Notification of the Proprietary items

This Hospital proposes to procure the following items on Proprietary basis. If any bidders have any query/ clarification about the items to be procured, the same may be sent to the CMO, Medical Store (M&E), Safdarjung Hospital till 30.03.2019.

S.N	Name of Equipment (Costing less than 1.00 Crore)	Deptt.	Qty	Approx Cost (In Lakh)	Name of Manufacturer
1	EMS Lithoclast Master	Urology	1	48.00	M/s Electro Medical System
2	iDrive Ultra Powered Stapling System	Urology	2	19.00	M/s Covidien
3.	JAIMY motorized Laparscopic 5mm Needle Holder	Urology	2	36.00	M/s Endocontrol
4	Digital Flexible Ureterorenoscope (FURS) with Work Station	Urology	1	45.00	M/s Boston Scientific
5.	Combined Antineoplastic Thermotherapy Bladder Recirculation System	Urology	1	35.00	M/s Combat Medical Systems
6.	Video Laryngoscopoe alongwith flexible Intubation video endoscope(Five)	Anaesthesia	2	94.00	M/s Karol Storz Gmbh & Co. KG
7	Bonfils Intubation Endoscope	Anaesthesia	2	20.00	M/s Karl Storz
8	Non Invasive Cardiac Support Pump Integrated with Defibrillator	Anaesthesia	1	43.68	M/s Zoll Medical Corporation
9.	Minimally Invasive Cardiac Output Monitor	Anaesthesia	3	66.00	M/s Edwards Lifesciences LLC
10	ATMOS S351	CTVS	1	4.90	M/s Atmos Medizin Technik
11	Cardioblate Generator	CTVS	1	15.00	M/s Medtronic Inc
12	Graft Flow Meter for CABG	CTVS	1	12.00	M/s Hadeco Inc
13	Sphygmocor CPVH System	Physiology	1	22.42	M/s Atcor Medical
S.N	**Name of Equipment (Costing more than 1.00 Crore)**	**Department**	**Qty**	**Approx Cost (In Lakh)**	**Name of Manufacturer**
1	Robotic High Intensity Focused Ultrasound System	Urology	1	1200.00	M/s Edap Tms
2	Endo-Urological Robo Flex Furs (RIRS) System	Urology	1	600.00	M/s Elmed
3.	Automated DNA Sequencing System	Haematology	1	160.00	M/s Thermofisher Scientific

Nandlee

CMO, Medical Store(M&E)
For Medical Superintendent

1/1

General Specifications for EMS Lithoclast Master **Qty – 1 no.**

- Should have Ballistic and Ultrasound energies to be used simultaneously
- A single foot pedal to operate both or one energy
- Separate Hand pieces for Ballistic and ultrasound devices
- Separate probes for Ballistic and Ultrasound devices
- Facility to integrate both probes when using both the energies simultaneously to fragment large and Hard stones
- Should be able to use the energies independently also
- Facility to connect the unit to hospital compressed air supply
- Should be able to withstand pressures from 3.5 to 5 Bar
- Facility to connect to the hospital vacuum supply for suction of stone fragments
- Facility to collect the stone fragments
- Probes for various applications and scopes
- Ballistic probes: 0.8, 1, 1.6, 2 mm probes – 5 Nos Each
- Flexible ballistic probes for use in ureter and renal pelvis through flexible scopes
- Dual function ultrasound probes: 3.5 and 4mm probes for fragmentation and suction. Probes should have holes in the distal tip to prevent mucosal suction into the probe – 5 Nos
- Should supply the guidance adapters for the Ureteroscopes
- Hand pieces should be compatible for gas, glutaraldehyde sterilization or for autoclaving.
- Comprehensive warranty for 5 years and followed with CMC for next 5 years. CMC Rates should be quoted in the financial bid.
- Availability of spares to be ensured for minimum 10 years period.
- List of important spare parts, consumable and accessories with their part number and costing. Price of consumables, accessories to be fixed for two years from date of installation of machine.

1/1

Technical Specification for iDrive Ultra Powered Stapling System **Qty – 2nos.**

1. **Fully powered, reusable, autoclavable with rechargeable battery** staggered height endoscopic Linear Cutter handle with adapter.
2. Should have **360 degree rotation** & **0 – 45 degree unlimited articulation** on both side.
3. Universal and it should accommodate different linear cutter reloads of 30, 45 & 60 mm length in same handle.
4. Should be capable of applying all sizes of closed staple heights from 1 mm to 2.5 mm with 3rows on either side of cut line of different staple heights i.e. Vascular, Medium& Extra Thick range, on each side with facility to cut in between, extra-long length
5. Powered handle can be used for 50 procedures or 400 firings.
6. USA FDA approved

