

# ***Using Open Source EMR Software***

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## ***The JPNATC Experience with Vista EHR***

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*I/C Telemedicine & computerization*  
*JPNATC, AIIMS*

# Why Open Source?

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- Previous experience with proprietary solutions
    - No choice of vendors
  - We wanted a Cost effective solution
    - Ability to change track
-

# EXPECTATIONS

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- ❑ COMPUTER WITH INTERNET
  - ❑ PACS
  - ❑ EMR & HIS (Hospital information system)
  - ❑ DIGITALISATION OF ALL RECORDS
  - ❑ ANYWHERE & ANYTIME ACCESS
-

# CASE STUDY (JPNATC)

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Two buildings (6 floors + 9 floors)

8 specialties, 151 beds

Pt load: Approx 50000/year

Till Sep 2006

- No networking
  - No internet
  - No PACS
  - No HIS
-

# CASE STUDY (JPNATC)

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- Dual network (wired & wireless)
  - Computers with internet in all patient areas
  - Server-client architecture with standalone facility
  - Thin clients
  - PACS
-

# THIN CLIENTS-TCO

## 1 MONEY SAVED ON POWER SAVINGS

|                                 |           |
|---------------------------------|-----------|
| Thin client typical power usage | 15 watts  |
| Desktop typical power usage     | 180 watts |

Additional money spent on powering each desktop over 5 years :

|                    |  |
|--------------------|--|
| 1650 VAh           | (assuming 8 working hours)                             |
| 1.65 units per day |  |
| 495 units/year     | (assuming 25 working days)                             |
| 14850 rupees       | (assuming average cost @ INR 6 / unit for electricity) |

## 2 MONEY SAVED ON REPLACEMENT COSTS OF DESKTOPS (EVERY 5 YEARS)

20000 Assuming life of thin clients conservatively at 10 years  
Assuming life of desktop aggressively at 5 years

## 3 OTHER COSTS THAT YOU WILL SAVE ON ARE :

|  |       |                                      |
|--|-------|--------------------------------------|
| Cost of anti-virus software                          | 5000  |                                      |
| Cost of managing virus issues                        |       |                                      |
| Costs of Altiris deployment & manageability software |       |                                      |
| Costs of an AC environment / lesser AC load          |       |                                      |
| Costs of bandwidth                                   | 10150 | This is a conservative approximation |
| Costs of UPS and other peripherals                   |       |                                      |
| Costs of additional system administrators            |       |                                      |
| Costs of software licenses                           |       |                                      |
| Costs of increased AMC when going for desktops       |       |                                      |

## TOTAL COST SAVINGS PER UNIT OF CLIENT DESKTOP BY GOING IN : FOR THIN CLIENTS INSTEAD OF DESKTOPS

(Without including most of the items listed under 3)

**INR 50,000**



***Which means a customer buying 100 thin clients instead of 100 PCs can save upto Rs.50 lakhs in a 5 year period !!!***

# Mobile computing

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# 1:1 Patient to computer ratio

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# Printers

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- Network printers
  - Duplex printing
  - Heavy duty
  - Full maintenance contract with per page price (<40 paisa/page)
  - Capable of scanning patient files
-

# Printers

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- ❑ Coloured paper- to minimize pilferage
  - ❑ Decreased reliance on printed forms
  - ❑ Network Printers-7 (Rs 6.5 lakhs)
-

# CASE STUDY (JPNATC)

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## NETWORKING

- Wired network (52 nodes)
    - 6 months
    - Cost 8 lakhs
  - Wireless network (full campus)
    - 3 weeks
    - Cost 1 lakh
-

# CASE STUDY (JPNATC)

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125 computers

- Standard Desktops 65 (Cost Rs 40,000/computer; life 3-5 yrs)
  - Thin clients 60 (cost Rs 25000/computer; life 20-25yrs)
  - Servers (Rs 15 lakhs)
  - Network Printers-7 (Rs 6.5 lakhs)
-

# CASE STUDY (JPNATC)

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## Present status:

- Fully networked with structured cabling & integrated with AIIMS
  - Completely Wi-fi
  - 125 internet & PACS enabled computers
    - 1 computer/bed in ICU
  - Fully functional PACS
  - Fully functional EMR & HIS
-

# PACS

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- Proprietary (GE)
  - 15 licenses (Bundled with CT & MRI)
-

