

**Health service accreditation stimulating change in clinical care
and human resource management processes: a study of 311
Australian hospitals**

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Highlights

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- Organisations with different levels of accreditation performance showed different rates of improvement.
- Performance, as measured against the accreditation standards, improved over two accreditation cycles.
- Accreditation programs can facilitate continual and systematic improvement changes to hospitals sub-systems.
- This longitudinal study is an important contribution to the accreditation evidence base.

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Abstract

Objective: This study aimed to establish whether longitudinal participation in an accreditation program is translated into improvement in continuity of quality patient care and human resource management (HRM) processes outcomes.

Materials and methods: This was a secondary data analysis of accreditation panel data from acute hospitals participating in the Australian Council on Healthcare Standards' Evaluation and Quality Improvement Program (EQuIP). EQuIP criteria data from 311 hospitals were collected by external surveyors across 2003-2006 (Time 1) and 2007-2010 (Time 2).

Mandatory accreditation criteria ratings at Time 1 were used to determine hospital performance group membership (1 = below moderate, 2 = moderate, 3 = above moderate).

Analysis was undertaken of ratings across continuity of quality patient care and HRM process criteria, at Time 1 and 2.

Results: Continuity of quality patient care and HRM processes improved across time in the three performance groups. Lower performing hospitals improved at a greater rate than moderate and higher performing hospitals. The groupings and performance order did not change over time.

Conclusions: An accreditation program is an external driver that facilitates continual and systemic quality improvement changes to sub-systems with an organisation.

Keywords: accreditation, quality improvement, measurement of quality, patient outcomes, human resources, process change

1. Introduction

External healthcare regulation bodies, such as Accreditation Canada, The Australian Council of Healthcare Standards (ACHS) and Haute Autorité de Santé, or government Ministries, for example, the Lebanese Ministry of Health, implement accreditation programs which promote organisational compliance and improvement against standards. Programs typically do this through a longitudinal and incremental approach to modifying management and care processes and subsystems [1, 2]. The perceived high cost and time investment institutions commit to accreditation programs, in developing and developed countries, means some stakeholders continually question the contribution they make to improving care outcomes and organisational functioning [3-7]. Nevertheless, there is sufficient evidence that accreditation programs, in developing and developed settings, are an important external driver to improve the safety, quality and effectiveness of organisational and clinical processes [8-11].

Performance in an accreditation program is reflected in higher levels of clinical performance outcomes [11-14], the effectiveness of organisational systems, including human resource management (HRM) systems [12, 15] or organisational care processes [3, 11]. Determining if participation in an accreditation program across several cycles results in continual process improvements, compliance to external standards or both, continues to be points of concern for stakeholders, including policy makers and governments [3, 10, 16, 17]. Participation in an accreditation program, in a developing country, the United Arab Emirates, was shown to stimulate and maintain organisational improvements in quality measures within an accreditation cycle [3]. Similarly, in Australia, a developed country, it was demonstrated that the effective functioning of an organisation's HRM system can be enhanced through participation in an accreditation cycle; the caveat being that the motivation for excellence is internal so that the accreditation program reinforces, rather than drives, performance

improvements [15]. Whether improvements are maintained across cycles, or are realised in other settings, is not known.

The associations between accreditation and organisational-level quality of patient care or process outcomes have normally been examined at single points in time. We have limited empirical evidence of the longitudinal impact of participation in an accreditation program on organisational performance outcomes. One case study that has taken a longitudinal focus demonstrated that one hospital, in a developing country, did sustain improvements across the accreditation program cycle [3]. Further investigations are necessary to reveal if this finding holds for other organisations, in both developing and developed countries. This is an issue with significant policy, financial and, quality and safety implications.

A key question concerning many stakeholders is: does the quality improvement component of an accreditation program, across several cycles, translate into identifiable organisational outcomes? That is, across accreditation cycles, does organisational performance improve, stall or decrease? Furthermore, for organisations with different levels of accreditation performance, do they demonstrate the same or different levels of improvement longitudinally? The unique contribution of this study was to investigate these issues through focusing upon continuity of quality patient care and HRM processes. This study aimed to establish whether longitudinal participation in an accreditation program is translated into improvement in continuity of quality patient care and HRM processes outcomes.

