

The Micro-Insurance Health Sector..Use of Technology

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Chairman, Track Four Infotec India Private Limited

RSBY program

The inclusion of below the poverty line population, in a micro health insurance program

The RSBY story

To create a
paradigm shift in
health delivery, to
the poor

The 3 P's:

Patient

Provider

Payer

Govt. becomes responsible as a Payer through introduction of Micro-Insurance and Providers become independent entities

The handicaps
of running such
a program.
What are the
concerns?

EDUCATION

EDUCATION OF THE PATIENT

EDUCATION OF THE PROVIDER

EDUCATION OF THE PAYERS

The Role of
IT, and what
it can do.

Technology

Sim ~ server

Synchronization

Cloud Computing

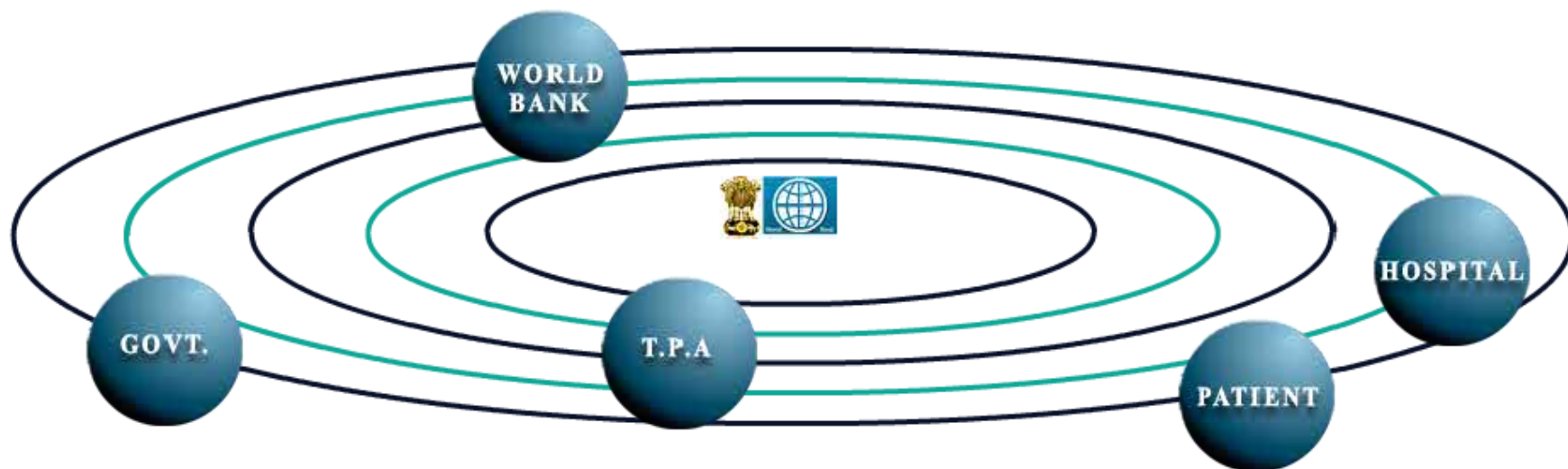
A Brilliant Thought Process

The Vision to integrate 3 P's of the Medical Eco-System wirelessly.

Patient

Provider

Payer



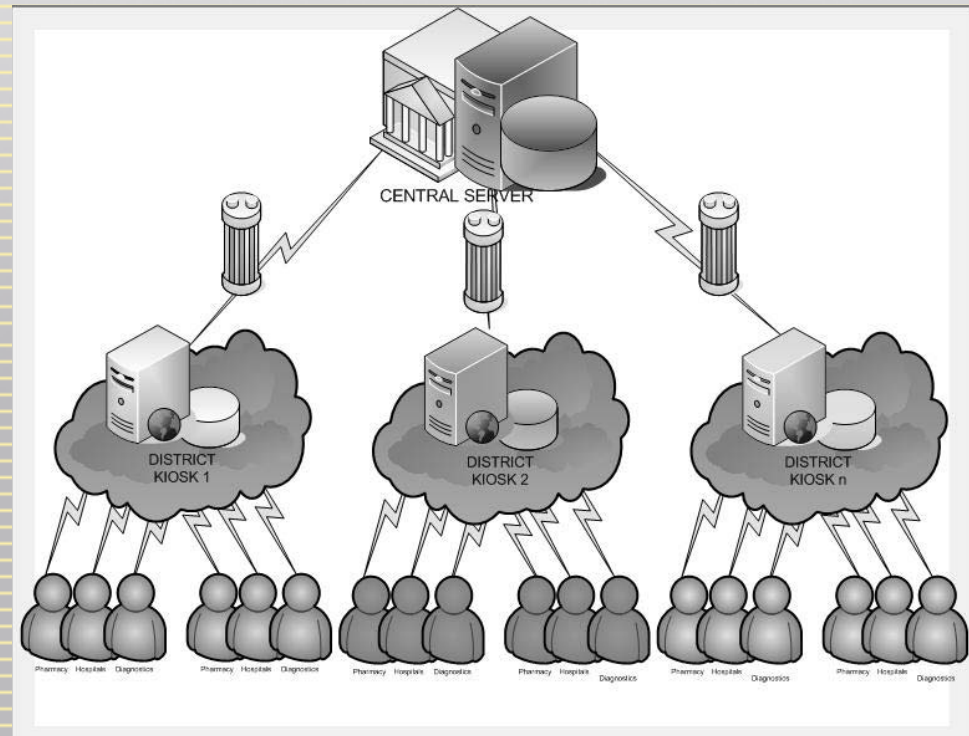
We need to expand the provider connectivity for even better results

Even more brilliant execution

To be able to integrate all the players of healthcare eco-system online real time.

Even more brilliant execution

To be able to integrate all the players of healthcare ecosystem online real time.



