Effect of an Intensive Educational Program for Minority College Students and Recent Graduates on the Probability of Acceptance to Medical School

Joel C. Cantor, ScD; Lois Bergeisen, MA; Laurence C. Baker, PhD

Context.—Increasing the number of minority physicians is a long-standing goal of professional associations and government.

Objective.—To determine the effectiveness of an intensive summer educational program for minority college students and recent graduates on the probability of acceptance to medical school.

Design.—Nonconcurrent prospective cohort study based on data from medical school applications, Medical College Admission Tests, and the Association of American Medical Colleges Student and Applicant Information Management System.

Setting.—Eight US medical schools or consortia of medical schools.

Participants.—Underrepresented minority (black, Mexican American, mainland Puerto Rican, and American Indian) applicants to US allopathic medical schools in 1997 (N = 3830), 1996 (N = 4654), and 1992 (N = 3447).

Intervention.—The Minority Medical Education Program (MMEP), a 6-week, residential summer educational program focused on training in the sciences and improvement of writing, verbal reasoning, studying, test taking, and presentation skills.

Main Outcome Measure.—Probability of acceptance to at least 1 medical school.

Results.—In the 1997 medical school application cohort, 223 (49.3%) of 452 MMEP participants were accepted compared with 1406 (41.6%) of 3378 minority nonparticipants (P = .002). Positive and significant program effects were also found in the 1996 (P = .01) and 1992 (P = .005) cohorts and in multivariate analysis after adjusting for nonprogrammatic factors likely to influence acceptance (P < .001). Program effects were also observed in students who participated in the MMEP early in college as well as those who participated later and among those with relatively high as well as low grades and test scores.

Conclusions.—The MMEP enhanced the probability of medical school acceptance among its participants. Intensive summer education is a strategy that may help improve diversity in the physician workforce.
All are 6-week residential programs, and all share a set of core program elements. The core elements include training in studying, test taking, interviewing, and presentational skills. All sites also conduct classroom training in the sciences, writing, and verbal reasoning, and all provide clinical experiences.

The MMEP accepts participants from the AAMC-defined underrepresented minority groups and is limited to US citizens and permanent residents. Participants are required to have completed at least 1 year of college by the start of the program. The focus of MMEP is on enrichment not remediation. Accordingly, program acceptance criteria include a minimum overall grade-point average (GPA) of 3.0 (on a 4.0 scale), including a minimum 2.75 in the sciences, and an Scholastic Aptitude Test (SAT) score of at least 550 or an American College Test score of at least 20. The MMEP uses a rigorous admission application process designed to parallel that which is used by the American Medical College Application Service (AMCAS). Applicants must submit college admission test scores, transcripts, a personal statement, and letters of recommendation.

METHODS

Data Sources

Data are drawn from 3 medical school application cohorts (1992, 1996, and 1997) from sources maintained in the AAMC Student and Applicant Information Management System. Freshman and cumulative GPAs in science courses (biology, physics, chemistry, and mathematics) and all other subjects, Medical College Admission Test (MCAT) scores, race/ethnicity, and medical school acceptance data were drawn from medical school application data of the AMCAS or the University of Texas System Medical and Dental Application Center. Data on the highest level of educational attainment of either of the applicant’s parents are from the AAMC Prematriculation Questionnaire, which is administered with the MCAT. Medical school applicants who participated in the MMEP between 1987 and 1996 were identified by matching MMEP program records to AMCAS data.

Analytic Approach

We begin by describing MMEP participants by program year. Then we focus on the central objective of the MMEP, enhancing the chances of acceptance to medical school among participants. Annual medical school acceptance rates of MMEP participants are compared with acceptance rates of other underrepresented minority applicants (nonparticipants). After providing descriptive comparisons of participants to nonparticipants, we use a χ² test to measure whether the medical school acceptance rate of MMEP participants differs from that of nonparticipants. However, estimating the true contribution of the MMEP to the acceptance probability requires adjustment for nonprogrammatic factors that could influence acceptance. Thus, we use logistic regression to calculate odds ratios (ORs) of medical school acceptance for participants compared with nonparticipants. In addition to estimating an unadjusted OR, we estimate models that adjust for measures of academic achievement, demographics, and other factors.

