

# An Analysis of Needs for Respiratory Therapists in Northeast Ohio and Development of Strategies to Meet Increased Recruitment Demands

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**BACKGROUND:** The 2005 American Association for Respiratory Care Human Resources Survey suggested that the national demand for respiratory therapists (RTs) exceeds the supply. At the Cleveland Clinic an expected hospital expansion of 350 beds by 2008 has increased the need for RT staff. This report describes a strategy by which we developed a plan, in concert with local RT colleges, to recruit RTs. **METHODS:** Local RT managers were surveyed regarding demand for RTs. We developed a recruitment plan, based on discussions with RT program directors. **RESULTS:** The survey data and models estimated an annual mean of 33.4 new positions in northeast Ohio. Despite the fact that approximately 84 people graduated from northeast Ohio RT programs yearly in 2004 to 2007, the growth in demand for RTs exceeded the estimated supply. The main factor that caused RT schools to limit the supply of RTs was the paucity of clinical sites. Our analysis shows the schools could achieve a 40% increase in student output, and that if the Cleveland Clinic could essentially double its graduate hires, all RT staff needs in our hospital would be met by 2010. **CONCLUSIONS:** To assure a needed supply of RTs, this work shows the value of modeling supply and demand scenarios, coupled with surveying local RT leaders and fostering dialog between local RT leaders in hospitals and colleges. The product of this activity was a strategy for achieving recruitment goals while assuring that other regional demands for RTs are also met. We recommend this approach to colleagues facing similar challenges. *Key words: labor shortage, respiratory therapist, vacancy rate, recruiting, graduates, human resources.* [Respir Care 2007;52(12):1767-1773. © 2007 Daedalus Enterprises]

## Introduction

In the context of a planned 2008 expansion of the Cleveland Clinic hospital by approximately 350 beds, and growth of the intensive care unit bed capacity by approximately 100 beds, we wished to examine the availability of respiratory therapists (RTs) in northeast Ohio to fill newly available RT positions. Concern was triggered by national trends

that suggest a growing percentage of unfilled RT positions (Table 1), from 5.96% in 2000 to a projected 8.65% in 2005, based on the American Association for Respiratory Care (AARC) Human Resources Surveys.<sup>1</sup> According to the Ohio Hospital Association, both the turnover and vacancy rates for RTs were higher than those for nursing, radiology technology, and medical technology from 2004 through 2006. Turnover of RTs in Ohio in 2006 was es-

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## STRATEGIES TO MEET THE DEMAND FOR RESPIRATORY THERAPISTS

Table 1. Projections for Vacant FTEs Reported in the 2005 AARC Human Resources Survey

	2005	2000	1992
Director	158	111	35
Supervisor	450	299	208
Staff therapist/technician	10,000	5,152	2,832
Diagnostic technologist	892	508	ND
Instructor/educator	110	91	ND

FTE = full-time equivalent  
ND = no data available

estimated at 16.4% and vacancy at 9.4%.<sup>2</sup> However, organized regional data about vacancy rates at northeast Ohio health care institutions and the annual availability of new local RT graduates were unavailable. Our need to plan for this forthcoming hospital expansion and concern that our demand for new RTs (estimated to number 100) would outstrip the local graduating student supply prompted us to conduct surveys of respiratory care department managers in the northeast Ohio district of the Ohio Society for Respiratory Care and of the respiratory care program directors at the local RT colleges. Our goal was to address the following questions:

1. What is the current frequency of unfilled RT positions in northeast Ohio?
2. How many locally graduating RT students become available yearly to potentially fill these positions?
3. Assuming the constraining condition that recruitment to northeast Ohio was filled only by RT graduates from local RT programs, what is the impact of various strategies to meet the Cleveland Clinic's recruitment needs on the projected vacancies of other health care institutions in northeast Ohio?

Answers to these questions were deemed necessary to develop and assess strategies for recruiting a sufficient number of RTs to staff our expanding hospital.

