



Value-based Healthcare implementation framework from practice to theory: Barriers and facilitators

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Background & Objectives

There is growing interest in translating Value-Based Healthcare into practice to increase the sustainability of healthcare systems. Since 2018 we are implementing at different states VBHC in Breast and Lung Cancer (VOICE community), Inflammatory Bowel Disease (EIIMPROVE community), COVID-19, and Age-Related Macular Degeneration (ICHOM-DMAE community). Thus, after these two years of pandemic the institution has analyzed the first-year data. These results will help evaluate the impact and efficiency of the new technologies. During the semester after the piloting, the institution has to introduce the innovations within the daily tasks of the clinical management. Innovations should assure the best possible outcomes and continuous improvement once adopted.

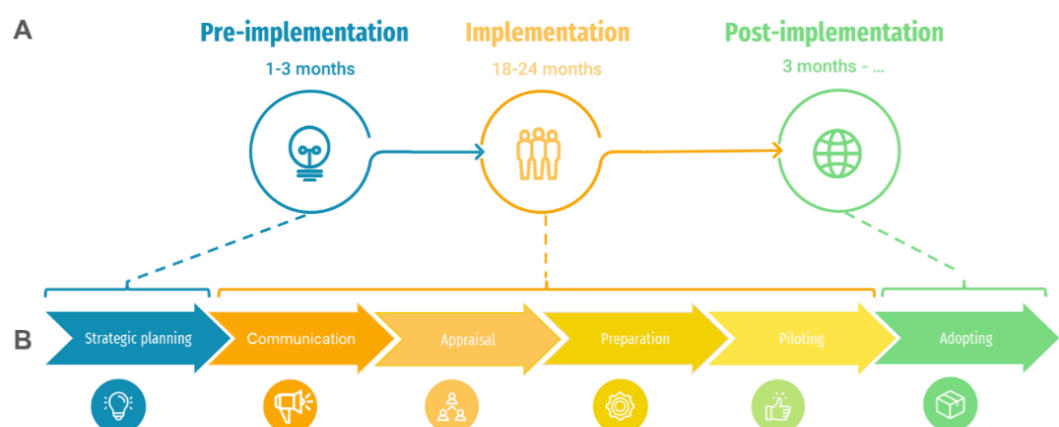


Figure 1: Schematic representation of the implementation process. A) three main phases for the appropriate implementation; B) Detail of the sequential steps

In this work, we present our VBHC implementation plan and some of the results obtained in the first projects implemented (breast and lung cancer and COVID-19); other projects are in previous stages of implementation. We believe our pitfalls and successes could help other institutions implement VBHC in tertiary hospitals.

Material & Methods

Due to the complexity of the implementation, we had to use several methods explained in detail in specific publications or technical reports. The main methods used were: 1) Modified Delphi study with two rounds. The consensus criteria were that there should be a median equal to or greater than 4 and a relative interquartile range (RIR) equal to or less than 25%; 2) Semi-structured Personal interviews. The consensus criteria was the information saturation during the interview. 3) Colation of the personal experience of the implementation team professionals. 4) Discussion groups with patients and professionals. The consensus criteria was the information saturation during the interview. As for the cohort descriptive data: Descriptive observational studies were performed in the cohorts of COVID-19 patients (N =871) over 16 years of age followed up after hospital discharge; the breast cancer cohort (N = 136) and lung cancer (N = 36) patients recruited by the clinical team after diagnosis and that completed the PROM follow-up (N_{BC} = 42; N_{LC} = 36).

Sociodemographic variables, such as age and sex, were analysed, and the loss and recovery of health-related quality of life (HRQoL was measured using Spanish validated QoL questionnaires Absolute and percentage frequencies were used to represent the categorical or qualitative variables, and the mean and standard deviation were used for the quantitative variables.

The Chi-square test (X²) and Student's t-test (T-test) were used to analyse differences between variables with 2 categories or the analysis of variance statistical model (ANOVA) for variables with more than 2 categories. A statistically significant difference was considered with values of p<0.05 and the 95% confidence interval for mean differences that did not include 0. The analysis was performed with the SPSS version 26.0 statistical package.

