

## Department of Health Assessment

**Hong Kong Sanatorium & Hospital**  
10/F, Li Shu Pui Block  
2 Village Road, Happy Valley, Hong Kong  
Tel: (852) 2835 8675  
Fax: (852) 2892 7513  
healthassessment@hksh-hospital.com  
www.hksh-hospital.com  
Monday to Friday: 8:00 am – 5:00 pm  
Saturday: 8:00 am – 1:00 pm  
Closed on Sundays and Public Holidays



# Brain Health Assessment Programme



For enquiries and appointments,  
please contact us

## Two Main Focuses of Brain Health Screening in Recent Research

### Stroke Risks

Scientific evidence shows up to 80% of strokes are preventable. Screening of brain health is recommended in people who are conscious of their cerebrovascular health and have risk factors of stroke such as hypertension, diabetes, dyslipidaemia, obesity, smoking and a family history of stroke.



### Cognitive Impairment Risks

Risk factors for cognitive impairment include old age, cardiovascular diseases and metabolic disorders (such as diabetes, high blood pressure, high cholesterol, and obesity), certain genetic mutations (including those linked with Alzheimer's disease), depression, etc.

With mild cognitive impairment, changes often go unnoticed by patients or their loved ones. Screening for cognitive impairment allows early recognition, timely lifestyle modification and interventions.



**Brain Health Assessment Programme** is designed based on the American Heart Association Guideline on Primary Stroke Prevention<sup>1</sup> and Journal of the American Medical Association advice on screening for stroke and cognitive impairment risks in older adults<sup>2</sup>.

### Brain Health Assessment Programme

Medical History

Comprehensive Physical Examination by Neurologist

Hong Kong Version of the Montreal Cognitive Assessment (HK-MoCA) by Neurologist

Laboratory Investigation

Complete Blood Count

\*Blood Grouping and Rh Typing

Kidney Function: Creatinine

Electrolytes: Calcium  
Phosphorus, Inorganic

Liver Function: Bilirubin, Total and Direct  
AST  
ALT  
Alkaline Phosphatase  
Gamma GT

Proteins: Total, Albumin, Globulin

Thyroid Function: TSH

Lipid Profile: Cholesterol-Total, HDL and LDL  
Triglycerides

Diabetic Screening: Fasting Glucose

Gout Screening: Uric Acid

Cognitive screening: Vitamin B12, Serum Folate

**Time Required: 1.5 hours** **Package Price: HK\$5,540**

\*Only for first-time participants of the specified Assessment Schemes

#### References:

- <https://pubmed.ncbi.nlm.nih.gov/25355838/>
- <https://jamanetwork.com/journals/jama/fullarticle/2761646>

Participants of Health Assessment Scheme A (original price: HK\$13,760) can upgrade to receive brain health screening with assessment and examination conducted by Neurologist.

## Health Assessment Scheme A + Brain Health Assessment

Medical History

Comprehensive Physical Examination by Neurologist

Hong Kong Version of the Montreal Cognitive Assessment (HK-MoCA) by Neurologist

Laboratory Investigation

Complete Blood Count including Platelet

Blood Film

E.S.R.

\*Blood Grouping and Rh Typing

\*G6PD

Kidney Function: Urea

Creatinine

eGFR

Electrolytes: Na, K

Calcium

Albumin-Adjusted Calcium

Phosphorus, Inorganic

Liver Function: Bilirubin, Total and Direct

AST

ALT

Alkaline Phosphatase

Gamma GT

Hepatitis B Screening: HBs Antigen

HBs Antibody

Proteins: Total, Albumin, Globulin

Thyroid Function: FT4

TSH

Lipid Profile: Cholesterol-Total, HDL and LDL

Triglycerides

Total Cholesterol / HDL-C Ratio

Non-HDL Cholesterol

Diabetic Screening: Fasting Glucose

Haemoglobin A1C

estimated Average Glucose (eAG)

Gout Screening: Uric Acid

Serology: Anti-Rubella Virus IgG (Female Only)

Treponema Pallidum Antibody for Syphilis

Cognitive screening: Vitamin B12, Serum Folate

Tumour Markers: Alpha-Fetoprotein (AFP)

EBV DNA (NPC Quantitative)

Prostate Specific Antigen (PSA)(Male Only)

Stool: Routine Examination, Occult Blood

Urine: Routine Examination

Treadmill Exercise Stress Test

\*X-ray Examination: Chest

Ultrasound Examination

Upper Abdomen: Liver, Pancreas, Gall Bladders, Kidneys,

Spleen

Lower Abdomen: Reproductive Organs (Female)

Dietitian Consultation (On Reporting Date)