1/1

TECHNICAL SPECIFICATIONS FOR MOTORIZED SUTURING DEVICE **Qty – 2Nos.**

1) The suturing device should be fully motorized.
2) The suturing device shaft length should be not more than 5 mm in Diameter.
3) The shaft length of the device should be between 300-340 mm.
4) Total instrument length should not exceed 601 mm.
5) The needle holding jaw should have gripping mechanism for firm holding of needle and to avoid slippage.
6) The motorized suturing device should have jaw locking and unlocking mechanism for holding and releasing the suturing needle.
7) The Motorized suturing device should ratchet mechanism for locking the jaw.
8) The Motorized suturing device should have separate trigger for unlocking the Jaw.
9) The motorized Tip movement should be controlled by a Control Ring on the device .
10) The jaw (end effector) should have motorized unlimited 360 degree rotation for all suture patterns with various speed controller mechanism.
11) The Motorized jaw rotation should be bi directional.
12) The tip of the device should have motorized Bi directional Flexion and should be fully articulated to give 7 degree of freedom.
13) The device should have a protective sheath at the tip for device conformity during flexion.
14) The motorized device should have a control console for starting and switching off the Instrument.
15) Control console should display the instrument status and usage counter.
16) Control console should have LED display.
17) The motorized suturing device should be fully Autoclavable only for sterilization.
18) The motorized suturing device should come with a sterilization tray.
19) The motorized suturing device should come with a sheath damage detector for checking conformity of the device after each usage.
20) The motorized suturing device should be completely reusable with no consumable component.

Specifications for Digital Flexible Ureterorenoscope (FURS) with Work Station

- Flexible Ureterorenoscope (FURS) should have 270 degree deflection in both Directions.
- Should have 7.7 Fr Tip Diameter
- Should have Outer Sheath diameter not exceeding 9.5 Fr.
- Should have 3.6Fr Internal Diameter working Channel for use of Laser Fibers, Forceps, Baskets and other instruments.
- Should have Digital CMOS Imager for high quality Images.
- Should be connected to existing digital visual interface monitor and Recording system.
- Should have working distance of 2mm-50mm
- Should have inbuilt Light Source into the handle and should have complete flexible sheath.
- Should have integrated Camera Head and no secondary external attachment is required.
- Should have Mobile work station for PC integrated Monitor which includes All in One touch screen Monitor (17" and above) and Image Process Software.
- Should be supplied with Digital FURS probes – 20 Nos, and should quote the rates for the same.
- Should also be supplied with following RIRS instruments for performing RIRS
    - Guide Wires - 20 nos.
    - Access Sheath - 20 nos.
    - Flexible stone grasping forceps/baskets. - 20 nos.
- System should be USFDA and CE approved and should have relevant clinical data and publications.
- Monitor PC Should have warranty for 5 years and should quote CMC for 5 years after warranty period.

General specification for Combined Antineoplastic Thermotherapy Bladder Recirculation System **Qty- 1 no.**

- The system should be able to recirculate delivery of Hyperthermic Intra-Vesical Chemotherapy (HIVEC).
- Should be safe for patients and healthcare professionals.
- The system should have a range of safety features including over temperature and high pressure audio and visual alarms and system auto cut off.
- At the end of a treatment the system should enable the removal of the Mitomycin-C from the patient, for safe disposal.
- The system should harnesses accurate and effective heat control and the proven synergistic effects of chemo-hyperthermia to target non-muscle invasive bladder cancer (NMIBC).
- The system should be portable, robust and easy to use.
- Should be supplied with 50 sets of sterile single use tubing sets with heat exchangers for recirculating system for warming therapeutic fluids.
- Should be EC/US FDA certified.

Video Laryngoscope along with Flexible Intubation Video Endoscope (FIVE) with single compatible screen

Laryngoscope and Flexible Intubation Video Endoscope required with video illumination to visualize and document the operational area on screen. It should have the following features:

- Macintosh blades with closed European Metal finish sizes 2, 3 and 4 with integrated camera chip and LED light illumination for obtaining good brightness.
- One special Adult blade for difficult intubation with device for introduction of suction catheter for size 16-18 Fr., angle of view should be approx 80 degrees.
- One special Pediatric blade for difficult intubation.
- Miller size 0 & 1 blades should be present in the set (one each).
- Screen at least 7 inches or more in size for display with feature control buttons on the screen with HDMI output for connecting to a big screen.
- It should be a chip based video laryngoscope and not a prism based device.
- Monitor should have the facility to connect flexible scope and video-laryngoscope blade at the same time.
- Automatic as well as manual white balance facility should be available.
- Integrated video as well as still picture recording should be possible on data card and USB drive with JPEG and MPEG4 format which can be easily transferred to the computer/laptop. Monitor should have two ports for SD card and USB drive. Facility for Video and still picture which can be retrieved on the screen. It should be an upgradable system.
- Special shaped adult and pediatric Magill's forceps for foreign body removal , assisting nasal intubation and introduction of Ryle's tube should be provided.
- Safety bag for screen to be provided with the facility to operate monitor from the bag.
- Unit should run on both A.C and battery with battery life of more than 100 minutes.
- Movable stand manufactured from the same company should be provided to hang the screen.
- Accessories like protection cap, tray for cleaning and sterilization of blades (at least two blades at a time) should be provided.
- Conventional hospital disinfectant solutions should be capable/ compatible (H_2O_2, ETO) for disinfection of blades.
- Blades and connection cable should be fully immersible in disinfecting solution.