Results

In this context, we are implementing and continuously improving a general VBHC plan as a long-term strategy. To do so, with the practical experience, the Delphi results and the bibliographic review, we made a considerable effort to extrapolate a generalized implementation plan that would allow scaling up the VBHC to the rest of the institution after some learning experiences (piloting) and the corresponding evaluation.

As proof-of-concept, we show the descriptive analysis of the breast cancer cohort (table 1), including the cost analysis (table 2) and the descriptive analysis of the COVID-19 cohort (Table 3) QoL results.

Table 2: Summary of variables in the COVID-19 PROM follow-up. Q1: First quartile; Q3: Third quartile; 1 Denominator is defined as the number of hospitalized patient; 2 Denominator is defined as the number of patient under; chemotherapy treatment; 3 Denominator is defined as the number of patient under radiotherapy treatment; 4 Includes diagnosis tests and specialist visits; 5 Includes hospital length of stay

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Conclusions:

The implementation phase lasts between 18 to 24 months. Duration depended on the complexity of the clinical process, the learning curve, and the information technology (IT) employed. The sequential implementation by health conditions will reduce the marginal costs of the implementation but increase the global complexity of the VBHC management. VBHC can be successfully implemented in a high-complexity hospital in complex healthcare processes such as cancer or public health emergencies such as the COVID-19 pandemic once the institution or healthcare teams have made the correct cultural change toward VBHC. Some common barriers and facilitators were identified.

Table 1: Baseline status N=42. Age (mean, SD) 53.19 (9.35). Laterality (n, %) Left breast 23 (54.8%), Right breast 3 (7.14%), Both breasts 16 (38.1%). First breast cancer (n, %) Primary tumour 37 (88.1%), New ipsilateral tumour 2 (4.76%), New contralateral tumour 3 (7.14%). Treatment pathway Surgery (n, %) Breast conserving surgery 29 (69.0%), Mastectomy without immediate reconstruction 3 (7.14%), Mastectomy with immediate reconstruction (direct/staged implant) 3 (7.14%), Mastectomy with immediate reconstruction (autologous) 7 (16.7%).

Table 2: Descriptive analysis of the Breast Cancer cohort

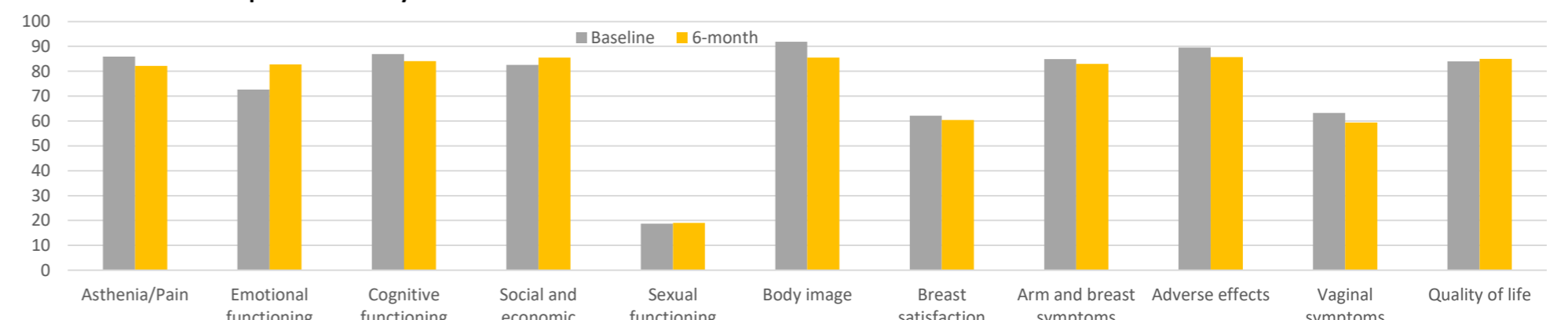


Figure 2: Graph shows the results on the PROM comparing Baseline with 6 months follow-up in the breast cancer cohort.

Table 3: List of Barriers and Facilitators in the implementation of VBHC innovations identified as common in the different medical conditions. The table is organized into three phases: PRE-IMPLEMENTATION, IMPLEMENTATION, and POSTIMPLEMENTATION, each with a list of barriers and corresponding facilitators.

Table 3: List of Barriers and Facilitators in the implementation of VBHC innovations identified as common in the different medical conditions.