

*In Reply:*—As Drs. Robinson and Gozal stated, we did detect a variance in the manufacturing process as related to the assembly of certain watertraps. This intermittent defect was reported by Dr. Robinson and some other users of this product. On return of the suspect traps and careful examination and testing by Criticare and our production house, we changed the manufacturing process to eliminate the potential for this phenomenon to occur.

In the case of Dr. Robinson and all other customers who noticed this problem, we replaced all of their existing stock of traps with new production units. To date, we believe that all questionable traps have been replaced with new production units. This problem was very intermittent and extremely difficult to identify to any specific lot of traps.

Because of acute observation by Dr. Robinson, his staff, and others

who were extremely helpful in bringing this issue to our attention, we were able to affect changes to address this problem. We welcome and encourage critical review and assessment of our monitoring systems by the clinical users like Steve and his staff. Only through this dialog can we, as a manufacturer, produce products that meet the clinical needs in safety and usability for vital monitoring products.

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## Relationship between NIH Dollars and Percentage of Residents Matched through the National Residency Matching Program

*To the Editor:*—We read with great interest Dr. Longnecker's Rostkine Lecture ("Navigation in Uncharted Waters: Is Anesthesiology on Course for the 21st Century?") on his vision of the future of anesthesiology.<sup>1</sup> We were especially interested in his comments on the decline in the number of American medical school graduates (AMG) entering anesthesiology and the response by the academic programs to this decline.

The recent decline in the number of American medical school students pursuing anesthesiology as a career through the National Residency Matching Program (NRMP) has been well documented.<sup>2</sup> Current medical students may be discouraged from anesthesiology

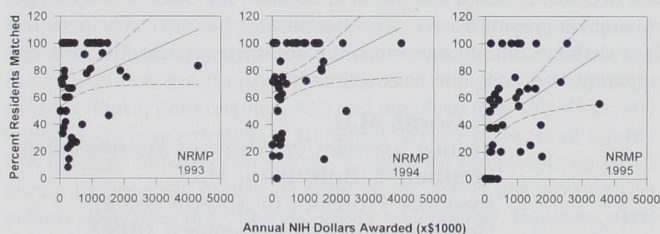
as a career because of a perceived lack of postgraduate practice opportunities as publicized in recent articles and the lay press.<sup>3,4</sup>

Although the decline in the number of AMGs has resulted in difficult adjustments for many academic programs, it is important that we continue our efforts to attract the best and brightest medical students as future leaders for our specialty. By maintaining and expanding the commitment of high quality anesthesiology departments to continued excellence in clinical care and research and active medical student education programs, our specialty should be able to recruit the best medical students into anesthesiology.<sup>5,6</sup>

Benefits may arise from departmental efforts in producing high quality research and obtaining extramural funding (e.g., NIH grants). Among the many factors that may attract an applicant to apply, interview, and match to a program, the "prestige" or "reputation" of a program is significantly more important to prospective anesthesiology than nonanesthesiology residents.<sup>7</sup> Research activity (grossly reflected by the amount of NIH funding) is an important contribution to the "reputation" of a program.

We compared the relationship between NIH funding and the percentage of residents matched through the NRMP from 1993 to 1995 (table 1). During this period, total NIH funding awarded to departments of anesthesiology around the country held steady with 169 grants awarded to 43 different institutions for a total of 33.7 million dollars in 1995. The top 20 anesthesiology programs in terms of NIH funding had a much higher percentage of residents matched when compared with the average of all anesthesiology programs. Even programs with some NIH funding did better than the average. Fig. 1 shows this relationship in a graph form.

One should not conclude that increasing the amount of NIH funding or research at a program will automatically lead to an increase in residents matched. There are limitations in our analysis that could not account for factors such as self-limitation of the number of NRMP positions available (thus resulting in a higher percentage of applicants matched). In addition, prospective residents are more concerned about the diversity of training, house officer satisfaction, and didactics than the "prestige" of a program.<sup>7</sup> However, an increase in NIH



**Fig. 1.** Total NIH dollars *versus* percentage of residents matched. The *solid lines* represent the best fitting linear regression between the variables, and the *dotted-line* represents the 95% confidence interval. The slopes of the regression were significantly different (Spearman's Rho,  $P < 0.05$ ) from zero for all years. Data obtained from the National Residency Matching Program Results (National Resident Matching Program; Washington, DC) and the National Institutes of Health, Division of Research Grants, Information Systems Branch. The dollar amount reflects total dollars awarded to Departments of Anesthesiology including research grants, training grants, contracts, and fellowships. The resident match percentage is based on the combined PGY1 and CA1 positions. Institutions with NIH funding but with no resident match data reported in the NRMP Program Results (two for 1993, one for 1994, and three for 1995) were excluded from the analysis.

## CORRESPONDENCE

**Table 1. Relationship between NIH Funding and Residents Matching through the NRMP 1993–1995**

	Match Year 1993	Match Year 1994	Match Year 1995	Match Year 1996*
All anesthesiology programs				
# Matched	930	825	536	325
# Offer	1386	1295	1143	946
% Match	67.1	63.7	46.9	34.3
Top 20 (Based on NIH funding)				
# Matched	261	214	163	
# Offer	306	245	235	
% Match	85	87	69.4	
Overall with some NIH funding				
# Matched	410	344	230	
# Offer	547	487	404	
% Match	74.9	70.6	56.9	

The rank order of NIH funding awarded to Departments of Anesthesiology is based on the total award (direct and indirect costs). The category designated as "some NIH funding" were 43 institutions for 1995 and 46 institutions for 1994 and 1993. Note that in 1995, the percent residents matched at top 20 institutions with NIH funding as 48% greater than the overall average. In 1993, this number was only 27%.

\* Funding data for 1996 are not available at this time.

funding may lead to an increase in "reputation" and visibility to medical students and their advisors. This may be especially important in a smaller pool of high quality applicants who may be applying to fewer programs.

As we point out, academic programs that maintain a high level of academic quality (as measured by the amount of NIH funding in this case) may attract a higher percentage of AMGs through the NRMP. Furthermore, as Dr. Longnecker mentions, several ways that academic programs are responding to the declining number of AMGs entering anesthesiology may have long-term detrimental consequences.<sup>8</sup> Despite difficult times, academic programs should resist curtailment of research and clinical commitments to ensure the future of our specialty.

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