

# **La iatrogènia al sistema sanitari: l'epidèmia oculta**

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**Sesión técnica del CSC**  
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4. El coste-efectividad de los programas de seguridad del paciente
5. Conclusión



### **CÓDIGO DE HAMMURABI -h. 1753 a.C.-**

#### **Artículos sobre la profesión médica**

**.215.** Si un médico ha llevado a cabo una operación de importancia en un señor con una lanceta de bronce y ha curado a ese señor o (si) ha abierto la cuenca del ojo de un señor con la lanceta de bronce y ha curado el ojo de ese señor, recibirá diez siclos de plata.

**216.** Si es (practicada en) un hijo de un subalterno, recibirá cinco siclos de plata.

**217.** Si es (practicada en) un esclavo de un señor, el propietario del esclavo dará dos siclos de plata al médico.

**218.** Si un médico ha llevado a cabo una operación de importancia en un señor con una lanceta de bronce y ha causado la muerte de ese señor o (si) ha abierto la cuenca del ojo de un señor con la lanceta de bronce y ha destruido el ojo de ese señor, se le amputará la mano.

**219.** Si un médico ha llevado a cabo una operación de importancia en el esclavo de un subalterno con una lanceta y le ha causado la muerte, entregará esclavo por esclavo.

**220.** Si ha abierto la cuenca de su ojo con una lanceta de bronce y ha destruido su ojo pesará plata por la mitad de su precio.

**221.** Si un médico ha compuesto el hueso de un señor o le ha curado un músculo enfermo, el paciente dará al médico cinco siclos de plata.

**222.** Si es a un hijo de subalterno le dará tres siclos de plata.

**223.** Si es a un esclavo de un particular el propietario del esclavo dará al médico dos siclos de plata.



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June 30, 2017

The New York Times

[NYTimes.com](https://www.nytimes.com) »

## Breaking News Alert

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### BREAKING NEWS

# A doctor opened fire on his ex-colleagues at a Bronx hospital, killing 1 and injuring 6 before killing himself, officials said

Friday, June 30, 2017 5:59 PM EDT

One doctor was shot and killed and at least six other people were injured on Friday afternoon inside Bronx-Lebanon Hospital Center after a former doctor at the hospital opened fire with an assault rifle, officials said.

The gunman, who was wearing a white lab coat, was killed, apparently by a self-inflicted gunshot wound, the police said. He was identified by a police official as Henry Bello. On the hospital's website a Henry Bello is listed as a doctor employed in family medicine.



**Iatrogenia** (de causado (*genus*) por el médico (*iatros*)) es el daño a los pacientes y ciudadanos infligido por el sistema sanitario

# El informe SESPAS-OMC sobre iatrogenia (2017)

Iatrogenia en sentido amplio (seguridad del paciente y más)

Visibilizar el problema

Llamar a la colaboración: La prevención y el control de la iatrogenia requieren varios frentes alianzas

Publicación conjunta en revistas médicas españolas



Informe accesible en

<http://sespas.es/2017/09/06/presentacion-del-informe-sespas-omc-sobre-iatrogenia/>

**¿latrogenia y/o  
seguridad del  
paciente?**



# Estrategia de Seguridad del Paciente del SNS

2005-2011

2015-2020





## PRESENTACIÓN

La Seguridad del Paciente, componente clave de la calidad asistencial, ha adquirido gran relevancia en los últimos años tanto para los pacientes y sus familias, que desean sentirse seguros y confiados en los cuidados sanitarios recibidos, como para los gestores y profesionales que desean ofrecer una asistencia sanitaria segura, efectiva y eficiente.

Los efectos no deseados secundarios en la atención sanitaria representan una causa de elevada morbilidad y mortalidad en todos los sistemas sanitarios desarrollados. La razón fundamental es la creciente complejidad del manejo de los pacientes, en el que interactúan factores organizativos, factores personales de los profesionales y factores relacionados con la enfermedad. Los daños que se pueden ocasionar a los pacientes en el ámbito sanitario y el coste que suponen a los sistemas sanitarios son de tal relevancia que las principales organizaciones de salud como la [Organización Mundial de la Salud \(OMS\)](#), la [Organización Pan Americana de la Salud](#), el [Comité de Sanidad del Consejo de Europa](#), así como diversas agencias y organismos internacionales han desarrollado estrategias en los últimos años para proponer planes, acciones y medidas legislativas que permitan controlar los eventos adversos evitables en la práctica clínica.

En este contexto, el Ministerio de Sanidad, Servicios Sociales e Igualdad, en su responsabilidad de mejorar la calidad del sistema sanitario en su conjunto, como establece la [Ley 16/2003, de Cohesión y Calidad del Sistema Nacional de Salud](#), ha situado la seguridad del paciente en el centro de las políticas sanitarias como uno de los elementos clave de la mejora de la calidad, quedando así reflejado en la estrategia número 8 del [Plan de Calidad para el Sistema Nacional de Salud \(SNS\)](#), que se viene desarrollando desde el 2005 en coordinación con las Comunidades Autónomas.

### Objetivos

#### 1. Objetivo general de la Estrategia en Seguridad del Paciente

Mejorar la seguridad de los pacientes atendidos en los centros sanitarios del SNS.

#### 2. Objetivos específicos

Estos objetivos, son reflejo de los objetivos propuestos en el [Programa de Seguridad del Paciente de la OMS](#):



# Estrategia de Seguridad del Paciente

## Osakidetza

2013 • 2016

Estrategia para la  
SEGURIDAD

Generalitat de Catalunya  
gencat.cat

## Seguretat dels Pacients

[Inici](#) | [La seguretat dels pacients](#) | [Ciutadania](#) | [Professionals](#) | [Actualitat](#) | [Contacte](#)

[Inici](#) > [La seguretat dels pacients](#) > L'estratègia del Departament de Salut



## L'estratègia del Departament de Salut

[Inici](#) | [Evolució](#) | [Consolidació](#) | [Pla estratègic](#) | [Línies Estratègiques](#) >

Pla estratègic per a la seguretat dels pacients a Catalunya, 2014-2018

Definició estratègica: missió, visió i valors del Pla estratègic per a la seguretat dels pacients a Catalunya

### Missió:

Facilitar una assistència personalitzada, integral i de qualitat, i que comporti una reducció del risc que els pacients pateixen i dels danys innecessaris relacionats amb l'atenció sanitària fins a un mínim acceptable.

### Visió:

El compromís, l'orientació al pacient i la voluntat de la millora contínua amb una atenció sanitària segura per a tots els ciutadans.

### Valors:

Accessibilitat, capacitat de resolució, competència professional, comunicació, confiança, continuïtat, ètica, integració, satisfacció.



# Seguretat dels Pacients

[Inici](#) | [La seguretat dels pacients](#) | [Ciutadania](#) | [Professionals](#) | [Actualitat](#) | [Contacte](#)

[seguretatdelspacients.gencat.cat](http://seguretatdelspacients.gencat.cat)



## El més consultat

- Quadre de Comandament 2017
- Previsió de les infeccions als centres d'odontologia
- Feu la vostra atenció més segura
- Quadre de Comandament 2014



Prevenir errors en els procediments



## Actualitat

**Resultats de la primera intervenció de l'equip PROA de l'Hospital Germans Trias i Pujol en un servei mèdic**

23/01/2018

**Quin és el rentat de mans més adequat per prevenir la grip**

22/01/2018

**La simulació clínica en anestèsia com a eina per reduir l'error mèdic**

18/01/2018

**Una nova guia clínica dirigida als metges en formació fomenta la prescripció segura**

16/01/2018

**La implementació de la història clínica electrònica en les unitats de cures intensives disminueix els errors de medicació a llarg termini**