2. Method

2.1 Program setting, sample and research design

The study focused on the ACHS accreditation program, the Evaluation and Quality Improvement Program (EQuIP), implemented in Australia [18]. At the time of the study, accreditation of acute and sub-acute care organisations was a policy endorsed by State Governments and the ACHS program accredited facilities from all States and Territories across Australia. ACHS was the major accreditation agency for acute and sub-acute care organisations, with over 1300 facilities accredited, representing over 90% market share [19]. ACHS has been facilitating an accreditation program for 40 years, commencing in 1974; organisations now have participated in several accreditation cycles, including under EQuIP [20].

ACHS uses the approach of responsive regulation [21]. That is, engaging with industry representatives to develop, implement and revise EQuIP; the development process is incremental with revisions approximately every three years to incorporate developments in the safety and quality knowledge base. The adjustments from editions three to four were to increase the focus on consumer participation and the need for evidence of clinical and organisational outcomes [19]. EQuIP, based on the principle of continuous quality improvement, operates on a four-year cycle and is divided into three broad assessment categories: clinical, support and corporate criteria [19]. Across these categories there are 13 standards with 45 criteria in total - 14 mandatory and 31 non-mandatory items. The breakdown is as follows: clinical category, six standards and 21 criteria - seven mandatory, 14 non-mandatory; support category, five standards and 14 criteria - three mandatory, 11 non-mandatory; and, corporate category, two standards and 10 criteria - four mandatory, six non-mandatory. An organisation's quality and safety achievements, and efforts to implement improvement strategies, are rated against a five-point scale (Little Achievement, Some Achievement, Moderate Achievement, Extensive Achievement and Outstanding

Achievement). Ratings of at least Moderate Achievement against the mandatory criteria are necessary to obtain accreditation status.

Participating organisations are required to undertake actions to self-assess and improve their performance against the accreditation standards. This includes focusing on both organisational and clinical systems and processes [11,14]. An organisation assesses itself against the EQuIP Standards and produces a self-assessment report for the AHCS. This report is reviewed by an external peer-survey team which also conducts an on-site visit to verify the improvement claims, documentation and care practices. The survey team provides a written report back to ACHS, which can include recommendations for further improvement and the granting of accreditation status. Within this four year period, usually at mid-point or thereabouts, a further onsite survey assessment is undertaken. A surveyor team visits to corroborate the continued achievement of the safety and quality standards, implementation of any recommendations and confirm ongoing accreditation status [21-23].

External peer-surveyors, employed by ACHS, visited and rated hospitals against the EQuIP standards criteria across two accreditation periods. As per the ACHS accreditation programs normal practice, different survey teams visited each hospital in each period. Where possible at least one member of the survey team was retained for the subsequent visit. Previous research into the accrediting agency's surveyor program has demonstrated the strategies and processes that promote reliability [24]. This includes the requirement that surveyors attend annual training addressing knowledge developments and current interpretation directions associated with the program standards and assessing practices. Survey teams were also recognised as an important mediating influence on individuals, promoting consistency in interpretation and reliability in an accreditation program [24]. Nevertheless, in an attempt to account for variations in individual surveyor and survey team

assessments the study population of hospitals were classified into one of three mandatory accreditation performance groups, which became the focus of analysis.

The first assessment period was between 2003-6, and used EQUiP3 (Time 1) and the second was between 2007-10, and used EQUiP4 (Time 2). The EQUiP standards are rated on a five-point scale, from '1' indicating low achievement, '3' corresponding to moderate achievement to '5' representing outstanding achievement. Inclusion criteria for study participants were that they were accredited through the ACHS accreditation program, from the public or private acute hospital sector, for both time periods. The study used participating organisations' EQUiP mandatory standards criteria outcomes as secondary panel data for analysis.

2.2 Measures and analysis

Following the processes established by Townsend et al (2013) the study measures and analysis processes were implemented [1, 2]. First, three hospital specific details were used as control variables in the analysis: *ownership* (1 = public, 2 = private); *geographical regions* (state/territory regions were binary coded 0 = hospital not in this geographic region, 1 = hospital in this geographical region); and *hospital size* (1 = 1-49 beds, 2 = 50-99 beds, 3 = 100-199 beds, 4 = 200-499 beds, 5 = more than 500 beds).

