



# FACTORS THAT INFLUENCE THE CITATION OF HTA DOCUMENTS. A MULTIVARIATE ANALYSIS

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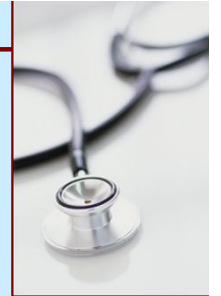
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**Osteba**



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# Introduction



- The search for indicators measuring the impact of HTA in decision making and their benefits for
  - health systems
  - health of citizens
- Multiple factors may influence and may bias on the real impact that the information and knowledge generated may have on different stakeholders and their decisions.
- Information does not necessarily mean that it can have a clear influence on decision-making processes
- Theoretical approaches have been made but...

## State of the art

- Bibliometric impact is a measurable, transparent, systematic and accountable way of doing
  - Used and useful in other areas of knowledge
  - Used to make science metrics
    - Journals comparison
    - Institutions comparison
  - Used to measure academia production and impact
- Multivariate analysis to determine models that explain results are used in other fields of knowledge

# Objectives



- To analyze the factors that influence the citations of documents produced by the Spanish agencies of Health Technology Assessment (AUnETS group)



## Methods. Analysis of the production and impact (I)



- ❑ Characteristics of the documents and articles published (2000 and 2006)
  - language of publication, year of publication, journal type, position of the first author of the agency, impact factor, source of funds, indexing (INAHTA, Medline, DARE, Iberoamerican Cochrane, IME, IBECS, ...) and the number of citations in reference databases (Scopus, Google Scholar and ISI WoS).

# Methods. Multivariate analysis



- Backward method of logistic multivariate regression
- The results variable chosen was citation yes or no.
- Bivariate analysis to determine relation

# Results (I)



- Agencies and units included 6/7
- Production of the agencies 570 articles and documents
  - 301 HTA documents (52.8%)
    - 71.8% Spanish
    - 26.5% Regional languages
    - 1.7% English
  - 269 journal articles (47,2%)
    - 46.5% Spanish
    - 29.1% Regional languages
    - 24.4% English

## Results (II)



- Mostly funded by the agencies (81.2%)
- 91% of the HTA documents were freely available
  - 61.8% included in HTA database (INAHTA)
  - 38.5% included in Cochrane Library Plus
- 66.2% of the articles were OA
  - 53.2% in Scopus,
  - 48.7% in EMBASE
  - 48% in MEDLINE
  - 34.6% in ISI Web of Science (WoS),
  - 32.7% in Índice Médico Español (IME)
  - 26% in Índice Bibliográfico Español (IBECS),
  - 8.6% in Psycinfo.



## Results (III)

### ■ Authors position

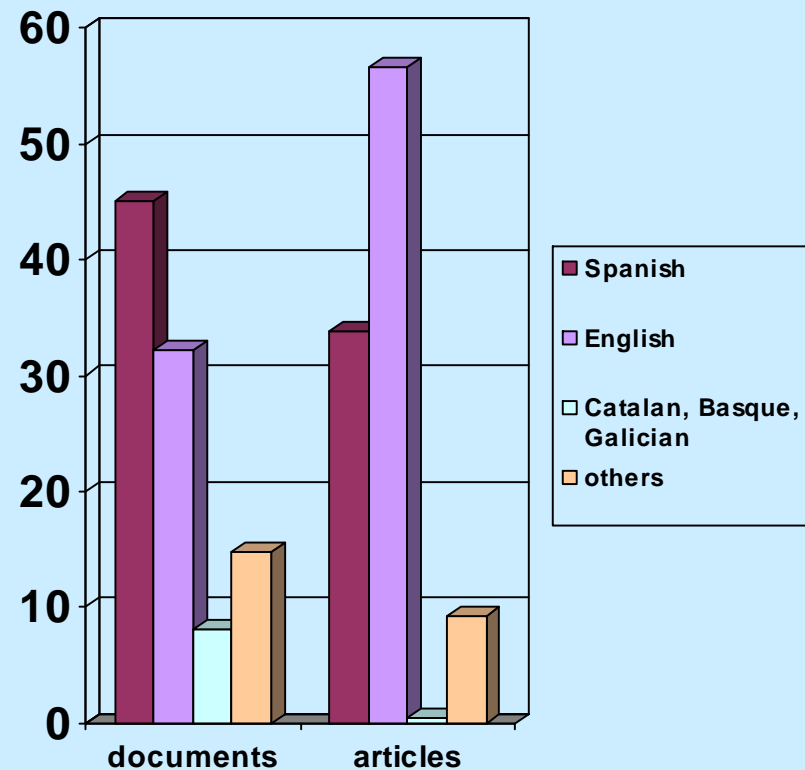
- HTA documents mean ( $1.11 \pm 0.35$ )
- articles, mean ( $1,84 \pm 0.35$ )