The use of Technology in:

Enrollment and smart
card personalisation
validation

Claims Processing

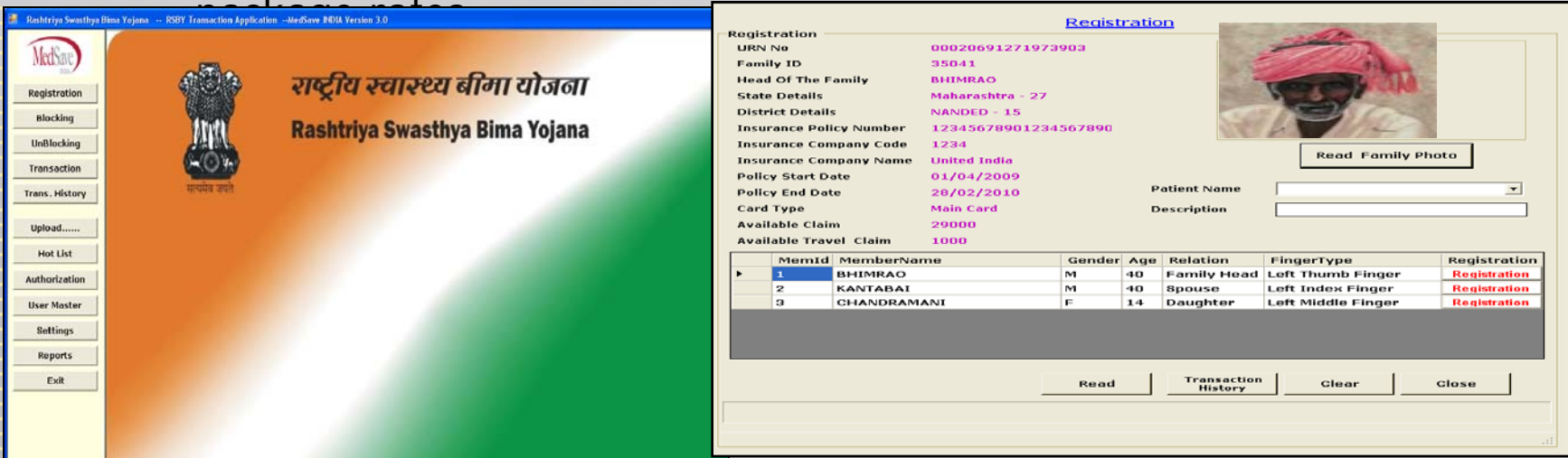
Smart Card



Transaction software Features

RSBY Transaction (Hospitalization)

1. Facility to download the package rates for specific disease codes from server. This will enable Hospital to keep update the



Registration

URN No: 00020691271973903
Family ID: 35041
Head Of The Family: BHIMRAO
State Details: Maharashtra - 27
District Details: NANDED - 15
Insurance Policy Number: 12345678901234567890
Insurance Company Code: 1234
Insurance Company Name: United India
Policy Start Date: 01/04/2009
Policy End Date: 28/02/2010
Card Type: Main Card
Available Claim: 29000
Available Travel Claim: 1000

Patient Name:
Description:

Memid	MemberName	Gender	Age	Relation	FingerType	Registration
1	BHIMRAO	M	40	Family Head	Left Thumb Finger	Registration
2	KANTABAI	M	40	Spouse	Left Index Finger	Registration
3	CHANDRAMANI	F	14	Daughter	Left Middle Finger	Registration

Buttons: Read, Transaction History, Clear, Close

Value of the smart card

Reliable Identity Management – Smart card

Visual & Electronic Secure Identification

Unique Policy Identifier

Policy Holder Name , DOB, Sex, Address

Photograph of Policy Holder

Bio-metric features

Embedded Photograph

Embedded Image of the Policy holder's Left Thumb

Health Card

Encounter registration Transaction registration

Health Insurance Policy Eligibility, Medical Expenses & Limits

Benefits of RSBY

- **Cover for Hospitalisation Expenses of Rs. 30,000/- (USD 660) per family (upto five members) per annum on a family floater basis**
- **727 pre-defined surgical packages including Maternity & Newborn Care**
- **Cover for Day Care Surgeries**
- **All Pre-existing Diseases covered from day 1**
- **Pre/ Post hospitalisation Expenses and Limited Transportation cost (\$2 per visit upto a maximum of \$20) covered**

Current Implementation Status



- Over 19 million cards distributed
- Over 6,891 providers online across India

Management of Fraud

With help from I.T

- Identity Fraud
- Coding Fraud
- Billing Fraud

What needs to be addressed

- Over diagnosis
- Over utilization
- Over charging

The Current Trends in Fraud Prevention: Patient

Identity Fraud

- Introduction of Biometric Identification and its storage in the Smartcard at PPP Level.



The Current Trends in Claims cost and fraud containment

How it is being addressed currently?

- Introduction of Biometry for Patient Validation.
- Introduction of Disease codes for 800 common diseases.
- Introduction of HAC (Hospital Authorization Cards).

The Current Trends in Fraud Prevention: Provider

Identity Fraud

- Introduction of Key Management card for Providers (HAC: Hospital Authentication Card).



The Current Trends in Fraud Prevention

Coding Fraud

- By introduction of 800 codes (ICD-10).

The Current Trends in Fraud Prevention

Billing Fraud

- By introduction of 800 codes (ICD-10).
- Introduction of Sub-Limitation on Expenditure under different heads.

The grey areas in Claims

Grey areas in Claims

Identity Fraud

- Identity is being validated by one individual at the time of admission and discharge whilst a different individual is availing the treatment.

Grey areas in Claims

Coding Fraud

- Misrepresentation of the Disease codes for higher payment schedules.
- Multiple disease codes selection for higher payment.
- Codes outside of identified 800 ICD-10 codes are being selected as there are no stipulated limits for expenditure.

Grey areas in Claims

Billing Fraud

- Unnecessary billing for admission into ICU.
- Increase in billing for No of Days stay in the Hospital (Outside the 800 coded diseases).

Have we been
able to plug all
the Leakages?

How we
propose to
address this in
the current IT
environment?

eCO₂Xogen

An Integrated Health Eco System

Is it enough to make
quantitative care
available, and affordable?
Do we have a
responsibility to also
monitor the quality
of care delivered?

With IT empowerment
can we not deliver
protocol; driven
disease management
guidelines and checks ?

eO₂XOgen

Presents....

SIM~SIM

Secure Instant Medicine



Scope

The Solution

- Introduction of enhanced usage of Biometry.
- Introduction of Protocol driven Micro Management of Disease.
- Introduction of SIM~SIM or Secure Instant Medicine enabled by the SIM Card, allowing instant server access.

Provider Profiling

Procedure are mapped against No of Days Stay.

No of Beds are mapped against Hospital

Disease Profiling

Segregation of Chronic, Communicable, life style diseases and Mother and Child programs which require long term care from other diseases for their management.

Technology enablers in Preventive & Chronic Disease Management

INSURANCE

MICRO-INSURANCE

DONOR

Common Internet Cloud for System driven Uniform claims processing.

