Sistemes de Suport a la Decisió Clínica (SSDC)

Lluís Donoso Bach

Què és un SSDC?

- Sistemes computats de gestió de la informació dissenyats per a donar resposta a problemes complexes en el procés de presa de decisions
- Especialment útil quan la quantitat d'informació és excessiva per ser "processada" individualment
- S'aplica en múltiples camps (negocis, militar, enginyeria, ...).

Guies clíniques

EHR/HIS/RIS

Motor d'inferència

SSDC/SPE

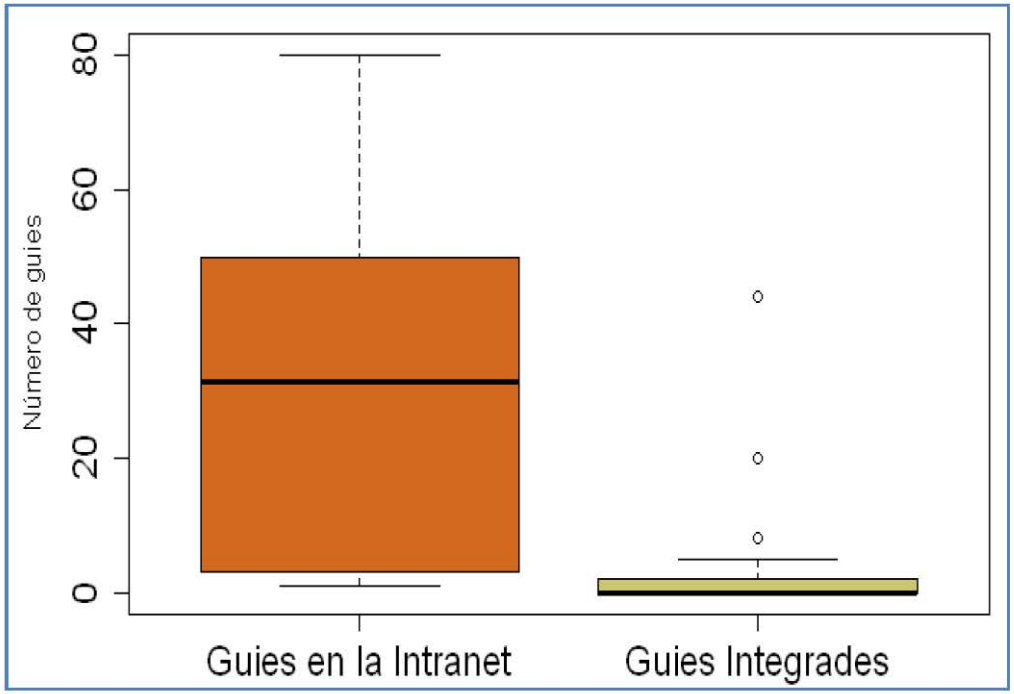
Per a l'èxit del SSDC cal:

- El millor coneixement acreditat disponible
- Alt nivell d'adopció i ús efectiu
- Millora continuada dels continguts i sistemes

Ús excessiu de la imatge mèdica

- Taxa de creixement anual entre 8%-16%
- Factors que hi influencien:
  - Introducció de noves tecnologies (PET, MRA, CTA, etc.)
  - Nous usos de tecnologies existents
  - "Self-referral"
  - Demanda dels pacients
  - Medecina defensiva
- S'estima que >10% dels estudis són innecessaris o estan duplicats
- Exposició innecessària a la radiació

Mitja de guies clíniques informatitzades i integrades amb la HCE



	*Intranet**	*integrades*
N	18	21
Mitjana	30,28	3,95
DS	26,21	10,26
Mínim	1	0
Màxim	80	44
P25	4,25	,00
P50	31,50	,00
P75	48,75	2,00

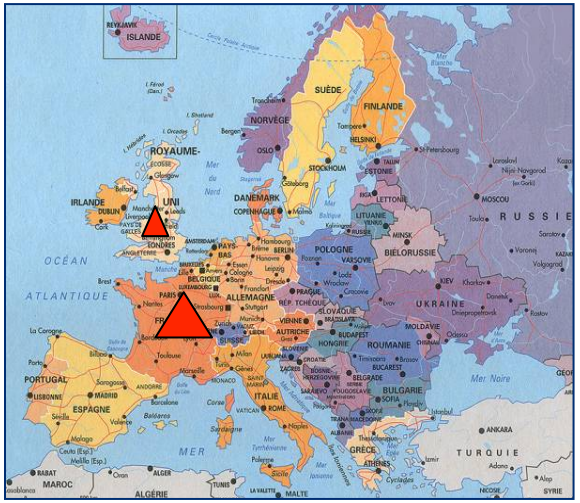
DS:desviació estàndard
P: Percentil
* S'han eliminat 3 casos extrems de la variable *Intranet*

ESR EUROSAFE IMAGING

European Congress of Radiology ECR 2016 Vienna March 2–6

Clinical Decision Support/Referral Guidelines

- European survey by the ESR
- Availability of RG (~ 70%)
- Production: UK and France
- Adopted and adapted: others



EUROPEAN SOCIETY OF RADIOLOGY

ESR EUROSAFE IMAGING

European Congress of Radiology ECR 2016 Vienna March 2–6

"In Belgium we have referral guidelines; in fact, nobody really takes them into account"…

"Referral guidelines for diagnostic imaging in general are not in use in Hungary"…

"They are not used in the Netherlands"…

"Although we have several official referral guidelines published (in Spain), they are not used generally speaking"…