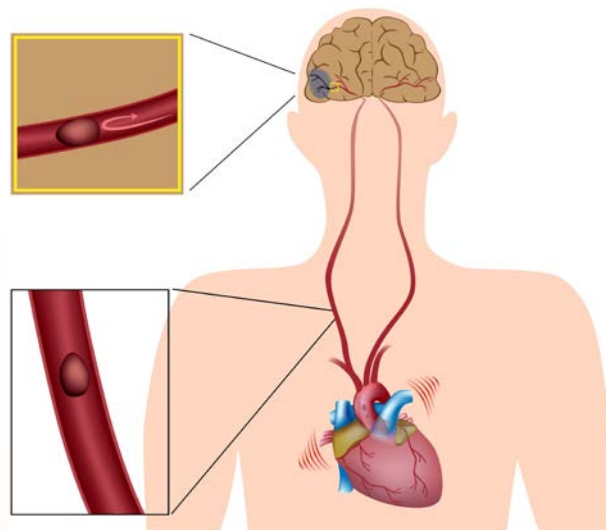
**Time Required: 5.5 hours Package Price: HK\$16,200**

\*Only for first-time participants of the specified Assessment Schemes

\*Participants of any Health Assessment Plan can enjoy a special offer (HK\$2,430) to upgrade from Chest X-Ray to Low Dose CT Thorax

**After the initial brain health screening, patients with identified stroke or dementia risks may be recommended for further investigations to develop personalised management and control plan for risk factors.**

## Cardiac Screening of Ischaemic Stroke



Up to 15-30% of ischaemic strokes are caused by atrial fibrillation and cardiac embolism, and are generally associated with higher chance of recurrence, morbidity and mortality than other causes of stroke.

Early identification of specific cause is crucial to choose the most optimal strategy of primary prevention for the different subtypes of cardiogenic ischaemic stroke.

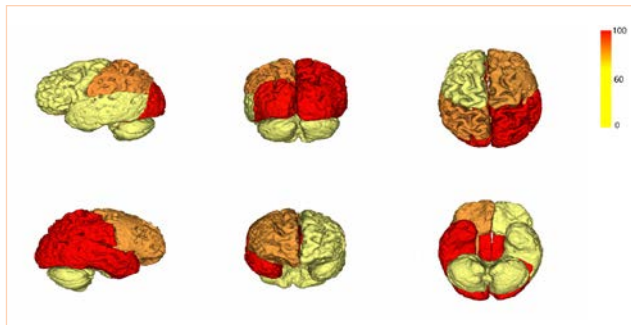
Workup of cardiogenic ischaemic stroke risks may include:

- Electrocardiography
- Holter monitoring
- Echocardiography (TTE / TEE)

References:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2994109/>

## Dementia and Detection of Brain Volume Loss



Cerebral atrophy is a long-term effect of neurodegeneration. Alzheimer's disease and other dementias exhibit different degree and patterns of brain volume loss. Detectable changes can be identified in early pre-symptomatic disease stage for risk assessment of cerebral atrophy.

AccuBrain® is a fully automatic neuroimaging analysis system based on the latest image computing technology. The AI imaging analysis system assists neurologists to precisely and accurately analyse the characteristic measurements and patterns of regional brain volume loss. The system can also compare patient's MRI sequenced images with extensive data of healthy and patient control groups, including reference of local population, Alzheimer's disease control groups and other dementias control groups, for a better understanding of the patient's conditions.

### References:

<https://www.brainnow.net/about-accubrain>  
<https://jnnp.bmj.com/content/88/11/908>

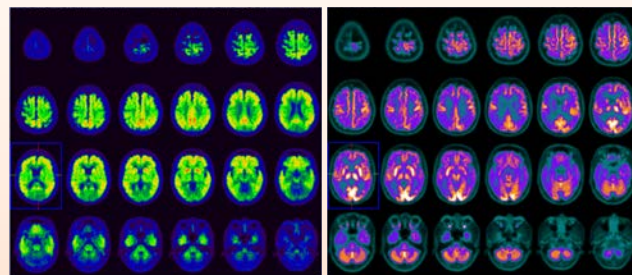
## PET/CT and Alzheimer's Disease



Positron Emission Tomography (PET) scan is valuable to show and quantify the cellular activities and the distribution of functional molecules in the brain. PET/CT imaging examinations available in HKSH utilise multiple tracers to aid the diagnosis of Alzheimer's disease and the other causes of dementia:

- $^{11}\text{C}$ -Amyloid and  $^{18}\text{F}$ -Tau PET/CT scans measure abnormal accumulation of amyloid and tau proteins in the brain serve as diagnostic indicators for Alzheimer's disease
- $^{18}\text{F}$ -FDG PET/CT scan measures glucose metabolism in the brain which is useful for differentiating Alzheimer's disease from other causes of dementia

Early Alzheimer's disease can be detected by PET/CT scan before onset of signs and symptoms. Neurologists can guide patients on measures to reduce the impact of future cognitive decline.



### References:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4332800/>