10/01/2018

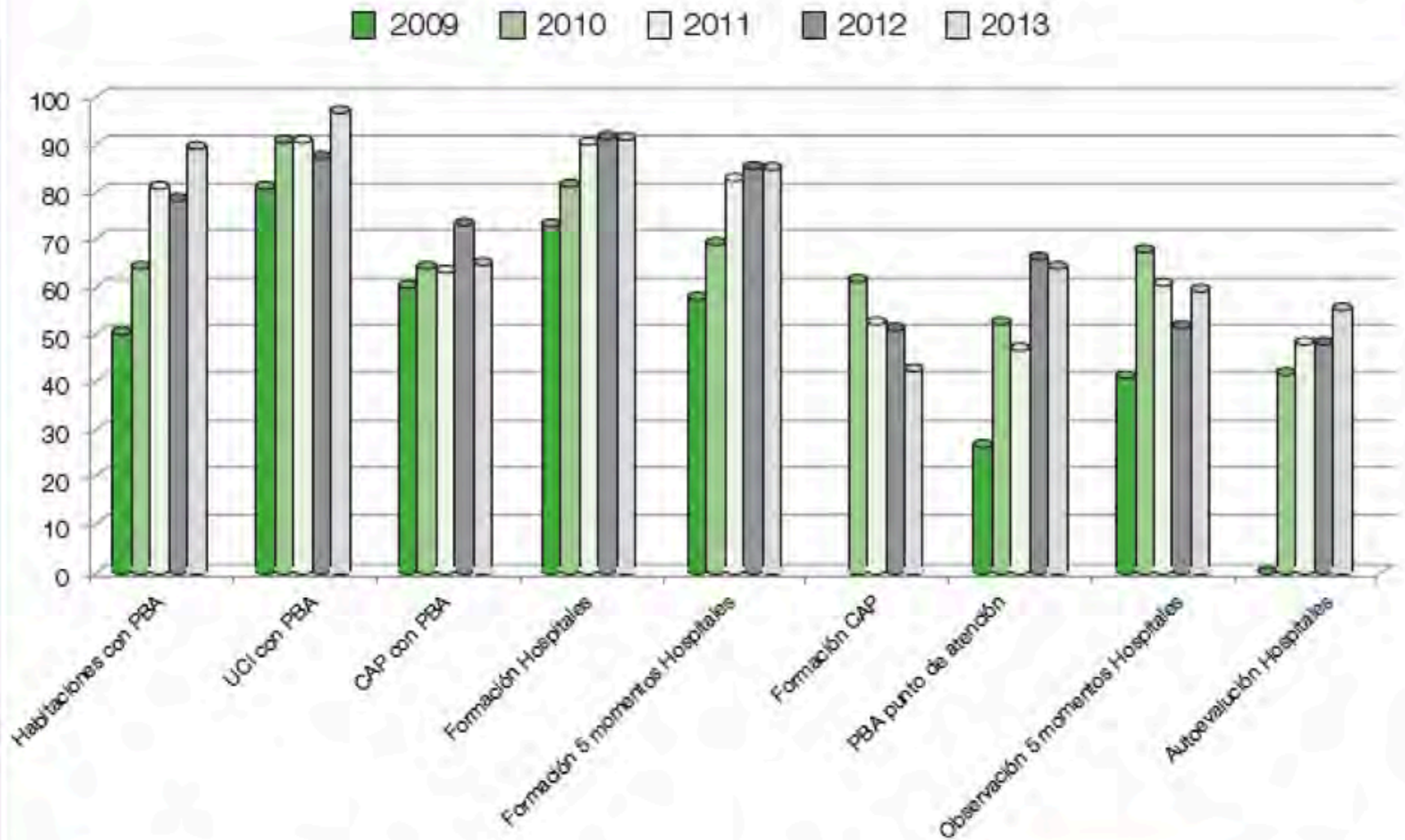
Estrategia  
de Seguridad del  
Paciente del Sistema  
Nacional de Salud

Período 2015-2020

# El camino recorrido en España: Grandes logros



**Figura 6. Resultado de la evaluación de los indicadores de higiene de manos del SNS**



PBA: producto de base alcohólica; UCI: unidad de cuidados **intensivos**; CAP: centro de atención primaria.



- **Programa de seguridad en las unidades de atención a pacientes críticos.** Los proyectos Bacteriemia Zero y Neumonía Zero<sup>157</sup> han permitido, a través de una intervención multifactorial basada en la aplicación simultánea de un paquete de medidas sencillas y sostenibles, no sólo reducir significativamente la incidencia de dos de las infecciones asociadas a la atención recibida de mayor impacto y coste, sino además, favorecer el trabajo en red de múltiples profesionales y centros de todo el país y servir como trabajo de referencia de lo que debería ser la aplicación de prácticas seguras en todos los niveles de la atención sanitaria.
- El Proyecto **Bacteriemia Zero** tenía como objetivos:
  - a) reducir la densidad de incidencia de la bacteriemia relacionada con catéter a  $< 4$  episodios por 1000 días de catéter venoso central;
  - b) documentar todos los episodios de bacteriemia, incluidas las bacteriemias secundarias a otros focos, así como la etiología y las características de los pacientes que las desarrollan;
  - c) crear grupos de trabajo con capacidad de liderazgo que puedan seguir programas de prevención de otras infecciones nosocomiales;
  - d) reforzar la cultura de seguridad en el manejo del paciente crítico.

Durante los 18 meses del estudio (2009-2010), 192 UCI de todas las Comunidades Autónomas aportaron casos y se obtuvo un descenso del 50% de la tasa, en todo tipo de hospitales<sup>166</sup>. Se ha estimado a finales de 2013 que se han evitado 384 muertes y se han ahorrado 159.630,700 € en estancias.



# Estrategia de Seguridad del Paciente del Sistema Nacional de Salud

Período 2015-2020

- **Proyecto Neumonía Zero.** Siguiendo la misma estructura que Bacteriemia Zero, se propuso un paquete de medidas específico y un programa de seguridad integral, de acuerdo con las Comunidades Autónomas, la Sociedad Española de Medicina Intensiva Crítica y Unidades Coronarias (SEMICYUC) y la Sociedad Española de Enfermería Intensiva y Unidades Coronarias (SEEIUC). El **objetivo principal era reducir la tasa de Neumonía Asociada a Ventilador (VAP) a < 9 episodios x 1000 días de ventilación mecánica** manteniendo los objetivos secundarios del Proyecto Bacteriemia Zero. Más de **240 UCI (80% de las existentes)** en el país) han participado en el proyecto, logrando una **tasa inferior a 7 episodios x 1000 días** de ventilación mecánica. Se ha estimado que **se han evitado 340 muertes**, y se han **ahorrado unos 164 millones de euros**<sup>167</sup>.

# Indice

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# Individuos y poblaciones

¿Por qué SESPAS?

**La clave: Balance beneficio-riesgo**

# La clave: Balance beneficio-riesgo

NNT y NND

Número  
Necesario  
para  
Tratar

Número  
Necesario  
para  
Dañar

Actuaciones clínicas  
individuales

Programas  
poblacionales (cribados;  
vacunas)

Sobreutilización

## Right Care 1

# Evidence for overuse of medical services around the world

Shannon Brownlee, Kalipso Chalkidou, Jenny Doust, Adam G Elshaug, Paul Glasziou, Iona Heath\*, Somil Nagpal, Vikas Saini, Divya Srivastava, Kelsey Chalmers, Deborah Korenstein

Overuse, which is defined as the provision of medical services that are more likely to cause harm than good, is a pervasive problem. Direct measurement of overuse through documentation of delivery of inappropriate services is challenging given the difficulty of defining appropriate care for patients with individual preferences and needs; overuse can also be measured indirectly through examination of unwarranted geographical variations in prevalence of procedures and care intensity. Despite the challenges, the high prevalence of overuse is well documented in high-income countries across a wide range of services and is increasingly recognised in low-income countries. Overuse of unneeded services can harm patients physically and psychologically, and can harm health systems by wasting resources and deflecting investments in both public health and social spending, which is known to contribute to health. Although harms from overuse have not been well quantified and trends have not been well described, overuse is likely to be increasing worldwide.

Coste sobreutilización  
(EEUU 2013):  
**270.000 millones \$** al  
año (estimación  
conservadora)

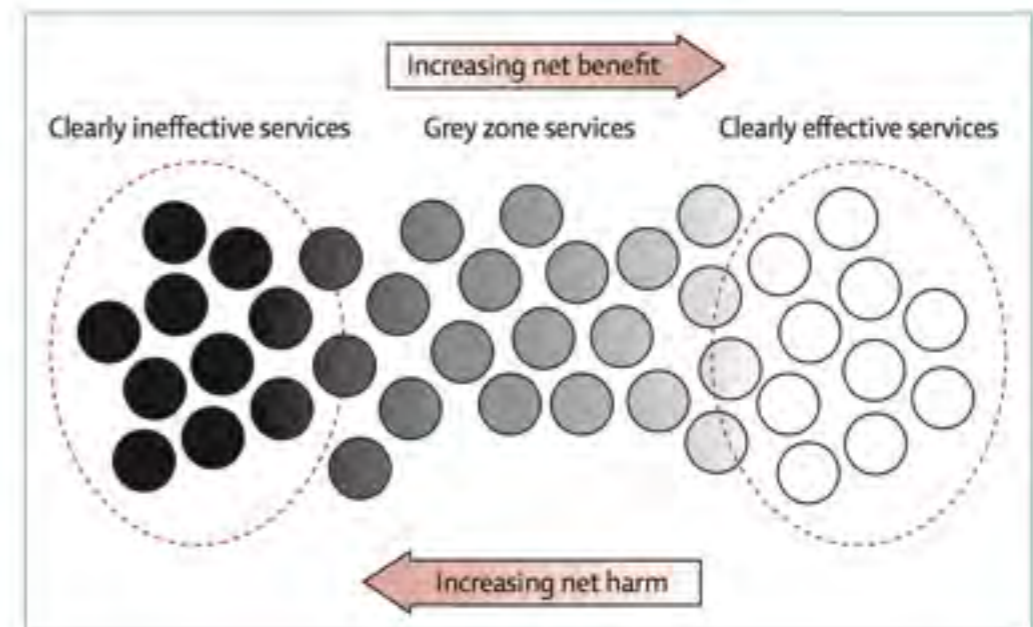


Figure 1: Grey zone services



**Direct evidence of inappropriate care****Indirect evidence of inappropriate care****Musculoskeletal procedures**

Spain: Rates of inappropriate total knee replacement 26% and total hip replacement 25%;<sup>34</sup>  
 USA: Rate of inappropriate total knee replacement 34%<sup>35</sup>