Adjusting for Academic Achievement

Two regression specifications are used to adjust for academic factors. First, we estimate a baseline adjustment model. This model controls for the freshman GPAs in science courses and all other subjects, and the competitiveness of the undergraduate institution (measured by the mean SAT score of each applicant’s undergraduate institution). Second, we estimate a full adjustment model in which we replace the freshman GPA variables with the applicants’ cumulative GPA for science and all other subjects, and we add each applicant’s total MCAT score. The baseline adjustment model controls only for academic factors that were observable prior to MMEP participation. The full adjustment model includes control variables that may have been influenced by MMEP participation (ie, college major, cumulative grades, and MCAT scores) but potentially provides a stronger self-selection adjustment.

Adjusting for Other Factors

Both the baseline and full adjustment models also control for nonacademic factors that we expected to be associated with acceptance to medical school. First, we control for the number of years elapsed between college graduation and medical school application. This variable is highly correlated with (r = 0.75; P < .001) and effectively controls for applicant age. Second, we control for whether an individual is applying to medical school for the first time or had applied in prior years. Third, we control for whether the applicant decided to pursue a medical career prior to high school graduation as a proxy measure of the degree of applicant motivation to pursue a medical career. Fourth, we control for the highest level of education of either of the applicant’s parents as a measure of socioeconomic status (SES). Because a large proportion of data on parental income is missing from the AAMC Student and Applicant Information Management System and because of concerns about student ability to accurately report their parents’ income, parental education is the only SES included in the models. Although parental education data are more complete than income data, just over one third of applicants is missing parental education data. To avoid biasing our results, we include a dummy variable indicating missing data in the regression models. Finally, the models include variables that classify applicants by their race and sex.

Analysis Populations

The analyses described above are conducted on the 1997 medical school application cohort. In that year, there were 4604 underrepresented minority medical school applicants, 526 of whom had previously participated in the MMEP. Data for one or more of the independent variables in the regression models were lacking for 774 cases, leaving a final analysis sample of 3830 cases (85.6%). The probability of being excluded from the analysis due to missing data is not significantly different between the MMEP and comparison groups (P = .08).

In addition to estimating the models on the full 1997 cohort, we examine several subgroups and additional populations. First, we estimate program impact in the 1997 cohort separately for those who participated in MMEP after their freshman or sophomore year (lower division) and those who participated after their junior year or later (upper division). In the unadjusted and fully adjusted models, we test whether the estimated program effects for lower- and upper-division participants are significant. In addition, using the fully adjusted model, we test whether the program effects in the upper- and lower-division participants are equal.

Second, we estimate unadjusted and fully adjusted ORs in 1996 and 1992 application cohorts to compare the program effect in each of these years with that measured in the 1997 cohort. We make the 1996 to 1997 comparison because the medical school application environment for minority candidates is changing rapidly. By 1997, affirmative action had come under intensive scrutiny, and the number of minority medical applicants had declined. The models estimated for the 1992 application cohort provide a window on the effect of MMEP in its early years. Using coefficients from variables that interact application year with MMEP participation, we test whether program effects are equal between 1992 and 1997 and between 1996 and 1997 in the fully adjusted model.

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Third, we examine the impact of MMEP in 3 groups stratified by their level of academic achievement. The MMEP may be more or less effective in different subgroups, and knowing the program impact relative to academically similar peer groups may be helpful in shaping future program recruitment strategies. The first of the 3 groups has both relatively low cumulative science GPAs (<3.0) and low MCAT scores (an average score <7). The second group has discordant science grades and MCAT scores; either the GPA or MCAT is below the threshold, but not both. The third group has science grades and MCAT scores both above these levels. Data from the 1996 and 1997 application years are pooled to reach an adequate sample size for this analysis. A variable indicating application cohort is added to the regression models used to estimate both the unadjusted and adjusted ORs. The total available sample size for these models was 3147 (low grades and scores), 3211 (discordant grades and scores), and 2027 (high grades and scores). We test for equality of program effects between the high and low and between the discordant and low academic groups by estimating coefficients for the interaction of MMEP participation with academic group.

