Annexure "C"
Technical manual

The following equipments and their specifications for setting up in the SNCUs and NSUs have been approved by the Committee -

Schedule 1.1. - Equipment Specifications for Suction Machine/Aspirator (Mains/Battery)

1 Description of Function

1.1 To extract fluid from the body during emergency treatment

2 Operational Requirements

2.1 Shall have Crompton Greaves/American Universal/GEC Motor of minimum ¼ H.P. capacity

2.2 The machine should be portable on four wheels and handle for transportation

3 Technical Specifications

3.1 The Suction pump should be oil immersed fitted on Motor shaft

3.2 Suction pump should have line grinding internally.

3.3 To facilitate maintenance the cover of machine should be easy to open from the top & sides

3.4 The suction machine should be capable of producing minimum vacuum of 500 approx mm Hg. which should be adjustable and monitored by vacuum gauge of suitable range. The suction capacity should be 15 litres per minute and can be regulated.

3.5 It should have two bottles of 1 or 2 liters (as per requirement) with synthetic rubber lids. The bottle shall be fitted with the arrangement to prevent overflow of fluid.

3.6 ON/OFF Switch and Power indicator should be available

3.7 Body material: Base, top & panel made of rust proof and corrosion resistant molded ABS/Stainless Steel. Jar/Bottle material: Autoclavable polycarbonate.

3.8 Inbuilt maintenance free battery. Battery backup up to 60 minutes on full charge. Provided with cable for ambulance/car use.

4 System Configuration Accessories, spares and consumables

4.1 System as specified-

4.2 3 core lead of 2 meter along with one 3 pins 15 amp. Plug–01

4.3 Power cable-3 core lead of 5 meter along with one 3 pins 15 amp. Plug –01

4.4 The Following spares per machine are also required: -

(i) Bottles 2 Nos.
(ii) Lids 2 Nos.
(iii) Rubber Seals 2 Nos.
(iv) Blades 2 Nos.
(v) Suction Tubing set 1 No

5 Environmental factors

5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 - 50 deg C and relative humidity of 15-90%

5.2 The unit shall be capable of operating continuously in ambient temperature of 10 - 40 deg C and relative humidity of 15-90%

6 Power Supply

6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug

6.2 A fuse or a resettable circuit breaker of an appropriate capacity should be incorporated for protection of motor

6.3 Should work on 220-240V AC as well as batteries. Mains adaptor to be supplied

7 Standards, Safety and Training

7.1 Manufacturer/Supplier should have ISO certification for quality standards.
7.2 Comprehensive warranty for 5 years
8 Documentation
8.1 User/Technical/Maintenance manuals to be supplied in English.
8.2 Certificate of calibration and inspection.
8.3 List of important spare parts and accessories with their part number and costing

Schedule 1.2.- Portable Suction foot operated

1.1 To extract fluid from the body during emergency treatment
1.2 The suction machine should be capable of producing minimum vacuum of 500 approx mm Hg. which should be adjustable and monitored by vacuum gauge of suitable range. The suction capacity should be 10 litres per minute and can be regulated.
1.3 It should have two bottles of 01 liters with synthetic rubber lids. The bottle shall be fitted with the arrangement to prevent overflow of fluid.
1.4 Body material: Base, top & panel made of rust proof and corrosion resistant molded ABS/Stainless Steel. Jar/Bottle material: Autoclavable polycarbonate.
1.5 The Following spares per machine are also required: -
(i) Bottles 2 Nos.
(ii) Lids 2 Nos.
(iii) Rubber Seals 2 Nos.
(iv) Blades 2 Nos.
(v) Suction Tubing set 1 No
1.6 Foot operated
1.7 Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 2.1.-Equipment Specifications for Bilirubinometer:
1 Description of Function
1.1 Bilirubinometers are instruments that are simple to operate and are designed to measure the concentration of bilirubin in the blood.
2 Operational Requirements
2.1 It should be dedicated bilirubinometers that use spectrophotometric techniques to analyze whole blood, serum, or plasma samples
3 Technical Specifications
3.1 It should be Bench top point-of-care bilirubin meter.
3.2 It should directly reading photometery determining Total Bilirubine in serum / plasma.
3.3 It should have On switch and auto-off facility
3.4 It should have automatic calibration setting between measurements
3.5 It should have dual wavelength measurement: 455nm and 575nm
3.6 It should have correction for Hb at 550 nm.
3.7 It should measure sample size: 1 capillary tube with serum / plasma
3.8 It should have main light source of 5 W tungsten lamp
3.9 It should have measuring range of 0 to 700 µmol/ or 0 to 40 mg/100 ml
3.10 It should have accuracy equivalent to laboratory spectrophotometer (approx ±5%)
3.11 It should have read-out switch able between mg/100 ml of µ mol/l
3.12 It should have fast analysis time <5 sec
3.13 The unit should have large LED display readable in low light working situations, display cover durable plastic & with integrated printer (optional)