International: 4-fold variation across countries and 2–3 fold variation within countries in rates of knee replacement;<sup>36</sup>  
 England: 13-fold regional variation in rates of arthroscopic knee lavage;<sup>37</sup>  
 USA: 5-fold regional variation in adjusted rates of total hip and knee replacement<sup>38</sup>

**Cardiovascular procedures**

Italy: Rate of inappropriate PCI 22% and inappropriate coronary angiography 30%;<sup>39</sup>  
 USA: Rate of inappropriate PCI 1.1% for acute indications and 11.6% for non-acute indications with variation across hospitals (6.0–16.7%);<sup>40</sup>  
 Brazil: Rate of inappropriate coronary angiography 20%<sup>41</sup>

International: 9-fold variation in use of PCI and 5-fold variation in use of coronary artery bypass grafting across OECD countries;<sup>39</sup>  
 USA: Rates of elective PCIs vary 10-fold within the state of California;<sup>42</sup>  
 India: A second opinion centre reported recommending against cardiac interventions in 55% of patients in whom intervention was initially recommended<sup>43</sup>

**Hysterectomy**

Taiwan: 20% of hysterectomies inappropriate;<sup>44</sup>  
 Switzerland: 13% of hysterectomies inappropriate;<sup>45</sup>  
 USA: Rates of inappropriate hysterectomies between 16 and 70% across studies<sup>46</sup>

Canada: 2.7-fold variation in rates of hysterectomy across regions within Ontario;<sup>47</sup>  
 Netherlands: 2.2-fold regional variation in rates of hysterectomy for bleeding disorders; 2.3-fold regional variation in rates for pelvic organ prolapse;<sup>48</sup>  
 India: Prevalence of up to 9.8% overall, with one third of hysterectomies performed in women under the age of 35 (probably inappropriate in this age group)<sup>49</sup>

**Antibiotics for acute diarrhea**

Italy: Among children hospitalised for acute diarrhea, 9% received antibiotics inappropriately;<sup>50</sup>  
 China: 57% of patients received antibiotics inappropriately; among those with an indication for antibiotics, 21% were not treated (adults);<sup>51</sup>  
 Thailand: 55% of children with acute diarrhea received antibiotics inappropriately<sup>52</sup>

USA: 10.4% of patients with diarrhea received antibiotics (often likely inappropriate);<sup>53</sup>  
 India: 71% of children with acute diarrhea received antibiotics (despite recommendations against routine use);<sup>54</sup>  
 India: Rates of antibiotic use for acute diarrhea 43% in public facilities and 69% in private facilities (despite recommendations against routine use)<sup>55</sup>

PCI=percutaneous coronary intervention. OECD=Organisation for Economic Co-operation and Development.

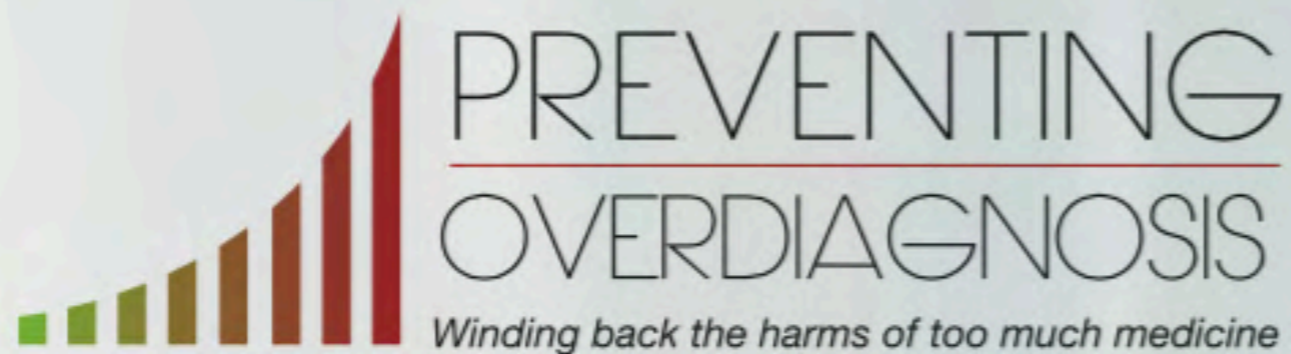
**Table: Direct and indirect evidence of global overuse in different clinical categories**





**20–22 September 2016**

**BARCELONA**





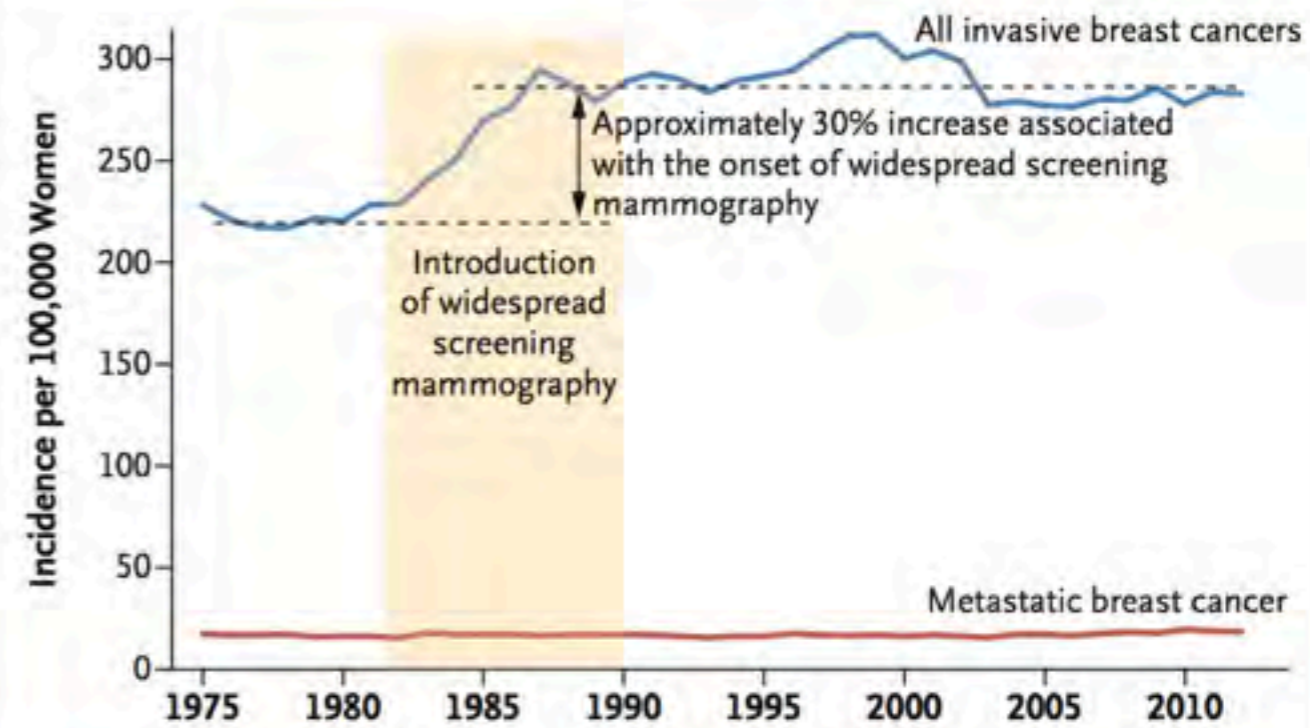
ORIGINAL ARTICLE

# Breast-Cancer Tumor Size, Overdiagnosis, and Mammography Screening Effectiveness

H. Gilbert Welch, M.D., M.P.H., Philip C. Prorok, Ph.D., A. James O'Malley, Ph.D., and Barnett S. Kramer, M.D., M.P.H.

Evaluación retrospectiva de programas de cribado de cancer de mama

Alta frecuencia de sobrediagnóstico



**Figure 1. Temporal Relationship between the Introduction of Screening Mammography and Increased Incidence of Invasive Breast Cancer.**

Shown are the incidences of overall invasive breast cancer and metastatic breast cancer among women 40 years of age or older at nine sites of the Surveillance, Epidemiology, and End Results (SEER) program, during the period from 1975 through 2012. The use of screening mammography was rare before 1980 (as evidenced by the rarity of ductal carcinoma in situ — an abnormality that is nearly always detected by mammography rather than by breast self-examination, physical examination, or the development of symptoms), yet its use had disseminated to over half of women 40 years of age or older by 1990 (as determined by responses to a National Health Interview Survey question in which women were asked if they had had a mammogram in either 1988 or 1989<sup>3</sup>).

