

# **Economic consequences of antiviral treatment for hepatitis C in England, Italy, Romania and Spain**

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**Mennini FS, Kondili LA, Vella S, Fabiano G, Ryder S, Buto  
M, Gheorghe L, Montilla S, Marcellusi A**

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# Background (1)

- Approvazione ed accesso ai DAA anti-HCV?



- I DAAs sono costo-efficaci?

[Cost Effectiveness Analysis of The Use of Daclatasvir for the Treatment of Hepatitis C Virus \(Hcv\) Genotypes 3 in Cirrhotic Patients Within the Italian National Health Service.](#)

Restelli U, Bonfanti M, Alberti A, et al.  
Value Health. 2015 Nov;18(7):A587. doi: 10.1016/j.jval.2015.11.007.  
PMID: 26533297 [Free Article](#)

[Budget impact analysis of sofosbuvir-based regimens for the treatment of HIV/HCV-coinfected patients in northern Italy: a multicenter regional simulation.](#)

Condorelli G, Artali S, Viscelli G, Bassi A, Giacomini M, Giannini P, et al.

Dentone C, Nicolini LA, Cassola G,

[Cost Analysis of Residual Viremia Detected by Two Real-Time Pcr Assays For Response-Guided \(Dual Or Triple\) Therapy of](#)

Paolini D, Lunghi G, Aghemo A, et al.  
Value Health. 2015 Nov;18(7):A587. doi: 10.1016/j.jval.2015.11.007.  
PMID: 26533300 [Free Article](#)  
[Similar articles](#)

[The optimal timing of hepatitis C therapy in liver transplant-eligible patients: Cost-effectiveness analysis of new opportunities.](#)

Cortesi PA, Belli LS, Facchetti R, Mazzarelli C, Perricone G, De Nicola S, Cesana G, Duvoux C, Mantovani LG, Strazzabosco M; European Liver and Intestine Transplant Association (ELITA).  
J Viral Hepat. 2018 Feb 6. doi: 10.1111/jvh.12877. [Epub ahead of print]  
PMID: 29406608

- Il trattamento precoce è un intervento costo-efficace?

[Modeling cost-effectiveness and health gains of a "universal" versus "prioritized" hepatitis C virus](#)

[Health policy model: long-term predictive results associated with the management of hepatitis C virus-induced diseases in Italy.](#)

Mennini FS, Marcellusi A, Andreoni M, Gasbarrini A, Salomone S, Craxi A.  
Clinicoecon Outcomes Res. 2014 Jun 19;6:303-10. doi: 10.2147/CEOR.S62092. eCollection 2014.  
PMID: 24971024 [Free PMC Article](#)

[Acceptance from the Italian Perspective?](#)

ani G, Mennini FS.  
07/s40261-016-0414-y.

- I DAAs consentono un ritorno della spesa? In quanto tempo?

ClinicoEconomics and Outcomes Research

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ORIGINAL RESEARCH

Health policy model: long-term predictive results associated with the management of hepatitis C virus-induced diseases in Italy

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ClinicoEconomics and Outcomes Research  
19 June 2014  
[Number of times this article has been viewed](#)

**Background:** At present, the whole Italian population. That HCV will generate in the treatments may have on the period 2012–2030 from the

**Table 3** Base-case results and probabilistic sensitivity analysis

| Results | BPT, years (95% confidence interval) | Avoided cases (BPT) (95% confidence interval) | Increasing costs after 20 years (€ million) (95% confidence interval) | Avoided cases after 20 years (95% confidence interval) |
|---------|--------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------|
| 2015    |                                      |                                               | 12.97 (2.35–42.25)                                                    | 980 (778–1221)                                         |
| 2016    | 6.6 (5.36–9.15)                      | 377 (328.25–470.91)                           | – 50.12 (– 21.39 to – 79.26)                                          | 722 (558–918)                                          |
| 2017    | 6.2 (5.33–7.61)                      | 145 (129.33–170.98)                           | – 55.50 (– 30.37 to – 85.49)                                          | 374 (279–493)                                          |