# PACS

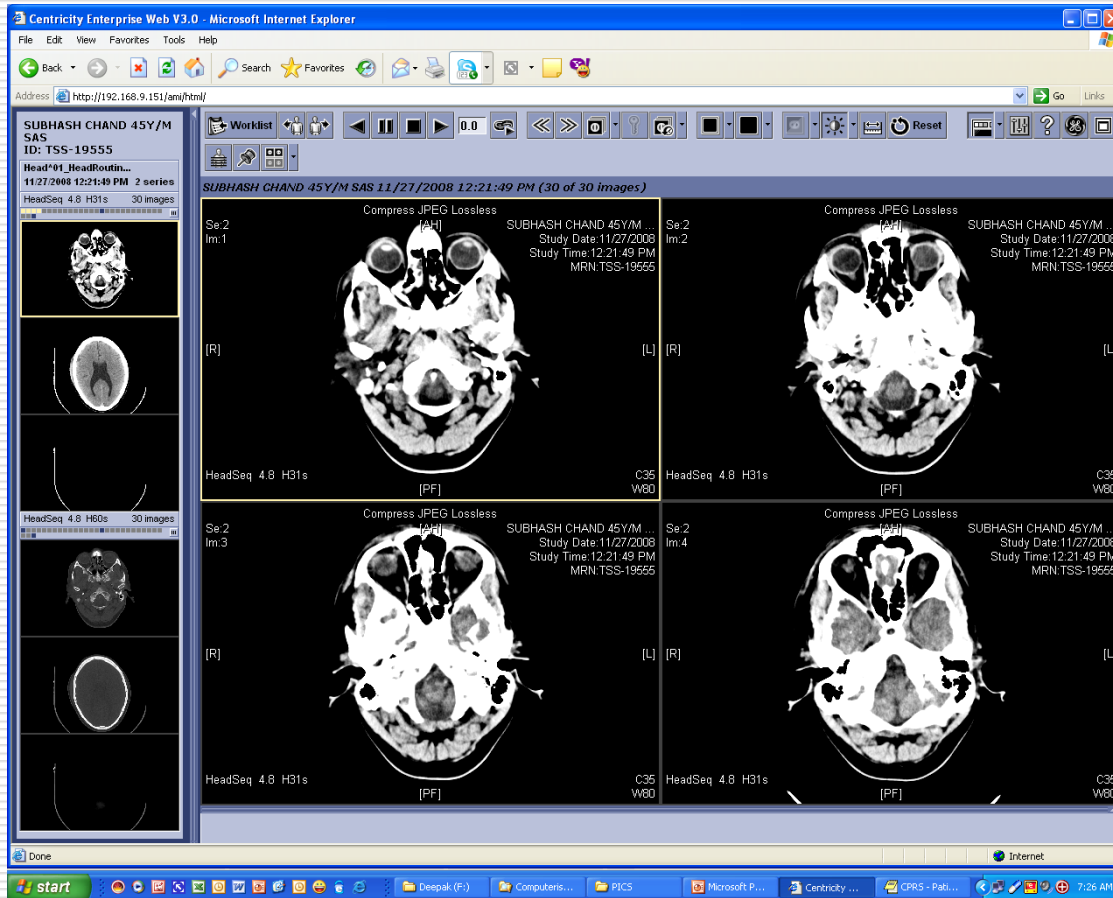
---

## Fully functional PACS (*running on wi-fi*)

- CT, MRI & X-ray (Including portable Xray's) are available in near-real-time
  - Any pts imaging can be seen on any computer (ward, ICU, casualty, OT)
  - **70% FILMLESS!!**
-



# PACS at home



# PACS

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## **Cost Savings**

- Annual cost of films at JPNATC  
Approx Rs 74 lakhs/yr
  
  - Saving with PACS @ 70% filmless  
Approx Rs 52 lakhs/yr
-

# VISTA EHR

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- Basic implementation
    - Registration
    - ADT In almost real time
    - CPRS
    - Lab interface functional
    - Appointment system
    - Full digital archival of all patient records
-

# VISTA EHR

---

- Open Tender- Implementation/ maintenance, Training & 24 support
  - Duration 2 years
  - Lowest bid was 2 lakhs/month (24 months)
-

# VISTA EHR- Implementation

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## **CATS**

- Computerization Assistance & Support Team
  - 11 staff
    - Qualification-DEO
    - 1/ department/ area
    - Salary Rs 9000/ staff
    - Total outgo is Rs 90000/month
-

# VISTA EHR

---

- **Single patient ID**
    - Registration number
    - Admission number
    - OPD number
    - Radiology numbers
    - Departmental number
    - Other identification numbers
-

No Patient Selected

Flag Remote Data ? No Postings

### Patient Selection

**Patient List**

No Default

Providers

Team/Personal

Specialties

---

Clinics

Wards

All

---

TC3 NEUROSURGERY ICU

DUMMY EWARD

TC2 COMMON ICU

**TC3 NEUROSURGERY ICU**

TC4 MULTI SPECIALTY

TC5 NEUROSURGERY

TC6 SURGERY

TC7 ORTHOPAEDICS

**Patients (TC3 NEUROSURGERY ICU)**

|                        |        |
|------------------------|--------|
| Lname,Sunder           |        |
| Lname,Pooja            |        |
| Lname,Omkar Bahadur    |        |
| Lname,Deepak           | Tc3-02 |
| Lname,Sandeep          | Tc3-03 |
| Lname,Rakesh           | Tc3-04 |
| Ram,Mange              | Tc3-05 |
| Ex- Speaker , S.C. Jha | Tc3-06 |
| 1,Unknown              | Tc3-07 |
| Mishra,Shiv Shankar    | Tc3-08 |
| Lname,Pardeep          | Tc3-09 |
| Aktar,Mohd             | Tc3-10 |
| Kaur,Majindar          | Tc3-11 |
| Lname,Himanshi         | Tc3-12 |
| Lname,Rani             | Tc3-13 |
| Lname,Salim            | Tc3-14 |
| Lname,Irfan            | Tc3-15 |
| Lname,Satpal           | Tc3-16 |

OK

Cancel

Specific "In-Depth" Lookup by

None of the below

PHONE NUMBER [RESIDENCE]

DATE OF BIRTH

Save Patient List Settings

**Notifications**

| Info | Patient            | Location | Urgency  | Alert Date/Time  | Message   | Forwarded By/When |
|------|--------------------|----------|----------|------------------|---|-------------------|
|      | LNAME, RAM (L)     |          | Moderate | 11/26/2008@10:25 | UNCO SIGNED Discharge Summary available for COSIGNAT... |                   |
|      | LNAME, VIN (L)     |          | Moderate | 11/26/2008@10:24 | UNCO SIGNED Discharge Summary available for COSIGNAT... |                   |
| 1    | PATEL, NAL (P3577) |          | Moderate | 11/27/2008@09:53 | Died while an inpatient on NOV 27, 2008@09:53:03        |                   |

Process Info Process All Process Forward Remove



|                      |                                    |                              |                        |             |           |
|----------------------|------------------------------------|------------------------------|------------------------|-------------|-----------|
| <b>LNAME_SADHANA</b> | <b>TC3 NEUROSURGERY ICU TC3-03</b> | Primary Care Team Unassigned | Flag                   | Remote Data | Postings  |
| '222542'             | Jan 01,1982 (28)                   | Provider: AGRAWAL,DEEPAK     | Attending: Sinha,Sumit |             | <b>CW</b> |

|   |   |   |
|---|---|---|
| <b>Active Problems</b><br>Head Injury<br>Closed Fracture Of Clavicle<br>Leukocytosis<br>Craniectomy Or Craniotomy, Decompressive, With Or Without Duraplasty, For Treatm<br>Icp Monitoring<br>Subarachnoid Hemorrhage<br>Brain Edema<br>Subdural Hemorrhage Following Injury Without Mention Of Open Intracranial Wound<br>Metabolic Alkalosis<br>Leukocytosis, Unspecified | <b>Allergies / Adverse Reactions</b><br>No Allergy Assessment | <b>Postings</b><br>Tracheal Culture Report Aug 16,2010<br>Urine Culture Report Aug 16,2010<br>Ct-Report Aug 14,2010 |
|---|---|---|