### CONCLUSIONS

Although the rate of detection of large tumors fell after the introduction of screening mammography, the more favorable size distribution was primarily the result of the additional detection of small tumors. Women were more likely to have breast cancer that was overdiagnosed than to have earlier detection of a tumor that was destined to become large. The reduction in breast cancer mortality after the implementation of screening mammography was predominantly the result of improved systemic therapy.



ORIGINAL ARTICLE

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*The data regarding size-specific incidence, however, make clear that the magnitude of overdiagnosis is larger than is generally recognized. Furthermore, the data regarding size-specific case fatality rate clarify that decreasing breast-cancer mortality largely reflects improved cancer treatment.*

**Table 2.** Approximations of the Effects of Improved Breast-Cancer Treatment and Screening Mammography on Breast-Cancer Mortality among Women 40 Years of Age or Older.\*

| Effect  | Tumor Size |            |            | Total       |
|---|------------|------------|------------|-------------|
|   | ≥5.0 cm    | 3.0–4.9 cm | 2.0–2.9 cm |             |
| <b>Approximate effect of improved treatment had screening not occurred</b>  |            |            |            |             |
| Size-specific case fatality rate  |            |            |            |             |
| Baseline  | 55%        | 39%        | 28%        |             |
| Recent  | 43%        | 27%        | 16%        |             |
| Absolute reduction from baseline (percentage points)  | 12         | 12         | 12         |             |
| Baseline size-specific incidence of breast cancer per 100,000 women   |            |            |            |             |
|   | 29         | 56         | 60         |             |
| Mortality reduction per 100,000 women, calculated as absolute reduction from baseline × baseline size-specific incidence (95% CI) | 3 (2–4)    | 7 (6–8)    | 7 (6–8)    | 17 (15–19)  |
| <b>Approximate effect of screening</b>  |            |            |            |             |
| Size-specific incidence of breast cancer per 100,000 women  |            |            |            |             |
| Baseline  | 29         | 56         | 60         |             |
| Recent  | 25         | 38         | 52         |             |
| Absolute reduction from baseline  | 4          | 18         | 8          |             |
| Effect given previously available therapy   |            |            |            |             |
| Baseline case fatality rate   | 55%        | 39%        | 28%        |             |
| Mortality reduction per 100,000 women, calculated as absolute reduction from baseline × baseline case fatality rate (95% CI)      | 2 (2–3)    | 7 (7–8)    | 2 (2–3)    | 12 (11–13)† |
| Effect given more recent therapy  |            |            |            |             |
| Recent case fatality rate   | 43%        | 27%        | 16%        |             |
| Mortality reduction per 100,000 women, calculated as absolute reduction from baseline × recent case fatality rate (95% CI)        | 2 (1–2)    | 5 (5–6)    | 1 (1–1)    | 8 (7–9)     |

\* This analysis was limited to large tumors (measuring ≥2 cm), where earlier detection could exert its beneficial effect. Incidence of breast cancer and mortality reduction are expressed as diagnoses of breast cancer and deaths from breast cancer, respectively, per 100,000 women in the population of women 40 years of age or older. The baseline time period refers to the period before the advent of widespread screening (1975 through 1979). The recent time period for this analysis refers to the period encompassing the most recent years for which 10 years of follow-up data were available (2000 through 2002).

† Values do not sum to 12 as a result of rounding. All calculations were made using full precision and were then rounded.



# ANALYSIS



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## New diagnostic tests: more harm than good

Although new diagnostics may advance the time of diagnoses in selected patients, they will increase the frequency of false alarms, overdiagnosis, and overtreatment in others. **Bjorn Hofmann** and **H. Gilbert Welch** explain how to minimise harm

Bjørn Hofmann *professor*<sup>1</sup>, H. Gilbert Welch *professor*<sup>2</sup>

<sup>1</sup>Department of Health Sciences in Gjøvik, Norwegian University of Science and Technology, and Centre for Medical Ethics at the University of Oslo, PO Box 1130, Blindern, N-0318 Oslo, Norway; <sup>2</sup>Dartmouth Institute for Health Policy and Clinical Practice, Geisel School of Medicine at Dartmouth, Hanover, New Hampshire, USA



## ANALYSIS

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**Key messages**

Innovative **technologies and ample venture capital** are combining to produce new disease biomarkers and mobile monitoring devices

These new diagnostics are technologically advanced but **do not automatically provide improvements in clinical care and population health**

They have the potential to help some but also to increase the frequency of **false alarms, overdiagnosis, and overtreatment** in others

Excessive testing and false alarms may increase healthcare workload and shift clinicians' focus towards the healthy

Misleading feedback at both the population and individual levels tends to favour further market growth

Clinicians must provide a strong counterbalance: educating patients, respecting baseline risk, thinking downstream, and expecting misleading feedback





## ANALYSIS

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<sup>1</sup>Department of Health Sciences in Gjøvik, Norwegian University of Science and Technology, and Centre for Medical Ethics at the University of Oslo, PO Box 1130, Blindern, N-0318 Oslo, Norway; <sup>2</sup>Dartmouth Institute for Health Policy and Clinical Practice, Geisel School of Medicine at Dartmouth, Hanover, New Hampshire, USA

**Biomarkers for Alzheimer's disease****What is it?**

Multiple blood based biomarkers have been shown to differentiate Alzheimer's disease from healthy controls<sup>14</sup> and to predict onset and progression of Alzheimer's disease many years before symptoms start.<sup>15</sup>

**What are the claims?**

One research group says, "This new blood test can accurately reflect development of Alzheimer's disease up to 10 years prior to clinical onset."<sup>16</sup>

**What are the potential benefits, and what is the evidence?**

Sensitivities over 95% for detection of Alzheimer's disease have been reported,<sup>17</sup> and over 90% for predicting Alzheimer's disease over a time frame of 2-3 years.<sup>18</sup> But published results have been hard to replicate.<sup>14</sup> Variability in the biomarkers included in different assays and how biomarkers in the same person change over time are challenges yet to be accounted for.<sup>15</sup> Many tests are developed and verified on the same population, thus lacking external validation. Test performance is frequently measured in two distinct populations: sensitivity among patients with overt Alzheimer's disease and false positives among normal controls, which again introduces spectrum bias.<sup>5</sup> Adding to the complexity, different assays are tested against different gold standards for what constitutes Alzheimer's disease.<sup>19</sup>

**What are the concerns about harms and costs?**

Reported false positive rates are high (10-30%),<sup>5</sup> implying that many people might be given a false diagnosis. Even those given the correct diagnosis or prediction will face the challenge of what to do with a positive result, as the disease is not currently actionable. Although early detection might help people plan and prepare, it can also result in emotional despair, stigma, and discrimination. With clear definitions lacking, clinicians might be tempted to use biomarkers as a quantitative and objective gold standard for the diagnosis of Alzheimer's disease. This might not only increase the prevalence of Alzheimer's disease, but also have serious implications for the rights of people to

drive, make a will, and handle financial affairs. If biomarkers genuinely produce long lead times, such as 10 years before clinical onset, they will simultaneously create ample potential for overdiagnosis, as many will die from other diseases before they develop overt Alzheimer's disease.

# Sobreutilización y sobrediagnóstico

+ no es mejor  
Paradoja: la sobreutilización implica dejar de hacer y por tanto, daños por omisión

El daño al paciente puede ser consecuencia de:

**sobreutilización**

**infrautilización**

utilización inadecuada (ej. uso de servicios y tecnologías *de bajo valor*)



# Ejemplo: osteoporosis



RESEARCH ARTICLE

## Overuse and Underuse of Antiosteoporotic Treatments According to Highly Influential Osteoporosis Guidelines: A Population-Based Cross-Sectional Study in Spain

**Gabriel Sanfélix-Gimeno<sup>1,2\*</sup>, Isabel Hurtado<sup>1,2</sup>, José Sanfélix-Genovés<sup>1,2,3</sup>,  
Cristóbal Baixauli-Pérez<sup>1,2</sup>, Clara L. Rodríguez-Bernal<sup>1,2</sup>, Salvador Peiró<sup>1,2</sup>**

**1** Health Services Research Unit, Center for Public Health Research (FISABIO), Valencia, Spain, **2** Red de Investigación en Servicios de Salud en Enfermedades Crónicas (REDISSEC), Valencia, Spain, **3** Fundación de Investigación del Hospital Clínico Universitario—Instituto de Investigación Sanitaria INCLIVA, Valencia, Spain