Flexible Intubation Endoscopes with CMOS chip on tip for digitally transferring the image to the screen (Adult & Pediatric).

- There should be "No" Optical Fiber bundles. Intubation Endoscope should display Full Frame 4:3 rectangular Imaging and not the circular image.
- ADULT SCOPE: Outer diameter of scope should be ranging 5.5 mm with working length of 65 cms, total length 93 cms. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be 2.3 mm in diameter. It should take ETT from size 6 mm inner diameter onwards.

- PEDIATRIC SCOPE: Outer diameter of scope should be ranging 3.7 mm with working length of 65 cms, total length 93 cms. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be at least 1.5 mm in diameter. It should take ETT from size 4. 5 mm inner diameter onwards.
- Flexible Intubation scope should display good quality images by connecting it with 7 inches or more TFT monitor.
- Documentation of Video & still images should be possible with operating buttons on the scope to be recorded on SD card and USB pen drive, present in the monitor.
- It should be light weight, high resolution & portable flexible scope.
- Bronchoscope insertion tube (cum bite block) sizes 2 and 4 for oral intubation should be provided with the set.
- ET tube holder must be a standard accessory.
- Set should include- Carrying case, Suction Valves (Reusable) 20 pcs. Cleaning brush, tube holder, Leakage tester, Pressure compensation cap, leaflet valve (20 pcs), irrigation adapter and protection cap as standard accessories.

a. Grasping forceps – flexible, double action jaws, diameter 1mm, length 110 cms, for use with Pediatric scope
b. Grasping forceps - flexible, alligator jaws double action, diameter 1.8 mm, working length 120 cms, for use with Adult scope.
c. Magill's forceps 25 cms length for video laryngoscope sizes 2-4.
d. Magill's forceps 20 cms length for video laryngoscope sizes 1-2.

- Container for sterilization and storage of scope should be provided.
- One Trolley, to hang scope as well as monitor, manufactured by the same firm, should be provided.

- Suitable for following applications-
  - Bronchoscopy
  - Endotracheal Intubation (for Difficult Airways in OTs, ICUs & emergency medicine department)
  - Foreign body removal
  - Bronchial Lavage
  - Inspection of the Airways
  - Percutaneous Dilatation Tracheotomy
  - Training of anaesthesiologists and emergency medicine physicians

  Both the flexible Intubation Video Endoscope and Video Laryngoscope should get connected with the same 7 inches screen.

Power Supply : 220 – 240 Volts AC ; 50 – 60 Hz.
Must be FDA and CE approved

Terms & Conditions ;-

- Guarantee/ Warranty for a period of 5 years from the date of installation of equipment.

- Supplier must guarantee and ensure a minimum of 10 years of supply of spares and consumables specific to the Equipment as a whole.
- Demonstration of quoted model of equipment is essential.
- Firm / Supplier should offer Comprehensive Maintenance Contract (CMC) for the next 5 years after expiry of the Guarantee/Warranty period (5 years), this will be included for calculation of total cost of the equipment.
- Must append copy / copies of supply order(s) of similar models of the quoted equipment to more than 200 bedded Govt. Hospitals/Private Hospitals with satisfactory installation report(s).
- Must provide complete price list of all consumables, accessories / spare parts along with the quotation.
- Firm / Supplier should append a certificate from the main Principal manufacturer that in case of the firm / supplier having ceased to function then the principal/ manufacturer would be responsible for providing continuity of services as pledged in the tender terms & conditions agreed to.

1) **BONFILS Intubation Endoscope 5 x 40,**

Intubation Endoscope with Distal bending:-40° ,Angle of view:-110°, Working length:-40 cm Total length:-52 cm Working channel diameter:-1.2 mm ,Distal tip outer diameter:-5 mm, for ETT >5.5 mm, consisting of: - Case, Tube Holder, Cleaning Brush for use with: LED Battery Light Sources and fiber optic light cables

2) BONFILS Intubation Endoscope3. 5 x 35,

BONFILS retromolar Intubation Endoscope, O.D. 3,5mm, for ETT 4,0 - 5,5mm, usable shaft length 35cm, distal bending 40°, with movable eyepiece, including tube holder for tube fixation and O2 application.