In the hope that our process and findings provide guidance to others facing similar recruiting challenges, this paper describes the results of these surveys, various models used to project the recruitment need, and the process by which we used these survey results and models to develop a recruitment strategy in concert with local RT program leaders.

### Methods

With the goal to develop strategies to attract and recruit a sufficient number of RTs, several steps were undertaken. First, to estimate the demand for RTs and to provide data upon which subsequent steps and deliberations could be

Table 2. Department Manager Survey Questions

1. How many budgeted clinical FTEs do you have right now?
2. How many vacant clinical FTEs do you have right now?
3. How many clinical FTEs did you/will you budget for each year in 2004–2010?
4. Do you have an affiliation with a regional respiratory care program (ie, student rotation)?
5. If you answered yes to #4, which programs are you affiliated with?
6. How concerned are you about recruitment?
  - A. Very concerned
  - B. Somewhat concerned
  - C. Not concerned
7. How concerned are you about retention?
  - A. I have special programs to reward tenure
  - B. I use hospital programs to award tenure
  - C. Tenure is not explicitly rewarded in my hospital
8. Why would a new graduate select your institution as an employer over other institutions?

FTE = full-time equivalent

based, we conducted telephone surveys of department managers from hospitals, home-care companies, and long-term ventilator-weaning units within skilled nursing facilities in northeast Ohio. To estimate the demand for RTs in the acute care sector, 15 department managers in the northeast Ohio district of the Ohio Society for Respiratory Care were surveyed (Table 2). To determine the demand for RTs in long-term care, 30 home-care companies licensed by the Ohio Respiratory Care Board and 5 long-term ventilator weaning units listed with the Ohio Health Care Association were surveyed.

To estimate the supply of new graduates, we also conducted an online survey of 6 RT program directors at Bowling Green State University, Firelands College, Huron, Ohio; Cuyahoga Community College, Parma, Ohio; Lakeland Community College, Kirtland, Ohio; Ohio State University, Columbus, Ohio; University of Akron, Akron, Ohio; and Youngstown State University, Youngstown, Ohio.

Table 3 presents the survey questions for program directors. Descriptive statistics and linear regression analysis were used to summarize the survey results.

As a second step in our attempt to develop an optimal recruitment strategy, the survey results were shared with leaders (ie, RT program directors and deans) of the local RT colleges that offer RT students clinical rotations at the Cleveland Clinic.

The first of these meetings was a “brainstorming session” with the RT program directors from Cuyahoga Community College, Lakeland Community College, and Youngstown State University, in which we shared the results of these surveys with the goal of collectively developing ideas and potential recruitment strategies. Specifically, the meet-

Table 3. Respiratory Care Program Director Survey Questions

1. How many respiratory care graduates did you have in 2004 and 2005?
2. How many students are currently enrolled in the 2006 graduating class? The 2007 graduating class?
3. What is the maximum number of enrollees your program can handle right now?
4. What is the most important factor limiting the maximum number of enrollees your program can handle right now?
5. Approximately what percentage of your graduates become employees of the Cleveland Clinic upon graduation?
6. How concerned are you about the respiratory-therapist labor supply-demand situation in northeast Ohio: Not at all, Somewhat, Very?
7. What are the most important factors students consider when choosing an employer?
8. What percentage of your students will prefer a part-time position?

ing was framed around the following question to the RT program directors: "Given these survey results, what steps could you imagine to attract and recruit the additional approximately 100 RTs deemed needed to staff the expanded Cleveland Clinic Hospital?"

To advance this discussion, we analyzed 2 scenarios (Scenarios A and B, shown in Table 4) that describe the timing of the need for additional RTs. For Scenario A we used a spreadsheet model to evaluate the effects of the projected need for full-time equivalents (FTEs). This plan simply added the number of new FTEs in the year they were expected to be needed.