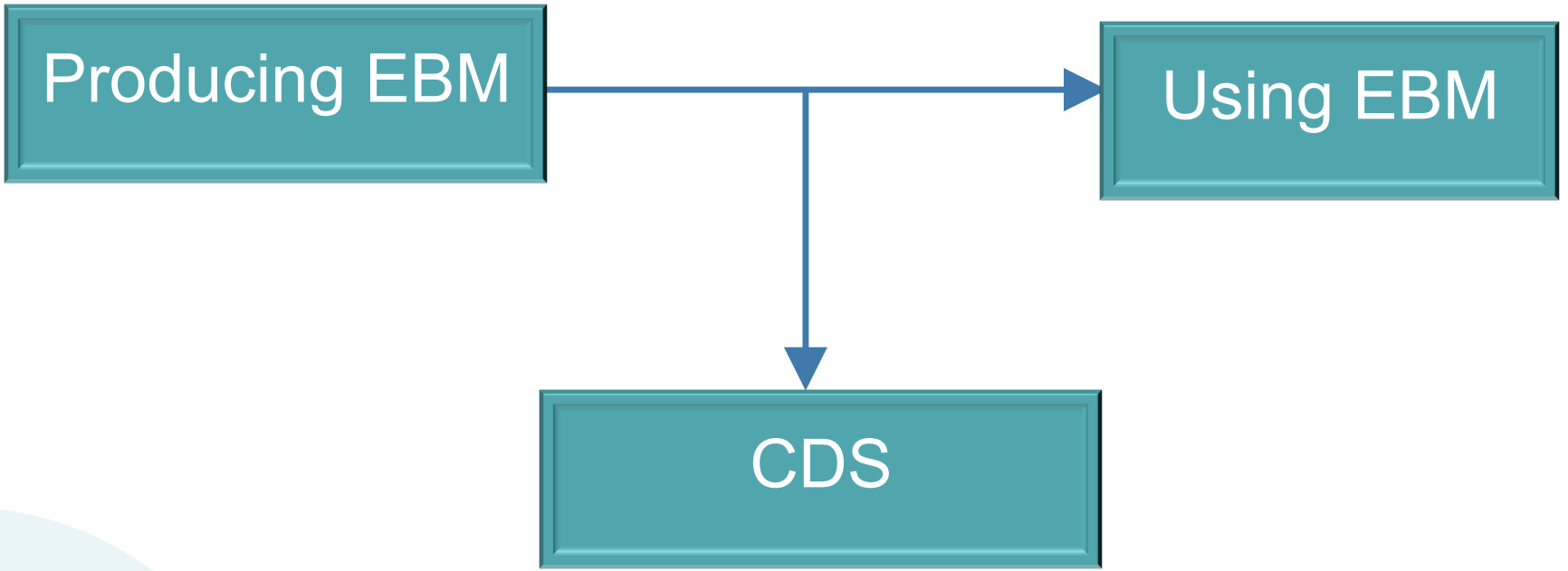
"In Italy the referral guidelines were published in 2004 by the Ministry of Health. Unfortunately they are not always followed in clinical practice "…

"There is no official guide line enforcement in the State service in Ireland "…

"In Germany, the guidelines are not routinely used "…

"In France, there are guidelines, but they are not used "…

Change In Paradigm



ESR EUROSAFE IMAGING

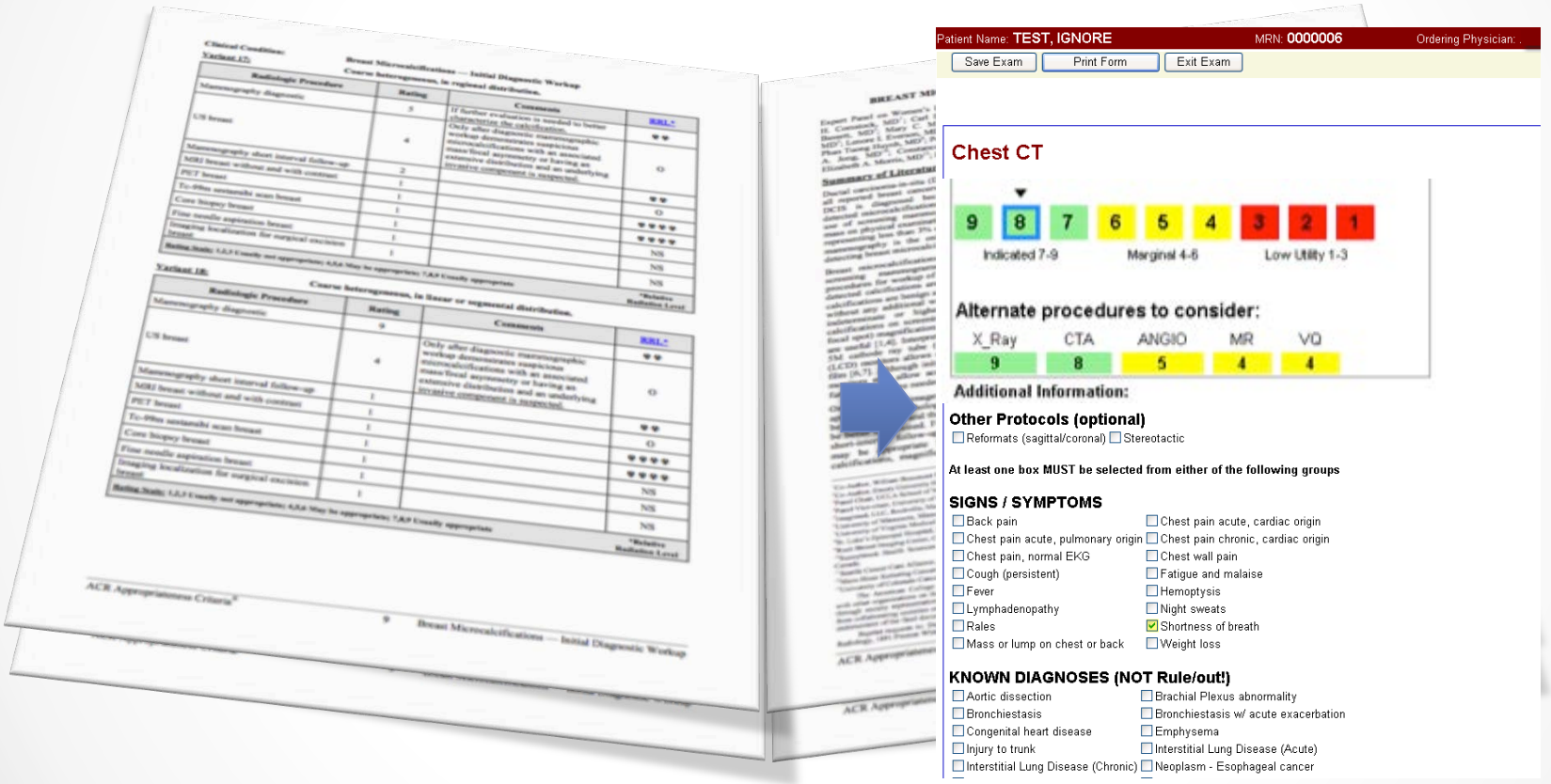
European Congress of Radiology ECR 2016 Vienna March 2–6

