

# Relationship Between abaqis Use and Both Survey Performance and Occupancy

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## INTRODUCTION

Quality Assurance and Performance Improvement (QAPI) is gaining growing acceptance in all health care settings, and in recent years has been a cornerstone of CMS efforts to improve nursing center quality. Providigm's *abaqis Quality Management System* offers a rigorous method for conducting QAPI that has been implemented in over 3,000 nursing centers over the last seven years. The abaqis system is well suited to performance improvement in nursing centers because implementation can be systematized at the center level so the work is shared by an array of staff, and uses person-centered quality measures that are aligned with the extensive regulations that nursing centers are evaluated on in their annual survey process.

Measureable implementation standards can be specified for all aspects of the web-based abaqis system enabling real-time monitoring of use, as well as review of the findings of the QAPI process. Developing use standards that are realistic for nursing centers to implement is a challenge given the center variation in staffing, organizational oversight, and commitment to QAPI. Providigm's QAPI accreditation program was launched in the spring of 2013 to recognize those nursing centers meeting a basic level of implementation. Implementation in accordance with the accreditation standards was found to be associated with considerable improvements in survey performance (Kramer et al, 2013<sup>1</sup>).

In the two years since implementing the accreditation program and accrediting about 1500 Centers either fully or provisionally, the standards appear to provide an excellent initial level to begin QAPI processes, but reach a ceiling as centers improve their performance. Hence, in 2015 Providigm's research team followed an empirical process to identify a more "advanced" level of accreditation that was intended to achieve a higher level of performance for providers that had already met the Basic QAPI Accreditation standards. This research applies the advanced standards to the currently Basic accredited facilities to determine the association between greater use of abaqis and both survey performance and occupancy.

## METHODS

**Data:** To determine accreditation status, we utilized one year of data regarding implementation of the abaqis Quality Management System, beginning with the second quarter of 2014 (i.e., April 1, 2014) through the end of the first quarter of 2015 (i.e., March 31, 2015). The implementation data represented both resident and facility-level quality assurance activities by quarter, and included such factors as the number of resident assessments completed, the number of resident and family interviews conducted, the number of performance improvement projects undertaken, the number of mandatory facility tasks completed, and the number of resident and facility-level triggered tasks completed.

<sup>1</sup> Andrew Kramer MD; Ron Fish MBA; Sung-Joon Min PhD; Ian Schreuder MS; Peter Kramer BS, "[QAPI Accreditation: Impact on Survey Performance](#)", Providigm Research Brief Vol 2 Issue 1, April 2013.

The data for regulatory compliance were derived from the Nursing Home Compare system, and were downloaded from the Centers for Medicare and Medicaid Services (CMS) website at the end of April, 2015. These facility-level data pertained to the last three annual surveys; we focused on the most recent survey for comparison of survey deficiencies. We used survey performance from two surveys prior to the most recent survey (between two and three years prior) to determine baseline performance.

**Measure specifications:** The Advanced Accreditation level is specified by the following implementation characteristics: First, all of the standards regarding the Basic level of accreditation must be met, including Continuous, Comprehensive, Coverage, and Corrective (Providigm 2015 QAPI Accreditation Standards); Second, use of *random* samples for Stage 1 assessments; Third, additional implementation requirements regarding number of admission record reviews (at least 25 in the past year), number of resident interviews conducted (at least 20 resident and/or family interviews in the past year), number of resident observations and staff interviews completed (at least 32 of each in the past year), completion of all mandatory facility tasks associated with the annual health and safety surveys (at least twice in the past year), completion of facility-level triggered tasks (at least one per cycle twice a year), and the completion of Care Element-based root cause analysis (at least one per cycle twice a year). We employ the same exclusion criteria as used for Basic Accreditation, including substandard quality of care, and receipt of more than \$50,000 in civil money penalties, or designation by CMS as a Special Focus Facility.

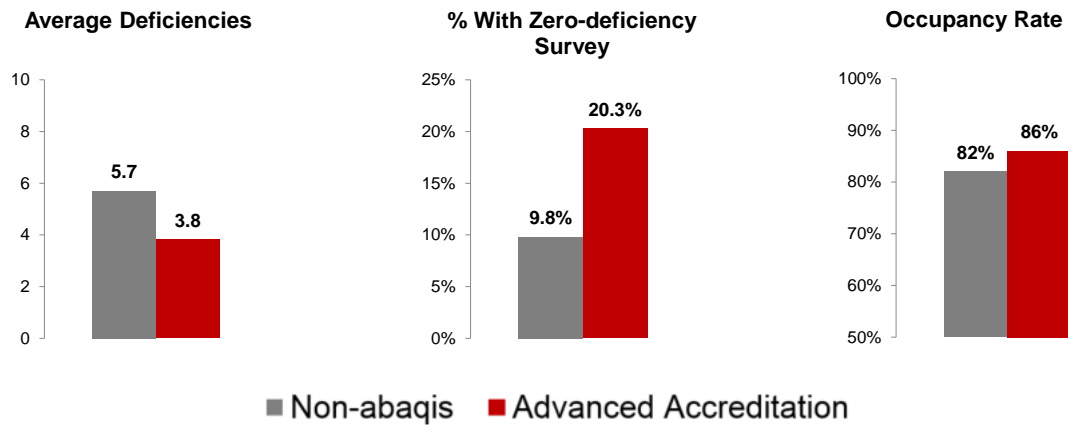
Nursing home performance was assessed by two measures of regulatory compliance and one measure of facility occupancy. For regulatory compliance, we measured the number of deficiencies received during the annual survey for health and safety, and created a dichotomous measure of whether the center was deficiency-free in the annual survey. We measured the center occupancy rate by dividing the number of residents by the number of certified beds in the center.