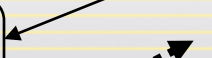
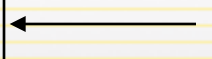
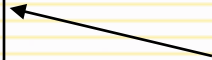
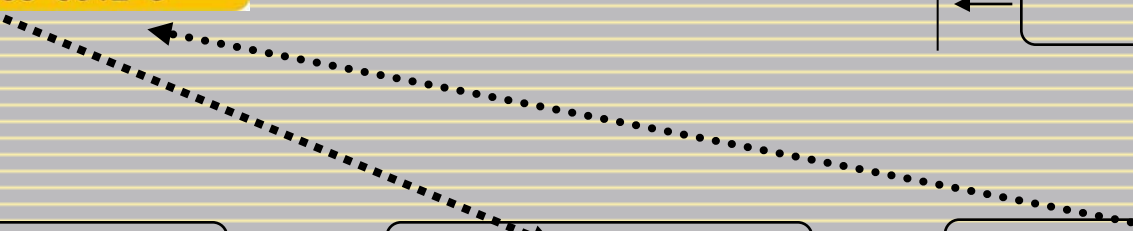
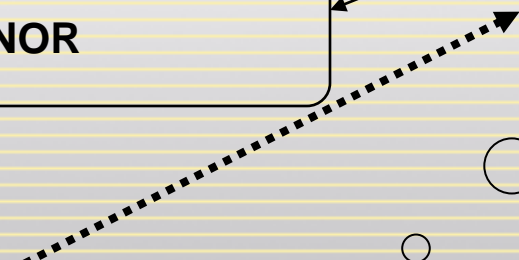
DOCTOR
INVESTIGATION
DRUG
HOSPITAL



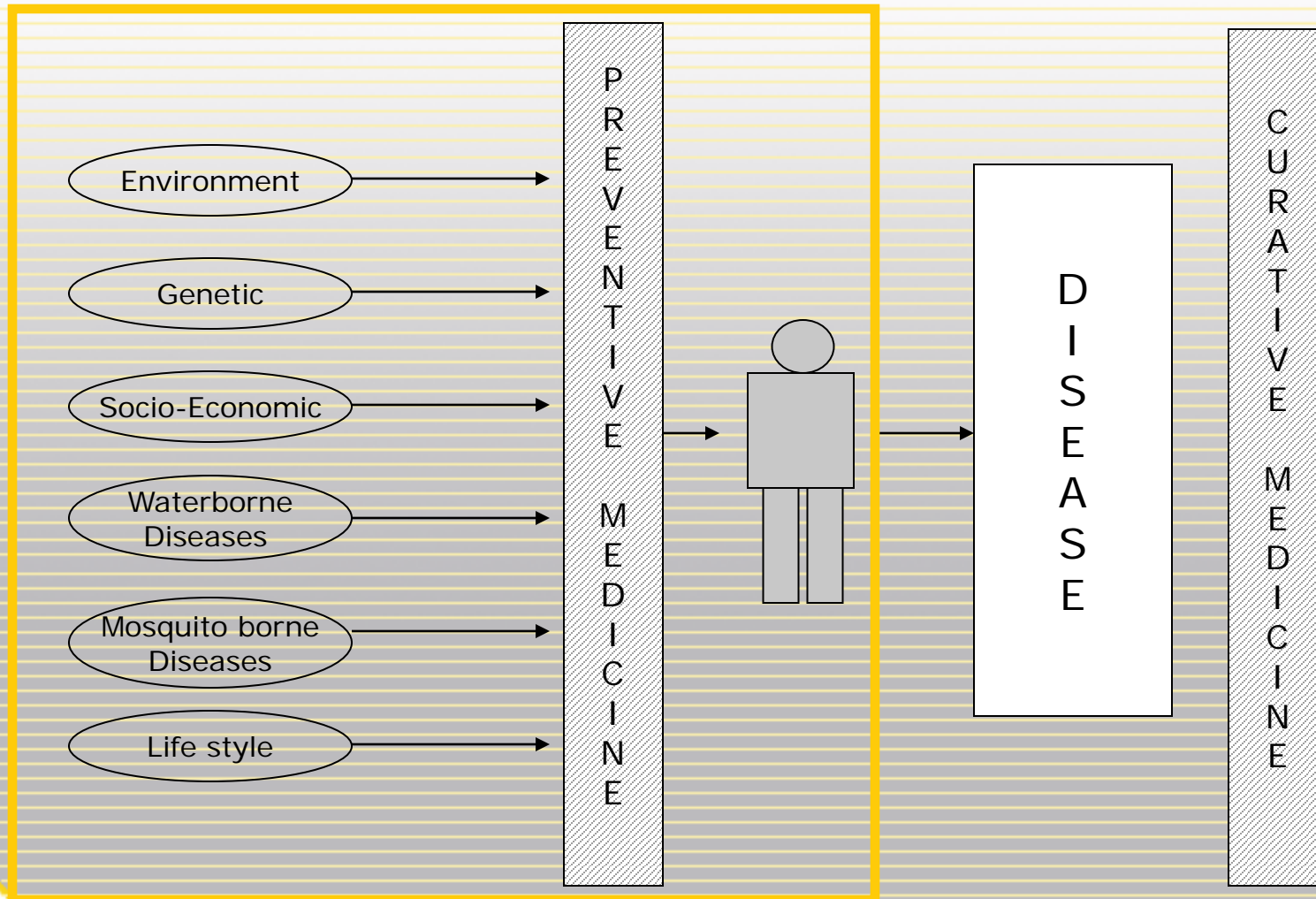
OUT-PATIENT

IMMUNISATION

MATERNITY



Preventive & Social Medicine for prevention of claims



Mobile Health

Self
Diagnosis

Disease
Information

Drug
Information

Diet /
Nutrition

Yoga /
Physiotherapy

Alert on
Drugs

Reminder
On Does/
Don'ts
(General Advice)

Reminder on
Vaccination
Immunization

EHR/EMR

Chronic Management

Diabetes
Cancer
Hypertension
Kidney Failure
TB
Asthma
Alzheimer's
Epilepsy
Thyroid
Gout
G.I Diseases
CRF

Mother & Child Health

Ante-Natal
Post-Natal
Vaccination/
Immunization
Breast Cancer
Female Genital
Cancer

What can IT do? Who for?

Governments

Donor's

Provider's

Patient's

Make them proactive by providing real time information on line and give them a sense of involvement, real time.

