
LETTER TO THE EDITOR

CALCULATING MINIMAL DETECTABLE ACTIVITY FOR SCINTILLATION DETECTION SYSTEMS

To the Editor: In 1987, an article was published in *JNMT* in which Blue et al. (1) proposed a method of calculating the minimum detectable activity (MDA) for scintillation detection systems using a normal deviate test (z statistic). By measuring the background rate (BR), the minimum detectable count rate (MDCR), and choosing the number of standard deviations (z) by which the subject counts (S) and the background counts (B) are separated, one can calculate the required time of counting as given by:

$$t = z^2 * (2 * BR + MDCR) / (MDCR)^2.$$

(continued from page 144)

The MDCR is given by: $MDCR = S_{min}/t - BR$, where S_{min} is defined as the subject count at or above which activity is detected. It is the calculation of this term which is the subject of this letter. Based on the work of Blue et al., the equation that relates z to S_{min} is given by:

$$z^2 = (S - B)^2 / (S + B).$$

Solving for S from this equation will give two solutions, and we take the value which is greater than B by definition. However, Blue et al. overlooked the fact that the sign of the quantity under the square root (called the discriminant) affects the solution. More precisely, if B happens to be less than z^2 , then another value for S_{min} , smaller than that predicted by

Blue et al. (1), will be obtained. The following example illustrates the idea if $z = 5$, $B = 10$, then the solution in Blue et al. gives $S_{min} = 48.1174$, whereas, since ($B < z^2$) we obtain $S_{min} = 41.37$.

It is clear that in such a situation the solution given by Blue et al. will be sort of an over-restriction on the system. In other words, the reality is that one needs fewer counts to calculate the MDA in situations that are not uncommon.

Wajdi M. Ahmad

*University of Michigan Hospitals
Ann Arbor, Michigan*

REFERENCES

1. Blue P, Brown P, Manier S, Ghaed N. Calculation of minimal detectable activity for scintillation detection systems. *J Nucl Med Technol* 1987;15:5-7.

MESSAGE FROM THE PRESIDENT

The National Commission on Allied Health is mandated by Congress and will report their findings in April 1995 with no extensions. The commission reports to the Secretary of Health and Human Services, the Committee of Labor and Human Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives. The commissioners are to report on the supply and distribution of Allied Health Personnel (AHP); current and future shortages of AHP in underserved and rural areas; priority research within the allied health professions; deficiencies and need for existing databases on the supply and distribution of AHP; and effort toward changes in undergraduate and graduate allied health programs and private support for research initiatives.

The commission will have direct input into the Bureau of Health Professions. Our manpower survey is vital to this mandate. Our presentation includes distributing our strategic plan, the newly approved guidelines on job performance and responsibility, the official description of a nuclear medicine technologist, and a copy of *JNMT* to the commissioners.

Many of you may have received a letter from the ASRT or the RDMS about a letter-writing campaign from its members to Congressional leaders regarding the verbiage found in Section 1161 of HR 3600 which states: "No state may, through licensure or otherwise, restrict the practice of any class of health professionals beyond what is justified by the skills and training of such professionals." This language was introduced by the American Nursing Association (ANA) whose intent was strictly to expand the scope of practice for nurses in states

where licensure prohibits or restricts expansion. The ANA's legislative personnel contend that it was not their intent to affect allied health, however, the proposed language as written could have an adverse consequence on AHP.

The SNMTS is taking a two-pronged approach. First, we have joined the Scope of Practice Coalition to try and have this language removed from HR3600, as well as two other bills in which it appears. Second, should the language not be removed, we are working to have the report language changed. The report language is that portion of the bill which explains the intent of each section of the bill. You should also be aware that several physician organizations have also formed a similar coalition to remove the same language.

We are also a member of the Coalition of Allied Health Professionals which is also monitoring the health care reform issues. Our own Government Affairs Committee in Washington DC is also keeping close tabs on the ever-changing arena of health care reform. One of our goals this year is to monitor health care reform very closely.

By the time you read this, several more meetings will have taken place, including our JRCNMT meeting (our school accrediting body); ASAP (Associated School of Allied Health Programs); Pew Commission Workshop; and our fall Executive Meeting, among others. Our new newsletter will be a great way to keep you informed. I would like to extend a special thanks to all those members who have written me with news or questions, and all members should feel free to contact me anytime.