

 **CONFINDUSTRIA ABRUZZO**
Coordinamento Regionale Sanità

**L'INNOVAZIONE
TECNOLOGICA
IN SANITÀ**

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Tecnologie e costi in Sanità

**Lamberto
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Open Access Full Text Article

ORIGINAL RESEARCH

Medical technology as a key driver of rising health expenditure: disentangling the relationship

¹LSE Health, London School of Economics and Political

29 May 2013

Table 3 Contributions of selected factors to growth in health care spending

| | Di Matteo ¹⁵ | Jones ¹⁶ | Pricewaterhouse Coopers ⁷ | Smith et al ¹⁹ | Peden and Freeland ¹⁷ | Cutler ⁹ | Newhouse ¹⁰ |
|------------------------|-------------------------|---------------------|---|------------------------------|-------------------------------------|---------------------|------------------------|
| Life expectancy/aging | ~9% | * | 15%** | 2% | 6%–7% | 2% | 2% |
| Administrative costs | * | * | 15%*** | 3%–10% | * | 13% | * |
| Changes in financing | * | * | * | 10% | 4%–5% | 10% | 10% |
| Personal income growth | 9%–20% | * | * | 11%–18% | 14%–18% | 5% | <23% |
| Health care prices | * | * | 18% | 11%–22% | * | 19% | * |
| Technology | ~65% | 50%–75% | 25% | 38%–62% | 70%–75% | 49% | >65% |

Notes: *Not estimated; **included aging, but also “front page treatments” (ie, media coverage drives demand for expensive treatment), increased preventive and diagnostic activity, and consumers moving away from less expensive managed care products; ***included government mandates (including new mandated benefits) and federal and state regulatory requirements.

I costi delle tecnologie sanitarie costituiscono >50% dell'aumento dei costi della Sanità

Discorso più complesso: dipende ovviamente dalla tecnologia ...

Of 16 diseases (and sub-groups) studied by Scitovski²⁰ in a case study, new technology decreased costs in eight cases, increased costs in seven, and in one case had neutral effects. The use of “low-tech” technologies such as electrocardiography, laboratory tests, and x-rays stabilized or increased costs at a moderate pace,

World J Hepatol 2015 April 18; 7(5): 806-813

Impact of all oral anti-hepatitis C virus therapy: A meta-analysis

Siddharth Bansal, Ashwani K Singal, Brendan M McGuire, Bhupinder S Anand

However, the present meta-analysis shows that the cost per SVR for non responders (but not for naive patients) was lower compared to P + R.

New Technology and Health Care Costs — The Case of Robot-Assisted Surgery

Gabriel I. Barbash, M.D., M.P.H., and Sherry A. Glied, Ph.D.



| Procedure | Mean Cost per Procedure in 2007 | Change in Cost | |
|---------------------------------------|---------------------------------|-----------------------------------|-----------------|
| | | Excluding Robot <i>dollars</i> | Including Robot |
| Mainly laparoscopic procedures | | | |
| Pyeloplasty | 10,065 | 1,400 | 3,400 |
| Nephrectomy | 14,943 | 10,600 | NA |
| Nissen fundoplication | 13,060 | 600 to 2,100 | 1,200 to 22,300 |
| Cholecystectomy | 10,366 | 500 | 1,700 |
| Unilateral adrenalectomy | 14,707 | 1,400 | 2,900 |
| Rectopexy | 9,040 | NA | 700 |
| Splenectomy | 28,205 | 3,000 | 3,200 |
| Gastric bypass | 21,275 | NA | 2,900 |
| Thymectomy | 17,983 | NA | 2,400 |
| Laparoscopic hysterectomy | 8,951 | 2,500 | NA |

- ◆ **Importanza cruciale della numerosità della casistica**
- ◆ **Nel complesso, scarse e conflittuali evidenze di minori eventi avversi e/o migliori outcome nel lungo termine con i robot**