*BPT* break-even point in time

PharmacoEconomics  
<https://doi.org/10.1007/s40273-018-0733-3>

ORIGINAL RESEARCH ARTICLE



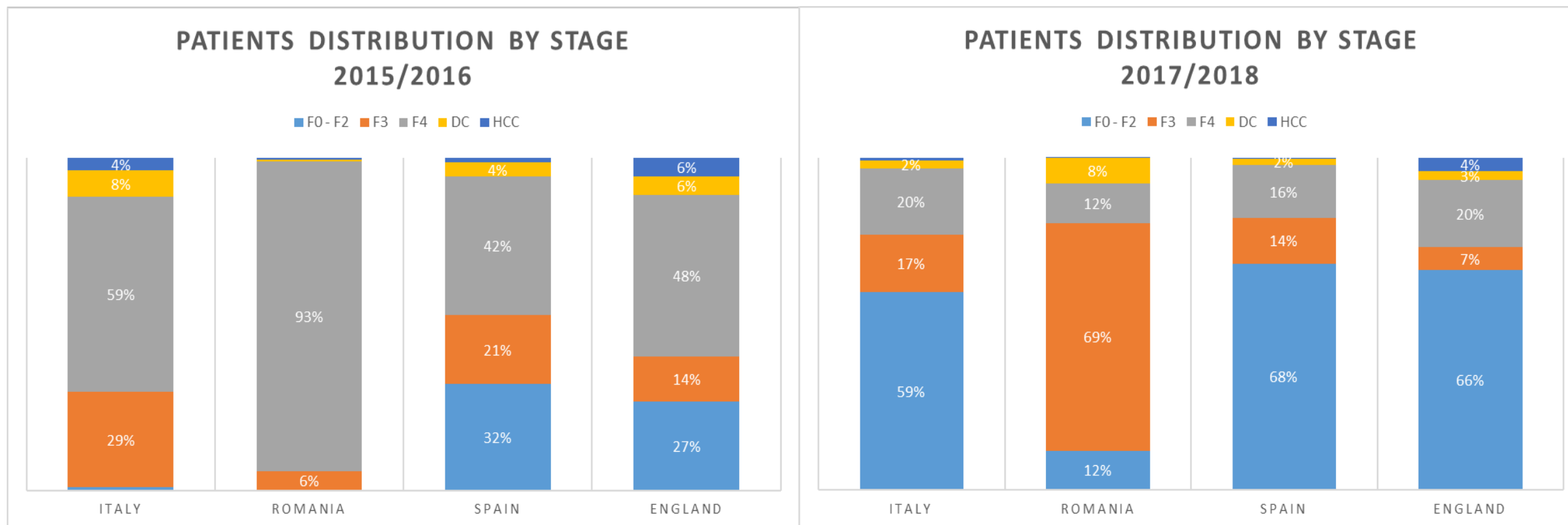
Economic Consequences of Investing in Anti-HCV Antiviral Treatment from the Italian NHS Perspective: A Real-World-Based Analysis of PITER Data

Andrea Marcellusi<sup>1,2</sup>  · Raffaella Viti<sup>1</sup> · Loreta A. Kondili<sup>3</sup> · Stefano Rosato<sup>3</sup> · Stefano Vella<sup>3</sup> · Francesco Saverio Mennini<sup>1,2</sup> on behalf of PITER Collaborating group available at [www.progettoperpiter.it](http://www.progettoperpiter.it)

- Considerando la distribuzione dei pazienti trattati per stato di Fibrosi e Genotipo, è possibile ipotizzare un ritorno economico vantaggioso dell'investimento per l'acquisto dei farmaci anti-HCV?
- In quanto tempo otterremo dei ritorni economici accettabili e quale strategia di trattamento si è dimostrato maggiormente vantaggiosa?

