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Designing and Implementing a Competency-based Curriculum: Leadership Implications

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Background

Context

Choices in leadership decision-making reflect forces stemming from the leader, the environment and the group, where the quality of the decision and its acceptance are at stake (Yukl 1981). In academic institutions, establishing a supportive learning environment is not sufficient for achieving desired changes; implementing and sustaining the leader's vision becomes absolutely necessary (Stinson, Pearson, and Lucas 2006).

Residency programs can be viewed as sub-systems of the departments within the complex system of healthcare organizations. Complex organizations are marked by multiple layers of hierarchy and open informational boundaries. Such systems change over time and adapt to the new environment and participants, where new behaviors follow the momentum for change within the system; thus, in such complex systems creating an expectation for change is more effective than overcoming resistance (Minas 2005). Adaptive and participatory leadership are two approaches that have been successfully used to introduce change in teaching environments.

Adaptive Leadership

Adapting is viewed as one of three major behavioral competencies in leadership, together with appropriate evaluation of the environment and effective communication (Hersey and Blanchard 1988). Adaptive leadershiphas been well utilized in the academic environment, where substantive issues are often proxies for conflicts over power. Adaptive leadership approach simultaneously offers three dimensions of change: it extends current opportunities, supports the growth of new ideas and activities, and seeks options for future innovations (Beinhocker 1999). With adaptive leadership, the focus is on value-added outcomes, roles are flexible, networking is encouraged, and more people are invited in the process of leading change (Albano 2007).

The implementation of radical changes calls for high risk-taking by the leader. In such situations, the leader should focus on developing innovative solutions (DeGenring 2007). Identifying possible supporters, resources and consensus building requires networking within the academic community and selling the ideas to the people who would be able to implement them (Gabriel 2005).

The successful utilization of adaptive leadership approach involves personal adaptation on leader's part, as well as creating and sustaining strong relationships within the senior leadership level to support the adaptive change (Khan 2005). Focusing the attention on issues that require action effectively counteracts change-avoiding behaviors such as denial or failing to recognize system issues (Heifetz 1994). Higher task complexity, interdependency among subordinates and staff experiences determine the need for one-to-one leadership interactions to support the changes (Yukl 1981). In summary, adaptive leadership relates to the flexibility of the leaders in including new partners in the process of

decision-making and taking the leap in experimenting with unconventional solutions.

Participatory Leadership

Participatory leadership has been proven as an effective technique in bringing about change. It has been argued that participatory leadership fosters ownership in the decision-making and evokes responsibility for group's effectiveness. Participation in decision making implies mental and emotional involvement in contributing to the outcome, thus bringing higher satisfaction with group interactions, more enjoyable environment and perceiving the task at hand as interesting and meaningful (Preston and Heintz 1949). This form of leadership is team-oriented, promotes participant interaction and tenders the conflict of power and influence between administration, faculty and students, offering degree of freedom in influencing administrative decisions (Hersey and Blanchard, 1988; Owens, 2001). Leader's authority to make important decisions, ample time for decision-making, team-players' knowledge relevant to the decision and willingness to participate are important prerequisites for applying participatory leadership approach (Yukl 1981).

Participatory leadership could be utilized when the team is at least moderately ready for change and there is a good relationship between leaders and participants, facilitating sharing of ideas in decision-making (Hersey and Blanchard, 1988). Many higher education institutions are moving away from the traditional hierarchy in Academia to embrace the participatory leadership approach (Kezar 2001).

ACGME Competencies

In 1999, the Accreditation Council on Graduate Medical Education, which is the accrediting body for graduate medical education in the US, approved six areas of resident competency to ensure residency training alignment with the continuously changing needs of the healthcare system. These six competency areas were defined by national consensus and included (1) patient care, (2) medical knowledge, (3) practice-based learning and improvement, (4) interpersonal and communication skills, (5) professionalism, and (6) systems-based practice. Residency programs are expected to teach and evaluate the progress of their physician residents toward becoming competent practitioners in accordance with these six competencies, using clearly specified teaching and evaluation approaches.