Why Clinical Decision Support?

- Proven efficiency in literature
- Possibility to integrate into CPOE and into the physician workflow
- Patient centric, i.e. “personalised”
- Adaptable to the practice setting: localisation
- Scalable: focused or comprehensive

ESR EUROPEAN SOCIETY OF RADIOLOGY

THE ACR APPROPRIATENESS CRITERIA

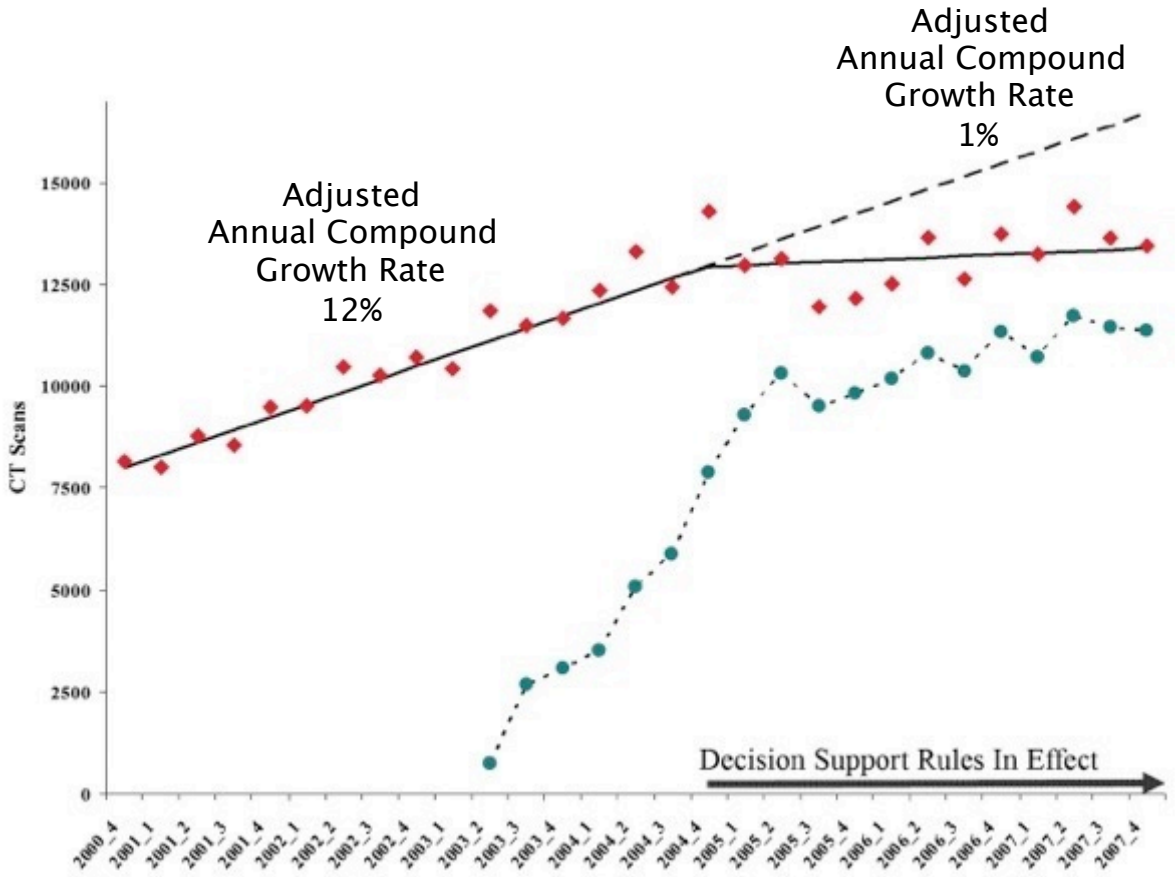


From Keith Dreyer MGH

Massachusetts General Hospital

High Cost Imaging

Effects of CDS
2000 - 2007



Quarters 2000-2007

= Total exams

= Ordered with ROE

From Keith Dreyer MGH

Legal Requirement For Use Of Appropriateness Criteria In The US

FEATURE

New Law Mandates Use of Imaging Appropriateness Criteria

BY BETH BURMAHL

Beginning in January 2017, referring physicians must use physician-developed appropriateness criteria when ordering advanced imaging for Medicare patients, in an effort to reduce duplicate and/or unnecessary scanning and associated costs.

THE NEW PROVISION, which also directs the secretary of the U.S. Department of Health and Human Services (HHS) to identify clinical decision-support (CDS) tools to help physicians navigate the appropriateness criteria, was approved April 1 as part of the Protecting Access to Medicare Act of 2014, or so-called sustainable growth rate (SGR) "patch" bill. The new measure also maintains current overall provider reimbursement for the next 12 months, preventing a 24 percent SGR-mandated physician pay cut.

Using the CDS tools embedded with appropriateness criteria is designed to improve the accuracy of ordering advanced diagnostic studies and ensure the appropriate studies are done for the right reason on the right patient.