Dependant members: Mother and child care



22 AUG 2009 03:44 pm

'MD. MUSLIM' WELCOME TO eOxygen

SIGN OUT

BABCF023083A

PERSONNEL

HOME

CHANGE PASSWORD

HEALTH FILE

PRIMARY MEMBER

DEPENDANT MEMBER

MY MEDICAL REPORTS

CLAIM HISTORY

MY DOCUMENTS

DEPENDANT MEMBER DETAILS

PERSONAL DETAILS



MEMBERSHIP NO : BABCFO23083B

GENDER : FEMALE

BLOOD GROUP : A+

HEIGHT : 5.1 FT

MOBILE NO : 9898989898

ADDRESS : -

MEMBER NAME : SABINA KHATUN

DATE OF BIRTH : 17 JUN, 1973

NATIONALITY : INDIAN

WEIGHT : 54 KG

EMAIL ID : -

POLICY DETAILS

FIRST ENROLLMENT DATE : 21 APR, 2008

POLICY PERIOD : 21 APR, 2008 - 20 APR, 2009

AVAILABLE BALANCE : 100000.00

POLICY CODE : 0056820162

POLICY LIMIT : 100000.00

PRE-EXISTING DISEASE : -

PERSONAL DETAILS



MEMBERSHIP NO : BABCFO23083C

GENDER : MALE

BLOOD GROUP : B+

HEIGHT : 2.3 FT

MOBILE NO : -

ADDRESS : -

MEMBER NAME : EJAZ MOHAMMAD

DATE OF BIRTH : 30 MAR, 2002

NATIONALITY : INDIAN

WEIGHT : 32 KG

EMAIL ID : -

POLICY DETAILS

FIRST ENROLLMENT DATE : 21 APR, 2008

POLICY PERIOD : 21 APR, 2008 - 20 APR, 2009

AVAILABLE BALANCE : 100000.00


POLICY CODE : 0056820162

POLICY LIMIT : 100000.00

PRE-EXISTING DISEASE : -

Immunization Schedule

eDiagnosis HOSPITAL - Microsoft Internet Explorer

 **BABY DETAILS (NRS/19/02/2019 - 01)**

SEX	DATE OF DELIVERY	19 FEB, 2019	TIME OF DELIVERY	02:55 A.M
REGISTRATION NO	WEIGHT	2.3 KGS	GESTATIONAL AGE	39 WEEKS

RECOMMENDED IMMUNIZATION SCHEDULE FOR PERSONS AGED 0 - 6 YEARS

	AT BIRTH	6 WEEKS	10 WEEKS	14 WEEKS	16-24 WEEKS	9-12 MONTHS	12-15 MONTHS	2 YEARS	2-3 YEARS	4-6 YEARS
BCG VACCINE	■									
DIPHTHERIA -TETANUS TOXOIDS - PERTUSSIS-HAEMOPHILUS B CONJUGATED VACCINE							■	■		
DIPHTHERIA AND TETANUS VACCINE										■
HAEMOPHILUS INFLUENZAE TYPE B (HIB) VACCINE			■		■		■	■		
HEPATITIS A VACCINE								■	■	
HEPATITIS B VACCINE	■				■					
INACTIVATE INFLUENZA VACCINE			■							
INFLUENZA VIRUS VACCINE							■			
MEASLES MUMPS RUBELLA VACCINE							■			■
MEASLES VACCINE (LIVE ATTENUATED)						■				
MENINGOCOCCAL VACCINE									■	■
ORAL TYPHOID VACCINE								■	■	■
PNEUMOCOCCAL CONJUGATE VACCINE		■		■	■		■			
POLIOMYELITIS VACCINE - ORAL		■	■	■	■					
POLYSACCHARIDE TYPHOID VACCINE							■			
ROTAVIRUS VACCINE			■	■						
TRIPLE ANTIGEN(D,P,T)		■	■	■	■					
VARICELLA VACCINE							■	■		


CANCEL ADMINISTER VACCINE

Voice sms for Vaccination Reminder



Other special features

ANTENATAL CARD :: - Microsoft Internet Explorer



Patient Code : 1306762109

HMO : Global Health Care

T.P.A. : Medicare Services

Date of LMP : 13 DEC, 2006

Parity : 0 : 0

Drug Allergy :

Name : SRIDEBI B BALAPRAKASH

Insurance Co : Royal Sundaram

Weight : 60.0 kg

EDD : 19 SEP, 2007

Age : 30Yrs 11Months

Blood GR. : A +

Food Allergy :

Gravida :

Obstretical History

Medical Report

Previous Prescription

[View](#)

[GENERAL ADVICE](#)

[ADD PRESCRIPTION](#)

ANTENATAL - 1 ST TRIMESTER (0-12 WEEKS)

DATE	GESTATION IN WEEKS	COMPLAINT	WEIGHTS	FUNDAL HEIGHT	EDEMA	BP	ANEMIA	PRESENTATION	LIQ VOLUME	FETAL HEART	INVS.	DRUG	PROC				
	0 - 12 WEEKS 0	VIEW	-	-	-	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SYSTOLIC</td> <td>-</td> </tr> <tr> <td>DIASTOLIC</td> <td>-</td> </tr> </table>	SYSTOLIC	-	DIASTOLIC	-	-	-	-	-	VIEW	VIEW	VIEW
SYSTOLIC	-																
DIASTOLIC	-																
	11 - 14 WEEKS 0	VIEW	-	-	-	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SYSTOLIC</td> <td>-</td> </tr> <tr> <td>DIASTOLIC</td> <td>-</td> </tr> </table>	SYSTOLIC	-	DIASTOLIC	-	-	-	-	-	VIEW	VIEW	VIEW
SYSTOLIC	-																
DIASTOLIC	-																

Antenatal card

Voice SMS for antenatal reminder for prevention of maternal & fetal mortality & morbidity



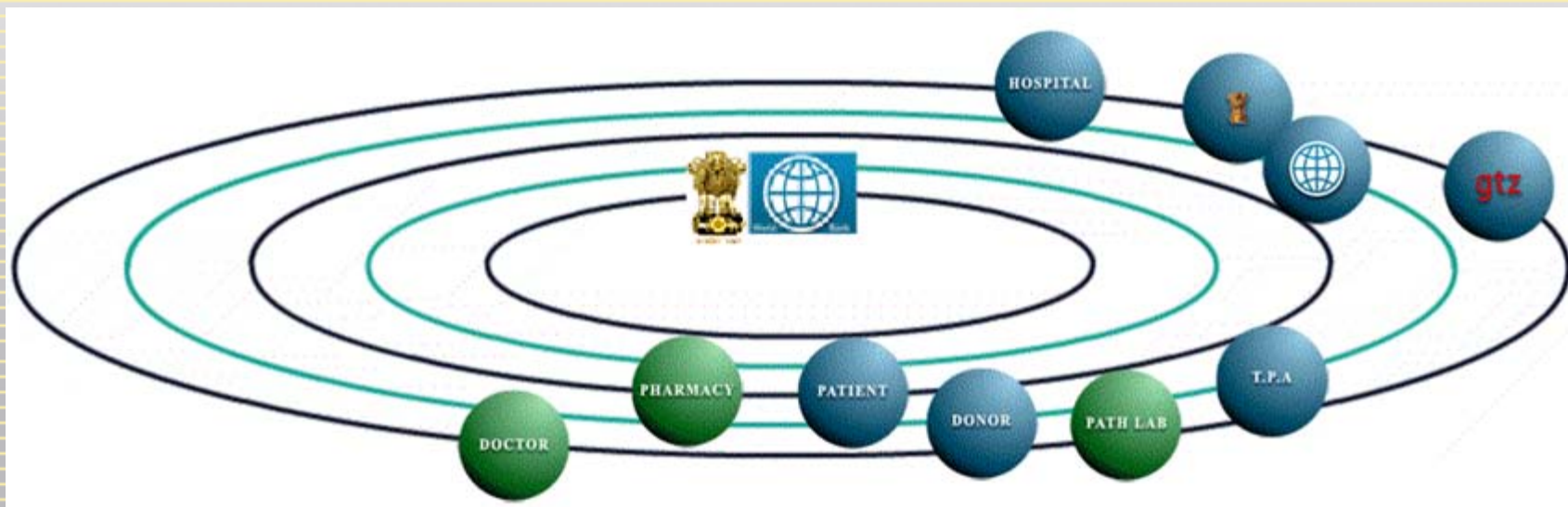
A Brilliant Thought Process

The Vision to integrate 3 P's of the Medical Eco-System wirelessly.