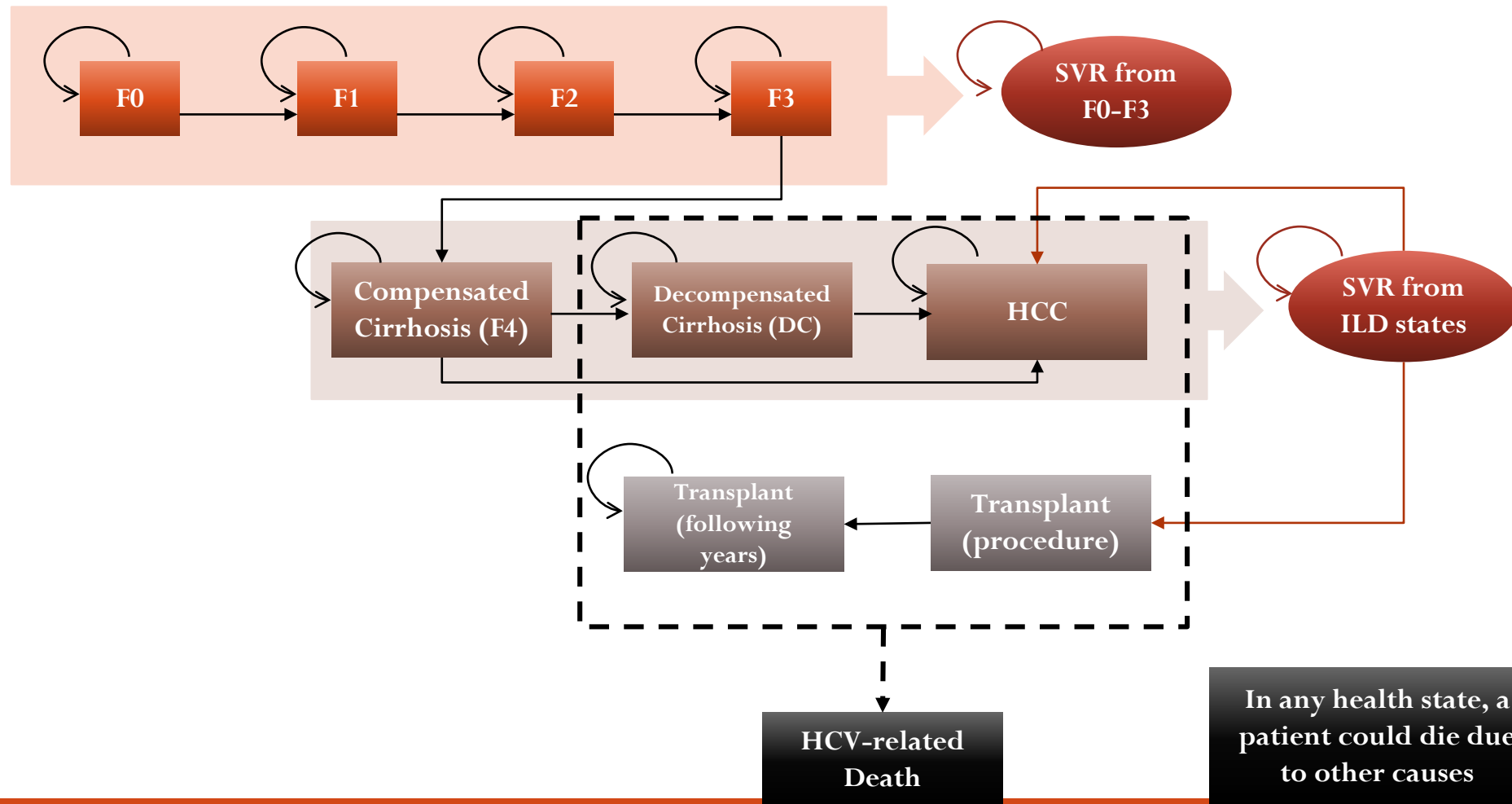
# Metodo: i trattati

- La distribuzione di trattati è stata estrapolata dai principali database nazionali (Italia distribuzione dei pazienti da registro AIFA\*)



\* L'extrapolazione dei dati è stata possibile grazie alla collaborazione tra AIFA e ISS (PITER)

