SRI BALAJI VIDYAPEETH (SBV)
(Deemed to be University)
U/S 3 of UGC Act 1956
Puducherry-607402

This document contains the details of

Certificate course in American Heart Association accredited ACLS & BLS courses

conducted by the Medical Simulation Centre,

Sri Balaji Vidyapeeth, Deemed to be University,

in the last five years.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

(This document is attested from pages 1-90)

NAAC 2020

SRI BALAJI VIDYAPEETH (SBV)
(Deemed to be University)
U/S 3 of UGC Act 1956
Puducherry-607402

Criteria 1

Metrix 1.3 : Curriculum Enrichment

1.3.2

Index Page

Details of the **Certificate Course in American Heart Association accredited ACLS & BLS**

Links to documents (Click on the links to navigate to the page)

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

SBV/VAC committee/2015 **25.05.2015**

To

The Heads of Institutions

SBV constituent Colleges

Respected Sir /Madam.

As per the directives of the Registrar Academics and the Strategic perspective plan prepared by the Value-added course committee, the following courses have been planned to be conducted as a part of Curriculum Enrichment. Kindy nominate a course co-ordinator for each course, who will prepare the syllabi and the conduct the BOS for the same before 06.06.2015.

Sl.No.	Course	Institution
1	Certificate Course in American Heart Association accredited ACLS & BLS	Mahatma Gandhi Medical College and Research Institute, Puducherry.
2	Academic Enrichment And Research Orientation (AERO) for Post Graduates	Indira Gandhi Institute of Dental Science
3	Systematic Competency Oriented Education for Dental Interns (SCORE)	Indira Gandhi Institute of Dental Science, Puducherry.

Dr. Kripa Angeline,
Member secretary
VAC Committee,SBV.

Copy to:

- The Registrar, SBV.
- IQAC, SBV.
- The Dean, MGMCR.
- The Principal, IGIDS.
- The Principal, KGNC.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University ... ACT, 1956)
Accredited by NAAC ... Grade
Pillaiyarkuppam ... 607 402

Office of the Dean/VAC/2015/1 Dt.29.05.2015

To
The Coordinator
Value Added Committee
Sri Balaji Vidyapeeth, Puducherry.

Dear Sir /Madam

This is to inform you that Dr. V. Hemanth Kumar, Professor, Department of Anaesthesiology is being nominated as the Co-ordinator for the Certificate Course in American Heart Association accredited ACLS & BLS who will be coordinating in conducting the course on behalf of the Medical Simulation Center.

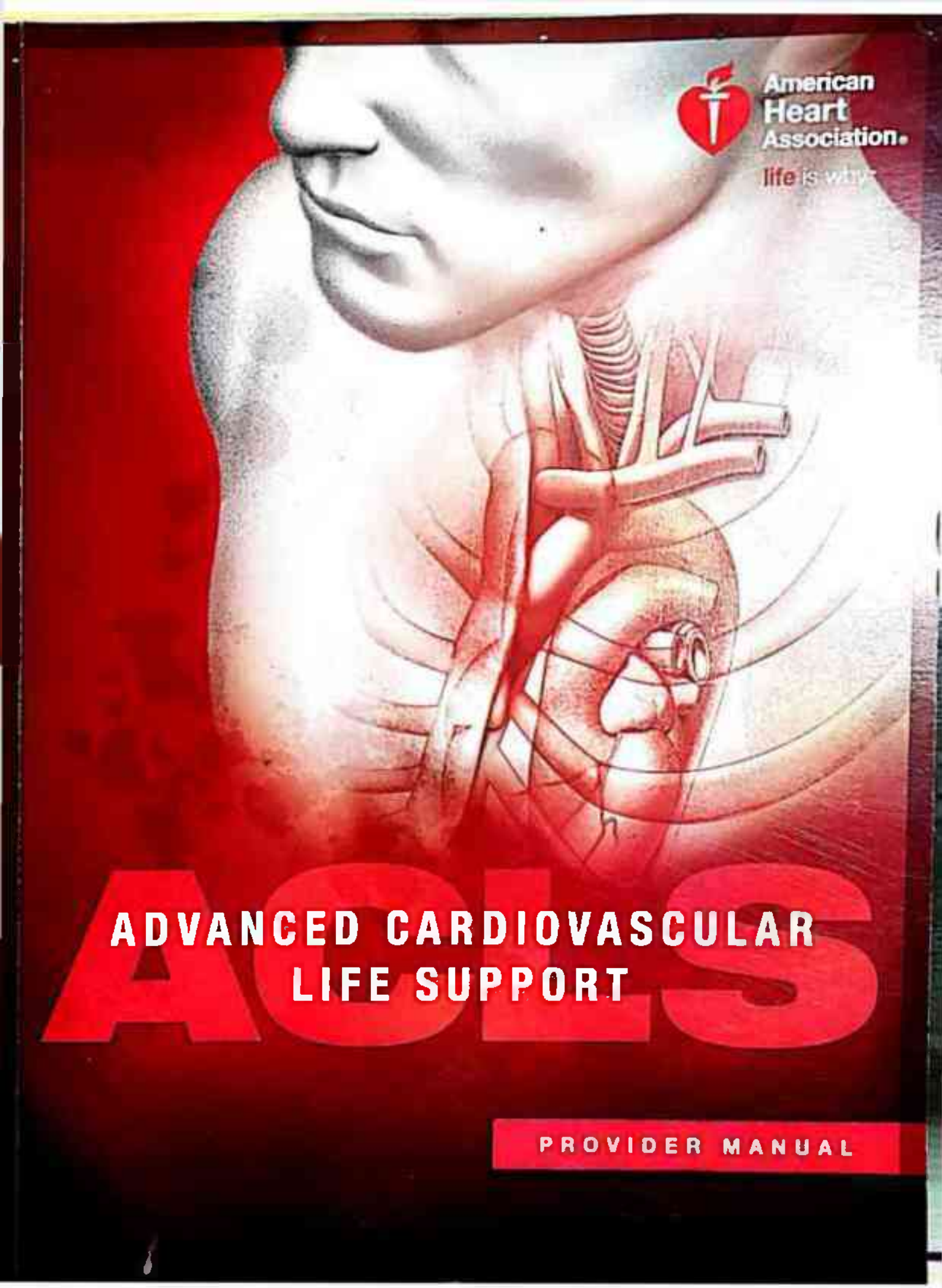
This is for your information.

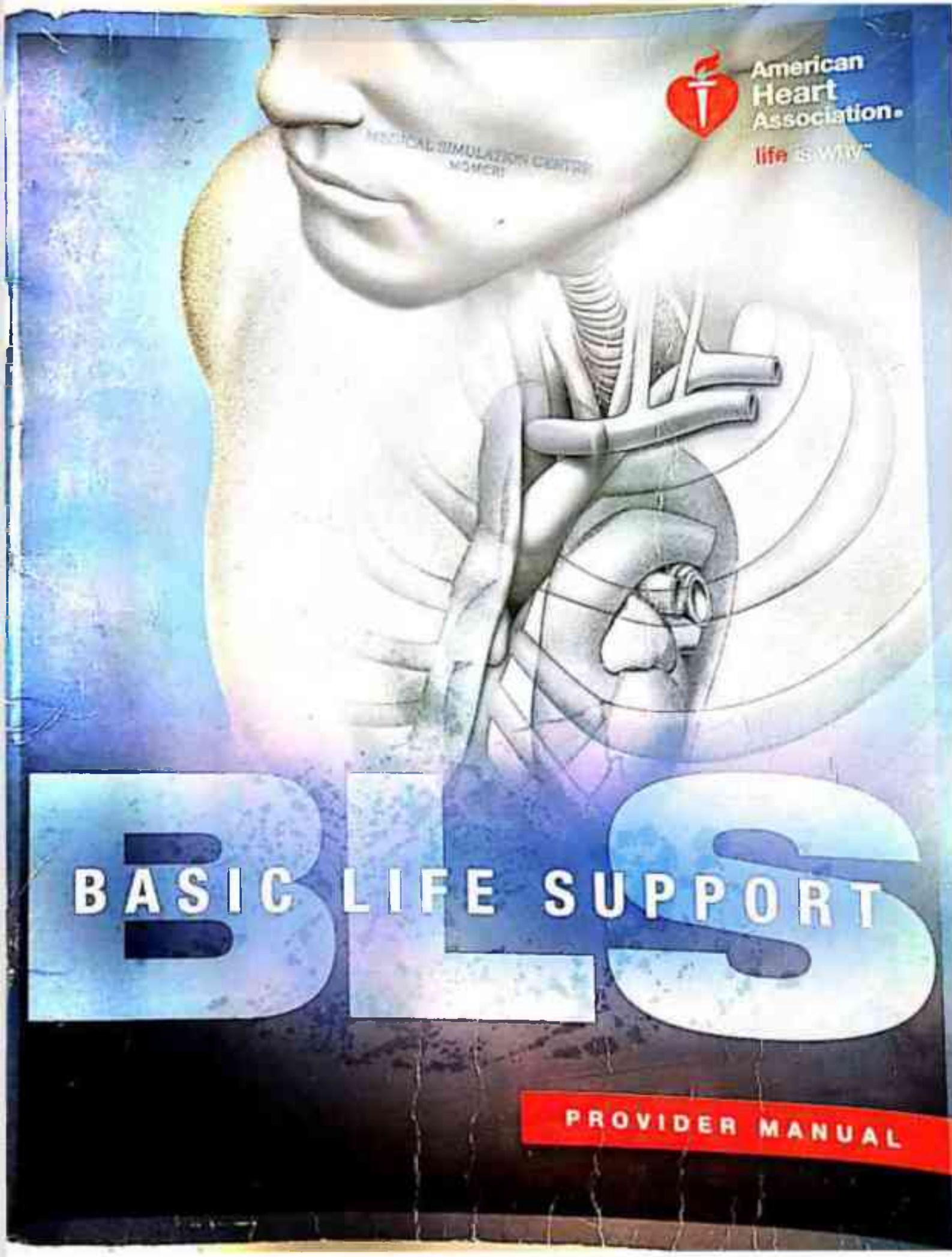
DEAN

DEAN
Mahatma Gandhi Medical College & Research Institute
Pondicherry - 607 402.

Enclosed: The syllabus on American Heart Association accredited ACLS & BLS.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC Act, 1956)
Accredited by NAAC with 'A' Grade
Pillayarkuppam, Puducherry-607 402





CPR Manual

Based on American Heart Association 2015 Guidelines

Dr. Hemanth Kumar V.R
Dr. Anand Monickam
Dr. N. Mugunthan
Dr. Ravishankar .M
Dr. Rani .P
Dr. Arulmozhi .P

List of Instructors
BLS, ACLS & PALS Instructors

S. No	INSTRUCTORS NAME
1	Dr. Hemanth Kumar
2	Dr. Mugunthan
3	Dr. Sameera
4	Dr. Sobana R
5	Dr. Arun Prasath
6	Dr. Gayatri Mishra
7	Dr. Jaya V
8	Dr. Rani P
9	Dr. Siva Ranganathan Green
10	Dr. Sripriya R
11	Dr. L. Siva Kumar Reddy
12	Dr. Senthil Kumar. T
13	Mr. Selvaganapathi. S
14	Mr. Kinglse Kishore Coumar
15	Dr. Dinker Pai
16	Dr. Janane RJ
17	Dr. Kondugari Mrudula Theressa
18	Dr. J. Lalith Kumar
19	Dr. Senthil Kumar. S
20	Dr. Mani Kathapillai
21	Dr. Bravian S. Devadas
22	Dr. Monica. A
23	Dr. G. Prabavathy
24	Dr. K. Jaiganesh

S. No	INSTRUCTORS NAME
25	Dr. P. Dhivya
26	Dr. Seema Anzum
27	Dr. Arulmozhi
28	Dr. Soma Vengatesh
29	Dr. Anity Singh Dhanyee
30	Dr. Charulatha R
31	Dr. Sreedhar Reddy. W
32	Mr.Alok Mallick
33	Dr.Sharmila.S
34	Dr.Balasubramanian Anusha
35	Dr.Siyam Sundar.E
36	Dr.Srinidhi Srikanth
37	Mrs. V. ManopriyaT
38	Dr. Kamalasundar
39	Ms. Monica Mary. S
40	Mrs. Deepa J
41	Dr.Arya Jaya Varma
42	Dr.Kavitha
43	Dr.Thamizhp pozhil guna
44	Dr.Rilna
45	Dr.Gunasekaran.D
46	Dr.Jagadeesh
47	Dr.Podhini Jagadeesan

VC'S FOREWORD

Message from the Vice Chancellor,

I am Pleased to know that the Medical Simulation Centre, MGMCRI plans to bring out second version of simplified manual on CPR, based on AHA 2015 recommendations. Medical Simulation Centre has been conducting AHA approved courses on BLS, ACLS and PALS, training hundreds of health care providers from different backgrounds. The centre has realized the need for a simplified CPR manual with flow charts, algorithms that are easily understandable which helps in rapid decision making.

The new version incorporated drugs used during resuscitation. The team of Medical Simulation Centre deserves appreciation for bringing up this second version.

Prof. Subhash Chandra Parija

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University ... ACT, 1956)
Accredited by ... 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Foreword

Message from the Director Simulation Centre,

Basic Life Support and Advanced Cardiac Life support are today's essential skills for all doctors. This training helps to tackle immediate life threats and saves countless lives worldwide. The MSC, MGMCRI is proud to be one of the International Training Centres for these courses in India. This in house manual edited by Prof. HemanthKumar VR. HOD of Anaesthesia, ITC Coordinator is a simplified algorithmic approach to a very confusing subject and I am sure it will be immensely helpful for all participants in these courses. I commend the entire authorship of this booklet for an excellent job.

Prof. Dinker R Pai

Contents

Basic Life Support (BLS)

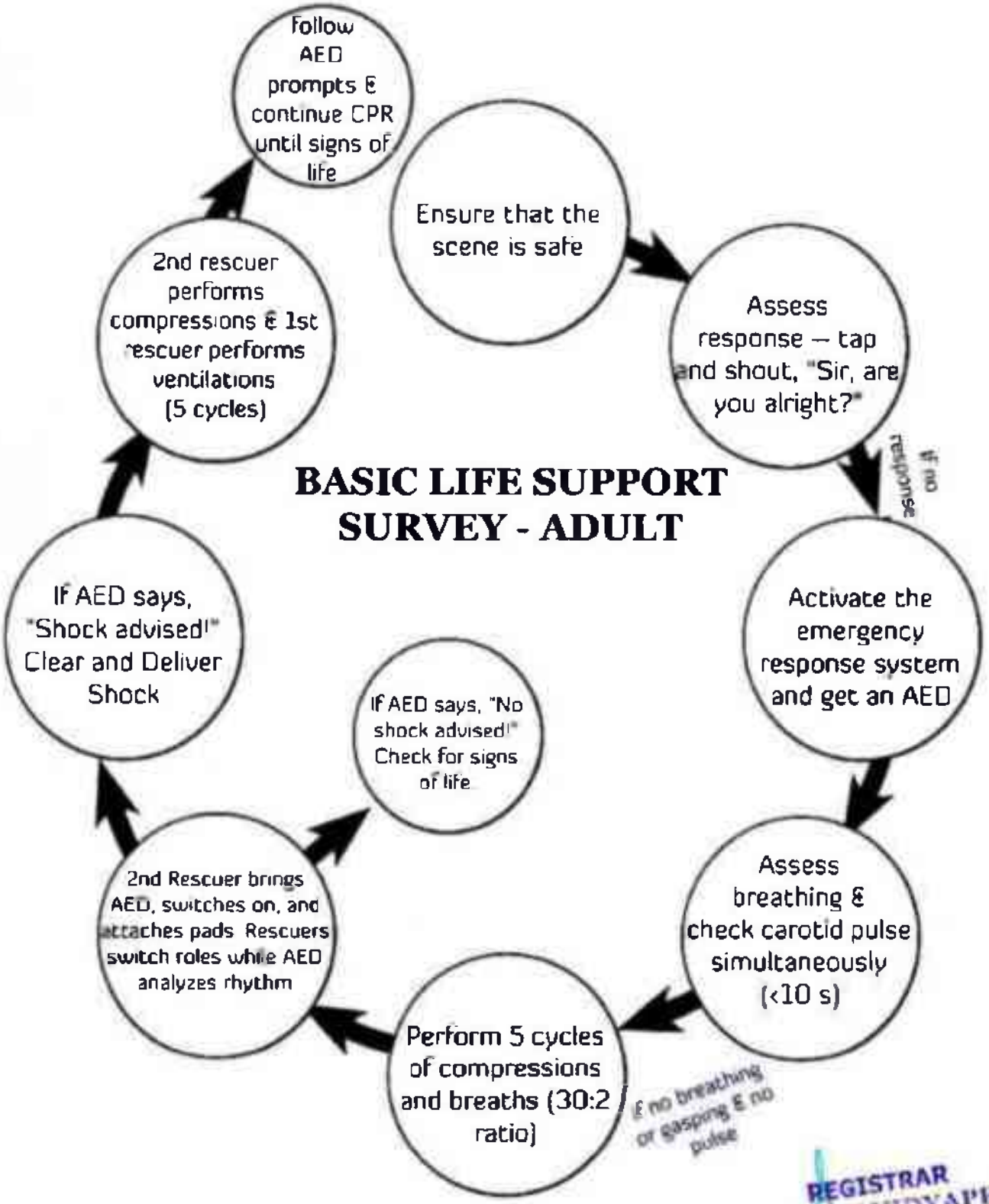
Advanced Cardiovascular Life Support (ACLS)

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Basic Life Support (BLS)

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

BLS Survey – Adult Algorithm



9

Assessing Response

* Tap: on the shoulder
* Shout: sir, are you okay?