Second, *mandatory accreditation performance groups* were derived. Data were analysed to classify participating organisations into one of three *mandatory accreditation performance groups*: below moderate (1), moderate (2) and above moderate (3). The groupings were achieved by calculating an average mandatory accreditation performance score, for each hospital at Time 1; this is the first assessment for each hospital and different for each [12, 13].

Finally, two further measures were derived from the accreditation data: an *HRM processes* score and a *continuity of quality of patient care* score, which were composites of five and six items, respectively. Organisational means for each score were calculated by transforming the EQUiP standards ratings from their five-point word scale into a numerical scale, that is, for example, from low achievement to '1', moderate achievement to '3', and, outstanding achievement to '5'. A unit-weighted mean composite score for each was then developed [2]. The *HRM processes* score combined five accreditation criteria items: HRM planning; recruitment and selection; training and development; performance management; and, support services. The *continuity of quality of patient care* score, reflecting the hospital's provision of a seamless process of quality patient care, was constructed using six items: prioritised access to care according to clinical need; assessment identifies current and ongoing need; consumer/patient are fully informed and provide consent; best possible care is planned and delivered in partnership with consumer/patient; care is evaluated together with consumer/patient; and, ongoing care needs are addressed during discharge/transfer).

Additionally, as construct and reliability analysis for the two measures had not previously been established, confirmatory factor analyses, as detailed by Townsend et al. (2013) and based on established processes was undertaken [1]. ANCOVA repeated-measures were conducted. Time was entered as the within-group variable, mandatory accreditation performance group membership as the between-group variable, and control variables (hospital size, sector, geographical region) as covariates. Fisher' "protected t" (LSD) procedure was used to guard against Type 1 errors [25]. The study focus was on the population of organisations undergoing accreditation, not specific institutions. Improvements at the level individual of organisations, due to unrecognised internal changes or surveyor team inconsistency, could not be accounted for.

3. Results

There was a population of 311 hospitals who participated in the accreditation process across both cycles, Time 1 and Time 2. The population included organisations from all Australian States and Territories and was nearly evenly split between the public (53%) and private (47%) sectors. The distribution of hospitals across the size categories was as follows: 23% (1), 25% (2), 25% (3), 20% (4) and 7% (5). The distribution of values across these demographic variables is representative of those of the ACHS hospital population at that time (N = 483).

The results for *HRM processes* score at Time 1 and Time 2 were: T1 - Mean = 2.92, SD = .29, Cronbach's alpha = .77; and T2 - Mean = 3.10, SD = .26, Cronbach's alpha = .70. Similarly, the *continuity of quality patient care* score at Time 1 and Time 2 were: T1 - Mean = 3.00, SD = .25, Cronbach's alpha = .76; and T2 - Mean = 3.17, SD = .25, Cronbach's alpha = .73.

These results indicate acceptable measures of internal consistency for both the *HRM processes* and *continuity of patient care* scores, that is, the findings demonstrate that the two composite scores are reliable measures. For reasons of parsimony, only the results for statistically significant interactions of interest are illustrated in Table 1. All other interaction effects are non-significant.

Insert Table 1 around here

After controlling for variance in the dependent variable accounted for by sector, geographical region and size, the test of within-subjects effects revealed a significant interaction of *mandatory accreditation performance groups* and time (T1 to T2) on the *Continuity of quality patient care* ($F(2, 302) = 20.755, p < .001$; partial eta squared = .12) (Table 1). Analysis revealed significant simple effects for all three *mandatory accreditation performance groups*: group 1 - below moderate ($F(1, 302) = 110.483, p < .001$; partial eta squared = .268); group 2 - moderate ($F(1, 302) = 30.814, p < .001$; partial eta squared = .093); and group 3 - above moderate ($F(1, 302) = 7.805, p < .01$; partial eta squared = .025) (Figure 1).