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# Ejemplo: osteoporosis

1. Las guías son poco concordantes
2. En España coexisten sobreuso e infrauso de tratamientos antirresortivos

PLOS ONE

RESEARCH ARTICLE

Overuse and Underuse of Antiosteoporotic Treatments According to Highly Influential Osteoporosis Guidelines: A Population-Based Cross-Sectional Study in Spain

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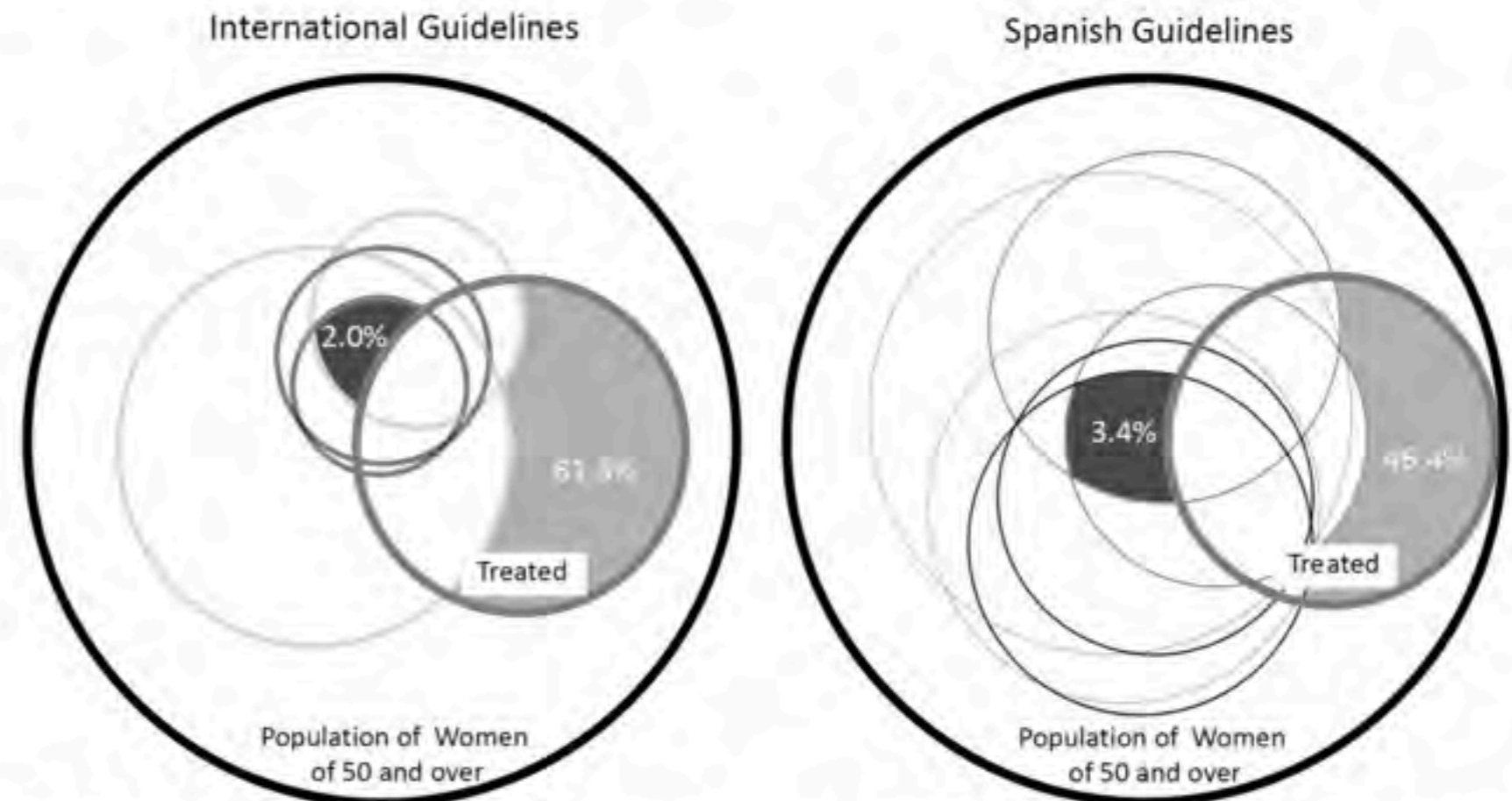


PLOS ONE

Overuse and Underuse of Antiosteoporotic Treatments

The most influential osteoporosis guidelines, varied strikingly, with the percentage of women 50 and over who should be treated ranging **from less than 9% to over 44%**.

A large proportion of inappropriate treatments was found when applying these guidelines to the Spanish population, combining a **high overuse (which ranged between 42 and 78%)** and, to a lesser extent, **underuse (ranging between 7 and 41%)**.



**Fig 1. Overuse and underuse of osteoporotic treatment in women of 50 and over.** The black external circle indicates the total population of women aged 50 and over and the thick gray line circle the proportion of women treated. Each one of other circles represents women who should be treated according to different international (left) or Spanish (right) guidelines. The light gray area denotes the percentage of women treated who do not require treatment (overuse) according to either all international or Spanish guidelines. The dark gray area denotes the percentage of untreated women requiring treatment according to either all international or Spanish guidelines.



La iatrogenia responde a **múltiples causas**, que se sitúan en los **niveles macro, meso y micro**

1. Nivel **macro**: la **regulación** y la **planificación** pueden generar o evitar iatrogenia

2. Nivel **meso**: el poder de las organizaciones, desde los incentivos hasta las rutinas

3. Nivel **micro**: proximidad causa- efecto

## Ejemplos

1. Autorización de medicamentos
2. Planificación de médicos
3. Concentración de servicios quirúrgicos
4. Regulación de saneamiento ambiental, seguridad vial, laboral, industrial...

*HSR: Health Services Research 52:2 (April 2017)*

# Hospital Surgical Volumes and Mortality after Coronary Artery Bypass Grafting: Using International Comparisons to Determine a Safe Threshold

*Nils Gutacker, Karen Bloor, Richard Cookson, Chris P. Gale, Alan Maynard, Domenico Pagano, José Pomar, and Enrique Bernal-Delgado as part of the ECHO collaboration*

**Objective.** To estimate a safe minimum hospital volume for hospitals performing coronary artery bypass graft (CABG) surgery.

**Data Source.** Hospital data on all publicly funded CABG in five European countries, 2007–2009 (106,149 patients).

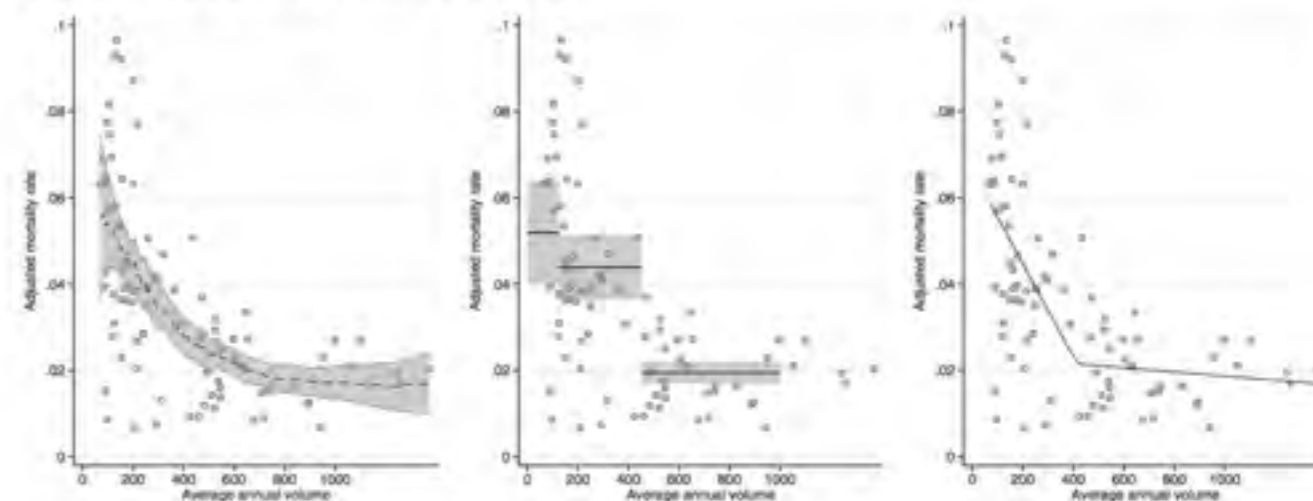
**Design.** Hierarchical logistic regression models to estimate the relationship between hospital volume and mortality, allowing for case mix. Segmented regression analysis to estimate a threshold.

**Findings.** The 30-day in-hospital mortality rate was 3.0 percent overall, 5.2 percent (95 percent CI: 4.0–6.4) in low-volume hospitals, and 2.1 percent (95 percent CI: 1.8–2.3) in high-volume hospitals. There is a significant curvilinear relationship between volume and mortality, flatter above 415 cases per hospital per year.