(Call for help) Activating Emergency Response System

* Shout for help
* Call 108 & ask for AED

Check pulse and breathing

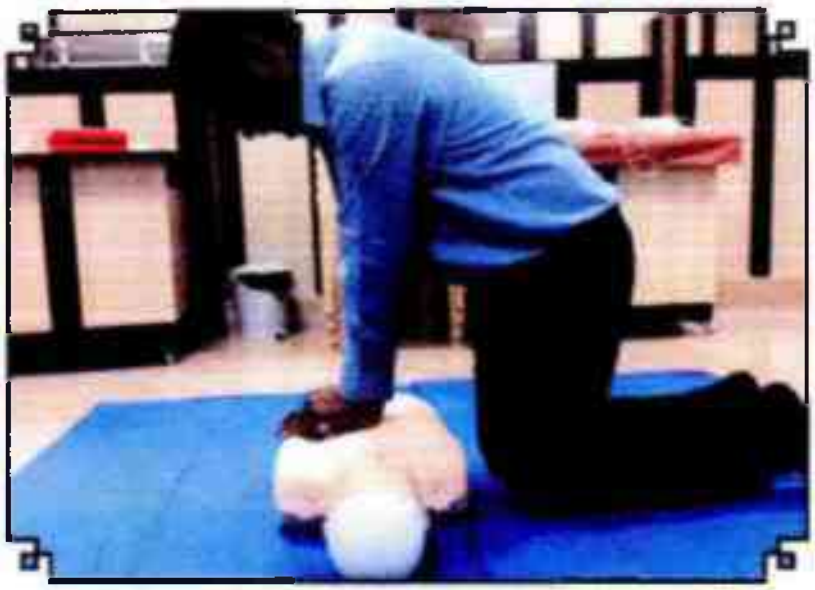
* Simultaneously Scan the chest movement for breathing & check carotid pulse (in the groove between trachea & sternocleidomastoid muscle) atleast 5sec & not more than 10 sec

Hand Position

* Heel of the palm of one hand on the center of lower half of sternum (i.e) center of two nipples
* Support with other hand

Performing CPR

* Wrist,elbows,shoulders in a straight line
* Movement should come from hip joint



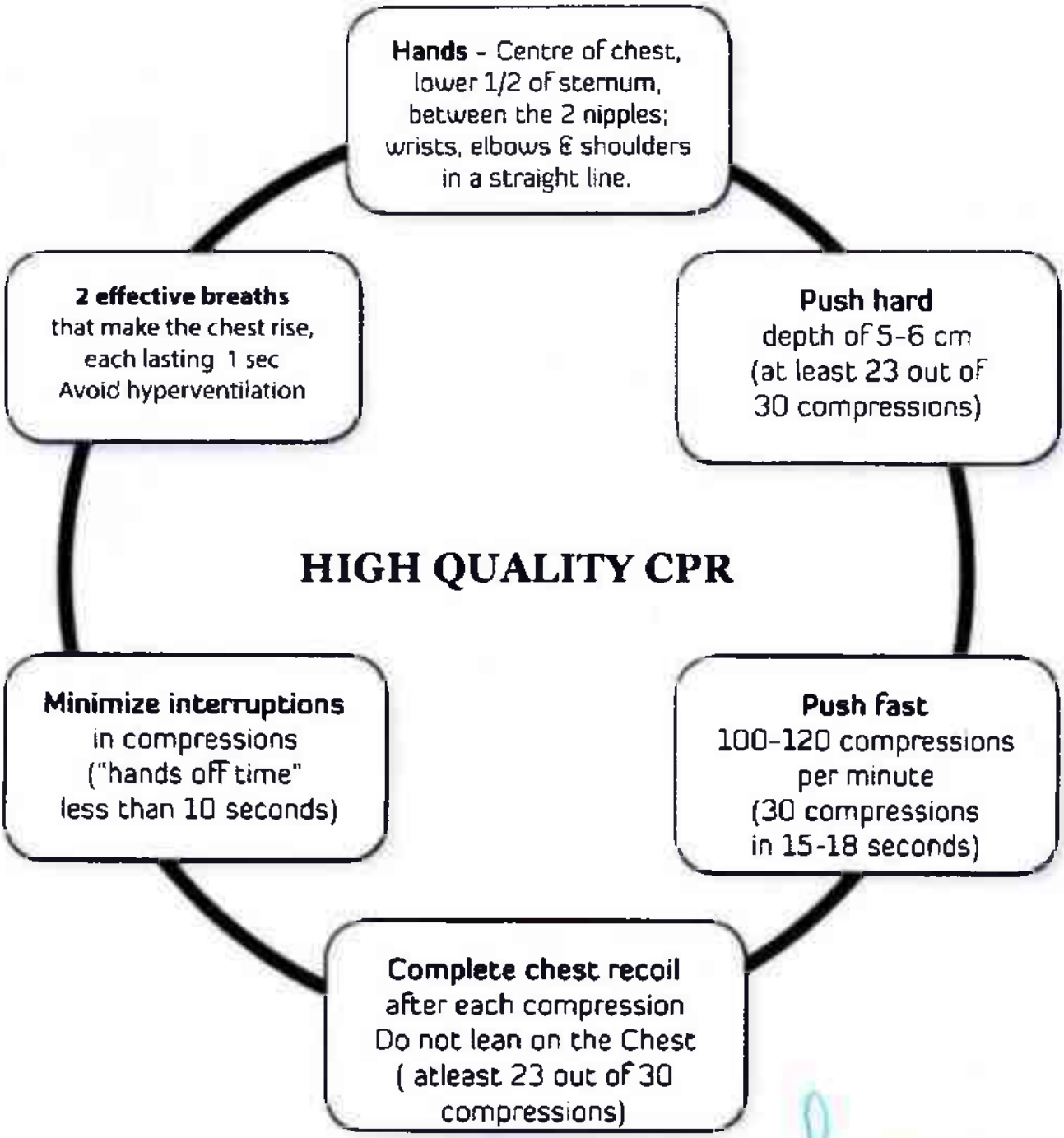
Breath using a pocket mask

* Keep the pocket mask over the face tightly
* Do head tilt & chin lift if no suspected neck injury
* Give 2 breaths (1 breath over 1 sec)
* Do not hyperventilate
* Watch for chest rise

2 Rescuer CPR with Bag mask ventilation

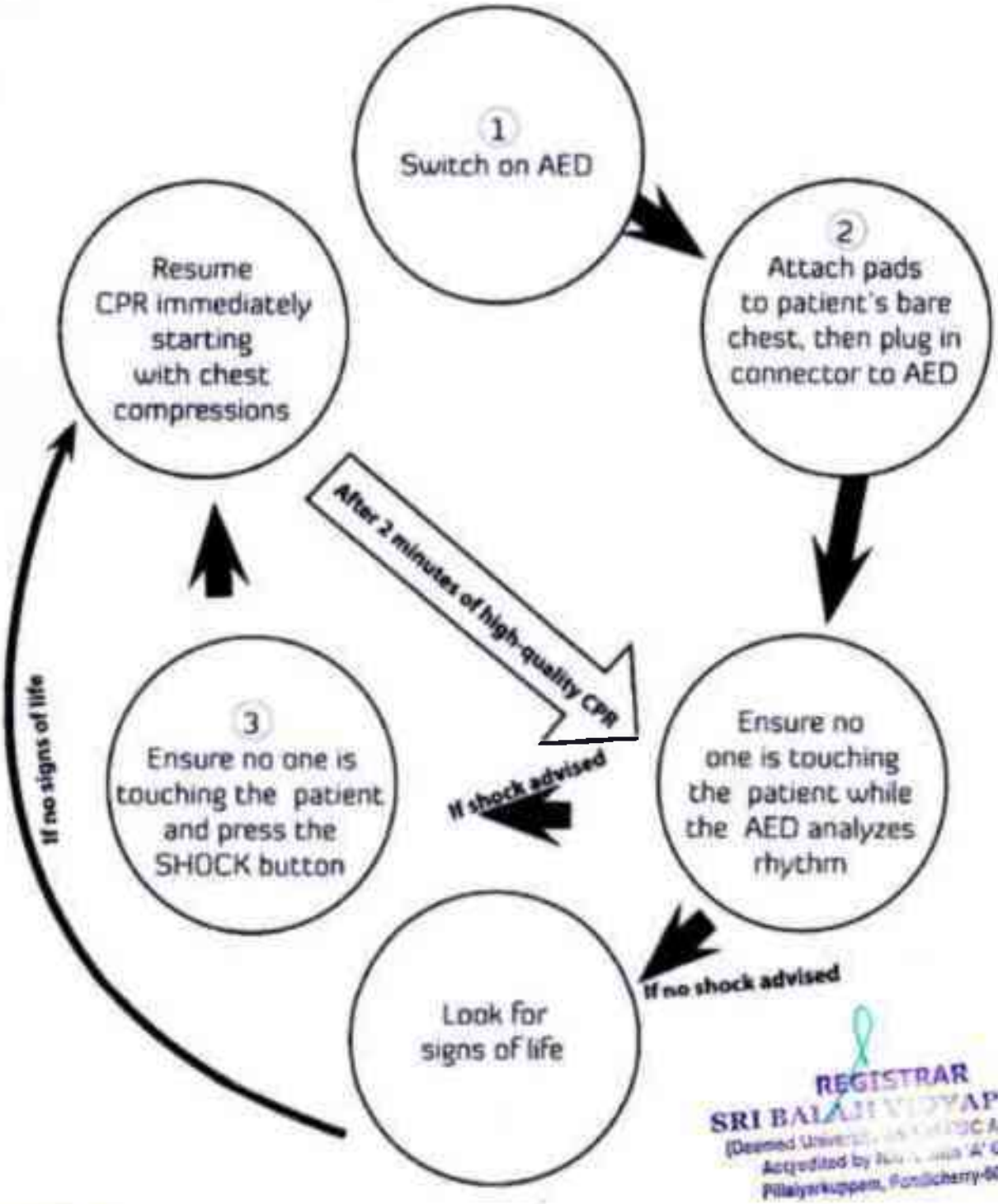
* 1st rescuer gives 30 compression
*2nd rescuer positioned at head end of victim & gives 2 breaths using bag mask ("C &E" technique to hold the mask, head tilt & chin lift)
* 1breath over 1 sec
* Do not hyperventilate
* Watch for chest rise

Critical Concepts of High Quality CPR



AED Algorithm

AUTOMATED EXTERNAL DEFIBRILLATOR



Use of AED on infants

1. A manual defibrillator is preferred
2. If not available, an AED with a paediatric dose attenuator is preferred.
3. Use an AED without a paediatric dose attenuator If neither is available.

Use of AED pads in children less than 8 years of age

1. An AED with child pads.
2. If child pads are not available, use adult pads (but not touching each other).

1. Switching on AED

Rationale:

To listen & Follow the AED prompts

2.a. Applying AED pads to patient's chest

Rationale:

To analyse the rhythm.

*Attach the apex pad just below the left nipple

*Attach the sternal pad just below the right clavicle

2.b. Plugging in pads connector to AED

Rationale:

This step should not be done before attaching the pads since AED will start analyse the rhythm even if the pads are in the air

2.c. Clearing the patient before rhythm analysis

Rationale:

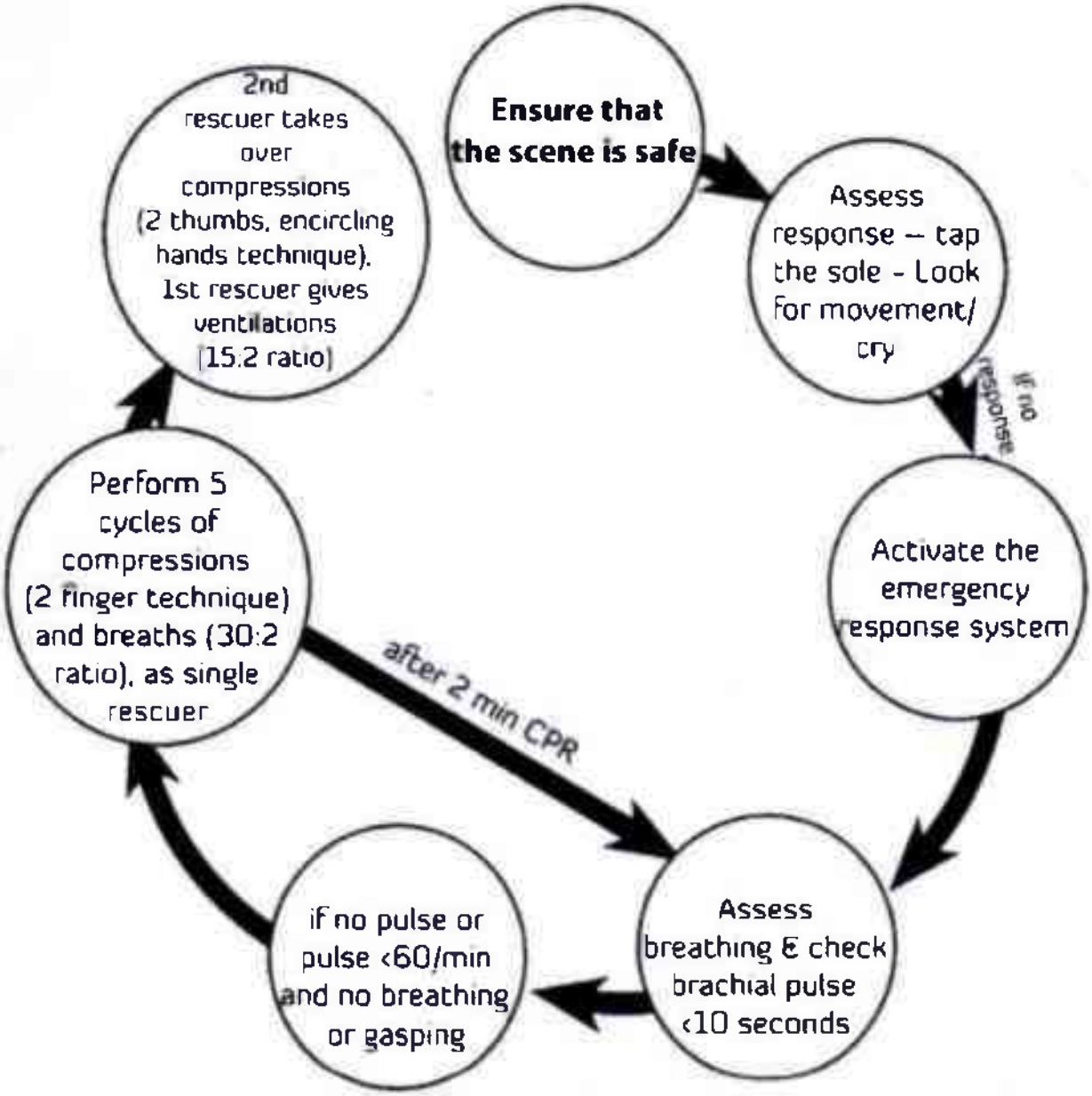
To avoid misinterpretation of rhythm by the AED

3. Delivery of shock

Rationale:

Press the shock button manually after ensuring that no one is touching the victim

BLS Survey – Infant Algorithm



* If only one rescuer is doing CPR after 2 min. of CPR look for signs of life. If absent continue 5cycles of CPR

Checking response

* Tap: on the sole
* Shout : hey Papa..

