Author's response to reviews

Title: Research in Action: Using Positive Deviance to Improve Quality of Health Care

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Author's response to reviews: see over
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Gregory A. Aarons  
Associate Editor  
Implementation Science

Dear Dr. Aarons,

Thank you for the most recent reviews of our manuscript, MS: 2035701234218268 entitled “Research in Action: Using Positive Deviance to Improve Quality of Health Care.” We are delighted that the manuscript was provisionally accepted for publication pending out satisfactory responses to the additional points made by the reviewers. Enclosed is an itemized list of the comments and our response to each comment. We have addressed each comment and believe that the paper is stronger due to the reviewers’ suggestions and related revisions.

Thank you again for your interest in this work. If you have any questions, please contact me at Elizabeth.bradley@yale.edu or 203.785.2937.

Sincerely,

Elizabeth H. Bradley, PhD  
Professor of Public Health  
Director, Health Management Program  
Yale School of Public Health
Editor Comments and Responses

Comment #1
Reviewer 1 suggested inclusion and description of the final HLM model results indicating constructs studied and weights, i.e., effect sizes. This should be included as a table in the manuscript.

Response
The table for this model is already published (Bradley et al., 2006). The main message of the current paper is the positive deviance approach as a method and its advantages and challenges, as well as how it differs from other approaches of organizational improvement. Therefore, we believe that reprinting the table would distract readers from the primary goals of the paper. We think that it is more appropriate to add the findings (constructs and effect sizes) to the text, as follows on P. 19 of the revised manuscript.

Hospital strategies statistically associated (P-values < 0.05) with lower door-to-balloon times and the minutes saved with each strategy were as follows: a) activation of the catheterization laboratory by emergency medicine physicians instead of cardiologists (8 minutes), b) using a single call to activate the catheterization team (14 minutes), c) activating the catheterization team based on pre-hospital electrocardiogram while the patient is still en route to the hospital (15 minutes), d) having the expected interval between page and arrival of staff in catheterization laboratory of 20-30 minutes versus longer (16 minutes), and e) having real-time feedback on door-to-balloon times for catheterization laboratory and emergency department staff (9 minutes). All variables were centered at their mean value; therefore the changes in minutes are relative to those of hospitals with an “average” score on all other items (Bradley et al., 2006).

Comment #2
Also please attend to suggestions for minor and discretionary revisions made by Reviewer #1.

Response
We have address the minor and discretionary revisions highlight by Reviewer #1 as described in response to Reviewer #1 comments later in this letter.

Comment #3
I agree with Reviewer 2 that the conclusions can be expanded slightly. In addition to a very brief summary, it might be useful to make two or three suggestions as to how practitioners and organizations take advantage of PD to improve care given some potential barriers to its use (e.g., organizational structures and processes, and/or workforce issues that might be at play). This could be done in the conclusions section but prior to your existing paragraph which nicely ties up the manuscript.

Response
To expand the conclusion slightly, we revised and moved content from summary paragraph from P. 16 to the conclusion on P. 22, and we added some sentences to the first paragraph of the
conclusion to note how practitioners and organizations might take advantage of positive deviance, as well as some barriers to its use. The revised section of P. 22 reads as follows:

The positive deviance approach holds much promise for improving practice. It takes advantage of natural variation in performance, develops an evidence base through detailed organizational analysis and statistical testing of hypotheses, and supports collaboration between researcher and practitioner in ways that identify feasible solutions and foster support for dissemination and uptake of recommendations. Practitioners and organizations can take advantage of positive deviance by identifying top performance within units of the organization or in other organizations and foster examination and discussion of such performance in order to elevate performance in other areas. Barriers to its use may include competition between units within a single organization or between organizations such that secrets of success are not readily shared, structural separation of units so that information does not flow easily, or workforce issues in that employees do not see others’ experience as adequately relevant to their own.

The case study illustrates the key steps to applying positive deviance methodology to improving hospital care for myocardial infarction and also highlights circumstances in which the positive deviance method may be most useful. First, in the case of door-to-balloon time, there was a concrete and widely-endorsed indicator of organizational performance. Second, the indicator could be assessed reliably for multiple organizations using existing data from national registries of patients with acute myocardial infarction and the national public reporting system for hospital quality. Third, substantial variation in hospital performance was apparent, with some exceptional performers but many that did not meet national guidelines. Fourth, organizations were willing to share their experiences openly to help produce needed evidence for how to improve performance. Last, there was substantial impetus from both clinical and management staff to reduce door-to-balloon time. Reducing door-to-balloon times both benefited patient survival and enhanced organizational standing in a competitive, profitable market for which hospital performance was publicly reported. Together, these features created an ideal opportunity for using the positive deviance approach to identify and disseminate innovations to improve quality of care.

Comment #4
A few other suggestions from Reviewer #2 should also be attended to.

Response
These have been addressed, as described in the responses to the Reviewer #2 comments later in this letter.

Comment #5
Reorganization of the manuscript is not required but if the proposed sequencing makes sense to the authors then feel free to make those changes.
Response
We appreciate the reviewer’s suggestion for a discretionary revision to reorganize the flow of the paper and have considered it carefully. We believe the current sequence is logical, and we prefer having the positive deviance method earlier in the paper, as that is the major focus for the paper. Subsequently, we discuss the positive deviance approach in the context of current approaches.

Reviewer #1 Comments and Responses

Comment #1
The authors should consider including the final model of the HLM regression, as it is essential to explain the constructs studied in the quantitative survey and the strengths of the associations within and among variables and levels. I think this is important as in the methodology sections, the authors note that the variables were derived from the qualitative study and that the dissemination of findings (i.e., recommendations of best practices) was based on these results.

