



Federaal Kenniscentrum voor de Gezondheidszorg  
Centre Fédéral d'Expertise des Soins de Santé  
Belgian Health Care Knowledge Centre

# Extremity-only MRI

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# Background

- Waiting lists MRI → can whole body MRI be replaced by or complemented with eMRI
- Potential eMRI: Price, comfort, noise, ...

# Research objectives

What extremity-only techniques are available?

What is the Belgian situation (number of MRIs and legal context of (e)MRI)?

What are the potential (dis-)advantages and consequences of implementing eMRI-systems?

What is the available evidence supporting eMRI for different indications?

# eMRI techniques

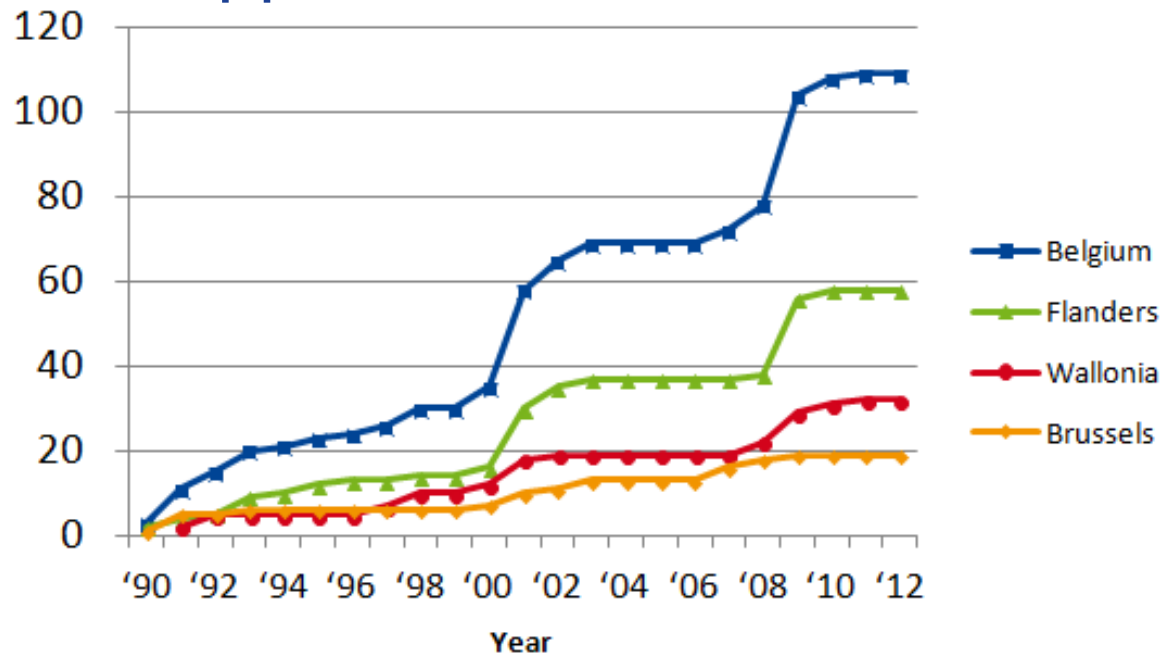
- Field strength (Tesla (T))
  - Low-field ( $\leq 0.5T$ )
  - Mid-field ( $>0.5T - <1.5T$ )
  - High-field ( $\geq 1.5T$ )
- Higher field strength:
  - to reduce acquisition time (lowering the incidence of motion artifacts)  
... or ...
  - to improve spatial representation at a given acquisition time.

# Belgian situation



Source: Belgisch Staatsblad –  
Moniteur Belge

- eMRI vs whole-body MRI:
  - No different legal status
  - Programmation ( $\leftrightarrow$  CT)
- Number of approved MRI units



# Potential (dis)advantages

## ■ Table 3 in the report



Source:  
[www.google.be](http://www.google.be)

- Comparable image quality (1.5T)
- Affordability
- More comfortable
- Waiting times (?)



Source:  
[www.google.be](http://www.google.be)

- Not suitable for all extremity indications
- Overconsumption (?)
- No 3T

# Potential (dis)advantages

- Table 3 in the report
- Waiting list
  - Questioned by several experts ('fill the gaps')  
→ centre-specific?
  - No hard data to determine potential volume eMRI

# Evidence

## Search strategy

- Search for literature reviews
  - AHRQ (US, 2011)
  - HAS (FR, 2012)
- Search for primary studies (2012-2013)
  - No RCTs

## Result

- Evidence is lacking to support or refute the use of low-field eMRI.
- In theory: 1.5T eMRI = 1.5T MRI (some limitations)



# Recent reports & initiatives

## ■ IMA

- Increasing use of all types of medical imaging (Strong for CT, interventional therapeutic imaging and MRI)
- Knowledge of the radiation risk and of the guidelines for medical imaging can improve

## ■ College for Radiology

- Prospective multicentric study (792 referrals)
- By applying the guidelines (in selected indications):  
X-rays: -108; CT: -203; MRI: +27

## ■ Superior Health Council: 4-5 times X-ray exposure

## ■ RIZIV/INAMI & FPS Health

- Awareness campaign for prescribers
- From 1 March 2013: standardised request forms for medical imaging

# Conclusions

- In contrast to RX and CT, the spread of MRI systems is strictly regulated in Belgium.
- Better adherence to the imaging guidelines should lower the volume of imaging in general and lead to a (small) increase in the number of MRI systems and relative shift from CT to MRI.
- Further information on the volume per indication is necessary to know the potential/need of eMRI (and other imaging techniques)
- The financing system should stimulate evidence-based imaging request behaviour

# Recommendations (1)

Minister, RIZIV/INAMI, FOD/SPF

- Insufficient evidence for public funding of eMRI
- Choice of imaging, technique and modality of imaging should be rendered financially neutral
  - ~ radiologist as gatekeeper
- Monitoring of a more correct prescribing behaviour
- Shift from CT scan to MRI (reinvestment)

# Recommendations (2)

## Scientific associations & National Council for Quality Promotion

- Continue to provide information regarding the appropriate imaging technique
  - ~ Compulsory continued education

## Research agenda

- Cost study (~ financial neutrality)
- Feasibility study into central electronic registration of all imaging requests, including technique and indication



# Colophon

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# THANK YOU!

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