4 System Configuration Accessories, spares and consumables:

4.1 System as specified should provide Disposable cuvettes to avoid sample cross-contamination; troubleshooting codes; plain cuvette for check and calibration optional printer, standard accessories. reference solution packages, box of micro capilary tubes, inner diam 1mm, length 7mm, heparinzed , pack of sealing compound for micro capillary tubes, spare lamp, dust cover

5 Environmental factors:

5.1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive.

5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

5.3 The unit shall be capable of operating continuously in ambient temperature of 10 - 40 deg C and relative humidity of 15-90%.

6 Power Supply:

6.1 Power input to be 220-240VAC, 50Hz

6.2 Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)

7 Standards, Safety and Training:

7.1 Should be safety certified approved product

7.2 Manufactures/Supplier should have ISO certificate to Quality Standard.

7.3 Electrical safety conforms to standards for electrical safety IEC-60601 / IS- 13450

8 Documentation:

8.1 User/Technical/Maintenance manuals to be supplied in English.

8.2 Certificate of calibration and inspection.

8.3 List of important spare parts and accessories with their part number and costing.

9 Warranty

9.1 Proposal for full Warranty upto 5years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 3.1 - Digital thermometer:

Digital LCD display (atleast 31/2 Digit)
Accuracy + 2%
Skin probe

Supplied with:

List of priced spare parts
One Extra temperature probe:
Training and installation at end-user site
Proposal for full Warranty upto 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 3.2- Stethoscope, binaural, neonate

Technical Specifications:

Double cup neonatal stethoscope
Chest piece in stainless steel with non-chill plastic rim
Diaphragm approx: 20 mm

Sensitivity approx 3.0 dB from 50 to 500 Hz (cardio)

Sensitivity approx 8.0 dB from 600 Hz to 1500 Hz (pneumo)

Y tube: treated rubber with large diameter

Arms: stainless steel or chrome brass, with treated spring for lasting elasticity and comfort

Removable plastic ear-pieces

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x spare set of earpiece

1 x spare diaphram

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Proposal for full Warranty upto 1 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 3.3 – The Committee recommended that Resuscitator, hand-operated, neonate, 500ml is not required for the SNCU & NSU as Ambu bag shall be sufficient.

Schedule 3.4. - Tape, measure, vinyl-coated, 1.5m.
Technical Specifications:

Vinyl-coated fibreglass measuring tape

Metal tip finishing at both ends

Reads both in cm and inch

Length, 1.5 m / 5 ft

Minimal graduation: 0.5 cm / 0.2 inch

Width, approx: 1.3 cm

Thickness, appox: 0.36 mm

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Schedule 3.5.- Glucometer

1. Compact, fast, user friendly, with LED display.
2. Battery backup for 30 days post recharge,
3. Blood sugar reading with in 30 seconds of sampling.
4. Memory of atleast 24 hrs or last 100 readings with time details.
5. Strips to be easily available with lancet, cheap and minimal blood application.
6. should provide with price of 100 No’s Strip packed which will be freeze for financial year 2008-2009
7. Unit should conform BIS/ ISI / CE /FDA equivalent standards.

8. Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel. CMC from 3rd to 5th year.

9. Strips should be rate contracted for the financial year 2008-2009 for pack of 100 Nos.Seprarate rate shuld be qouted for same.

