



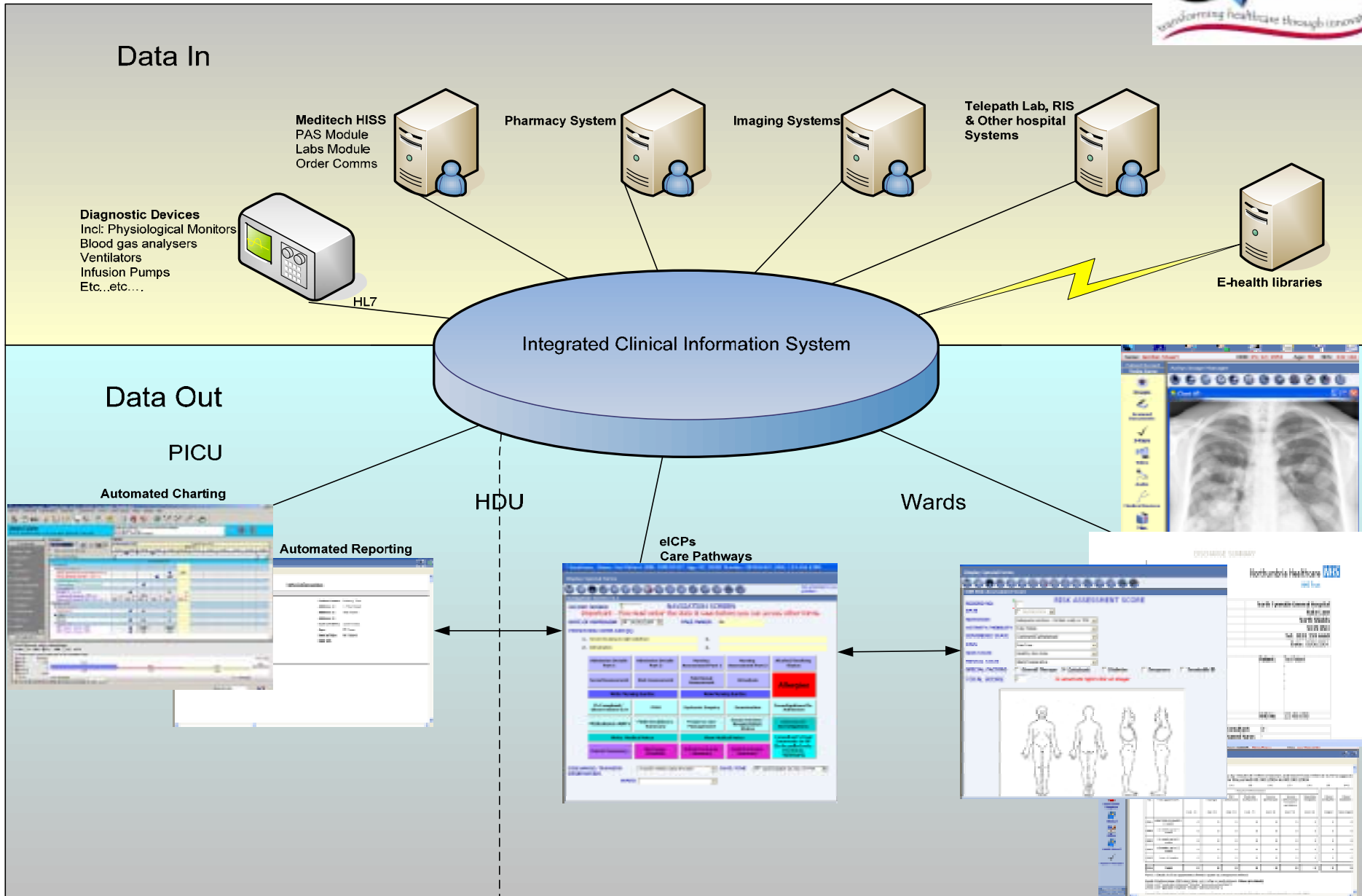
# Electronic Medical Records Data Safety & Security

**Patient Data is an ASSET**

**You need to Protect It**



# EMR Patient Data Scenario-Multiple Inputs



## Concerns on EMR Data

- **Safety & Security of Patient Data**
- **Confidentiality of Patient Data**
- **Misuse of Data**
- **Availability of Data**
- **Insurance/Regulatory Issues**