**Conclusions.** There is a clear relationship between hospital CABG volume and mortality in Europe, implying a “safe” threshold volume of 415 cases per year.

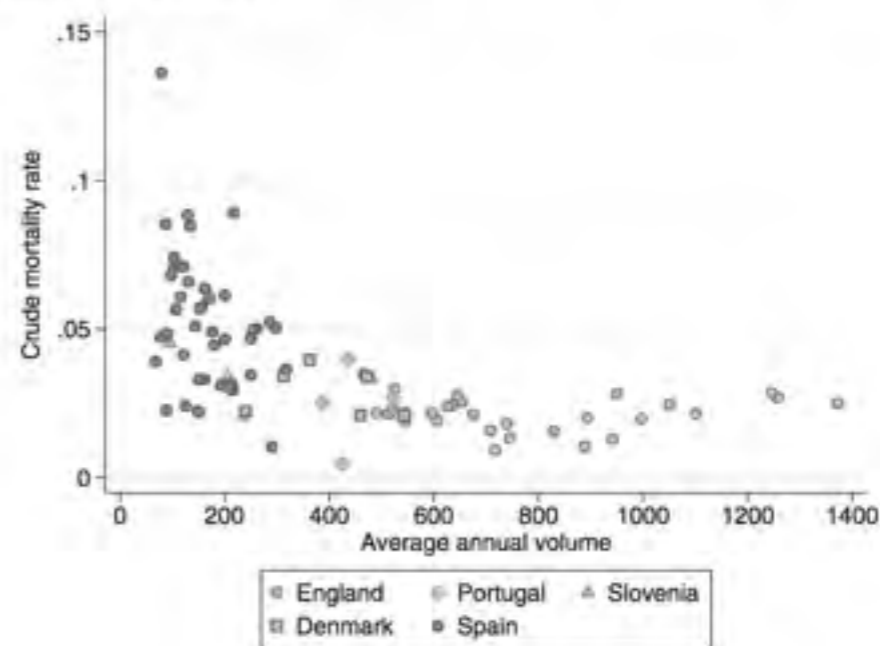
**Key Words.** Coronary artery bypass surgery, center-volume, mortality, international comparisons

Figure 2: Adjusted 30-day In-Hospital Mortality Rate and Hospital Annual Volume, All Five Countries Pooled



*Notes.* LOWESS plot (left panel), average mortality by volume group (middle panel), and segmented regression line (right panel). Estimated threshold volume: 415 procedures per hospital per year.

Figure 1: Unadjusted 30-day In-Hospital Mortality Rates and Hospital Annual Volume by Country





# También causan iatrogenia...

1. La **medicalización** de la **sociedad**, que genera **expectativas irreales** y plenipotenciarias sobre la medicina
2. Los **incentivos a la actividad** y no a los resultados en salud, vinculados con las formas de pago a los profesionales, que fomentan y refuerzan los intereses de los lobbies industriales
3. La práctica de la **medicina defensiva**.



## Medicina defensiva: aumenta el 20% los costes de Medicare (EEUU)

Reschovsky JD, Saiontz-Martinez CB. Malpractice Claim Fears and the Costs of Treating Medicare Patients: A New Approach to Estimating the Costs of Defensive Medicine. *Health Serv Res.* 2017. doi: 10.1111/1475-6773.12660.



# El informe SESPAS-OMC sobre iatrogenia (2017)

Iatrogenia en sentido amplio (seguridad del paciente y más)



Informe accesible en

<http://sespas.es/2017/09/06/presentacion-del-informe-sespas-omc-sobre-iatrogenia/>

**Hacer visible lo invisible**



# Indice

1. Introducción. Iatrogenia y/o(?) seguridad del paciente
2. Iatrogenia social y cultural, medicalización y sobrediagnóstico
3. Algunas evidencias sobre el alcance y costes de la no seguridad
4. El coste-efectividad de los programas de seguridad del paciente
5. Conclusión

## INSTITUTE OF MEDICINE

*Shaping the Future for Health*

Entre 44.000 y 98.000  
personas mueren al  
año EEUU por los  
errores médicos  
prevenibles

Entre 17.000 y 29.000  
millones \$

## TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM

**H**ealth care in the United States is not as safe as it should be--and can be. At least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented, according to estimates from two major studies. Even using the lower estimate, preventable medical errors in hospitals exceed attributable deaths to such feared threats as motor-vehicle wrecks, breast cancer, and AIDS.

Medical errors can be defined as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. Among the problems that commonly occur during the course of providing health care are adverse drug events and improper transfusions, surgical injuries and wrong-site surgery, suicides, restraint-related injuries or death, falls, burns, pressure ulcers, and mistaken patient identities. High error rates with serious consequences are most likely to occur in intensive care units, operating rooms, and emergency departments.

Beyond their cost in human lives, preventable medical errors exact other significant tolls. They have been estimated to result in total costs (including the expense of additional care necessitated by the errors, lost income and household productivity, and disability) of **between \$17 billion and \$29 billion per year in hospitals nationwide.** Errors also are costly in terms of loss of trust in the health care system by patients and diminished satisfaction by both patients and health professionals. Patients who experience a long hospital stay or disability as a result of errors pay with physical and psychological discomfort. Health professionals pay with loss of morale and frustration at not being able to provide the best care possible. Society bears the cost of errors as well, in terms of lost worker productivity, reduced school attendance by children, and lower levels of population health status.

A variety of factors have contributed to the nation's epidemic of medical errors. One oft-cited problem arises from the decentralized and fragmented nature of the health care delivery system--or "nonsystem," to some observers. When patients see multiple providers in different settings, none of whom has access to complete information, it becomes easier for things to go



**Errors...are costly in terms of loss of trust in the health care system by patients and diminished satisfaction by both patients and health professionals.**



# Europa:

Los **costes** directos de la no seguridad en la Unión Europea en 2014 alcanzaron **1,5% del gasto sanitario (21,000 millones €)**

4 millones de personas al año **infecciones** asociadas a la asistencia sanitaria durante su ingreso hospitalario

37.000 muertes

7.000 millones € costes directos

2016

**Costs of unsafe care and cost effectiveness of patient safety programmes**

*Written by Gesundheit Österreich Forschungs- und Planungs GmbH and SOGETI*

Gesundheit Österreich  
Forschungs- und Planungs GmbH



Health and  
Food Safety





2016



940 millones €  
Europa 2007

### Box 1.2. Low-value care with high stakes: Tackling overprescription of antimicrobials

The inappropriate use of antimicrobials has a detrimental impact:

- Antimicrobial therapies play an essential role in modern medicine but their inappropriate use – a form of low-value care – is the most important factor responsible for increasing levels of antimicrobial resistance (AMR). Excess use in agricultural livestock constitutes another significant portion of the total inappropriate consumption of antimicrobials.
- In recent years, total antimicrobial consumption stabilised or even decreased in some countries but it continues to grow in others, despite growing concerns.
- Inappropriate use of antimicrobials represents about 50% of all antimicrobial consumption by humans (Wise et al., 1998). In long-term care and general practice, however, inappropriate consumption may be as high as 90% of all prescriptions (Wang et al., 2014). Medical conditions at higher risk for inappropriate use include viral respiratory tract infections and urinary tract infections, due to empiric prescribing.
- The economic consequences of inappropriate use of antimicrobials are significant. Large negative externalities are incurred by society as a consequence of the development of AMR. Patients infected with AMR organisms suffer from prolonged and severe morbidity, and increased risk of mortality. In 2007, this expenditure summed to EUR 940 million in Europe while the Centers for Disease Control and Prevention (CDC) calculated that in 2012 AMR cost USD 20 billion in the United States (ECDC and EMEA, 2009; CDC, 2013). Modelling predicts that compared with a world with no AMR, the economic impact associated with current rates of AMR may reach 0.03% of gross domestic product (GDP) in 2020 and 0.16% of GDP in 2050 in OECD countries, a cumulative loss of USD 2.9 trillion (Cecchini et al., 2015).
- Inappropriate antimicrobial consumption is predominantly driven by human factors underpinning the behaviour of physicians (prescription habits) and patients (who insist on an antimicrobial prescription or self-medicate). Organisational barriers, for instance insufficient availability of rapid diagnostic tests (RDTs), might also result in inappropriate prescription of antimicrobials (Cabana et al., 1999).



# EEUU hospitales

Coste de los efectos adversos **prevenibles** de **errores** médicos hospitalarios: **4.8%** del gasto sanitario (1992). La mitad, costes indirectos(1)

**UCI**: sobrecarga de fluídos, responsable de sobrecoste medio de **\$15,344** por paciente(2)

Complicaciones quirúrgicas en **traumatología** (25% de pacientes) imponen coste adicional de **40,505\$** por paciente(3)

(1) Thomas EJ, Studdert DM, Newhouse JP, et al. Costs of medical injuries in Utah and Colorado. Inquiry 1999;255-64

(2) Child DL, Cao Z, Seiberlich LE, et al. The costs of fluid overload in the adult intensive care unit: is a small-volume infusion model a proactive solution? ClinicoEconomics and outcomes research: CEOR 2014;7:1-8

(3) Hemmila MR, Jakubus JL, Maggio PM, et al. Real money: complications and hospital costs in trauma patients. Surgery 2008;144:307-16

Figura 1. Relación de estudios realizados para conocer la incidencia de eventos adversos en hospitales.



