Information and communication technologies for clinical care – The Spanish experience

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BMJ 2009: “The Spanish healthcare system is one of Europe’s most efficient, but urgent reform is needed if it is to cope with changing demands and rising costs”.

Cerebrovascular Std. mortality
La sanidad apuesta por las tecnologías para su mejora
La historia y la receta electrónicas se completarán este año

Each region has a different level of development

• Leaders:
  – Andalucía, Cataluña, Madrid, Galicia, C. Valencia, Castilla-La Mancha

• Followers
  – Bask Country, Canary Islands, Extremadura, Navarra, Cantabria

• Stragglers
  – Aragón, Asturias, Castilla-León, Murcia, Rioja, Ceuta and Melilla
Comparing the application of health Information Technology in primary care in Denmark and Andalucía, Spain

• " Particularly notable is the reality that the Danish primary care physicians office have “Electronic Medical Records” while in Andalucía, the primary care physicians share a common record which when secondary care is fully implemented will indeed be an “Electronic Health Record”…..

Protti D, Johansen Ib, Perez-Torres F. Comparing the application of Health information Technology in primary care in Denmark and Andalucía, Spain. International Journal of Medical Informatics 2009;78:270-283

Catalonia: 7.5 million inhabitants

• Regional Health Service.
• Catsalut: Public commissioner covering 100% citizens
• ICS: regional public institution providing 80% of primary health care and 27% of acute hospital care
• Others providers (PHC, acute hospital care, psychiatric and long term care) are provided by public (regional or municipal), non profit, religious or private organisations.
History and evolution of ICT in Catalonian PHC

- 1990: Electronic Medical Record in many PHC centres
- 1992: Unique identifier for every citizen
- 2002: ICS launches eCAP: Electronic Health Record using Internet technology shared by:
  - 820 health centres/surgeries
  - 15,000 users
  - 12 Hospitals

Catalonian Ministry of Health Strategy:

- To use ICT as a strategic tool in health care
- Enable citizen’s access to information and services to improve self-care
- To provide tools for professionals to improve the quality of care
  - Electronic shared clinical record
  - Electronic prescription
- To provide infrastructure and ensure interoperability among different providers
- To Produce the information needed by the Department of Health and the Health Sector
Catalan electronic shared clinical record. HC³

- **Additional information**, it does not substitute the clinical record.
- Currently **available** in 80% PHC and 100% hospitals
- Registered information
- E-mail the family doctor
- Patient access (June)
- System registers who watch the data
- Patient can hide personal information

- Administrative data
- Family doctor and nurse
- Allergies
- Main health problems
- Main active diagnosis
- Reports of Hospital admissions
- Active prescriptions
- Blood tests from the last 6 months
- Diagnosis test without images
- Last health wishes

Repeaed prescribing at the health Centre
Experience of Electronic Prescription: simple, inefficient and unfinished

SIRE (Catalonia)
Receta XXI (Andalucía)

Family Doctor

Pharmacy

The doctor registers the prescriptions for 1 year treatment in an unique electronic document. The patient picks up repeated prescriptions directly at the pharmacy.
Electronic prescription Impact

- A 25% reduction of the visits to the Health Centre (Receta XXI in Andalucía. Espiel Health Centre)
- Connexion problems
- Highly time-consuming during the clinical encounter
- Only available for patients of the region.
- A 10% increase in drug expenditure in pilot areas (Catalonia)
Electronic Process of prescribing (ICS)

- **Recommended Observatory (Safe Pharmacological prescription)**
- **SIRE**
- **Pharmacies Network**

**Clinical Data Repository**
- Reduction variability
- Recommendations adapted to every patient (effectivity, safety)
- Information for clinical management
- Systematic review
- Safety
- Information for the pharmaceutical provision

**Patient’s Environment**
(counseling, information, news, etc...)

**Electronic Process of prescribing (ICS)**

- 100 acute health conditions
- 4 chronic conditions
- Access on-line EBM guidelines
- Automated prescription suggested based on health problem and patient characteristics
Electronic Process of prescribing (ICS)

- Computerized guidelines
  - PREFASEG (Safe Pharmacological prescription)
  - Information on drugs
    - Automated safety check-up and alert based on: active health problems, age, blood-tests and active prescriptions

- Tools for decision support
  - Reduce variability
  - Recommendations adapted to every patient (effectivity, safety)

- Prescription
  - Safety

- Clinical Data Repository
  - Information for clinical management
  - Systematic review

- SIRE
  - Safety
  - Information for the pharmaceutical provision

- Pharmacies Network
  - Pharmaceutical care

Patient's Environment (counselling, information, news, etc.)

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Patient's Environment (counselling, information, news, etc.)
Self-audit. Results: duplicated drugs

Number of patients identified with duplicated drugs by Family Doctors

- Family Doctors received financial incentives to review chronic prescriptions
- 127,579 patients reviewed in 8 months
- 64% of the patients had a drug removed
- Estimated reduction in cost 793,643 €

Which drugs have been removed?

In units of prescriptions

- 63% are: benzodiazepines, paracetamol, NSAIDs, antidepressants & omeprazol
Self-audit. Results: > 10 drugs/patient

Number of patients identified with >10 drugs reviewed by Family Doctors

- 155,357 patients (2.6%)
- Non financial incentives
- 57% reviewed in 6 months
- 15% had the treatment modified.
- 27,200 drugs removed with savings of 277,787 €

Conclusions

- Several Spanish regions use ICT as a strategy to improve quality in the service delivery
- ICT projects are designed to share a common record between primary and secondary care ("Electronic Health Record")
- It is possible to share clinical data in the context of diverse providers
- We must evolve from the concept of “electronic prescriptions” to the idea of the “electronic process of prescribing”
- In order to be efficient, electronic prescriptions must be complemented by evaluation, self-audit and prescription support tools.
- The patient participation must move from the political discourse to its real implementation