# Metodo: la proiezione

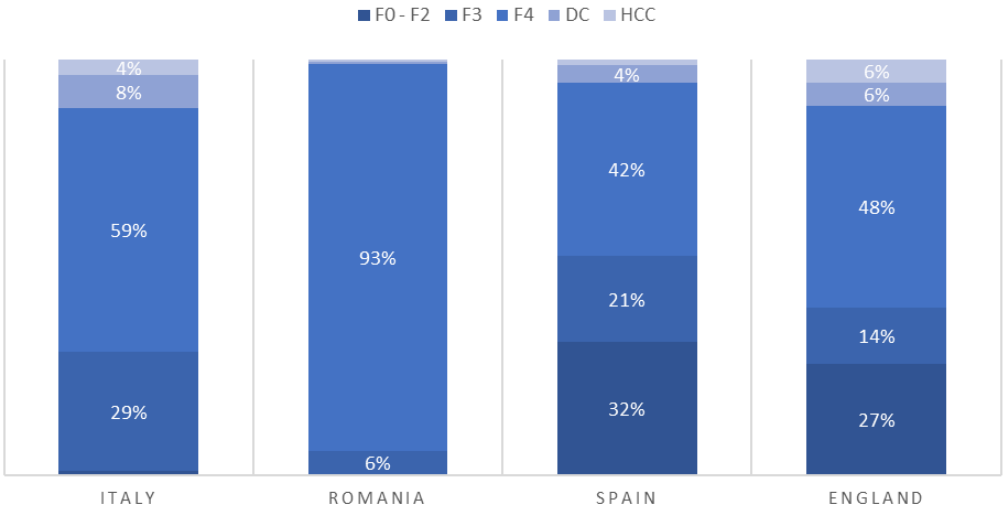


# Metodo: l'efficacia

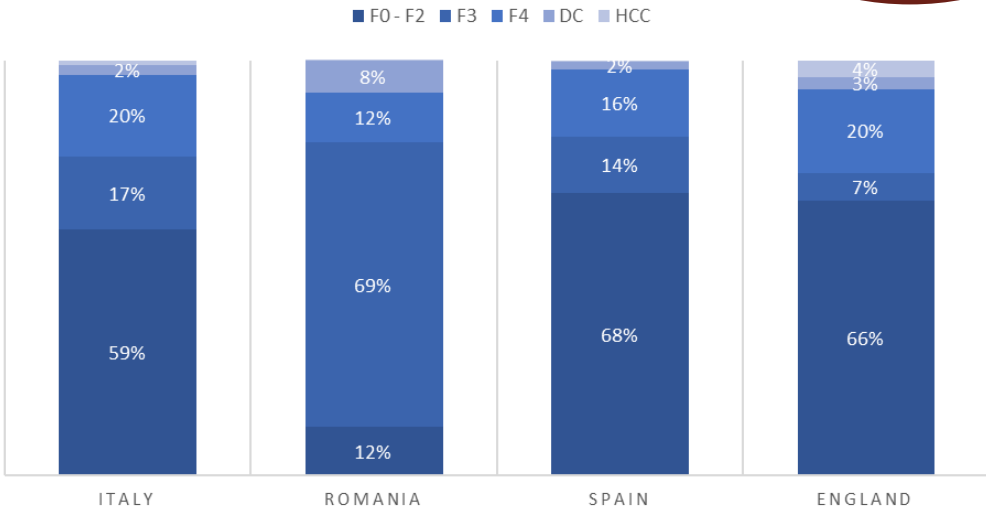
| Registro                                        | Attivazione | Schema terapeutico                                                                | Genotipo            |
|-------------------------------------------------|-------------|-----------------------------------------------------------------------------------|---------------------|
| SOVALDI<br>(sofosbuvir)                         | 6/12/2014   | 12 SETT (sofosbuvir + PegIFN + ribavirina)                                        | Gts (tutti)         |
|                                                 |             | 12 SETT (sofosbuvir + ribavirina)                                                 |                     |
|                                                 |             | 24 SETT (sofosbuvir + ribavirina)                                                 |                     |
|                                                 |             | Fino al trapianto o al massimo 24 SETT (sofosbuvir + ribavirina)                  |                     |
|                                                 |             | Fino al trapianto o al massimo 48 SETT (sofosbuvir+ribavirina)                    |                     |
| OLYSIO<br>(simeprevir)                          | 24/2/2015   | 12 SETT (simeprevir + PegIFN + ribavirina) + altre 12 SETT (PegIFN + ribavirina)  | Gt1 e Gt4           |
|                                                 |             | 12 SETT (simeprevir + PegIFN + ribavirina) + altre 36 SETT (PegIFN + ribavirina)  |                     |
|                                                 |             | 12 SETT (simeprevir + sofosbuvir ± ribavirina)                                    |                     |
|                                                 |             | 12 SETT (simeprevir + sofosbuvir) + altre 12 SETT (simeprevir + sofosbuvir)       |                     |
| DAKLINZA<br>(daclatasvir)                       | 5/5/2015    | 12 SETT (daclatasvir + sofosbuvir ± ribavirina)                                   | Gt1, Gt2, Gt3 e Gt4 |
|                                                 |             | 24 SETT (daclatasvir + sofosbuvir ± ribavirina)                                   |                     |
|                                                 |             | 24 SETT (daclatasvir + PegIFN ± ribavirina) + altre 24 SETT (PegIFN + ribavirina) |                     |
| HARVONI<br>(ledipasvir/sofosbuvir)              | 14/5/2015   | 8 SETT (ledipasvir/sofosbuvir)                                                    | Gt1, Gt3 e Gt4      |
|                                                 |             | 12 SETT (ledipasvir/sofosbuvir ± ribavirina)                                      |                     |
|                                                 |             | 24 SETT (ledipasvir/sofosbuvir ± ribavirina)                                      |                     |
| VIEKIRAX<br>(ombitasvir/paritaprevir/ritonavir) | 24/5/2015   | 12 SETT (ombitasvir/paritaprevir/ritonavir + ribavirina)                          | Gt1 e Gt4           |
|                                                 |             | 24 SETT (ombitasvir/paritaprevir/ritonavir + ribavirina)                          |                     |
|                                                 |             | 12 SETT (ombitasvir/paritaprevir/ritonavir + dasabuvir)                           |                     |