Technical Specification : Non-Invasive Cardiac Support Pump Integrated with Defibrillator

1. The unit should produce consistent chest compressions with no interruptions.
2. It should be easy to use for in- hospital and out of hospital during Emergency mainly during transportation.
3. It should be able to provide both 30:2 OR continuous compressions, user selectable by simple pressing of button for switching to either mode.
4. Should be able to provide uniform distribution of load on chest by circumferential compression of chest.
5. The chest compression band should have an ability to do high quality compressions.
6. It should have ability to automatically determine the patient compliance (automatically calculates size, shape and resistance of each patient chest) and produce compression force accordingly.
7. It should have facility to provide chest compression to patient even when patient is inclined and being transported from staircase at 45 degree.
8. The CPR device should be battery operated with an extremely simple user interface.
9. It should have a LCD back-lit screen display to show compression modes and battery charge status.
10. The battery should be able to provide continuous compression for a minimum 20 minutes when fully charged.
11. The system should be provided with three (03) lithium ion rechargeable batteries, one (01) battery charger and Fifteen (15) LifeBand (load distributing bands).
12. The unit should come with an integrated defibrillator for providing synchronized shock while the device is working i.e. without interrupting the compressions.

13. The defibrillator should have ability to measure chest compression rate and depth in real time, Chest Recoil indicator and provide both visual and optional audible feedbacks.

14. The defibrillator should be rugged and tough with easy to display in any environment.

15. The defibrillator should have ability that all CPR data can be recorded and reviewed by using software specially designed for doing this. (If needed, necessary software should be provided.)

16. The defibrillator should have ability to filter out CPR artifacts and allowing person to see organized rhythms without interrupting chest compression.

17. The Defibrillator should have facility for ECG Monitoring, defibrillation, synchronised cardioversion, rectilinear external pacing (transcutaneous) & recorder.

18. Should be supplied with reusable defibrillation electrode pads with 24 pairs of gel pads.

19. The Defibrillator should have rectilinear biphasic technology, having energy selection of 1-200 joules.

20. The Defibrillator should have charging time of unit should be less than 7 Seconds to the maximum energy.

21. The defibrillator should have the option to upgrade to EtCO2, SpO2, NIBP and 12 leads ECG.

22. The cost of all spares/accessories and consumables (including those required for up-gradation) should be mentioned in the financial bid.

23. Complete unit including defibrillator should be US FDA approved.

SPECIFICATIONS OF MINIMALLY INVASIVE CARDIAC OUTPUT (CO) MONITOR

1. It should be able to give Cardiac Output using any arterial line.

2. The Disposable Sensor should be able to give Continuous arterial pressure waveform when connected, on other bedside monitors with IBP modules.

3. No calibration should be required for getting CO started.

4. It should give Cardiac output update at least every 20 - 30 Seconds with Provision for 5 min average.

5. Should be able to give Stroke Volume Variation and Stroke Volume

6. It should also give Continuous ScvO2 & SvO2

7. It should be pole mountable, must have display capacity of at least 4 trend lines and 4 numerical display, optional physiology and physio-relationship screen.

8. It should have the ability to analyse patient's response to a specific interventions as fluid challenge, positional challenge, and interventions. All these interventions should be time stamped and stored for retrospective analysis.

9. It should be able to give Systemic Vascular Resistance (on patient with a CVC line and pressure transducer); Stroke volume and Stroke Volume Variation too on continuous basis.

10. It must save data for at least 72 hours.

11. Must have screen shot and data download facility through any USB stick.

12. It should have a touch screen with active area of atleast 10 inch.

13. It should be able to give Central Venous Oximetry updated every 2secs when used with dedicated disposable central venous catheter sensor.

14. It should also be able to calibrate all the above mentioned parameters along with Transpulmonary Thermodilution measures, parameters related to blood flow, organ function and fluid volume like Extra Vascular Lung Water (EVLW), Global Ejection Fraction (GEF), Global End Diastolic Volume (GEDV), Intra thoracic Blood Volume, Pulmonary vascular permeability index (PVPI) with some existing/forthcoming sensors.

15. Arterial pressure cardiac output Cable compatible with monitor - 2 each to be supply with monitor.

16. Central Venous Oximetry Catheter Cable compatible with monitor - 2 each to be supply with monitor.

17. Demonstration mandatory.

18. Operating manual should be supplied.

19. Must have USFDA certificate.

20. Disposables should be quoted separately.

21. Disposables with each Monitor

    a) Flowtrac Sensor (Arterial Sensor) - 20 no.

    b) Presep Catheter (Oximetery Catheter) - 5 no.

    c) Volume View Sensor - 5 no.

ATMOS

1/1

Technical specifications for Microprocessor controlled suction system- OT

The suction pump should have vacuum adjustment with loss by additional air.