Activating Emergency Response System (Calling for help)

* Shout for help
* Call 108 & ask for AED

Pulse and breathing

Simultaneously Scan the chest movement andcheck brachial pulse bygently compressing the brachial artery with the pulp of 3 or 4 fingers in the inner aspect of arm, midway between shoulder & elbow,atleastfor 5sec
and not more than 10 sec.

2 finger technique

* 2 fingers perpendicular to the center of the lower half of sternum (center of 2 nipples)
* 30 compressions with the depth of one and half inches or 4cm
* Allow complete chest recoil after each compression

Using a pocket mask

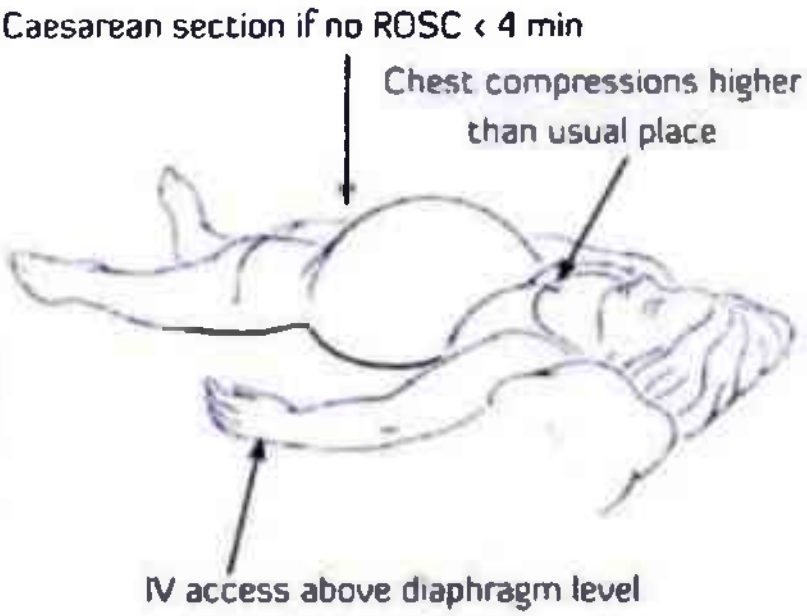
* Keep the pocket mask over the face tightly
* Head should be in the neutral position
* Do not hyper extend the neck
* Give 2 breaths (1 breath over 1 sec)
* Do not hyperventilate
* Watch for chest rise

Two thumbs hands encircling technique(2 Rescuer CPR)

* 1 rescuer: positioned at foot end of infant
* 2 thumb hand encircling technique
* 15 compression
* 2 rescuer: positioned at head end of infant
* Using bag mask ("C & E technique" to hold the mask)
* Give 2 breaths (1 breath over 1 sec)
* Do not hyperventilate
* Watch for chest rise

Pregnancy and CPR

- Follow BLS and ACLS guidelines
- Modified Position - do manual uterine displacement.
- Chest compressions should be performed slightly higher on the sternum than normally recommended to adjust for elevation of diaphragm
- Intravenous access to be secured above diaphragm level
- If no Return Of Spontaneous Circulation by 4 min perform emergency caesarean section
- Aim for delivery within 5 min of onset of resuscitation
- Continue resuscitative efforts during and after caesarean section



Summary of High Quality BLS

Component		Adults	Children	Infants (age<1 yr)
Scene safety		Ensure "Scene is safe"		
Check Response		Tap and Shout, "Are you all right?" Look for movement / speech		Flick the soles of the feet & look for move-ment / cry
Call for Help		Activate Emergency Response System; Get AED		
Check Pulse & Breathing Simultaneously		Check pulse and observe for chest rise (>5 sec but <10 sec)		
		Carotid pulse		Brachial pulse
Hand placement for compressions		Two hands – centre of chest; lower ½ of sternum (between the 2 nipples)	As in adult. One hand alone may be used for small children	Two finger technique (If one rescuer)
				Two thumb-encircling hands technique (If 2 rescuers)
Compression rate		100-120 per min		
Compression depth		At least 5 cm	At least 1/3rd the AP diameter of chest	
			About 5 cm	About 4 cm
Compression / ventilation ratio	Without advanced airway	30:2 for one or two rescuers	30:2 if one rescuer 15:2 if two rescuers	
	With advanced airway	Continuous compressions @ 100-120 per min 1 breath every 6 seconds		

Chest recoil		Allow full re-expansion of chest before next compression	
Minimize interruptions		All interruptions should be <10 seconds (hands off time <10 sec)	
Opening the airway	**No suspicion of cervical spine injury**	Head tilt-chin lift	
		Maximize extension of neck	Avoid hyperextension
	Suspicion of cervical spine injury	Jaw thrust (No head extension)	
Device for giving artificial breaths	**1 rescuer**	Mouth-to-mask / Mouth-to-mouth	
	2 rescuer	Bag-mask device	
Breaths during respiratory arrest		1 breath every 5-6 seconds	1 breath every 3-5 seconds

Activation of Emergency Response System

Adults — If you are alone with no mobile phone, leave the victim to activate the emergency response system and get the AED before beginning CPR. Otherwise, send someone and begin CPR immediately. Use the AED as soon as it is available.

Children & Infants

Witnessed collapse — If you are alone with no mobile phone, leave the victim to activate the emergency response system and get the AED before beginning CPR. Otherwise, send someone and begin CPR immediately. Use the AED as soon as it is available.

Unwitnessed collapse – Give 2 minutes of CPR. Then Leave the victim to activate the emergency response system and get the AED. Return to the child or infant and resume CPR. Use the AED as soon as it is available.

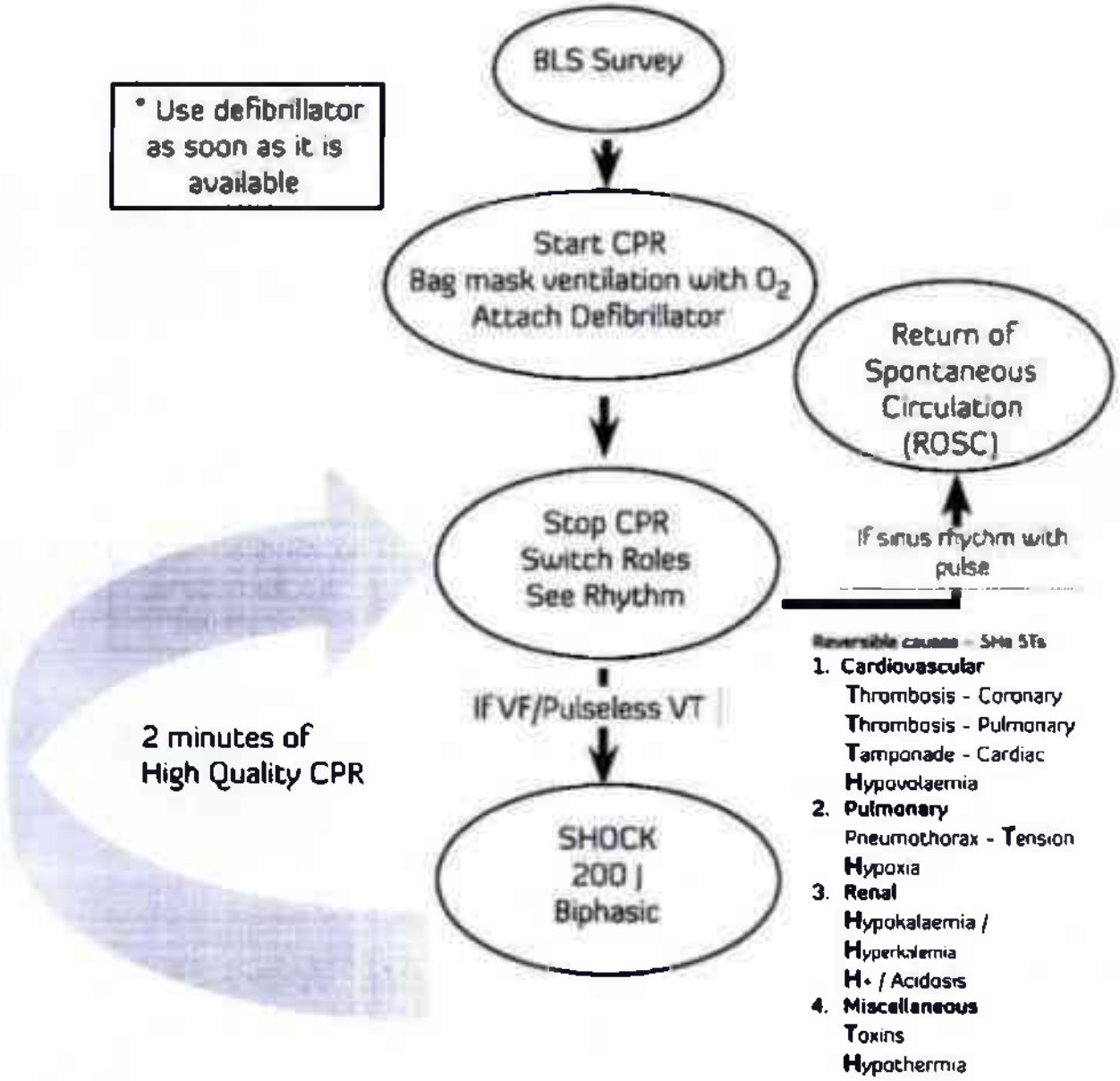
Megacode Resuscitation Team Concept

Effective resuscitation requires coordination between the team leader and team members. The coordination is discussed in the following 8 priniciples.

Principles of team resuscitation

No.	Principle	Example
1	Closed-loop communication	Leader – "Now that we have a shockable rhythm (VF) on the monitor, give 200 J biphasic shock." Member – After delivering the shock, says, "200 J biphasic shock delivered."
2	Clear messages	The leader instead of just saying "Give shock" should say, "Give 200 J biphasic shock."
3	Clear roles and responsibilities	The leader assigns clearly the following roles to team members – Compression, Ventilation, Monitor & Defibrillation, IV Access and drugs, Code Recorder.
4	Knowing one's limitations	If a team member assigned for defibrillation does not know how to use the defibrillator, the team leader assigns the role to a member who is capable of using the defibrillator.
5	Knowledge sharing	Team leader tells team member to apply conductive gel properly and apply sufficient pressure with the paddles on the chest before delivering shocks
6	Constructive intervention	If a team member fails to synchronize the defibrillator for a patient requiring cardioversion, another team member intervenes and reminds about synchronization.
7	Reevaluation and summarizing	The patient continues to have persistent VF, and we have now given 3 shocks, one dose of Epinephrine and Amiodarone each.
8	Mutual respect	The team leader gives commands with respect to team members, without shouting or criticism.

Cardiac arrest – VF/VT (Algorithm)



After 1st shock – Ensure iv/io access

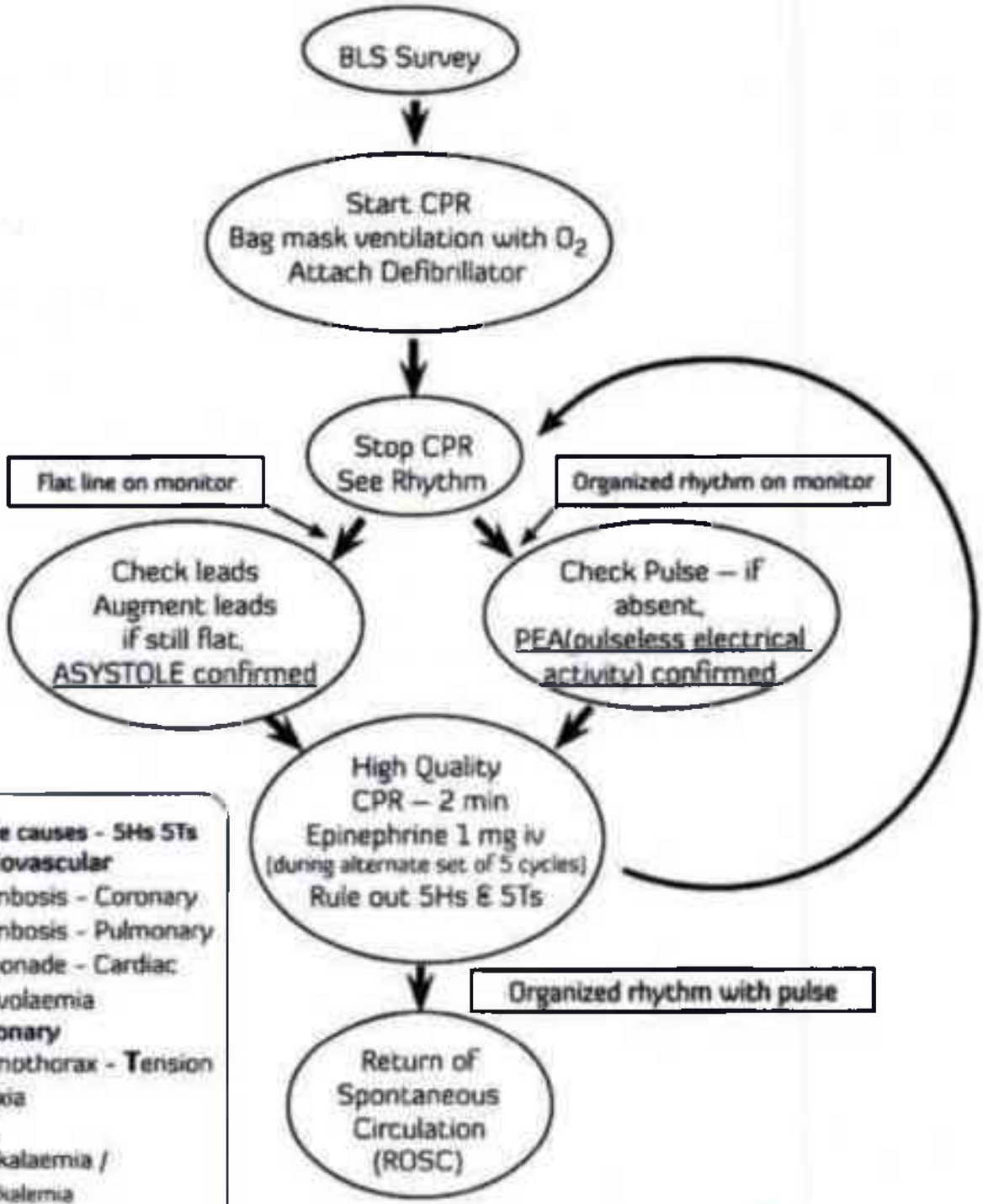
After 2nd shock – Epinephrine 1 mg iv bolus, consider advanced airway