Calling it a long time in coming, radiology leaders are lauding the provision—and other American College of Radiology (ACR)-backed measures in the legislation—as a victory for imaging and a big step forward for healthcare reform overall. Other changes mandate greater transparency around payment policy and improve patient safety through stricter controls on radiation dose levels.

"The provision is a major step toward appropriate use of medical imaging," said James Borgstede, M.D., an expert in radiology economics, quality and safety and healthcare politics and the RSNA Board Liaison for International Affairs. "If referring physicians embrace this concept, it will provide significant improvement in patient care."

But that's a big "if" according to some radiology leaders who stress that implementing these initiatives will be considerably more involved than just contacting the IT department to install CDS tools. Buy-in and commitment from referring physicians will be critical to the initiative's success, said Vijay M. Rao, M.D., RSNA Board Liaison for Information Technology and Annual Meeting.

"We can't just provide a clinical support tool and expect it to work like a charm," said Dr. Rao, the David C. Levin Professor and chair of Radiology at Jefferson Medical College of Thomas Jefferson University. "We need to educate referring clinicians on the importance of using these tools appropriately and approach this as a fully realized program requiring time and commitment."

Timeline for Imaging Appropriateness

While the appropriateness criteria rule doesn't go into effect until 2017, the bill provides a timeline for putting the process in motion.

By November 2015, HHS must specify applicable appropriate use criteria for imaging services, using guidance from national professional medical specialty societies, including ACR, and other provider-led groups. ACR has long advocated for the use of clinical decision support systems.

Rao

Borgstede

When the law takes effect, physicians who provide imaging services will only be paid for claims that include information about which CDS tool was used and documentation that it meets the standard. This could pose a problem for radiologists, since it would become their responsibility to make sure the ordering physician used the CDS tool properly and reported it.

Because new provisions put the onus on referring physician, it remains to be seen how seamlessly the process will be integrated into daily practice. It's possible the task could fall into "the nuisance factor" category for physicians already dealing with significant workloads, said Dr. Rao, adding that CDS tools have been have yet to be tested on a large scale.

"We haven't really done due diligence on the effectiveness of CDS tools," Dr. Rao said. "As radiologists, we believe in the philosophy of reducing imaging tests, but for our clinical colleagues, we're not sure they're going to feel that way. That's why the education element in it is so important to effectiveness."

> "CMS wants us to practice evidence-based medicine, but they are making decisions on multiple procedure payment reduction without any data at all."
>
> **Vijay Rao, M.D.**

CLINICAL DECISION SUPPORT FOR EUROPEAN IMAGING REFERRAL GUIDELINES

BACKGROUND

- In 2014, the European Society of Radiology (ESR) and the American College of Radiology (ACR) began collaborating on appropriate use criteria for medical imaging

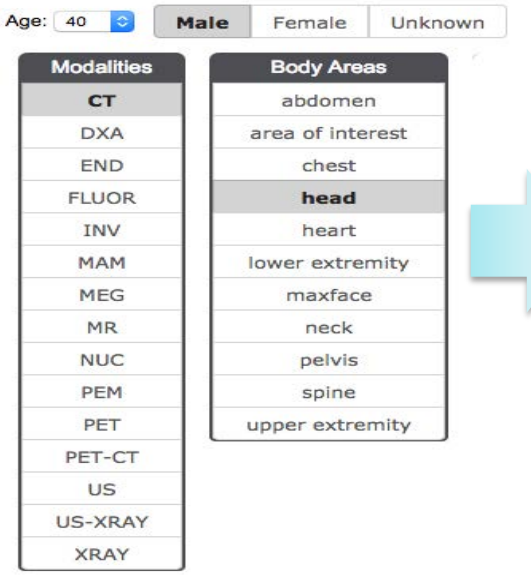
- ESR and National Decision Support Company launched **ESR iGuide** at the 2015 European Congress of Radiology

ESR iGUIDE

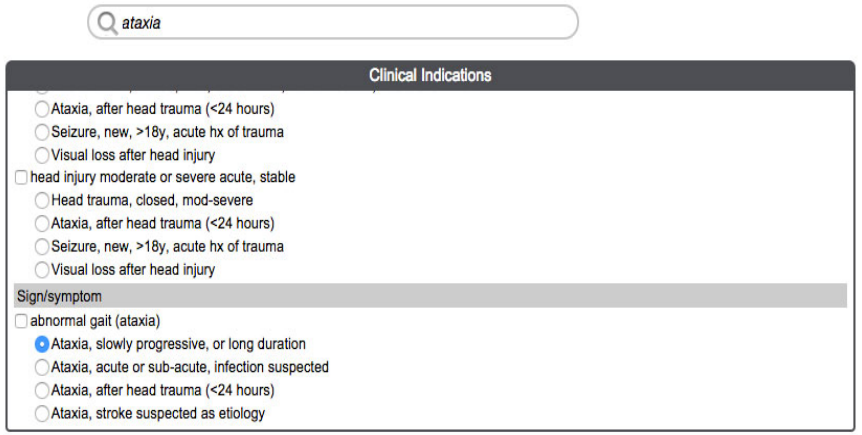
- Electronic referral guidelines which can be directly integrated into the physician workflow to help referrers select the most appropriate imaging procedure to request
- The ESR has assembled a group of experts to review and adapt the criteria to European requirements
- This review is in process and expected to be completed by summer 2015
- The guidelines can be locally adapted on a country or site specific basis