The operation of the suction pump should be electronica & microprocessor.

The signals from the system should be acoustic and optic.

The suction system should have automatic standby (sleep after 20 seconds of non-use), Awake after detection of vacuum.

The suction system should have intermittence mode- duration of suction, break time, falling & rising edge up to 600 seconds adjustable.

The suction system should have a airflow of 36 litres / minute (36 +/- 2 l/min)

The suction system should have a vacuum of -90 kPa

The suction system should have a vacuum readout as digital numeric, resolution (10m bar / 10 mmHg / 1 kPa with quasi analog via bar graph.

The suction system should have canisters of 1.5 litre Glass, Autoclavable and suction hose of Ø 6 mm, 1.30 m long

The suction system should be ready for continuous operation with the option to interface the foot switch if required (optional)

The suction system should have a noise level of not exceeding 43.9 dB (A) @ 1m (as per ISO 7779)

The diemsnion of the suction system should not excede 840 x 490 x 520 mm, with trolley

The suction system should have a protection class of (EN 60601-1) & degree of protection Type B

The suction system should have a CE mark – CE 0124. and/BIS approved

CARDIOBLATE GEN.

1/1

System for surgical ablation for the treatment of Atrial fibrillation

1. System should be using open irrigated radiofrequency ablation technique for charring free cardiac ablation and consistent conduction block.
2. Bipolar algorithm to customize energy delivery based on tissue requirements
3. Provides real-time treatment information in graphical and digital formats.
4. Should support both open heart and Minimally invasive procedures
5. Should provide transmurality feedback.
6. Should contain both mono-polar and bipolar in single pack
7. Should have Malleable shaft/ flexible neck with ergonomic handle to facility reach to difficult parts.
8. Bipolar should have 7 cm active electrode with feedback mechanism for transmurality of lesion created.
9. Machine should have Color LCD screen display with touch operation to facilitating changing easy adjustment of parameters.
10. Machine should display following readings during Use for abalation
    I. Total ablation time cumulative
    II. Ablation time for lesion
    III. Impedance
    IV. Power
11. System should be portable with weight less than 10 kg. System should be compact and small which should be convenient to set up in OT.
12. Electrical specifications..
    I. **POWER SUPPLY**
    - **100-240 VAC, 200VA, 50-60 Hz**

    II. **IMPEDANCE RANGE**
    12 – 500 ohms +/- 15%

    III. **POWER OUTPUT**
    - **Monopolar Mode: 1 – 50 W**
    - **Bipolar Mode: 15 – 40 W**
13. System should be quoted with 5 sets of Consumables (both Monopolar and Bipolar) Tenderer should ensure free availability of consumables for next 5 years.

Prof. (Dr.)SANDEEP BANSAL
MD (Internal Medicine) DM (Cardiology)
DNB (Cardiology), MNAMS, FESC, FSCAI
Consultant Professor & Head
Department of Cardiology & CTVS
VMMC & Safdarjung Hospital, New Delhi-29

GRAFT. FLOW MEASR

1/1

SPECIFICATIONS FOR GRAFT FLOW METER FOR CORONARY ARTERY BYPASS GRAFT SURGERY qty. 01 nos.

1. Display : 10.4 inch TFT Colour Touch Screen (800 * 600 Dots)
2. Waveform Mode : ZCC & Spectrum
3. Blood Vessel Diameter Setting Range : 0.1 – 20 mm in step of 0.1 adjust ability
4. Measurement Mode : i) KHz or ii) cm/s
5. Velocity Range (FFT) : 8 MHz (3 – 120 cm/s)
6. 8MHz Bi-Directional Probe with safety cap
7. 10 MHz – Tucking TK Doppler Flow probe of 3 mm Groove Diameter
8. 10 MHz – Tucking TK Doppler Flow probe of 4 mm Groove Diameter
9. 10 MHz – Tucking TK Doppler Flow probe of 5 mm Groove Diameter
10. Multi frequency Probes (4,5,8,10& 20MHz) Facility
11. Detachable Probe Facility
12. Multi frequency Intra Operational Probe capability
13. PPG (Photo plethysmograpy) for Artery and Vein Study
14. Individual Slots for Doppler probe and PPG Probe
15. Calculates and prints ABI /TBI documentation
16. Bi-directional & dual separation channel
17. FFT Mode : Spectrum Mode, Envelope Mode & Spectrum/Envelope Mode
18. Colour Touch Screen Display i) Real time Waveform with Automatic gain and base Line control
    ii) Numerical data- Blood Volume in ml/min (Max & Min), Blood Velocity in cm/s (Max & Min), Resistance Parameter, Systolic Diastolic Ratio, Pulsatility Index , Heart Rate 30-240 BPM)
19. Internal Memory : 30 Waveform
20. External Memory : USB Flash Drive
21. Data Retrieval : Exporting to PDF & DICOM files for USB Flash Memory
22. Interface : USB Interface with Software for Transferring waveforms & Numerical data to computer.(DICOM Compatibility)
23. AC adapter : IN 120-240 V AC 50 Hz OUT : DC 15 V 1.2 A
24. Power Consumption : 1.2 A
25. Weight : 3.0 – 3.5 Kg.
26. Speaker Output : 2.4 W (1.2W + 1.2W) Dual Speaker
27. Probe Button : Freeze
28. Headset Output : Cuts off Speaker
29. Latest laptop with i3 processor, 4GB RAM and 1TB Hard disk.
30. Ink jet Printer for printing reports.
31. Rates of consumable/Probes of are quoted separately for future procurement.
32. Warranty: 5 years and CAMC rates for next 5 Years after completion of warranty period.

