Neurophysiology

Standard Operating Procedures
For Medical Assistants in Neurophysiology

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Ministry Of Health, Malaysia

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FOREWORD

Standard Operating Procedures for Medical Assistants in the Medical Care Programme serves as a guide to meet the standards of care and professionalism set out by the Ministry of Health of Malaysia (MOH). It also serves to enhance public awareness of standards expected from Medical Assistants (MAs) who provide specialized care for patients. Public awareness of standards expected from MAs will hopefully encourage greater compliance amongst MAs themselves to these guidelines. It is in their best interest to adhere, at all times, to the Standard Operating Procedures laid in this book.

Of late, Medical Assistants have seen many positive changes initiated by the Medical Development and Practice Divisions of MOH as well as the Medical Assistant Board with full support from all senior consultants on MOH. The MOH recognizes the valuable contributions by MAs and have created several senior posts of Medical Assistants to enhance and improve the clinical supervision and management of patients. The Ministry of Health has always stressed on the importance of effective supervision of their peers by senior Medical Assistants, under the guidance of medical officers. The preparation of the Standard Operating Procedures and other guidelines are aimed at providing useful information for quality patient care and I hope these guidelines will be used as reference material for Medical Assistants throughout the country in the execution of their duties and efforts to provide quality health care to the community.

I am confident the Standard Operating Procedures will be well accepted. We will of course ensure that updates with new topics, activities and procedures will be introduced in future editions.

May I congratulate the Medical Programme of MOH, all senior consultants and the Medical Assistants Technical Committee for their tireless efforts and commitment to publish the Standard Operating Procedures. We would also like to record our thanks to all doctors and Medical Assistants involved in the successful preparation of this first edition of the Standard Operating Procedures. I am always impressed with efforts to strive for excellence in service delivery and such efforts by the MAs are most commendable indeed.

Datuk Dr. Hj. Mohd. Ismail Merican
Director General of Health
Ministry of Health, Malaysia
July 2005

FOREWORD

Successive generations of Medical Assistants who have worked in the Ministry of Health have all practiced the long-held tradition of hands-on training to ensure that everyone can acquire the latest knowledge and skills. While formal training has always been encouraged this is not always possible for some for various reasons. To their credit this form of knowledge and skill sharing has been done rather effectively. While practicing the skill which they acquired through training never posed any problem, the lack of documents which specify standard methods of carrying various tasks has been a cause of anxiety and concern to many. Thus the arrival of this document on the standard operating procedures for Neurophysiology into the scene now should alleviate the anxiety of many.

The importance and relevance of this SOP Standard Operating Procedures for Neurophysiology, which is long overdue, can never be overstated. This SOP will ensure uniformity/standardization, correctness/accuracy, effectiveness as well consistency in performance. Not all tasks require SOP as they are carried out routinely. SOPs can be considered as mandatory for tasks which are complicated. Tasks and procedures associated with the four above mentioned disciplines are certainly complicated.

SOP can easily be "linked" to quality assurance. Compliance to SOP would certainly ensure quality care for the patient. This is important as our patients now are increasingly well informed of their rights and they expect nothing less than the quality of care that they perceive they deserve. This SOP will not only be useful to those who are already familiar with the procedures but staff who are fairly new will find it very useful.

Writing this SOP, I am sure, has not been an easy task. It requires an certain depth of knowledge, team approach and the courage to decide on what should constitute standard methods. To the authors of this SOP we owe them deep gratitude for their effort, time and resilience. They must be congratulated for a job well done.

Thank you

Datuk Dr. Abdul Gani bin Mohammed Din
Deputy Director General of Health (Medical)
Ministry of Health

MESSAGE

It gives me a great pleasure to write this message in the compilation of SOP (Standard Operating Procedure) for various tests in neurophysiology. This is the first ever assemblage done for the Ministry of Health Malaysia.

Neurophysiological testing is one of the important diagnostic studies in the wide range of neurological diseases. The SOP will ensure standardised techniques, accurate results and hence the interpretation derived from such procedures. This is crucially important for further management of the patients.

Finally, I would like to express my sincere appreciation and gratitude to all Medical Assistants involved in the dynamic discussions, ideas and reference in preparing of this work manual.

Dato' Dr. Md. Hanip bin Rafia, DPMJ., SAP.
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Senior Consultant Neurologist & Head Of Department
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THE EVOLVING OF MEDICAL ASSISTANTS

The Medical Assistants evolved from "Dresser" during the Pre war times in then Malaya. Later the name was changed to Hospital Assistants in 1970 and in 1985, the name has designated as Medical Assistants. The leading roles and responsibilities of Medical Assistants can be considered as the backbone of the rural Government curative and preventive component of the health care services.

Their services were comparable as those of physician's assistant in the United States, nurse practitioner in Europe, the "Bare-foot Doctor" in China and then in Soviet Union the "Feldsher". Medical Assistants elsewhere perform the many tasks of physician. They were the main health care personnel which represent an alternative to physician centred health care both in outpatient and inpatient service.

The training of the dresser was conducted with lectures and supervised in his practical work through his routine duties from seasoned medical graduates.

After passing the Probationer to Grade III Examination, at the end of two years, these dressers were assigned to work as junior members of a team of more senior dressers in carrying out their professional duties. At the end of his four years, after passing the examination, he had to sit for his Grade III to Grade II Examination.

A Dresser with Grade II rank and status was then considered as "sufficiently competent" and experienced to handle surgical and medical problems in hospital.

He is competent to handle any emergencies and has practical experience in Midwifery. Dresser Grade II to Grade I, considered prestigious, were for the Senior Grade Dresser. The subjects were Medicine, Surgery, Materia Medica, Preventive Medicines and Midwifery.

In early Malaya, and now Malaysia, Dressers have been called different names. They were referred to as Apothecaries, Sub-Assistant Surgeon, Surgical Assistant, Hospital Assistants and now Medical Assistants.

Towards 1965, Crash-Program was started by recruiting youths of the Straits that had completed their School Certificate level examination to the Crash-Program to overcome the acute shortage of trained medical personnel.

In January 1971,the first Hospital Assistants School in Seremban commenced its training solely for Hospital Assistants in the country. Today Malaysia has four Medical Assistants colleges (Seremban, Alor Setar, Ipoh and Kuching). The curriculums are structured specifically to enable the Hospital Assistants to function in various

health settings with emphasis on the health promotions, prevention, rehabilitation, curative and health management skill. Candidates who passed their Sijil Pelajaran Malaysia, successfully gone through interview conducted by Public Service Commission are accepted into the three years Medical Assistants training programme.

Upon completion and having passed the final examination, they will be registered by the Medical Assistant Board and then be appointed by the Public Service Commission (Government) before they are posted to the various health care services in Malaysia. Those sponsored by respective agencies private entities will serve their employer.