Patient

Provider

Payer



We need to expand the provider connectivity for even better results

Enhancement of Provider Transaction Software

Demographic movement of communicable disease

HEALTH OFFICER :: - Microsoft Internet Explorer

e₂oxogen

Fri, 16-Feb-2007 02:31 PM WELCOME 'DR SAYAN DEB MUKHERJEE' Sign Out

PERSONNEL
Home
Change Password

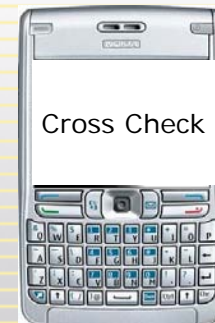
ACTIVITY
Notification of Diseases
Demographic Movement of Disease

DATE RANGE : 16 FEB 2006 TO 16 FEB 2007
SELECT DISEASE : CHOLERA
SUBMIT

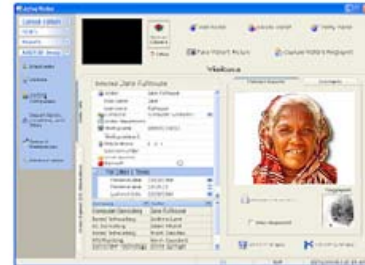
e₂oxogen.com © Copyright Of Track Four Infotech. All right reserved
TRACK4 INFOTEC

Use of Random
Biometric
checks during hospital
stay thru systems generated
random SMS command

Patient ~ Provider ~ Disease Compliance Management



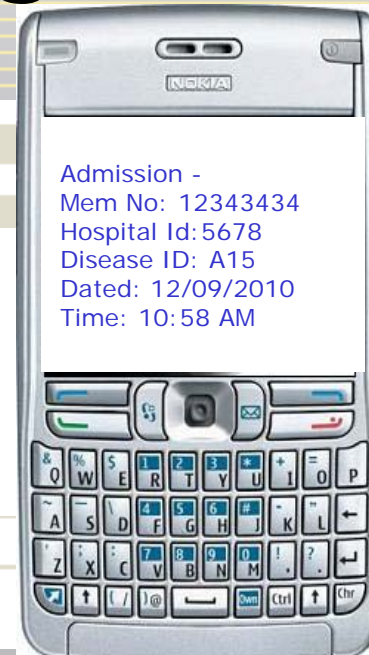
Random SMS



System's generated SMS to be sent by Provider indicating new admissions and patient discharge



1. MEMBER
2. MEDICARE RO



Introduction of NICE Protocols

For better patient
management compliance
and care delivery.

Protocol driven; Suggested prescription an answer?

eOxygen: DOCTOR - Microsoft Internet Explorer

DRUG(S) ADVISED				<input checked="" type="checkbox"/>
SL#	PHARMA	DRUG	START TIME	SELECT
1)	RIFAMPICIN [T36.6X]	MACOX CAPS 10.0 MG/KG/DAY	18/02/2009 20:31	<input checked="" type="checkbox"/>
2)	ETHAMBUTOL [T37.1X]	COMBUTOL TABS 25.0 MG /KG THRICE WEEKLY	18/02/2009 20:31	<input checked="" type="checkbox"/>
3)	CAPTOPRIL [T46.4X]	EPSITRON TABS 25.0 MG	18/02/2009 20:31	<input checked="" type="checkbox"/>
4)	AMLODIPINE [0]	AMLOSUN TABS 5.0 MG	18/02/2009 20:31	<input checked="" type="checkbox"/>
5)	FRUSEMIDE [T50.1X]	LASIX TABS 20.0 MG	18/02/2009 20:31	<input checked="" type="checkbox"/>

... SELECT PHARMACY ...

GENERAL ADVICE		<input checked="" type="checkbox"/>
SL#	ADVICE	SELECT
1)	HOSPITAL ADMISSION (IF REQUIRED)	<input checked="" type="checkbox"/>
2)	STOP SMOKING.	<input checked="" type="checkbox"/>
3)	FAMILY SUPPORT	<input checked="" type="checkbox"/>
4)	PROPER ISOLATION OF THE PATIENT.	<input checked="" type="checkbox"/>
5)	TAKE ADEQUATE REST.	<input checked="" type="checkbox"/>
6)	NO ONE ELSE SHOULD BE ALLOWED TO USE THE PERSONAL BELONGINGS OF THE PATIENT LIKE TOWEL, HANDKERCHIEF, PILLOW OR OTHER FOMITES	<input checked="" type="checkbox"/>
7)	STOP ALCOHOL INTAKE.	<input checked="" type="checkbox"/>
8)	TAKE A DIET THAT IS RICH IN FRUITS AND VEGETABLES, LOW IN SATURATED FAT. RESTRICT DAILY SALT INTAKE TO < 6 GMS/ DAY.	<input checked="" type="checkbox"/>
9)	WATCH FOR POTENTIAL SIDE EFFECTS EARLY ON AFTER STARTING ANTI-HYPERTENSIVE THERAPY.	<input checked="" type="checkbox"/>
10)	COUNSELLING REGARDING COMPLICATIONS	<input checked="" type="checkbox"/>
11)	REGULAR BP AND EYE CHECK-UP.	<input checked="" type="checkbox"/>
12)	ENSURE STRICT COMPLIANCE TO ROUTINE MEDICATIONS FOR CONTROL OF BP, BLOOD SUGAR, DYLIPID AEMIA AND OTHER ASSOCIATED CONDITIONS	<input checked="" type="checkbox"/>
13)	REGULAR AEROBIC EXERCISE (EG. BRIEF WALKING OR CYCLING) WITH GRADUAL INCREASE IN INTENSITY.	<input checked="" type="checkbox"/>
14)	AVOID STRENUOUS ACTIVITY	<input checked="" type="checkbox"/>
15)	PROPER DIETARY CARE. PROPER ATTENTION TO NUTRITION IS IMPORTANT.	<input checked="" type="checkbox"/>
16)	DIRECTLY OBSERVED THERAPY IS OPTIMAL FOR ASSURING COMPLIANCE AND PREVENTING RELAPSE	<input checked="" type="checkbox"/>