## Some Guidelines

- ASTM American Society for Testing & Materials (Access Control, Authentication & Non-Repudiation)
- HIPAA- Confidentiality and Security
- NABL- Accreditation of Indian Healthcare Providers-Internationally Accepted
- JCAHO ( Focus on Patient Care)

## Current Scenario

- NABH has some released guidelines for Accreditation of healthcare providers this year in February 2006
- The Guidelines are designed to bring in standardization in healthcare practices
- NABH certification mandates minimum standards for Manpower, Facilities and Maintenance of records
- Example- Reports are to be stored for a minimum period, Reports have to be signed by Authorized Personnel only
- National registries require medical records to be stored for long periods of time


# Insurance and Regulatory

1. Access to Medical Record
2. Data Sharing between healthcare providers and the Insurance Cos – Security & Confidentiality
3. Fraud Control – Incorrect Claims
4. Disease Patterns- Statistics & Risk Assessment
5. Digital Signatures- For Electronic Data Transfer
6. Evolving Regulatory Environment- New Rules keeping the Consumer in Focus

## Administrative Procedures for Data Security, Integrity and Availability

- Accreditation
  - Data back up Plan
  - Disaster Recovery Plan
  - Access Management Plan
  - Maintenance Plan
  - Personnel Policy
  - Virus Protection Plan
  - User Education & Training Plan
- 
- 
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## Technical Procedures for Data Security, Integrity and Availability

- Access Control
  - Accountability (tracking)
  - Data Back up and storage
  - Role Based Access
  - User Identification
  - Alarms and Event reporting
  - Audit Trail
  - Encryption
  - Sign Offs
- 





Access Control  
-Log In

Excelicare

Name: Demo Patient    DOB: 01/01/1971    Age: 35    GINH CRN:    CHI:

Session Manager

Period: Past 30 days    From Date: 07/07/2006 12:00:00 AM    To Date: 07/07/2006 12:00:00 AM

Session: All    User Name:    Patient Name:

Module:

Event Type:  Print,  Login,  Logout,  Load Module

Select All Events

Search    Clear

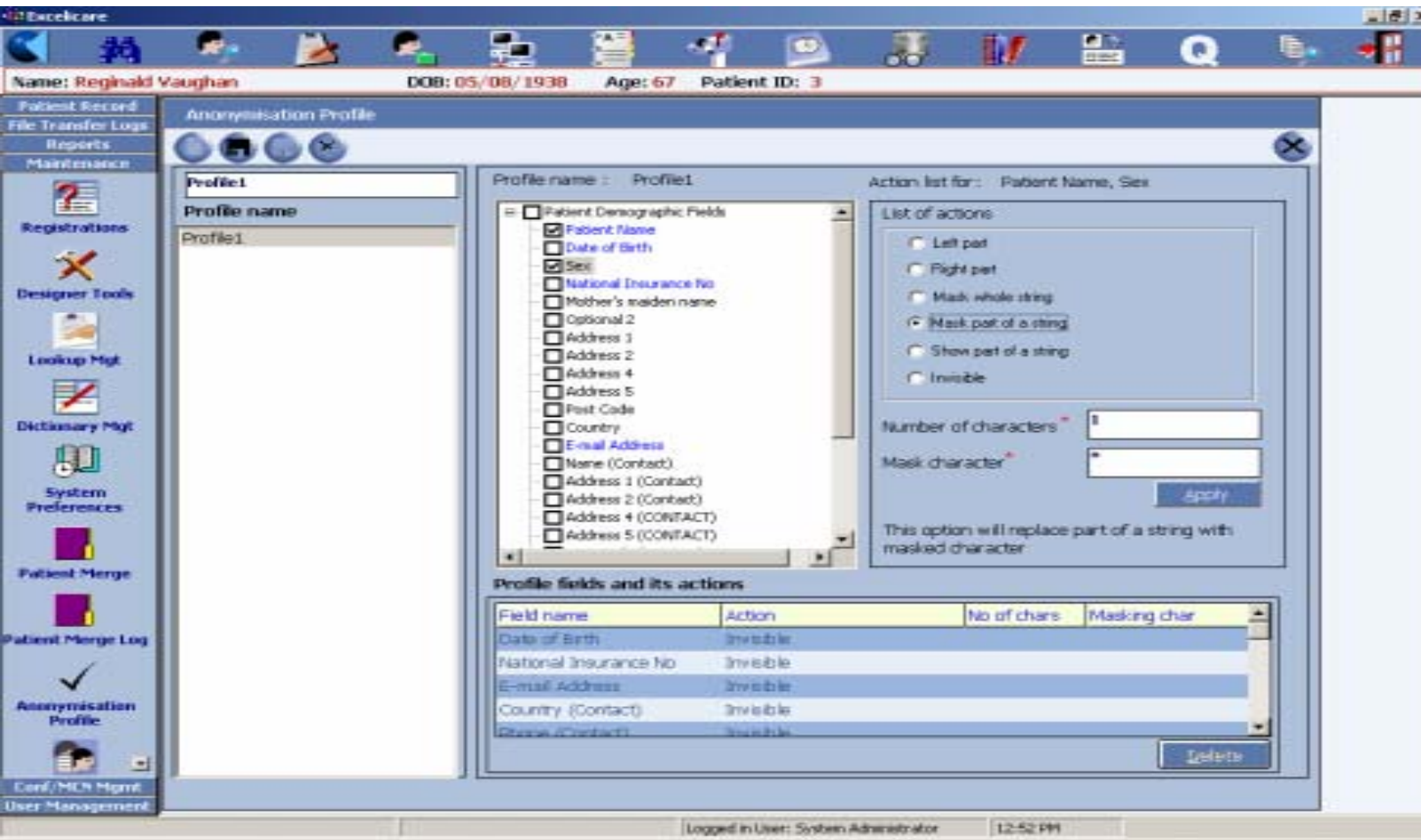
User Name	Discipline	Designatio	Departmen	Staff Type	Start Date	End Date	Machine Name	Machine IP	Session Status	Logged Fro
System Administrator			Not Spec...	Non-Clinician	31/07/2006	31/07/2006	MARKETING...	127.0.0.1	Inactive	Desktop
System Administrator			Not Spec...	Non-Clinician	31/07/2006	31/07/2006	MARKETING...	127.0.0.1	Inactive	Desktop
System Administrator			Not Spec...	Non-Clinician	26/07/2006	26/07/2006	MARKETING...	192.168.100.206	Inactive	Desktop
System Administrator			Not Spec...	Non-Clinician	05/07/2006	05/07/2006	MARKETING...	192.168.100.206	Inactive	Desktop
Event Type		Event Details		Show		Patient Name		Time Logged		
Login		Login to Excelicare - ADMIN						05/07/2006 04:27:55 PM		
User Name	Discipline	Designatio	Departmen	Staff Type	Start Date	End Date	Machine Name	Machine IP	Session Status	Logged Fro
System Administrator			Not Spec...	Non-Clinician	01/08/2006		MARKETING...	192.168.100.206	Active	Desktop

Results: 1 to 5 of 5

Logged in User: System Administrator    11:14 AM

Log In history

# Confidentiality- Anonymization of Patient Data when collaborating or sharing data



The screenshot shows the 'Anonymisation Profile' configuration window in the AxSys HealthTech software. The window is titled 'Anonymisation Profile' and is open for a patient named 'Reginald Vaughan' with DOB: 05/08/1938, Age: 67, and Patient ID: 3. The profile name is 'Profile1'.

The 'List of actions' section shows the following options:

- Left part
- Right part
- Mask whole string
- Mask part of a string
- Show part of a string
- Invisible

The 'Number of characters' field is set to 1, and the 'Mask character' field is empty. A 'Apply' button is visible below these fields.

