confidence interval 2.35-113.45, $p = 0.005$). For the intracerebral haemorrhage group, the factors that predicted a poor outcome were age (adjusted odds ratio = 1.10, 95% confidence interval 1.01-1.19, $p = 0.02$) and admission NIHSS score (adjusted odds ratio = 1.34, 95% confidence interval 1.13-1.58, $p = 0.001$).

### Conclusions
Age and admission NIHSS score were associated with a poor stroke outcome in both cerebral infarction and haemorrhage patients. For cerebral infarction, incontinence on admission could also predict a poor outcome.

## Epidemiology of First Ever Generalised Tonic-clonic Seizures in Adults: A Prospective Study

**P 16**

P. Kwan, A. Lin, P. W. Ng
*Division of Neurology, Department of Medicine & Geriatrics, United Christian Hospital, Kwun Tong, Hong Kong*

### Objective
To describe the clinical characteristics and estimate the incidence of first generalised tonic-clonic seizures (GTCS) among adults in Kwun Tong region in Hong Kong.

### Methods
In Hong Kong, patients presenting to the emergency department with a first ever GTCS are routinely admitted into hospitals for investigation and treatment. The study was conducted in the only acute hospital with emergency service in Kwun Tong region which has a population of 562 427, of whom 479 188 are 15 years or above. The region has the second highest proportion (14.5%) of elderly population (65 years or above) in Hong Kong. We prospectively screened the records of all patients admitted to the six main acute medical and geriatric wards within 48 hours of admission and determined whether epileptic seizures were the presenting complaints. Patients admitted for the first GTCS were included in the analysis.

### Results
Between 1 March 2002 and 28 February 2003, there were 24 259 admissions via the emergency department to all medical or geriatric wards of the hospital. Among them, 567 (2.3%) were discharged with a principal diagnostic coding of "epilepsy" or "symptoms of convulsion", of whom 541 (95.4%) were identified in our ward screening. Among them, 106 were for patients presenting with a first GTCS, giving an estimated incidence of 22.1 per 100 000 population per year. The incidence increased with age, from 12.1 to 15.5 to 62.5 per 100 000 for ages 15 - 34 years, 35 - 64 years, and 65 years or above, respectively ($p<0.001$). CT scan +/- MRI of the brain was performed in 98% patients and EEG in 38%. The seizure/epilepsy types were classified as acute symptomatic in 21%, remote symptomatic in 48%, cryptogenic in 21%, idiopathic in 2% and unclassifiable in 8%. The commonest aetiology was stroke, accounting for 44% among the whole cohort, or 76% among those 65 years or above.

### Conclusion
The annual incidence of a first GTCS among population 15 years or above was estimated to be 22.1 per 100 000. Twenty-one percent were acute symptomatic in nature. Stroke is the commonest aetiology identified, likely accounting for the highest incidence among the elderly compared with other age groups in the region.

## Cerebral Palsy – Correlation of Functional Assessment with Risk Factors

**P 17**

V. Wong, B. Chung
*Division of Neurodevelopmental Paediatrics, Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong*

### Objective
To study the functional status of cerebral palsy (CP) using Functional Independence Measure for Children (WeeFIM) and its correlation with risk factors.

### Methods
A cross-sectional study of 76 CP children was conducted with a validated instrument for rehabilitation (Chinese WeeFIM). This is an 18-item ordinal scale which measure a child's consistent performance in daily functional skills in 3 domains (self-care, mobility, and cognition). This is assessed by interviewing / observing a child's performance of a task and referenced to criterion standards. The interview will take only 5-10 minutes. The scores ranged from 1 to 7 (1 = total assistance, 2 = maximal assistance, 3 = moderate assistance, 4 = minimal contact assistance, 5 = supervision, 6 = modified independence and 7 = complete independence). Thus, the total score is 126.

### Results
The mean age of our CP cohort was 12 years. The male to female ratio was 2.5:1. The mean total WeeFIM score was 80.7 (mean total quotient = 67.21%). The mean sub-scores / quotients for self-care, mobility and cognition were 35.7 / 67.9%, 21.8 / 62.6% and 23.2 / 69.% respectively.

The best functional status occurred in the hemiplegic group (14), and the worst being tetraplegia (12). Children with diplegia (27), ataxia (5), dyskinesia (14) and mixed (4) scored in-between.

The degree of functional dependency was associated with (i) mental retardation ($p=0.012$), (ii) epilepsy ($p=0.006$), (iii) type of CP ($p<0.001$) and (iv) the severity status using Gross Motor Function Classification (GMFC) ($p<0.001$).

### Conclusion
Regular assessment of the achievement of functional independence is important for targeting therapeutic goals in any multidisciplinary rehabilitation program. Significant correlation with dependence or assistance was found with the type, severity, and associated co-morbidities of CP children. For any child with CP, regular monitoring with a simple tool for the achievement of functional independence is worthwhile for both early training and later educational needs.

## Topiramate-Valproate-induced Hyperammonemic Encephalopathy Syndrome (TV-HES) – Case Report

**P 18**

V. Wong, E. Cheung, C. W. Fung
*Department of Paediatrics & Adolescent Medicine, The University of Hong Kong, Queen Mary Hospital, Hong Kong*

A 15.5-year-old boy with chromosomal abnormality [inversion duplication of chromosome 15], having severe mental retardation, intractable generalized epilepsy and behavioral problems was admitted for acute onset of irritability, increasing sleepiness and worsening of seizures. He tolerated valproate in combination with other anticonvulsants. He was found to have hyperammonemia within 2 weeks after low dose topiramate was added to valproate. He recovered within 7 days after discontinuation of valproate. Topiramate was tailed off. The reintroduction of valproate, monotherapy caused hyperammonemia again without clinical features of encephalopathy. He also developed Anticonvulsant Hypersensitivity Syndrome (AHS) when phenytoin was used. We propose the term of Topiramate-Valproate-induced Hyperammonemic Encephalopathy Syndrome (TV-HES) to include the following features: excessive sleepiness or somnolence, aggravation of seizures, hyperammonemia, and absence of triphasic waves in EEG in any individual on simultaneous Topiramate-Valproate