|  |   |                 |
|--|---|-----------------|
| <b>Active Medications</b><br>No Active Medications Found | <b>Clinical Reminders</b><br>No reminders due | <b>Due Date</b> |
|--|---|-----------------|

|  |  |  |
|--|--|--|
| <b>Recent Lab Results</b><br>Haematology Blood Lc Lb #482698 Aug 17,10<br>Sodium (na) Se Serum Lc Lb #482667 Aug 17,10<br>Potassium (k) Se Serum Lc Lb #482668 Aug 17,10<br>Creatinine (cre) Se Serum Lc Lb #482669 Aug 17,10<br>Urea Nitrogen (urea) Se Serum Lc Lb #482670<br>Lactate (lac) Se Serum Lc Lb #482159 Aug 17,10<br>Beecf Blood Lc Lb #482160 Aug 17,10<br>Be(b) Blood Lc Lb #482161 Aug 17,10<br>Calcium (ca) Se Serum Lc Lb #482162 Aug 17,10<br>Ca++(7.4) Blood Lc Lb #482163 Aug 17,10 | <b>Vitals</b><br>T 98.6 F Aug 17,2010 15:28 (37.0 C)<br>P 92 Aug 17,2010 15:28<br>R 24 Aug 17,2010 15:28<br>BP 106/67 Aug 17,2010 15:28<br>POX 100 Aug 17,2010 15:28<br>CVP 11 cmHg20 Aug 14,2010 08:06 (8.1 mmHg) | <b>Appointments/Visits/Admissions</b><br>Aug 12,2010 17:53 Inpatient Stay Tc3 Neurosurgery Icu |
|--|--|--|

LNAME,SADHANA

TC3 NEUROSURGERY ICU TC3-03

Primary Care Team Unassigned

Flag

Remote Data



Postings

'222542'

Jan 01,1982 (28)

Provider: AGRAWAL,DEEPAK

Attending: Sinha,Sumit

CW

Last 100 Signed Notes

- [-] All signed notes
  - [+] Aug 17,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGEF
  - [+] Aug 16,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGEF
  - [+] Aug 16,10 TRACHEAL CULTURE REPORT, TC3 NEUROSURGERY ICL
  - [+] Aug 16,10 URINE CULTURE REPORT, TC3 NEUROSURGERY ICU, MA
  - [+] Aug 14,10 CT-REPORT, TC3 NEUROSURGERY ICU, PARUL GUPTA
  - [+] Aug 13,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGEF
  - [+] Aug 13,10 NEUROSURGERY OPERATION NOTE, TC3 NEUROSURGEI
  - [+] Aug 13,10 NEUROSURGERY POST-OP NOTE, TC3 NEUROSURGERY
  - [+] Aug 12,10 NEUROSURGERY OPERATION NOTE, TC3 NEUROSURGEI
  - [+] Aug 12,10 NEUROSURGERY ADMISSION NOTE, TC3 NEUROSURGEF
  - [+] Aug 12,10 NEUROSURGERY CASUALTY NOTE, A EMERGENCY ROOM
  - [+] Aug 12,10 MLC FORM, A EMERGENCY ROOM, V.VIJENDRA KIRNAKE

Adm: 08/12/10 NEUROSURGERY ADMISSION NOTE, TC3 NEUROSURGERY ICU, NOUFAL BASHEER (Aug 12,10@20:01)

DEPARTMENT OF NEUROSURGERY  
JPN APEX TRAUMA CENTRE, AIIMS, NEW DELHI

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ADMISSION (ASSESSMENT) NOTE

---

Patient Name LNAME,SADHANA 000-22-2542 AGE 28 SEX FEMALE  
Address H NO-352 AJAY NAGAR  
SIMILE PUR  
FARIDABAD, HR Phone No.+91-11-9310172875

-----  
FACULTY (ATTENDING)I/C SS S/R I/C NAUFAL BASIR(MB)  
-----

PRESENTING COMPLAINTS  
-----  
Alleged H/O FALL ON Aug 12,2010@13:30

H/O LOSS OF CONSCIOUSNESS -  
NO H/O VOMITING PRESENT  
H/O ENT BLEED LT. EAR, NOSE  
NO H/O SEIZURE PRESENT

PAST HISTORY  
-----

FAMILY HISTORY RISK FACTORS  
-----

ALLERGIES DRUG HISTORY  
-----

EXAMINATION  
-----  
Patient GCS (Glasgow Coma Score)  
Eye Opening Response 1  
Verbal Response T  
Motor Response 5  
PUPILS RT. DILATED SR  
PULSE76 /min; BP116/80 mm.Hg.  
CCT  
CRANIAL NERVE EXAMINATION  
apparently normal

MOVING right more than left  
-----

BOWEL/BLADDER INVOLVED No  
-----  
CEREBELLAR SIGNS No  
-----

LOCAL EXAMINATIO

/es/ NOUFAL BASHEER  
Signed: 08/12/2010 20:03

[-] / Templates  
Encounter  
New Note

LNAME,SADHANA

TC3 NEUROSURGERY ICU TC3-03

Primary Care Team Unassigned

Flag

Remote Data



Postings CW

'222542' Jan 01,1982 (28)

Provider: AGRAWAL,DEEPAK

Attending: Sinha,Sumit

Last 100 Signed Notes

- ☐ All signed notes
- ☐ Aug 17,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGEF
- ☐ Aug 16,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGEF
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- ☐ Aug 12,10 NEUROSURGERY CASUALTY NOTE, A EMERGENCY ROOM
- ☐ Aug 12,10 MLC FORM, A EMERGENCY ROOM, V.VJENDRA KIRNAKE

Adm: 08/12/10 NEUROSURGERY ADMISSION NOTE, TC3 NEUROSURGERY ICU, NOUFAL BASHEER (Aug 12,10@20:01)

DEPARTMENT OF NEUROSURGERY  
JPN APEX TRAUMA CENTRE, AIIMS, NEW DELHI

ADMISSION (ASSESSMENT) NOTE

Patient Name LNAME,SADHANA 000-22-2542 AGE 28 SEX FEMALE  
Address H NO-352 AJAY NAGAR  
SIMILE PUR  
FARIDABAD, HR Phone No.+91-11-9310172875

FACULTY (ATTENDING)I/C SS S/R I/C NAUFAL BASIR(NB)

PRESENTING COMPLAINTS

Alleged H/O FALL ON Aug 12,2010@13:30

H/O LOSS OF CONSCIOUSNESS -

Progress Note Properties

Progress Note Title: NEUROSURGERY OPD NOTE

OK

- NEUROSURGERY CASUALTY NOTE
- NEUROSURGERY ADMISSION NOTE
- NEUROSURGERY OPERATION NOTE
- NEUROSURGERY DISCHARGE NOTE
- NEUROSURGERY NOTE ON ROUND
- NEUROSURGERY OPD NOTE

Cancel

Date/Time of Note: Aug 18,2010@08:56

Author: Agrawal,Deepak - ASSIST. PROF.

