

Article title: Comprehensive Evaluation of Quality Indicators: Analyzing the Dutch Breast Cancer Audit

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#A full list of the collaborators of the NBCA Consortium is provided at the end of the article.

¶ Both authors contributed equally to this paper.

Supplementary file 3. Sensitivity analysis. This supplementary file contains Figure S3 and Table S4.

Figure S3. Barplot showing distribution of QI-5 under four different approaches.

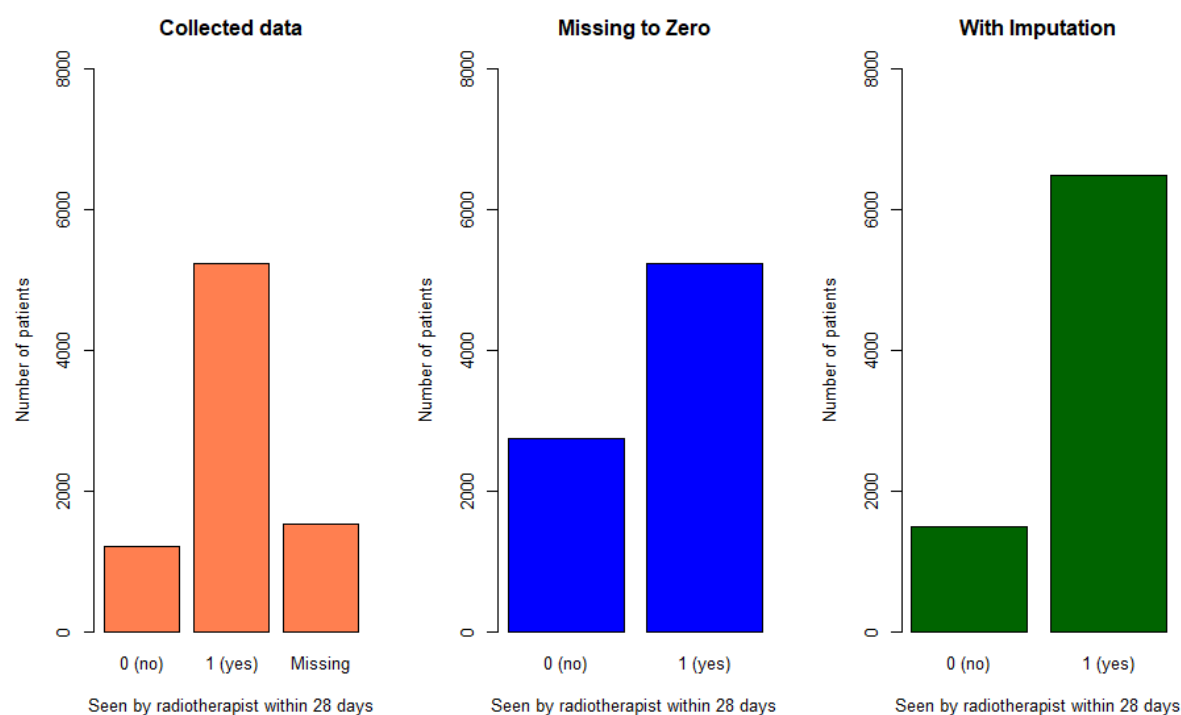


Table S4. Sensitivity analysis of QI-5 using two different approaches for handling missing values: the Missing to zero approach, from our main analysis (also adopted by the NBCA) and the single imputation (using logistic regression) of outcomes of QI-5.

Quality indicator ¹	N patients ²	Patients per hospital (median, IQR)	Feasibility	Discriminative ability	Case-mix	Reliability
			% data available (hospital range) ³	Between hospital variation ⁴ Median (IQR)	(Pseudo) R-squared	Rankability %
Year(s) of data	2023		2023	2023	2021-2023	2023
QI-5 (missing to zero, from main analysis)	1812	23 (14-36)	80.2 (0-100)	74 (52-88)	0.02	61
QI-5 with single imputation of outcomes	1812	23 (14-36)	NA	92 (81 – 100)	0.08	72

IQR = interquartile range; QI = quality indicator. *Number of days. ¹See Table 1 for exact definitions of all quality indicators. ²The number of patients in denominator. ³Hospital range (minimum-maximum) of percentage data available. ⁴This is the QI score expressed as a percentage. The colours indicate poor (orange), moderate (yellow) and good (green) performance on the selected criteria.