PEDIATRICS PERSPECTIVES

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Development of a Novel Curriculum to Enhance the Autonomy and Motivation of Residents

Teaching hospitals nationwide have experienced intense pressures on patient care systems that in the past provided a nurturing home for resident education. Increased regulatory burdens and the drive to increase revenues, among other changes, have placed severe constraints on resident and faculty time for education. In our pediatric residency program at the University of Rochester Medical Center, a symptom of these changes has been a perceived erosion of resident autonomy. Faculty have reported that residents are reticent to generate their own patient care plans, whereas residents have stated that faculty are overly directive and do not always take the time to listen to their assessment and plan.

Recently, a resident "delegation" brought to our faculty a proposed educational contract, the purpose of which was to increase resident responsibilities for initiation of patient care plans and clarify the responsibility of the faculty to provide timely and constructive feedback on these plans. This contract has been received with enthusiasm by the faculty. It provides an ideal opportunity for introduction of our new curriculum to enhance resident autonomy, which will be implemented and tested over the next several years.

BACKGROUND AND RATIONALE FOR THE PROJECT

We believe that the competency domain of practice-based learning and improvement, which is often challenging for residents, may be enriched by the application of self-determination theory (SDT), a body of knowledge and tools that has proven effective in business, education, athletics, and health care to enhance motivation.[1–5] SDT was developed by 2 University of Rochester psychologists: Professors Edward Deci and Richard Ryan. It teaches that people who cultivate intrinsic motives to pursue goals are higher achievers than those who are prodded to perform by extrinsic rewards and punishments. The theory posits that human motivation is driven by psychological need fulfillment in 3 areas: autonomy (the need to have a voice, choice, and a sense of initiative in one's actions and work); competence (the need to develop, improve, and feel mastery in valued do-

mains); and relatedness (the need to feel connected with others, be cared for, and belong in one's social milieu).

How do these concepts apply to practice-based learning and improvement? We aim to develop self-determined learners who seek to gain knowledge and skills because they love to learn and are committed to attaining mastery, not because they are driven by fear, shame, compulsion, or external rewards. We hypothesize that physicians will become more effective self-determined learners if they develop autonomy in parallel with competence and engage in proactive, personalized activities, guided by accurate self-assessment, to develop professional knowledge and skills.

Our new self-determined learning and improvement (SDLI) curriculum will be built on our existing program of educational activities, which stress competence but not autonomy. We will engage residents in new activities to enhance their drive for excellence and ability to accept responsibility for their own learning and patient care activities (autonomy), as well as their ability to skillfully self-assess their competence so that they can commit to effective, well-directed lifelong learning. The SDT component of relatedness will be measured but is not the primary focus of this project, because we believe that most residents already form strong support networks and frequently engage in collaborative learning.

Figure 1 shows how the SDT construct may be applied to the residency training environment. Most medical students, in our view, enter residency with an inherent SDT trait: a strong intrinsic motivation to excel and "make a difference." We believe that many negative factors associated with the residency experience may erode resi-
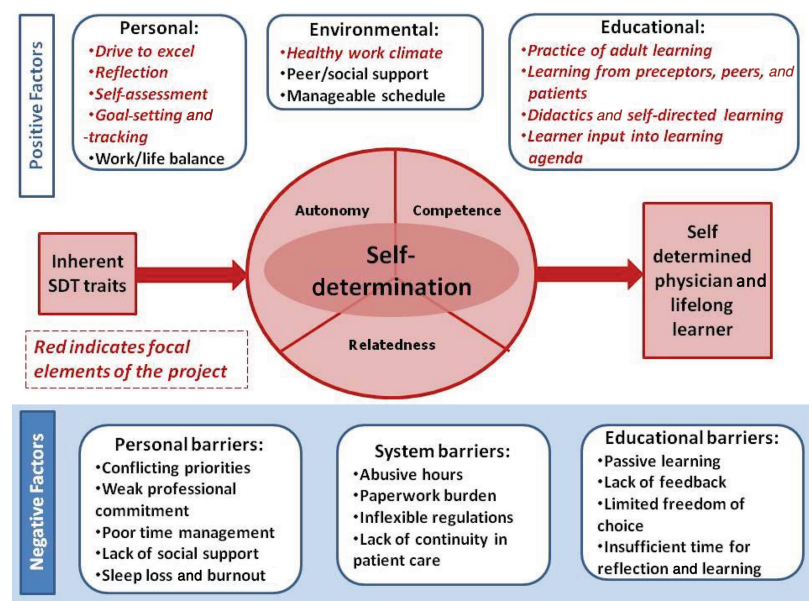

FIGURE 1
Conceptual model of how to build a self-determined physician.

dents' autonomy and relatedness, whereas positive factors that potentially support self-determination can be enhanced through educational and environmental changes. Simply put, the goal of our new curriculum is to minimize the negative factors and maximize the positive factors to produce physicians who are motivated to engage in continuous learning that accurately targets their needs.