Annexure 2

14. General Broad Based Specifications

Technical specifications of non invasive central blood pressure measurement, pulse analysis system along with heart rate variability (HRV) measurement

1. Signal processing module.
2. Should contain pressure tonometer capable of recording from peripheral and carotid arteries.
3. ECG cable and leads.
4. RS- 232 serial interface/ USB serial port connectivity.
5. Sampling rate -128Hz and more than 512 Hz for HRV.
6. Should be able to measure pressure of 0-300mmHg.
7. Should have facility for output of signals with the signal range of -5 to +5V.
8. Should be able to auto scale ECG and Pressure waveforms with real-time display of data.
9. Derive HRV from recorded ECG.
10. Derive aortic BP profiles along with Systolic and diastolic BP and augmentation index.
11. Calculate pulse wave velocity from ECG and pressure waveforms.
12. Should perform waveform analysis like slope and amplitude of the waveforms.
13. Should be able to work in ambient temperature of 20-30°C and relative humidity of 30-70%.
14. Should have patient database management.
15. Should have export function for allowing the data to be readily analysed with Excel, SPSS.
16. Should have FDA approval & Electromedical equipment safety standard.
17. Compatible computer.

Technical Specification of Robotic High Intensity Focussed Ultrasound System

Qty – 1no.

1. Offered unit should be Latest generation HIFU device
2. Unit should have full robotic movements in every direction, (2 rotation & 3 translation).
3. Unit should have Single module device with HIFU probe integrated to the treatment table.
4. Unit should have single ultrasonic transrectal transducer with dual operation for Imaging & HFU Treatment.
5. Unit should have transducer Imaging Frequency should be 7.5 Mhz & HIFU Treatment Frequency Should be 3 Mhz.
6. Unit should have Ability to vary electronically the focal point of the treatment transducer without mechanical movement through 8 distinct focal points along the shooting axis using "Dynamic Focusing" technology
7. Unit should have integrated transducer cooling system &Rectal cooling to prevent from rectal injury
8. Unit should have Patient movement detector for safety to stop HIFU treatment in case of Patient Movement.
9. Unit should be offered with treatment planning workstation module having 2 Full-HD touch screens (1 for the treatment, 1 for imaging)
10. Workstation offered should have Ability to import MR images from CD/DVD/USB support or PACS directly into the device (DICOM format)
11. Workstation unit should have the ability to visualize MR images
12. Workstation unit should have ability to contour prostate and ROIs (Regions Of Interest) on MRI volume
13. Workstation unit should have the ability to fuse MR images with device's Ultrasound images with a non-rigid registration algorithm offering "elastic fusion"
14. Workstation should have the ability to transfer and visualize ROIs from MRI onto real-time Ultrasound Image
15. Workstation unit should have the ability to synchronize the view of the fused volume along with the real-time ultrasound image during planning and treatment
16. Unit should acquire prostatic volume in 3D. There should be possibility for Dynamic and simultaneous viewing in the longitudinal and transverse planes to facilitate positioning in the difficult zones.
17. Workstation unit should offer different treatment protocols based on previous treatment (first line, secondary HIFU, salvage after radiotherapy or brachytherapy)
18. Unit should allow individual HIFU lesion of 5 x 1.7mm for precise and "conformational" treatment
19. Unit should have the ability to treat up to 40mm Antero-posterior dimension without mechanical movement in one single path
20. Unit should offer Real-time Ultrasound visualization during HIFU shots
21. Unit should offer Real-time rectal wall monitoring and automatic adjustment

22. Unit should have ability to pause and adjust treatment planning during shooting sequence.
23. Unit should have emitted power monitoring, rectum temperature monitoring.
24. Unit should have ability to perform Contrast-Enhanced Ultrasound (micro-bubbles injection) with integrated imaging transducer immediately at the end of the treatment with the treatment probe still in place in the patient's rectum
25. Unit should have the ability to perform a non-rigid registration ("elastic fusion") of the Contrast-enhanced Ultrasound volume and the diagnostic MR images with display of ROIs
26. Unit should have ability to complete HIFU treatment following Contrast-Enhanced Ultrasound with transrectal probe still in place in the patient's rectum
27. Unit should offer Database Management system with complete cancer and treatment data.
28. Offered unit should work on 230V Single Phase power Supply.
29. Offered unit should be CE / USFDA certified
30. Unit should be offered with following Accessories
    i. 20 Nos. - Single use Treatment Pack
    ii. Color Inkjet/Laser printer
31. Comprehensive in house user training to be provided.
32. Unit should be offered with 3 years warranty.
33. Bidder to quote for 5 years CMC after the warranty period.

