EXPECTATION-BASED EFFICIENCY AND QUALITY IMPROVEMENTS: CASE STUDIES FROM THREE INSTITUTIONS

Dhanonjoy C. Saha, Ph.D., Cannon Research Center, Carolinas HealthCare System, Charlotte, NC, USA

Abrar Ahmed, B.S., University of North Carolina, Charlotte, NC, USA

Carolinas Medical Center
Carolinas HealthCare System

UNC CHARLOTTE

ABSTRACT

Conventional wisdom may support the presumed notion that higher expectations increase efficiency and improve quality. However, this claim may only be validated when workers are equipped with appropriate tools, training, and a conducive work environment. This study implements various interventions, observes outcomes, and analyzes data collected in three different institutions between 2003 and 2010. To increase efficiency and improve quality in research administration, an "open-expectation," outcome-based efficiency (application review turn-around time, operating costs) and quality (compliance error rate) improvement initiative was taken and data collected. Before initiation and during the observation and data collection, the stakeholders were consulted, the tools generated, employees trained, conducive work environments created, and the expectations clearly communicated to employees. Analyses of the data show that implementation of the initiative with an expectation of improvement resulted in improved employee efficiency and quality of their work resulting in improved financial performance of the operating units studied.

INTRODUCTION

During the past two decades, significant changes have occurred in research and its operations in most western countries. As interest in research among politicians and citizens has grown, more emphasis has been placed on the practical value of research and effective utilization of limited funds. Therefore, a new approach to research administration and management has become necessary in order to successfully navigate in a rapidly changing research climate (Erno-Kjolhede, 2001) and to improve efficiency and quality of research services.

In several national surveys, performance variables such as financial and organizational policies, procedures, and operational efficiency outcomes on a higher level, based on full-time equivalents (FTEs), were reported (Kirby & Waugaman, 2001, 2005). The results of a recent study on some performance and compliance metrics have been reported, implying the need for efficiency and quality improvement initiatives and their impact on research administration (Smith and Chan, 2011). Therefore, we undertook this project to gather information and provide interventions with the expectations to improve efficiency and quality in research administration. It has been reported that higher expectations increase scholarly productivity (Anema and Byrd, 1991; Whorley and Addis, 2007) and implementation of personal developmental strategies may increase efficiency at workplaces (Saha, 2004). We wanted to examine whether these approaches would be applicable to research administration. Therefore, the purpose of this study was to examine expectation-based efficiency and quality improvement in research administration and to determine whether these processes affect the financial performance of units adapting this method.

MATERIALS AND METHODS

- The studies were conducted in three major US institutions between 2003 and 2010 where a combination of the Lean Method and Business Process Management were used (Toyota Motor Corporation, 2009; Frolick & Ariyachandra, 2006) with the exception that specific targets were not set ("open-expectation").
- In addition, individuals were inspired through formal and informal individual and group sessions to improve themselves with an expectation that this would improve efficiency at the workplace (Saha, 2004).
- Agency-wide educational programs were instituted where key stakeholders were invited to attend and educational seminars were presented.
- Opportunities were created for the employees to be successful, business process reviewed, strategic plans devised, key performance indicators (KPIs) developed, checklists prepared, office staff re-trained to quickly identify administratively-incomplete applications and the expectations of improved efficiency and quality clearly communicated.
- The improvement measures were based on turn-around times, error rates, and budget vs. expenses for operations of the office from documents such as file folder, databases, electronic records – both retrospective and prospectively.
- Data were collected from 8 months to 60 months where efficiency was defined as the turn-around time and the quality was defined as the percentages error in a document considered completed by the reviewers. The performance was defined as the efficiency of a task or unit adjusted in terms of total employee or total expenditure.
- Pre- and post-implementation data were analyzed by one-way analysis of variance (ANOVA) as presented in the combined materials and methods and results Table.

RESULTS: INSTITUTION #1

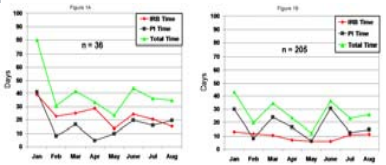

Figure 1: IRB Turn-around Time for Review and Approval of Full-board (A) and Expedited (B) Applications

RESULTS: INSTITUTION #2

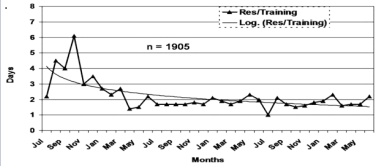

Figure 2: Turn-around Time for Review and Approval of Research and Training Grant Applications

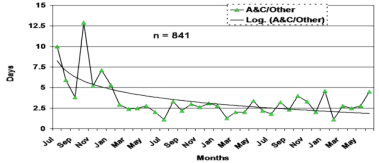

Figure 3: Turn-around Time for Review and Approval of Agreements and Contracts

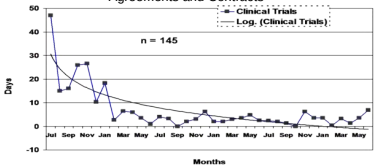

Figure 4: Turn-around Time for Review and Approval of Clinical Trials Applications