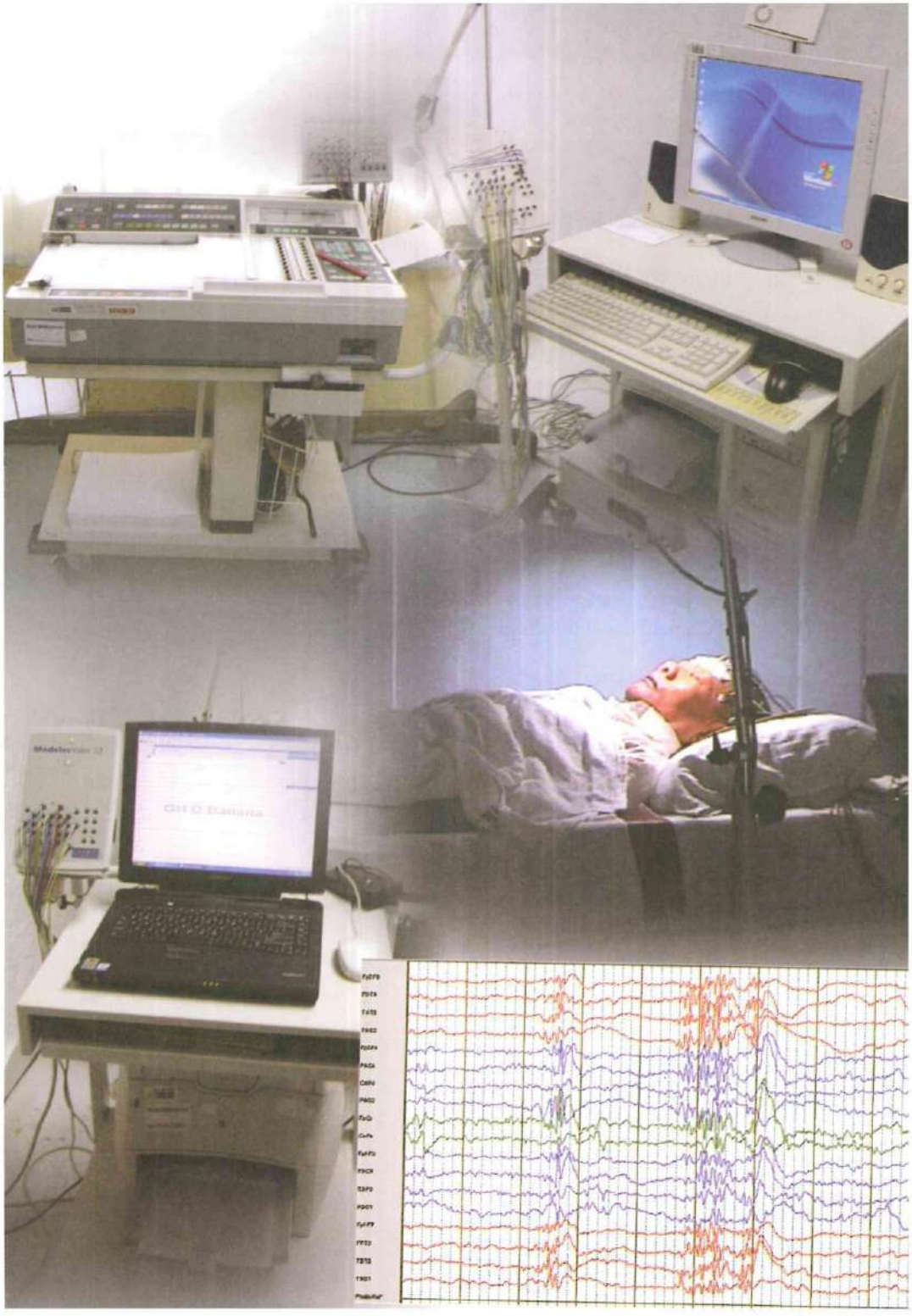
The Act 180 of Hospital Assistants Act 1977 allows the establishment of Hospital Assistants (Registration) Board which supercede all matters related to the regulations and registration of Medical Assistants.

In 1993, the Medical Act 1971, Medical (Instrumental)(Exemption) Regulations 1986 was recommended for Enhancement to allow the Medical Assistants to use list of medical instruments such as stethoscope, laryngoscope, sphygmomanometer in the course of his duties.

In 1992, the Certificate level was upgraded to a Diploma level due to the various new development and challenges in the health care demanding for a highly skilled and knowledge based health care profession.

Today, in an era of specialization, rapid technology and medical science development, the Medical Assistants role as complement and supplement are evolving with times so as to remain relevant, clients focus in this ever-fast changing health care scenario.

CONTENTS

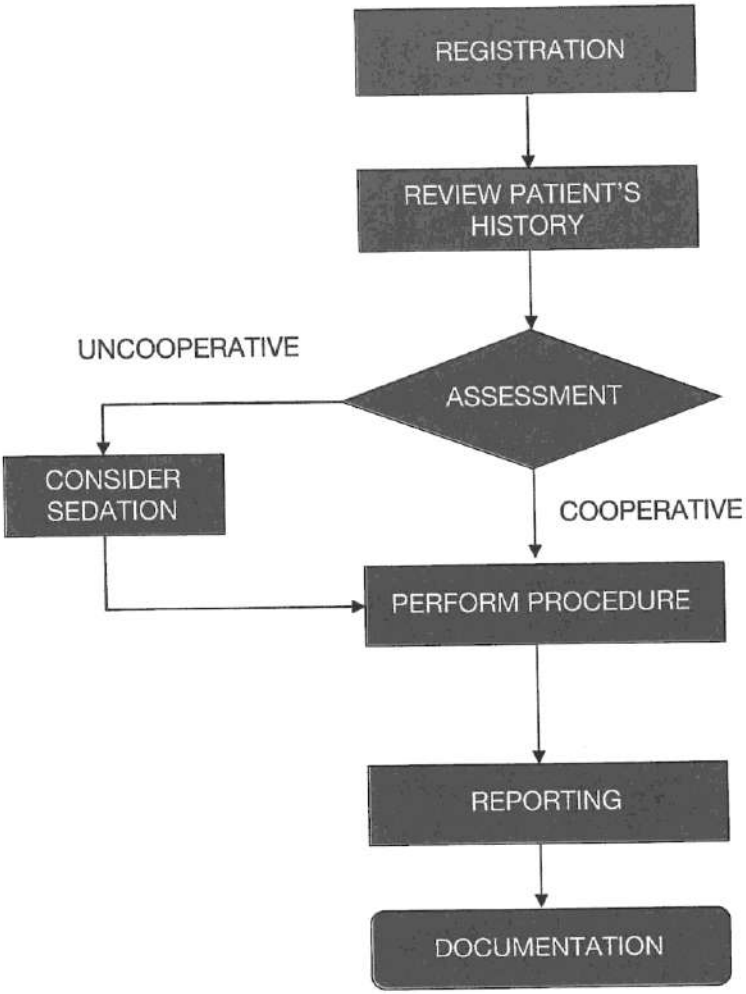


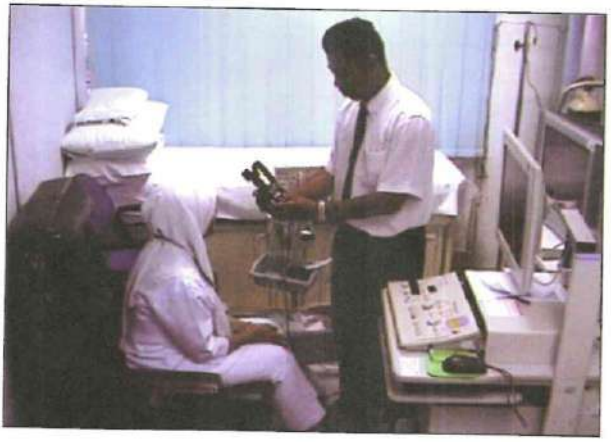
1. ELECTROENCEPHALOGRAPHY (EEG)