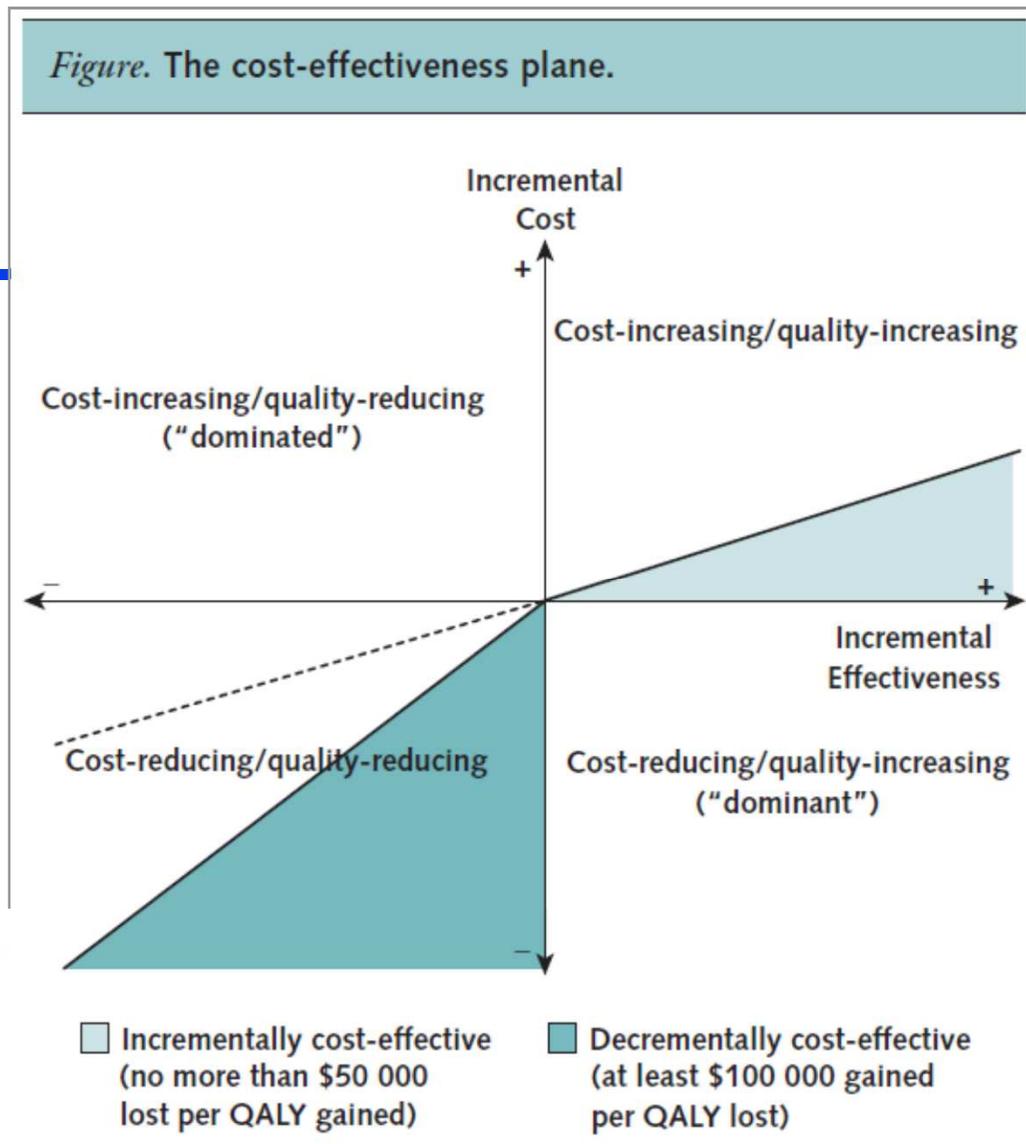
Discorso più complesso: Motivi dell'aumento del costo?

- ◆ **Frequente sovra-utilizzo delle nuove tecnologie**
- ◆ **Espansione del numero di pazienti trattabili e del numero di patologie trattabili (è negativo?)**
- ◆ **Estensione della sopravvivenza (QALY) e conseguentemente del consumo di risorse sanitarie nei successivi anni di vita (è negativo?)**

Discorso più complesso

- ◆ Parametro comune per valutare costo-efficacia di un nuovo intervento:
- ◆ Costo 50.000-100.000 \$ in più per ogni QALY

An innovation may fall into 1 of 4 quadrants on the cost-effectiveness plane, based on how its costs and effectiveness compare with those of a standard. The diagonal lines represent possible cost-effectiveness thresholds, with slopes corresponding to the acceptable ratio of costs to effectiveness. Only interventions in the northeast quadrant costing less than \$50 000 per QALY gained and those in the southwest quadrant gaining more than \$100 000 per QALY lost would be accepted. Although efficiency is optimized when the same threshold applies in both the southwest and northeast quadrants, empirical evidence suggests that the minimum acceptable savings per QALY lost in the southwest quadrant probably exceeds the maximum that people are willing to pay per QALY gained in the northeast quadrant. This difference suggests a “kink” in the cost-effectiveness threshold line at the origin (10). QALY = quality-adjusted life-year.