**Analysis:** We used chi-square and t-test comparisons to evaluate the statistical significance of observed differences between the Advanced-accredited centers and facilities not using abaqis. We used ordinary least squares (OLS) regression to model the number of survey deficiencies as a function of accreditation level, center size (i.e., number of certified beds), ownership (for-profit, not-for-profit, and government-owned), and state in which center operates. We modeled whether a center was deficiency-free during the last annual survey using logistic regression including the same covariates as in the linear model of deficiencies. Similarly, using the same covariates we modeled occupancy rate at the time of the last survey using OLS. All analyses were completed using the SAS statistical package, version 9.3.

## **RESULTS**

Baseline survey performance on annual surveys, conducted two to three years prior to meeting Advanced Accreditation standards, was not significantly different between Advanced-accredited centers and all centers in the nation that did not use the abaqis system. Advanced-accredited centers had 5.5 deficiencies on average in their baseline survey, in contrast to 5.8 deficiencies for centers not using abaqis, and the proportion of deficiency-free surveys also was not significantly different.

During the most recent survey conducted, however, the 197 centers meeting the standards for Advanced Accreditation averaged only 3.8 deficiencies, whereas the 13,014 centers not using the abaqis system averaged 5.7 deficiencies ( $p < .001$ ). In addition, during the most recent survey 20.3% of Advanced accredited centers had a deficiency-free survey in contrast to 9.8% of the centers not using the abaqis system ( $p < .001$ ). These differences in current survey performance largely persisted after adjusting for variation due to state survey results, ownership, and size ( $p < .001$ ).



Further evidence for a relationship between abaqis use and survey results, was found in these multivariable analyses including the 1,345 centers meeting criteria for Provisional or Basic Accreditation. After controlling for state, ownership, and size, these centers had significantly better survey results than centers not using abaqis ( $p < .05$ ), but not to the extent of those meeting standards for Advanced Accreditation. Thus, a dose-response relationship was evident in relation to the extent of implementation, with centers meeting lower use standards demonstrating intermediate survey performance between centers not using abaqis and centers achieving Advanced Accreditation.

Advanced-accredited centers had significantly higher occupancy rates of four percentage points relative to centers not using the abaqis system (86% vs. 82%;  $p = .002$ ) in this most recent period. This difference in occupancy rates also persisted after adjusting for occupancy rate variation by state, ownership, and size.

## DISCUSSION

Nursing centers that met the Advanced standards for accreditation experienced substantially better regulatory outcomes. Given the importance of survey performance in the five-star quality ratings used by CMS for Nursing Home Compare, not surprisingly Advanced Accreditation was associated with higher occupancy rates. Another mechanism by which abaqis may have resulted in higher occupancy rates when used as recommended is through increasing referrals due to the process of continually and systematically eliciting and addressing resident and family concerns.

This study therefore reaffirms previously reported results on the impact of continuous QAPI using the abaqis system (Kramer et al. 2012<sup>2</sup>; Kramer et al. 2013<sup>1</sup>). Both of these prior studies used a before/after design in which survey results were compared between the annual survey prior to abaqis implementation and the annual survey two years later, following a transition year during which the abaqis system was implemented. In the most recent of these studies that used the Basic Accreditation standards, nursing centers averaged 14.7 deficiencies in the before period. These centers, which were lower performers on average than the centers in this study, decreased deficiencies by an average of 6 and CMPs by an average of \$31,000 (Kramer et al 2013<sup>1</sup>).

The current study examined centers that were generally average performers prior to achieving the Advanced Accreditation standards, which denotes a higher level of survey performance than in these previous studies. Not surprisingly, higher QAPI standards are required to achieve survey performance that is well above average in terms of mean deficiencies, and 20% deficiency-free surveys. These performance results are striking and demonstrate what can be accomplished when nursing centers use the abaqis system in a manner that is consistent with Providigm's implementation training. In the context of the prior studies, these results demonstrate that by increasing the fidelity and intensity of use, nursing centers can realize greater quality and financial performance with abaqis.

<sup>2</sup> Andrew Kramer MD; Ron Fish MBA; Ian Schreuder MS; Peter Kramer BS, "The Effect of Continuous Quality Improvement Using the *abaqis* Quality Management System on Nursing Home Survey Results", Providigm Research Brief Vol 1 Issue 1, July 2012.