Economic impact of an evidence based approach to tumor marker requests in a health plan in Brazil

Background: Many physicians recommend routine measurement of tumor markers to their patients as screening tests or for monitoring responses to anti-neoplastic treatment. The use of diagnostic tests without evidence to support them may cause an increase in costs and often unnecessary anxieties on patients, leading to waste of resources and a less than optimal treatment to the client.

Objectives: To design evidence-based parameters to guide tumor marker requests, and to evaluate the economic impact of this approach in a health plan in Brazil.

Methods: We selected seven tumor markers frequently requested by physicians of all specialties in this health plan during 2004. We performed a systematic search of literature on electronic databases (Medline, Cochrane Database, DARE and LILACS) about tumor markers, followed by critical appraisal of the retrieved information.

We determined evidence-based indications for each tumor marker test, evaluated the pattern of the exams covered in 2004, and assessed the potential cost saving after adopting these new indications comparing to the previous record.

Results: In 2004, 7669 tumor marker exams were ordered, resulting in a cost of R$ 433,709.62 (US$ 168,430.92). The exams selected were CA19.9, CA125, CEA, CA15.3, CA27-29, CA242, and CA72.4. After a wide search and literature appraisal, we came to the following evidence based indications: CA-125 may be ordered before surgery for pelvic mass and for follow-up of patients diagnosed with ovarian cancer, CEA indicated before colorectal cancer surgery and for follow-up after treatment, CA-19.9 covered for diagnose and follow-up of pancreatic neoplasm. For Ca-15.3, CA 27-29, CA-242, CA-72.4 no evidence of benefit for diagnose, screening or follow-up was found. After the evidence based parameters were defined, the analysis showed that 86.8% of the tests (6658) were ordered without scientific support, generating a waste of R$ 380,238,47 (87.7% of the total cost), equivalent to US$ 147,665,42.

Conclusions: The use of evidence based medicine techniques for literature search and critical appraisal, may be applied to determine a wiser spending pattern on the increasingly restricted budgets of health care plans and also to improve quality of healthcare in developing countries.