In summary, no single test or strategy allows the detection of all pulmonary emboli. The discomfort expressed by the commentators should probably be attributed to the difficulties inherent in the diagnosis of pulmonary embolism rather than to our diagnostic scheme.

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THE EDITORIALIST REPLIES: Dr. Turpie overlooks some key points. The diagnostic algorithm presented by Perrier et al. is simple, not complex. Clinical likelihood assessment (which can be done by "gestalt") and D-dimer enzyme-linked immunosorbent assays can quickly rule out pulmonary embolism in many patients who otherwise would needlessly undergo imaging. This approach is reliable and cost-effective.

The 1-in-50 risk of pulmonary embolism after three months of follow-up with chest CT scanning as the principal imaging test matches the follow-up results obtained with the invasive alternative: classic pulmonary angiography, which increases discomfort, risk, and cost.[1]

With respect to multislice chest CT,[2] this approach has led to four changes in diagnostic approach: venous ultrasonography of the legs is no longer necessary when multislice chest CT scanning rules out pulmonary embolism; the size and accessibility during surgery or catheterization of the pulmonary embolism can be immediately ascertained; detection of right ventricular enlargement identifies high-risk patients with ominous prognoses[3]; and if pulmonary embolism is ruled out, chest CT may detect alternative diagnoses that explain the presenting symptoms and signs.

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1. Quiroz R, Kucher N, Zou KH, et al. Clinical validity of a negative computed tomography scan in patients with suspected pulmonary embolism: a systematic review. JAMA 2005;293:2012-7.
2. Schoepf UJ, Goldhaber SZ, Costello P. Spiral computed tomography for acute pulmonary embolism. Circulation 2004;109:2160-7.
3. Schoepf UJ, Kucher N, Kipfmueller F, Quiroz R, Costello P, Goldhaber SZ. Right ventricular enlargement on chest computed tomography: a predictor of early death in acute pulmonary embolism. Circulation 2004;110:3276-80.

Detection of Acute HIV Infections

TO THE EDITOR: The recent article by Pilcher et al. (May 5 issue)[1] described successful public health methods to control HIV transmission, but the authors' findings may not be generalizable to states that do not have confidential HIV-reporting systems, such as California. In the fall of 2003, we initiated a program of RNA screening, routine patient interviewing, and HIV genotypic-resistance testing at the San Francisco municipal sexually transmitted disease (STD) clinic.

During 2004, we identified 136 of 3789 persons (3.6 percent) as having an HIV infection, among them 11 (0.3 percent) who had an acute infection. HIV RNA screening increased the rate of HIV case detection to 8.8 percent, more than double the overall rate of 3.9 percent reported by Pilcher et al. Eight percent of the viruses detected exhibited drug resistance to one drug class, 4 percent to two drug classes, and none to more than two drug classes. Interviews with patients elicited information about 112 sex partners, 10 of whom were newly identified as having an HIV infection.

The combined data support the real benefit that routine HIV RNA screening, HIV resistance surveillance, and patient interviews can have in the control of HIV. Further efforts should be made to strengthen and expand HIV-control efforts in STD clinics as well as to ensure confidential HIV reporting nationwide.

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1. Pilcher CD, Fiscus SA, Nguyen TQ, et al. Detection of acute infections during HIV testing in North Carolina. N Engl J Med 2005; 352:1873-83.

TO THE EDITOR: Pilcher and colleagues added nucleic acid amplification to diagnose HIV infection in a cohort of 109,250 persons. They concluded that "this form of testing should be a standard tool for the prevention and surveillance of HIV infection." However, HIV experts[1,2] and the maker[3] of the RNA test used by the authors assert that it "is not to be used as a screening test for blood or blood products for HIV or as a diagnostic test to confirm the presence of HIV infection." The Centers for Disease Control and Prevention (CDC)[4] asserts that "in adults, adolescents, and children infected by other than perinatal exposure, plasma viral RNA nucleic acid tests should not be used in lieu of licensed HIV screening tests."

The confirmatory Western blot test used by the authors was considered positive according to the revised CDC criteria. However, the criteria for a positive Western blot remain unstandarized. Band patterns considered proof of HIV infection vary among laboratories, institutions, and countries (Table 1).[5] For example, results that are positive according to the revised CDC criteria are not considered positive by the Food and Drug Administration or by the National Serology Reference Laboratory in Australia. Thus, a situation may arise wherein a person considered seropositive and infected according to one set of criteria may be serologically indeterminate and not infected according to another, and vice versa.

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1. Rich JD, Merriman NA, Mylonakis E, et al. Misdiagnosis of HIV infection by HIV-1 plasma viral load testing: a case series. Ann Intern Med 1999;130:37-9.
2. de Mendoza C, Holguin A, Soriano V. False positives for HIV using commercial viral load quantification assays. AIDS 1998;12: 2076-7.
3. Amplicor 1.5 HIV-1 Monitor Test. Branchburg, N.J.: Roche Diagnostic Systems, 1999 (package insert).
4. Guidelines for national human immunodeficiency virus case surveillance, including monitoring for human immunodeficiency virus infection and acquired immunodeficiency syndrome. MMWR Recomm Rep 1999;48(RR-13):1-27, 29-31.
5. HIV BLOT 2.2 Western Blot Assay. Singapore: Genelabs Diagnostics, 2004 (package insert).