Motor Response 5  
PUPILS RT. DILATED SR  
PULSE 76 /min; BP 116/80 mm.Hg.  
CCT  
CRANIAL NERVE EXAMINATION  
apparently normal

MOVING right more than left  
-----

BOWEL/BLADDER INVOLVED No

CEREBELLAR SIGNS No

LOCAL EXAMINATIO

/es/ NOUFAL BASHEER

Signed: 08/12/2010 20:03

Templates

Encounter

New Note

DEPARTMENT OF NEUROSURGERY  
JPN APEX TRAUMA CENTRE, AIIMS, NEW DELHI

## CASUALTY NOTE

Patient Name LNAME,SADHANA 000-22-2542 AGE 28YRS  
Dated: \*Aug 18,2010 ... Phone No.+91-11-9310172875

MLC  NON-MLC

CONSULTANT I/C: DA ... CASUALTY RESIDENT ...

Alleged H/O

RTA  
 ASSAULT  
 FALL  
 OTHERS ON ...

NO H/O LOSS OF CONSCIOUSNESS -

NO H/O VOMITING PRESENT

NO H/O ENT BLEED  RT. EAR  LT. EAR  NOSE  MOUTH

NO H/O SEIZURE PRESENT

PT. E 4 V 5 M 6

ADDITIONAL COMMENTS

PULSE /min; BP /mHg.

PUPILS

B/L NSRL  
 Lt. Dilated SR  
 Lt. Dilated NR  
 Rt. Dilated SR  
 Rt. Dilated NR  
 B/L Dilated Fixed  
 MOVING  
 B/L WELL  
 LT > RT  
 RT > LT  
 UL>LL  
 UL<LL (CENTRAL CORD SYNDROME)  
 ANY LIMBS (QUADRIPLAGIC)

CT HEAD AND SPINE FINDINGS

\* Indicates a Required Field

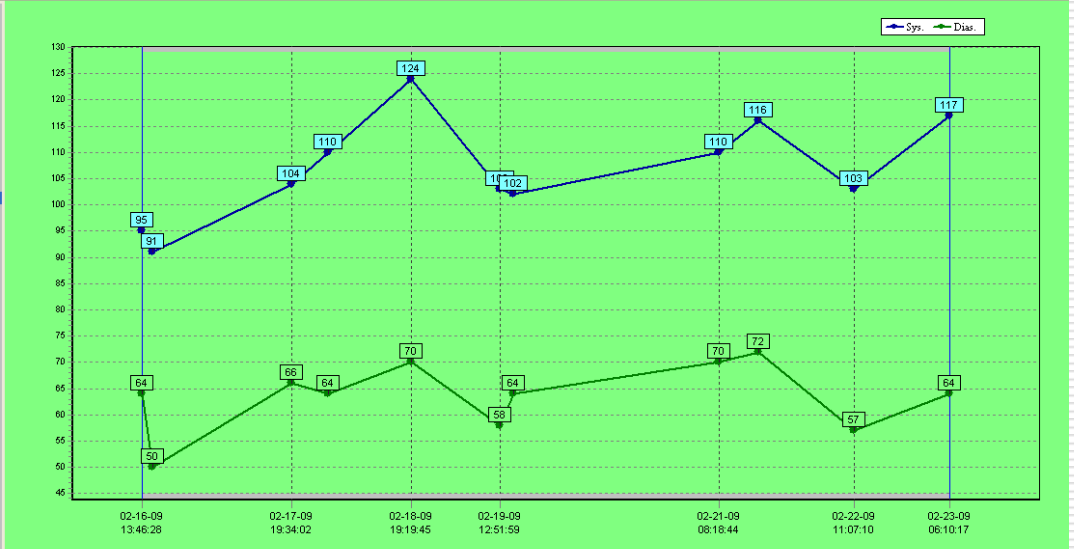
Preview

OK

Cancel

File Help  
**LNAME,RAJIYA** Hospital Location: TC3 NEUROSURGERY ICU  
 '151034' Jan 01,1998 (11) From - To: 02/16/09 - 02/23/09  
 Expired in Error Enter Vitals Allergies

- TODAY  
 T-1  
 T-2  
 T-3  
 T-4  
 T-5  
 T-6  
 T-7  
 T-15  
 T-30  
 Six Months  
 One Year  
 Two Years  
 All Results  
 DATE RANGE  
 02/16/09 - 02/23/09