Scenario B was derived with the following procedure:

1. Initial spreadsheet (Excel, Microsoft, Redmond, Washington) setup. Adjust "Added FTEs" spread so that projected "Vacancies" were approximately equal in the years 2007 through 2010. Projected vacancies were adjusted upwards to account for an estimated 18% turnover rate.<sup>3</sup>

2. Determine the increase in recruitment needed only to meet demand. Use the spreadsheet's "goal-seek" tool to set the value of 2010 vacancy to zero by adjusting the Cleveland Clinic recruitment factor (the percentage of all local RT graduates recruited to work at the Cleveland Clinic). Evaluate the resultant recruitment factor and the effect on surplus/deficit of FTEs available for the rest of northeast Ohio.

3. Determine the increase in school output only needed to meet demand. Set the Cleveland Clinic recruitment factor to baseline (assumed to be 12%). Use the goal-seek tool to set the value of 2010 vacancy to zero by adjusting the school-output-increase factor. Evaluate the resultant output factor and the effect on surplus/deficit of FTEs available for the rest of northeast Ohio.

4. Determine a practical balance of increased recruitment and increased school output. Set the school-output-increase factor to the agreed upon value of 50%. Use the

goal-seek tool to adjust the 2010 vacancy to zero by adjusting the value of the Cleveland Clinic recruitment factor. Examine the surplus FTEs for the area. Select a lower school-output-increase factor. Repeat until an apparently acceptable balance is created among FTE surplus, school-output-increase factor, and Cleveland-Clinic-recruitment factor.

After the initial brainstorming meetings, we held individual follow-up meetings with the investigators and the same 3 program directors and their respective college deans. The purpose of these meetings was to further specify ways in which the Cleveland Clinic could work with each program to increase the number of RT graduates to meet the recruitment demands.

## Results

### Demand

Figure 1 shows a trend of increasing numbers of budgeted positions in northeast Ohio. The regression analysis suggests an average growth rate of 33.4 new positions per year. Figure 2 shows a more alarming picture, indicating a large jump in demand starting in 2008. This result was mainly due to a projected increase of 100 budgeted FTEs at the Cleveland Clinic alone (ie, pulmonary and cardiothoracic anesthesia sections combined). Table 5 shows that half of the acute care managers were concerned about recruitment and two thirds were concerned about retention. Of the long-term care managers, 89% were concerned about recruitment.

### Supply

Table 6 shows that the average total number of graduates from 2004 to 2007 is about 85 per year. About 12% of the new RT graduates were expected eventually to be employed by the Cleveland Clinic (this was taken as the Cleveland Clinic recruitment factor in the gap analysis). The majority of program directors were concerned about the labor supply/demand situation in northeast Ohio. Five program directors cited the lack of clinical sites as a rate-limiting factor to the number of RT graduates. Seventy-three percent of the hospital-based RT managers reported clinical affiliations with regional RT programs. Clinical affiliations were less prevalent in the nonhospital or home-care and long-term care settings (33%).

Factors considered important to students when choosing an employer were (in decreasing order of frequency cited): salary, responsibilities/work load, flexible hours, experience during clinical rotation, respect given to RTs, location close to home, size of hospital, and opportunity for growth.

## STRATEGIES TO MEET THE DEMAND FOR RESPIRATORY THERAPISTS

Table 4. Spreadsheet Model of Supply and Demand Variables From 2007 to 2010

	Year	Graduate Supply	Expected Cleveland Clinic Share (at 12%)	FTE Demand Budget Allocation	Gap	Added FTEs	Total Budgeted FTEs	Year-End Actual FTEs	Vacancy (%)
Scenario A*	2007	84	10	12	-2	0	132	130	1
	2008	84	10	102	-92	100	232	140	66
	2009	84	10	92	-82	0	232	150	54
	2010	84	10	82	-72	0	232	160	45
	Total	336	40	NA	NA	NA	232	160	NA
Scenario B†	2007	118	33	95	-62	83	215	153	29
	2008	118	33	92	-59	30	244	185	24
	2009	118	33	65	-33	6	250	218	13
	2010	118	33	33	0	0	250	250	0
	Total	470	130	NA	NA	118	250	250	NA
Normal demand‡		336							
Extra clinic demand‡		130							
Surplus‡		4							
							School output increase factor (%) 40		
							Clinic recruitment factor (%) 28		