10. Should provide with multi-stick container for 100 Strip

Schedule 3.6.- Ambu Bag

1. Ambu bag must be autoclave
2. Bag made of silicon, latex free double layered rubber which retains sensitivity and resistant to rough use.
3. Inlet end of bag should have separate port for oxygen supplement.
4. Outer port should be such that re-breathing valve or non return valve can be attached.
5. Should be supplied with oxygen reservoir bag and deliver tidal volumes of 250/500/750/1000 ml.
6. Warranty for 1 Year
7. Complete set should be quoted

Schedule 4.1- Open care system on trolley with drawers, with radiant warmer, O2-provision

Technical Specifications:

Mobile newborn resuscitation table with fixed-height radiant warmer

Antistatic castors, 2 with breaks

Table surface with mattress with infant head/shoulder support

Mattress-padding: foam density approx. 21 - 25 kg /m³

Mattress cover: removable with zipper, waterproof, washable, resistant to cleaning with chlorine based solution and flame retardant

Side boards transparent acryl, drop down and lockable

Under table 2 storage drawers

Side rails allow for mounting of accessories

Hood suspended above the table integrates heating element and overhead light

Overhead light: 2 x 50W halogen spot, with dimming function

Integrated support for two 10 L oxygen bottles

Control unit has flow meter and displays pressure

Heating element: emitter with parabolic reflector and protected by metal grid

Control unit allows air and skin temperature preset (LED indicator) and drives radiant heater output (servo and manual)

Integrated timer: 1 to 59 min, with count-up and count-down feature

Temperature range, skin: 34 to 38°C (user pre-settable)

Monitoring of skin temperature by means of sensor, range: 30 to 42°C

Heater output: 0 to 100 % in increments of 5 %

Control unit: audiovisual alarms according to timer and temperature presets avoiding overheating

Display reports systems errors, sensor failure

Power requirement: 220 V / 50 Hz

Power consumption: 800 W

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x mattress

1 x skin temperature probe (including connection cable)

1 x spare skin temperature probe (including connection cable)

1 x spare heating element

2 x empty 10 L oxygen cylinders

1 x spare set of fuses

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Training and installation at end-user site

Proposal for full Warranty upto 5 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 4.2.- Oxygen hood, S and M, set of 3 each, including connecting tubes
Technical Specifications:

Round shape

3 x size small, approx: height 22 cm, diam 25 cm

3 x size medium, approx: height 18 cm, diam 20 cm

Made of autoclavable polycarbonate

Trauma free silicone neck, with adjustment flap

With bilateral oxygen nozzle

Oxygen tube of 2 m length must be provided with

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x spare set of tubing

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Schedule 4.3.- The Committee recommended only **Single Surface Phototherapy Unit – Tube Lights**

for both SNCUs and NSUs (in place of Neonatal Phototherapy Unit – Cfl)

1 Description of Function

1.1 Phototherapy units are used to treat hyper-bilirubinemia, a condition characterized by high bilirubin concentrations in the blood. These units are also called: bilirubin lamps, bilirubin lights, fiberoptic phototherapy blankets, neonatal phototherapy units

2 Operational Requirements

2.1 Should be Tube light based Phototherapy unit used for clinical management of neo-natal hyper-bilirubinemia

2.2 Lamp unit should be made with metallic lamp module with metallic top cover for efficient heat dissipation to reduce radiant heat on infant.

2.3 Should occupy very little bedside space, offers convenience in observation and procedures

2.4 The unit should be mobile with 3 swivel castors of 2” diameter fixed to a T-shaped base to be accommodated beneath trolley/bed with adjustable height.
The bassinet unit should be mounted on four swivel castor of four inch dia. and should be able to move independently of the top unit.

3 Technical Specifications

3.1 Dimensions
Height :- adjustable with upper limit at least going up to 1570 mm
Width :- 730 mm +10 mm
Length :- 500 + 10 mm
Bassinet unit
Height :- 1015 mm + 10 mm
Width :- 750 mm +10 mm
Length :- 525 + 10 mm
Transparent cabinet with two collapsible walls.

3.2 Irradiance at 430 – 480 nm-- effective to the baby of at least 18 mw/cm/nm at 45cm from the lamp.

3.3 Lamps: (4 Blue) tube lights of 20 watts. Each of TL 52 (Philips) or equivalent for each unit.

3.5 Time totaliser : Electronic

3.6 Therapy duration timer: Resettable

3.7 base unit approx.: 6-8 cm from the mattress unit.