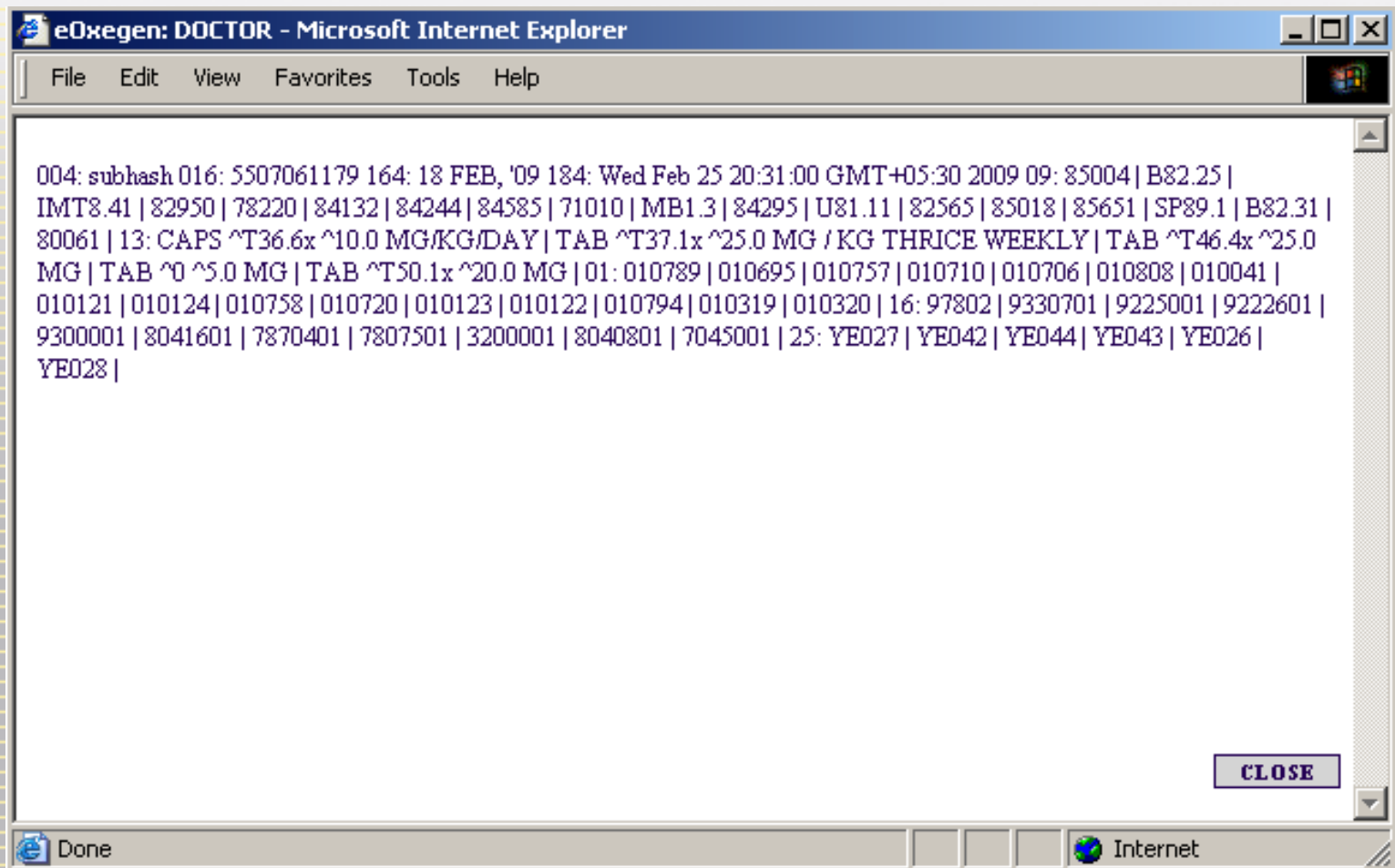
GENERAL & OPERATIVE PROCEDURE(S) ADVISED

Encryption of data for transmission and storage, confidentiality, and HIPAA compliance

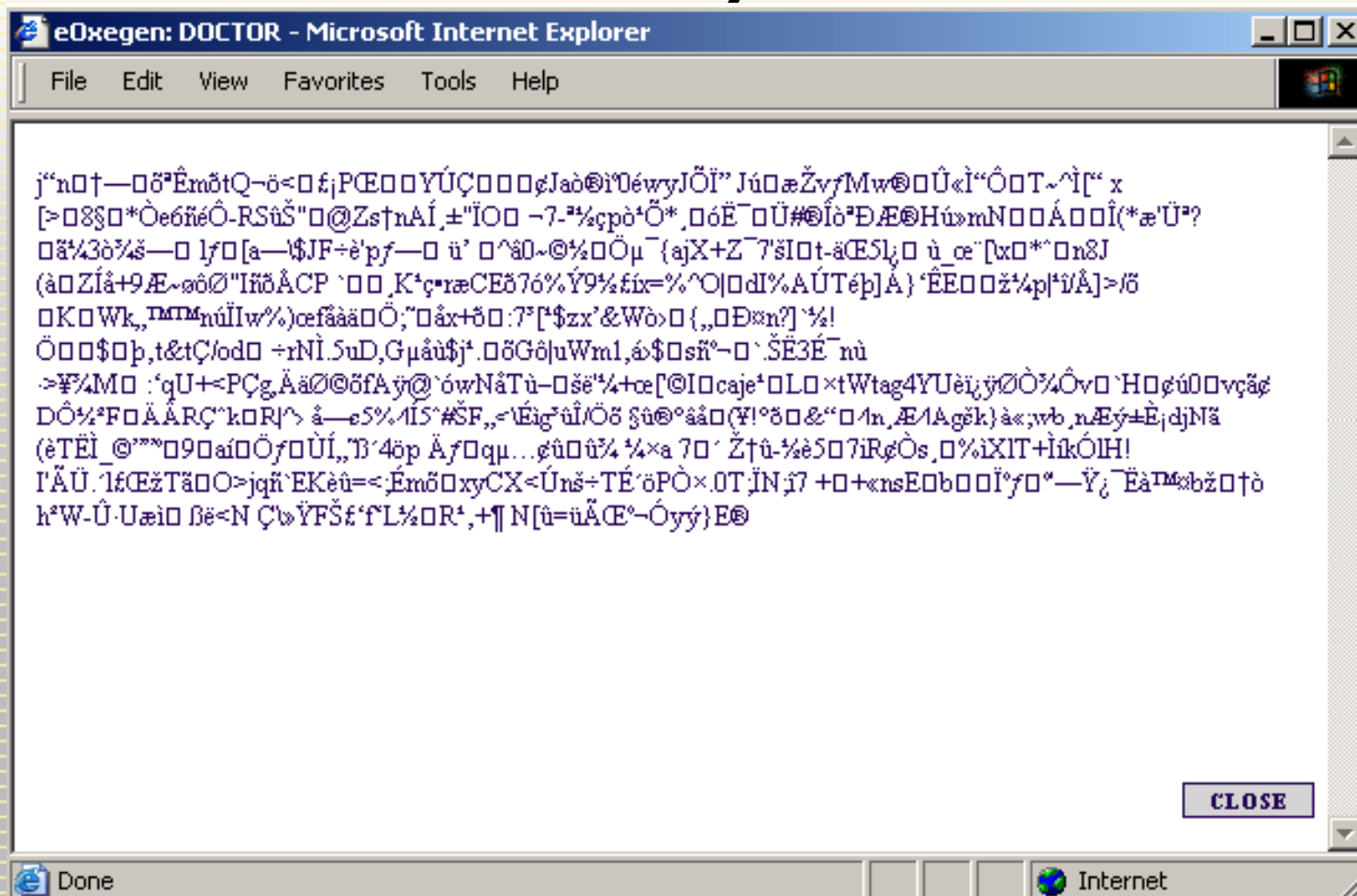
- **NICE** (National Institute of Clinical Excellence), was established as a Special Health Authority in April 1999.
- **AMA-CPT**: American Medical Association Procedure Codes.
- **NDC**: National Drug Code, HIPPA Compliant, ISO 27001 2005 information security management systems QMS 9001:2008 quality management systems
- **Sarbanes-Oxley Act**: The U.S. Federal Sarbanes-Oxley Act was created to protect investors by improving the accuracy and reliability of corporate disclosures. The interpreted relevant ESM requirements can be found in Section 404.
- **EU Data Protection Act**
- **FISMA** (Federal Information Security Management Act) Passed by U.S. Congress as part of the Electronic Government Act of 2002. FISMA provides a framework to ensure comprehensive measures are taken to secure federal information and assets.