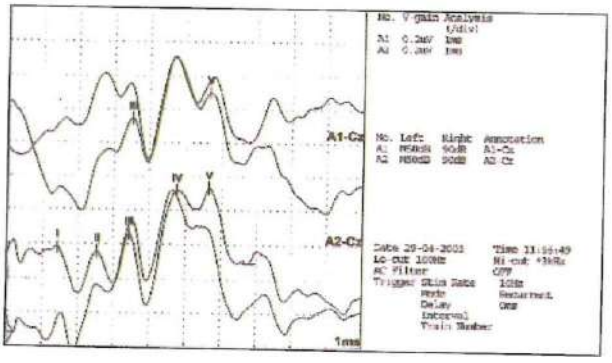
Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form.	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Address 8. Diagnosis	**Equipment:** 1. EEG Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. Gauze/Cotton 7. Micropore 8. Collodion / EEG Paste 9. Airgun/Dryer **Drug : (Sedative)** 1. Dormicum (IM / IV) 2. Valium(Rectal/ IM/IV) 3. Syrup Chloral Hydrate
2. Review patient's history	1. Date of onset 2. Last attack 3. Family history 4. Medical history 5. Medication		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure 2. Position and make the patient comfortable 3. Measure, mark and attach electrodes correctly and securely 4. Calibration	Montreal System 1. Sensitivity 100 µV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 µV sensitivity	

Activity	Work Process	Standard	Requirement
	5. Impedance check	< 5 KΩ	
	6. Identify and eliminate or minimize biological and physical artifacts		
	7. Record with appropriate montages	Monopolar and Bipolar minimum 20 minutes	
	8. Annotation of events		
	9. Activation procedures		
	9.1 Eye open and eye close		
	9.2 Hyperventilation (HV)	3 minutes HV and 2 minutes post HV	
	9.3 Photic stimulation	1 to 30 flashes per sec	
	10. Calibration	1. Sensitivity 100 µV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 µV sensitivity	
5. Reporting	1. Prepare factual report 2. Compile and send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART ELECTROENCEPHALOGRAPHY (EEG)





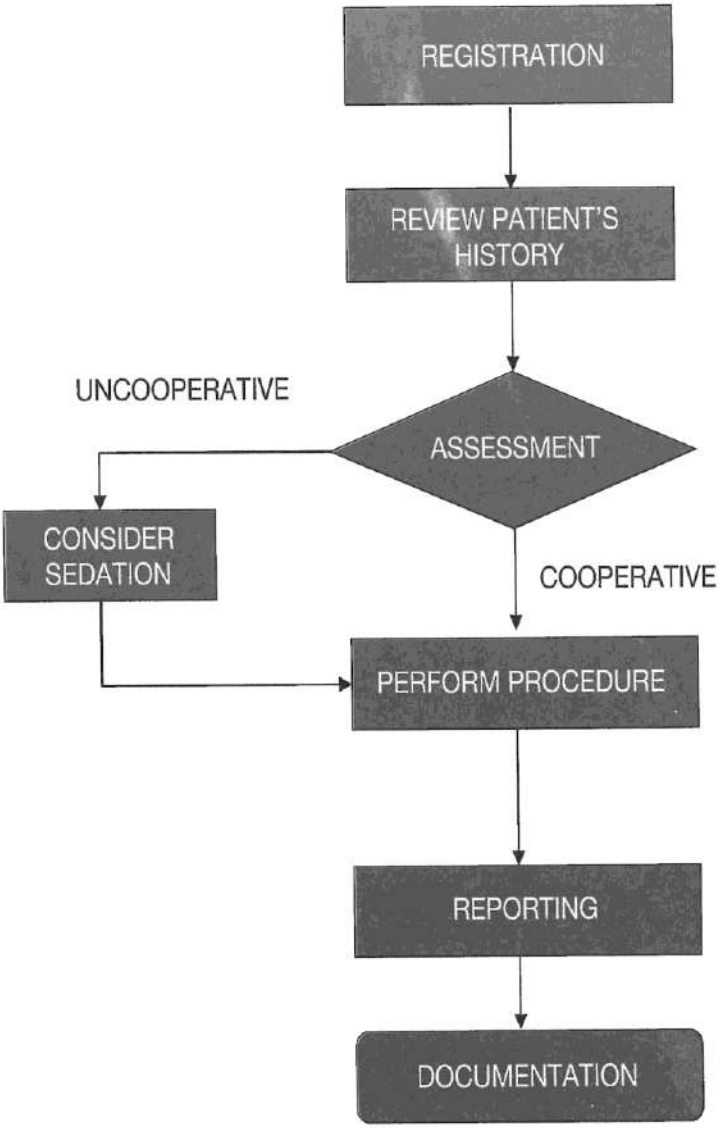

A1-Cz
A2-Cz
1ms

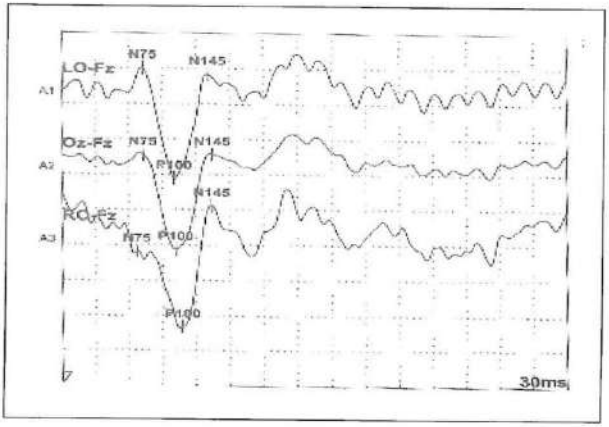
2. BRAINSTEM AUDITORY EVOKED POTENTIAL (BAEP)

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form.	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Address 8. Diagnosis	**Equipment:** 1. Evoked Potential Machine 2. EEG Electrode 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. EEG Paste 7. Gauze/Cotton 8. Micropore **Drug : (Sedative)** 1. Dormicum (IM / IV) 2. Valium(Rectal/ IM/IV) 3. Syrup Chloral Hydrate
2. Review patient's history	1. Date of onset 2. Medical history 3. Family history 4. Medication		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure 2. Position and make the patient comfortable 3. Measure, mark and attach electrodes correctly and securely 4. Calibration 5. Impedance check 6. Identify and eliminate or minimize biological and physical artifacts	Montreal System 1. Flat baseline 2. Sensitivity 20 µV 3. HFF 100 Hz 4. LFF 1 Hz < 5 KΩ	

Activity	Work Process	Standard	Requirement
	7. Start recording with appropriate montage 8. Start stimulation at 50 dB above hearing threshold	Check hearing threshold Minimum two identical responses required for each ear	
5. Reporting	1. Compile 2. Send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART BRAINSTEM AUDITORY EVOKED POTENTIAL (BAEP)