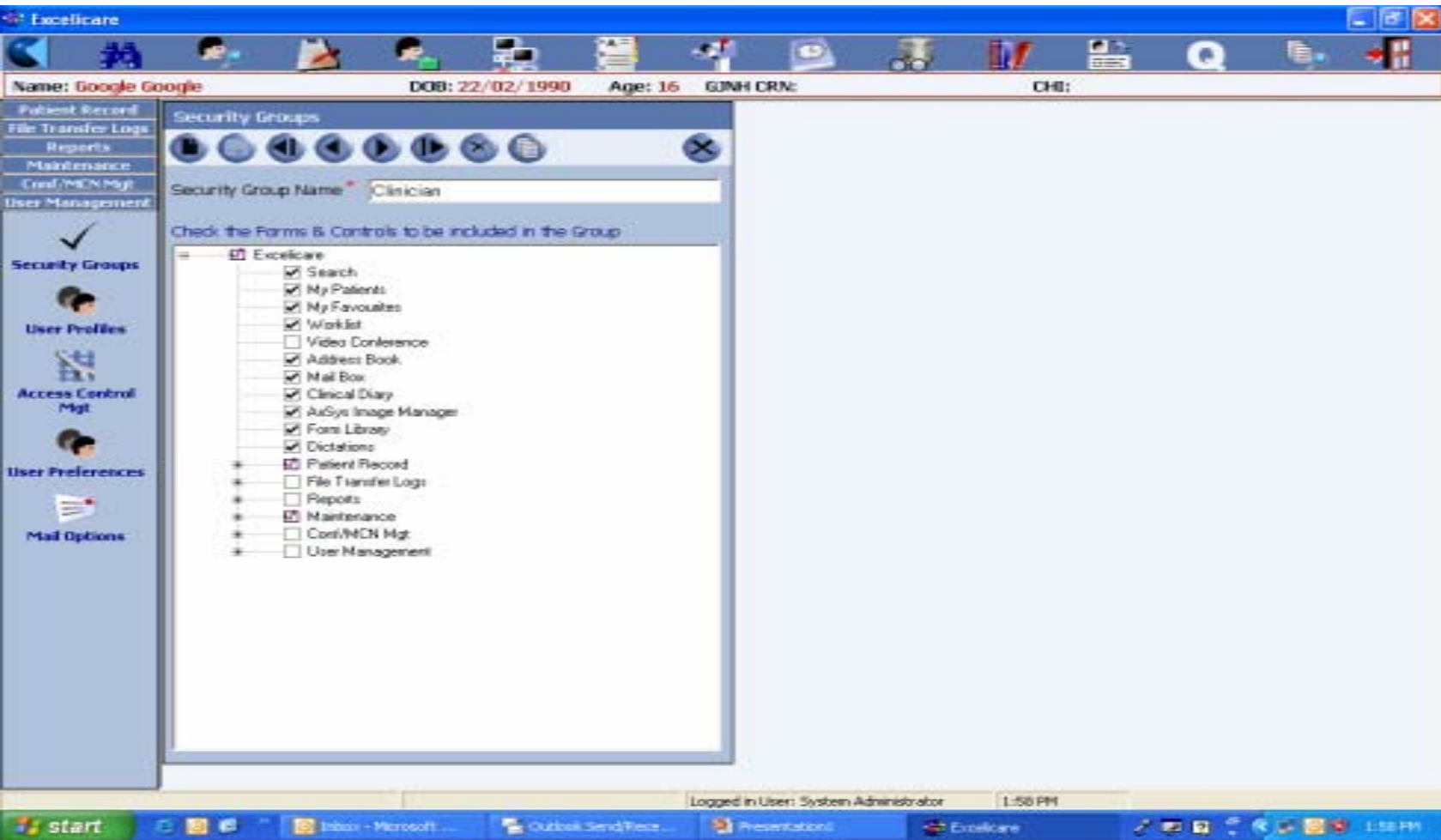
The 'Profile fields and its actions' table is as follows:

Field name	Action	No of chars	Masking char
Date of Birth	Invisible		
National Insurance No	Invisible		
E-mail Address	Invisible		
Country (Contact)	Invisible		
Address (Contact)	Invisible		

A 'Delete' button is located at the bottom right of the table.

The status bar at the bottom of the window indicates 'Logged in User: System Administrator' and the time '12:52 PM'.

