

Cost Benefit Analysis of a Quality Improvement Program in a Norwegian Maternity Clinic

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Context

A quality improvement program (QIP) at the maternity clinic in Bærum hospital, Vestre Viken hospital trust, just outside of Oslo, Norway, led to highly significant reduction of the surgical site infection (SSI) rate after cesarean section (CS) from 17,3 % in 2006-2007, to 3,4 % during 2008-2010[1].

Problem

To identify, measure, value and compare the intervention costs and consequences of this quality improvement program with baseline performance. The benefits for patients, the health sector and society (patient and health sector) were measured.

Measurement of improvement

Willingness to pay for avoiding SSI was used to measure human pain and sufferings.

The quality improvement program (QIP) reduced the total number of SSI's (= probability effect), as well as severity (= severity effect). About 90 % of the total benefits were due to the total reduction of SSI's (the probability effect). The various cost types are illustrated in Fig. 1.

Results from the Cost Benefit Analysis

The expected net benefit gained per patient:

- Health sector : 84,93 EUR.
- Patient: 253,87 EUR.
- Societal (health sector and patient) : 338,80 EUR.

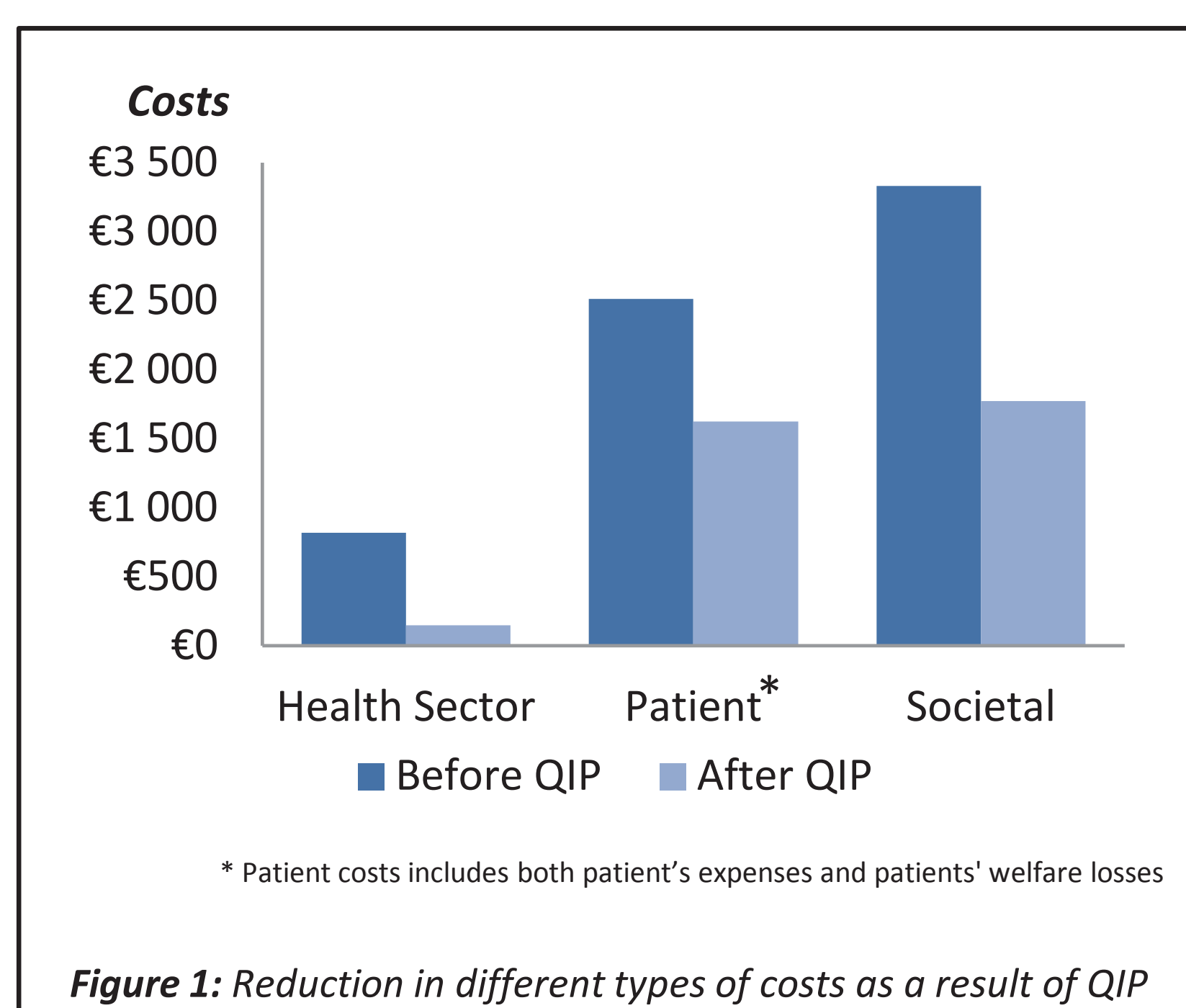


Figure 1: Reduction in different types of costs as a result of QIP