CURRICULUM DEVELOPMENT AND IMPLEMENTATION

The SDLI curriculum, developed by program leaders in consultation with residents, fellows, and SDT experts at the University of Rochester Medical Center, emphasizes interactive and guided self-reflective activities for residents, as well as faculty development. We will introduce SDT in the context of adult learning theory and encourage participants to discuss how SDT might be applied in educational and clinical settings. Regular grand rounds to support this curriculum will address top-

ics such as the connection between provider autonomy and patient autonomy[5] and physician self-assessment.[6] Interactive sessions to support intrinsic SDT traits and counteract negative pressures will include noon conferences during which video clips will be used to illustrate autonomy-supportive and autonomy-crushing educational interactions, followed by resident discussion of strategies for maintaining their confidence and a healthy work environment in the face of autonomy-reducing behaviors of supervisors. Morning-report sessions will illustrate "cases" of resident-faculty interactions that facilitate good or poor autonomy. To enhance residents' drive, goal-setting, and sense of purpose, we will encourage them to plan required quality-improvement projects that address areas in which they are committed to promoting change.

Because self-determined learning depends on accurate self-assessment of competence, residents will compare

their longitudinal clinical self-evaluations with faculty evaluations and reflect on the differences. In their semiannual meetings with the program directors, residents will receive guidance in writing self-improvement goals in their individual learning plans (ILPs) and review their progress toward past goals. Residents will also write critical incident essays that combine self-reflection with personal quality-improvement goal-setting.

Success depends on faculty support of this curriculum. Faculty development will include discussion of SDT and adult learning at faculty meetings, aided by video clips of faculty "cases" of positive and negative behaviors that influence residents' autonomy. Faculty and residents will participate together in the autonomy-exploring morning-report sessions described earlier. Residents' evaluations of individual faculty member support for autonomy-building will help to target interventions to faculty who need guidance. Because faculty perceive that residents are not as autonomous as they once were, we believe we will get the needed engagement from faculty to make these sessions a positive and motivating experience.

CURRICULUM EVALUATION AND RESEARCH

Curriculum evaluation will include an intervention group of 45 residents, an internal historical comparison group of all residents in the year preceding project initiation, and 2 synchronous external comparison groups from nearby residency programs. The evaluation will span residents' 3 years of training and 5 years after graduation.

Primary Measures

We anticipate that the new curriculum will alter the way residents' autonomy and competence develop over time. The intervention and control groups will be evaluated longitudinally by using well-validated SDT tools[1] that address autonomy, perceived competence, fulfillment of basic psychological needs, and environmental barriers/supports of self-determination. We predict that residents in the curriculum intervention group, compared with comparison groups, will show similar growth in competence and relatedness but different patterns of change in autonomy and will achieve higher levels of autonomy that are sustained after graduation.

Secondary Measures

Residents' semiannual ILPs will provide an important indicator of their growth as lifelong learners. These ILPs will be rated for indicators of (1) productive reflection[6,7] and accurate self-assessment[8,9] and (2) effective and efficient planning for continuous learning.[10–12] Similar data will be collected by surveys of graduates. ILPs and graduate responses will be rated quantitatively for appropriateness, specificity and measurability of goals, and degree of progress. Residents' critical incident essays and ILPs, as well as self-assessments by graduates, will also be analyzed qualitatively for SDT themes and for sophistication of goal-setting, thereby enhancing our understanding of the SDLI maturation process.

Evaluation of the curriculum's feasibility and efficacy will be structured by using the Kirkpatrick and Kirkpatrick hierarchy of evaluation.[13] We will focus on levels 1 through 3 (reaction, learning, and behavior). Documentation of patient and social outcomes (Kirkpatrick and Kirkpatrick level 4) is planned but is beyond the scope of this project.