Response
The reviewer asks us to consider including the final HLM regression in the paper. The model has been published in Table 3 of the referenced paper, Bradley et al., 2006. We defer to the reviewer if adding this table to the present paper is thought to improve its clarity. However, we believe that we can summarize its key findings and effect sizes in text and that including this information as the only table would distract readers from the main message of the paper.

We have added the following text on P. 19 to provide the information suggested by the reviewer.

Hospital strategies statistically associated (P-values < 0.05) with lower door-to-balloon times and the minutes saved with each strategy were as follows: a) activation of the catheterization laboratory by emergency medicine physicians instead of cardiologists (8 minutes), b) using a single call to activate the catheterization team (14 minutes), c) activating the catheterization team based on pre-hospital electrocardiogram while the patient is still en route to the hospital (15 minutes), d) having the expected interval between page and arrival of staff in catheterization laboratory of 20-30 minutes versus longer (16 minutes), and e) having real-time feedback on door-to-balloon times for catheterization laboratory and emergency department staff (9 minutes). All variables were centered at their mean value; therefore the changes in minutes are relative to those of hospitals with an “average” score on all other items (Bradley et al., 2006).

Comment #2
Data is plural; there were slips on P. 18.

Response
Thank you; we have fixed these errors.

Comment #3
Nud-ist has been replaced by QSR to a program called NVivo 8.
Response
We have added this information to the manuscript; however, we think it is most accurate to indicate the particular version of the software that we used in this analysis as well. The revised sentence reads as follows (P. 18):

Coded data were organized and further analyzed for recurrent and unifying themes using NUD*IST 4 (now called NVivo8, Sage Publications Software).

Comment #4
Consider changing the term Heart Attack to Myocardial Infarction.

Response
As recommended, we have made this change throughout the paper. We refer to acute myocardial infarction generally, and we are specific to ST-segment elevation myocardial infarction where appropriate.

Reviewer #2 Comments and Responses

Comment #1
The case study could be strengthened by adding a paragraph or two at the end that summarizes important aspects about the positive deviance approach that were learned from/highlighted in this case study. The authors might want to revise some of the material presented on the bottom of P. 16 and include it at the end of the case study.

Response
We thank the reviewer for this very helpful suggestion. We revised the text on P. 16 and added a paragraph to the conclusion, P. 22.

The P. 16 revision is as follows:

As of 2004-2005, less than half of patients received care that met the national target of door-to-balloon times within 90 minutes. Furthermore, performance had remained stagnant for several years with little improvement (McNamara et al.; 2006), despite substantial improvement in many other performance metrics for cardiac care (Williams et al., 2005). Nevertheless, there were individual hospitals that were meeting the 90 minutes guideline even before 2005 (Bradley et al., 2007), thus illustrating positive deviance in this measure of quality of care.

The paragraphs that we added to the conclusion on P. 22 are as follows:

The positive deviance approach holds much promise for improving practice. It takes advantage of natural variation in performance, develops an evidence base through detailed organizational analysis and statistical testing of hypotheses, and supports collaboration between researcher and practitioner in ways that identify feasible solutions and foster support for dissemination and uptake of recommendations. Practitioners and organizations can take advantage of positive deviance by identifying top performance
within units of the organization or in other organizations and foster examination and discussion of such performance in order to elevate performance in other areas. Barriers to its use may include competition between units within a single organization or between organizations such that secrets of success are not readily shared, structural separation of units so that information does not flow easily, or workforce issues in that employees do not see others’ experience as adequately relevant to their own.

The case study illustrates the key steps to applying positive deviance methodology to improving hospital care for myocardial infarction and also highlights circumstances when the positive deviance method may be most useful. First, in the case of door-to-balloon time, there was a concrete and widely-endorsed indicator of organizational performance. Second, the indicator could be assessed reliably for multiple organizations using existing data from national registries of patients with acute myocardial infarction and the national public reporting system for hospital quality. Third, substantial variation in hospital performance was apparent, with some exceptional performers but many that did not meet national guidelines. Fourth, organizations were willing to share their experiences openly to help produce needed evidence for how to improve performance. Last, there was substantial impetus from both clinical and management staff to reduce door-to-balloon time. Reducing door-to-balloon times both benefited patient survival and enhanced organizational standing in a competitive, profitable market for which hospital performance was publicly reported. Together, these features created an ideal opportunity for using the positive deviance approach to identify and disseminate innovations to improve quality of care.

Comment #2
Please expand the conclusion to provide the important “take aways” and reiterate what others should consider positive deviance in their implementation and organizational change research.

Response
We have added the paragraphs on P. 22 to provide “take aways” in the conclusion, as described in our response to Comment #1 of Reviewer #2.

Comment #3
There is a typo (trails should be trials).

Response
Thank you; this has been fixed.

Comment #4
Consider adding qualifier “as applied to organizations” to first sentence of paragraph on action research on P. 11.

Response
We have made the change as recommended by the reviewer; P. 11 now reads:
Quality improvement and action research, as applied to organizations, both focus on developing best practices within focal organizations.

Comment #5
Include the word “met” on P. 21.

Response
Thank you; we amended this sentence as follows on P. 21:

Whereas only about half of patients met this guideline in 2005, by 2008 about 75% of patients had door-to-balloon times within guidelines.

Comment #6
The authors may want to reorganize the order and flow of their sections somewhat to provide a potentially more linear ordering for the reader.

Response
We appreciate the reviewer’s suggestion to reorganize the flow of the paper and have considered it carefully. We believe the current ordering is logical and easy to follow, and we prefer having the positive deviance method earlier in the paper, as that is the major focus for the paper. Subsequently, we put the positive deviance approach in the context of current approaches.

References