RESULTS

Table 1 shows the number of participants and medical school application and acceptance rates for each program year. Between the summers of 1989 and 1997, the MMEP has served 6479 participants. Of these, 2742 have applied to medical school, 1728 were accepted, 1640 matriculated, and 509 have graduated. Medical school application rates were between about 50% and 60% through 1994 and are lower thereafter. The lower recent application rates reflect the fact that many of the more recent participants have not yet reached the point at which medical school application is normally made. Among MMEP participants who subsequently applied to a US allopathic medical school between 1990 and 1997, 63.0% have been accepted. The cumulative acceptance rates are 59% or higher for each MMEP class through 1994. After 1994, the rates were lower, although resubmitted applications to medical school by previously unsuccessful applicants in these MMEP classes can be expected to lead to higher cumulative acceptance rates in the future.

The remaining analyses focus on medical school application cohorts. In the 1997 cohort, those who participated in MMEP differed from other underrepresented minority applicants in several important respects. Table 2 shows that there are statistically significant differences between participants and nonparticipants in levels of academic achievement, but the direction of selection bias is not uniform. The GPAs of participants were about 0.1 points higher on a 4.0 scale (0.20 SD) and the mean SAT scores of their colleges were lower by 54 of 1600 points (0.31 SD). The MMEP participants were about 10 percentage points more likely to have set their sights on medical school by previously unsuccess-

Table 1.—Number of Minority Medical Education Program Participants and Percentage Applying to and Accepted by a US Allopathic Medical School, 1989-1997*†

<table>
<thead>
<tr>
<th>Year of MMEP Participation</th>
<th>Participants, No.</th>
<th>Participants Who Applied to Medical School, ‡ %</th>
<th>Applicants Accepted by a Medical School, † %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>665</td>
<td>47.1</td>
<td>71.6</td>
</tr>
<tr>
<td>1990</td>
<td>785</td>
<td>51.8</td>
<td>63.1</td>
</tr>
<tr>
<td>1991</td>
<td>713</td>
<td>59.9</td>
<td>66.0</td>
</tr>
<tr>
<td>1992</td>
<td>773</td>
<td>61.1</td>
<td>59.4</td>
</tr>
<tr>
<td>1993</td>
<td>720</td>
<td>55.8</td>
<td>63.7</td>
</tr>
<tr>
<td>1994</td>
<td>767</td>
<td>50.8</td>
<td>62.3</td>
</tr>
<tr>
<td>1995‡</td>
<td>473</td>
<td>41.0</td>
<td>55.2</td>
</tr>
<tr>
<td>1996</td>
<td>741</td>
<td>18.8</td>
<td>57.6</td>
</tr>
<tr>
<td>1997</td>
<td>842</td>
<td>. . .</td>
<td>. . .</td>
</tr>
<tr>
<td>Total</td>
<td>6479</td>
<td>48.7</td>
<td>63.9</td>
</tr>
</tbody>
</table>

*Data are from the Minority Medical Education Program (MMEP), Association of American Medical Colleges. Ellipses indicate data not applicable. †In 1995, the MMEP was administered in only 4 sites. 

Table 2.—Characteristics of Minority Medical Education Program Participants and Other Underrepresented Minority Medical School Applicants, 1997**