Fuente: Estrategia de Seguridad del Paciente SNS 2015-2010. MSSSI



# Coste de los Efectos Adversos de los Medicamentos (EAM)

**Italia:** EAM **AINES** coste adicional **58%**(1)

**Reino Unido:** EAM **AINES** en pacientes con osteoartritis: coste adicional entre £57 millones y £124 millones anuales (libras de 2010)(2).

**Revisión sistemática** de 31 estudios observacionales de calidad, muchos longitudinales (**1995-2015**) **EEUU** y **Europa:** los EAM tienen un coste directo **ambulatorio** entre €702 y €40,273, y un coste directo **hospitalario** entre €943 y €7,192(3)

(1) Sturkenboom MCJM, Romano F, Simon G, et al. The iatrogenic costs of NSAID therapy: a population study. Arthritis care & Research 2002;47:132-40

(2) Andrew Moore R, Phillips CJ. Cost of NSAID adverse effects to the UK National Health Service. Journal of Medical Economics 1999;2:45-55

(3) Marques FB. A systematic review of observational studies evaluating costs of adverse drug reactions. ClinicoEconomics and Outcomes Research 2016;8:413-26.

**Table 2** Incremental total direct health care cost per patient with ADE (€)

| Type of ADE  | Reference                                   | Drug   | Incremental total cost per patient with ADE (€) |
|--|---|--|---|
| <b>Nonhospitalized patients with ADEs leading to hospitalization</b>               |   |  |   |
| Any ADE  | Pirmohamed et al (2004) <sup>18</sup>       | Any drug   | 3,682.82  |
|  | Bordet et al (2001) <sup>19</sup>           | Any drug   | 5,187.50  |
|  | Carrasco-Garrido et al (2010) <sup>20</sup> | Any drug   | 4,910.12  |
|  | Kim et al (2009) <sup>21</sup>              | Rhythm-control, rate-control, and combined rhythm-/rate-control drug | 2,737.46  |
|  | Yee et al (2005) <sup>22</sup>              | Any drug   | 3,593.60  |
|  | Lagnaoui et al (2000) <sup>23</sup>         | Any drug   | 3,500.80  |
|  | Leendertse et al (2011) <sup>k, l, 13</sup> | Any drug   | 5,891.65  |
|  | Hafner et al (2002) <sup>24</sup>           | Any drug   | 702.21  |
|  | Bates et al (1997) <sup>25</sup>            | Any drug   | 3,209.82  |
|  | Bates et al (1997) <sup>l, 25</sup>         | Any drug   | 5,794.99  |
|  | Rottenkolber et al (2011) <sup>26</sup>     | Any drug   | 2,427.45  |
|  | Rottenkolber et al (2012) <sup>30</sup>     | Any drug   | 2,140.49  |
|  | Senst et al (2001) <sup>27</sup>            | Any drug   | 7,318.14  |
|  | Tafreshi et al (1999) <sup>28</sup>         | Any drug   | 1,303.40  |
| Any ADE, except skin ADE   | Schneeweiss et al (2002) <sup>29</sup>      | Any drug   | 820.16  |
| Any ADE in pediatric population  | Du et al (2013) <sup>14</sup>               | Any drug   | 40,273.08                                       |
| Any ADE in geriatric population  | Leendertse et al (2011) <sup>13</sup>       | Any drug   | 6,527.37  |
| <b>Hospitalized patients with ADEs during the hospitalization</b>                  |   |  |   |
| Any ADE  | Rottenkolber et al (2012) <sup>30</sup>     | Any drug   | 1,049.69  |
|  | Senst et al (2001) <sup>27</sup>            | Any drug   | 2,366.77  |
|  | Hug et al (2012) <sup>k, 31</sup>           | Any drug   | 3,030.79  |
|  | Hug et al (2012) <sup>u, 31</sup>           | Any drug   | 3,234.61  |
|  | Hug et al (2012) <sup>h, 31</sup>           | Any drug   | 7,192.36  |
|  | Schneider et al (1995) <sup>32</sup>        | Any drug   | 943.40  |
|  | Suh et al (2000) <sup>33</sup>              | Any drug   | 5,972.74  |
|  | Classen et al (1997) <sup>34</sup>          | Any drug   | 2,797.92  |
|  | Skin ADE                                    | Giuliani and Marzola (2013) <sup>35</sup>                            | Erlotinib                                       |
| <b>Other (both hospitalized and nonhospitalized patients; spontaneous reports)</b> |   |  |   |
| Any ADE  | Gyllensten et al (2014) <sup>36</sup>       | Any drug   | 349.98  |
|  | Lang et al (2009) <sup>46</sup>             | Radiotherapy,  | 8,509.24  |



RESEARCH ARTICLE

Open Access

# Trends of adverse drug reactions related-hospitalizations in Spain (2001-2006)

Pilar Carrasco-Garrido\*, López Ana de Andrés, Valentín Hernández Barrera, Gil Ángel de Miguel, Rodrigo Jiménez-García

## Abstract

**Background:** Adverse drug reactions (ADR) are a substantial cause of hospital admissions. We conducted a nationwide study to estimate the burden of hospital admissions for ADRs in Spain during a six-year period (2001-2006) along with the associated total health cost.

**Methods:** Data were obtained from the national surveillance system for hospital data (Minimum Basic Data Set) maintained by the Ministry of Health and Consumer Affairs, and covering more than 95% of Spanish hospitals. From these admissions we selected all hospitalization that were code as drug-related (ICD-9-CM codes E), but intended forms of overdoses, errors in administration and therapeutics failure were excluded. The average number of hospitalizations per year, annual incidence of hospital admissions, average length of stay in the hospital, and case-fatality rate, were calculated.

**Results:** During the 2001-2006 periods, the total number of hospitalized patients with ADR diagnosis was 350,835 subjects, 1.69% of all acute hospital admissions in Spain. The estimated incidence of admissions due to ADR decreased during the period 2001-2006 ( $p < 0.05$ ). More than five percent of patients ( $n = 19,734$ ) died during an ADR-related hospitalization. The drugs most commonly associated with ADR-related hospitalization were antineoplastic and immunosuppressive drugs ( $n = 75,760$ ), adrenal cortical steroids ( $n = 47,539$ ), anticoagulants ( $n = 26,546$ ) and antibiotics ( $n = 22,144$ ). The costs generated by patients in our study increased by 19.05% between 2001 and 2006.

**Conclusions:** Approximately 1.69% of all acute hospital admissions were associated with ADRs. The rates were much higher for elderly patients. The total cost of ADR-related hospitalization to the Spanish health system is high and has increased between 2001 and 2006. ADRs are an important cause of admission, resulting in considerable use of national health system beds and a significant number of deaths.

ADR-related hospitalizations Minimum Basic Data Set, Costs.

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ADR related hospitalizations Minimum Basic Data Set, Costs.

Estudio de **cohortes retrospectivo** para con **seis años** de **seguimiento** (2001-2006), de pacientes ambulatorios que han de **hospitalizarse** por EAM de cualquier tipo de medicamento. Datos CMBD.

**Coste directo medio de los EAM de 4,910€**

Número total de pacientes hospitalizados con diagnóstico de EAM en esos seis años fue 350,835 (1.69% de todas las admisiones en hospitales de agudos de España). Antineoplásicos e inmunosupresores ( $n = 75,760$ ), corticosteroides ( $n = 47,539$ ), anticoagulantes ( $n = 26,546$ ) y antibióticos ( $n = 22,144$ ).