Curriculum Design and Implementation

Approach

The training of resident physicians should provide them with mastery of the core competencies, skills and attributes for becoming competent professionals ready for independent practice (AAP 2000). Successful redesigning of graduate medical education curriculum has been associated with gaining strong support from leadership, faculty and residents, and maintaining flexible approach in implementation (Medio, Arana, and Layton 2001; Taylor and Chudley 2006). One approach in curriculum design is to review curricula from peer programs and requirements from accreditation agencies (Babitch 2006).

Residency training consists of specialty and sub-specialty rotations in various clinical areas. The length and nature of the rotations are defined by the physician's specialty of training. To start the curriculum re-design in our pediatric residency program, curricula for core and elective rotations were obtained

through Internet search of the requirements of national specialty societies in pediatrics and related subspecialties, as well as from peer institutions and programs.

Innovative Curriculum Table

To integrate consistent methods of teaching and evaluation, the program leadership designed a "curriculum table" with components borrowed from the requirements in graduate medical education. This table presented the teaching and evaluation methods for each curriculum objective and identified the individuals responsible for performing the teaching and evaluation activities. Additionally, it specified the related ACGME competency areas, the necessary clinical skills and the training level at which the objectives should be mastered (e.g., post-graduate year 1, 2 or 3). Table 1 presents the concept of the curriculum table.

Table 1. Curriculum table

Goal:								
Objectives	Priority Yes/No	Teaching			Evaluation			Comp
		Who	Where	Method	Who	Where	Method	
1.								
2.								
3.								

Based on the specialty and sub-specialty curricula search as well as the suggested approaches in variety of pediatric societies, we designed a consensus list of teaching methods, evaluation methods, and necessary clinical skills (Table 2).

Table 2. Legend to the curriculum table.

Teaching Methods	Six ACGME Competencies
A. Clinical encounter	PC – Patient Care
B. Lecture	MK – Medical Knowledge
C. Seminar or a small group	PBLI – Practice-based Learning and Improvement
D. Assigned reading	COM – Interpersonal Skills and Communication
E. Case conference	PRO – Professionalism
F. Morning report	

G. Grand rounds

H. Presentation

I. AV media module

J. Web-based module

K. Journal reading/presenting

L. M&M conference

M. Portfolio

N. Quality improvement activity

O. Supervised activity

SBP – Systems-based Practice

Evaluation Methods

a. Global rating

b. Direct observation with checklist

c. Consensus opinion/multiple raters

d. 360 rating

e. Written examination

f. Patient survey

g. Case/procedure log

h. Conference attendance log

i. EBM activity log

j. QI activity assessment

k. Systems error activity/discussion

l. Self assessment

m. Individual learning plan

n. Critical incident discussion

Basic Clinical and Professional Skills

1. Perform an appropriate clinical exam

2. Appropriately use diagnostic studies, procedures and labs

3. Apply sound decision-making and clinical judgment

4. Use medications and therapies safely and effectively

5. Manage and advocate for the whole patient

6. Skillfully and empathically manage patient's acute or terminal illness, or death.

7. Effectively and empathically communicate with patients and families.

8. Effective data gathering from history and interview.

9. Promotion of patient education and counseling.

10. Effective use of

13. Effective teaching of students, colleagues, other professionals and lay groups.

14. Develop and demonstrate effective leadership and collaboration skills.

15. Function as a consultant to other physicians and health professionals

16. Use consultations and referrals effectively

17. Develop responsible and productive work habits and professional responsibility.

18. Develop personal responsibility and balance personal and professional interests.

19. Understand basic principles in medical ethics and identify issues.

20. Understand legal issues in pediatric practice

	telephone communications. 11. Professional communication and collaboration in healthcare teams. 12. Maintain accurate, legible, timely and legally appropriate medical records when caring for patients.	...in pediatric practice 21. Develop skills in life-long learning and self-assessment. 22. Responsible use of information technology in decision-making and patient management. 23. Critically read and apply scientific evidence/research to patient care. 24. Formulate career plans.