DISSEMINATION

We look forward to sharing our new curriculum model, materials, and measurement tools. We believe that SDLI will motivate residents in any program to direct their own learning by constructively identifying their learning gaps and designing realistic ways to fill them. These habits and skills have potential to enhance the quality of future practice and job satisfaction. The autonomy challenges experienced by residents are frequently shared by academic faculty and practitioners in the community, who likewise suffer from disempowerment in a patient care system that does not always reflect their values and needs. Hence, autonomy enhancement may offer substantial benefits to the health care system at the level of all providers.

REFERENCES

1. University of Rochester. Self-determination theory: an approach to human motivation and personality—questionnaires. Available at: www.psych.rochester.edu/SDT/index.php. Accessed August 18, 2011

2. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol.* 2000;55(1):68–78

3. Pink DH. *Drive: The Surprising Truth About What Motivates Us.* New York, NY: Riverhead Books; 2009

4. Baard PP, Deci EL, Ryan RM. Intrinsic need satisfaction: a motivational basis of performance and well-being in two work settings. *J Appl Soc Psychol.* 2004;34(10):2045–2068

5. Williams GC, Deci EL. Internalization of biopsychosocial values by medical students: a test of self-determination theory. *J Pers Soc Psychol.* 1996;70(4):767–779

6. Epstein R. Mindful practice. *JAMA.* 1999;282(9):833–839

7. Schön DA. *Educating the Reflective Practitioner.* San Francisco, CA: Jossey-Bass; 1987

8. Eva KW, Regehr G. Self-assessment in the health professions: a reformulation and research agenda. *Acad Med.* 2005;80(10 suppl):S46–S54

9. Davis DA, Mazmanian PE, Fordis M, van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. *JAMA.* 2006;296(9):1094–1102

10. Mann K, Gelula MH. How to facilitate self-

directed learning. In: Davis D, Barnes BE, Fox R, eds. *The Continuing Professional Development of Physicians*. Chicago, IL: AMA Press; 2003:121—143

11. Bravata DMT, Huo SJ, Abernathy HS, Skeff KM. The development and implementation of a curriculum to improve clinicians' self-directed learning skills: a pilot project. *BMC Med Educ*. 2003;3:7

12. Li ST, Tancredi DJ, Co JPT, West DC. Factors associated with successful self-directed learning using individualized learning plans during pediatric residency. *Acad Pediatr*. 2010;10(2):124—130

13. Kirkpatrick DL, Kirkpatrick JD. *Evaluating Training Programs: The Four Levels*. 3rd ed. San Francisco, CA: Berrett-Koehler Publishers; 2006

THE NEW ARMS RACE: *Recently, I was trying to book a hotel room in Montreal. The hotel where I usually stay had no available rooms. I selected a few hotels to view and then scanned review sites to read what other travelers had written about them. I was stunned by the diversity of comments. How could one reviewer write that the experience was an absolute delight while another said the rooms were tiny, noisy, and poorly ventilated? After looking at several sites, I came to the conclusion that many were simply not useful. According to an article in* The New York Times *(Technology: August 19, 2011), writing reviews has become an arms race. As more and more people depend on the Web as a source of information, retailers, hoteliers, and publishers depend on reviews to help promote sales. Positive reviews lead to better sales, so merchants are looking for more of them. The need for positive reviews has spawned an entire industry of "reviewers" who will publish them for a small sum. Evidently, people and organizations hire themselves out as professional positive-review writers. Distinguishing genuine from fake reviews is difficult. In a study that compared 400 fake-positive reviews of Chicago hotels and 400 reviews thought to be real, people could not tell the difference between the two. Researchers who claim to have developed an algorithm that may detect up to 90% of fake-positive reports have garnered the interest of national retailers, who are interested in separating fact from fiction. According to the researchers, fake-positive reviews of hotels tend to be laden with superlatives but not actual descriptions. This is not surprising, given that the reviewer has not actually been to the hotel. Moreover, the reviewers tend to write about the experience in the city rather than the hotel and use the words "I" and "me" a lot. The merits of a positive review get even murkier when one realizes that even experienced reviewers for sites such as Amazon.com don't have to disclose that they often get free merchandise for their reviews. Although reviews on the web tend to be positive, one can find plenty of negative reviews, particularly for restaurants. It turns out that these are often posted by rivals. So, how is a traveler supposed to discern a good restaurant or hotel from one that is not? I tend to rely on my friends. They are unlikely to recommend one that serves lackluster food or provides poor service.*

Noted by WVR, MD