BASIC TRANSACTIONAL WORKFLOW

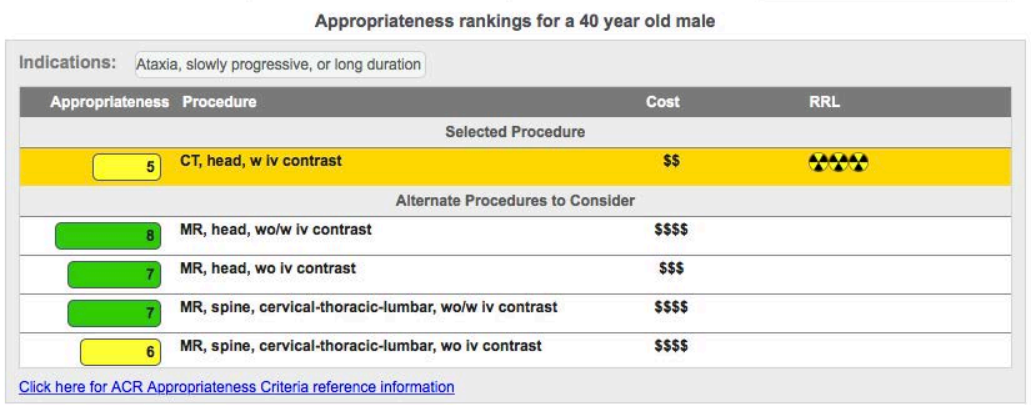
1. Select Test



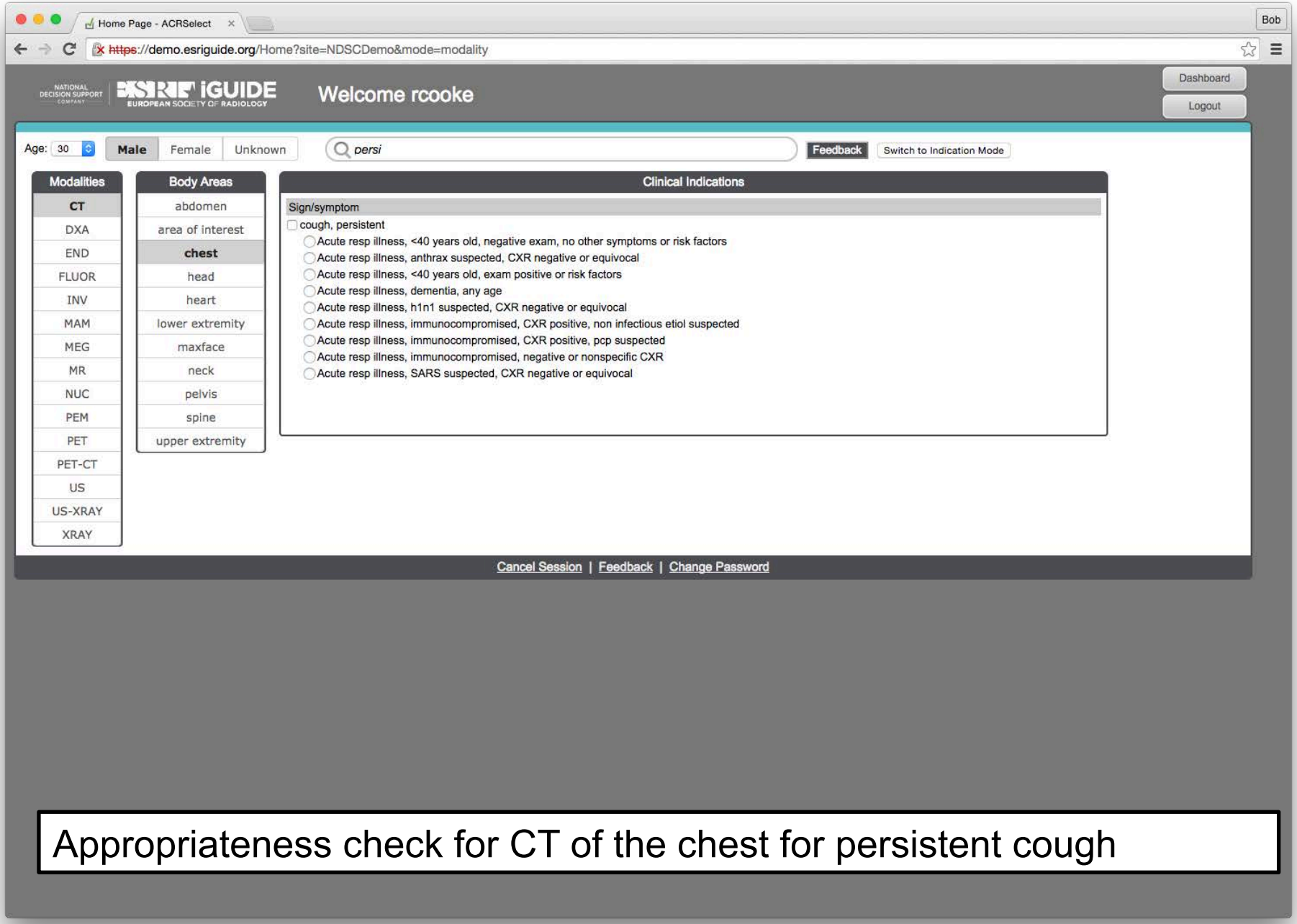
2. Enter Reason For Exam