Il beneficio complessivo

- ◆ Dal 1960, stimato un aumento di $\cong 4$ QALY grazie alle nuove tecnologie
- ◆ Costo stimato per ogni anno di vita in più $\cong 20.000$ \$
- ◆ Nel cardiovascolare (stent etc.), costo aggiuntivo per ogni anno di vita guadagnato $\cong 10.000$ \$
- ◆ Nel complesso: grande beneficio anche economico

Several studies from the review indicate that, on average, increases in spending as a result of technological advances have provided reasonable value. For example, Cutler et al⁴⁹ found that from 1960 to 2000, average life expectancy increased by 7 years, 3.5 years of which were attributable to improvements in health care. Comparing the value of a year of life (anywhere from \$50,000 to \$200,000) with the finding that each year of increased life expectancy cost about \$19,900 in health spending, they conclude that the increased spending, on average, had been a worthwhile investment. Similar conclusions were arrived at by Cutler and McClellan²⁵ and Skinner et al⁵⁰ in examining technological innovation in cardiac care. The former, for example, demonstrated that the use of new technology helped to increase the average coronary patient's life expectancy by one year (valued at \$70,000 per case), while treatment costs increased \$10,000 per case (4.2% per year), for a net benefit of \$60,000 per case.

Alcuni casi particolarmente controversi

(Costo dipende anche da incidenza, severità ed efficacia ...)

Can Genomic Medicine Improve Financial Sustainability of Health Systems?

Christine Y. Lu¹ · Joshua P. Cohen²



Mol Diagn Ther (2015) 19:71–77

- ◆ Test genetico “perfetto” dal costo totale di 1000 euro, che permette di ridurre le complicanze dell’80% (altissima efficacia), RR del polimorfismo = 3 (forte associazione)
- ◆ Costi su popolazione di 10 milioni, due scenari:
- ◆ Incidenza vitae 10%, complicanze gravi 80%, prevalenza polimorfismo 1%:
Costo per ogni complicanza grave (o evoluzione) evitata = **521.000 €**
- ◆ Incidenza vitae 1%, complicanze gravi 80%, prevalenza polimorfismo 1‰:
Costo per ogni complicanza grave (o evoluzione) evitata = **52.100.000 €**

Importanza e problemi dell'Health Technology Assessment (HTA)

- ◆ Fatto da veri esperti, costa e va aggiornato
- ◆ Conflitti d'interesse
- ◆ Frammentazione sedi ed enti: un unico ente
- ◆ Deve essere “recepito” dai decisori, sia in senso positivo che negativo ...

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006* | going n/a | Total |
|--------------|----------|----------|----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|------------|
| Austria | | | | | | 2 | | 1 | | | | | | 3 | 5 |
| Belgium | | | | | | | | | 1 | | 1 | 1 | | | 3 |
| Denmark | | | | | | | | | 1 | 1 | | | | | 2 |
| England | | | | 1 | | 3 | 7 | 5 | 4 | 4 | 1 | | | 3 | 28 |
| Finland | | 1 | 2 | 2 | 2 | 5 | 3 | 3 | 11 | 5 | | | | | 34 |
| Germany | | 1 | 2 | | | | | | | 1 | 2 | 1 | | | 7 |
| Hungary | | | | | | | | | | | | | | | 0 |
| Ireland | | | | | | | | | | | | 3 | | | 3 |
| Italy | | | | | | | | | 2 | 2 | | | | | 4 |
| Lithuania | | | | | | | | | | | | 1 | | | 1 |
| Malta | | | | | | | | | | | | 1 | | | 1 |
| Netherlands | | | 2 | 4 | 3 | 6 | 1 | 1 | 1 | | | | | | 18 |
| N. Ireland | | | | | | | | | 2 | 3 | | | | | 5 |
| Poland | | | | | | 1 | | | | | | | | | 1 |
| Portugal | | | | | | | | | | | | | | | 0 |
| Slovakia | | | | | | | | | 1 | | | | | | 1 |
| Slovenia | 2 | | | 1 | 1 | | | | | 1 | 1 | | | | 6 |
| Spain | | | | | | | | 1 | | 5 | | 1 | | | 7 |
| Sweden | | | | | | | | | | | 1 | 4 | | | 5 |
| Switzerland | | | | | | | | | | | | | 1 | | 2 |
| Wales | | | | 1 | | 2 | 5 | 4 | 3 | 3 | 6 | | | | 24 |
| Total | 2 | 2 | 2 | 10 | 7 | 13 | 14 | 17 | 16 | 29 | 32 | 6 | 3 | 5 | 158 |

* Only HTAs reported in the fact sheets corresponding to the study were recorded in the table.
* The mapping exercise was completed in 2005. All HTAs completed by this time were included in 2005 and those still in progress were included under "ongoing".

Conversely, use of low-value interventions should be disincentivized through disinvestment or limitation on their use.