After including controls, the test of within-subjects effects revealed a significant interaction of *mandatory accreditation performance groups* and time (T1 to T2) on *HRM processes* ($F(2, 32) = 18.77, p < .001$; partial eta squared = .11). Analysis revealed significant simple effects for all three *mandatory accreditation performance groups*: group 1 - below moderate ($F(1, 302) = 101.073, p < .001$; partial eta squared = .251); group 2 - moderate ($F(1, 302) = 21.206, p < .001$; partial eta squared = .066); and group 3 – above moderate ($F(1, 302) = 9.250, p < .01$; partial eta squared = .030) (Figure 2).

The tests of within-subjects effects account for the individual differences within each organisations' level of performance. Hence, the results, for both *continuity of quality patient care* and *HRM processes* scores, indicate significant changes, or improvements, for these measures in the groupings over time, that is, from T1 to T2.

Insert Figure 1 and 2 around here

In sum, the *continuity of quality patient care* and *HRM processes* scores significantly improved over time for all three of the *mandatory accreditation performance groups*. Additionally, *mandatory accreditation performance group* membership influenced the relative strength of improvement over time: improvement was greatest for those organisations in the below moderate group, less so for the moderate group and slightly further reduced for the above moderate group.

4. Discussion

Organisational improvement in *continuity of quality patient care* and *HRM processes* outcomes, as represented by improved scores against accreditation standards criteria, could be clearly identified in all three groups, across two accreditation survey cycles.

Organisational performance, on these criteria at least, did not stall or decrease, but clearly shifted in a positive improvement direction. This is important evidence to address known stakeholder concerns [10, 16, 17].

Organisations commencing with different levels of accreditation performance showed different rates of improvement against the standards criteria. Organisations initially demonstrating the lowest performance against the standards, relative to their peers, were shown to improve at greater rates. The improvement rates of the middle group also exceeded that of the top group. Additionally, the performance gap between the three groups narrowed significantly across the two cycles, albeit differently for the two outcomes examined. Both performance interval differences at Time 2 were significantly reduced compared to Time 1. However, just as significantly, the performance order of the three groups did not alter across the two cycles. That is, the higher performing organisations at Time 1 remained the top group at Time 2, and, similarly, the middle and bottom groups at Time 1 occupied the same

positions at Time 2. Furthermore, across different standards criteria the rates of improvement for the different groups of organisations mirrored each other. That is, for example, the rate change for the lowest group for both items investigated is nearly identical. This suggests that an organisation's improvement from one cycle to the next might be the same for across all standard criteria.

Taking a 'big picture' view of the study and considering the three groups collectively, enables us to see quality and safety of the acute care sector, as measured by performance against the accreditation standards, improved over the two cycles. Participation in the accreditation program, across several cycles, contributed to compliance to external standards and continual process improvements. This is one piece of evidence that validates claims to this effect, made by accreditation bodies.

The findings are consistent with research that has highlighted the potential for accreditation to facilitate continual and systematic quality improvement changes to sub-systems within hospitals [26, 27]. The knowledge base recording the positive impact of accreditation programs continues to grow. Studies across developed and developing country settings, and over time, have demonstrated that participation in an accreditation program: maintained and stimulated improvements in quality measures across cycles [3]; enhanced HRM performance within a cycle [15]; contributed to improvements in collective quality improvement action [28]; and, stimulated quality-related policy and strategic planning [29]. As a result two important impacts are identified. First, individual organisations and the health system they are embedded within accrue system efficiency improvements through participation in an accreditation program. Second, patient care quality systems, processes and measures improve from accreditation assessments. Therefore, a key policy question is: should participation in an accreditation program now be a mandatory requirement by government?

This longitudinal study is an important contribution to strengthening the accreditation evidence base for programs, and methodologically this marks it out as different from much of the previous work. Future research investigating other accreditation programs or clinical performance measures will be useful to determine if similar results are realised. Additionally, this work can be extended through studies examining an accreditation program with data from three, or more, cycles thereby allowing for the use of random coefficient modelling to further interrogate the longitudinal relationships and impacts.