Aunque la **incidencia de ingresos** debidos a EAM **disminuyó** significativamente durante el período, el **coste** total **aumentó un 19%** en esos años



Tabla 8. Frecuencia de los eventos adversos por medicamentos en los estudios multicéntricos realizados a nivel nacional

| Estudio                    | EA total (%pacientes) | EA más frecuentes   | EA por medicamentos          |                 |
|----------------------------|-----------------------|---|------------------------------|-----------------|
|                            |                       |   | Porcentaje respecto al total | Prevenibles (%) |
| <b>ENEAS<sup>15</sup></b>  | 9,3%                  | <b>Medicación (37,4%),</b><br>IAAS (25,3%)<br>Procedimientos (25%).   | 37,4                         | 34,8            |
| <b>APEAS<sup>26</sup></b>  | 10,11‰                | <b>Medicación (47,8%)</b><br>Peor curso evolutivo de la enfermedad de base (19,9%)<br>Procedimientos (10,6%). | 47,8                         | 59,1            |
| <b>EARCAS<sup>27</sup></b> | Estudio cualitativo   | Cuidados,<br><b>Medicación</b><br>IAAS  | –                            | –               |
| <b>SYREC<sup>28</sup></b>  | 33,1%                 | Cuidados (26%)<br>IAAS (24%)<br><b>Medicación (12%)</b>   | 11,6%                        | 58,9%           |
| <b>EVADUR<sup>29</sup></b> | 7,2%                  | Proceso de atención (46,2%),<br><b>Medicación (24,1%)</b><br>Procedimientos (11,7%).                          | 24,1%                        | –               |

- ENEAS: Estudio Nacional de Eventos Adversos relacionados con la hospitalización.
- APEAS: Estudio de Eventos Adversos en Atención Primaria.
- EARCAS: Eventos Adversos en Residencias y Centros Asistenciales Sociosanitarios.
- SYREC: Seguridad y Riesgo en el Enfermo Crítico.
- EVADUR: Eventos Adversos en Urgencias.
- EA: Evento adverso
- IAAS: infecciones asociada a la atención sanitaria

# España (hospitales)

Costes de la no seguridad en hospitales:  
**2.474 millones €** (2011)(1)

EA: **6.7% del gasto** sanitario adicional(2)

EAM en hospitalización: aumenta el coste  
por paciente (mayor) en **4.844€**(3)

(1) Antoñanzas F. Aproximación a los costes de la no seguridad en el sistema nacional de salud. Rev Esp Salud Pública 2013,Vol. 87,3

(2) Allué N, Chiarello P, Bernal E, Castells X, Giraldo P, Martínez C, et al. Impacto económico de los eventos adversos en los hospitales españoles a partir del Conjunto Mínimo Básico de Datos. [Internet] Barcelona: Gac Sanit 2014 28(1) [http://scielo.isciii.es/scielo.php?pid=S0213-91112014000100009&script=sci\\_arttext](http://scielo.isciii.es/scielo.php?pid=S0213-91112014000100009&script=sci_arttext)

(3) Chiatti C, Bustacchini S, Furneri G, Mantovani L, Cristiani M, Misuraca C, et al. The economic burden of inappropriate drug prescribing, lack of adherence and compliance, adverse drug events in older people a systematic review. Drug Safety. 2012;35(SUPPL. 1):73-87.



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1. Introducción. Iatrogenia y/o(?) seguridad del paciente
2. Iatrogenia social y cultural, medicalización y sobrediagnóstico
3. Algunas evidencias sobre el alcance y costes de la no seguridad
4. El coste-efectividad de los programas de seguridad del paciente
5. Conclusión

# ¿Es la Seguridad del Paciente un coste o un beneficio?

**Objetivo:** Calcular (1) los costes de la no seguridad evitable y compararlos con (2) los costes de las intervenciones para evitarlos o limitarlos a un mínimo. El efecto neto es un beneficio si  $(2) < (1)$

Análisis coste-efectividad (**ACE**)

**Incertidumbre** en la atribución de riesgos y causalidad.  
Gran variabilidad de resultados entre estudios

Diferencia con la industria (podemos aprender de ella)

**Decisiones metodológicas** importantes, ej. ¿perspectiva social o del SNS? ¿se incluyen los costes no sanitarios indirectos?



**Hay muchos mas estudios del coste de  
la no seguridad que del coste-  
efectividad de las intervenciones y  
programas de seguridad del paciente**

# THE ECONOMICS OF PATIENT SAFETY

Strengthening a value-based approach to  
reducing patient harm at national level

Luke Slawomirski, Ane Auraaen  
and Niek Klazinga



MARCH 2017



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# Europa:

2016

**Costs of unsafe care and cost effectiveness of patient safety programmes**

*Written by Gesundheit Österreich Forschungs- und Planungs GmbH and SOGETI*

Gesundheit Österreich  
Forschungs- und Planungs GmbH



Health and  
Food Safety

Aprender de la experiencia (local)  
Evidencia de qué funciona  
Muchos programas de seguridad del paciente pueden ser coste-efectivos



# Internacionalización Corriente mundial



## **Best Practices in Patient Safety**

2nd Global Ministerial Summit on Patient Safety





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### Best Practices in Patient Safety

One World. One Mission. Better on Patient Safety





## Antimicrobial Stewardship Teams

### Antimicrobial Stewardship can Limit Antimicrobial Resistance Successfully.

Inappropriate use of antimicrobials contributes to increasing antimicrobial resistance rates. To control the spread of antimicrobial resistance, the Dutch government has made an antimicrobial stewardship team (also called A-team) mandatory for every hospital.

The University Medical Centre Groningen (UMCG, the Netherlands) implemented an antimicrobial stewardship that is generally similar to other hospitals' stewardships but has an important unique element: the face-to-face day 2 case audit. The aim of the day 2 case audit is to streamline therapy as early as possible. The hospital pharmacist sends an automatic e-mail alert to all stewardship members 48 hours after start of antimicrobial therapy. The therapy will be discussed again after 30 days of treatment. These face-to-face consultations are used to create an effective learning moment.

Alex Friedrich, Bhanu Sinha and colleagues from the UMCG studied the effectiveness of their antimicrobial stewardship programme on a urology ward]. The researchers observed a statistically and clinically significant reduction in the number of antimicrobial prescriptions. The average length of hospital stay was also reduced by more than one day. It should however be emphasised that these results only hold for patients without severe underlying comorbidity.

The same research group from the UMCG also studied the cost-effectiveness of the antimicrobial stewardship. The hospital costs were divided into pre-intervention costs (stewardship meetings and the development of the pharmacy e-alert programme; €17,000) and intervention costs (case audits, stewardship meetings, and maintenance of the pharmacy e-alert programme; €10,000 per year). Patients treated by the stewardship switched significantly earlier from IV to oral therapy, had a shorter length of hospital stay, and required less nursing time. In total, this accounted for almost €70,000 less hospital costs than the historical cohort during a 12-month period after implementation. This economic evaluation strongly indicates cost-effectiveness of the antimicrobial stewardship.





# CRP Point of Care Test to Regulate Antimicrobial Use in Primary Care

## A Rapid Diagnostic Tool to Limit Antimicrobial Use for Acute Bronchitis.

Lower respiratory tract infection (LTRI) is one of the most common reasons to consult primary care, accounting for 17 million consultations in the EU annually. Acute bronchitis accounts for 80% of these LTRIs. Even though evidence suggests that acute bronchitis benefits little or not at all from antimicrobials, GPs prescribe them to 80% of the patients. Moreover, unnecessary prescribing may lead to serious side effects, such as antimicrobial resistance. Limiting antimicrobial use in the treatment of LTRI is therefore a priority in the prevention of antimicrobial resistance. The CRP Point of Care Test is a highly accurate diagnostic tool to differentiate between acute bronchitis and pneumonia. A low CRP test result reassures the GP that other diagnostics and antimicrobial treatment are unnecessary. The CRP test can be done swiftly in everyday general practice by using a finger prick blood sample. The CRP test results are available after a few minutes.

Jochen Cals and his colleagues (Maastricht University, the Netherlands) recently investigated the effectiveness of the CRP Point of Care Test with enhanced communication training. The effectiveness was studied in a large-scale, pragmatic, randomised trial with a one-month follow-up period. The combined intervention resulted in a statistically and clinically significant reduction in the number of antimicrobial prescriptions. The antimicrobial prescribing rate was 68% in the control group (usual care), compared to 23% for patients in the combined intervention group. The researchers claimed that between 150,000 and 240,000 antimicrobial prescriptions could be saved annually, assuming nationwide implementation in the Netherlands. Importantly, despite the substantial reduction in antimicrobial prescribing, patients' recovery and satisfaction were similar in both study groups.

The CRP Point of Care Test enhanced with communication skills training also underwent an economic evaluation. The economic analyses showed that the cost-savings are larger than the initial investments, even after just one month of running the programme. Patients in the intervention group required less additional diagnostics (e.g., chest X-ray and spirometry), used less antimicrobials, and visited the GP less often than control group patients (accounting for a cost-saving of €22). Given the low intervention costs (€15 per patient) and the fact that the CRP test can be performed in just three minutes, the feasibility and financial investments cannot be hurdles for further implementation.



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4. El coste-efectividad de los programas de seguridad del paciente
5. Conclusión

# CONCLUSIÓN

1. SESPAS-OMC: llamamiento para colaborar en prevención y control de la iatrogenia, que va más allá de los eventos adversos. Iatrogenia social y cultural ligadas a la medicalización. Sobrediagnóstico y sobreuso
2. Problema de gran magnitud y coste
3. Gran parte de las intervenciones de seguridad del paciente son potencialmente coste-efectivas con estrategias de cambio de cultura del *blame* a la *accountability*. Hacer más visible lo invisible (formación, información, investigación)



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