3.8 Coating: Epoxy / Powder coated body for scratch and rust prevention

3.9 Ballastic chocks should be located at the base to decrease the heat and increase the stability of the unit.

4 System Configuration Accessories, spares and consumables

4.1 System as specified

4.2 All consumables required for installation and standardization of system to be given free of cost.

4.3 25 tube lights should be supplied along with each unit

4.4 Phototherapy eye pads 100 each for preterm and term babies to be provided free.

5 Environmental factors

5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

5.2 The unit shall be capable of operating continuously in ambient temperature of 10 to 40deg C and relative humidity of 15-90%

6 Power Supply

6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
7 Standards, Safety and Training
7.1 Should be FDA /CE/UL/ BIS or equivalent approved product
7.2 Manufacturer/Supplier should have ISO certification for quality standards.
7.3 Comprehensive warranty for 2 years and 5 years CMC after warranty and it includes checking flux as per specification every three months. CMC would include all electrical, electronic and mechanical items. The CMC should provide at maximum 25 blue light tubes every year per unit, if required
8 Documentations to be provided.
8.1 User/Technical/Maintenance manuals to be supplied in English.
8.2 Certificate of calibration and inspection.
8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.
8.4 List of important spare parts and accessories with their part number and costing.
8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

Schedule 4.4.- The Committee recommended that Neonatal Phototherapy Unit – Cfl is not required for
the SNCU & NSU.

Schedule 5.1.- Syringe pump, 10, 20, 50 ml, elec 220V
Technical Specifications:

Digital and self regulating volume controlled portable syringe pump
Can be mounted on standard bed/wall rail or mobile pole/stand (supplied with fixation)
Suitable for all intravenous and intra-arterial infusions
Continuous volumetric delivery with syringes 10, 20 and 50 ml
Open system, suitable for different brands of syringes
Programmable, user entry: infusion volume and time or flow rate
Rate, adjustable:0.1 to 999 ml/h, steps of 1 ml/h
Accuracy: ca 1 % of total volume delivered
With occlusion detection and alarm
Display reports systems errors, end of infusion and built-in battery status
Audio visual alarm with silencing feature for audio alarm
Automatic switch from mains to batteries in case of power failure
Power requirements: 220 V / 50 Hz or internal re-chargeable battery (autonomy approx 6 hrs, automatic recharge)
Power consumption: 50 W
Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)
Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x spare battery

1 x spare set of fuses

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Training and installation at end-user site

Proposal for full Warranty up to 5 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 6.1.- Pulse oxymeter, bedside, neonatal
Technical Specifications:

Compact portable bedside pulse oxymeter with LCD display

Continuous monitoring of SpO2 (arterial blood oxygen saturation), pulse rate and signal strength

Measuring range:

a. SpO2: 30 to 100 %, minimal graduation 1%
b. Pulse rate: 20 to 250 bpm, minimal graduation 1 bpm

Accuracy SpO2: 50 to 69% (± 3%), 70 to 100% (± 2%)

Display hows SpO2(%), HR(bpm) and signal strenght bar

Large display readable from distance, display cover durable plastic

User preset of high/low alarms on SpO2 and pulse rate monitoring

Audio visual alarm for SpO2 and pulse rate in case measurements are outside preset range

Silencing feature for audio alarm

Display reports system errors, probe failure and built-in battery status

Automatic switch from mains to batteries in case of power failure

Power requirements: 220 V / 50 Hz and internal re-chargeable battery (autonomy approx 6 hrs, automatic recharge)

Power consumption: 50 W

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

2 x reusable SpO2 sensors neonate, clip-on type (including connection cable)

10 x reusable SpO2 sensors neonate, wrap around type (including connection cable)

1 x spare rechargeable battery

1 x spare set of fuses

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Training and installation at end-user site

Proposal for full Warranty up to 5 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 7.1.- Oxygen concentrator, 230V
Technical Specifications:

Oxygen concentrator to provide oxygen from ambient air

Oxygen concentration measured at the flow meter by oxygen sensing device (OSD)

Sound level <15 dB

Superior grade of molecular sieve

Maintenance free rotary proppet valve.

