



Access to medical information in a teaching hospital: proposal of a conceptual controlled access model

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From « hospital » information system

- **Monoaxial system**
 - Centralized on the administrative record
 - Hospital ward, technical and human resources, activity are defined by one entity: functional unit
- **System slanted essentially towards record invoicing**
 - Computer access is not specific
 - i.e. unit ward : 2415
 - login : 2415
 - password : 2415
 - Medical data are deleted after administrative invoicing

To « medical » information system

- **Since 2000: Patient record plan**
 - Patient identification is unique
 - Computerized medical record
 - Nurses care record
 - Personal prescription of drugs and blood products
 - Acts capture with operator identification
 - Appointments management
- **Since 2004: Payment Prospective System (PPS) based on medical data, has reinforced the legitimacy of patient record plan**

Multiaxial system

- Introduces informatical tools to manage operational functioning centralized on the patient
- Permits information restoration
- This management system urges us to elaborate our conceptual access control model

Presentation of Bordeaux teaching hospital



Presentation of Bordeaux teaching hospital

Figures for 2005:

- 503,255 consultations
- 3,326 hospital beds
- 199,452 hospital stays
- 14,002 employees remunerated for month
- 1,367 physicians
- 1,650 residents and medical students

Axes of our conceptual access control model

1- User

2- Structure:

- **Geographical Unit – GU**

- **Medical Activity Unit – MAU**

3- Time

4- Applications

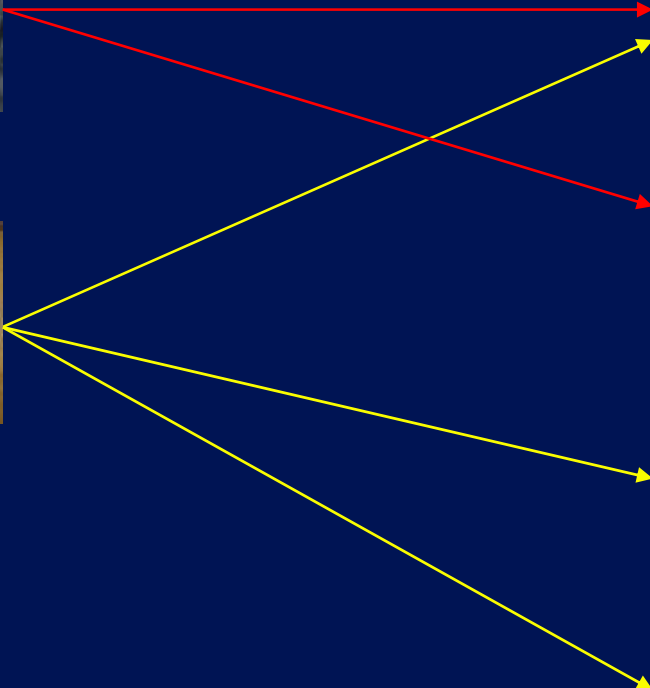
1- User

- Access right profiles: the profile determines who can write and modify medical information and who can only read
 - User must be identified and authenticated
 - Each user, identified and registered, can be assigned to one or many roles
 - Each role defines one or many permissions for one or many applications
- Access right hierarchies: juniors healthcare providers acquire from their seniors permission(s) and afterwards authorization of access by delegation

2- Structure

Medical Activity Unit (MAU)

Geographical Unit (GU)



2- Structure

Geographical Unit - GU



- The area of consultation, hospitalisation, or operating ward
- Trace patient movements
- A doctor can practice in one or many GU
- Paramedical staff is assigned to one GU

2- Structure

Medical Activity Unit - MAU (1/3)



- Defines a medical team which is under the responsibility of the team chief
- Permits a major simplification of hospital functional units' management:
 - Record acts services in one or many GU for a given time
 - Trace the medical team activity
 - Assign a medical responsibility and rights to a given team without foreseeing the actor

2- Structure

Medical Activity Unit - MAU (2/3)



- Assign a medical team responsibility
- A physician is identified and authenticated like a membership of one and only one MAU
- This accord to him profile and rights to read, write or validate medical data
- A particular case: the validation right of clinical data, diagnostic or therapeutic, is a responsibility of the MAU seniors and can be accorded to juniors by delegation

2- Structure

Medical Activity Unit - MAU (3/3)



Recherche Patient / Séjour

Critères de recherche

N° de Dossier:

Présents du:

Au:

UAM: PEL S.COUCHES 3E SUD

SA SAR3 ANEST/REA MC
SA SAR3 REA POLY U11
SA SAR3 SC POLYV U11
SA SC URGENCES U 30
SA STOMATHERAPIE
SA SURV.CHIR.U11
SA SURV.MED.U11
PEL S.COUCHES 3E SUD

NIP:

Nom:

Prénom:

Date de naissance:

Sexe:

Rechercher

Liste des Patients

NIP	PRÉNOM	NOM DE NAISSANCE	NÉ(E) LE
0112184460	HINA	SARR	25/03/2007
0103013682	FRANÇOISE	LEMORINE	26/07/1947
0104217256	JEAN PIERRE	CADOU	03/01/1940
0103416563	NATHALIE	CADOU	21/03/1972
0102104750	NOËL	SARR	25/03/2007
0100000810	RENE	CADOU	14/04/1945
0100574130	PATRICTA	CADOU	19/09/1972

Liste des Séjours

N° DE DOSSIER	TYPE	UAM	DÉBUT	FIN	Lieu	LIT
0103013682	H	3180	25/03/2007 19:12:00	**/**/****	LC3180	

- The information system property is to optimize display ergonomics useful for the user in operational situation
- When user log in, his MAU appears, and only his preferential GU are displaying

3- Time

- Each authorization issued should be limited in time
- A team has authorizations associated with the GU where it practices its role for a period of time
- Each user can change his role(s) and so his permission(s) for a given time

For example, the medicine students and residents authorization should be denying at the end of their affectation

4- Applications

- **Different end-user applications:**
 - **Electronic health record**
 - **Prescriptions**
 - **Financial application**
 - **Patient admission**

Flexibility in some circumstances

- The doctor on duty, on call, or healthcare providers in emergency circumstances ought to have access to medical information which they need at the given time
- Our access control model is fitted to such circumstances thanks to break-the-glass which permits controlled access with information traceability

Conclusion