\* Scenario A shows the effect on anticipated vacancy of simply adding 100 full-time equivalents (FTEs) to the budget in 2008.

† Scenario B shows the effects of (1) spreading 100 FTEs over 3 years, (2) increasing the student supply by 35%, and (3) increasing the Cleveland Clinic's recruitment rate to 25% of the student supply.

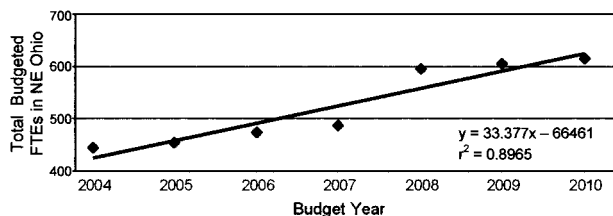


Fig. 1. Regression analysis of anticipated budgeted full-time equivalents (FTEs) for the surveyed departments in northeast Ohio. The slope of the regression is interpreted as the average annual increase in respiratory therapist labor demand.

### Results of the Meetings and Model Analysis

Table 7 shows the results of the brainstorming session. The spreadsheet model (Scenario A in Table 4) indicated that simply budgeting 100 additional FTEs in 2008 would result in year-end vacancy rates of 66%, 54%, and 45% for 2008, 2009, and 2010, given the current school output and Cleveland Clinic recruitment factor. Subsequent analysis showed that the Cleveland Clinic recruitment factor would have to increase to 33% to eliminate vacancies by 2010. This action would increase the total recruitment over the next 4 years from 40 to 112 (to account for both new positions and normal turnover). Therefore, simply increasing the Cleveland Clinic's expected proportion of the new graduates would leave a potential deficit of 72 FTEs for other northeast Ohio health care institutions. If the number of graduates increased 178%, that would eliminate all of

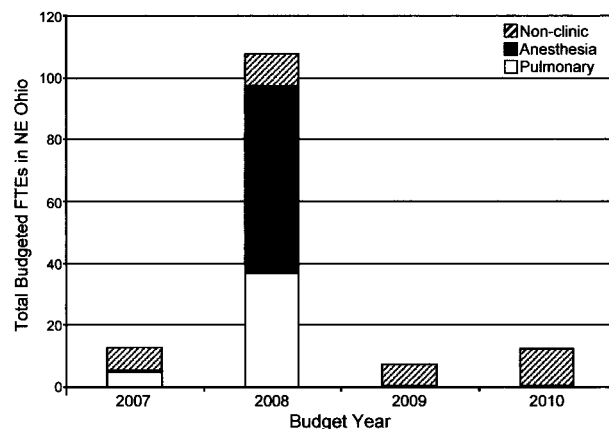


Fig. 2. The upward trend in budgeted full-time equivalents (FTEs) is highly dominated by the anticipated need of the Cleveland Clinic pulmonary and cardiothoracic respiratory therapy departments, due to occur in 2008.

the Cleveland Clinic's vacancies, but would create 597 graduates for whom there would be no RTs jobs available at the other centers in NE Ohio.