Leadership from within: Role of Faculty

The curricula and requirements identified by the program leadership were reviewed in detail in a series of meetings of the program director and associate program director with all faculty in the residency program. The discussions revealed that majority of our faculty felt that the curricula goals and objectives suggested by the Academy of Ambulatory Pediatrics best reflected the nature of our residency training. Thus, these goals and objectives served as models for the development of our new curriculum goals and objectives. The faculty members in one departmental unit (neonatology) liked best the curriculum of the pediatric residency program at Harvard's Massachusetts General Hospital. Thus, permission was obtained from that program to modify their goals and objectives in alignment with our training. The fact that the curriculum re-design did not start from scratch but rather compared our existing curriculum with leading curricula in pediatrics motivated our faculty for success.

Staff from the Residency Program Office prepared draft electronic copies of the new goals and objectives per the discussions with the faculty in each rotation, and worked with individual faculty to help them prepare their re-designed curricula. This technical help in the preparation of the curriculum was very much appreciated by our physicians – faculty members. The residency staff was considered most suitable to provide adequate support for the curriculum design, because of their close knowledge of the requirements and processes in graduate education, which faculty secretaries may lack. All faculty members participated in the formulation of goals and objectives in their respective sub-specialties. An example of a filled-in curriculum table is presented in Table 3.

Table 3. Goal #1 and its objectives in the adolescent medicine rotation

GOAL #1 Understand normal adolescent behavior, growth, development and physiology, and recogn							
OBJECTIVES:	Priority	Teaching			Evaluation		
	Y/N	Who	Where	Method	Who	Where	M

#1 . Recognize the wide range of normal patterns of physical growth, pubertal development and psychosocial development during adolescence.

#2. Assess pathophysiology, evaluate and manage variations in growth patterns and pubertal changes, including indications for referral | Yes | Faculty | Riverside Clinic, EPJD, HSC | A, B, D, M | Faculty | Riverside Clinic, EPJD, HSC | b, |
| | Yes | Faculty | Riverside Clinic, EPJD, HSC | A, B, D, M | Faculty | Riverside Clinic, EPJD, HSC | b, |

Leadership from within: Role of the Chief Resident and the Education Sub-committee

Parallel to the work with faculty for curriculum change, the residency program leadership encouraged and nurtured resident initiative. The program leadership fully supported innovative and ambitious changes suggested by the Chief Resident to increase our compliance with regulatory requirements, implement suggestions from the residents, and as a venue for leadership contribution of ideas from the Chief Resident.

The program leadership had asked the Chief Resident to assist in developing a new 18-month core curriculum to be presented before our Curriculum Committee. At the same time, many residents had approached the Chief Resident asking for changes in some of the curriculum goals and activities. This presented as an opportunity to actively engage a strongly motivated group of residents in curriculum change. Residents in our program care about the education quality and intensity and their ability to achieve necessary academic milestones by the end of the residency training. This was the main reason for the residents to take initiative and actively participate in curriculum change implementation. Majority of our residents strongly felt that more organized and academically structured curriculum would greatly benefit the outcome of their residency.

The Chief Resident created an Education Sub-Committee to the Residency Program Curriculum Committee. The new sub-committee consisted of nine residents from different training years with the specific task to develop a new 18-month core curriculum for our program, following the ACGME recommendations but tailored to our necessities and expectations.

The purpose of the sub-committee was to:

· Research the ways and possibilities of curriculum changes and adjustments following models of the leading pediatric residency programs.

· Identify resident needs regarding desired curriculum improvements.

· Assist the faculty and program leadership in selecting educational improvements to implement by resident voting to ensure the new initiatives fit the spirit and character of our residency program accounting for the opinion of all the residents in the program

· Present the voted solutions and changes to the faculty and the Residency Program Curriculum Committee for approval and further corrections.

· Proceed with implementation of the curriculum approved by the Curriculum Committee.

All sub-committee members volunteered and self-organized into two groups. One group had the task to review our program curriculum and identify areas for improvement with input from every resident and faculty. The second group was assigned to review the curricula of 20 nationally renowned pediatric programs, talk to the Chief Residents and faculty members in these programs, and collect valuable information about educational practices that would fit and benefit out program. The findings of the sub-committee were presented at a resident meeting, profusely discussed, and all residents in the program voted on the ideas to be presented to the Curriculum Committee.