TECHNICAL SPECIFICATIONS OF ENDO – UROLOGICAL ROBO FLEX FURS (RIRS) SYSTEM

This specification list refers the Robotic Flexible Ureterorenoscopy (FURS) for treatment of urinary Stones with Retrograde Intra Renal Surgery by means of HO-YAG Laser.

DESCRIPTIONS and GENERAL CONDITIONS:

- The Robot should manipulate the FURS on the Main Unit with remote control and treat the urinary stones by Retrograde Intra-Renal Surgery (RIRS) procedure.
- The surgeon should be able to control the rotation, deflection, forward and backward of flexible endoscope from the control console by sitting on a chair away from radiation.
- The surgeon should be able to control the laser fiber which will pass through the working channel of endoscope from the control console while sitting the chair away from radiation.
- The robot should have a safety functions to prevent damage of flexible endoscopes.
- The manipulator unit of robot should have up & down movement to adjust the height of endoscope according to patient position on the operating table.
- The control panel of robot should have touch screen interface and the rotation and deflection of the endoscope should be monitored on this screen.
- Vertical movement, speed of forward/backward movements of manipulator, forward/ backward of laser fiber, speed and activation of irrigation pump should be controlled by touch screen through surgeons.
- The control console should have a color video monitor to display the endoscopy vision and the system should have image processing overlaid on the video of endoscope image and some parameters of robot such as rotation angle, deflection angle and indication of endoscope tip by 3D animation on 3D kidney model.

TECHNICAL SPECIFICATIONS:

- Robot unit should have an integrated irrigation pump and the speed of pump should be able to control from control panel, start – stop and should have "flush" mode for better vision at maximum pump speed.
- Endo-Urological Robo Flex FURS (RIRS) should consist below units :
  - Main Robot manipulator Unit
  - Control Console
  - Universal Foot Pedal Unit
  - Peristaltic Irrigation Pump with IV Rod Stand

Main Robot Manipulator: 1 No.

- Main robot unit should have min. 250-300 mm up/down vertical movement with electrical motor.
- Horizontal movement capability with min. 200-225 mm.
- The speed of the horizontal movement should be adjustable.
- The robot manipulator should make a rotation movement to rotate the endoscope in minimum in degrees of 200° to ± 225°.
- The robot manipulator should make deflection movement to make the full retraction of the endoscope tip according to the brand and model of the flexible endoscope. e.g. degrees of ±270° to ±290°.
- The robot manipulator should have a laser fiber actuator to move the laser fiber in forward and backward at least 10mm to 15 mm

- The robot should have safety function to prevent flexible endoscope against accidental laser fires up to 2 mm of distal end of endoscope.
- Should be compatible with all the leading brands of Flexible Uretrorenoscope.
- Dimension at park position should be max. 1000(B) x600(E) x1100(Y) mm.

Control Console Unit: **1 No.**

- The control unit of robot should enable the surgeon to use endoscope and laser fibers on sitting position away from C-arm.
- The integrated chair on the control console should be available with up-down movement min. 250 mm to 300 mm and forward & backward movements by electrical motors, to enable the surgeon to adjust the sitting position as he desired.
- The control console should have up/down movement of control panel by electrical motors at least 270 mm to 300mm.
- Control console should have memory function for at least 3 to 6 users. Each user should adjust position and height of console as he desired and save the adjustment and he should adjust positioning from the memory on his own name.
- The dimensions of control console at park position should be max. 1200(B) x700(E) x1100(Y) mm.

Universal Foot Pedal Unit **1 No.**

- The control console should have two foot pedals, so the surgeon can use the laser by one and make the fluoroscopy by the other during the treatment.
- The universal foot pedal unit should control the foot pedals of existing Holmium Laser and existing fluoroscopy devices.

Peristaltic Irrigation Pump with IV Rod Stand **1 No.**

- The Robot should have a specially designed irrigation pump with IV rod stand for better control of irrigation fluid from control console according to surgeon's preference.
- The speed of pump should be selectable from control panel, and the surgeon should be able to control start – stop of the pump and should able to activate "flush" mode for better vision at maximum pump speed as a burst time.
- The speed of the pump should be indicated both control touch panel and on the video monitor and the higher pump levels should be indicated as red color to warn the surgeon about possible higher intra renal pressure.