<table>
<thead>
<tr>
<th>Variables</th>
<th>MMEP (N = 452)</th>
<th>Other URM (N = 3376)</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade point average on a 4.0 scale, mean</td>
<td>2.93</td>
<td>2.81</td>
<td>.001</td>
</tr>
<tr>
<td>Freshman science‡</td>
<td>3.31</td>
<td>3.18</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Cumulative science‡</td>
<td>2.93</td>
<td>2.87</td>
<td>.01</td>
</tr>
<tr>
<td>Cumulative other</td>
<td>3.40</td>
<td>3.28</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>College average SAT score, mean</td>
<td>915</td>
<td>969</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total MCAT score, mean</td>
<td>20.1</td>
<td>20.5</td>
<td>.11</td>
</tr>
<tr>
<td>Science major, %</td>
<td>67.3</td>
<td>65.7</td>
<td>.52</td>
</tr>
<tr>
<td>Years lapsed between college graduation and application to medical school, ‡</td>
<td>68.1</td>
<td>60.6</td>
<td>.001</td>
</tr>
<tr>
<td>1</td>
<td>13.1</td>
<td>12.8</td>
<td>. . .</td>
</tr>
<tr>
<td>2</td>
<td>11.3</td>
<td>12.3</td>
<td>. . .</td>
</tr>
<tr>
<td>3-4</td>
<td>7.5</td>
<td>14.2</td>
<td>. . .</td>
</tr>
<tr>
<td>First-time applicant, %</td>
<td>67.0</td>
<td>68.9</td>
<td>.41</td>
</tr>
<tr>
<td>Decided on medicine by high school, %</td>
<td>66.8</td>
<td>56.4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Parental education, %</td>
<td>17.3</td>
<td>17.1</td>
<td>.84‡</td>
</tr>
<tr>
<td>≥High school</td>
<td>5.8</td>
<td>6.7</td>
<td>.73§</td>
</tr>
<tr>
<td>College degree</td>
<td>8.6</td>
<td>9.9</td>
<td>. . .</td>
</tr>
<tr>
<td>Some graduate work</td>
<td>4.4</td>
<td>3.7</td>
<td>. . .</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>27.7</td>
<td>26.4</td>
<td>. . .</td>
</tr>
<tr>
<td>Data missing</td>
<td>36.3</td>
<td>36.1</td>
<td>. . .</td>
</tr>
<tr>
<td>Racial/sex, %</td>
<td>24.1</td>
<td>26.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Black, non-Hispanic male</td>
<td>55.1</td>
<td>43.9</td>
<td>. . .</td>
</tr>
<tr>
<td>Other male</td>
<td>8.2</td>
<td>16.8</td>
<td>. . .</td>
</tr>
<tr>
<td>Other female</td>
<td>12.6</td>
<td>12.8</td>
<td>. . .</td>
</tr>
</tbody>
</table>

*Data are from the Association of American Medical Colleges Student Applicant Information Management System, 1997. Data are based on the sample with complete data for all regression models in subsequent tables. MMEP indicates Minority Medical Education Program; URM, underrepresented minorities; SAT, Scholastic Aptitude Test; and MCAT, Medical College Admission Test. Ellipses indicate data not applicable. †Based on a test of differences in means or a test of difference in proportions. §Includes biology, physics, chemistry, and mathematics courses. ¶Includes “no data” category. **Data are from the Minority Medical Education Program (MMEP), Association of American Medical Colleges. Ellipses indicate data not applicable.
cal for the 2 groups, including whether education data were missing. Finally, compared with nonparticipants, black women were more likely to have participated in MMEP, while nonblack men were less likely to have participated.

The medical school acceptance rate among 452 MMEP participants (49.3%) was higher than among 3378 minority nonparticipants (41.6%) in 1997 ($P = .002$). The ORs for acceptance among MMEP participants compared with nonparticipants in the 1997 application cohort are 1.57 in the unadjusted regression ($P = .002$), 1.60 in the baseline adjusted model ($P < .001$), and 1.69 in the fully adjusted model ($P = .01$) (Table 3). These results provide evidence that the MMEP increases the chances of acceptance among its participants. (Although ORs provide a useful analysis tool, some care should be used in interpreting their magnitude. Because medical school acceptance is relatively common, these ORs are larger than the corresponding relative risks.)

The ORs of most other variables in the adjusted models are consistent with expectations. Notably, OR estimates for GPAs, average SAT scores, and MCAT scores are all greater than 1 and significant in both multivariate models. Contrary to our expectation, being a first-time applicant does not significantly increase the probability of acceptance. Parental education has the expected effect in the baseline model, but the effect reverses in the fully adjusted model. The estimates on this variable may be unstable because of a high degree of association between parental education and academic performance.

Table 4 shows the interaction of the MMEP program effect with the timing of participation. We find positive and significant program effects for both lower- and upper-division participants. The ORs for lower-division participants are larger than those for upper-division participants, although this difference is not statistically significant ($P = .20$ in the fully adjusted model). Beyond the program-effect terms, coefficients in these models are virtually identical to those shown in Table 3 and are not repeated here.