| B/P                 | 02-16-09 13:46:28 | 02-16-09 15:52:19 | 02-17-09 19:34:02 | 02-18-09 02:47:17 | 02-18-09 19:19:45 | 02-19-09 12:51:59 | 02-19-09 15:31:39 | 02-21-09 08:18:44 | 02-21-09 16:19:25 | 02-22-09 11:07:10 | 02-23-09 06:10:17 |
|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Temp:               | 98.6              | 98.6              | 99.6              | 98.6              | 101               | 99                | 99                | 98.6              | 98.6              | 98.6              | 98.8              |
| Pulse:              | 68                | 68                | 88                | 70                | 112               | 74                | 72                | 70                | 97                | 84                | 92                |
| Resp:               | 28                | 24                | 30*               | 30*               | 44*               | 28                | 30*               | 20                | 24                | 20                | 28                |
| P O <sub>2</sub> %: | 97                |                   |                   | 100               | 98                | 100               | 100               | 100               | 100               | 100               | 100               |
| L/Min/ %:           |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| B/P:                | 95/64*            | 91/50*            | 104/66            | 110/64            | 124/70            | 103/58*           | 102/64            | 110/70            | 116/72            | 103/57*           | 117/64            |
| Wt (lbs):           |                   |                   |                   |                   | Unavailable       |                   | Unavailable       |                   |                   |                   |                   |
| BMI:                |                   |                   |                   |                   | Refused           |                   | Unavailable       |                   |                   |                   |                   |
| Ht (in):            |                   |                   |                   |                   | 62                |                   | Unavailable       |                   |                   |                   |                   |
| C/G:                |                   |                   |                   |                   | Unavailable       |                   | Unavailable       |                   |                   |                   |                   |
| CVP (cmH2O):        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| In 24hr (ml):       |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Out 24hr (ml):      |                   |                   |                   |                   | 1                 |                   | 1                 |                   |                   |                   |                   |
| Pain:               |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Location:           | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     | TC5 NEUROSURC     |
| Entered By:         | ARYA,DEEPA        | K R,BINCY         | K R,BINCY         | MRS,SHUJI         | KUM,KUM           | JOHN,MARY         | KUM,KUM           | JOHN,MARY         | JAIN,RAKESH       | TIRKEY,ELPHU      | CHATURVEDI,K      |

Vista CPRS in use by: Agrawal,Deepak (192.168.9.2)

File Edit View Tools Help

LNAME,RAJIYA TC3 NEUROSURGERY ICU TC3-10 Primary Care Team Unassigned  
 '151034' Jan 01,1998 (11) Provider: AGRAWAL,DEEPAK Attending: Sinha,Sumit

Flag Remote Data No Postings

Primary Care Team / Primary Care Provider

Lab Results

Most Recent  
 Cumulative  
 All Tests By Date  
 Selected Tests By Date  
 Worksheet  
 Graph  
 Microbiology  
 Anatomic Pathology  
 Blood Bank  
 Lab Status

Date Range

Date Range...  
 Today  
 One Week  
 Two Weeks  
 One Month  
 Six Months  
 One Year  
 Two Years  
 All Results

Laboratory Results - All Tests By Date - One Week

Provider : AGRAWAL,DEEPAK  
 Specimen: BLOOD. PC 0222 682  
 02/22/2009 23:27

| Test name        | Result | units | Ref. range | Site Code |
|------------------|--------|-------|------------|-----------|
| Bleef ETIPL107 A | 6.5    |       | 0 to 0     | (73)      |

Comment:

Provider : AGRAWAL,DEEPAK  
 Specimen: SERUM. PC 0222 681  
 02/22/2009 23:27

| Test name               | Result | units | Ref. range | Site Code |
|-------------------------|--------|-------|------------|-----------|
| POTASSIUM (K) SE 01B1 A | 2.0    |       | 0 to 0     | (73)      |

Comment:

Provider : AGRAWAL,DEEPAK  
 Specimen: SERUM. PC 0219 338  
 02/19/2009 16:43

| Test name                  | Result | units | Ref. range | Site Code |
|----------------------------|--------|-------|------------|-----------|
| CREATININE (CRE) SE 03A1 A | 0.3    |       |            | (71)      |

Provider : AGRAWAL,DEEPAK  
 Specimen: SERUM. PC 0219 337  
 02/19/2009 16:43

| Test name               | Result | units | Ref. range | Site Code |
|-------------------------|--------|-------|------------|-----------|
| POTASSIUM (K) SE 01B1 A | 3.0    |       |            | (71)      |

Provider : AGRAWAL,DEEPAK  
 Specimen: SERUM. PC 0219 336  
 02/19/2009 16:43

| Test name             | Result | units | Ref. range | Site Code |
|-----------------------|--------|-------|------------|-----------|
| SODIUM (NA) SE 01A1 A | 141    |       |            | (71)      |

Provider : AGRAWAL,DEEPAK  
 Specimen: SERUM. PC 0219 335  
 02/19/2009 16:43

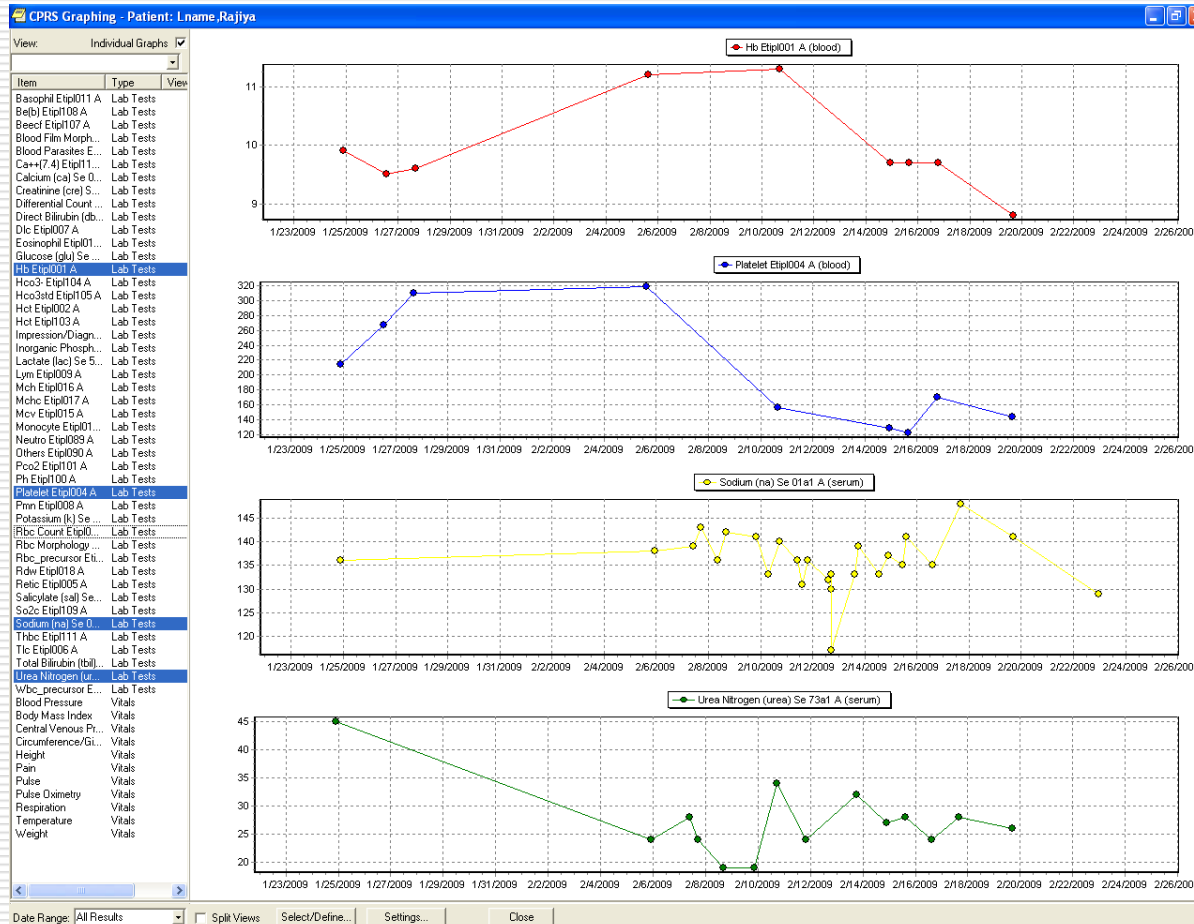
| Test name                    | Result | units | Ref. range | Site Code |
|------------------------------|--------|-------|------------|-----------|
| UREA NITROGEN (UREA) SE 73A1 | 26     |       |            | (71)      |