SVR from  
F0-F3

PATIENTS DISTRIBUTION BY STAGE  
2015/2016



PATIENTS DISTRIBUTION BY STAGE  
2017/2018

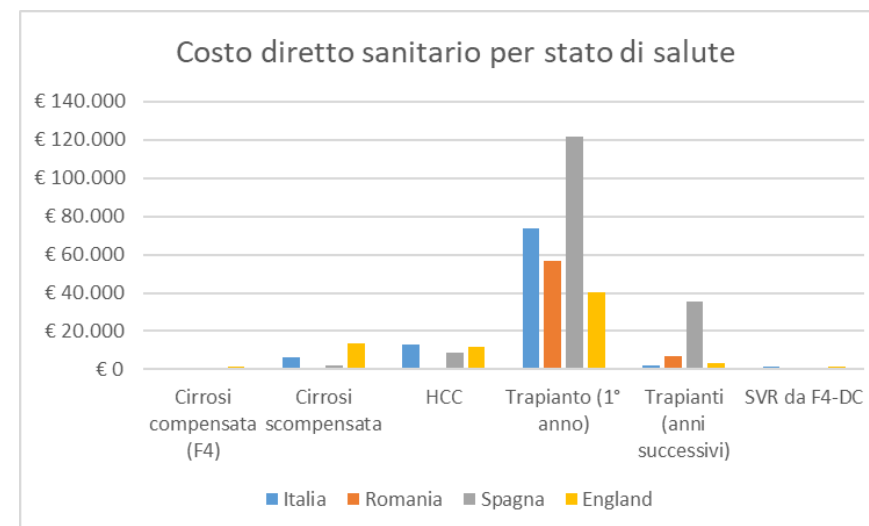
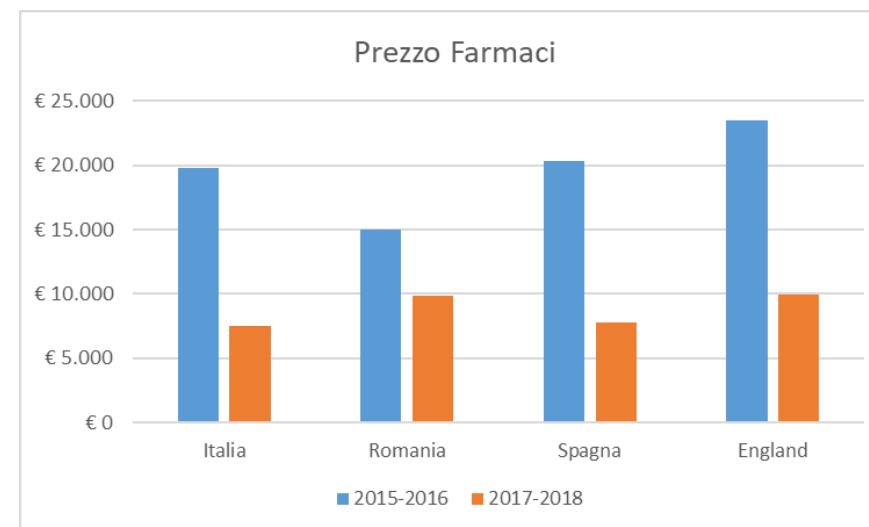