Full 4K ultra high definition camera control unit with camera head **Qty – 1No.**

- It should be a full 4K ultra high definition camera control unit with resolution of 3840 x 2160 Pixels or more.
- It should have user friendly touch screen display.
- It should have user friendly pre programmed user settings.
- It should have white balance with range of color temperature between 2300 Kelvin to 7000 Kelvin.
- It should have brightness control through automatic shutter regulation and automatic gain control facility.
- It should have facility to input the patient data using USB keyboard.
- It should have facility to store the high resolution images and high definition videos on USB storage.

- It should have different output 2 x HDMI and 3G-SDI.
- It should have aspect ratio of 16:9.
- It should have digital image processing and digital signal transmission.

4K Medical Grade Monitor **Qty – 1 No.**

- 4K Medical Grade Monitor, Resolution 3840 x 2160 Pixels.
- It should have aspect ratio of 16:9.
- It should have picture in picture display format.
- It should have various input and output terminals.

Technical Specifications of flexible single channel sensor Uretero Renoscope Qty- 4 nos.

- It should have latest chip on technology.
- It should have integrated light.
- It should have atraumatic distal tip of Dia 6-9Fr.
- It should go through 9.5 Fr access sheath.
- It should have an instrument channel of 3-4 Fr. to accommodate compatible accessories.
- It should have a field of view upto 80 to 90 DEGREES.
- It should have ANGULATIONS between 260-270 degree upward and downward.

It should have the following accessories :

- Leakage tester
- Gas Valve for sterilization
- Cleaning brush
- Grasping forceps with double action jaw 3 Fr working length approx.850–1000 mm - 2 Nos.
- Biopsy forceps double action jaw 3Fr working length approx. 850–1000 mm - 2 Nos.
- 4 Arm reusable stone extractor 3Fr working length approx. 850–1000 mm - 3 Nos.
- 3 Arm reusable stone gripper 3 Fr working length approx. 850–1000 mm - 3 Nos.
- It should have access sheath 9.5 Fr, 35 cm long - 10 Nos.

Automated DNA Sequencing System

1. Fully automated capillary, fluorescence based DNA sequencer.
2. Number of Capillaries should be 8 operating in parallel to meet throughput. Employ uncoated 50 cm capillary arrays that use bare silica capillaries with useful life that exceeds 160 runs.
3. Application: should be able to perform sequencing, resequencing, long read sequencing, fragment analysis application like microbial fingerprinting, microsatellite, SNP validation and screening, linkage analysis.
4. Excitation source: Single line 505nm solid state long life laser utilizing a standard power supply and without heat removal ducting.
5. Dye detection: cooled CCD detection technology and a spectrograph for color separation. System must be able to detect and analyze 6 fluorescent dye simultaneously for DNA fragment analysis.
6. Tracking of consumable: Radio frequency identification to track key consumable data.
7. Heating/cooling: Active temperature cooling/heating that can maintain temperature ranging from 18°C to 70°C.
8. Sequencing throughput:>280 samples/day having 500bp read length with QV 20
9. Electrophoresis Voltage: upto 20kV.
10. System should be provided with data analysiscomputer and software with Hardware: Intel™ Core™ i7-4770 OS Processor (Quad Core HT, 3.10 GHz Turbo, 8 MB, with HD Graphics 4600), Operating system: Windows 7, Installed RAM: 16 GB, Hard drive: 2 x 500 GB SATA 3.0 Gb/s and 8 MB DataBurst Cache along with the color deskjet printer.
11. Real time analysis: System software should allow real time data quality evaluation providing immediate access to base called or size called data to make decision about the quality of data as it is generated.
12. Software: the vendor must provide software that are optimized for the instrument in the area of denovo, resequencing, long read sequencing and comparative sequencing, Fragment analysis application like SSR, ISSR, etc.
13. Only licensed version of the system software to be quoted along to perform the sequencing by Sanger method.
14. System should be open to accommodate primer from any third party.
15. Consumables: System should be startup kit
16. Free of cost system installation and operator training performed by a vendor service engineer.
17. The vendor should have good service and application support backup along with instrument to provide an effective application related trouble shooting and support. The vendor should provide application training on the operation of the instrument, chemistry options and software in there regional lab.
18. Vendor should have at least 100 installation (includes all the available models) in India.
19. Suitable 2 KVA UPS for running the system.
20. Electrical requirement 220 Volt, 50 Hz.
21. Warranty and CMC as per Saffdarjung hospital tender rules.
22. Rate list for the consumables should be attached.

Dr. MONICA SHARMA
DM (Haemato-Pathology)
(Hematalogy)