The data used in the study came from all organisations within the AHCS program, and as this cohort represents the overwhelming majority of hospitals in Australia, there was no selection bias. Similarly, as all organisations were subject to the same national policy context and developments across the study period, any impacts are assumed to be consistent for the cohort. However, we do acknowledge the possible impact of a differential effect based on earlier performance. That is, the higher performing organisations faced a ceiling to their possible improvement based on their previous scores. While this effect is present, what the findings show is that all organisations continued to improve while remaining consistently placed relative to each other's performance. The top performing hospitals remained the in the top sub-cohort and the others similarly placed in relation to them; organisations did not change groupings across the sub-cohorts. Hence the effect, while present, does not negate the importance of the study findings.

5. Conclusion

Longitudinal participation in an accreditation program translated into evidence of ongoing compliance with and performance improvement against external standards. This is one further piece of evidence that accreditation programs, in developing and developed

settings, are an important external driver to improve the safety, quality and effectiveness of organisational and clinical processes. Not surprisingly, as healthcare organisations are recognised as complex adaptive systems, research in this field is revealing accreditation programs have a multifarious and interwoven impact across the systems and processes of organisations.

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Tables and Figures

Table 1

Repeated measures analysis of covariance results for dependent variables

Variable	HRM processes			Continuity of quality patient care			
	<i>Type III sum of squares</i>	<i>F</i>	Partial eta squared	<i>Type III sum of squares</i>	<i>F</i>	Partial eta squared	<i>df</i>
<i>Within-subjects effects</i>							
Time	.000	.007	.000	.016	.383	.001	1, 302
Time X <i>mandatory accreditation performance groups</i>	2.062	18.767***	.111	1.741	20.755***	.121	2, 302
<i>Between-subjects effects</i>							
<i>Mandatory accreditation performance groups</i>	2.773	42.927***	.221	2.615	47.873***	.241	2, 302

Note: Analyses are controlling for hospital sector, geographical region and size.

*** $p < .001$

Figure 1

Simple slope effects for Continuity of quality patient care

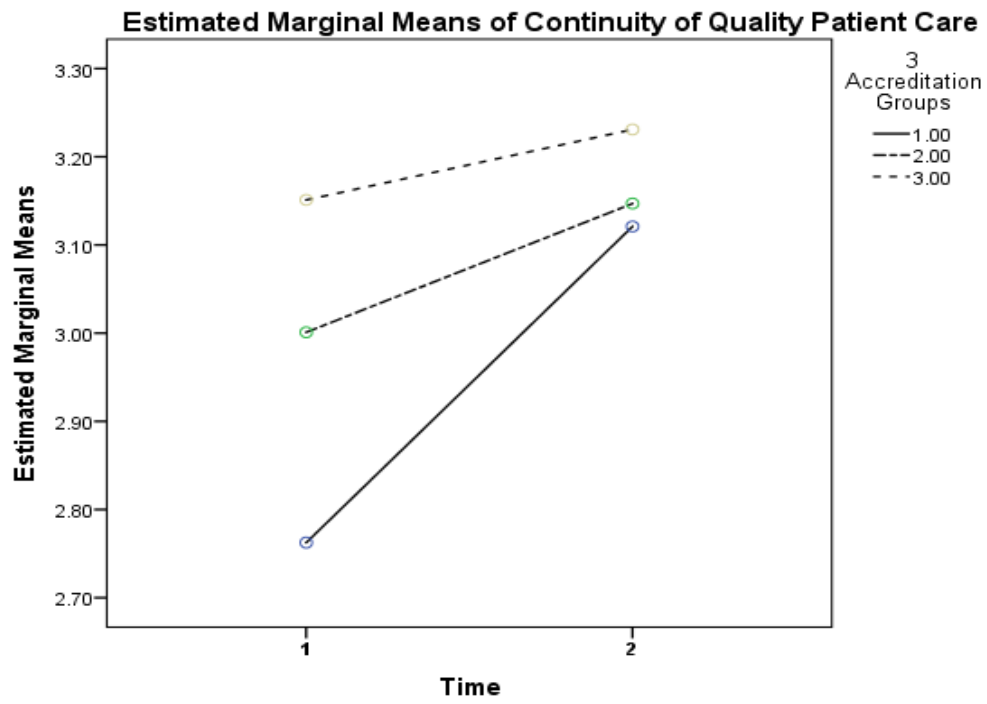


Figure 2
Simple slope effects for *HRM processes*