Provider : AGRAWAL,DEEPAK  
 Specimen: BLOOD. PC 0219 279  
 02/19/2009 16:18

| Test name            | Result | units | Ref. range | Site Code |
|----------------------|--------|-------|------------|-----------|
| HB ETIPL001 A        | 8.8    |       |            | (71)      |
| HCT ETIPL002 A       | 25.6   |       |            | (71)      |
| WBC COUNT ETIPL003 A | -      |       |            | (71)      |
| PLATELET ETIPL004 A  | 144    |       |            | (71)      |
| RETIC ETIPL005 A     | -      |       |            | (71)      |
| TLC ETIPL006 A       | 5000   |       |            | (71)      |
| DLC ETIPL007 A       | -      |       |            | (71)      |
| PMN ETIPL008 A       | -      |       |            | (71)      |
| LTH ETIPL009 A       | -      |       |            | (71)      |

Cover Sheet | Problems | Meds | Orders | Notes | Consults | Surgery | D/C Summ | Labs | Reports

# Interfacing of Lab equipment





# eMLC

VisiA CPRS in use by: Agrawal,Deepak (192.168.9.2)

File Edit View Action Options Tools Help

**LNAME,SADHANA** TC3 NEUROSURGERY ICU TC3-03 Primary Care Team Unassigned  
 "222542" Jan 01,1982 (28) Provider: AGRAWAL,DEEPAK Attending: Sinha,Sumit

Flag Remote Data Postings CW

Last 100 Signed Notes  
 New Note in Progress  
 Aug 18,10 NEUROSURGERY CASUALTY NOTE , TC3 NEUROSURGERY ICU, A  
 All signed notes  
 Aug 17,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGERY ICU, S  
 Aug 16,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGERY ICU, S  
 Aug 16,10 TRACHEAL CULTURE REPORT, TC3 NEUROSURGERY ICU, MAHES  
 Aug 16,10 URINE CULTURE REPORT, TC3 NEUROSURGERY ICU, MAHESH KL  
 Aug 14,10 CT-REPORT, TC3 NEUROSURGERY ICU, PARUL GUPTA  
 Aug 13,10 NEUROSURGERY NOTE ON ROUND, TC3 NEUROSURGERY ICU, S  
 Aug 13,10 NEUROSURGERY OPERATION NOTE, TC3 NEUROSURGERY ICU, A  
 Aug 13,10 NEUROSURGERY POST-OP NOTE, TC3 NEUROSURGERY ICU, AJIT  
 Aug 12,10 NEUROSURGERY OPERATION NOTE, TC3 NEUROSURGERY ICU, A  
 Aug 12,10 NEUROSURGERY ADMISSION NOTE, TC3 NEUROSURGERY ICU, N  
 Aug 12,10 NEUROSURGERY CASUALTY NOTE, A EMERGENCY ROOM, V.VJEN  
 Aug 12,10 MLC FORM, A EMERGENCY ROOM, V.VJENDRA KIRNAKE

Visit: 08/12/10 MLC FORM, A EMERGENCY ROOM, V.VJENDRA KIRNAKE (Aug 12,10@15:00)

LOCAL TITLE: MLC FORM  
 DATE OF NOTE: AUG 12, 2010@15:00 ENTRY DATE: AUG 12, 2010@15:00:15  
 AUTHOR: KIRMAKE,V VIJENDRA EXP COSIGNER:  
 URGENCY: STATUS: COMPLETED

-----  
 JPN APEX TRAUMA CENTRE  
 ALL INDIA INSTITUTE OF MEDICAL SCIENCES  
 NEW DELHI

-----  
 Patient HRN : \*\*\*000-22-2542\*\*\*  
 S. No.\*\*\*222542 \*\*\* Name:\*\*\*LNAME,SADHANA \*\*\*  
 Age:\*\*\*28 \*\*\* Sex:\*\*\*FEMALE \*\*\*

MLC No:\*\*\*000-22-2542 \*\*\* Occupation:\*\*\* \*\*\*  
 Residence:\*\*\*H NO-352 AJAY NAGAR

SIMILE PUR  
 FARIDABAD, HR \*\*\*

Date and Time of examination:\*\*\*Aug 12,2010@14:20 \*\*\*

-----  
 Date and Hour Of Arrival \*\*\*Aug 12,2010@14:20 \*\*\*

No.and date of police docket.\*\*\* \*\*\*  
 (DDR/FIR no. & Under Section)\*\*\* \*\*\*  
 Name of the police official \*\*\* \*\*\*  
 Belt No. of the Official \*\*\* \*\*\*

[Date of admission:\*\*\* \*\*\*  
 If admitted [  
 [Date of discharge:\*\*\* \*\*\*