After 3rd shock – Amiodarone 300 mg iv, Treat reversible causes - 5Hs 5Ts

After 4th shock – Repeat Epinephrine 1 mg iv after every even shock

After 5th shock – Amiodarone 150 mg iv, second dose

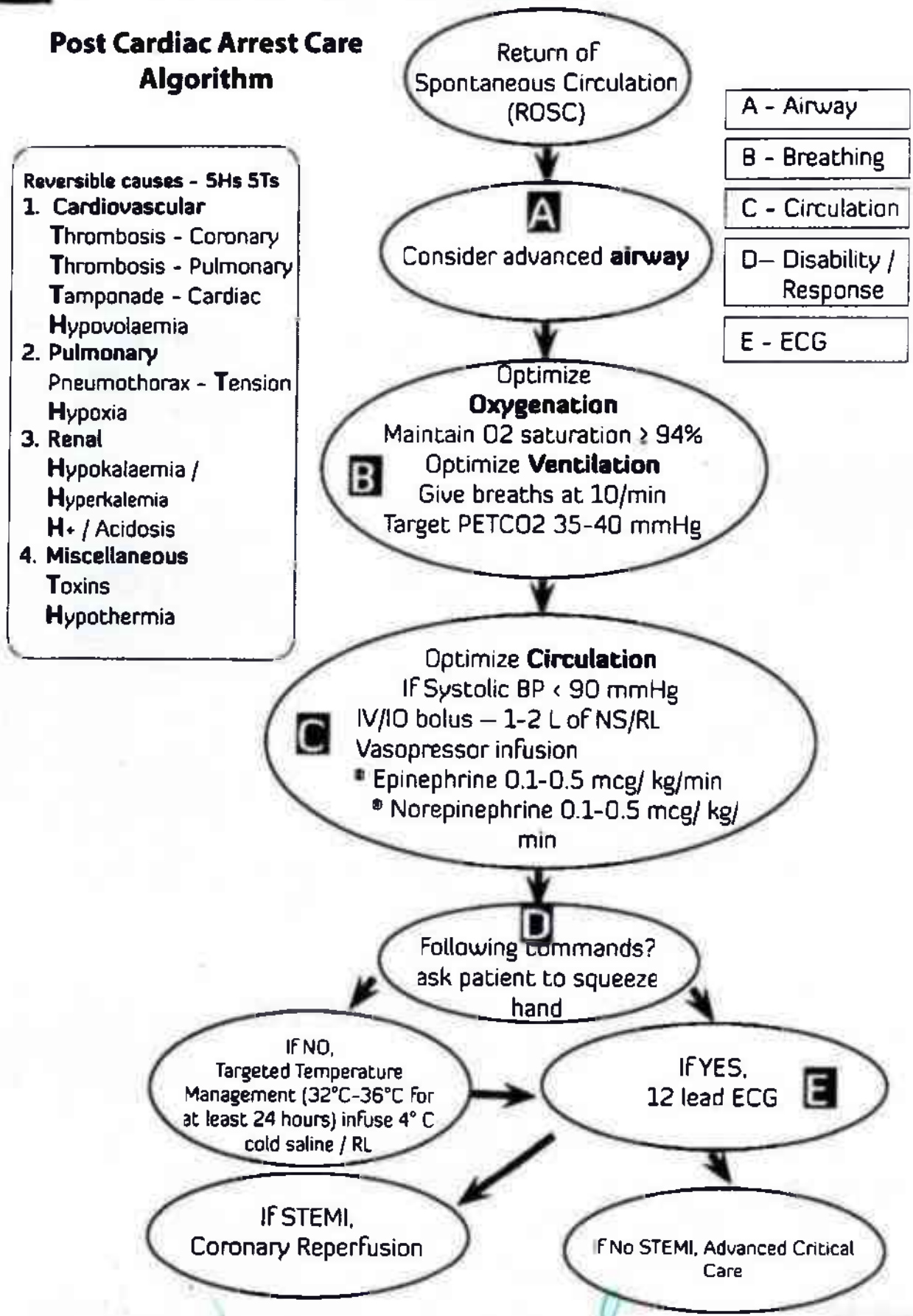
Cardiac Arrest – Asystole / PEA Algorithm



Reversible causes - 5Hs 5Ts

1. **Cardiovascular**
   - **T**hrombosis - Coronary
   - **T**hrombosis - Pulmonary
   - **T**amponade - Cardiac
   - **H**ypovolaemia
2. **Pulmonary**
   - Pneumothorax - **T**ension
   - **H**ypoxia
3. **Renal**
   - **H**ypokalaemia / **H**yperkalemia
   - **H**+ / Acidosis
4. **Miscellaneous**
   - **T**oxins
   - **H**ypothermia

Post Cardiac Arrest Care Algorithm



Peri-arrest Management

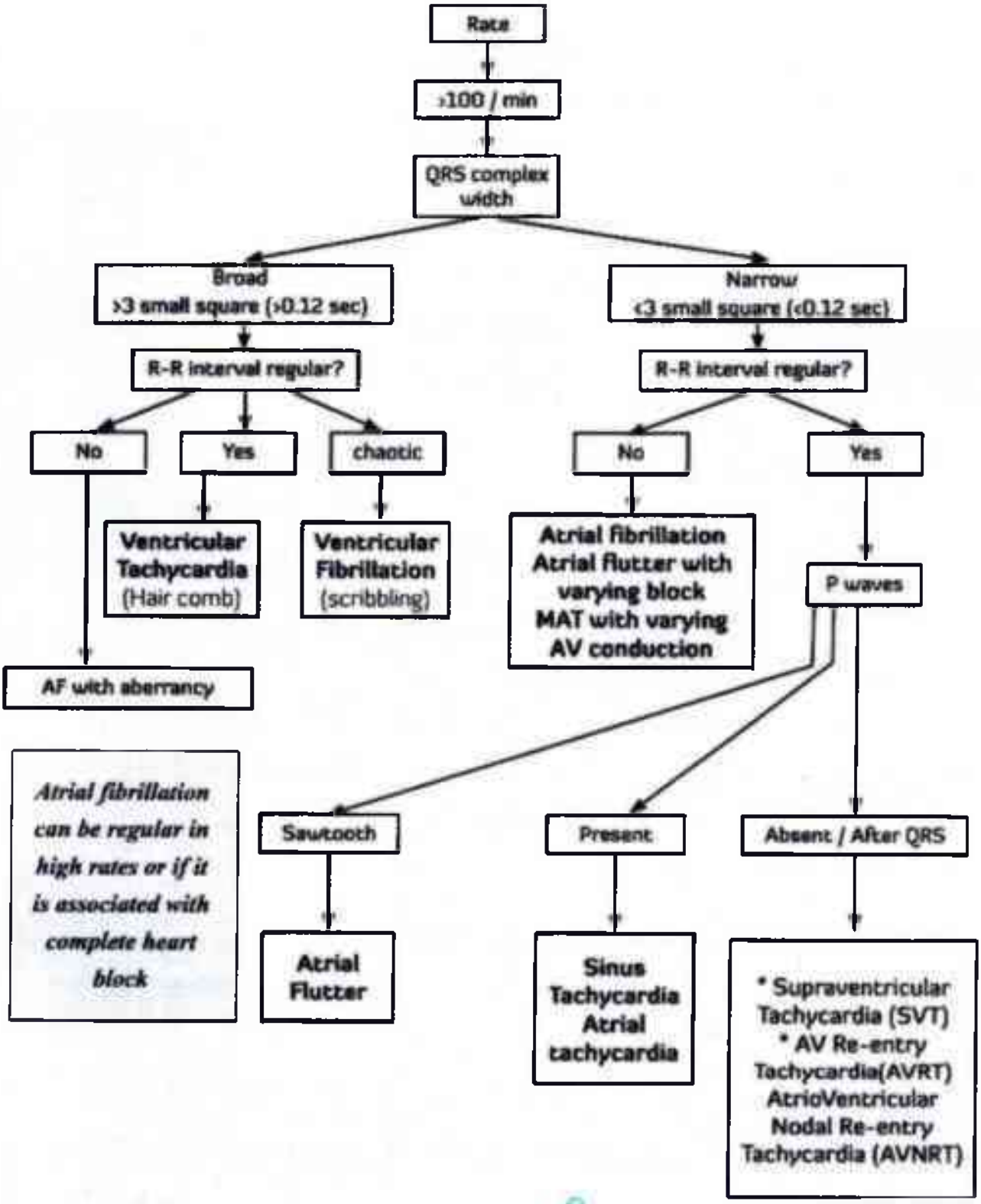
Responsive patients (AB VOMIT)

1. **Airway - Ensure it is patent**
2. **Breathing - Ensure rate & pattern is normal**
3. **Vitals**
4. **O_2**
5. **Monitor – See rate & rhythm**
6. **IV Access**
7. **Treat as below after considering heart rate,ECG rhythm & blood pressure.**

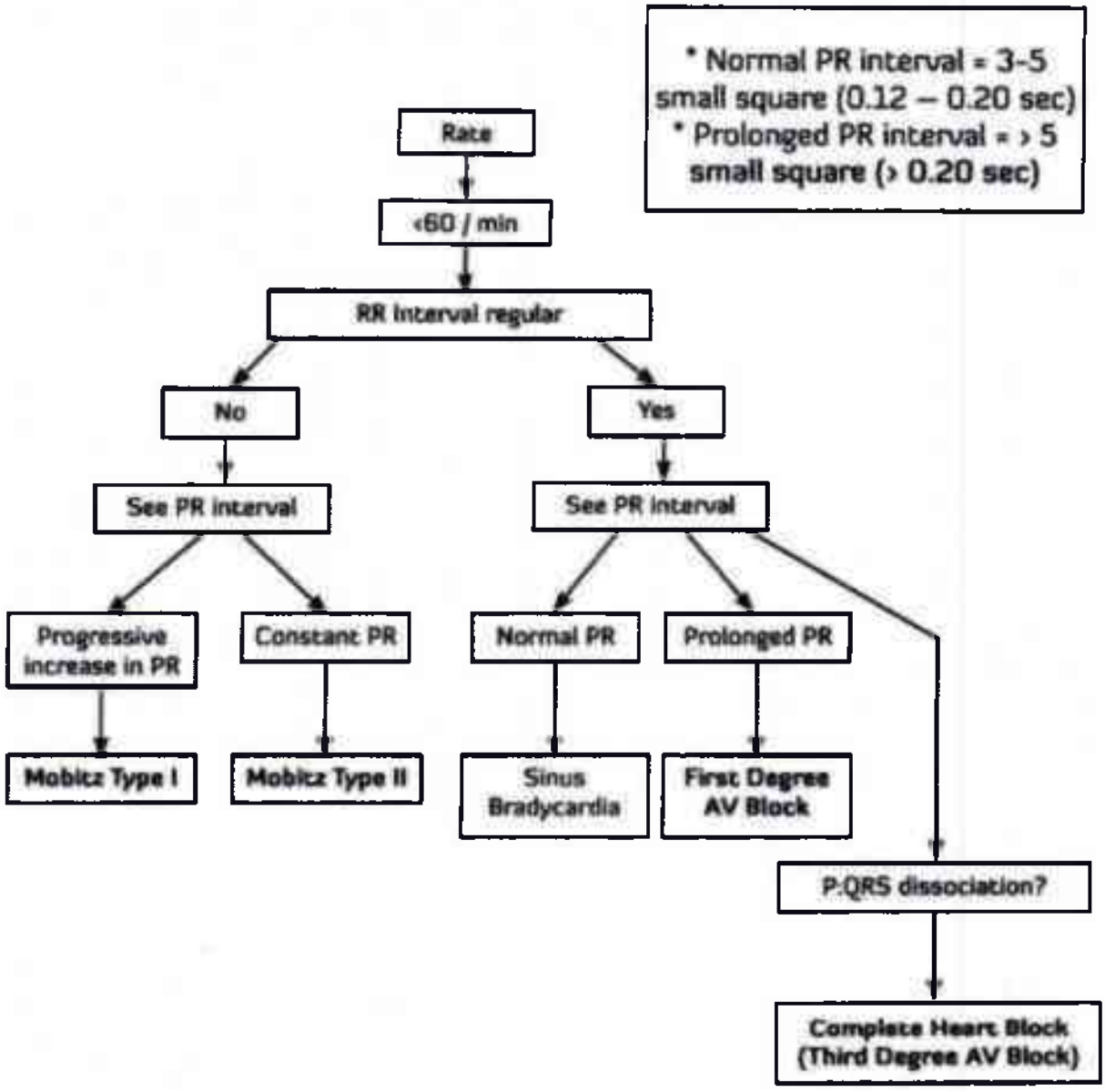
	Systolic BP > 90 mmHg	**Systolic BP < 90 mmHg**
Heart Rate <50/min	**Observe and monitor**	Atropine 0.5 mg iv, every 3-5 minutes, maximum 3 mg (cumulative) ↓ (If no response) Transcutaneous Pacing) ↓ (If not available or not effective) Dopamine infusion 2-10 mcg/kg/min (or) Epinephrine infusion 2-10 mcg/min
Heart Rate >150/min	**12 Lead ECG** **Regular, Narrow QRS** 1. Vagal manoeuvres 2. Adenosine 6 mg IV, repeat with 12 mg 3. Beta blockers / Calcium channel blockers 4. Expert consultation **Irregular, Narrow QRS** 1. Beta blockers / Calcium channel blockers 2. Expert consultation **Broad QRS** 1. Adenosine 6 mg IV, if regular and monomorphic (re-entry SVT) 2. Amiodarone 150 mg slow IV over 10 minutes 3. Expert consultation	**Synchronized cardioversion** • Sedate (IV Midazolam 1-2 mg) / Fentanyl 50-100mg • Synchronize defibrillator • Select energy (according to rhythm) (Initial recommended energy doses in biphasic current) • Atrial Flutter & SVT: 50-100 J • VT: 100 J • Atrial Fibrillation: 120 J

** Manage Peri-Arrest by correlating patients heart rate against blood pressur*

ECG algorithm
(Tachyarrhythmias)

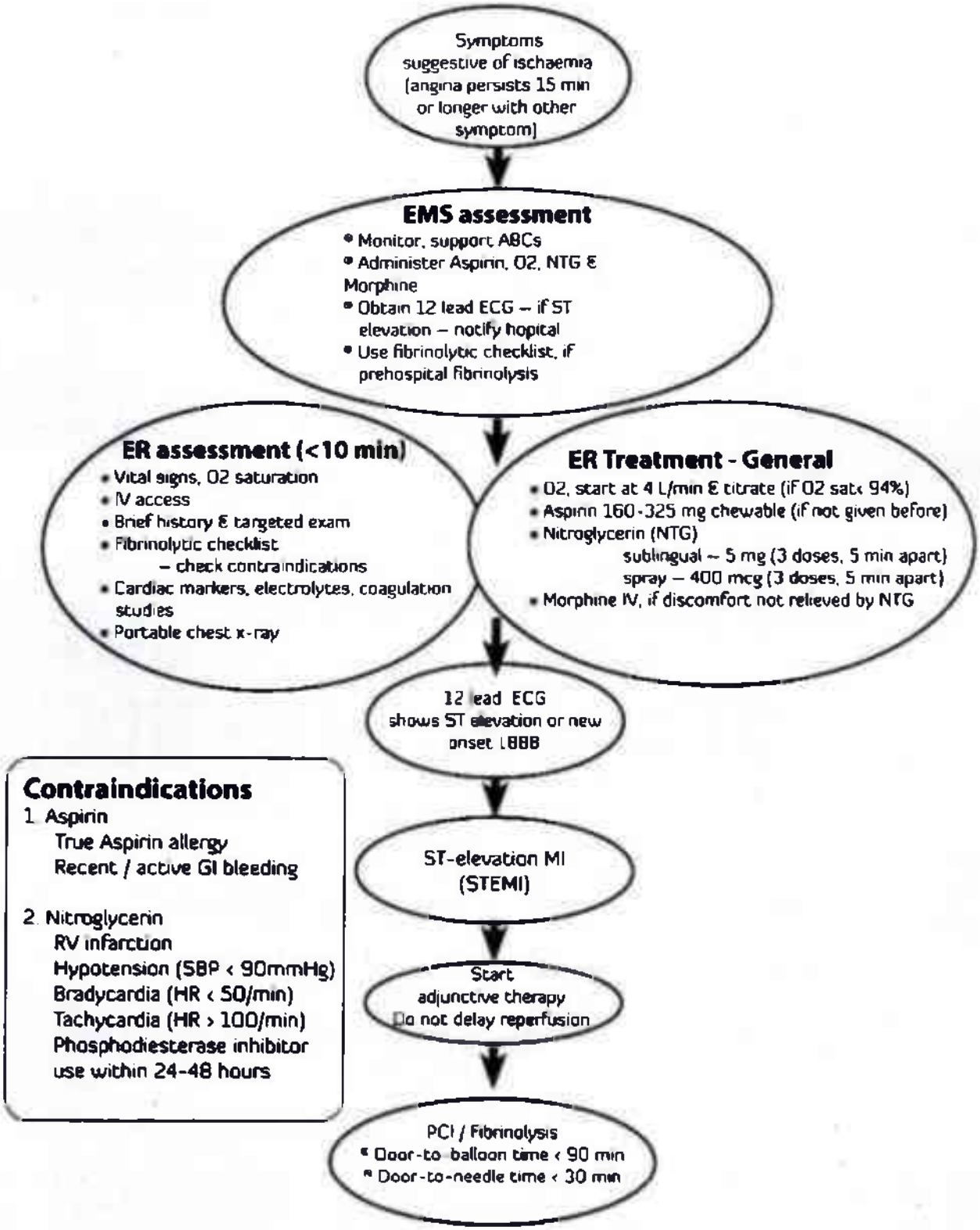


ECG algorithm (Bradyarrhythmias)