### ■ Citations received

- HTA documents 27.2%
- Articles 52.4%

# Citations received

- 1,790 citations
  - 211 HTA documents
  - 1,579 articles
- Autocitation very low
- 1,194 citations Scopus
- 1,085 Google Scholar
- 1,102 en ISI WoS



# Results (IV) Bivariate analysis

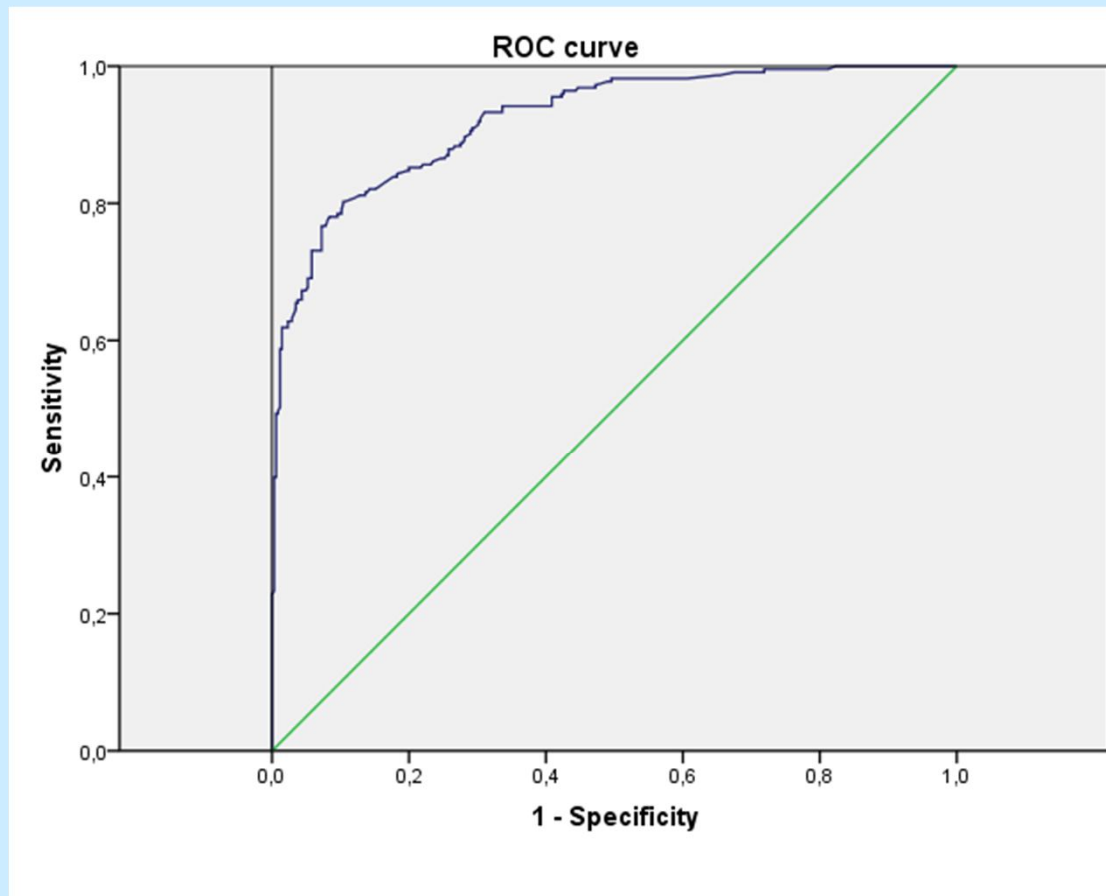


		B	E.T.	Wald	gl	Sig.	Exp(B)
Paso 1 <sup>a</sup>	facimpac	4,033	1,383	8,501	1	,004	56,457
	añopubl	-,183	,076	5,783	1	,016	,833
	nprimera	,603	,271	4,954	1	,026	1,828
	revista	1,191	,950	1,571	1	,210	3,290
	idioma	,064	,040	2,510	1	,113	1,066
	interven	,119	,051	5,445	1	,020	1,126
	profinan	,839	,251	11,167	1	,001	2,314
	accetext	-,215	,395	,297	1	,586	,806
	htadatab	,917	,405	5,123	1	,024	2,502
	ageniber	,820	,339	5,855	1	,016	2,269
	dare	19,147	12548,316	,000	1	,999	2,068E8
	medline	,501	1,034	,234	1	,628	1,650
	embase	,921	,976	,891	1	,345	2,512
	scopus	3,163	1,048	9,101	1	,003	23,640
	psycinfo	-,696	1,839	,143	1	,705	,499
	ime	-,159	1,018	,024	1	,876	,853
	ibecs	,912	1,120	,663	1	,415	2,490
	cinahl	-4,709	2,091	5,074	1	,024	,009
	otrasbas	,779	,733	1,127	1	,288	2,178
	informeo	-8,917	8,021	1,236	1	,266	,000
	Constante	361,232	152,275	5,627	1	,018	7,606E15

# Results V. Final variables in the multivariate model

	B	E.T.	Wald	df	Sig.	Exp(B)
Impact factor	4,598	,869	27,992	1	,000	99,302
Publication year	-,122	,068	3,204	1	,073	,885
First author	,486	,202	5,822	1	,016	1,626
Language	,051	,039	1,712	1	,191	1,052
Type of intervention	,100	,043	5,423	1	,020	1,105
Source of funding	,853	,223	14,649	1	,000	2,346
Hta database	,906	,385	5,546	1	,019	2,474
Iberoamerican data.	,907	,328	7,671	1	,006	2,477
scopus	3,478	,495	49,312	1	,000	32,406
cinahl	-3,432	1,104	9,666	1	,002	,032
Type of document	,829	,495	2,807	1	,094	2,290
Constant	240,715	136,663	3,102	1	,078	3,478E104

# ROC curve



# ROC curve

## Area under ROC curve

Variables of contrast: prognostic probability

Area	Typical error. <sup>a</sup>	Asintotic significance	Asintotic CI 95%	
			Inferior limit	Superior limit
.923	.011	.000	.901	.945

a. Under non-parametric analysis

b. Null Hypothesis: Truth area = 0.5

## Hosmer and Lemeshow Test

Path	Chi square	DF	Sig.
1	10,981	8	,203