## Creation of security groups for Users



The screenshot displays the Excelcare application interface. At the top, a header bar shows patient information: Name: Google Google, DOB: 22/02/1990, Age: 16, GINH CRN:, and CHI:. Below this is a navigation menu with options like Patient Record, File Transfer Logs, Reports, Maintenance, Conf/MCN Mgt, and User Management. The main window is titled "Security Groups" and shows a "Security Group Name" field containing "Clinician". Below this, a section titled "Check the Forms & Controls to be included in the Group" contains a tree view of application components. The "Excelcare" folder is expanded, showing a list of items with checkboxes. The "Patient Record" folder is also expanded, showing its sub-items. The Windows taskbar at the bottom shows the system is logged in as "System Administrator" at 1:58 PM, with open applications including "Inbox - Microsoft...", "Outlook Send/Recv...", "Presentation0", and "Excelcare".

Excelcare

Name: Google Google DOB: 22/02/1990 Age: 16 GINH CRN: CHI:

Security Groups

Security Group Name: Clinician

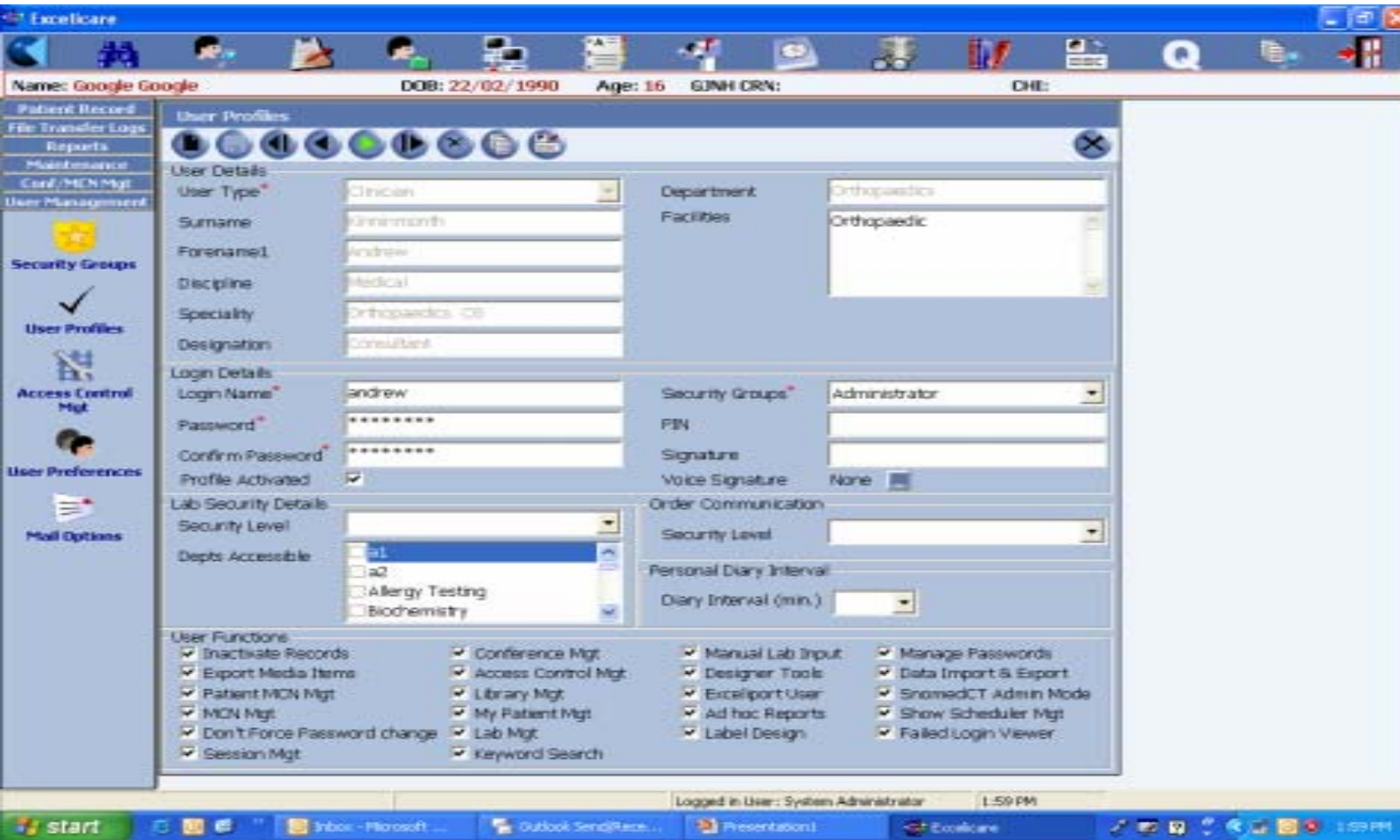
Check the Forms & Controls to be included in the Group