Bradycardia with retrograde or merged P after QRS is junctional

Acute Coronary Syndrome (ACS) Algorithm

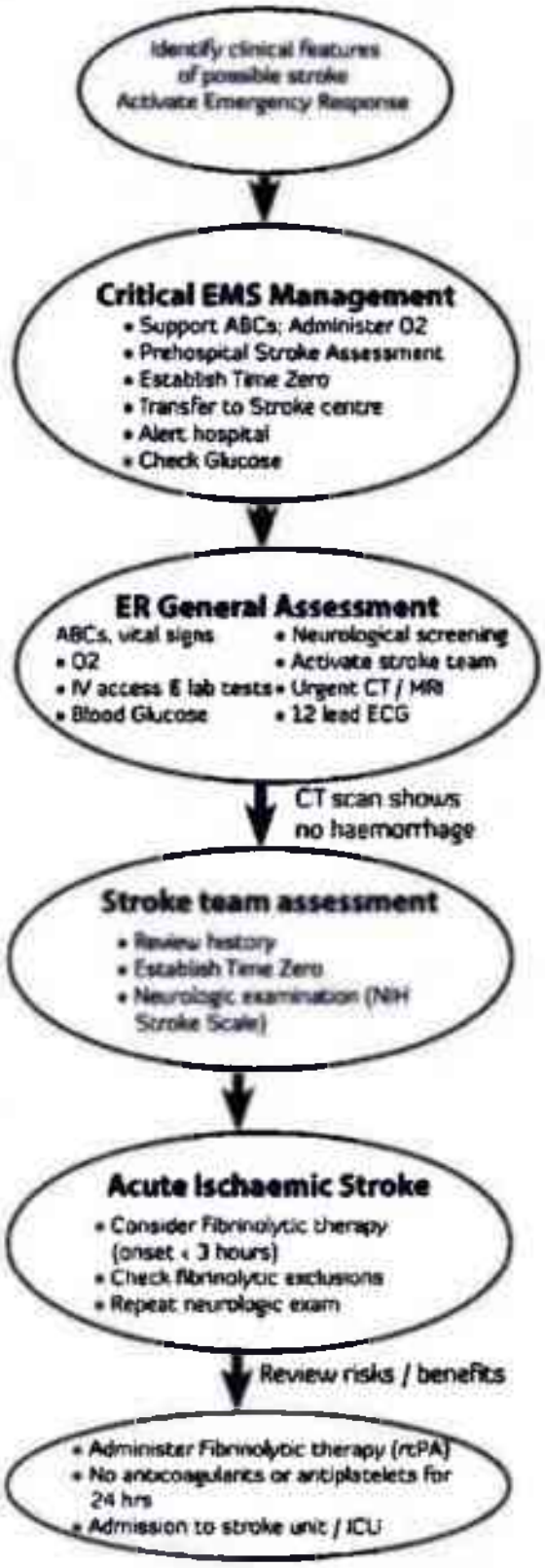


Contraindications

1. Aspirin
   - True Aspirin allergy
   - Recent / active GI bleeding
2. Nitroglycerin
   - RV infarction
   - Hypotension (SBP < 90mmHg)
   - Bradycardia (HR < 50/min)
   - Tachycardia (HR > 100/min)
   - Phosphodiesterase inhibitor use within 24-48 hours

*ABC – Airway, Breathing, Circulation
*ER – Emergency department
*EMS – Emergency Medical Services
*PCI- Percutaneous Coronary Intervention

Stroke Algorithm



Cincinnati Prehospital Stroke Scale

F-A-S-T

1. Facial droop
2. Arm Drift
3. Slurred Speech
4. Transport to Stroke Centre

Critical Time Periods	
Action / Intervention	Perform within
General assessment	10 min
Neurologic assessment	25 min
CT Scan	25 min
Fibrinolysis (from ER arrival)	60 min
Fibrinolysis (from Time Zero)	3 hours
Admission to stroke unit/ICU	3 hours

* NIH Stroke Scale – National Institute of HealthStroke Scale

Electrical therapies used in ACLS

1) Defibrillation (Unsynchronized shock)
2) Synchronized Cardioversion
3) Transcutaneous Pacing

Defibrillation

Indication: Cardiac arrest patient with VF / Pulseless VT on monitor VF/Pulseless VT on monitor

Energy used:

120-200 J Biphasic current (based on manufacturer recommendations; if not known, then use 200 J) 360 J Monophasic.

Steps:

1) Select energy
2) Apply conductive gel on paddle placement sites
3) Place paddles on the patient's chest - sternal paddle below the right clavicle, apex paddle on the left 5th intercostal space on the midaxillary line
4) Charge the defibrillator (pressing the charge button under the right thumb on the apex paddle)
5) Clear the patient by warning loudly - "Shocking - everybody stay clear"
6) Apply pressure (enough to cause mild indentation) on the chest and press shock buttons on both paddles simultaneously.
7) Resume chest compressions immediately (do not delay by checking for pulse or analyzing rhythm)

Transthoracic impedence:

For shock energy to be delivered maximally to the heart, transthoracic impedence has to be kept to a minimum. This can be done by

1) Using conductive gel - ensures maximum energy is delivered to the myocardium by decreasing impedence, ensures better contact between the paddles and chest wall.
2) Pressing the paddles and ensuring adequate contact with chest wall - until the indicator on the sternal paddle goes green (red and yellow indicate insufficient contact)
3) Pressing the paddles until there is indentation of the chest wall

Defibrillator safety:

1) Avoid O2 flowing across the chest by avoiding giving ventilations during defibrillator use.
2) Charge the defibrillator only after the paddles are placed on the chest,
3) Avoid holding the defibrillator paddles in your hands for long
4) Warn loudly - "Shocking, everybody stay clear!" and checking visually before delivering shock
5) Put the paddles back on the defibrillator immediately after the shock is delivered
6) Do not hold both paddles on one hand

Synchronized cardioversion

Indications:

A patient with tachycardia and haemodynamically unstable (hypotension, and signs and symptoms of poor perfusion)

Initial energy doses recommended
Differs according to the rhythm on the monitor

1) Atrial flutter and Supraventricular tachycardia - 50 to 100 J Biphasic
2) Ventricular tachycardia - 100 J
3) Atrial fibrillation - 120 J and above If the rhythm does not convert, increase energy levels for subsequent shocks.

Steps:

1) Sedate the patient - IV Midazolam 1 to 2 mg / Fentanyl 50-100 mg
2) Select energy dose according to the rhythms mentioned above
3) Set the defibrillator to "Synchronization" mode - this is confirmed by "Sync" display on the monitor, and by dots or dashes identifying R waves
4) Apply gel
5) Place paddles
6) Charge the defibrillator
7) Clear the patient
8) Shock - since the shock is delivered only at the next synchronization (with R wave), you may need to hold the paddles a little longer to confirm that shock has been delivered

Transcutaneous pacing

Indications - A patient with bradycardia and showing symptoms and signs of poor perfusion (including hypotension)

Steps:

1) Sedate the patient
2) Apply adhesive pacing pads on the patient's chest
3) Set the defibrillator to pacing mode
4) Select the desired pacing heart rate (80/min or above)
5) Increase the pacing current by 5 mAmp at a time while watching the monitor for the pacing impulses to appear (pacing current spike followed by broad QRS complex at the set heart rate) - electrical capture
6) After the impulses appear, increase the current by another 5-10 mAmp as a safetly margin above the threshold
   Check the vitals - pulse rate should match the set pacing rate (mechanical capture), BP should recover

	SYNCHRONIZED CARDIOVERSION	DEFIBRILLATION
DEFINITION	"CARDIOVERSION" is the application of electricity to terminate a *still perfusing rhythm* (e.g., ventricular tachycardia with a pulse, supraventricular tachycardias including atrial arrhythmias) to restore the normal Sinus Rhthym	"DEFIBRILLATION" is the application of electricity to terminate a *non perfusing rhythm* (Pulseless ventricular tachycardia, Ventricular Fibrillation) to restore the normal sinus Rhythm.
MECHANISM OF ACTION	By depolarising all excitable tissue of the circuit and making the tissue refractory, the circuit is no longer able to propagate or sustain re -entry.	By depolarising a critical mass of the heart muscle, terminates the arrhythmia, and allows normal sinus rhythm to be re-established by the body's natural pacemaker, in the sino- atrial node of the heart.
LEVEL OF CONSCIOUSNESS	Conscious	Unconscious
SYNCHRONICITY	Synchronous By pressing the "SYNC" soft key, the defibrillator will enter "SYNC" mode and the synchronising circuit within the defibrillator will detect the patient's R-waves. When the shock button is pressed and held, the unit discharges with the next detected R-wave, thus avoiding the vulnerable T-wave segment of the cardiac cycle.	Non synchronous The shock may fall randomly anywhere within the cardiac cycle (QRS complex). Unsynchronized cardioversion (defibrillation) is used when there is no coordinated intrinsic electrical activity in the heart (pulseless VT/VF) or the defibrillator fails to synchronize in an unstable patient.
ENERGY LEVEL	Starts at 25J – 120 J	Highest energy as per manufactured recommendation 120J-200J
INDICATIONS	Tacchyarrhythmia's causing hemodynamic compromise 1. Ventricular Tachycardia with pulse 2. Supraventricular Tachycardia 3 Atrial Flutter	1. Ventricular Fibrillation 2. Pulseless Ventricular Tachycardia

	4. Atrial Fibrillation 5. Atrial Tachycardia 6. Junctional Tachycardia	
NEED FOR PROCEDURAL SEDATION	Patient needs Sedation because patient is conscious.	Patient does not need sedation because patient is Unconscious.
PRACTICAL PROCEDURE	• Check the availability of full Resuscitation Equipments and Drugs • Secure IV access • Connect ECG Monitoring and Pulse Oximetry • Sedate with Midalzolam and Fentanyl • Pre-oxygenation • **ENSURE SYNCHRONISATION** is ON and marker on "R wave" • Select Energy Level – 25|-120| • Follow the steps as in page 39	• Check the availability of full Resuscitation Equipments and Drugs • Secure IV access • Connect ECG Monitoring and Pulse Oximetry • **ENSURE SYNCHRONISATION** is OFF • Select Energy Level – High Joules (Highest as per manufacturer recommendation) • Follow the steps as in page 38

ENERGY AND CURRENT FLOW

Adequate current flow through the heart is required for successful defibrillation. The current delivered to the myocardium with a given energy is dependent on the "Transthoracic Impedance", which can vary widely among patients. Thus, the same energy dose can potentially deliver varying current to a patient. Additionally, the percentage of current shunted through the thorax, away from the myocardium, influences the net current a patient receives.

MONOPHASIC DEFIBRILLATORS

Electrical current flows in a single direction from an electrode on one side of the patient's chest to a second electrode on the other side. The waveform associated with monophasic defibrillations contains a Single peak. The highest part of the waveform, the peak current, is a key determinant of successful defibrillation. There must be enough current to reach the heart to defibrillate (terminate the lethal rhythm), but not so much peak current that the heart is damaged.

BIPHASIC DEFIBRILLATORS

Electricity is sent from one electrode to the other in the first phase of this waveform, followed by a return back to the originating electrode in the second phase. Biphasic technology requires a much lower current to achieve successful termination of fibrillation. This may result in less damage to the myocardium and a reduced frequency of postshock contractility and dysrhythmias.

PADDLE / PADS SIZE

- Larger Size associated with higher success rates and less Myocardial Damage
- Paddles/pads of 10–13 cm optimally reduce transthoracic impedance

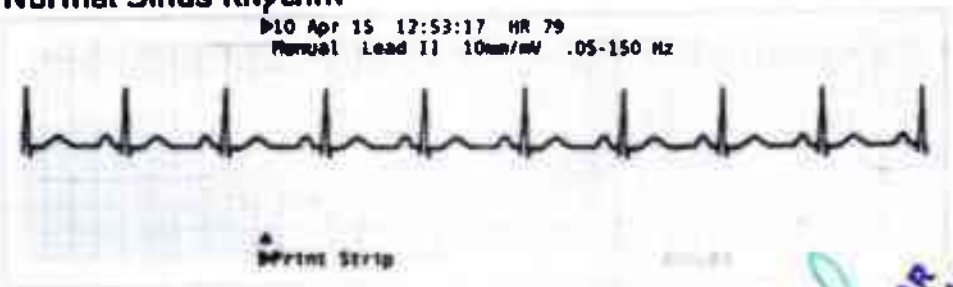
METHOD OF USE

There are two accepted positions to optimize current delivery to the heart:

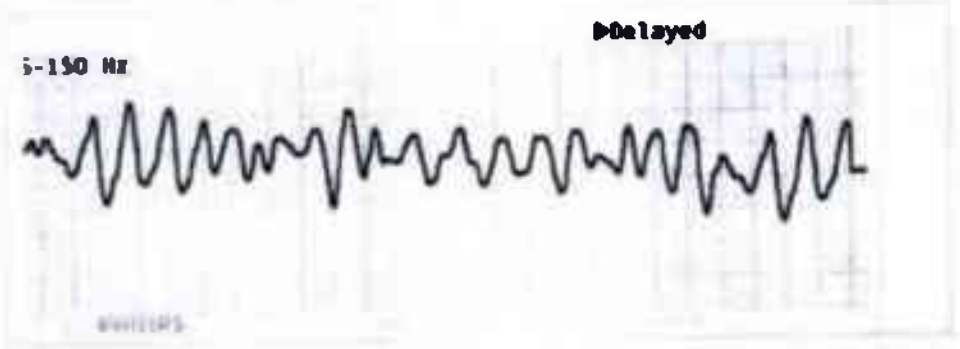
- **ANTEROAPICAL** – one pad/paddle is placed to the right of the sternum just below the clavicle, and the other is centred lateral to the normal cardiac apex in the anterior or midaxillary line (V5–6)
- **ANTEROPOSTERIOR** – the anterior pad/paddle is placed over the precordium or apex, and the posterior pad/paddle is placed on the back in the left or right infrascapular region.

