

## Commentaries Spark Debate

**TO THE READER:** In the January 1993 issue of the *Journal*, four members of the Society of Nuclear Medicine (Maynard, Wagner, Holman and Ell) speculated in individual commentaries on the future of nuclear medicine—offering specific, and divergent, solutions. Their commentaries generated lively response from readers; a number of those responses are printed below. The commentaries also sparked debate between Drs. Wagner and Holman at the annual meeting in June. Their exchange continued in the September *Newsline* (see September, page 27N).

Controversy stirred by healthy debate is key to the growth and survival of our specialty. It stimulates interest and participation, encourages critical thinking, and focuses decision-making. So please participate in the critical thinking necessary to ensure appropriate short-term and long-term decisions about and solutions for the nuclear medicine profession of the future, because the future is now!

H. William Strauss, Editor  
*The Journal of Nuclear Medicine*

## Human Element Integral to the Future of Nuclear Medicine

**TO THE EDITOR:** I read the comments on the future of nuclear medicine in the January issue of *The Journal of Nuclear Medicine* with great interest. The heated controversy raised by this topic clearly demonstrates its crucial importance. I would like to voice the humble standpoint of a strategist who has had the greatest difficulty defending and implementing his ideas in the French paradigm of nuclear medicine, a frustrating exercise that has thwarted many a fledgling specialist.

The basic problem confronting nuclear medicine is hardly new. Both in the U.S. and Europe, we have been steadily losing ground since the dramatic development of other imaging techniques. Technical and biological progress have saved us so far, making great flexibility in the face of formidable and multiform competition possible. Now, not only are we losing the field but also the players on the field, and rapidly at that. This situation is fast becoming critical—without any players, defeat is certain.

Why this shortage of manpower is a very difficult question to answer, since the process is multifactorial and complex. Surely the human factor is destined to play a pivotal role insofar as no technical evolution or revolution nor any complacency about the scientific bases of our specialty will be able to save us. We can rely only on our faith in the authentic clinical value of nuclear medicine.

Although the problem is easy to identify, solutions are much less clear, no matter how forcefully some may be propounded by brilliant protagonists in the columns of the *Journal* (1-4). When a challenge is as pressing and wide-ranging as ours, my experience is that the pragmatic approach should be preferred. With C.D. Maynard we must convince ourselves that physician recruitment is the utmost priority, in both Europe and the U.S., to bolster the

clinical dimension of our exciting specialty and its status in medical imaging.

Naturally, we need trailblazing researchers to prepare the advent of tomorrow's molecular medicine, as suggested by H.N. Wagner (2), but we cannot sacrifice short-term advances to long-term progress. Continuity is vital to progress, even in times of momentous changes. There is ample room for both researchers and clinicians in nuclear medicine over the coming ten years and beyond. Combining nuclear medicine and radiology is the only way to allow us to fight on all fronts. Defending a pure molecular and intellectual approach to nuclear medicine would merely have the short-lived result of artificially maintaining a noble specialty—without specialists.

This is no idle speculation. In France, we are already short the nuclear medicine specialists needed to maintain and develop clinical applications, not only in private practice, but in hospital practice as well. This problem must be emphasized because France is a country where, among researchers, nuclear medicine specialists are overwhelmingly recruited. Furthermore, the use of nuclear medicine in private practice is a recent phenomenon in France, largely contributing to its progress over the past seven years. Our French paradigm clearly highlights the danger of a purely theoretical approach that does not take into account the multiple facets of medical and human reality. Our specialty will not be able to weather the ever-growing onslaught of competing imaging techniques if it is not well grounded in everyday clinical practice. By the time molecular medicine has carved its place, it will be too late for nuclear medicine. The urgent priority is to prepare for the future by attracting highly motivated and innovative physicians, not only among researchers, but also among young radiologists well trained in medical imaging and versatile enough to understand the basic orientations of radiology and nuclear medicine despite their fundamental differences.

The tracer principle is a marvelous scientific tool which can be mastered by any intelligent physician, provided he/she is willing and the teacher up to the task. We need to communicate our enthusiasm about nuclear medicine to all medical students and young radiologists, who would probably be quite happy to break new ground in the field of abstraction and quantification if we could convince them of the clinical usefulness of such an approach. Admittedly, radiology is more visual and anatomical than nuclear medicine, but this shouldn't pose a problem since the future of medical imaging techniques will probably evolve more toward quantification and abstraction.

The European Community has decreed that nuclear medicine is an independent medical specialty without any theoretical or practical connection with radiology. This decision is more dogmatic than realistic or pragmatic. What we need is real synergy between researchers and clinicians expert in nuclear medicine; i.e., people capable of bridging the gap between "pure researchers" and "pure clinicians." These go-betweens would ideally be recruited among students with an interest in clinical imaging and radiology. It is time to take another look at the practice of nuclear medicine, as its survival cannot rest only on theoretical, speculative, or futuristic considerations at the expense of human factors and

motivations—the main determinants of progress and adaptation in every human activity.