The resident sub-committee recommended implementing new way of delivery of morning report, re-organization of the didactic activities to include competitive team games and, similarly to faculty, identified the curricula of the Academy of Ambulatory Pediatrics and Harvard's Pediatric Residency Program as models in our curriculum change. Further, the sub-committee was charged with leading the implementation of the curriculum change among the resident body.

Eight-stage Process of Leading Change

At a resident-faculty meeting, a very detailed presentation highlighted responsibilities of the faculty and residents in the new curriculum implementation. Active participation of both faculty and residents was crucial for success of this project. Since faculty and residents were vastly engaged in the design of the new curriculum, the implementation process was enhanced. Timely coordination between faculty leaders, chief residents and curriculum sub-committee ensured seamless and fast curriculum implementation. The design and implementation of the new curriculum were completed within six months.

The process of leading change has different stages, from establishing a sense of urgency, to generating strategy, to ensuring the first wins, to anchoring the change in the local culture (McAlearney et al. 2005). At each step of leading the curriculum redesign, we utilized adaptive or participatory approach, as the environment and circumstances would allow (Table 4).

Table 4. Stages in the process of leading change (McAlearney et al. 2005)

Stage in Leading Change	Application	Leadership Approach

1. Establish a sense of urgency	Changes supported by senior departmental and program leadership	Adaptive
2. Create consensus	Consensus among leadership, senior faculty and key staff	Participatory
3. Develop strategy	Discuss at meetings and seek broad input from faculty and residents	Participatory
4. Communicate changes	Meet with faculty, residents and staff to discuss changes and best way for implementation	Participatory
5. Empower faculty and staff for broad participation	Ensure voices from faculty and residents are heard and acted upon	Adaptive
6. Generate short-term wins	Start curriculum change within individual units (rotations), help in preparing curriculum drafts, provide clerical and technical support	Adaptive
7. Consolidate gains and produce more change	Use first curriculum changes as example and participating faculty as role models; empower resident participation by individual and group meetings, and support of ideas in changing curriculum, teaching and evaluation	Adaptive and Participatory
8. Anchor changes in the culture	Implement suggested additional changes by faculty and residents, maintain continuous oversight of implementation and evaluation of curriculum goals and objectives, give residents leadership roles	Adaptive and Participatory

Conclusions

One of the priorities of effective leaders is continuous communication (Magill 1999). Effective leadership has been associated with ability to build trust and credibility, persistence if challenged by obstacles, shared vision for change and success, wide inclusion of supporters in the change process, and continued introspection for improvement (Kusy, Essex, and Marr 1995). Designing and implementing a new curriculum is a continuous improvement process, where the change in process is the key (Medio, Arana, and Layton 2001; Headrick, Richardson, and Priebe 1998). Adaptive leaders consider diverse and even divergent views before making a major decision, and are willing to take the risk of experimenting (Albano 2007).

From the perspective of adaptive leadership, we took the challenge of pro-active inclusion of the resident body in creating a faculty-resident jointly owned new curriculum. The involvement of the residents as professionals in training in reconstructing their education, gives a new shared meaning of the processes of teaching and learning.

From the perspective of participatory leadership, we engaged every faculty and resident in our program in the process of change. The success of the change was strongly determined by the leadership from within – by our faculty and residents. We could summarize the success of the curriculum re-design and its fast implementation in the words of one of our resident leaders:

In my opinion, the project of curriculum re-design and its implementation was destined to succeed from the very beginning for a very simple reason: all residents felt they were in charge of their own educational activities and their improvements. Our residents were highly organized in the planning stage of the project. Sub-Committee was formed instantly, identifying roles and responsibilities of resident leaders and every single member as well, which made each resident feel responsible and accountable for the work and decisions made.

Broad engagement of faculty and residents gave momentum to change and acted as a catalyst of their pro-active involvement. Adaptive and participatory leadership approaches brought about rapid change in the residency program curriculum redesign and improved the learning environment.

In introducing change in graduate medical education, it is important to have a strong buy-in not only from program leadership and faculty, but also from all residents. With such support, the opportunities for making a difference are endless.

Acknowledgement

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