(Above standards are followed for Transaction of Medical Data)

Prescription after coding for easy SIM transmission




Encrypted prescription for data security



Up gradation of Patient EHR

Registration of Patient's Past History.

PAST HISTORY - Microsoft Internet Explorer

 PAST HISTORY

HISTORY OF ALLERGY **HISTORY OF PREVIOUS ILLNESS** **TREATMENT HISTORY** **FAMILY HISTORY** **PERSONAL HISTORY** **HISTORY OF PREVIOUS SYMPTOM**

ARE YOU SUFFERING FROM ANY PRE-EXISTING EYE PROBLEM ?

IS THERE ANY HISTORY OF CHEST PAIN ?

IS THERE ANY HISTORY OF FAINTING / BLACK OUTS ?

IS THERE ANY HISTORY OF TRAUMA ?

HAVE YOU HAD ANY ILLNESS IN THE PAST ?

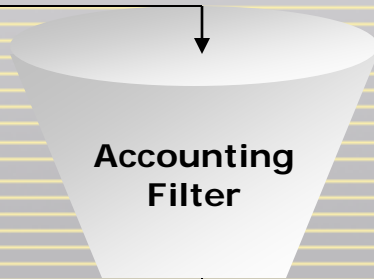
IS THERE ANY HISTORY OF RHEUMATIC FEVER ?

Claims Processing

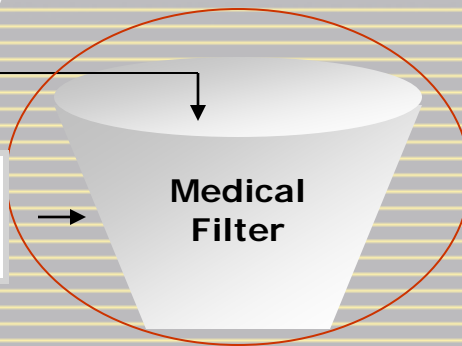
Automated Protocol Driven Standardized Processing

- Rule Driven Policy Conditions
- Automated Removal of Exclusions
- Removal of –
 - Prescription & Bill without proper signature & stamp
 - Drug not Prescribed
 - Investigation not Prescribed

Claim



Balance (Sum Insured + Bonus)
 Sublimit & Capping Calculation
 Excess Deduction
 Balance due calculation
 Drug excess billing calculation



Disease - Drug Mapping
 Procedure - ICD Mapping
 Investigation – ICD Mapping
 Inadmissible medical sundry

Additional filter enabled by Disease protocol database

Admissible Claim

ICD Coding



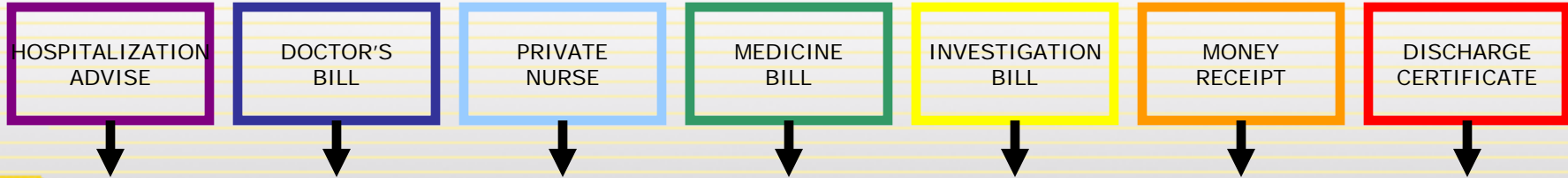
Database driven Underwriting Filter to adjudicate Policy Conditions

Database driven
automated systems
generated Accounts Filter
to calculate balance, Sub-
limits & Co-Share for
Deduction.

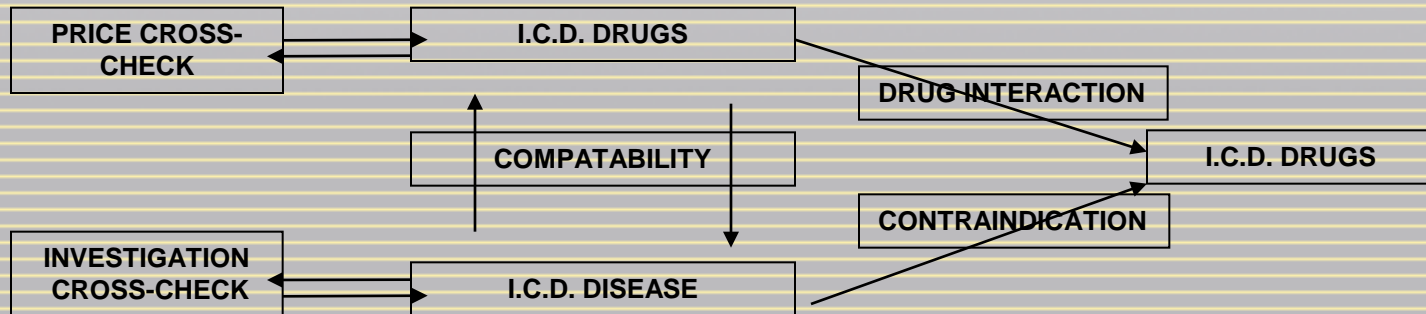
Automated Protocol driven Medical Filter for Specific Disease Codes (ICD-9 and 10)