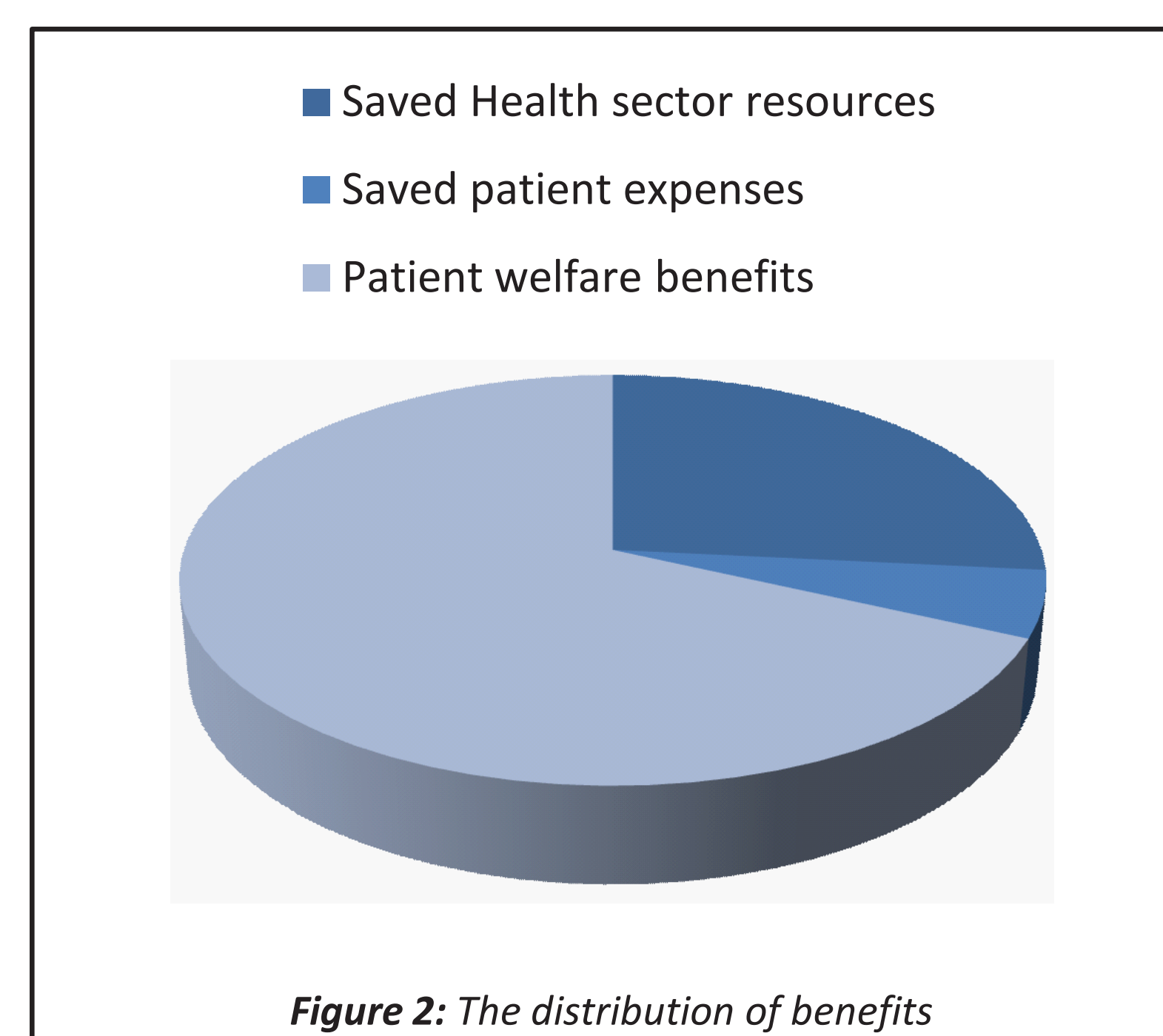


Figure 2: The distribution of benefits

Assessment of problem and analysis of its causes

The data were collected through the national Norwegian surveillance system for surgical wound infections (NOIS). The cost areas included intervention costs, patient costs, and costs for the health sector.

- The intervention cost was estimated as the difference in the variable input costs of CS materials before and after the intervention. This cost was estimated to be 6,93 EUR per patient.
- The health sector costs were measured through DRG-codes of medical records.
- The patient costs were measured through a postal patient questionnaire and/or phone-interviews. These data were not available elsewhere.

Effects of changes

The expected per patient net benefit for society (338,80 EUR) heavily outweighed the per patient intervention costs (6,93 EUR).

Lessons learnt

There is evidence that the quality improvement program not only improved the quality of care and patient safety, but also saved health sector resources and patient expenses (Fig. 2). The various cost types were significantly reduced (Fig. 1).

Literature: Dyrkorn OA, Kristoffersen M, Walberg M. Reducing post-caesarean surgical wound infection rate: an improvement project in a Norwegian maternity clinic. *BMJ Qual Saf* 2012;**21**,206-210