- Excelcare
  - Search
  - My Patients
  - My Favourites
  - Worklist
  - Video Conference
  - Address Book
  - Mail Box
  - Clinical Diary
  - AuSys Image Manager
  - Form Library
  - Dictations
  - Patient Record
    - File Transfer Logs
    - Reports
    - Maintenance
    - Conf/MCN Mgt
    - User Management

Logged in User: System Administrator 1:58 PM

start | Inbox - Microsoft... | Outlook Send/Recv... | Presentation0 | Excelcare | 1:58 PM

## Creation of User Profiles for Access of Data-User Specific Profiles



The screenshot displays the 'User Profiles' configuration window in the Excelcare application. The window is titled 'User Profiles' and contains the following sections:

- User Details:**
  - User Type: Clinician
  - Surname: Kinmonth
  - Forename: Andrew
  - Discipline: Medical
  - Speciality: Orthopaedics - CB
  - Designation: Consultant
  - Department: Orthopaedics
  - Facilities: Orthopaedic
- Login Details:**
  - Login Name: andrew
  - Password: [masked]
  - Confirm Password: [masked]
  - Profile Activated:
  - Security Groups: Administrator
  - PIN: [empty]
  - Signature: [empty]
  - Voice Signature: None
- Lab Security Details:**
  - Security Level: [dropdown]
  - Depts Accessible:
    - a1
    - a2
    - Allergy Testing
    - Biochemistry
- Order Communication:**
  - Security Level: [dropdown]
- Personal Diary Interval:**
  - Diary Interval (min.): [dropdown]
- User Functions:**
  - Inactivate Records
  - Export Media Items
  - Patient MON Mgt
  - MON Mgt
  - Don't Force Password change
  - Session Mgt
  - Conference Mgt
  - Access Control Mgt
  - Library Mgt
  - My Patient Mgt
  - Lab Mgt
  - Keyword Search
  - Manual Lab Input
  - Designer Tools
  - Excelport User
  - Ad hoc Reports
  - Label Design
  - Manage Passwords
  - Data Import & Export
  - ShomedCT Admin Mode
  - Show Scheduler Mgt
  - Failed Login Viewer

The background interface shows a patient record for 'Name: Google Google', 'DOB: 22/02/1990', 'Age: 16', 'GJNH CRN:', and 'DHE:'. The taskbar at the bottom shows the user is logged in as 'System Administrator' at 1:59 PM.

# Access Control Management- Administration



Excelicare

Name: Google Google    DOB: 22/02/1990    Age: 16    GDMH CRN:    OHI:

Access Control List Management

Group Type: System Group    Group Name: All Patient Group

Start Date: 18/12/2002    End Date: 26/07/2006

Staff Name	Designation	Start Date	Set By	End Date	Ended By	Restrictor
Frederic Jean-Max Picard	Consultant	29/06/2005	Ross Phillips			
DOC TEST	Doctor	29/04/2005	David Lyle	05/06/2006	System Administrator	Level I
pra pra	Consultant	26/03/2006	System Administrator			
latha M	nurse	26/05/2006	System Administrator			
Roja N	Doctor	26/05/2006	System Administrator			
praveend praveend	Consultant	26/03/2006	System Administrator			
David D	Doctor	23/05/2006	System Administrator			
Over All Test	General Practitioner	23/02/2006	System Administrator			
sam n	Pharmacist	23/05/2006	System Administrator			
Moon Sun	General Practitioner	23/02/2006	System Administrator			
Aux-Other Ax-Staff	Hosp-Assistant	23/02/2006	System Administrator			
Other Staff Over all test	Head Nurse	23/02/2006	Over All Test			
mkr p	Professor	22/03/2006	System Administrator			
Brown Phillip	General Practitioner	22/02/2006	System Administrator			