# Discussion

- If someone aims to measure the impact of the HTA agencies should consider
  - Conventional ways of measuring did not function
  - ISI WoS shouldn't be the main focus
  - Google Scholar could be a complementary source
    - Mainly when testing documents' citations
  - Scopus needs to be tested, but it could be an intermediate solutions
  - An analysis without those three sources would be partial and incorrect
- The impact is reduced by the low ratios of indexing of the HTA documents in the main information databases Medline or EMBASE, in any case they don't influence in the citation

# Conclusions (I)



- Bibliometric studies are a widely used tool for analyzing the impact of literature on the target stakeholders.
- It is not a standard tool in HTA.
- Our study provides information on the impact that Spanish agencies had and shows needs for improvement.
- The analysis of our production has exposed that the agencies have a strong international presence even publishing mainly in Spanish.
- It would be desirable to continue testing the changes following the introduction of corrective measures.



## Conclusions (II)



- the policies of diffusion of HTA documents are extremely important for the impact of those products, especially in the case of meso (managers) and micro (clinicians) level.
- In those levels professionals are accustomed to journal articles publication type.
- These results showed that policies that took into account the correct indexing of the products have better success in final citation of them.

## Conclusions (III)

- Articles increased the number of citations
- Language is a barrier for those producing documents in languages other than English
  - Less impact even in the same country
- Documents aren't considered when citing
  - (Parada, Gutiérrez-Ibarluzea et al, HTAi 2010, poster n. T 5.52)
- OA policies in HTA documents haven't an impact on citations

## Recommendations

- Other complementary researches should be performed to analyze how to improve the policies of diffusion at the macro (policy-makers) and public levels but at the micro (professionals) and meso (managers) level they should be refurnished at least in our agencies.

Thanks, Gracias, moltas gracies, eskerrik asko, obrigado,...