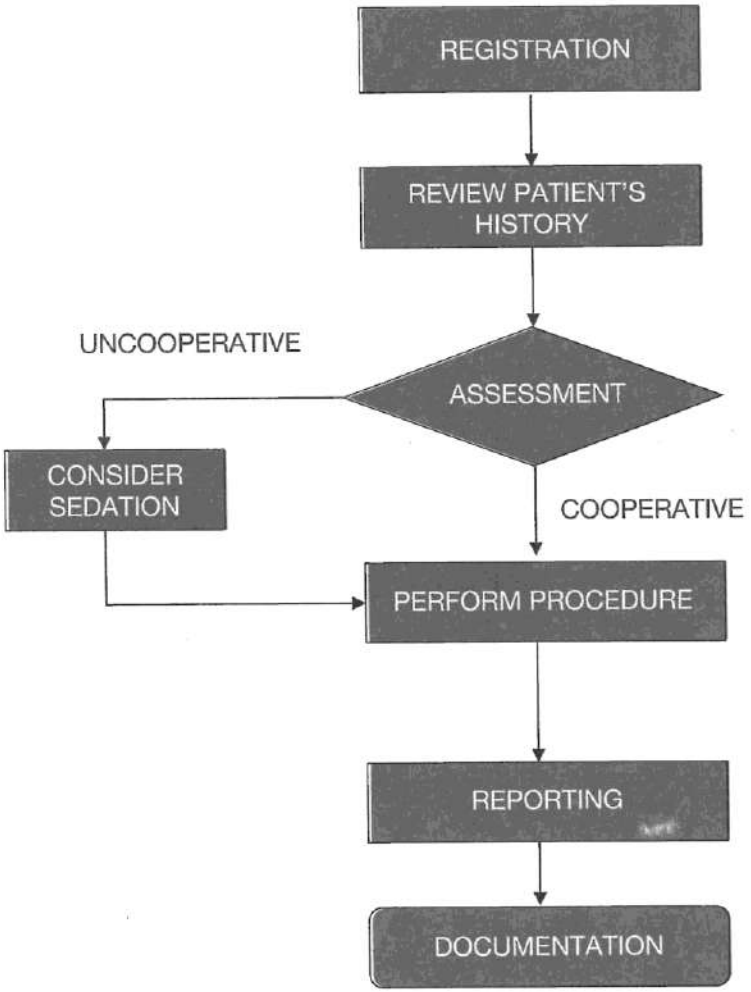

LO-Fz
N75
N145
A1
Oz-Fz
N75
N145
P100
A2
N145
RO-Fz
N75
P100
A3
P100
30ms

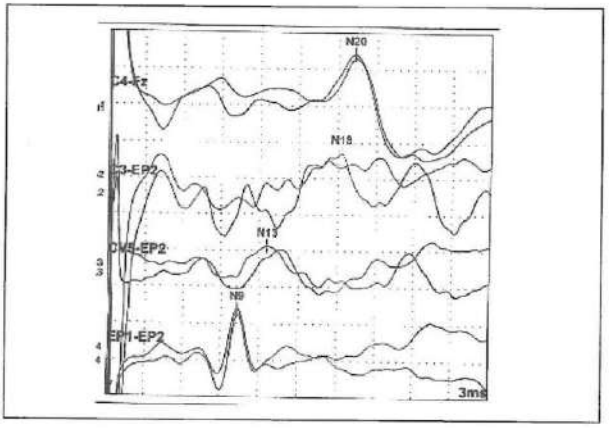
3. VISUAL EVOKED POTENTIAL (VEP)

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Address 8. Diagnosis	**Equipment:** 1. Evoked Potential Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. EEG Paste 7. Gauze/Cotton 8. Micropore 9. Eye pad 10. Schnellen's Chart **Drug : (Sedative)** 1. Dormicum (IM / IV) 2. Valium (Rectal /IM/IV) 3. Syrup
2. Review patient's history	1. Date of onset 2. Medical history 3. Family history 4. Medication		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure 2. Position and make the patient comfortable 3. Visual acuity check 4. Measure, mark and attach electrodes correctly and securely 5. Calibration	Montreal System 1. Flat baseline 2. Sensitivity 20 µV 3. HFF 100 Hz 4. LFF 1 Hz	

Activity	Work Process	Standard	Requirement
	6. Impedance Check	< 5 KΩ	
	7. Identify and eliminate or minimize biological and physical artifacts		
	8. Start stimulating and recording with appropriate montage	Minimum two identical responses required for each eye	
5. Reporting	1. Compile 2. Send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART VISUAL EVOKED POTENTIAL (VEP)



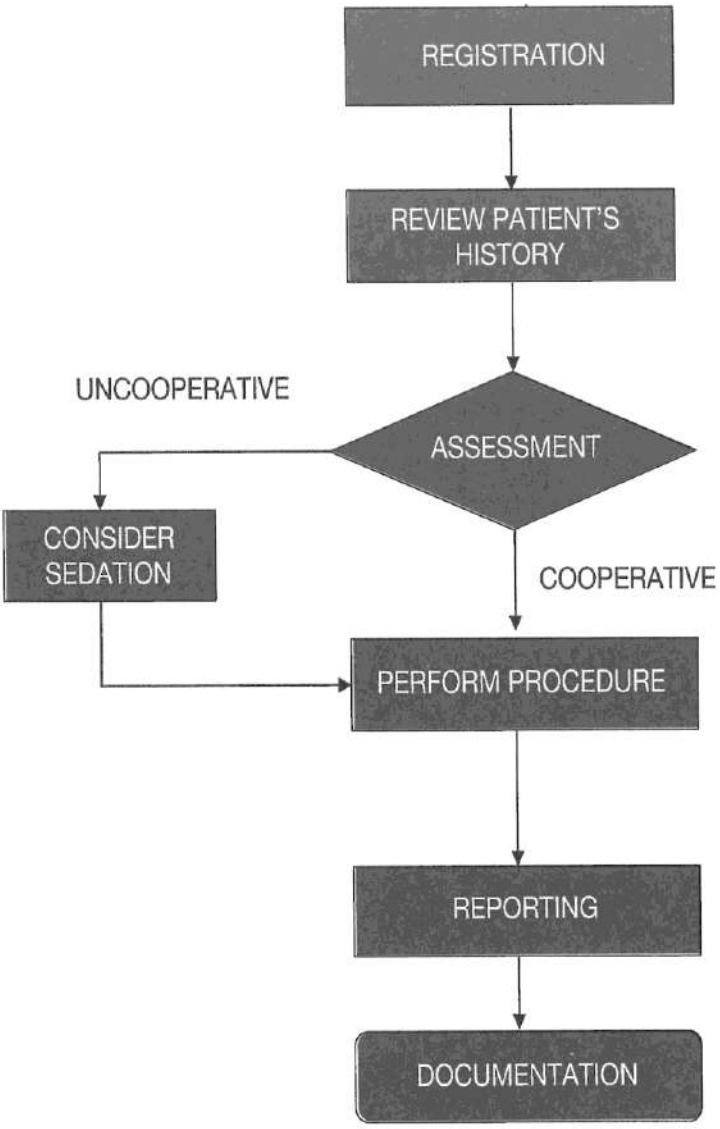

N20
C4-Fz
N18
C3-EP2
N13
CV5-EP2
N9
EP1-EP2
3ms

4. SOMATOSENSORY EVOKED POTENTIAL (SSEP) - MEDIAN NERVE

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Diagnosis	**Equipment:** 1. Evoked Potential Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. EEG Paste 7. Gauze/Cotton 8. Micropore **Drug : (Sedative)** 1. Dormicum (IM/IV) 2. Valium (Rectal /IM/IV) 3. Syrup Chloral Hydrate
2. Review patient's history	1. History of onset 2. Medication 3. Family history 4. Medical history		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure		
	2. Position and make the patient comfortable		
	3. Measure, mark and attach electrodes correctly and securely	Montreal System	
	4. Calibration	1. Flat baseline 2. Sensitivity 20 μV 3. HFF 100 Hz 4. LFF 1 Hz	
	5. Impedance Check	< 5 KΩ	