In the brainstorming session with the RT program directors, all agreed that they could potentially achieve up to a 50% increase in graduate output. Assuming output flexibility beginning in 2007, the model (Scenario B in Table 4) showed that splitting the burden of meeting increased demand between the schools and the Cleveland Clinic's recruitment program could yield a practical solu-

## STRATEGIES TO MEET THE DEMAND FOR RESPIRATORY THERAPISTS

Table 5. Survey Results on Managers' Concern About Staff Recruitment and Retention

Level of Concern	Percent of Respondents Who Chose This Response			
	Hospital Recruitment	Hospital Retention	Nonhospital Recruitment	Nonhospital Retention
Very	17	25	0	33
Somewhat	33	42	89	0
Not	50	33	11	67

Table 6. Survey Results From Respiratory Care Program Directors\*

	Projected Graduates ( <i>n</i> )						Total
	YSU	Akron	Lakeland	OSU	CCC	BG	
Graduated 2004	12	16	9	15	14	13	79
Graduated 2005	9	16	17	14	12	12	80
Graduated 2006	11	13	11	18	15	16	84
Graduated 2007	6	16	16	20	16	22	96
Graduates at Cleveland Clinic (%)*	5	8	30	6	10	10	12†
Expected part time (%)	10	10	40	0	10	15	14†
Concern level	Very	Somewhat	Very	Somewhat	Very	Very	66% Very

\* Expected percentage of graduates who will come to Cleveland Clinic

† Average values across institutions

YSU = Youngstown State University

Akron = University of Akron

Lakeland = Lakeland Community College

OSU = Ohio State University

CCC = Cuyahoga Community College

BG = Bowling Green State University at Firelands

tion. The model made it clear that the surplus (or shortage) in the availability of FTEs in the northeast Ohio district was more sensitive to changes in school output than to changes in the proportion of new graduates hired by the Cleveland Clinic. Though any allocation of the burden between school output and Cleveland Clinic recruitment could be imagined, the practical derived result was a scenario in which the Cleveland Clinic would have to increase its annual hiring percentage of new graduates from 12% to 28%, while the schools would have to increase the supply of graduates by 40%. This split of supply and demand resulted in an estimated surplus of FTEs for the rest of northeast Ohio of only 4 FTEs.

### Discussion

The current activity was framed by a “perfect storm” scenario that consists of a growing national gap between the supply of available RTs and the demand for RT services,<sup>1</sup> coupled with an acute need to recruit more RTs to our institution to accommodate the hospital’s growth. In this context, we reasoned that developing scenarios and working with local RT program leaders would offer the

best prospect of identifying strategies to meet our institutional needs. Our approach was predicated on the idea that the best solution might emerge from engaging other stakeholders in helping to design an effective strategy.

One of the main findings of our analysis was that local RT program leaders welcomed the dialog because it was an opportunity to craft a “win-win” solution (ie, satisfying our need to enhance recruitment and the RT programs’ desire and capacity to grow). Another important finding was that the use of simple models regarding recruitment need and supply permitted us to forge a strategy to meet the joint goals of meeting our hospital’s recruitment need while preserving the pool of available RTs for other regional health care institutions. Finally, the series of meetings with local RT leaders, informed by our survey results and models, were invaluable in helping to define the preferred strategy. Indeed, involving the program leaders early in the process recognizes the leadership principle<sup>4</sup> of engaging the stakeholders early in developing a program for change, in this case relating to increased recruitment and program RT output. We believe that conducting early dialog with local

Table 7. Potential Actions Derived From the Brainstorming Session Between Clinic Management and Program Directors

<u>Increase the number of graduates</u>
Increase graduate output by 50%*
Acquire support from deans; shift attention from nursing to respiratory*
Increase the number of clinical sites*
Decrease attrition
Increase marketing to
High schools
Undeclared bachelor's degree students (especially biology and medical technology)
Rejected nursing school applicants
<u>Increase number of education sites</u>
Investigate Department of Labor grant and Gates grant to support hospital sites as school extenders*
Investigate creating distance-learning satellite schools
Engage proprietary schools
<u>Increase Cleveland Clinic recruitment efforts</u>
Offer scholarships to students in return for employment commitment*
Communicate with students regarding employment at Cleveland Clinic Foundation*
Offer contact with medical director of respiratory care*
Offer shadowing experience*
Offer an annual education day for students (2-hour lecture, tour, lunch)*
Offer admission to the 2007 Lung Summit*
Create targeted marketing campaign
Offer sign-on bonus
Offer fast-track staff development
<small>*Consensus was achieved on these items.</small>

RT program leaders and gathering and sharing local survey data are important and generalizable solutions that will aid colleagues facing similar challenges.

