Biostatistics Note: Potential Use of Receiver Operating Characteristics Curve in Assessing Accuracy of Measuring Urine Thread Protein

To the Editor:

In a recent article in the *Journal*, Dr Goodman et al nicely demonstrated that measuring urine thread protein (UTP) could distinguish probable Alzheimer's disease (AD), possible AD, and mild cognitive impairment (MCI) from non-AD individuals.1 The likelihood ratio for elevated UTP was about 6 and the likelihood ratio for normal UTP was about 0.5.1 However, receiver operating characteristics (ROC) curve in assessing accuracy of measuring urine thread protein was not reported.1 The ROC curve is the combination of specificity and sensitivity of a test.2 Reporting the ROC curve could have several potential advantages:2 First, it could help the readers understand why the optimal cutoff point of UTP was chosen. Second, it could help the readers assess the accuracy of measuring UTP. For example, if the area under the ROC curve of UTP is 90%, the UTP test will be excellent. If the area under the ROC curve of UTP is 70%, the UTP test might not be good. Third, it could help compare the accuracy of UTP with other tests such as a PET scan of the brain. Last, it could help compare the accuracy of UTP in distinguishing probable AD, possible AD, or MCI from non-AD individuals. Nevertheless, the study done by Dr Goodman et al1 is very promising.

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REFERENCES

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Response to the Letter to the Editor by Cheng, “Biostatistics note: Potential use of receiver operating characteristics curve in assessing accuracy of measuring urine thread protein”

To the Editor:

Dr. Cheng makes an excellent point about the value of receiver operating characteristics (ROC) curves in assessing a diagnostic test or procedure. The ROC curve for urine neural thread protein (UNTP) for the clinical diagnosis of probable AD according to NINCDS-ADRDA criteria versus definite non-AD is shown in Fig. 1. The area under the curve (AUC) is 95.3%. Possible AD and mild cognitive impairment (MCI) both include by definition non-AD cases making ROC curve analysis less applicable in those categories, where likelihood ratios and predictive values are more useful as detailed in the paper.

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Re: To Evacuate or Not to Evacuate: Lessons Learned from Louisiana Nursing Home Administrators Following Hurricanes Katrina and Rita

To the Editor:

My congratulations to the authors of the above article printed in the March 2007 issue of the *Journal of the American Medical Directors Association*. Articles like this are extremely helpful in focusing on the issue of disaster preparedness in the long-term care (LTC) setting as it is evident that more and
diverse disasters are in our near and distant future, and who knows when they will occur.2

Being in the direct path of Hurricane Katrina both professionally and personally, I can certainly appreciate the lessons learned. This is also since I “inherited” the medical directorship of 4 nursing homes affiliated with Louisiana State University Health Science Center (LSUHSC) shortly after Katrina. However, the issue of whether to evacuate or not to evacuate may have been an issue more relevant to administrators in areas other than the New Orleans metropolitan area and in those areas other than those directly impacted by Rita in the southwest region of the state near the coast (regions 7, 3, and 1 farthest north). At the time, the issue of mandatory evacuation seemed to be a must in St Bernard, Orleans, and Jefferson Parishes (Region 1) where Katrina left a path of flooding and destruction. There is no mention of the effect of nursing homes along the Gulf Coast in Mississippi, which were as affected as those mentioned previously and were even more devastated by wind and tidal surge.

I certainly agree with the conclusions reached in the article even though the number of respondents was low. That may to some extent be a result of the continued chaos in the affected areas even as late as July 2006 when the focus groups were conducted. To compliment these findings, I would also like to point out the work performed by the Louisiana Healthcare Review Organization (LHCR) for the State of Louisiana (Medicare LTC Advisory Committee). Within weeks after Katrina/Rita, a task force composed of members of this organization was formed, which coordinated a series of teleconference calls that included nursing home directors of nursing and staff who either coordinated a series of teleconference calls that included nursing home directors of nursing and staff who either evacuated their residents or represented facilities who served as evacuation shelters. Debbie Serio, RN, of the LHCR should be credited in particular for leading this task force and championing its success. Recommendations of this task force were subsequently presented to the Special Senate Committee on Aging in July 2006 and subsequently published in the *Annals of Long-Term Care* in 2006.3 The recommendations are listed according to category and include those relative to advance planning, evacuating, resident identification, supplies/equipment, transportation/buses, incontinence, communications, security, power, vital identification and records, supplies, and serving as an evacuation shelter. The conclusion that staff retention was an issue after Katrina/Rita is very significant, as many nursing home employees who wished to return to work could not find housing. That situation has been since remedied to some extent by time and the brilliant work of Barbara Frank and the Quality Partners of Rhode Island—the State QIO and the QIO National Support Center for Long Term Care. My commendations to them as well.

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Response letter to Cefalu: Re: Letter to the Editor for “To Evacuate or Not to Evacuate: Lessons Learned from Louisiana Nursing Home Administrators Following Hurricanes Katrina and Rita”

To the Editor:

We concur with Cefalu on several of the points raised in his letter to the editor related to our manuscript.1 Because of funding limitations, it was not possible to broaden our assessment to include nursing homes along the hard-hit Mississippi and Alabama coastlines. Despite the limitations in the sample size, however, the findings from our analysis are very similar to those presented in the Office of the Inspector General (OIG) report on nursing home disaster preparedness and the Tumosa article.2,3 Of note, the OIG report also included a sample size of 20 nursing homes and included homes in Florida and other Gulf states.

In terms of the issue of mandatory evacuation, clearly certain homes that are directly in the path of an approaching hurricane such as Katrina should likely evacuate. Nevertheless, it is unclear at this point whether an “all or nothing” evacuation is best or whether nursing home patients are better served with a staggered evacuation that starts days prior to a potential storm. Such a staggered evacuation might allow those who are most frail (eg, dialysis patients, orthopedic fracture patients) to be evacuated with care early, allowing for later decisions by administrators regarding those patients who are more robust. As the qualitative data collected in our analysis suggest, the issue of evacuation is not one without consequences. Indeed, it is highly likely that evacuation of frail nursing home patients is associated with increased morbidity compared with sheltering in place. Clearly, more research is required to understand what types of patients are most affected by evacuation or sheltering in place. It is our belief that evacuation protocols should also include a staggered approach.

Finally, as Cefalu notes in his letter, we also feel it is important to acknowledge the work of others in the affected areas and beyond who have dedicated a large amount of time and effort to raising the federal, state, and local awareness for the problems encountered by nursing homes and their patients during the recent hurricanes.