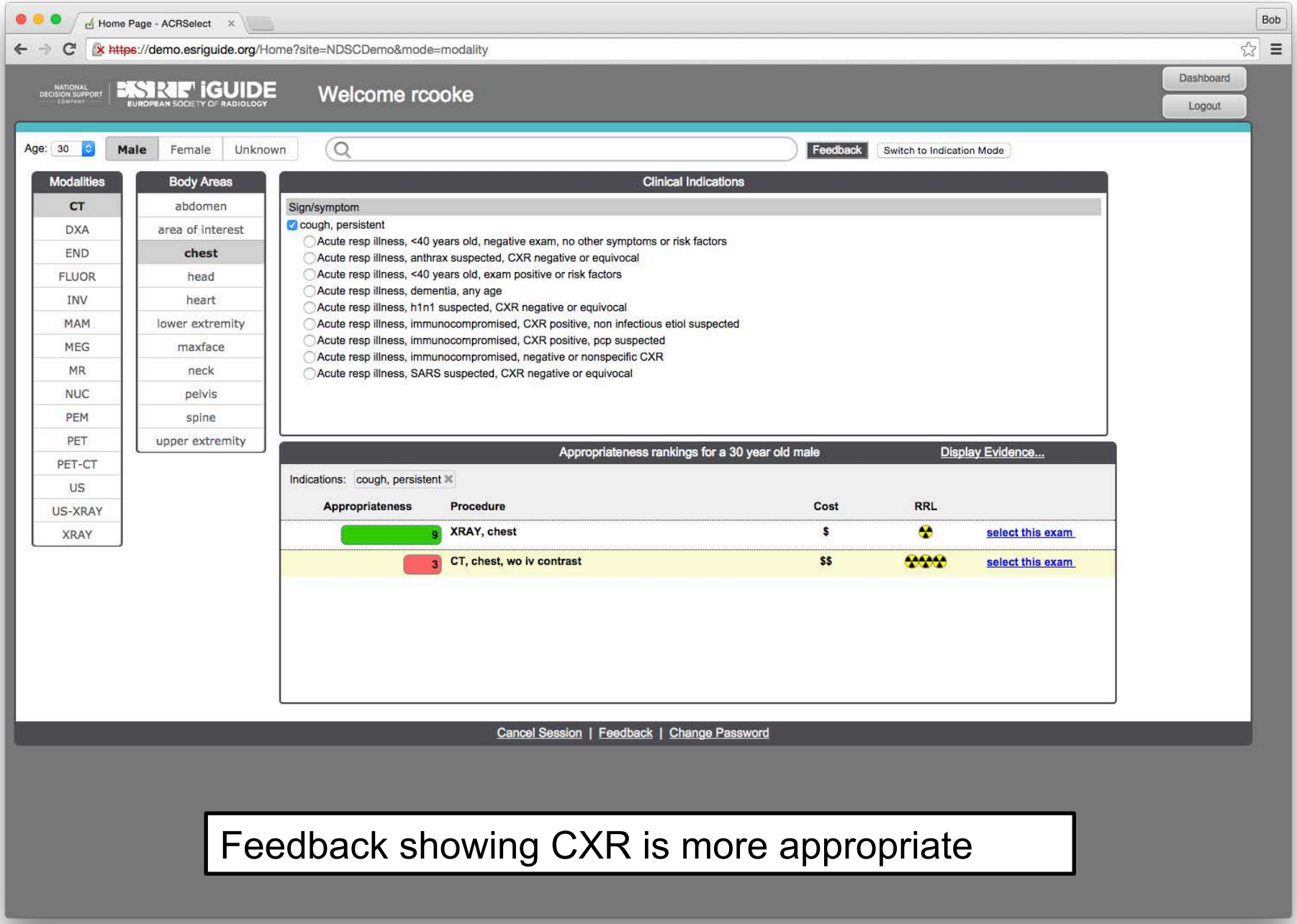
3. Feedback



For each access to the criteria the system generates a unique Decision Support Number

