

---

## Book Review

# Essentials of pharmacoeconomics

**Karen L. Rascati**

*Lippincott Williams & Wilkins, Baltimore, 2008, paperback, 250pp., ISBN: 978-0781765442*

*Journal of Commercial Biotechnology* (2009) **15**, 92–94. doi:10.1057/jcb.2008.45

A new joke goes: What do you get when you cross pharmaceuticals and economics? Pharmacoeconomics? No. A reason to finally use your pharmaceuticals. Of course, pharmacoeconomics is no laughing matter for renal cell carcinoma (RCC) patients living in the UK. The National Institute for Health and Clinical Excellence (NICE) released an assessment report<sup>1</sup> last month evaluating four new, first-line therapies. None of the new therapies were approved; all were deemed too expensive.

The rejection is difficult for those living with RCC especially when considering current first-line therapies include radical nephrectomy and interferon (IFN) administration. RCC prognosis is even bleaker because many patients do not respond to IFN.<sup>2</sup> More than 5,000 RCC patients were diagnosed in England and Wales in 2004. Although 40 per cent of these diagnosed patients will live for at least ten years, only 10 per cent of those diagnosed with stage IV metastatic RCC will live for five years.<sup>1</sup> Clearly, there is a need for additional therapies.

Biotech and pharmaceutical companies have delivered. Torisel (temsirolimus), a selective inhibitor of the mammalian target rapamycin, increased overall median survival by 11 months when compared to IFN therapy alone.<sup>3</sup> The three other therapies NICE investigated also showed improvement in progression-free survival when compared with

placebo.<sup>4–7</sup> Yet, because of cost, none of the new therapies will be included in NHS's recommended first-line treatment of RCC. So how does NICE make some of the hardest decisions in public life?<sup>8</sup> Short answer: pharmacoeconomics.

The term 'pharmacoeconomics' first appeared in the literature in 1986.<sup>9</sup> The dual-subject moniker stuck and the study of value and pharmaceuticals has made precipitous advances ever since. Beginning students of pharmacoeconomics must begin their studies somewhere and Karen Rascati's *Essentials of Pharmacoeconomics* is a good place to start. The book does not waste time orienting readers in a minefield of explosive terminology and detonating phraseology. The four basic types of pharmacoeconomic studies are introduced in Chapter 1. Chapter 2 discusses the measurement and estimation of costs. Readers are expected to begin critiquing research papers by Chapter 3. The book finds its niche in communicating essential elements comprising the discipline while leaving out more mundane, esoteric practices reserved for thicker texts. The 230-page book is lightweight relief from the 1,000-page heavyweights attempting to rule the subject. I read most of the book in about two plane rides.

Like other hybrid subjects, pharmacoeconomics requires background tutorials before mastery of the subject can commence. For example, when computing

costs over several years (a routine part of pharmaceutical valuation), future payments must be presented in present value units using a discount rate. The author spends enough time explaining variables necessary for present value calculations without becoming weighed down and losing sight of an overall objective. Additionally, the subject borrows heavily from economics-laden jargon and terms like incremental cost ratio (ICER) and incremental net benefit (INB) find their way into analyses. Rascati gives enough background to show how the INB and ICER are used and reinforces their meaning through subsequent contextual examples. Background support is properly condensed so that the book's overarching focus of a basic understanding of pharmacoeconomics is never lost.

The author understands the best way to introduce the subject is through its literature. A proper emphasis on research is three-fold meritorious. First, the reader begins to understand that, 'there is no one standard, agreed upon method used to conduct a pharmacoeconomic analysis... (p. 26)'. Second, the reader learns what kind of methods are commonly used and what the results from those methods mean. Third, a transitional emphasis is placed from book onto current research. A fictitious research paper is given for evaluation in almost every chapter. Rascati provides students 14 questions with which to gauge the quality of pharmacoeconomic articles.

The author finds a good balance in meeting the needs of the beginner and the excelling student in the chapter's ends by providing references and suggested readings. Too often these expected formalities are wholly ignored. In this book, the reader does well to consider the recommendations. The references and suggested readings are well placed and carefully cultivated to aid in advancing understanding. Also helpful are the book's independent chapters. Readers will appreciate the ability to review quality life adjustment year (QALY) or cost-benefit analysis (CBA) without rereading preceding chapters.

The articles evaluated in the book are fictitious. Although the data may be the same or similar, the names, authors and drugs have been changed. Certainly, pseudo cases may be good for illustrative purposes, but analysing real-life cases can add real-world gravitas to a difficult-to-grasp subject. The adaptations may certainly have been well intended, but analysing fake Imaginarium is not as memorable as discussing Avastin.

Some of the definitions may also be less than memorable. As the chapters are short and the terminology dense, reading a chapter can feel like reading all the words between *ab* and *ad* in the dictionary. Some readers may feel the end-of-chapter questions and exercises feel too collegiate, and a good hour lecture is needed to compliment and enhance the material. These characteristics imbue the book with an inescapable classroom orientation and may leave readers doubting its office or business room appropriateness.