Received by Police(Name and Sign.):\*\*\* \*\*\*

-----  
 Space for particulars as to further reference to the case-date,date of giving  
 evidence in the court or dispatch of articles said to contain/  
 Marks of identification or Thumb impression of patient/body(if brought dead)  
 \*\*\* \*\*\*

-----  
 BRIEF ALLEGED HISTORY & EXAMINATION

-----  
 Alleged H/O \*\*\*FALL \*\*\* ON \*\*\*Aug 12,2010@13:30 \*\*\*  
 H/O LOSS OF CONSCIOUSNESS \*\*\*+ \*\*\*  
 H/O VOMITING PRESENT \*\*\*NO \*\*\*  
 H/O ENT\*\*\*YES \*\*\* BLEED INFO.\*\*\*LT. EAR, NOSE \*\*\*  
 H/O SEIZURE PRESENT\*\*\*NO \*\*\*  
 \*\*\*AHO FALL FROM HEIGHT APPROX- 14 FEET.  
 \*\*\*  
 1. AIRWAY  
 \*\*\*PATENT \*\*\*  
 \*\*\* \*\*\*  
 2. BREATHING \*\*\*NORMAL \*\*\*  
 3. AIR ENTRY \*\*\*B/L NORMAL \*\*\* COMMENT\*\*\* \*\*\*  
 4. RESP RATE\*\*\*18 \*\*\* /min; PULSE\*\*\*96 \*\*\*/min; BP\*\*\*117/76 \*\*\*/mHg  
 6. GCS:E\*\*\*1 \*\*\* V\*\*\*1 \*\*\* H\*\*\*5 \*\*\*  
 7. PUPILS\*\*\* B/L NSRL \*\*\*  
 8. LIMB MOVEMENT\*\*\*RT > LT \*\*\*  
 9. \*\*\*\*\*

-----  
 / Templates  
 Encounter  
 New Note

Cover Sheet | Problems | Meds | Orders | Notes | Consults | Surgery | D/C Summ | Labs | Reports

start write up on comput... Presentations COMPUTERISATIO... CPRS - Patient Chart 9:00 AM



**JAI PRAKASH NARAYAN APEX TRAUMA CENTER**  
**आ० भा० आ० संस्थान नई दिल्ली - ११००२९**  
**ALL-INDIA INSTITUTE OF MEDICAL SCIENCES NEW DELHI 110029**



|                       |   |                              |                                 |                           |   |                  |
|-----------------------|---|------------------------------|---------------------------------|---------------------------|---|------------------|
| S.No. <b>10051</b>    | Name <b>LNAME,KAUSHER</b>                         | Sl/w/d/o <b>AOBUL HAKEEM</b> | Age <b>35</b>                   | Sex <b>FEMALE</b>         | Caste/Religion <b>MUSLIM</b>                  | Occupation _____ |
| MLC No. <b>222865</b> | Residence <b>F1/93 SANGAM VIHAR NEW DELHI, DL</b> | Phone No. _____              | Brought by <b>ASI MOHD INAM</b> | Brought by Email ID _____ | Date & Time of Exam <b>Aug 16, 2010@15:15</b> |                  |
| Email _____           |   | Brought by Phone No. _____   |                                 |                           |   |                  |

Date and hour of arrival Aug 16, 2010

No. and date of Police docket \_\_\_\_\_

(DDR/FIR NO. & Under section) \_\_\_\_\_

Name of Police Officer \_\_\_\_\_

Bell No. of Police Official \_\_\_\_\_

If admitted: Date of Admission \_\_\_\_\_

Date of Discharge \_\_\_\_\_

Received by Police (Name & sign.) \_\_\_\_\_

Space for particulars as to further reference to the case-date of giving evidence in the Court, or despatch, of articles said to contain /

Marks of identification or Thumb impression of patient/body (in case of Brought Dead)

**BRIEF ALLEGED HISTORY AND EXAMINATION**

Alleged H/O ASSAULT ON \_\_\_\_\_

Loss of Consciousness NO Vomiting Present NO

ENT NO Bleed info \_\_\_\_\_ Salzure Present NO

Comments

1. Airway PATENT

2. Breathing NORMAL

3. Air Entry B/L NORMAL

4. Resp Rate 16 /min; Pulse 74 /min; BP 120/84 mmHg;

5. GCS E 4 V 5 M 6 6. Pupils B/L NSRL

7. Limb Movement B/L WELL

8. Investigations \_\_\_\_\_

X-Ray: CHEST, FAST

9. Given Call To - \_\_\_\_\_

10. Treatment: INJ. TETANUS 0.6ml IM STAT, INJ. VOVERON 75mg IM STAT

**PARTICULARS OF INJURY (S)**

NO Visible Injuries On Patient NO VISIBLE FRESH INJURY

NO 1. Wounds LACERATION

NO 2. Wounds \_\_\_\_\_

|         |   |   |
|---------|---|---|
| OPINION | Name of injuries <u>Pending investigation</u> | Kind of Weapon used <u>NOT APPLICABLE</u> |
|         | (Simple, Grievous or dangerous)               | (Sharp, Blunt, Fire Arm etc)              |

Name of Doctor KUMARESH VAIDYA

Signature with Date \_\_\_\_\_

( PLEASE GET THE STAMP AFFIXED )

*Received one Copy  
 ASI-Gajjar Kumar  
 P.S. Sangam Vihar  
 SE*

# BACKGROUND

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- Mobile penetration in India exceeds 50%
    - The subscriber base in wireless segment increased to 563.73 million in February (TRAI- march 2010)
  
  - Almost every family has access to mobile
  
  - Pilot study at JPNATC shows that *all* patients could give a mobile number at the time of registration
-

# INTRODUCTION

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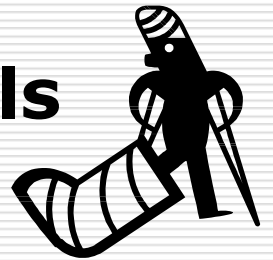
- Although Call-centres are common in commercial industries like telecom, the concept has been alien to hospitals.
- Hospitals usually have reception desks which manage general enquiries and appointments.