ARRHYTHMIAS

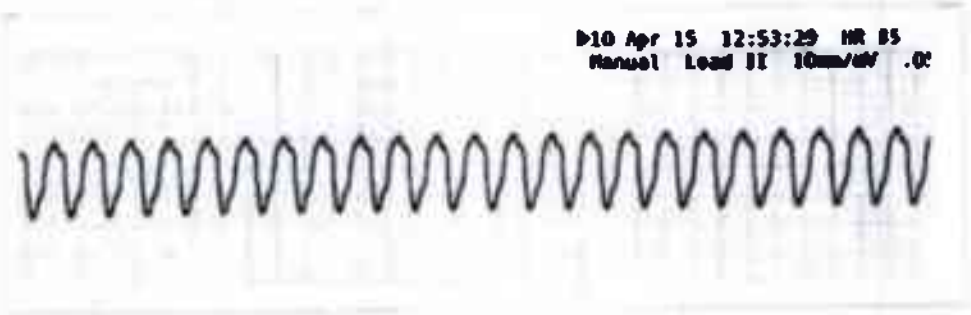
Normal Sinus Rhythm



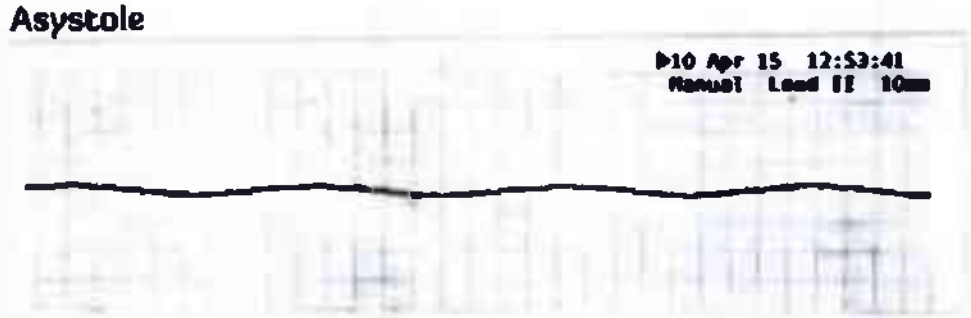
Ventricular Fibrillation



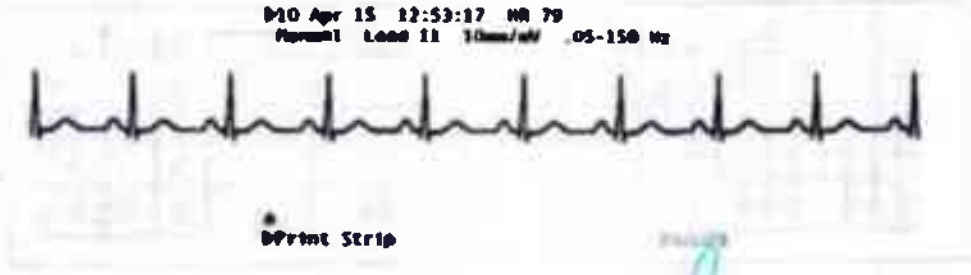
Ventricular Tachycardia (Monomorphic)



Asystole

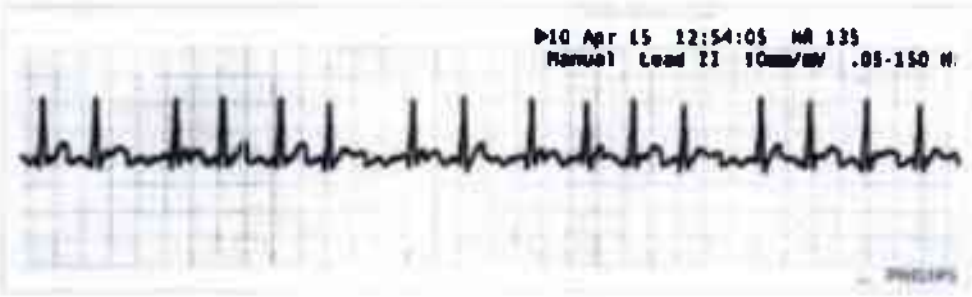


Pulseless electrical activity

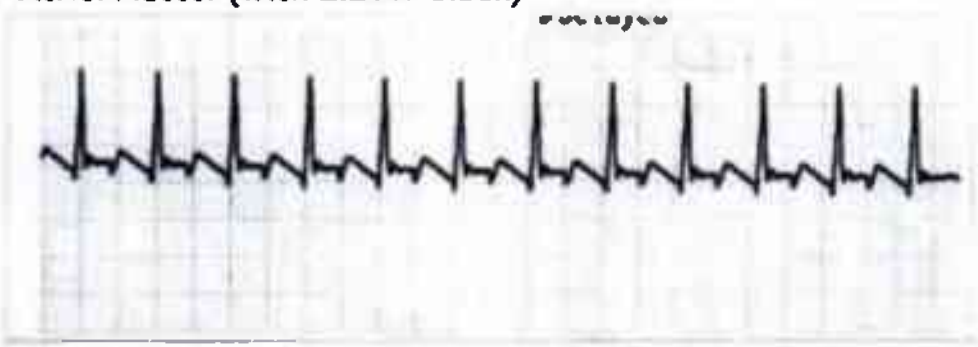


REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade

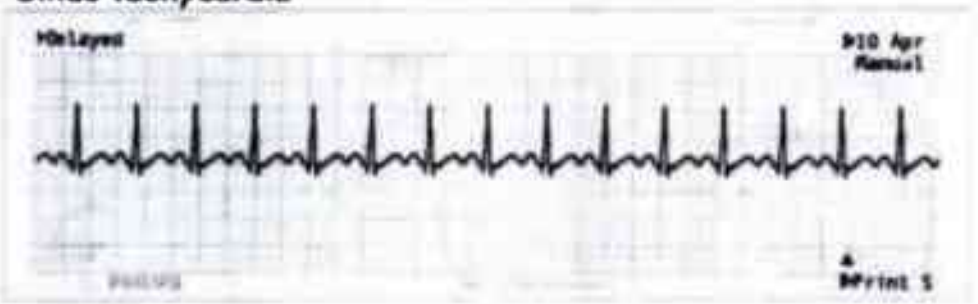
Atrial Fibrillation



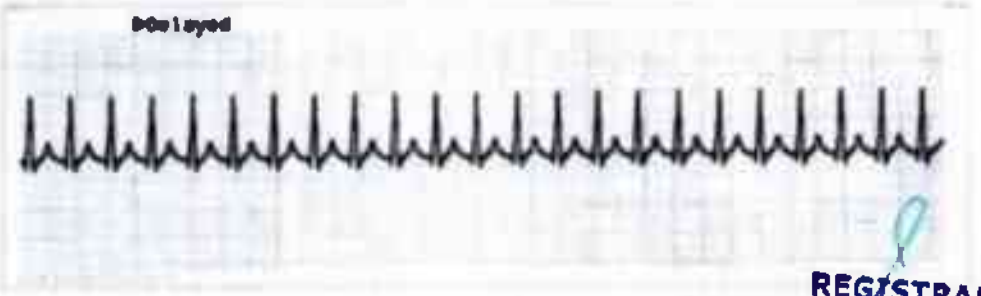
Atrial Flutter (with 2:1 AV block)



Sinus Tachycardia

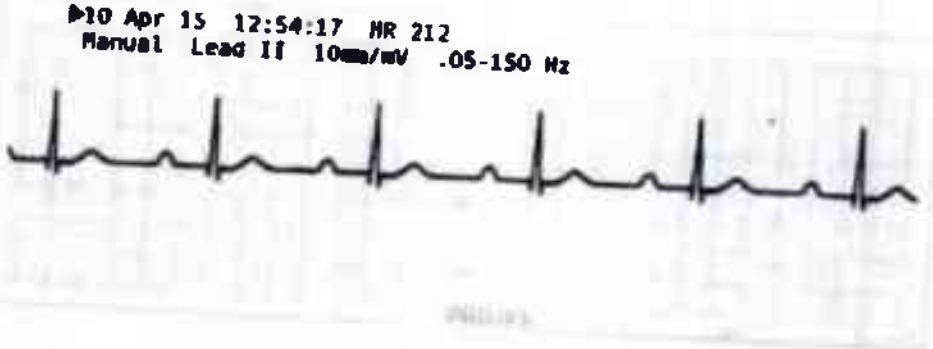


Supraventricular Tachycardia

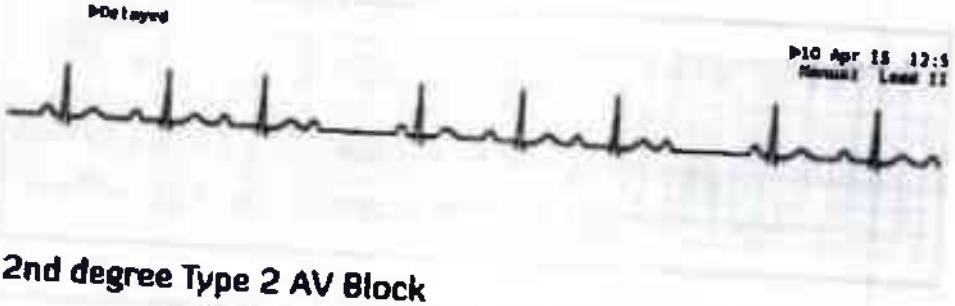


Sinus Bradycardia

1st degree AV Block

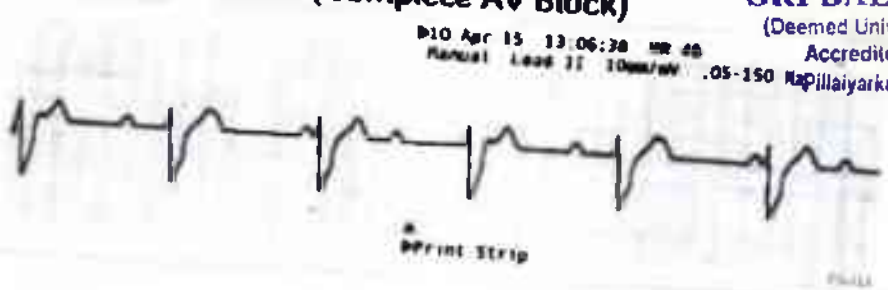


2nd degree Type 1 AV Block



2nd degree Type 2 AV Block

3rd degree AV Block (Complete AV Block)



Drugs

Anaesthesiology Postgraduates

Dr. Janani .N
Dr. Saranya .N

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Epinephrine (naturally occurring catecholamines)	• Beta & Alpha adrenergic agonist • $\alpha_1 = \alpha_2$ $\beta_1 = \beta_2$ • Myocardial stimulation (beta1) • Peripheral vasoconstriction • Bronchodilator (beta 2) • Mydriatric • Hyperglycemic	Onset: IV – 1 -2 min SC- 5-10min Duration – 5-10 min	**Adult:** 1 mg IV/IO every 3–5 minutes **Pediatric dose:** 0.01 mg/kg (0.1 mL/kg of 1:10,000 solution)IV/IO every 3 to 5 min **Anaphylaxis :** SC/IM :0.5mg IV :100mcg every 3 -5 mins followed by infusion. **Infusion dose:** Range – 0.03-3 mcg/kg/min **Nebulisation : (adult andpediatric)**0.5mg/kg of 1:1000 dose dilution(max 5mg) **Epidural test dose:** 1:200000(5 mcg/ml	• Cardiac arrest (asystole, pulseless electrical activity, ventricular fibrillation), shock states Anaphylaxis 99 • Test dose in epidurals and peripheral nerve blocks to rule out vascular placement • Co-administration with local anesthetics	Based on situation	• Ventricular arrhythmias • Cerebrovascular beamorrhage Myocardial ischemia.	**Halothane (inhalational anaesthesia) - ventricular arrhythmias Limit- 0. 15mg**

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Amiodarone	• Class III Antiarrhythmic drug. • Possesses characteristics of all 4 classes. • Inhibits sodium channels at rapid pacing • frequencies (Class I); • Suppresses AV node via sympatholytic activity (Class II); • Blocks potassium channels, which prolongs the cardiac action potential(Class III); Negative inotropy by blocking L-type calcium channels (Class IV)	Onset :IV - < 30min Duration : variable Elimination Half life of single dose – 56 days	Cardiac arrest: Adult: 300 mg initial dose; 150 mg second dose after 2nd shock. Pediatric: 5 mg/kg IV or IO; may repeat twice at same dose; maximum of 15 mg/kg Refractory tachyarrythmias: 150mg iv bolus over 10 mins followed by Infusion : 1mg/min for 6 hrs 0.5mg/min for 18hrs	• Ventricular tachycardia. • Ventricular fibrillation refractory to defibrillation; second-line after epinephrine. Atrial fibrillation /flutter and other supraventricular tachycardias.	• Prolonged QT interval. • Second degree AV block • Complete AV block. • Hepatotoxicity Porphyria	• Bradycardia Hypotension	

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Lidocaine	• **Antiarrhythmic class 1b, weak sodium channel blocker** Delays spontaneous phase 4 depolarisation.	Onset :IV– 45-90secs (bolus) Duration – 10 - 20 min (IV bolus) **Context sensitivity time (after 3days infusion) – 20 – 40 min** Elimination half life – 1.5 -2hrs	**Adult:** 1-1.5mg/kg initial dose IV **Repeat doses**: 0.5-0.75mg/kg IV with total maximum loading dose of 5mg/kg. **Pediatric Dose:** Give 1mg/kg IV bolus. **Local anaesthetic toxic dose:** 5mg/kg 7mg/kg (with adrenaline) **Suppress pressor response**: 1.5mg/kg (30-60 secs before intubation)	• **Monomorphic VT** • **Refractory Ventricular fibrillation (VF)** • **Pulseless ventricular tachycardia (pVT)** • **Prevention of intubation response** • **Stress response**	• **Wolff-Parkinson-White Syndrome** • **II degree or III degree Heart Block** • **Adams Stokes Syndrome**	**Local anesthestic systemic toxicity**	• **Atrial arrhythmias** **Respiratory Depression**

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Atropine	• Anticholinergic(muscarinic antagonist) • Blocks the neurotransmitte r acetylcholine in the central and peripheral nervous systems through competitive inhibition	Onset: IV - < 30 secs Duration : 30 min	**Adult :** **Bradycardia:** 0.5mg IV/IO. Repeat every 3 to 5 minutes with a maximum dose of 3mg. **Neuromuscular blockade reversal:** IV: 25-30 mcg/kg 30-60 seconds before neostigmine **vagolytic dose:** 2-3mg	• Symptomatic Bradycardia • II degree Heart block Mobitz type 1 / III degree heart block (in presence of AV Node escape rhythm) OPC Poisoning	• Acute MI • Tachycardia • Post Heart Transplant Glaucoma	• Central cholinergic syndrome. Reflex bradycardia when given in lower doses	• Use cautiously in myocardial ischemia because it increases myocardial oxygen demand. Not effective for Hypothermic Bradycardia

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Magnesium (MgSO4 1 gram = 4 mmol, 8 mEq, or 98 mg of elemental magnesium)	• Non competitive NMDA antagonism. • Ca ++ antagonist and blunts the release of catecholamines Effects : • Potentiates Non depolarizing muscle relaxants • Tocolytis (calcium antagonism) • Preeclampsia Neuroprotective in cerebral palsy	Onset - IV immediate IM - 1hr Duration : IV - 30 min IM- 3 -4 hrs	**Adult :** **With a pulse:** 1-2g slow IV/IO infusion over 5-60 minutes, followed with a maintenance infusion of 0.5-1g/hr. (Magnesium should be diluted in 50-100ml of D_5W.) **Cardiac arrest:** 1-2gm slow IV/IO infusion over 5-20 minutes. (Magnesium should be diluted in 50-100ml of D_5W.) In instances of severe renal impairment do not give more than 20g in 48 hours. **Pediatric :** Give 25-50mg/kg IV/IO over 15-30 minutes with a max dose of 2g. (Magnesium should be diluted in 10mg/ml of D_5W.) Therapeutic range is a serum level of 4-7 mEq/L.	• Torsades de pointes during cardiac arrest • Atrial fibrillation • Hypomagnesemia • Digitalis Toxicity • Asthma attacks resilient to first line therapy • Preeclampsia • Obtund pressor response during intubation • Postoperative analgesia • Preterm labour • Shivering	• Hypermagnesemia • Hypocalcemia • Neuromuscular disorders such as myasthenia gravis or Eaton-Lambert syndrome	• Magnesium intoxication- Hypotension, CNS depression • Respiratory paralysis	• Monitor renal function, blood pressure, respiratory rate, and deep tendon reflex when magnesium sulfate is administered parenterally. • Attenuates Hypoxic Pulmonary Vasoconstriction • Crosses the placenta and cause neonatal hypotonia and neonatal depression in severe magnesemia.

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Adenosine	• Prolongs AV node conduction, by inhibiting L-type calcium channels in cardiac tissue, nodes • Antagonizes cAMP mediated norepinephrine stimulation of ventricular muscle. Pharmacological stress during nuclear stress tests	Onset: IV – 20-30 Secs Elimination half life is 10secs	Adults : 6mg-12mg-12mg 1st dose 6mg IV/IO over 1-3 seconds, immediately followed by 20ml of NS by rapid IV/IO. 2nd dose: if the patient still has an SVT rhythm 1-2 minutes later give 12mg IV/IO over 1-3 seconds, immediately followed by 20ml of NS by rapid IVP/IO. Followed by an additional 12 mg IV fast bolus 1-2 minutes Stress test: 0.14 mg/kg/min for 5-6 minutes.	• Paroxysmal SVT Stable narrow complex SVT/ Monomorphic VT	• Polymorphic wide complex Tachycardia • Unstable VT II or III degree Heart block	• Brief period of Asystole or Bradycardia. • Ventricular ectopy • Transient AV block Flushing, headache, dyspnea, bronchospasm	• Bronchial Asthma • Lower dose of 3mg for patients receiving carbamazepine,dipyridamole • CNS - Low-dose adenosine induces neuropathic pain, hyperalgesia, and ischaemic pain.