Database driven
systems assisted
Drug/price cross-check;
drugs/disease cross-
check for compatibility
and admissibility

Automated Protocol driven Medical Filter for Specific Disease Codes



SCHEMATIC DIAGRAM ON SYSTEM GENERATED CROSS-CHECKS



Electronic Health Records, for better clinical management

Members Electronic Health Record

05 AUG 2009 01:22 pm

BABC023083A

PERSONNEL

HO
CHANGE PASSW

HEALTH FILE

PRIMARY MEME
DEPENDANT MEME
MY MEDICAL REPO
CLAIM DETA

eOxygen

SIGN OUT

MEMBER NAME	: MD. MUSLIM
DATE OF BIRTH	: 10 OCT, 1966
NATIONALITY	: INDIAN
EMAIL ID	: -
POLICY CODE	: 0056820162
POLICY LIMIT	: 100000.00
PRE-EXISTING DISEASE	: -

MD MUSLIM

CLASSIFIED **GENERAL**

BLOOD TEST	C. T. SCAN
ECG	EEG
ENDOSCOPY	HISTOPATHOLOGY
IMMUNOLOGICAL TEST	ISOTOPE SCAN
MRI	SPUTUM
RENAL FUNCTION PANEL	URINALYSIS
X-RAY	

Patient vital data can be accessed through direct connectivity via SIM card...DICOM enabled hardware SIM~SIM

05 AUG 2009 01:22 pm 'MD. MUSLIM' WELCOME TO eOxygen

BABC023083A

PERSONNEL

- HOME
- CHANGE PASSWORD

HEALTH FILE

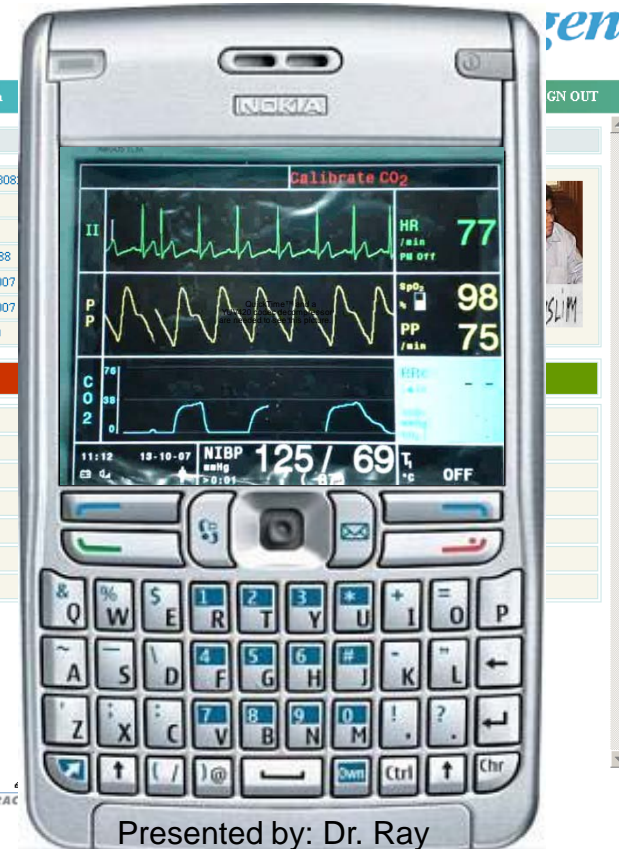
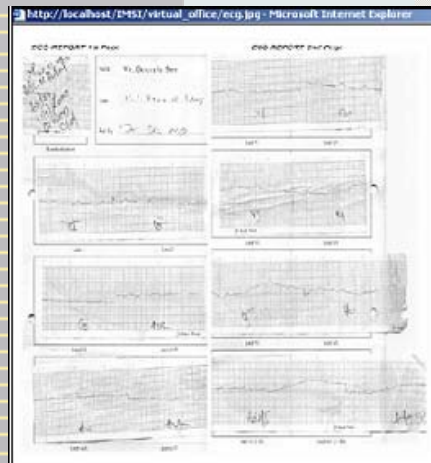
- PRIMARY MEMBER
- DEPENDANT MEMBER
- [MY MEDICAL REPORTS](#)
- CLAIM DETAILS

MEDICAL REPORTS

MEMBERSHIP NO : BABC02308
 GENDER : MALE
 BLOOD GROUP : A+
 MOBILE NO : 999998888
 FIRST ENROLLMENT DATE : 11 JUL, 2007
 POLICY PERIOD : 11 JUL, 2007
 AVAILABLE BALANCE : 100000.00

CLASSIFIED

- BIO-CHEMISTRY
- ECC**
- ENDOCRINE
- IMAGING
- MICROBIOLOGY
- STOOL
- USC



Doctor advice to patient can be accessed through direct connectivity via SIM card...to patient electronic health files SIM~SIM

REFERENCE OF YOGA & EXERCISE

SEARCH BY [DISEASE] : [ACUTE MILIARY TUBERCULOSIS OF A SINGLE SPECIFIED SITE [A19.0]]

SEARCH

BHUJANGASANA



TIME DURATION FOR EACH SET :-15 TO 30 SECONDS. NO. OF SETS :- 4 TO 6. (THE HEALTH CONDITION OF THE INDIVIDUAL SHOULD BE IMPROVED BY MEDICAL TREATMENT THEN THE PERSON SHOULD START DOING THE DIFFERENT YOGAS.)

ANULOM BILOM PRANAYA



TOTAL TIME MINUTES OF TIMES :- 10 (THE CONDITION INDIVIDUAL BE IMPROVED BY MEDICAL T THEN THE PERSON SHOULD ST THE DIFFERENT YOGAS.)

SHITALI PRANAYAM



NO. OF TIMES :- 10. NO. OF SETS :- 5. (THE HEALTH CONDITION OF THE INDIVIDUAL SHOULD BE IMPROVED BY MEDICAL TREATMENT THEN THE PERSON SHOULD START DOING THE DIFFERENT YOGAS.)

ARDHA KURMASANA



TIME DURA EACH SET : SECONDS. NO. 4 TO 6. (THE CONDITION INDIVIDUAL BE IMPROVED BY MEDICAL T THEN THE PERSON SHOULD ST THE DIFFERENT YOGAS.)



QuickTime™ and a YUV420 codec decompressor are needed to see this picture.

Presented by: Dr. Ray



Thank You