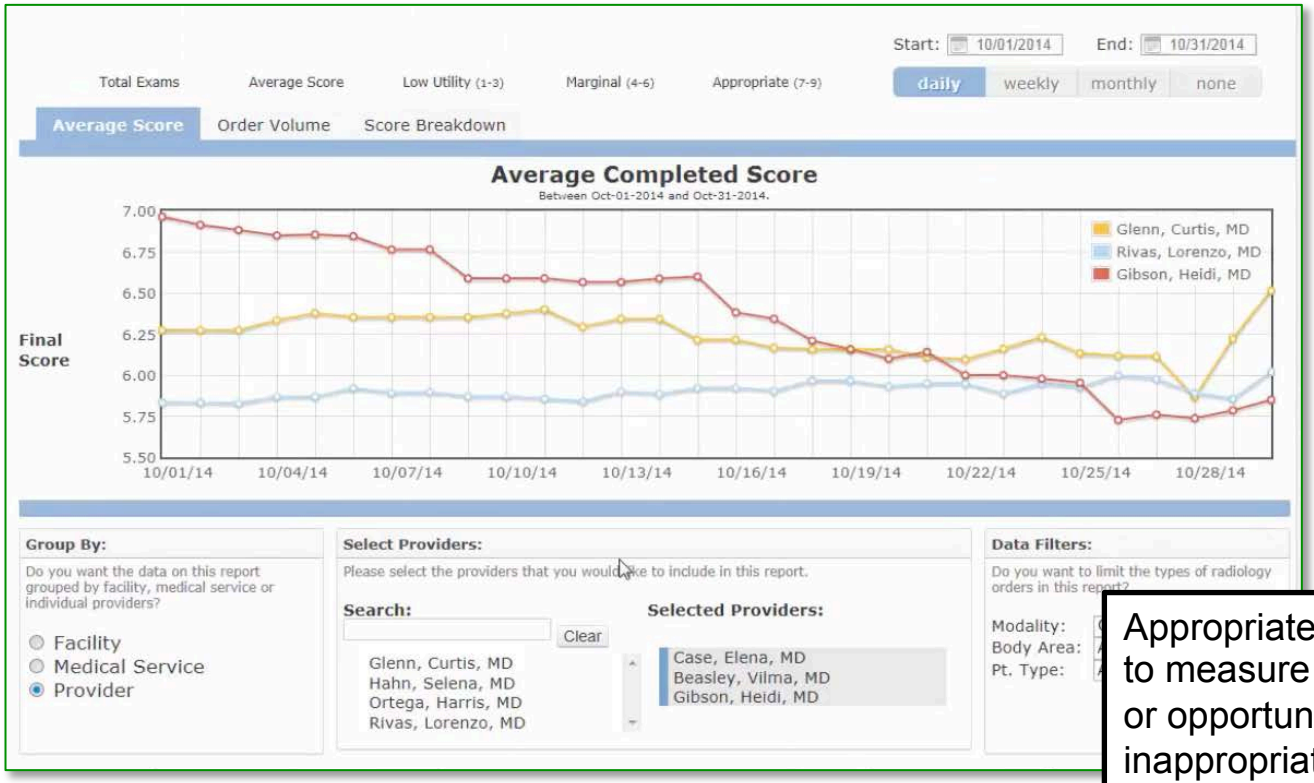


Appropriateness check for CT of the chest for persistent cough



Feedback showing CXR is more appropriate

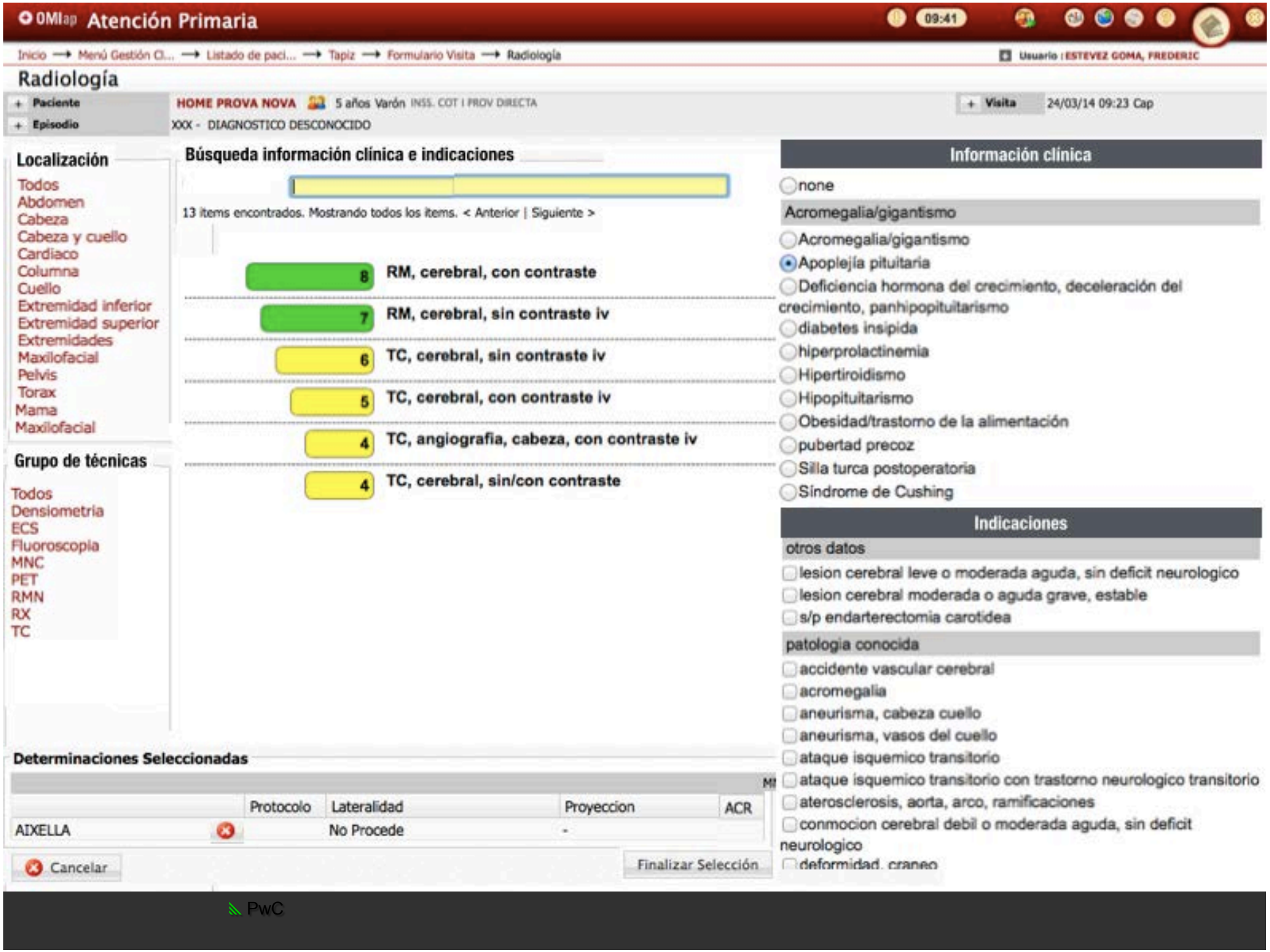
EXAMPLE EHR ANALYTICS

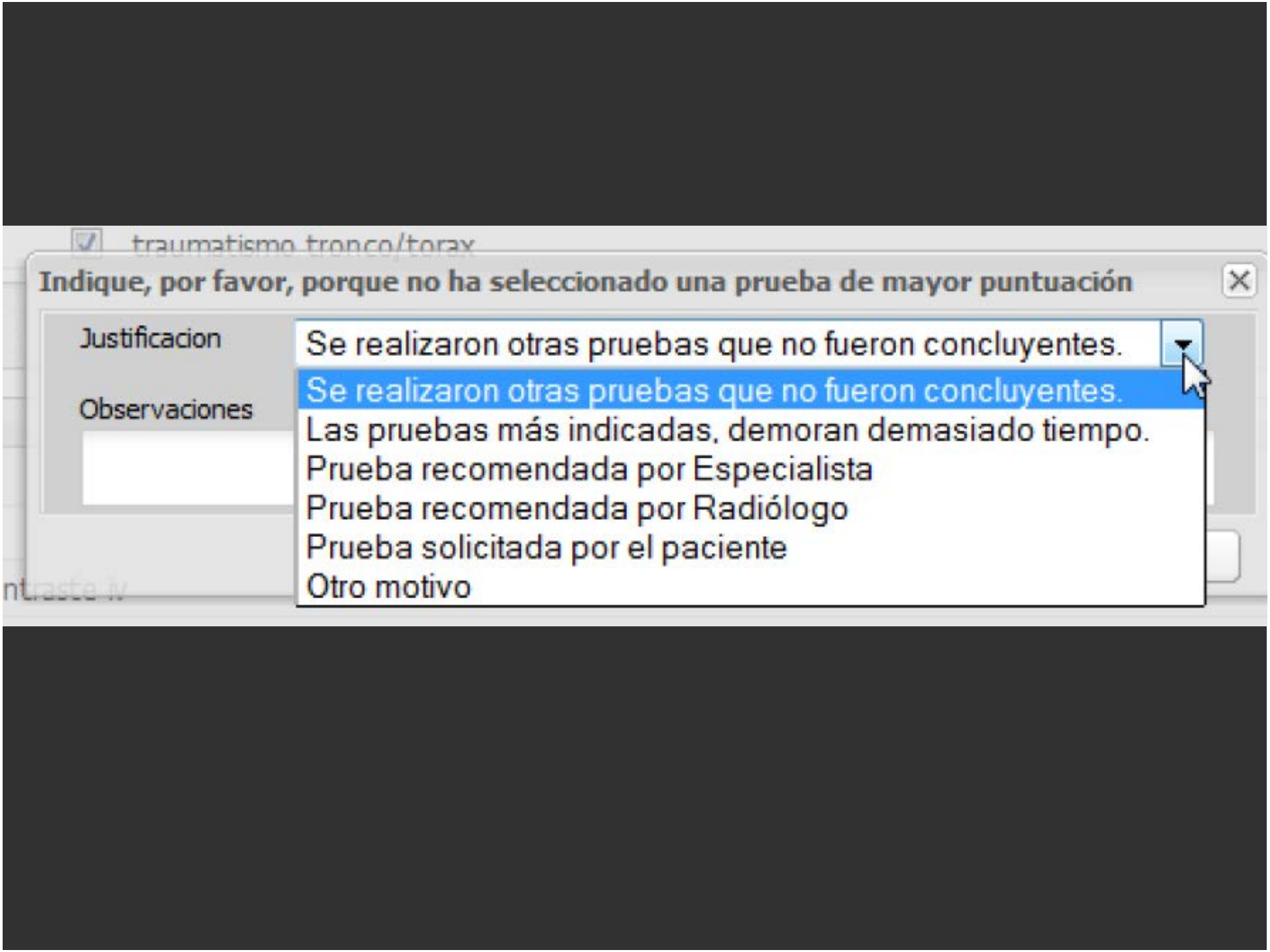


Appropriateness score can be used to measure physician compliance, or opportunities to eliminate inappropriate utilisation as part of quality improvement and risk basked contracts

Expected benefits

- Increased use of guidelines
- Reduction in unnecessary radiation exposure
- More appropriate imaging
- Improved clinical workflow
- CDS as an educational tool


OMIap Atención Primaria
09:41
Inicio → Menú Gestión Cl... → Listado de paci... → Tapiz → Formulario Visita → Radiología
Usuario : ESTEVEZ GOMA, FREDERIC
Radiología
Paciente
Episodio
HOME PROVA NOVA 5 años Varón INSS. COT I PROV DIRECTA
XXX - DIAGNOSTICO DESCONOCIDO
Visita 24/03/14 09:23 Cap
Localización
Todos
Abdomen
Cabeza
Cabeza y cuello
Cardiaco
Columna
Cuello
Extremidad inferior
Extremidad superior
Extremidades
Maxilofacial
Pelvis
Torax
Mama
Maxilofacial
Grupo de técnicas
Todos
Densiometria
ECS
Fluoroscopia
MNC
PET
RMN
RX
TC
Búsqueda información clínica e indicaciones
13 items encontrados. Mostrando todos los items. < Anterior | Siguiente >
8 RM, cerebral, con contraste
7 RM, cerebral, sin contraste iv
6 TC, cerebral, sin contraste iv
5 TC, cerebral, con contraste iv
4 TC, angiografia, cabeza, con contraste iv
4 TC, cerebral, sin/con contraste
Información clínica
none
Acromegalia/gigantismo
Acromegalia/gigantismo
Apoplejía pituitaria
Deficiencia hormona del crecimiento, deceleración del crecimiento, panhipopituitarismo
diabetes insipida
hiperprolactinemia
Hipertiroidismo
Hipopituitarismo