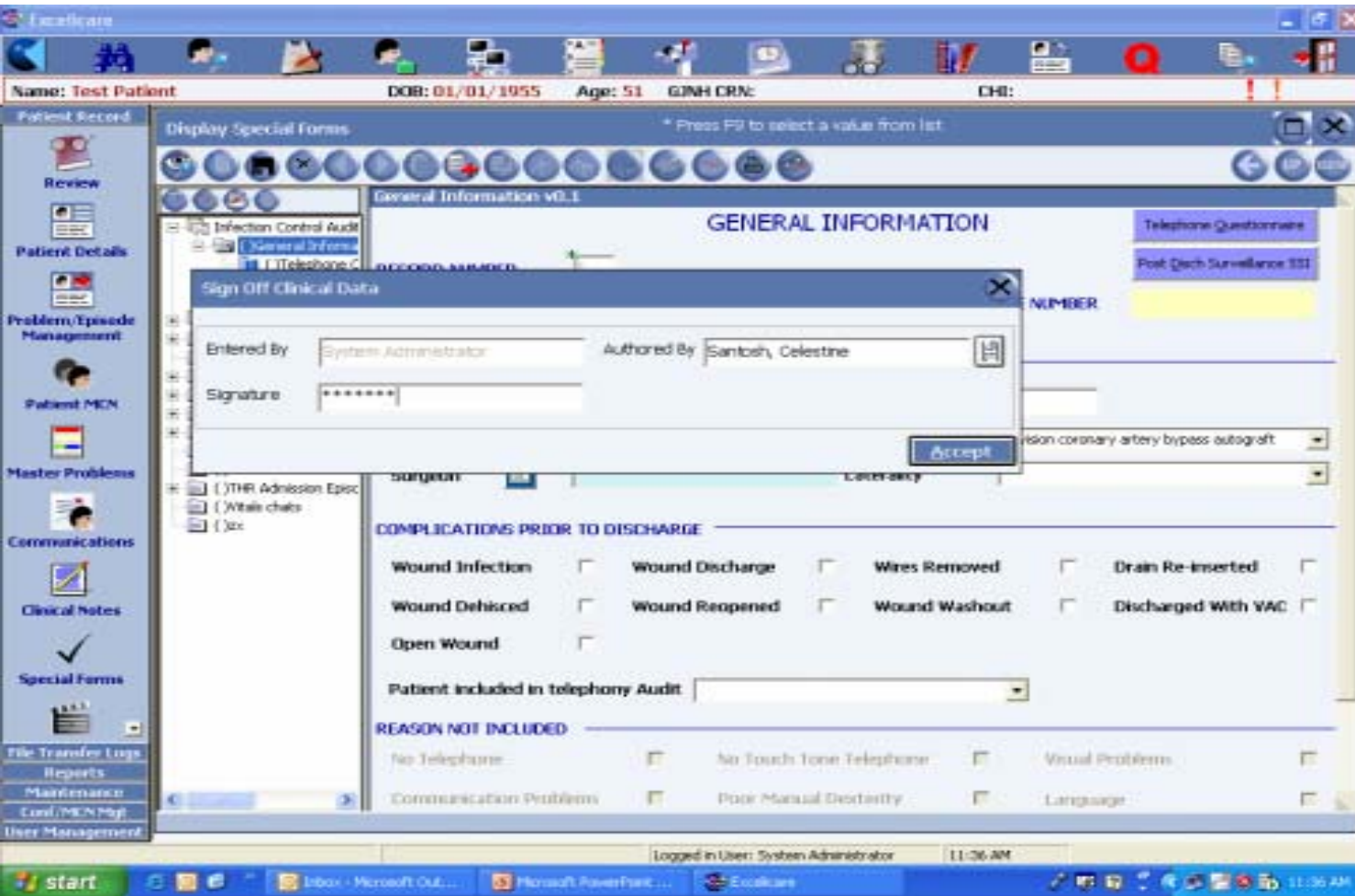
Selected staff member's Access Rights:

Access rights for Frederic Jean-Max Picard were set by Ross Phillips

Enter Dates  
Start Date: 29/06/2005    Restriction: None  
End Date: 26/07/2006

Buttons: Add Staff, Delete Staff

Logged in User: System Administrator    2:01 PM



The screenshot displays the AxSys HealthTech software interface. At the top, a patient record header shows: Name: Test Patient, DOB: 01/01/1955, Age: 51, GIN# CRN:, and CHI: with two red exclamation marks. The main window is titled 'Display Special Forms' and contains a 'GENERAL INFORMATION' form. A 'Sign Off Clinical Data' dialog box is open in the foreground, featuring the following fields: 'Entered By' (System Administrator), 'Authorized By' (Santosh, Celestine), and 'Signature' (represented by asterisks). An 'Accept' button is located at the bottom right of the dialog. The background form includes sections for 'COMPLICATIONS PRIOR TO DISCHARGE' and 'REASON NOT INCLUDED', each with several checkboxes. The Windows taskbar at the bottom shows the Start button, open applications (Inbox, Microsoft Outlook, Microsoft PowerPoint, Excelcare), and the system tray with the time 11:36 AM and date 11/26/2007.

Digital Sign Off

# Failed Log in record- Track of Access Attempts



The screenshot displays the LocalCare software interface. At the top, a patient record is visible with fields for Name (Google Google), DOB (22/02/1990), Age (16), GIN/DRN, and DHE. A 'Failed Login Viewer' window is open, showing search criteria and a table of failed login attempts.

Failed Login Viewer

User Name:  Machine Name:  Machine IP:

Date Range:  All  Day  Week  Month  Year  Search Clear

Results: 10 rows match the search criteria

User Name	Machine Name	Machine IP	Date / Time
admin	MARKETING-DEMO	192.168.100.205	25/07/2006 1:45:50 PM
admin	MARKETING-DEMO	192.168.100.205	25/07/2006 1:46:00 PM
mahesh	MARKETING-DEMO	192.168.100.205	25/07/2006 1:46:28 PM
mahesh	MARKETING-DEMO	192.168.100.205	25/07/2006 1:46:40 PM
ADMIN	MARKETING-DEMO	192.168.100.205	25/07/2006 1:47:08 PM
pradeep	MARKETING-DEMO	192.168.100.205	25/07/2006 1:47:29 PM
pradeep	MARKETING-DEMO	192.168.100.205	25/07/2006 1:47:42 PM
asys	MARKETING-DEMO	192.168.100.205	25/07/2006 1:48:00 PM
admin	MARKETING-DEMO	192.168.100.205	25/07/2006 1:48:20 PM
mahesh	MARKETING-DEMO	192.168.100.205	25/07/2006 1:49:54 PM

LocalCare | Logged In User: System Administrator | 2:21 PM



# Role based access in Managed Clinic Network - Need based Access



Excelcare

Name: Google Google    DOB: 22/02/1990    Age: 16    GINH CRN:    CHE:

Patient Record  
File Transfer Log  
Reports  
Maintenance  
Conf/MCN Mgt

Conferences  
Conference Template  
MCN Mgt

MCN Management

Name: [Text Box]  
Description: [Text Box]  
Keywords: [Text Box]  
Manager: Harper, Bobbi [Dropdown]  Use in Conference  
Lead Clinician: GP2, Testing [Dropdown]  
Access Group: MCN [Dropdown]

Start Date: 23/02/2006    End Date: 31/07/2006  
End Reason: [Dropdown]

Catchment:  
 By Hospital  
 By Health Board  
Add Remove  
H-Abids Central Board

Roles

Role Name	Visible	Staff Name	Tel. No.	E-Mail	Start Date	End Date	Conf User
Observer	No						
	No						

Expand All    Add Role    Remove Role    Add Person    Remove Person    Assoc. Patients    Reassign

Logged in User: System Administrator    2:23 PM

start    Inbox - Microsoft ...    Outlook - Send/Rec...    Presentation for a...    Excelcare    2:23 PM

## Conclusion

- ✓ **You can protect the confidentiality and safety of patient data in the Electronic Environment**
- ✓ **The administration will need to evolve a policy on the access control management, data back up management & Contingency Plan**
- ✓ **Systems and controls need to be built for an effective plan to protect the data of the patient and meet the regulatory needs in the electronic platform**

Thank You

