hospital, and to identify and analyse factors significantly associated with better discharge functional scores and higher functional gains.

MATERIALS AND METHODS: In this prospective cohort study over a 4-year period, clinical and functional data for 1502 patients admitted consecutively to the Singapore General Hospital inpatient rehabilitation unit were charted into a custom-designed rehabilitation database. The primary outcome measures were the discharge total FIM scores, FIM gain and FIM efficiency. Multiple linear regression analysis was used to identify independent variables associated with better discharge FIM scores and FIM gain.

RESULTS: The mean age was 61.3 \pm 15.0 years and 57.2% of the patients were male. Stroke (57.9%) followed by spinal cord injury (9.7%) were the most common diagnoses. The average rehabilitation length of stay was 21.5 \pm 19.0 days. The mean admission total FIM score was 70.3 \pm 23.2 and the mean discharge total FIM score was 87.3 \pm 23.0, with this gain being highly significant ($P < 0.001$). The mean FIM gain was 17.0 \pm 13.4 and FIM efficiency was 0.95 \pm 0.90 points/day. Factors associated with better functional outcomes were higher admission motor and cognitive FIM scores, male gender, a longer rehabilitation length of stay and the use of acupuncture. Factors associated with poorer functional outcomes were older age, clinical deconditioning, ischaemic heart disease, depression, pressure sores and the presence of a domestic worker as a caregiver.

CONCLUSIONS: The FIM is an easy-to-use, standardised and robust general measure of functional disability. Multiple demographic, clinical and socio-cultural variables are associated with the primary functional outcomes and should be taken into account in rehabilitation and discharge planning. Nevertheless, rehabilitation improves functional outcomes across a wide range of diagnoses. Further research should be aimed at evaluating long-term disability postdischarge from inpatient rehabilitation and translating these findings into improving rehabilitation and healthcare resource utilisation.

Reading 9

Newman AB, Simonsick EM, Naydeck BL, Boudreau RM, Kritchevsky SB, Nevitt MC, Pahor M, Satterfield S, Brach JS, Studenski SA, Harris TB. Association of long-distance corridor walk performance with mortality, cardiovascular disease, mobility limitation, and disability. *JAMA*. 2006 May 3;295(17):2018-26.

URL: <http://jama.ama-assn.org/cgi/reprint/295/17/2018> (payment required)

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ABSTRACT

CONTEXT: Aerobic fitness, an important predictor of cardiovascular disease and mortality, is difficult to assess by maximal exercise testing in older adults. Extended walking tests have been examined as outcome predictors in medically ill populations but not in community-dwelling older adults.

OBJECTIVE: To determine whether an extended walking test predicts poor outcomes in older adults.

DESIGN, SETTING, AND PARTICIPANTS: Observational cohort study enrolling 3075 community-dwelling adults aged 70 to 79 years living in Pittsburgh, Pa, or Memphis, Tenn. Of those participating in the Health, Aging, and Body Composition Study, 1584 (52%) were women and 1281 (42%) were black. Participants enrolled from March 1997 to April 1998. Ability to complete the long-distance corridor walk and total performance time was assessed at the baseline examination.

MAIN OUTCOME MEASURES: Total mortality, incident cardiovascular disease, incident mobility limitation, and mobility disability were ascertained after a mean (SD) of 4.9 (0.9) years.

RESULTS: Among patients eligible to exercise, 351 died, 308 had episodes of incident cardiovascular disease, 1116 had occurrences of mobility limitation, and 509 had occurrences of mobility disability. Inability to complete walking 400 m tended to be associated with a higher risk of mortality and incident cardiovascular disease and, after accounting for potential confounders, was associated with incident mobility limitation (212.6 vs 79.1 events/1000 person-years; adjusted hazard ratio [HR], 1.86; 95% confidence interval [CI], 1.58-2.18; $P < .001$) and mobility disability (85.2 vs 28.8 events/1000 person-years; adjusted HR, 1.95; 95% CI, 1.56-2.44; $P < .001$). Of those who completed 400 m, each additional minute of performance time was associated with an adjusted HR of 1.29 (95% CI, 1.12-1.48) for mortality, 1.20 (95% CI, 1.01-1.42) for incident cardiovascular disease, 1.52 (95% CI, 1.41-1.63) for mobility limitation, and 1.52 (95% CI, 1.37-1.70) for disability after adjustment for demographics, health behaviors, clinical and subclinical disease, and cardiovascular disease risk factors. Findings were consistent in both men and women and blacks and whites. Among participants who completed the test and after adjusting for potential confounders, those in the poorest quartile of functional capacity (walk time >362 seconds) had a higher risk of death than those in the best quartile (walk time <290 seconds; adjusted HR, 3.23; 95% CI, 2.11-4.94; $P < .001$).

CONCLUSIONS: Older adults in the community who reported no difficulty walking had a wide range of performance on this extended walking test. Ability to do the test and performance were important prognostic factors for total mortality, cardiovascular

Reading 10

Fenner P. Fitness to travel - assessment in the elderly and medically impaired. *Aust Fam Physician*. 2007 May;36(5):312-5.

URL: <http://www.racgp.org.au/afp/200705/16221> (free full text)

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ABSTRACT

BACKGROUND: As more people travel, and with an expanding aged population, the number of older travellers, including those with significant medical or physical impairment will increase significantly.

OBJECTIVE: This article addresses the assessment of fitness to travel in these groups, particularly with regard to their varying standard of fitness and/or disability. These factors should influence all travel plans.

DISCUSSION: Factors for consideration are: destination and itinerary; the traveller's current medical condition, state of health, mobility (if impaired), medication, preparation necessary, level of fitness; and assessment of precautions or protection needed for temperature and/or weather extremes, altitude and other influencing factors. The trip conditions, both possible and probable, should be assessed and matched with these factors before booking the trip - long before the planned departure. If the vacation is to be enjoyed, the destination and itinerary must be comfortably achievable within these confines for the individual(s) concerned.