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Dopamine (Endogenous catecholamine)	• Beta adrenergic and dopaminergic agent • $D_1 = D_2 >> \beta >> \alpha$ • Positive chronotropic and inotropic effects on myocardium • D1 – diuresis (<5 mcg/kg/min) • Alpha and beta – 5-10mcg/kg/min Alpha - >15mcg/kg/min	IV – 2-4 mins Duration -10 min Elimination half life – 2min	**Infusion dose**: 5 to 20µg/kg/min IV/IO	• Second line drug for Symptomatic Bradycardia (after atropine) Severe Hypotension	NIL	• Sinus tachycardia • Arrythmias • Euthyroid sick syndrome(inhibition of thyrotropin releasing hormone)	• Correct Hypovolemia before initiating Dopamine • Caution in cardiogenic shock with CHF • Inactivated by alkaline solutions • Patients on MAOIs

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Nor adrenaline (Endogenous catecholamine)	• $\alpha_1 = \alpha_2$; $\beta_1 >> \beta 2$ • Arterial and venous vasoconstriction	Onset :1-2 min Duration : Elimination half life - 2 min	Infusion dose : 0.01–3 mcg/kg/min	• Cardiogenic , anaphylactic, and septic shock	NIL	• Bradycardia • Tissue Hypoxia &Ischaemic injury	Extravasation through peripheral veins
Dobutamine Synthetic catecholamine)	• Racemic mixture(50% (+) and 50% (-) • $\beta_1 > \beta_2 >>>> \alpha$ • (-) isomer is $\alpha 1 >> \beta 1$ and $\beta 2$ • (+) is competitive antagonist at $\alpha 1$, potent $\beta 1$ and $\beta 2$ agonist Positive inotropic agent	Onset :IV – 1-2 min Peak – 10 min Duration : Elimination half life - 2 min	Infusion dose : 5-15mcg/kg/min	• Resting cardiac stress test Heart failure		• Tachyarrythmias • Prolonged infusion - Eosinophilic myocarditis • Peripheral eosinophilia	Extravasation through peripheral veins.

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Midazolam	• Facilitates GABA • increased frequency of chloride channel opening, hyperpolarization Imidazole ring is open in acidic solutions , ionized and hydrophilic. In physiologic pH, ring is closed , nonionised and lipophilic	Onset IV – Immediate (peak effect – 3-5min) IM – 3-5min Oral -5-15 min Nasal – 3-5 min Rectal – 5-10 min Duration : Elimination half life - IV - 3hrs IM – 4.2hrs	0.05- 0.15mg/kg IV 0.1-2 mg/kg IM 0.25-0.75 mg/kg oral 0.1-0.2 mg/kg nasal 0.75 -1 mg/kg rectal	• Sedation for cardioversion • Premedication - Anxiolysis and amnesia; • Emergence delirium; • Withdrawal of abuse drugs • Anticonvulsant • PONV • Antipruritic	Situational	Respiratory depression	• Ceiling effect • Cytochrome P450 inhibition prolongs the duration Pregnancy – category D – floppy baby syndrome

57

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Fentanyl	• Lipophilic Opioid Agonist. binds mu opioid receptor, , G protein coupling regulates adenylatecyclase, reducing concentrations of cAMP.	Onset IV – 2-5- min IM – 10- 15 min Duration : 1-2 Hrs Context sensitivity half time (4hr infusion) ~ 260 min Elimination half life:7- 12 hrs	**IV induction dose** :1.5- 3 mcg/kg **Epidural** 50–100 mcg; **Spinal** 10–25 mcg **Infusion dose**: 1-2 mcg /kg/hr infusion 75-150mcg per hr. PCA – 10mcg IV with 5-10mins lockout time with basal rate< 50mcg/hr with demand dose of 20mcg. Maximum dose in 4 hrs 300mcg	• Intra and post operative analgesia • Adjunct in regional anesthesia • Sedation		• Respiratory depression • Chest wall rigidity (the 'wooden chest' phenomenon)	
Morphine	• Agonist at mu and kappa opioid receptor. • Hydrophilic opioid	**Onset** : IV IM Duration :4 – 5 hrs (iv) Context sensitivity half life: Elimination half life: 2-3 hrs	IV – 0.05 – 0.1 mg/kg IM – 0.1-0.2mg/kg Sublingual – 0.2 – 0.4mg Q8H	• Premedication • Analgesic • Left ventricular failure • Pulmonary edema	• hepatic failure	• nausea vomiting , constipation • histamine release - pruritus • delayed respiratory depression • miosis • urinary retention	• Hypopituarism • Hypothyroidism • Bronchial asthma

REGISTRAR
SRI BALAJI VIDYAPEETH
(U/S 3 OF UGC ACT, 1956)
'A' Grade

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Diltiazem	• Nondihydropyridine Calcium channel blockers(class IV Antiarrythmic) • Slows AV node conduction and increase AV Node refractoriness • Potent peripheral and coronary vasodilator • negative inotrope	Onset :IV – 3min Duration : 1-10 hr Elimination half life:3-9hrs	For paroxysmal svt , atrial flutter, atrial fibrillation: Initial Dose :15- 20 mg (0.25mg/kg) IV for 2 minutes Additional dose : In 15 minutes 20-25mg iv over 2 mins Maintenance dose :5-10mg/hr IV infusion not more than 15 mg/hrupto 24hrs	• Refractory reentry SVT in patients with narrow QRS complex & adequate BP • Atrial flutter • A .fibrillation • Angina pectoris • Hypertension • Migraine prophylaxis	• Hypotension (systolic BP < 90mmhg) • WPW syndrome • Sick sinus syndrome except in patients with functioning ventricular pacemaker. • AV Block without pacemaker • Prinzmetal's angina • COPD • CHF	• Headache • Hypotension • Dizziness • Bradycardia	• Patients receiving oral Beta Blockers

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Verapamil	• Nondihydropyridine L - TYPE Calcium channel blockers(class IV Antiarrythmic agent) • Suppresses SA node and ventricular automaticity • prolongation of AV nodal ERP	Onset IV – 1-5min Duration : 1-6 hr Elimination half life : 6-12 hrs	Initial Dose 2.5-5 mg IV for 2 min: Repeat as 5 -10 mg every 15- 30 mins / total dose of 20 to 30 mg	• Control ventricular rate in Atrial fibrillation or atrial flutter • PSVT • Hypertension • Angina	• Broad QRS complex • WPW • Ventricular tachycardia • Post MI • Partial Heart block • Sick Sinus Syndrome	• Symptomatic Hypotension • Sinus Bradycardia • Cardiac arrest • A-V block • Non obstructive Paralytic Ileus	
Digoxin	• Cardiac Glycoside with positive inotropic effects by intracellular calcium accumulation. • Binds to Na+ /K + ATPase channel in cardiac myocytes,decreasing its function. • slows Av node conduction	Onset IV– 5-30min Slow onset Peak effect – 1.5 – 4hrs Duration : 2-4 days Elimination half life: 36 hrs	Total Loading Dose: 8 – 12 mcg/kg; half should be administered initially over 5 mins; remaining portion as 25% fractions at 4-8 hr intervals.	• Ventricular rate control in Atrial fibrillation & Atrial flutter • Alternative drug for Reentry SVT. • Mild to moderate CHF	• Hypokalemia • Renal & Hepatic Disease • Thyrotoxicosis • VT • WPW Syndrome	• Pulsusbigemini • Ventricular Extrasystoles • VT, VF • Cardiac toxicity • AV Block • Nausea • Vomiting	• With amiodarone; decrease the digoxin dose to 50% • Avoid electrical cardioversion unless it is life threatening . give low energy shock (10 -20 J)

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Metoprolol Esmolol Propranalol Labetolol	• Metoprolol and esmolol -Selective Beta 1 receptor blocker • Propranalol – beta 1 and beta 2 • Labetolol – Beta Blocker with Alpha blocking activity	Onset:Metoprolol-Immediate (iv) Elimination half life -: 3-4 hrs Esmolol- 90 seconds (rapid onset) Elimination half life – 2 min Propranalol – 2-10 min(iv) Duration : 5min	**Metoprolol**- 1-15mg iv over 5mins **Esmolol**- 50 – 300mcg/kg/min **Propranolol** – 0.5-1 mg to max 3 mg **Labetolol – 10 to 20 mg IV** over 2mins (double the dose maximum – **80mg/dose)** **Total maximum dose – 300 mg**	• Angina • Hypertension • To control heart rate	• Heart block • Sick sinus syndrome • Bradycardia • Cardiogenic Shock • Bronchial Asthma	• dizziness, tired feeling • depression • Confusion • memory problems • nightmares • trouble sleeping • diarrhea	

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Calcium	• Calcium gluconate (10%) 1gm containing 4.65 mEq has elemental calcium of 93mg • Calcium Chloride 1g containing 13.6 mEq has elemental calcium of 273 mg	Onset: IV - immediate Duration : 30 min - 2 hr for 1gm.	**CARDIAC ARREST due to hyperkalemia:** 1- 3 gm iv over 2-5 mins **HYPOCALCEMIA: Mild** (ionized calcium: 4 to 5 mg/dL [1 to 1.2 mmol/L]): 1 to 2 g over 2 hours; asymptomatic patients may be given oral calcium **Moderate to severe** (without seizure or tetany; ionized calcium: <4 mg/dL [<1 mmol/L]): 4 g over 4 hours **Severe symptomatic** (eg, seizure, tetany): 1 to 2 g over 10 minutes; repeat every 60 minutes until symptoms resolves	• Cardiac arrest due to hyperkalemia. • Hyperkalemia treatment • Hypotension treatment • Magnesium toxicity in preeclampsia or eclampsia	• Hypercalcemia • Ceftriaxone	• Bradycardia • Hypotension • Constipation • Extravasation necrosis • Hyperphosphatemia • Hypokalemia • Hypomagnesemia	

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Sodium bicarbonate (8.4% = 84mg/ml)	1ml =1 mEq 1g of NaHCO3 provides ~12 mEq each of sodium and bicarbonate ions	Onset IV – 15 min	Cardiac arrest due to metabolic acidosis : IV: Initial: 1 mEq/kg/dose; repeat doses should be guided by arterial blood gases HCO3-(mmol) = 0.3 x weight (kg) x base deficit(mmol/l) Administer 1/2 dose initially over 30 mins to 1 hr, then remaining 1/2 dose over the next 24 hours; monitor pH, serum HCO3-, and clinical status	• Cardiac arrest • Severe Metabolic acidosis (PH < 7.15 and HCO3 < 10 mEq) • Hyperkalemia • Renal tubular acidosis • Overdose of TCA.	• Gastrointestinal loss (severe vomiting) and patients on diuretics - risk of hypochloremic alkalosis	• Hypernatremia • Hyperosmolarity • severe pulmonary edema • hypocalcemia • gastric distension • intracranial acidosis • rebound alkalosis	• rapid IV injection may cause intracranial bleed • elderly • CHF • Cirrhosis • Edema • Heart failure • Peptic ulcer disease • Renal impairment

DRUG NAME	MOA and effects	ONSET and DURATION	DOSAGE & ROUTE OF ADMINISTRATION	INDICATIONS	CONTRAINDICATIONS	SIDE EFFECTS	PRECAUTIONS
Potassium chloride	• Availability - 150mg/ml • 10ml - 20 mEq of K+ and Cl • 10 mEq of potassium chloride increases serum potassium by 0.1mEq/L	Variable	Serum potassium >2.5 to 3.5 mEq/L: 10 mEq/hour; (peripheral line) maximum 24-hour dose:200 mEq Serum potassium <2.5 mEq/L or symptomatic hypokalemia: (central line only): 40 mEq/hour; up to 400 mEq/24 hours.	• Hypokalemia	• Hyperkalemia • Ckd on renal replacement therapy • hypersensitivity	• Asystole • Hyperkalemia • Abdominal pain • Abdominal distress • Dyspnea	• Cardiovascular disease • Hepatic impairment • Renal impairment • Thrombophlebitis

This document is attested from pages 1 – 22

ADVANCED CARDIAC LIFE SUPPORT

ACLS Provider

ADVANCED MEDICAL CERTIFICATION™

This card certifies that the individual listed above has successfully completed the evaluations in accordance with the curriculum of Advanced Medical Certifications (AMC) Advanced Cardiac Life Support (ACLS) program, based on the latest AHA Standards and Guidelines.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Issue Date **Recommended Renewal Date**

SAMPLE CERTIFICATE FOR BASIC LIFE SUPPORT COURSE

B A S I C L I F E S U P P O R T

BLS Provider

American Heart Association.

has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Basic Life Support (CPR and AED) Program.

Date Completed
13 Jan 2020

Expiration Date
Jan 2022

Training Center Name

Instructor Name
. Dr. Arulmozhi

Training Center ID
ZZ21037

Instructor ID
12180739310

Training Center City, Country

eCard Code
A40B0B235188

Training Site Name

QR Code

To view or verify authenticity, students and employers should scan this QR code with their mobile device or go to www.cprverify.org

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Grade
07 402.

SAMPLE CERTIFICATE FOR BASIC LIFE SUPPORT COURSE

BASIC LIFE SUPPORT

BLS Provider

American Heart Association

The above individual has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Basic Life Support (CPR and AED) Program.

Date Completed	Expiration Date	eCard Code
13 Jan 2020	Jan 2022	A40B0B235188

To view or verify authenticity, students and employers should scan this QR code with their mobile dev ce or go to www.cprverify.org

BASIC LIFE SUPPORT

Training Center Name	
Training Center ID	ZZ21037
Training Center City, Country	Pondicherry, INDIA
Training Site Name	
Instructor Name	Dr Arulmozhi
Instructor ID	

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

Enrolled list of students for Certificate Course in American Heart Association accredited ACLS & BLS for the year 2015-2016

Description:	BLS IGIDS CRRI 03 Aug 2015
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	3 Aug 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	16
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr.Kanagarajan
Additional Instructor 1:	Deepa J
Additional Instructor 2:	M F Kingsle Kishore Coumar
Additional Instructor 3:	Dr. V R Hemanth Kumar

#	Certificate Number	Student	Status	Student Name
1	43a0fdbe9280		passed	Dr. Krishna Gopalan K
2	5a2f4e8047bb		passed	Dr. Priyanka S
3	6d780e87fad8		passed	Dr. R Priya
4	b1fa4f10f33e		passed	Dr. S Raasheeda Farveen
5	bf17249868a6		passed	Dr. Saptadeepa Bhattacharjee
6	b0ab0aa06bc8		passed	Dr. Saney Saju
7	6f3062a8f83f		passed	Dr. B Sarguna
8	be14b09de7a8		passed	Dr. Saru Sasi
9	aacbd512c7aa		passed	Dr. Sindhiya M
10	68321dc7910a		passed	Dr. Sunya Gyati
11	cbd425e5dcb7		passed	Dr. Suriya M
12	0cf53ef693ab		passed	Dr. Tamil Murali Krishnan K
13	1dda1122eeef		passed	Dr. Tasso Rija
14	53f6b0c70d1f		passed	Dr. K Thabasam
15	ab5c0fe5e5fb		passed	Dr. S Vijayalakshmi
16	c589c4989b06		passed	Dr. K Vijaya Manohari

(Downloaded from the official AHA website through the Institution's Login. The Hard Copy of the attendance is not maintained for more than year as per the AHA Rule)

SRI BALAJI VI PEETH
(Deemed University ACT, 1956)
A' Grade
-607 402.