All life is valued. The current price is £8.2m.<sup>10</sup> Human health is also valued. NICE has set the price at £30,000 for an additional QALY. Although affixing price tags to the miracle of life and human suffering is hardly gratifying, it nonetheless allows methodical concepts to be applied in making tough decisions. And NICE has made tough decisions.

If this is a reader's first time reading 'pharmacoeconomics' it is a sure bet it will not be the last. Faced with the unrelenting upward march of healthcare costs, governments everywhere are demanding account of their expended funds. Perhaps pharmacoeconomics will allow companies to continually price their pharmaceuticals based on their effectiveness and not their novelty.<sup>11</sup>

Students keep academic books adamantly believing that they will use them after class has ended. Unfortunately, these shelf weights see little use in a search-and-click web world. Rascati's book is, however, an exception. Any student keeping Rascati's book after class's end would still be using it. *Essentials of*

*Pharmacoeconomics* is a timely book providing beginning students an excellent introduction to pharmacoeconomics. The book earns high marks for its emphasis on research analysis, brief but inclusive explanations, and for doing in 200 pages what many books eight times the length attempt. Beginners need not run a CBA of this book. It may be profitably kept on shelves in an increasingly valuing world.

## REFERENCES

1. Coon, C. J., Hoyle, M., Green, C., Liu, Z., Welch, K., Moxham, T. & Stein, K. (2008). Bevacizumab, Sorafenib tosylate, Sunitinib and Temsirolimus for renal cell carcinoma: a systematic review and economic evaluation, Report commissioned by NHS R&D HTA Programme on behalf of NICE. Produced by Peninsula Technology Assessment Group (PenTAG). Retrieved electronically 5th September, 2008 from <http://www.nice.org.uk/nicemedia/pdf/RenalCellCarcinomaACDAssessment.pdf>.
2. Johannsen, M., Brinkmann, O., Bergmann, L., Heinzer, H., Steiner, T., Ringsdorf, M., Römer, A. & Roigas, J. *et al.* (2007). The role of cytokine therapy in metastatic renal cell cancer. *Eur. Urol. Suppl.* **6**(10), 658–664.
3. de Souza, P., Maart, K., Laurell, A., Hawkins, R. E., Berkenblit, A., Galand, L., Thiele, A., Strahs, J., Feingold, J. & Hudes, G. *et al.* (2007). Results of a phase 3, randomized study of patients with advanced renal cell carcinoma (RCC) and poor prognostic features treated with temsirolimus, interferon- $\alpha$  or the combination of temsirolimus+interferon- $\alpha$ . *Eur. J. Cancer Suppl.* **5**(4), 282–283.
4. Ramsey, S. L. & Aitchison, M. (2006). Treatment for renal cancer: are we beyond the cytokine era? *Nat. Clin. Pract. Urol.* **3**(9), 478–484.
5. Escudier, B., Eisen, T., Stadler, W. M., Szczylik, C., Oudard, S. & Siebels, M. *et al.* (2007). Sorafenib in advanced clear-cell renal-cell carcinoma (see comment). *N. Engl. J. Med.* **356**(2), 125–134.
6. Escudier, B., Pluzanska, A., Koralewski, P., Ravaud, A., Bracarda, S. & Szczylik, C. *et al.* (2007). Bevacizumab plus interferon alfa-2a for treatment of metastatic renal cell carcinoma: a randomised, double-blind phase III trial. *Lancet* **370**(9605), 2103–2111.
7. Motzer, R. J., Hutson, T. E., Tomczak, P., Michaelson, D., Bukowski, R. M. & Rixe, O. *et al.* (2007). Sunitinib versus interferon alfa in metastatic renal-cell carcinoma. *N. Engl. J. Med.* **356**(2), 115–124.
8. Hawkes, N. (7th August, 2008). £35,000-a-year kidney cancer drugs too costly for NHS. *Times Online*. Retrieved electronically from [http://www.timesonline.co.uk/tol/life\\_and\\_style/health/article4474425.ece](http://www.timesonline.co.uk/tol/life_and_style/health/article4474425.ece).
9. Bootman, J. L., McGhan, W. F. & Townsend, R. J. (2006). Pharmacoeconomics: historical perspective. *Ann. Pharmacother.* **40**(3), 518–519. Published online, 14th February, 2006, [www.theannals.com](http://www.theannals.com), DOI 10.1345/aph.1G390.
10. Viscusi suggests the value of life is \$4.7m. Exchange rate=1.76 USD per GBP. On 11th September, 2008. Viscusi, W. K. (2004). The value of life: estimates with risks by occupation and industry. *Econ. Inq.* **42**(1), 29–48.
11. Pollack, A. (14th August, 2007). Pricing pills by the results. *NY Times*. Business section. Retrieved electronically from <http://www.nytimes.com/2007/07/14/business/14drugprice.html>.

Harley King  
John Hopkins University,  
Baltimore, MD, USA