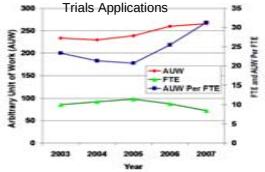

Figure 5: The Work Load, Number of FTEs, and the Arbitrary Unit of Work (AUW) per FTE

RESULTS: INSTITUTION #3

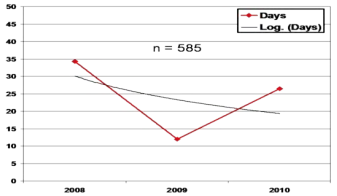

Figure 6: Agreements and Contracts Review and Approval Turn-around Time

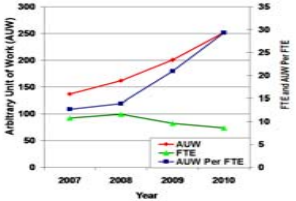

Figure 7: The Work Load, Number of FTEs, and the Arbitrary Unit of Work (AUW) per FTE

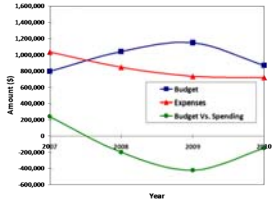

Figure 8: Financial Performance of a Core Unit

SUMMARY

Combined Materials and Methods and Summary of Results

Inst No.	Key Performance Indicators (KPIs) Used	Pre-implementation (month) Days/%	Post-implementation (month) Days/%	Improv-ement	Signifi-cance
1	IRB review/approval turn-around time (full-board), days	(2) 55.3 ± 35.0	(6) 35.4 ± 7.2	35.9%	P>0.05
1	IRB review/approval turn-around time (expedited), days	(2) 31.4 ± 16.4	(6) 25.9 ± 8.8	17.6%	P>0.05
2	Research and training grant Application review/approval turn-around, days	(6) 3.8 ± 1.5	(30) 1.9 ± 0.37	50.0%	p<0.001
2	Agreements and contracts review/approval turn-around time, days	(6) 6.3 ± 3.6	(30) 2.6 ± 0.9	58.7%	p<0.003
2	Clinical trial agreements/ contracts review/approval turn-around time, days	(6) 23.0 ± 13.6	(30) 4.1 ± 0.9	82.2%	p<0.001
2	Applications with error,%	(6) 40.4 ± 12.4	(12) 28.1 ± 6.8	30.4%	p<0.03
2	Number of errors per application	(6) 0.7 ± 0.3	(12) 0.4 ± 0.1	42.9%	p<0.05
2	ORSP employee performance with respect to workload, AUW	(24) 22.3 ± 1.5	(36) 25.8 ± 5.3	15.7%	p<0.05
3	Agreements and contracts review/approval turn-around time, days	(12) 34.3 ± 27.0	(24) 19.3 ± 10.3	43.9%	p<0.05
3	Employee performance with respect to workload of a core unit, AUW	(24) 13.3 ± 1.0	(24) 25.1 ± 6.4	47.0%	p<0.01
3	Financial performance of a core unit, %	(24) 5.8 ± 24.5	(24) - 26.6 ± 9.6	32.4%	p<0.01

CONCLUSIONS

- Higher expectations from superiors are associated with increased productivity of employees and improved financial performance of the unit studied in research administration.

REFERENCES

- Anema, M. G. & Byrd, G. L. (1991). A systems model approach to increasing faculty productivity J. Nurse Edu. 30(3):114-118.
- Erno-Kjolhede, E. (2001). Managing collaboration research. Unveiling the microdynamics of the European Triple Helix. Kopenhagen, Copenhagen Business School Press, Denmark.
- Frolick, M. N. & Ariyachandra, T. R. (2006). Business performance management: One truth. Info. Syst. Mana. Winter. 41-48.
- Kirby, W. S. & Waugaman, P. G. (2001). Benchmarking in sponsored program administration: Using the web to analyze results from the FY 1998 and 2000 nationwide data collection. The Journal of Research Administration. 33:37-40.
- Kirby, William S. "Practice data from the 2002 SRA-Bearing-Point nationwide benchmarking survey", J. Res. Admin. 2005.
- Saha, D. C. (2004). Strategy for advancement with humility, but assertiveness: Efficiency improvement at workplace. Prudential Realty, Bayside, NY. September 24, 2004.
- Smith, M. and Chen, A. (2011) Research Administration Metrics: Making your numbers tell the right story. NCURA Magazine. 10:12-15.
- Toyota Motor Corporation (2009). Toyota Production System. http://www.toyota.co.jp/en/vision/production_system.
- Whorley, M. R. & Addis, M. E (2007). Effect of scholarly productivity expectations on graduate training in clinical psychology. In Clinical Psychology: Science and Practice. 14(2): pp 172-174.