The solution that we have developed and are currently implementing based on this process suggests that if the local advanced-level RT programs can increase their graduating pool of therapists by 40% and if the Cleveland Clinic can attract 28% of those graduates, then the anticipated acute need for staffing starting in 2008 can be fulfilled by the end of 2010 with minimal effect on the RTs available for other institutions in northeast Ohio. Our models suggest that a more aggressive timeline is not practical. We are also planning to increase the clinical rotation capacity at our site, which should accommodate most of the increased supply of RT graduates provided by the schools for the adult general care, adult intensive care, pulmonary function, and neonatal/pediatric specialty rotations. However, the lack of clinical affiliations for extended-care organizations, such as long-term care, home care, and sleep laboratories, may pose a continuing problem for the affiliated

associate and baccalaureate degree RT programs in need of clinical sites for student specialty rotations in home care, health promotion, and sleep medicine.

Other aspects of our RT growth plan regard developing a career ladder with rewards for milestones regarding clinical growth, institutional service, patient satisfaction achievements, and academic/scholarly achievements.<sup>5</sup> Indeed, coupled with our plan to recruit RTs is a larger strategic plan to recruit and retain RTs that involves development of a national RT internship program, augmentation of our outreach efforts of local RT schools, enhancement of clinical rotation opportunities, development of the aforementioned career ladder, and partnering with local RT programs to assist their procurement of equipment, et cetera. We offer these approaches as additional, generalizable solutions to a common problem today.

While we believe that this process has had value for us in helping to frame an approach to inquiry and problem-solving and hope that it may help others facing similar issues, we are aware of several limitations that warrant comment. First, though we predicated our solution on meeting our recruitment needs while preserving the pool of RTs for other health care organizations in our region, we are incompletely aware of those organizations' respective growth needs. Thus, our proposed solution may not adequately or fully accommodate the growth needs of other hospitals. However, our model may have overestimated growth in the long-term care and home-care environments. The projected growth in that market is proportional to the growth of technologically based niche services, such as home-based or skilled-nursing-facility-based ventilator care. On the other hand, our model supposes that RT positions in our area are filled only by RT graduates from local programs, and ignores the possibility that recent graduates and established RTs from other regions might assume positions in northeast Ohio health care institutions.

A second, related limitation is that our survey sampled fewer than half of the RT departments in northeast Ohio and included only budgeted FTEs and not any budget allocations to as-needed positions. Most of the larger departments in northeast Ohio were included in the survey; time constraints precluded some departments' participation. Still, any missing data regarding unmet recruitment needs would exaggerate the disparity between supply and demand in our model and hence tend to confirm our conclusion of unmet needs for RTs.

A third limitation is that we are only beginning to implement this plan and so are currently unable to report on the effectiveness of the proposed solutions, though we hope to do so soon.

A fourth limitation is that we lack data regarding the emigration rate of RTs out of northeast Ohio (ie, RTs leaving the area), so this could not be included in the

model. However, we did adjust the spreadsheet model such that there was a net surplus rather than a deficit, to account for the unknown attrition rate. We assumed that most RT turnover in individual departments would simply represent a redistribution among the departments in the area.

### Conclusions

In summary, faced with a recruitment challenge that we believe represents challenges faced by many other hospitals, we offer our experience with a process of conducting a survey, using the results to develop various models, and then using the models to engage in discussion with local RT program leaders that we hope will be helpful to others confronting similar issues.

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