Activity	Work Process	Standard	Requirement
	6. Identify and eliminate or minimize biological and physical artifacts		
	7. Start recording by stimulating Median Nerve at the wrist	Minimum two identical responses required	
5. Reporting	1. Compile 2. Send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART SOMATOSENSORY EVOKED POTENTIAL (SSEP) - MEDIAN NERVE

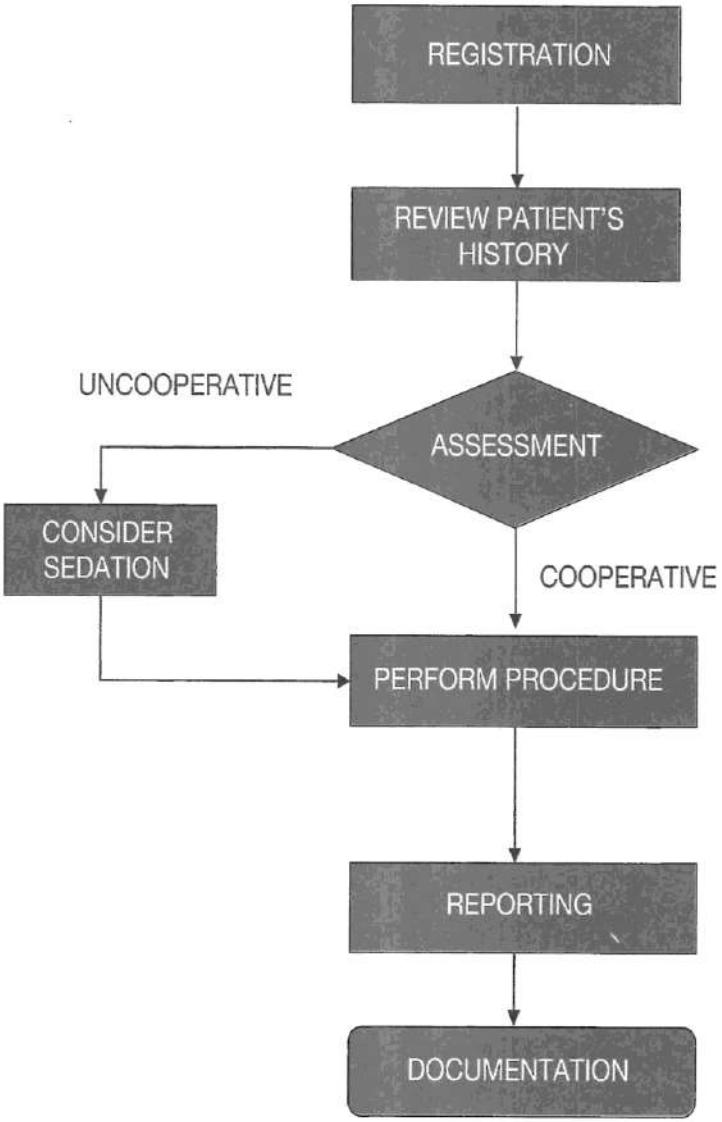


5. SOMATOSENSORY EVOKED POTENTIAL (SSEP)- POSTERIOR TIBIAL NERVE

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Diagnosis	**Equipment:** 1. Evoked Potential Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. EEG Paste 7. Gauze/Cotton 8. Micropore **Drug : (Sedative)** 1. Dormicum (IM / IV) 2. Valium (Rectal/IM/IV) 3. Syrup Chloral Hydrate
2. Review patient's history	1. History of onset 2. Medication 3. Family history 4. Medical history		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure 2. Position and make the patient comfortable 3. Mark and attach electrodes correctly and securely 4. Calibration 5. Check Impedance 6. Identify and eliminate or minimize biological and physical artifacts	Montreal System 1. Flat baseline 2. Sensitivity 20 µV 3. HFF 100 Hz 4. LFF 1 Hz < 5 KΩ	

Activity	Work Process	Standard	Requirement
	7. Start recording by stimulating Posterior Tibial Nerve at the ankle	Minimum two identical responses required	
5. Reporting	1. Compile 2. Send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART SOMATOSENSORY EVOKED POTENTIAL (SSEP) - POSTERIOR TIBIAL NERVE



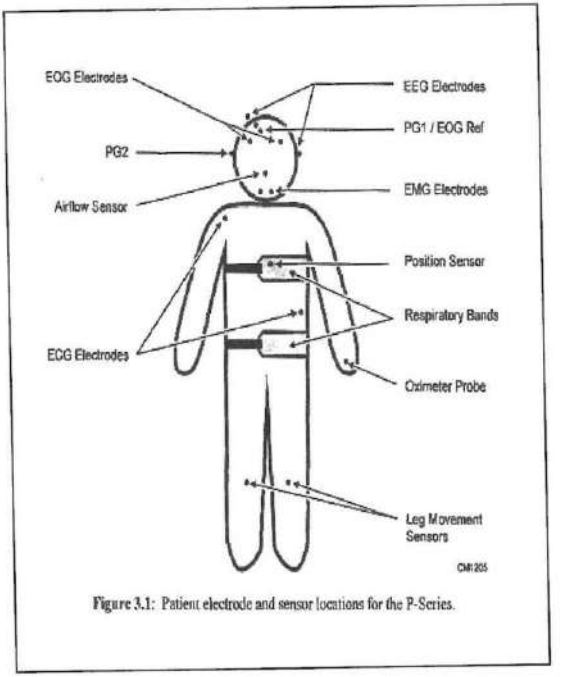


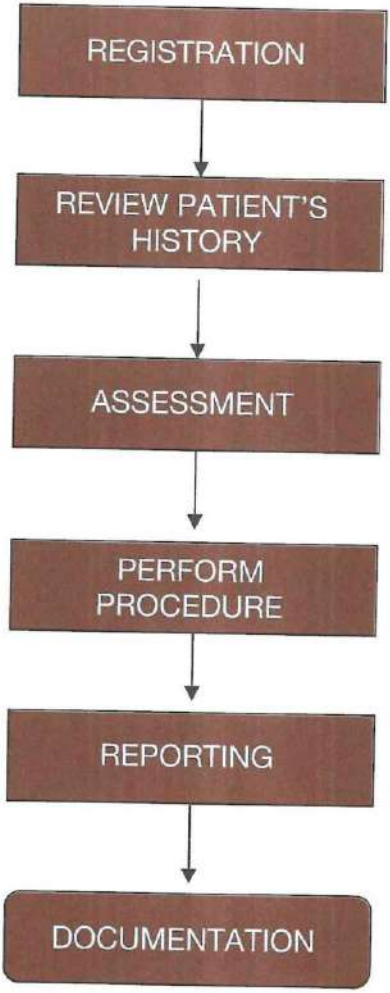
Figure 3.1: Patient electrode and sensor locations for the P-Series.

