

Kano analysis on delighters, satisfiers and dis-satisfiers of pediatric cardiac critical care rounds.

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Introduction: While designing a new product or system, it is essential to obtain voice of customer. With traditional survey methods customers can rank all requirements as 'very important'. When design is limited by size, time or cost, this method does not discriminate as to which requirement needs to be met without fail. Kano model utilizes specific questionnaire and data analytics to categorize customer requirements into must-be, performance and attractive requirements. In this project we adapted this tool to identify critical to quality (CTQ) requirements for CV surgical rounds in the Pediatric ICU.

Methods: A 38 element Kano questionnaire (presentation [16], decision [8] and process [14]) was created based on team consensus and focus group interview. Mandatory, Attractive, Performance, Indifferent and Reverse categories from all respondents were analyzed independently on a Kano matrix. The responses were then collated for subgroups and cumulatively for all responders in a tabulation matrix. Variables were ranked based on most frequently occurring choice (mode). Both adjusted (same weightage to each sub group) and unadjusted analysis was conducted. Satisfaction and dissatisfaction coefficients were calculated based on previously reported definition by Timko et al (noted within parenthesis). Satisfaction and dissatisfaction coefficients can be used to estimate how much customer satisfaction is increased (or decreased) by providing (or not providing) a feature.

Results: Kano survey was completed by 28 providers (Nurse 8, APN 5, Intensivist 6, Surgeon 2, Cardiologist 7). In the presentation and decision category, the only element identified as attractive was 'one line statement about patient' (0.76, -0.38). There were 8 mandatory presentation elements. The highest dissatisfaction coefficients were noted for 'fluid balance' (0.51, -0.77), 'Inotropes' (0.48, -0.74) and '24 hour vital signs' (0.32, -0.68). There were only 2 mandatory decision elements: 'Diuretics' (0.42, -0.66) and 'chest tube /drains/wires' (0.46, -0.59). Among 3 performance presentation elements 'overnight events' had highest dissatisfaction quotient (0.55, -0.94). Two performance decision elements were 'inotropes' (0.47, -0.66) and 'rhythm/antiarrhythmic' (0.54, -0.71). Of the 14 potential process changes, 3 were categorized as reverse, 6 attractive and 5 indifferent. The category with highest satisfaction coefficients were 'pharmacy joining rounds' (0.75, -0.49), 'reformatting nursing presentation script' (0.77, -0.20) and 'one surgeon presence for all patients' (0.65, -0.04).

Conclusion: By Kano analysis we were able to identify and compare CTQ elements for CVICU rounds and also characterize the process variables to meet these requirements. This information was utilized to construct a 'House of Quality' for the CVICU rounds. To our knowledge, this is the first report on use of this methodology in a health care process.