## REFERENCES

1. Maynard CD. Medical imaging in the nineties: new directions for nuclear medicine. *J Nucl Med* 1993;34:157-164.
2. Wagner NJ. The new molecular medicine. *J Nucl Med* 1993;34:165-166.
3. Holman BL. We are training our future. *J Nucl Med* 1993;34:167-168.
4. Ell PJ. The future of nuclear medicine: a perspective from Europe. *J Nucl Med* 1993;34:169-170.

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## No More Edsel Mechanics Needed in Nuclear Medicine

**TO THE EDITOR:** Technology and human nature are conspiring to accelerate competition and nuclear medicine is losing ground because it is not satisfying the customers' needs as well as the alternatives. Focusing on recruitment of medical school neophytes is treating the symptom and not the disease.

We live amid complexity. Patients receive services that physicians sell and insurers pay for based on DRGs mandated by Congress. Just who is the customer? Physicians deal in service, and the recipient of the service—the patient—is the customer, regardless of who *appears* to pay the bill or set the price. Nuclear medicine is not satisfying the customer as well as MRI, CT and US. The reasons are technological. Recruiting more nuclear medicine physicians now is like recruiting Edsel mechanics.

We must change the service to one that better satisfies the customer and is beyond the capacity of the competition to deliver. Nuclear medicine should rely on the strength of the tracer technique to distance it from more anatomically precise modalities.

I share Dr. Wagner's vision of nuclear medicine ranks burgeoning with youth as molecular medicine grows, but growth will not begin until chemists make tracers that patients need, and many academic chemists are currently busy using old nuclear medicine principles to make new MRI agents. We should do our first-line recruiting in graduate schools rather than in medical schools.

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## Nuclear Medicine in Israel: Independent, Alive and Well

**TO THE EDITOR:** In many respects, Israel is a combination of the United States, Europe and the underdeveloped world. It combines very successful high technology industries, world-renowned universities and scientific institutions with a population mix containing emigres from underdeveloped third world countries and former communist regimes. In some regions of the country where nuclear medicine is well developed, it is very successful, clinically and scientifically. Our best and brightest medical students apply for residency positions in nuclear medicine and look forward to a growing and exciting specialty. One of the key reasons for its

success is that nuclear medicine is an independent academic and administrative department.

For nuclear medicine to progress, leadership is essential. An attempt at one time to force nuclear medicine to be part of radiology was strongly rejected by the Israeli Society of Nuclear Medicine. As part of radiology, nuclear medicine would have been severely undermined in Israel. As Dr. Ell (1) commented, nobody needs a big brother looking over his shoulder. One needs to develop his or her own field and be proud of it. If a physician is reading black dots on an x-ray film and calling this nuclear medicine after 3 or 6 mo in nuclear medicine during a radiology residency, this is comparable to a Russian feldscher of the past attempting to practice modern medicine. Nuclear medicine must be independent if it is to survive and prosper. We agree with Dr. Holman (2) that different people are suited to practice different specialties. Nuclear medicine physicians should explore the great potential of tracer techniques in independent departments of nuclear medicine and in cooperation with cardiologists, oncologists and neurologists who practice their own specialties. Nuclear medicine has as much in common with these specialties as with radiology. Like Dr. Wagner (3), we believe that nuclear medicine is a great, dynamic profession with a vast potential. Such a vision is in contrast to the role which Dr. Maynard assigns to our specialty (4).

## REFERENCES

1. Ell PJ. The future of nuclear medicine: a perspective from Europe. *J Nucl Med* 1993;34:169-170.
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3. Wagner HN. The new molecular medicine. *J Nucl Med* 1993;34:165-166.
4. Maynard CD. Medical imaging in the nineties: new directions for nuclear medicine. *J Nucl Med* 1993;34:157-164.

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## Cultivating Subspecialists for Nuclear Medicine

**TO THE EDITOR:** I read with great interest the editorials of Maynard, Wagner, Holman, and Ell (1-4) regarding the future of nuclear medicine. None of the authors mentioned clinicians initially trained in the subspecialties of internal medicine who have contributed to nuclear medicine. For example, Gerald Pohost, George Beller and Robert Bonow among others have made major contributions in nuclear cardiology. Likely, many future advances in nuclear medicine, particularly with positron emission tomography, will be made by physicians with backgrounds in neurology and oncology. Nuclear medicine can help meet its manpower shortage by recruiting physicians who have completed their clinical training in internal medicine subspecialties and offering them training in nuclear medicine. Wagner (2) points out the need for developing basic scientists by recruiting medical students. Although I concur with him that basic scientists need to be trained for the future, basic scientists alone will not be able to meet the increasing demands of clinical practice. By training subspecialty physicians, in addition to radiologists and basic scientists, nuclear medicine can continue to thrive and expand.

In the past, many of the pioneers of nuclear medicine began in internal medicine, and hopefully in the future, subspecialists will be encouraged to pursue nuclear medicine through rotations and