SVR from  
ILD states

# Metodo: i costi

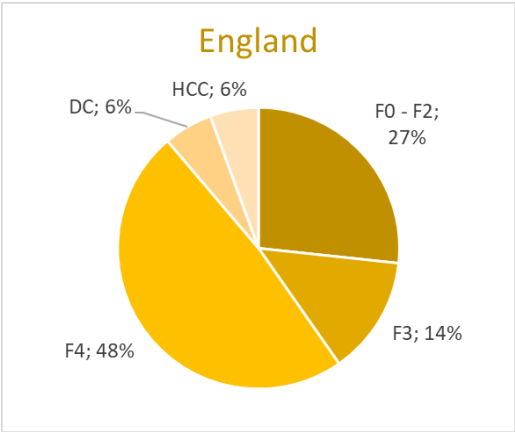
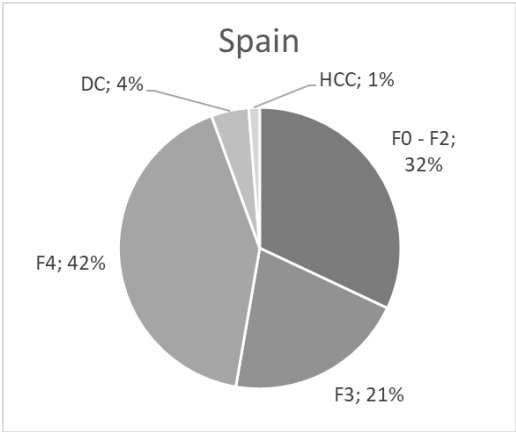
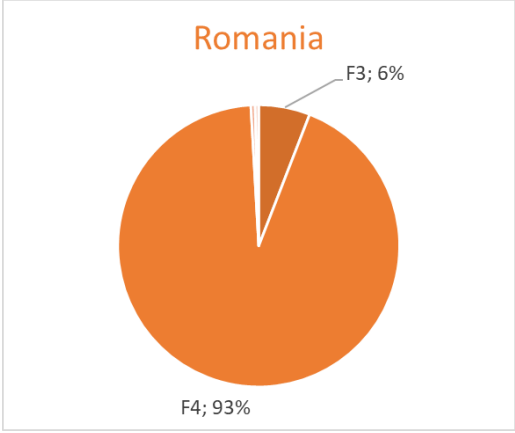
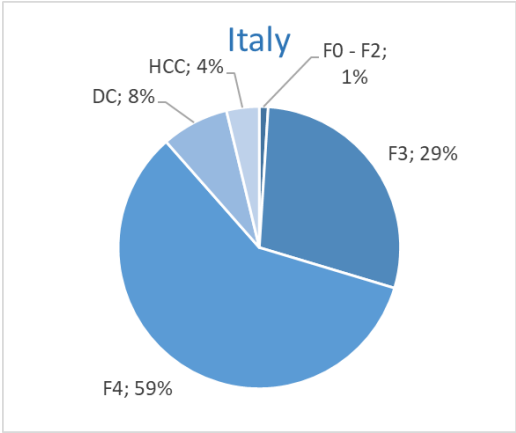
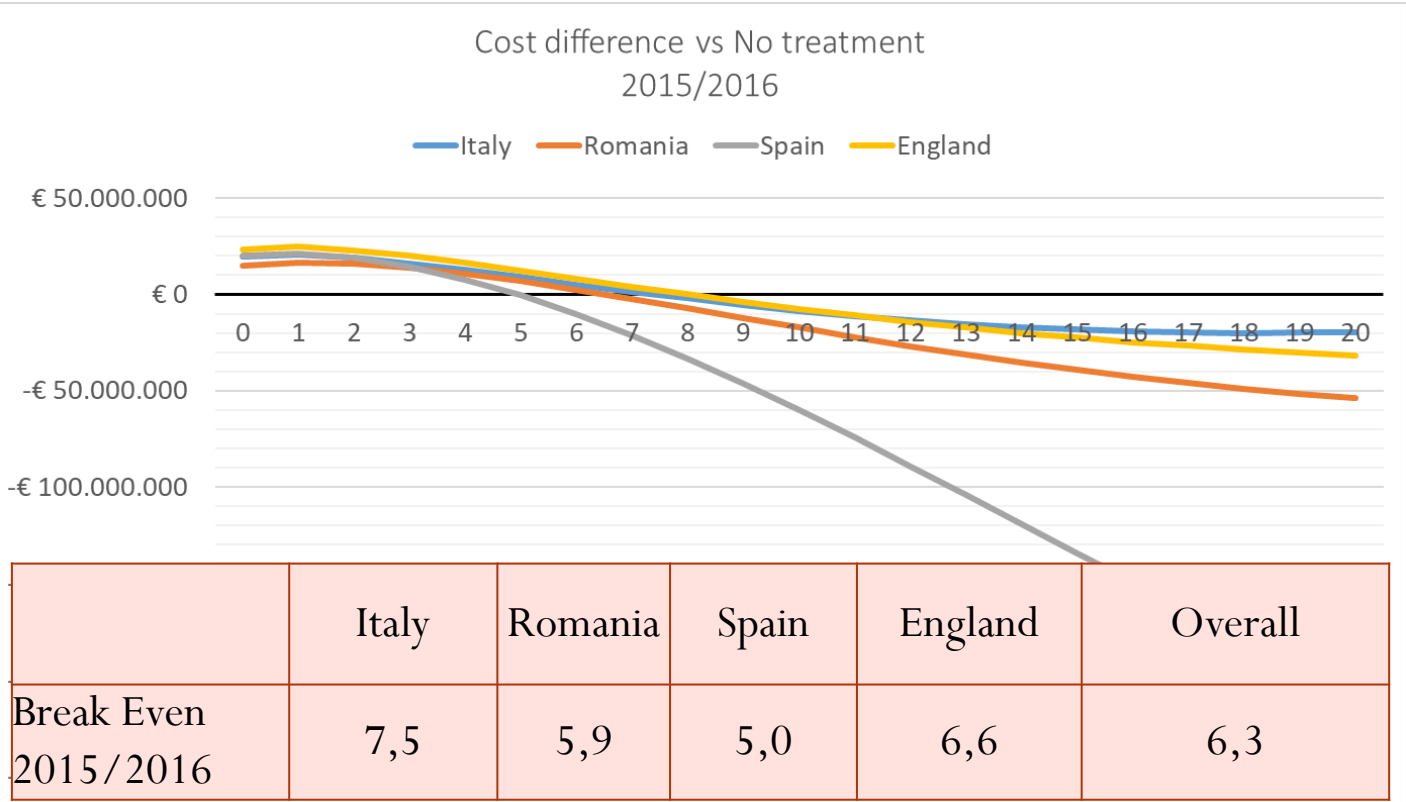
## ● Parametri di costo