Oxygen purity, approx: 90%

Oxygen output, approx: 0 - 5 LPM

Pressure, approx: 8 psi

Double outlet or flowsplitter for oxygen Delivery

Oxygen tube of 2 m length must be provided with

Facility for nebulization with tube & mask

With two humidifier bottles and two cabinet filters

Power requirements: 220 V / 50 Hz

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x spare set of tubing

1 x spare set of internal and external filters (baterial)

1 x spare set of fuses

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Training and installation at end-user site

Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel & CMC for 3rd to 5th year.

Schedule 8.1.- AIR CONDITIONER

1. The unit should be of 1.5 ton capacity
2. It should be a split AC system
3. The system should operate by a Remote control.
4. The unit should have a digital display displaying temperature
5. The supplied unit must work on 230 volts.
6. The front panel must be easily open-able to regularly clean the dust in the filters

7. The Supplied system must be from a leading Brand in the market and should have a service network in the state of Bihar
8. Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel.

Schedule 9.1.- Generator (15 kV)

Air-cooled (Axial cooled), Vertical, 4 stroke cycle, Totally enclosed, Direct Injection, Cold Starting, Naturally aspirated. Gravity feed fuel system with efficient paper element filter, Force Feed Lubrication to main and large end bearings and camshaft bush.

No. of Cylinders	4 No. of Cylinders
Aspiration	Naturally Aspirated
Bore X Stroke (mm X mm)	100 X 120
Cooling	Aircooled,
Power range	15kW
Fuel Tank Capacity	15 lit above
Starting	hand start with cranking handle., Optional 12V Electric start.

Optional: accessories Flywheel housing, V- Belt, Flexible coupling

Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel & CMC from 3rd to 5th year.

Schedule 10.1.- MICROSCOPES

Optical System:

- Infinitely corrected optics par focal, plan achromatic lenses with anti fungal properties.

Illumination:

- Built in transmitted Koehler illumination.
- 6 V, 20 to 30 W halogen bulb
- 220-240V 0.85/0.45A 50Hz

Focusing

- Stage height movement by roller guide (rock & pinion)
- Upper limit stopper
- Tension adjustable on coarse focus adjustment knob

Revolving nosepiece

- Quintuple with inward tilt

Observation tube:

- Tube inclination – 30 -45 0
- Interpupillary distance adjustment range – minimum 50 to 70 mm

Stage

- Movement range – 76 mm X - direction X 50mm Y - direction
- Rectangular scratch resistant stage with right hand control with double slide holder and vernier calipers on X Y axis.

Condenser

- Type – Abbe condenser
- N.A. – 1.2 dry type
- Aperture iris diaphragm - built – in

Objectives, Plan Achromat 4x, 10x, 20x, 40x & 100x

Minimum working distance for 100X should be 0.13 to 0.2 mm

Eyepiece

- 10X with F.N 20

All the necessary adapters and power cords should be provided for functioning of microscope.

Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel. CMC from 3rd to 5th year.

Schedule 11.1.- Centrifuge, hematocrite, bench top, up to 12000 rpm, including rotor

Technical Specifications:

Benchtop centrifuge for quick assessment of hematocrit

Rotation upto 12000 rpm, adjustable in increments of 100

Timer settable in minutes, maximum preset 99 minutes

Safety lid-lock feature and emergency lid release

Motor overheating protection and imbalance shut-off

Digital display shows rpm and time

Angle rotor, 24 positions, maximum approx 16000 rcf

Power requirements: 220 V / 50 Hz

Power consumption: 200 W

Device is produced by ISO 9001 certified manufacturer (Certificate to be submitted, further details see “Technical Provisions”)

Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted, further details see “Technical Provisions”)

Supplied with:

1 x box of micro capilary tubes, inner diam 1mm, length 7mm, heparinzed,

1 x pack of sealing compound for micro capilary tubes

1 x spare set of fuses

User manual with trouble shooting guidance, in English

Technical manual with maintenance and first line technical intervention instructions, in English

List of priced accessories

List of priced spare parts

List with name and address of technical service providers in India

Training and installation at end-user site

Proposal for full Warranty up to 2 years from date of installed properly, covering on-call technical interventions, spare parts and travel.