Obesidad/trastorno de la alimentación
pubertad precoz
Silla turca postoperatoria
Síndrome de Cushing
Indicaciones
otros datos
lesion cerebral leve o moderada aguda, sin deficit neurologico
lesion cerebral moderada o aguda grave, estable
s/p endarterectomia carotidea
patologia conocida
accidente vascular cerebral
acromegalia
aneurisma, cabeza cuello
aneurisma, vasos del cuello
ataque isquemico transitorio
ataque isquemico transitorio con trastorno neurologico transitorio
aterosclerosis, aorta, arco, ramificaciones
conmocion cerebral debil o moderada aguda, sin deficit neurologico
deformidad, craneo
Determinaciones Seleccionadas
Protocolo
Lateralidad
Proyeccion
ACR
AIXELLA
No Procede
-
Cancelar
Finalizar Selección
PwC


traumatismo tronco/torax
Indique, por favor, porque no ha seleccionado una prueba de mayor puntuación
Justificacion
Se realizaron otras pruebas que no fueron concluyentes.
Observaciones
Se realizaron otras pruebas que no fueron concluyentes.
Las pruebas más indicadas, demoran demasiado tiempo.
Prueba recomendada por Especialista
Prueba recomendada por Radiólogo
Prueba solicitada por el paciente
Otro motivo

Resultats

- Desembre de 2014 Implantació definitiva del SSDC
- 89% de les proves sol·licitades amb el SSDC tenien una qualificació d'idoneïtat adequada
- 5,8% amb un benefici marginal
- 5,2% com no adequada

Navarro M, Pérez A, Pinyol M, Grau M, Donoso L, Ruiz R.
CAPSBE-Hospital Clínic Barcelona

Recomanacions

- Accessible en el lloc de treball
- Interfase "clínic"
- La recomanació en termes probabilístics
- Explicació i justificació accessibles
- No pretén substituir el clínic!
- Cal saber quan trencar les regles!

Stivaros S.M. et al. British Journal of Radiology, 83 (2010), 904–914