6. POLYSOMNOGRAPHY (PSG)

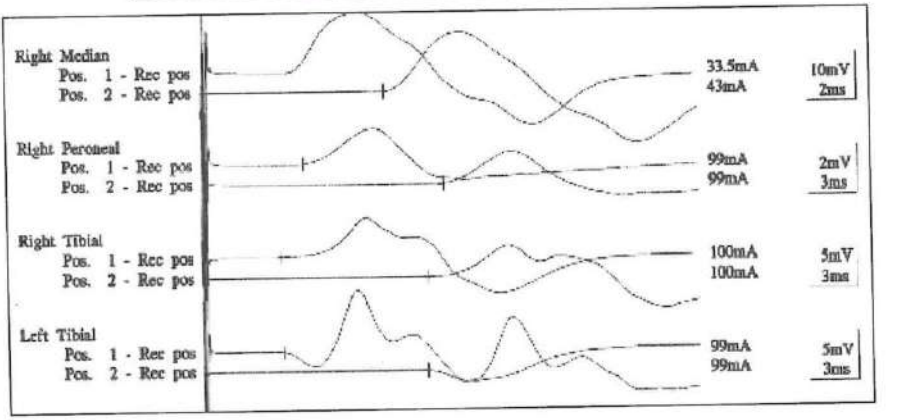
Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Diagnosis	**Equipment:** 1. PSG Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. Gauze/Cotton 7. Micropore 8. Collodion / EEG Paste 9. Airgun/Dryer
2. Review patient's history	1. History of sleep interference 2. Medication 3. Family history 4. Medical history		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording Procedure	1. Explain the procedure		
	2. Position and make the patient comfortable		
	3. Measure, mark and attach electrodes correctly and securely	Montreal System	
	4. Fix other require gadgets		
	5. Calibration	1. Sensitivity 100 µV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 µV sensitivity 6. Saturation calibration	
	6. Impedance Check	< 5 KΩ	

Activity	Work Process	Standard	Requirement
	7. Identify and eliminate or minimize biological and physical artifacts		
	8. Record	Minimum 6 hours	
	9. Annotation of events		
	10. Calibration	1. Sensitivity 100 μV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 μV sensitivity 6. Saturation calibration	
5. Reporting	1. Prepare factual report 2. Compile and send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART POLYSOMNOGRAPHY (PSG)




Keypoint

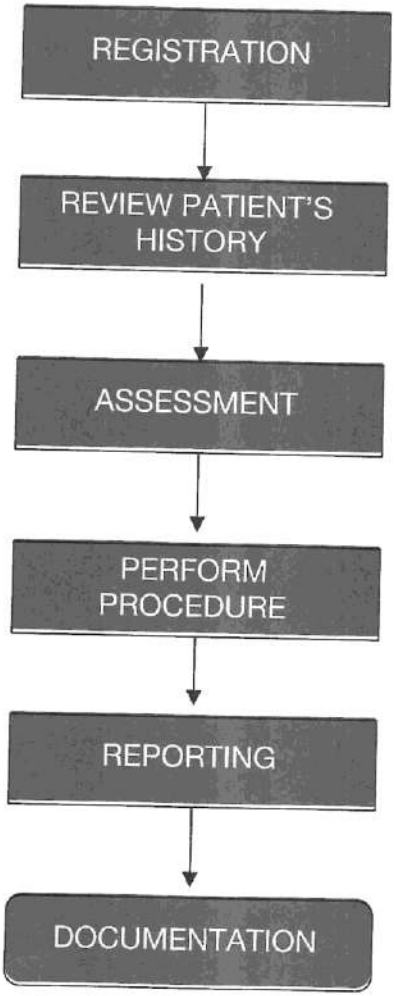

Right Median
Pos. 1 - Rec pos
Pos. 2 - Rec pos
33.5mA
43mA
10mV
2ms
Right Peroneal
Pos. 1 - Rec pos
Pos. 2 - Rec pos
99mA
99mA
2mV
3ms
Right Tibial
Pos. 1 - Rec pos
Pos. 2 - Rec pos
100mA
100mA
5mV
3ms
Left Tibial
Pos. 1 - Rec pos
Pos. 2 - Rec pos
99mA
99mA
5mV
3ms

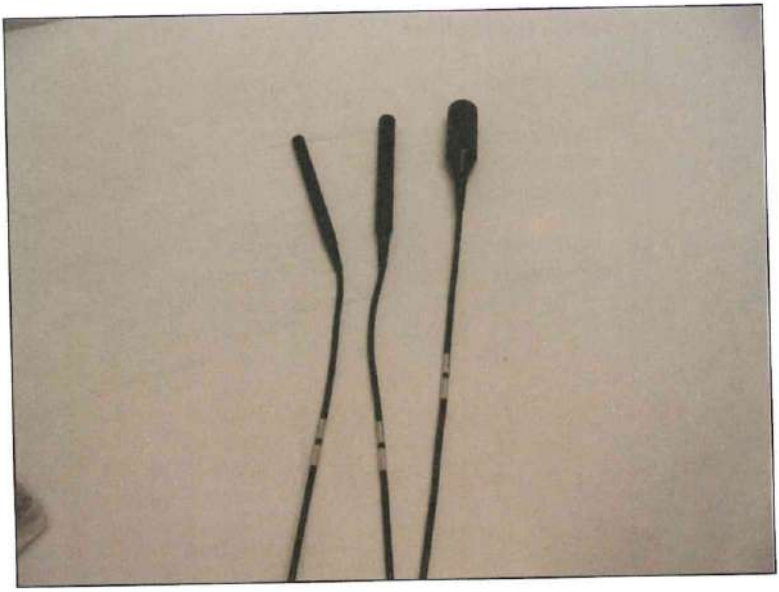
7. NERVE CONDUCTION STUDY (NCS) - CARPAL TUNNEL SYNDROME

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Diagnosis	**Equipment:** 1. NCS Machine 2. Measuring tape 3. Skin conditioner/ Methylated Spirit 4. Conduction paste 5. Gauze/Cotton 6. Normal saline 7. NCS Electrodes 8. Dermatograph pencil
2. Review history patient's	1. History of illness 2. Medical history		
3. Assessment	1. General condition		
4. Recording procedure	1. Explain the procedure		
	2. Position and make the patient comfortable		
	3. Calibration	1. Sensitivity 20 µV 2. Duration 0.1 m/sec 3. Time base 2 m/sec	
	4. Identify and eliminate or minimize biological and physical artifacts		
	5. Attach electrode correctly and securely		
	6. Stimulate Median and Ulnar nerve	Motor and sensory	
	7. Measure the distance between stimulating and recording point		