THE AUTHORS REPLY: Dr. Turner notes correctly that HIV nucleic acid amplification tests are not marketed for clinical diagnostic use. Generally, this is understandable: the specificity of nucleic acid amplification tests can be as low as 97 percent — inadequate for HIV screening, except in clinical circumstances in which the pretest probability of infection is extremely high (for instance, in the evaluation of suspected acute retroviral syndromes). However, group-testing algorithms in our study drastically cut the number of individual samples tested by nu-

Table 1. Global Variation in the Criteria for a Positive Western Blot.*

Organization	Criteria
CDC and ASTPHLD	Two bands of GP41 or GP120/GP160 or p24
FDA (United States)	p24 and p31 and either GP41 or GP120/GP160
SFTS (France)	
Unequivocally positive	Two ENV bands (GP160 and GP120) with GAG or POL
Probably positive	ENV (GP160) and GAG (p24)
Probably positive	Two ENV bands only (GP160 and GP120)
World Health Organization	Two ENV bands, with or without GAG or POL
CRSS and Pan American Health Organization	One p24 or p31 band and one ENV band
American Red Cross	One GAG band, one POL band, and one ENV band
Paul Ehrlich Institut (Germany)	Two bands; one must be ENV
China	Two ENV bands or one ENV band and p24
Singapore	Two ENV bands (GP160/GP41 and GP120) and any GAG or POL band
Australia	One ENV band and any three GAG or POL bands

* CDC denotes Centers for Disease Control and Prevention, ASTPHLD Association of State and Territorial Public Health Laboratory Directors, GP glycoprotein, FDA Food and Drug Administration, SFTS Sanguine Nationale Transfusion Sociétés, and CRSS Consortium for Retrovirus Serology Standardization. Data are from Genelabs.[5]

cleic acid amplification, resulting in excellent specificity (>99.99 percent) for the combined antibody and nucleic acid amplification approach. The positive predictive value for positive results on nucleic acid amplification testing among antibody-negative clients was remarkably high (90 percent), considering the low prevalence of the disease. It is interesting to note that nucleic acid amplification tests are both licensed and marketed for diagnostic testing of blood donors, for which the group-testing strategy is preferred. Still, even when pooled, nucleic acid amplification tests must be considered screening tests that, if positive, warrant additional testing to confirm or rule out seroconversion. With regard to our study's criteria for HIV-antibody positivity on confirmatory testing, varying Western blot criteria made no difference in the results. Moreover, the various Western blot criteria have very little or no effect on the sensitivity of antibody screening (the problem with current antibody testing that the addition of nucleic acid amplification testing aims to improve).

Dr. Klausner and colleagues point to the fact that the public health infrastructure in North Carolina favored the state's success in implementing testing procedures for acute HIV infection. In addition to confidential testing, the state also has invested in the systems necessary for partner counseling and referral, with staffing by specialists experienced in HIV and STD intervention, and continues to favor the use of venipuncture (as opposed to oral-fluid or finger-prick–blood collection) at most HIV-testing sites. Particularly in areas with a high burden of HIV disease, such as California, the potential benefit of programs designed for the prevention of acute HIV infection may merit reconsideration of these issues.

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Traumatic Brain Injury in the War Zone

TO THE EDITOR: In Okie's Perspective article (May 19 issue)[1] on traumatic brain injury (TBI) from the war in Iraq, she alludes to mood disorders that result from such injuries. Patients with TBI have been described as the "walking wounded"[2] owing to their lingering neuropsychological problems. Lishman studied 670 cases of head injuries from the Second World War and reported that "simple measures of the amount of brain damage . . . were indeed related to the amount of psychiatric disability encountered one to five years later."[3] As many as 77 percent of patients with TBI have been given a diagnosis of depression.[4] Mood disorders may result in the restriction of social contact as well as increased loneliness and are major barriers to functional and social rehabilitation.[5]

Technological improvements and better emergency medical care have reduced the incidence of severe TBI while increasing the numbers of patients with mild or moderate TBI. Such patients are more adversely affected by their emotional problems than by their residual physical disabilities.[6] It is important to screen these patients for depression and to conduct neuropsychological testing soon after head injury in order to facilitate treatment and reentry into the community, as well as to optimize the long-term outcome.

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1. Okie S. Traumatic brain injury in the war zone. N Engl J Med 2005;352:2043-7.
2. Rao V, Lyketsos C. Neuropsychiatric sequelae of traumatic brain injury. Psychosomatics 2000;41:95-103.
3. Lishman WA. The psychiatric sequelae of head injury: a review. Psychol Med 1973;3:304-18.
4. Kreutzer JS, Seel RT, Gourley E. The prevalence and symptom rates of depression after traumatic brain injury: a comprehensive examination. Brain Inj 2001;15:563-76.
5. Morton MV, Wehman P. Psychosocial and emotional sequelae of individuals with traumatic brain injury: a literature review and recommendations. Brain Inj 1995;9:81-92.
6. Satz P, Fourney DL, Zaucha K, et al. Depression, cognition, and functional correlates of recovery outcome after traumatic brain injury. Brain Inj 1998;12:537-53.

TO THE EDITOR: Although Okie's article described well many of the issues involved in the current war in Iraq, we would like to clarify our comments, reported in the article, regarding the classification of mild TBI. We noted that the boundary between mild and moderate TBI is one hour of loss of consciousness and that the cutoff between moderate and se-