|                 |                             | Italia   | Romania  | Spagna    | England  |
|-----------------|-----------------------------|----------|----------|-----------|----------|
| Prezzo Farmaci  | 2015-2016                   | € 19.798 | € 15.000 | € 20.286  | € 23.485 |
|                 | 2017-2018                   | € 7.500  | € 9.826  | € 7.765   | € 9.929  |
| Stati di salute | F0                          | € 234    | € 77     | € 306     | € 202    |
|                 | F1                          | € 234    | € 77     | € 306     | € 202    |
|                 | F2                          | € 234    | € 77     | € 306     | € 1.051  |
|                 | F3                          | € 617    | € 77     | € 306     | € 1.051  |
|                 | Cirrosi compensata (F4)     | € 876    | € 582    | € 556     | € 1.668  |
|                 | Cirrosi scompensata         | € 6.627  | € 930    | € 2.266   | € 13.371 |
|                 | HCC                         | € 12.896 | € 592    | € 8.630   | € 11.915 |
|                 | Trapianto (1° anno)         | € 73.774 | € 56.699 | € 121.707 | € 40.068 |
|                 | Trapianti (anni successivi) | € 2.365  | € 6.892  | € 35.575  | € 3.214  |
|                 | SVR da F4-DC                | € 1.440  | € 735    | € 162     | € 1.668  |