Activity	Work Process	Standard	Requirement
5. Reporting	Compile and send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART NERVE CONDUCTION STUDY (NCS) - CARPAL TUNNEL SYNDROME



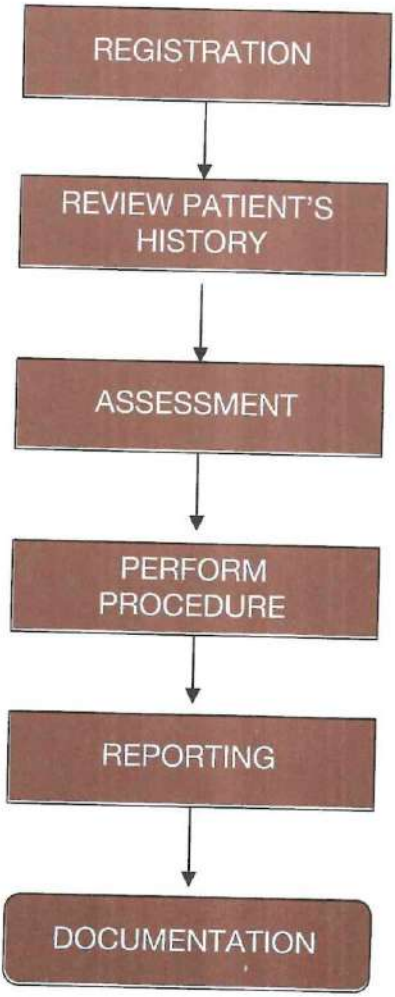


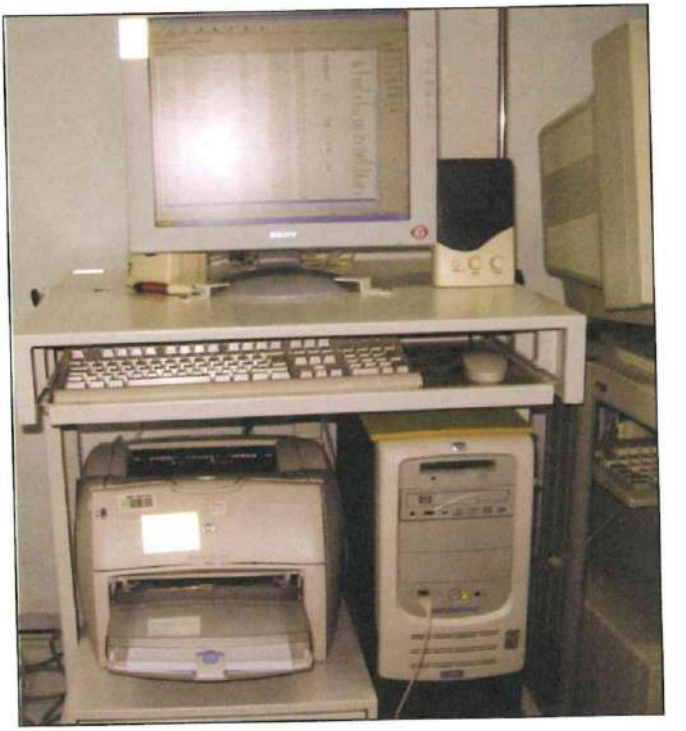
8. TRANSCRANIAL DOPPLER (TCD)

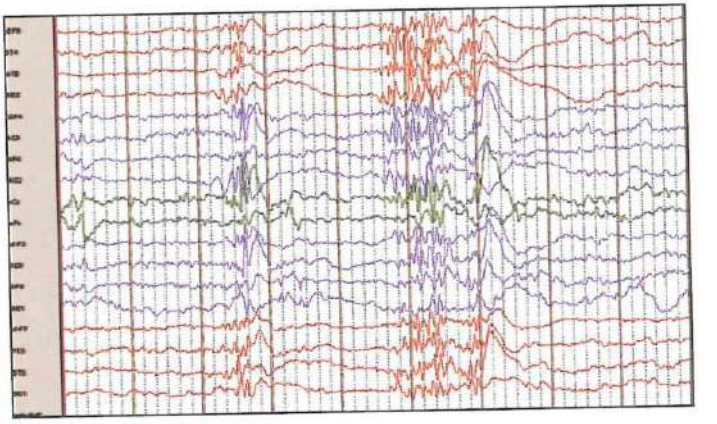
Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Address 8. Diagnosis	**Equipment:** 1. TCD Machine 2. TCD Gel 3. Gauze
2. Review patient's history	1. History of Cerebral Vascular Accident (CVA) 2. Medical history		
3. Assessment	1. General condition 2. Side of stroke		
4. Recording procedure	1. Explain the procedure 2. Position and make the patient comfortable 3. Calibration 4. Identify and eliminate or minimize biological and physical artifacts 5. Record with appropriate windows and artery	Flat baseline 1. Middle Cerebral 2. Artery (MCA) 3. Posterior Cerebral 4. Artery (PCA) 5. Anterior Cerebral 6. Artery (ACA) 7. Basilar Artery (BA) 8. Vertebral Artery (VA)	

Activity	Work Process	Standard	Requirement
		Optional • Common carotid artery • Carotid bifurcation • Internal carotid artery	
5. Reporting	Compile and send record		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART TRANSCRANIAL DOPPLER (TCD)





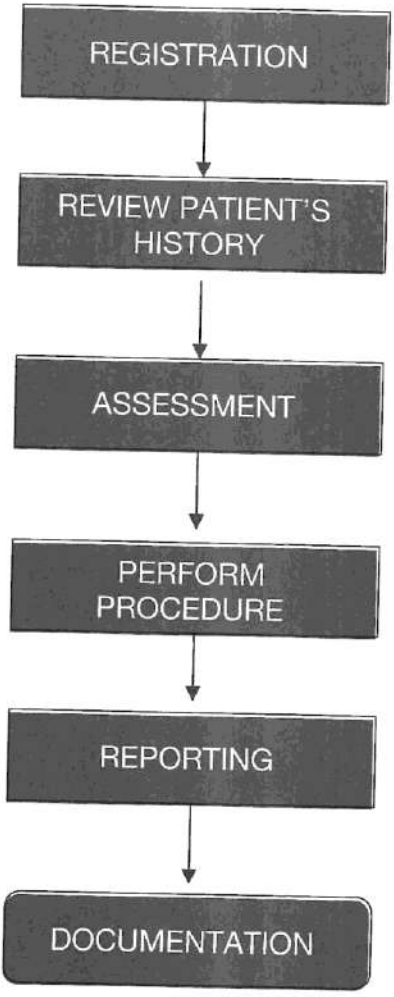


9. VIDEO TELEMETRY RECORDING (VTR)

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be registered in the standard registration book after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Diagnosis	**Equipment:** 1. VTR Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. Gauze/Cotton 7. Micropore 8. Collodion / EEG Paste 9. Airgun/Dryer 10. Crepe bandage 11. Stockinet
2. Review patient's history	1. History of sleep interference 2. Medication 3. Family history 4. Medical history		
3. Assessment	1. General condition 2. Cooperative /Uncooperative		
4. Recording procedure	1. Explain the procedure		
	2. Position and make the patient comfortable		
	3. Measure, mark and attach electrodes correctly and securely	Montreal System	
	4. Fix other required gadgets		
	5. Calibration	1. Sensitivity 100 µV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 µV sensitivity	
	6. Impedance check	< 5 KΩ	