# Why was the project started

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- **Long queues in OPD's (clinics) especially in governmental hospitals**
  - Patients stand in line from 6AM
  - Encourages corruption & malpractice
- **Doctor's may be unavailable**
  - pts usually come from far distances & it is a major socio-economic burden to come for follow up visits.
  - In case the doctor is on leave/ busy, patients have to come another day



# AIMS & OBJECTIVES

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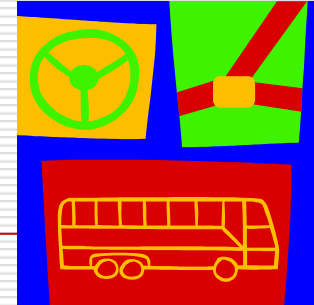
- To streamline the process of hospital visits and minimize wait times for patients by using m-health initiatives.
  
  - A secondary objective was to improve transparency and accountability in the OPD's
-

## Pre-Call centre Video

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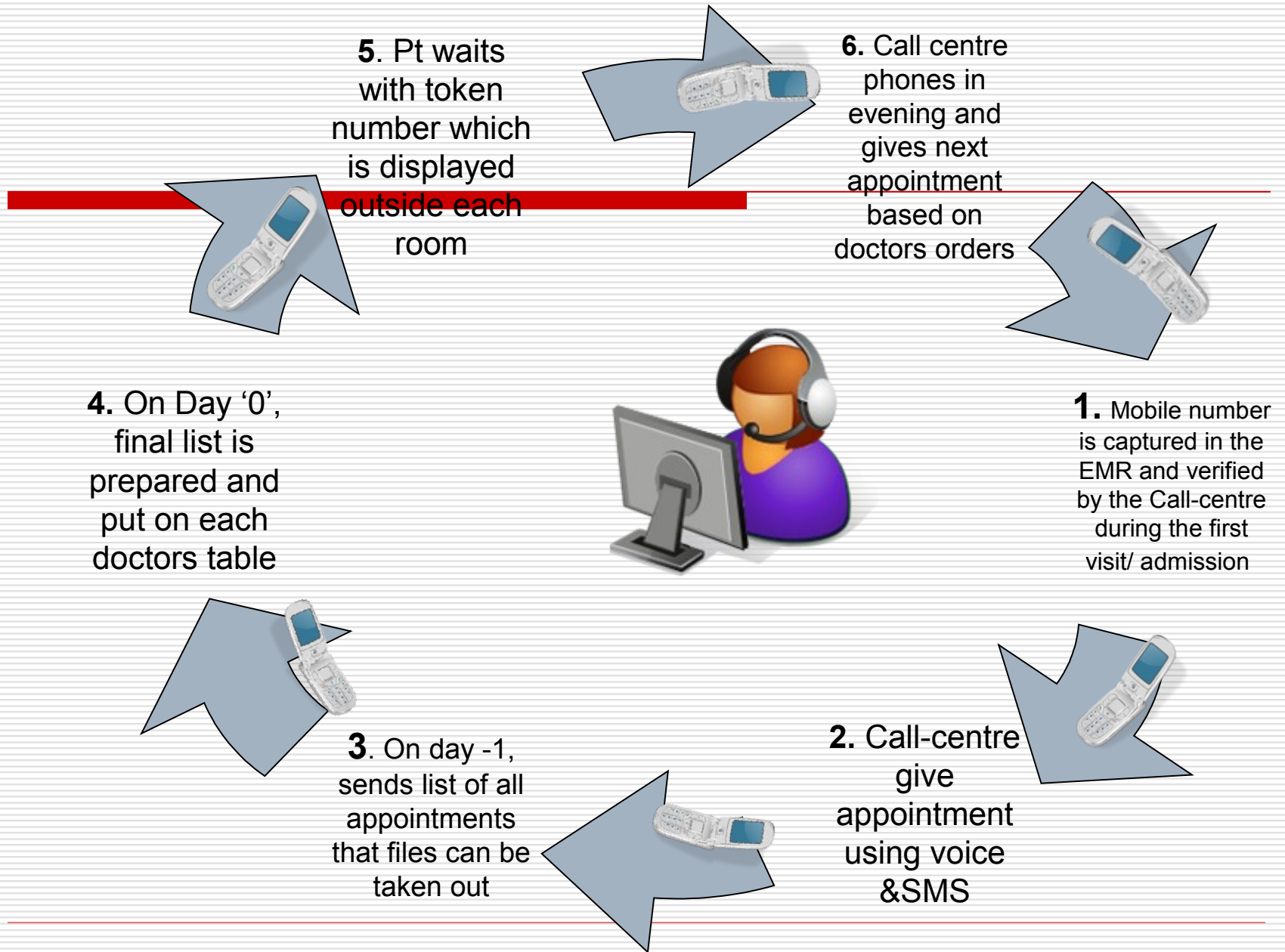
□ **Target group:**

- General public and patients visiting hospitals

□ **Geographical reach:**

- All over India (As patients come from various states from all over the country to AIIMS)







Blow-up of the computerized token issuing machine inside the registration counter



Display station in the two waiting halls in JPNATC OPD

# ACHIVEMENTS

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- Following this initiative, patients no longer have to queue for appointments with doctors/ stand in line for registration
  - The wait time to be seen by the doctor has drastically been cut down to less than 2 hour for the majority of the patients
  - In case the doctor is unavailable or there is change in schedule, an intimation by SMS is sent to the patients and appointments rescheduled
-



# ACHIVEMENTS

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- ❑ The token number sent as SMS remains the queue number which is displayed on electronic display boards in real time outside each doctor's chamber.
  - ❑ The OPD area is dramatically less crowded leading to better ambience and staff response.
  - ❑ For the first time statistics on the number of patients waiting to be seen by a clinician/ specialty will be available to the government so that necessary policy changes can be made.
-

# Sustainability & Scalability

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- The total expenditure is presently around Rs 1 lakh/ month (including a nine seater call centre)
  - The width and breadth of the initiative is immense. One tele-centre can cover multiple hospitals, or at state level and even at national level
-

# Approximate costing

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- Fixed costs Rs 50 lakhs
  
  - Recurring costs Rs 50 lakhs/year
    - Support Rs 2 lakhs/month
    - Staff Rs 1 lakh/ month
    - Call centre Rs 1 lakh/month
    - Misc Rs 0.5 lakhs/month
-



# THANK YOU

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