Description:	BLS IGIDS CRRI 05 Aug 2015
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	5 Aug 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	16
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. V R Hemanth Kumar
Additional Instructor 1:	Dr. N. Mugunthan
Additional Instructor 2:	M F Kingsle Kishore Coumar

#	Certificate Number	Student	Status	Student Name
1	db219e8922b2		passed	Dr. Jawahar Raman L
2	e55da3b3d836		passed	Dr. J Jayapriya
3	4561568fe179		passed	Dr. Karthika D
4	94616b1e24b0		passed	Dr. Krishna Priya B
5	9552b7e96d7f		passed	Dr. Lavanya Anbalagan
6	1fbcbbc2fd11		passed	Dr. Lincy Stephen Joseph
7	3bb510e34550		passed	Dr. Manjula M
8	e9af32d135ed		passed	Dr. Meena Kumari C
9	7d20041d01f5		passed	Dr. Narmatha R
10	c7351f32182f		passed	Dr. Nehagani A
11	bd068b6ad083		passed	Dr. Niveditha M
12	9fb17df71015		passed	Dr. Pallavi Ammu Thomas
13	a8c3ea47083e		passed	Dr. Pooja J K
14	4ad0689c7b5a		passed	Dr. S Prasanna Eswar Sai
15	c6fdb927510e		passed	Dr. Priyadharshini S
16	3a266708130f		passed	Dr. Sushmitha S

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed U... of UGC ACT, 1956)
Ac... Grade

Description:	BLS 7 Aug 2015
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	7 Aug 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	15
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr Sobana R.
Additional Instructor 1:	M F Kingsle Kishore Coumar

#	Certificate Number	Student	Status	Student Name
1	31163d1efe21		passed	Dr. S Abirami
2	43280d7d4737		passed	Dr. Aishwarya B
3	c5aa7268a85a		passed	Dr. Angel Jemimah K
4	74639c4bf885		passed	Dr. Anija R
5	17450d51c60d		passed	Dr. Anjana Ann Sabu
6	f7c6527d67fd		passed	Dr. Ann Sara George
7	1f84a6724f34		passed	Dr. N Bakya Lakshmi
8	20aa1a4976f0		passed	Dr. Beena S
9	3c1dbfc0b974		passed	Dr. B Dharani
10	cd1ea37cd2e5		passed	Dr. S Dhivya
11	79b7c24ba580		passed	Dr. S Elavarasi
12	878e932a70dd		passed	Dr. Greeshma Yarlagadda
13	4ab98e9a48b1		passed	Dr. S Harsha
14	6d4ef404c212		passed	Mr. C Prabhakaran
15	6bd0142f9add		passed	Dr. S Vishvaja

REGISTRAR
SRI BALAJI VIDYAPEETH
(D... u/s 3 of UGC ACT, 1956)
...AC with 'A' Grade
...erry - 607 402.

Description:	ACLS 8-9 Aug 2015
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	8 Aug 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	4
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr.Kanagarajan
Additional Instructor 1:	Dr. Thiriloga Sundary M
Additional Instructor 2:	Dr. Arunprasath P

#	Certificate Number	Student	Status	Student Name
1	8757dc82585e		passed	Dr. D Dharani
2	a506797bbbf4		passed	Dr. S Ezhilarasi
3	f85192df7dbb		passed	Dr. Greeshma Yarlagadda
4	46d37b662965		passed	Dr. V Sinduja

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	BLS
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	28 Aug 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	8
Primary Instructor:	M F Kingsle Kishore Coumar
Secondary Instructor:	Anand Monickam
Additional Instructor 1:	Dr. V R Hemanth Kumar
Additional Instructor 2:	Dr. Arunprasath P

#	Certificate Number	Student	Status	Student Name
1	c5991364bb3c		passed	Dr. Aysha Hasna P M
2	0d7ffe23ec75		passed	Ms. K Baby Carolin
3	5d95fb70167a		passed	Ms. I Jeyaseeli
4	72bc93f55709		passed	Ms. S Kamakshi
5	74a3bcdbeb75		passed	Ms. Karthika A
6	da832ee5a309		passed	Ms. Kavitha T
7	2010ff931d2e		passed	Ms. Maheswari R
8	38a0f3b22e6b		passed	Ms. Uma M

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	BLS for KGNC 3rd Batch
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	9 Sep 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	18
Primary Instructor:	Dr. N. Mugunthan
Secondary Instructor:	Anand Monickam
Additional Instructor 1:	M F Kingsle Kishore Coumar
Additional Instructor 2:	Dr Sobana R.
Additional Instructor 3:	Dr. Siva Ranganathan Green

#	Certificate Number	Student	Status	Student Name
1	6b44427b77e5		passed	Ms. Arpudarani Viviane S
2	708cb260a2fd		passed	Ms. B Divyabarathy
3	22623fc1a95e		passed	Ms. S Divya
4	fcf160318db4		passed	Ms. G Dhivya
5	476709e815e1		passed	Ms. R Kayalvizhi
6	12471822c46d		passed	Ms. K Lavanya
7	d520d0d5b2c7		passed	Mr. Parthip K
8	098285296fac		passed	Ms. B Pavithra
9	e7551641ec60		passed	Ms. S Piraiseela
10	8cdd09c9f3e5		passed	Ms. A Priyadarshini
11	f622d42dcf8d		passed	Ms. V Ramya
12	1f8142dec180		passed	Ms. M Sharmila
13	64da9d63df2f		passed	Ms. Sharmila P
14	e51097c5eaf6		passed	Ms. Sindhu V
15	c32a0299b060		passed	Ms. D Sivapriya
16	1c64c4679e72		passed	Ms. G Sivaranjini
17	f4de2db750d3		passed	Ms. M Thiwiabharathi
18	fca94b37b897		passed	Ms. Viveka A

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	BLS KGNC nurses
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	23 Oct 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	11
Primary Instructor:	Anand Monickam
Secondary Instructor:	M F Kingsle Kishore Coumar
Additional Instructor 1:	Dr. Jaya V
Additional Instructor 2:	Dr. Thiriloga Sundary M

#	Certificate Number	Student	Status	Student Name
1	874d3c585226		passed	Ms. N Anandhi
2	9fa053d8030d		passed	Ms. N Girija
3	a2e4754d605a		passed	Ms. Penasir Begum M
4	d6b320027bc1		passed	Ms. S Sasipriya
5	edf9e7e6d618		passed	Ms. Sathiya Kala L
6	f7733a46b8f3		passed	Mr. Senthil Kumar D
7	47df511e6eea		passed	Ms. A Shyamala Devi
8	b67a38633e0d		passed	Ms. L Suchithra
9	c0765b2ad116		passed	Ms. N Thenmozhi
10	23a2c4e799f0		passed	Ms. C Valli
11	86779dc588a9		passed	Ms. S Vasuki

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	ACLS Instructor Renewal
Course:	ACLS: Advanced Cardiovascular Life Support - Instructor Course (English)
Course Start Date:	28 Nov 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	4
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. V R Hemanth Kumar

#	Certificate Number	Student	Status	Student Name
1	ae9755f9d01b	Dr. Siva Ranganathan Green <sivagreen@yahoo.com>	passed	Dr. Hemanth Kumar V R
2	e4f93e75463b		passed	Dr. Kanagarajan P
3	5bbed59e3e83		passed	Dr. Mugunthan N
4	a43e6b3017e0		passed	Dr. Sameer M Jahagirdar

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	BLS Instructor Renewal
Course:	BLS: BLS for Healthcare Providers - Instructor Course (English)
Course Start Date:	25 Nov 2015
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	5
Primary Instructor:	Anand Monickam

#	Certificate Number	Student	Status	Student Name
1	ce906ff15d0c		passed	Dr. Abu Backer S
2	1376cca650d6		passed	Dr. V R Hemanth Kumar
3	60a25a72267d		passed	Dr. Kanagarajan P
4	8ac1cefaa62f		passed	Dr. N Mugunthan
5	5cdac26382af		passed	Dr. Sameer Mahamud Jahagirdar

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	ACLS 9-10 Jan 2016 Final Year PGs
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	9 Jan 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	18
Primary Instructor:	Dr. V R Hemanth Kumar
Secondary Instructor:	Anand Monickam
Additional Instructor 1:	Dr. Rani P
Additional Instructor 2:	Dr. Sripriya R
Additional Instructor 3:	Dr. Jaya V

#	Certificate Number	Student	Status	Student Name
1	0c0feddd1c57		passed	Dr. Ajay B Mosur
2	9367c40ea31b		passed	Dr. Anuja Anna Varghese
3	c568356989b9		passed	Dr. Aravind Raj S
4	75d73e46253f		passed	Dr. Balasubramanian Anusha
5	2b502d6432e4		passed	Dr. Behanan Santhosh
6	ad98b3b1ba01		passed	Dr. Haripriya R
7	b77893323891		passed	Dr. K L Janaki
8	62cd55364af5		passed	Dr. P Maharaja
9	9e2e0720745f		passed	Dr. Mekala Ranjith Kumar
10	c3201595d36e		passed	Dr. A S Mughilan
11	88c334ba9adf		passed	Dr. Murugan A
12	2b22998f8a90		passed	Dr. M Raghavendra Surya Prakash
13	e59842d57d8e		passed	Dr. U Rajswaroob
14	a91c84f48065		passed	Dr. Sandra Eli a Mathew
15	319c7f305efc		passed	Dr. Sivam Sundar E

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

#	Certificate Number	Student	Status	Student Name
16	c56df559c543		passed	Dr. Srinivasan R
17	387cd8b47d84		passed	Dr. K S Venkata Prasanna
18	8807d77a9dee		passed	Dr. Vivek J

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	ACLS 12-13 Jan 2016 _ Final Year PGs
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	12 Jan 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	18
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr Sobana R.
Additional Instructor 1:	Dr. Dewan Roshan Singh
Additional Instructor 2:	Dr. Gayatri Mishra

#	Certificate Number	Student	Status	Student Name
1	d56790409801		passed	Dr. Amit Kumar Routh
2	5ae1e71a5b31		passed	Dr. Anjay B
3	5df7505f6675		passed	Dr. S Ayswarya
4	9ce367573c8e		passed	Dr. Banipreet Kaur
5	171960e43126		passed	Dr. S Dhanapriya
6	081cf1e023d7		passed	Dr. Dimpu Gangmei
7	b361f71a2e8d		passed	Dr. Jim Litton J
8	e9f0a2dacf43		passed	Dr. P Madhusudhanan
9	c481b096f49c		passed	Dr. Manu Jose
10	2c4b4865ed3d		passed	Dr. Muhammed Nabeel Latheef
11	85bbccc1f918		passed	Dr. A Prabhakaran
12	f172c21fb627		passed	Dr. S Puvi
13	e6cdf8aeff9c		passed	Dr. Ramiya Ramachandran Kaipuzha
14	7362b8363e07		passed	Dr. M Roshan Kumar
15	350428c2410f		passed	Dr. Ruby Babu
16	2b03e33c331b		passed	Dr. Sabarirajan
17	34d8fb33cec1		passed	Dr. Saloni Arora

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

#	Certificate Number	Student	Status	Student Name
18	6ba217d907ff		passed	Dr. M D Varunn

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

Description:	ACLS 25-26 Feb 2016
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	25 Feb 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	9
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. N. Mugunthan
Additional Instructor 1:	Dr. Dewan Roshan Singh
Additional Instructor 2:	Dr. Gayatri Mishra
Additional Instructor 3:	Dr. Arunprasath P

#	Certificate Number	Student	Status	Student Name
1	4791ba45a351		passed	Dr. A Abinaya
2	9f093acedf42		passed	Dr. R Divyalakshmi
3	415cfde9ace7		passed	Dr. K Jeyapakya
4	579994c01891		passed	Dr. J Padmapriya
5	bc209955039a		passed	Dr. E Prahathi
6	d5980e9e2171		passed	Dr. T Ramya
7	ac7a0f952fc3		passed	Dr. R Sangavi
8	5ac4f90c806c		passed	Dr. Sheetal Kapse
9	d3d2474cf043		passed	Dr. Timon Pricilla K C

Description:	BLS 25 Feb 2016 - AOMSI
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	25 Feb 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	11
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. N. Mugunthan
Additional Instructor 1:	Dr. Dewan Roshan Singh
Additional Instructor 2:	Dr. Gayatri Mishra
Additional Instructor 3:	Dr. Arunprasath P

#	Certificate Number	Student	Status	Student Name
1	ffd7187d5931		passed	Dr. A Abinaya
2	24642ede46de		passed	Dr. J Divya
3	2e3b31630f99		passed	Dr. R Divyalakshmi
4	fe5e1110952b		passed	Dr. K Jeyapakya
5	f598e15b4ec8		passed	Ms. V Mano Priya
6	9ada6ebff9e7		passed	Dr. J Padmapriya
7	30a72f8739f7		passed	Dr. E Prahathi
8	dd5da9e556fe		passed	Dr. Sheetal Kapse
9	c0ef538204fd		passed	Dr. Sneha Agarwal
10	0db632a629de		passed	Dr. S S Suvetha Sri
11	c4d464248346		passed	Dr. Timon Pricilla K C

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

Description:	ACLS 19-20 Mar 2016 - PGs & CRRIs
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	19 Mar 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	11
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. Sameera M Jahagirdar
Additional Instructor 1:	Dr. Gayatri Mishra
Additional Instructor 2:	Dr. Siva Ranganathan Green
Additional Instructor 3:	Dr. Thiriloga Sundary M

#	Certificate Number	Student	Status	Student Name
1	655826d6d97d		passed	Dr. Karthik P
2	e3d24ea1942f		passed	Dr. V Kiruthika
3	82e18ac824ab	DR.S.MANJULA SHRI <manjulashri.subramaniam@gmail.com>	passed	Dr. Manjula Shri
4	68cbd24121d4		passed	Dr. Mohit Vashishta
5	170a1e02c61c		passed	Dr. Prasannapriya K
6	d802e3db870a		passed	Dr. M Rajeshwari
7	2afdae2b03a3		passed	Dr. Revathy Pasupathi
8	d3b139b848b5		passed	Dr. Sakthiniresh S
9	971f7e976612		passed	Dr. R Thangam
10	ba69d03c30ae		passed	Dr. G Vijay
11	dca832aa9d1a		passed	Dr. Vijayalakshmi Sivapurapu

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

Description:	BLS 23 May 2016 CRRIs
Course:	BLS: BLS for Healthcare Providers Course (English)
Course Start Date:	23 May 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	14
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr Sobana R.
Additional Instructor 1:	Deepa J
Additional Instructor 2:	M F Kingsle Kishore Coumar
Additional Instructor 3:	Dr. Thiriloga Sundary M

#	Certificate Number	Student	Status	Student Name
1	abf40fbdf850		passed	Dr. Anu Shantha Priya P
2	daf60eeb8e07		passed	Dr. Charisma Grace Varghese
3	6fef7f785dd5		passed	Dr. Hameyoo Phawa
4	910d1e49674d		passed	Dr. Isswariya Dhevi J
5	d527d8c265af		passed	Dr. Javid Ansari M
6	8ef63631cd99		passed	Dr. M Karthik
7	7df8a99cf05e		passed	Dr. Miti Darang
8	89c28adafbdb		passed	Dr. Mohammed Fazil Ali A
9	647020cc335c		passed	Dr. Premnath R
10	b3762c43fa33		passed	Dr. T Sai Santhoshini
11	c7d4e68eb1c9		passed	Dr. V Sarva Priya
12	136b52945eff		passed	Dr. P Sasirega
13	b771ff54796c		passed	Dr. Soundarya Lehari G
14	d69289381e36		passed	Dr. Sruthy Binoy Thevarkattil

Description:	ACLS 24-25 May 2016 - CRRIs
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	24 May 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	10
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr Sobana R.
Additional Instructor 1:	Dr. Jaya V
Additional Instructor 2:	Dr. Rani P

#	Certificate Number	Student	Status	Student Name
1	073557943060		passed	Dr. Anu Shantha Priya P
2	bd11c0fff917		passed	Dr. Gautham G
3	d5849d11820d		passed	Dr. Isswariya Dhevi J
4	f246f79b5008		passed	Dr. Javid Ansari M
5	174b5719fe51		passed	Dr. Miti Darang
6	204f10419fde		passed	Dr. Mithula T
7	70954399c698		passed	Dr. Mohammed Fazil Ali A
8	e351ea202541		passed	Dr. V Sarva Priya
9	9d39467f39db		passed	Dr. P Sasirega
10	663eeb860350		passed	Dr. Soundarya Lehari G

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402

Description:	ACLS 28-29 Jun 2016
Course:	ACLS: Advanced Cardiovascular Life Support Course (English)
Course Start Date:	28 Jun 2016
ITC:	Medical Simulation Centre, MGMCRI
Training Site:	
Status:	Locked
Quantity:	9
Primary Instructor:	Anand Monickam
Secondary Instructor:	Dr. N. Mugunthan

#	Certificate Number	Student	Status	Student Name
1	665b73563808		passed	Dr. Anirban Dutta
2	a27f462961f6		passed	Dr. Charulatha R
3	c138400cf4b0		passed	Dr. M Karthik
4	9b12c9d2c004		passed	Dr. V Navya Sindhu
5	b59c814736e3		passed	Dr. Paashupat Bhanuda
6	18ebe150ba31		passed	Dr. Pandiyan R
7	54218f1d4c01		passed	Dr. Prasanna Venkatesh R
8	d7b0b6510abe		passed	Dr. Praveen R
9	349f0bf9cf26		passed	Dr. Sujaya Raghavendra

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.