Activity	Work Process	Standard	Requirement
	7. Identify and eliminate or minimize biological and physical artifacts		
	8. Record	Minimum 3 days/ 3 attacks	
	9. Annotation of events		
	10. Calibration	1. Sensitivity 100 μV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10mm deflection at 100 μV sensitivity	
5. Reporting	1. Prepare factual report 2. Compile and send record for reporting		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART VIDEO TELEMETRY RECORDING (VTR)

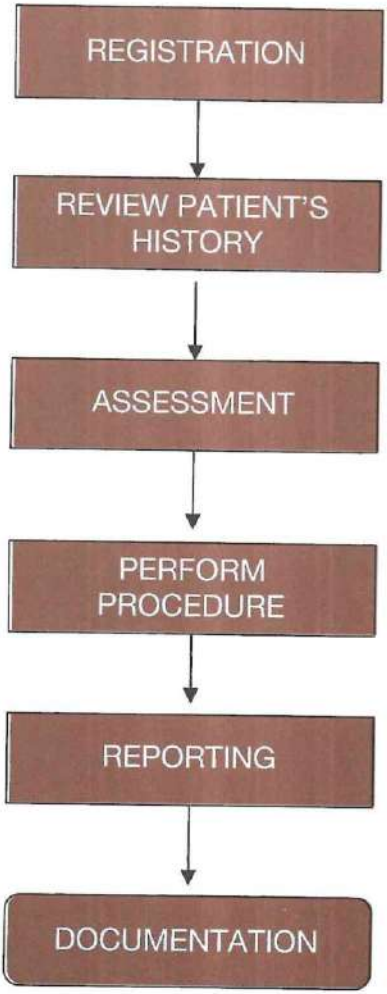


10. ELECTROCEREBRAL INACTIVITY (ECI)

Activity	Work Process	Standard	Requirement
1. Registration	All patients should be assessed by a neurologist following guidelines in consensus on brain death. Patient's biodata to be entered appropriately after receiving request form	1. Name 2. I/C No. 3. Age 4. Sex 5. R/N 6. Race 7. Address 8. Diagnosis	**Equipment:** 1. EEG Machine 2. EEG Electrodes 3. Measuring tape 4. Dermatograph pencil 5. Skin conditioner 6. Gauze/Cotton 7. Micropore 8. Collodion / ECG Paste
2. Review patient's history	1. Date of onse 2. Medical history 3. Medication		
3. Assessment	1. General condition		
4. Recording procedure	1. Measure, mark and attach electrodes correctly and securely	Montreal System	
	2. Calibration	1. Sensitivity 100μV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10 mm deflection at 100 μV sensitivity	
	3. Impedance check	< 5 KΩ	
	4. Identify and eliminate or minimize biological and physical artifacts		
	5. Record with appropriate montages	Bipolar montage Minimum 20 minutes with sensitivity at minimum 2μV / mm for at least 10 minutes	

Activity	Work Process	Standard	Requirement
	6. Annotation of events		
	7. Activation procedure	Pinching and clapping	
	8. Calibration	1. Sensitivity 100μV 2. HFF 70 Hz 3. LFF 0.5 Hz 4. Time base 30 mm/sec 5. 10 mm deflection at 100 μV sensitivity	
5. Reporting	1. Prepare factual report immediately 2. Compile and send record for reporting as soon as possible		
6. Documentation and dispatching of report	1. Record and dispatch 2. File report		

FLOW CHART ELECTROCEREBRAL INACTIVITY (ECI)



APPENDIX 1

Request form for Electroencephalography (SOP 001), Polysomnography (SOP 006), Videotelemetry (SOP 009) and Electrocerebral Inactivity (SOP 010).

JABATAN NEUROLOGI
UJIAN E.E.G

NL. 01

1. NAMA _____ 2. UMUR _____ 3. JANTINA _____ 4. NO. E.E.G. _____
5. TARIKH _____ 6. NO. DAFTAR _____ 7. NO. K.P. _____
8. DIAGNOSIS _____
9. SEJARAH (PEMBEDAHAN, KECEDERAAN KEPALA, UMUR MULA SAWAN, POLA KEKERAPAN, TARIKH KEJUTAN SEREBROVASKULAR, KECEDERAAN ATAU PEMBEDAHAN)

_____

_____

_____

_____

10. TARIKH INSIDEN TERAKHIR _____
11. PENEMUAN KLINIKAL POSITIF (PEMERIKSAAN FISIKAL NEUROLOGI) _____
12. PENEMPATAN KLINIKAL _____ 13. PENGIRI ATAU PEGANAN _____
14. PENGUBATAN _____ 15. TARIKH PENGUBATAN DIBERHENTIKAN _____
16. TARIKH E.E.G. TERDAHULU _____ 17. TUJUAN UJIAN E.E.G. _____
18. RANGSANGAN DIBENARKAN _____
19. HANTARKAN LAPORAN KEPADA _____ 20. WAD _____ 21. KLINIK _____
22. PAKAR PERUNDING/PAKAR _____ 23. TANDATANGAN DAN CIP PAKAR _____

(SILA PENUHKAN KAD INI DENGAN JELAS)

Request form for Nerve Conduction Study (NCS)-Carpal Tunnel Syndrome (SOP 007)

HKL/NEUR/AK-04-03

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KUALA LUMPUR
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NERVE CONDUCTION STUDY (NCS) & ELECTROMYOGRAPHY (EMG) REQUEST FORM

Date Of Request :

Date Of Appointment :

Name :

Age :

Sex :

Ward / Clinic :

R/N :

IC No :

Telephone no :

Address :

Clinical Summary :

Muscles with fasciculation :

Date Of injury :

Diagnosis :

Test Required :

Physician /Surgeon in Charge :

Signature :

Name :

Request form for Transcranial Doppler (TCD)- (SOP 008)

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TRANSCRANIAL DOPPLER (TCD) REQUEST FORM

Date Of Request :

Date Of Appointment :

Name :

Age :

Sex :

Ward / Clinic :

R/N :

IC No :

Clinical Findings :

Doppler Ultrasound of Carotids :

MRA Findings :

Singnature .....

Name .....

.....

TCD Findings :

Flow Velocity (cm/sec)

	R	L
CCA		
ICA		
MCA		
ACA		
PCA		
VA		
BA		

Comments :

Neurologist .....

Date : .....

Request form for Visual Evoked Potential (VEP)SOP 003, Somato Sensory Evoked Potential (SSEP - Median Nerves) SOP 004 Somato Sensory Evoked Potential (SSEP – Posterior Tibial Nerves) SOP 005 and Brain Stem Auditory Evoked Potential (BAEP) SOP 002

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EVOKED POTENTIAL (VEP/SSEP/BAEP) REQUEST FORM

Date Of Request : Date Of Appointment :

Name : Age : Sex :

Ward / Clinic : R/N : IC No :

Clinical Summary :

Height : ..... cm

Visual Acuity : ..... Right ..... Left .....

Hearing : .....

Diagnosis :

Test Required :

Physician /Surgeon in Charge :

Signature :

Name :

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