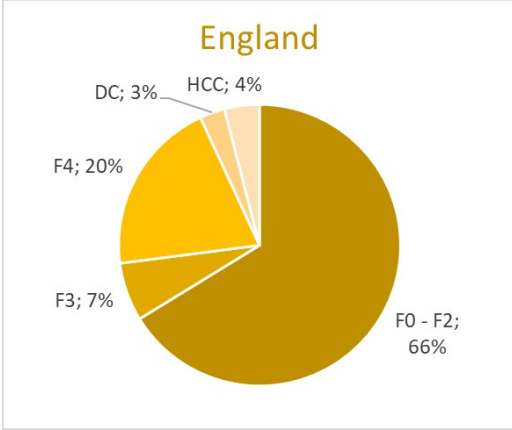
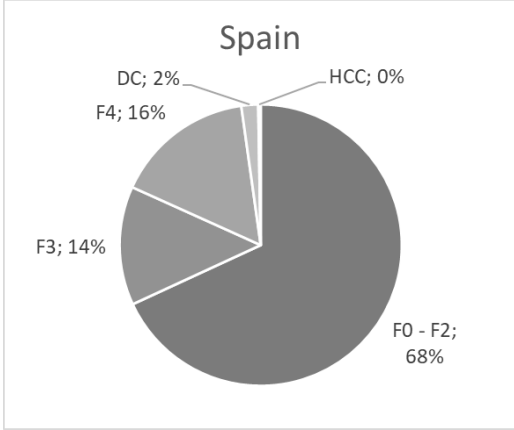
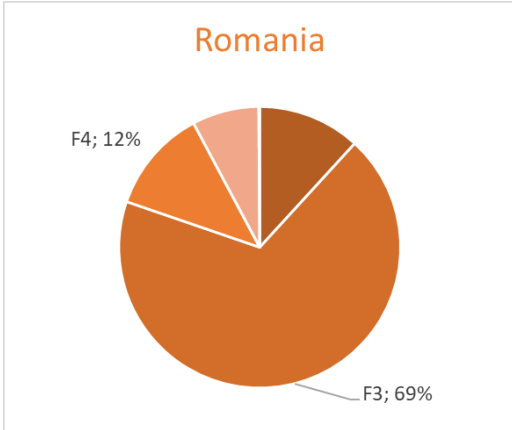
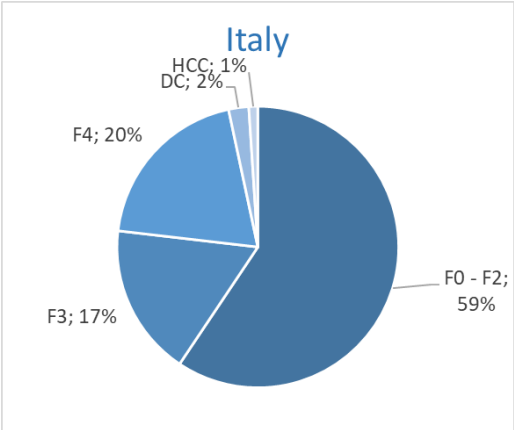
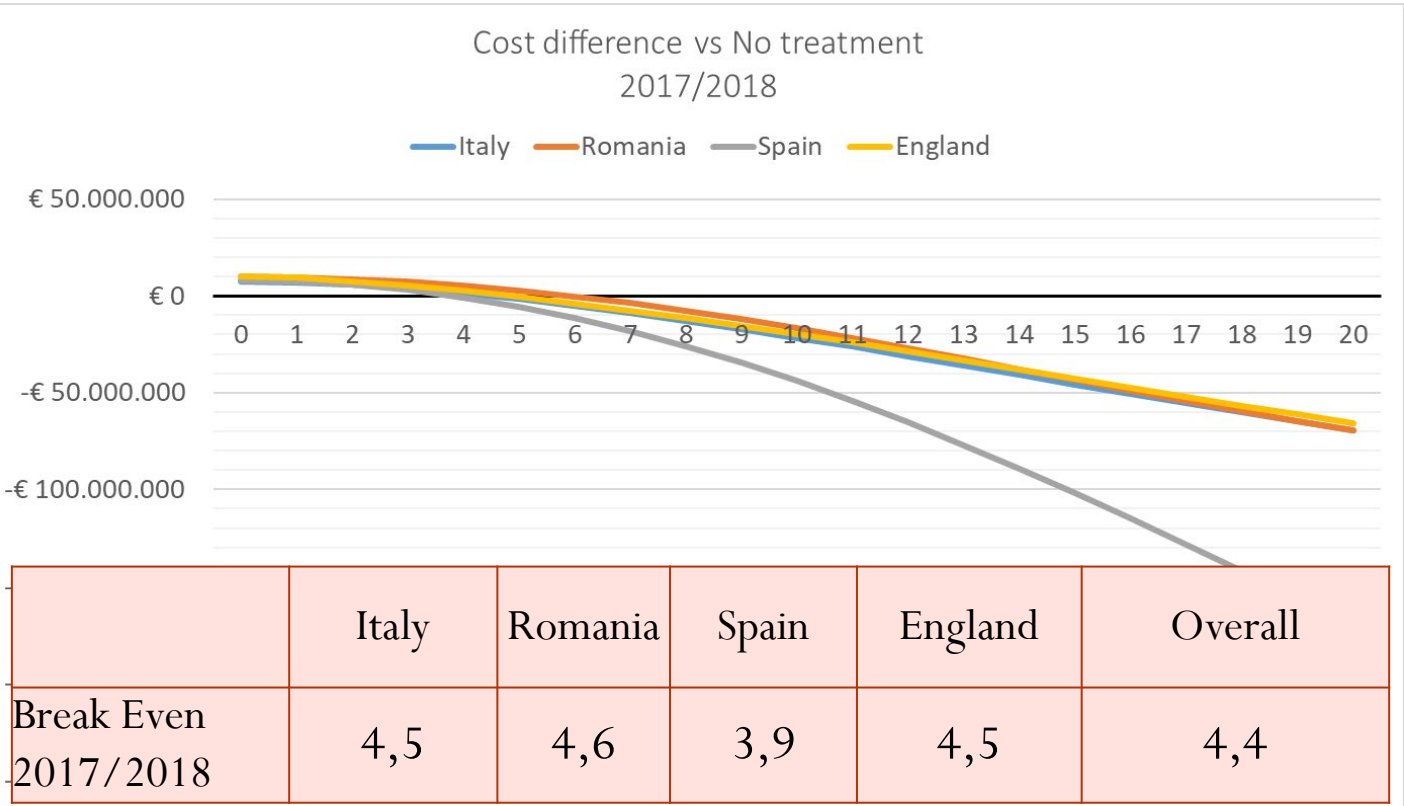
# Risultati: 2015 - 2016

- Standardizzazione per 1.000 pazienti trattati



# Risultati: 2017 - 2018

- Standardizzazione per 1.000 pazienti trattati



- **Investire** vuol dire migliorare la salute ma anche avere un ritorno economico nel medio lungo periodo;
- I **modelli statistici** sono l'unica metodologia per proiettare i costi futuri ma non servono a nulla se non vengono confermati dai **dati reali**;
- Future analisi *real world* sugli effetti diretti in termini di riduzione degli eventi (ospedalizzazioni) in Italia potrebbero confermare la validità dell'investimento.



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