The MMEP effects in the 1992 and 1996 application cohorts were similar to those found in 1997. In 1992, 207 (56.6%) of the 366 MMEP participants were accepted to medical school, compared with 1505 (48.8%) of 3081 nonparticipants ($P = .005$); and in 1996, 243 (45.6%) of 533 participants were accepted, compared with 1638 (39.7%) of 4121 nonparticipants ($P = .01$). These acceptance rates are expressed as ORs in the top part of Table 3. The unadjusted ORs are about the same for all 3 years, and there is little difference between adjusted ORs in the 1996 and 1997 cohorts ($P = .22$). Although the adjusted OR in 1997 is about 40% higher than the OR in 1992, this difference is also not significant ($P = .45$).

The bottom part of Table 5 shows the MMEP impact in 3 groups defined by level of academic achievement. The MMEP participants have a significantly higher probability of medical school acceptance within each group. The MMEP participation generates a higher OR in the group with both high GPAs and MCAT scores compared with the other academic groups. In the fully adjusted model, the program effect in the high-academic group is significantly higher than the program effect in the low group ($P = .02$), but the discordant does not differ significantly from the low group ($P = .15$).

**COMMENT**

The MMEP appears to enhance the probability that its participants will be accepted to medical school. In the 1997 medical school application cohort, the odds of acceptance were significantly higher for MMEP participants compared with nonparticipants, after controlling for college grades, MCAT scores, and other factors likely to influence acceptance.

The effect of intensive preparation programs like MMEP may be even greater than our analysis suggests. First, it is likely that many of the medical school applicants in our comparison group participated in activities similar to those provided by MMEP. In 1991, nearly half of all medical schools sponsored undergraduate preprofessional enrichment programs. If, like MMEP, these programs contribute to the probability of medical school acceptance then we have underestimated the effect of efforts of this type. Second, the MMEP provides activities to improve academic performance, including practice MCAT examinations and class work in the science and math.
Table 5.—Odds Ratios of Medical School Acceptance of Minority Medical Education Program Participants Compared With Other Underrepresented Minority Applicantsa

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Medical School Application Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>3447</td>
<td>1.36 (1.10-1.70)</td>
<td>1.37 (1.05-1.80)</td>
</tr>
<tr>
<td>1996</td>
<td>4654</td>
<td>1.27 (1.06-1.52)</td>
<td>1.93 (1.51-2.47)</td>
</tr>
<tr>
<td>1997 (from Table 3)</td>
<td>3830</td>
<td>1.37 (1.12-1.68)</td>
<td>1.69 (1.30-2.19)</td>
</tr>
<tr>
<td>Low GPA and MCAT score</td>
<td>3147</td>
<td>1.52 (1.13-2.06)</td>
<td>1.53 (1.08-2.18)</td>
</tr>
<tr>
<td>Discordant GPA and MCAT score</td>
<td>3211</td>
<td>1.42 (1.14-1.76)</td>
<td>1.90 (1.47-2.45)</td>
</tr>
<tr>
<td>High GPA and MCAT score</td>
<td>2027</td>
<td>2.27 (1.40-3.70)</td>
<td>2.09 (1.24-3.45)</td>
</tr>
</tbody>
</table>

aData are from the Association of American Medical Colleges Student and Applicant Information Management System, 1992, 1996, and 1997. MMEP indicates Minority Medical Education Program; GPA, grade point average; and MCAT, Medical College Admission Test. Separate logistic regression models are estimated for each year, using the specifications shown in Table 3. Two years of application data are pooled (1996-1997), and separate models are estimated for each GPA/MCAT group. Models use the specifications shown in Table 3, except that a variable is added indicating the application year.

ences. Therefore, adjusting for cumulative science grades and MCAT scores may control away part of the program effect. Nevertheless, even after controlling for these academic performance measures we find our highest point estimate of the program impact.

We found a consistently positive and statistically significant effect of MMEP in each of several subgroups of participants that we examined. Estimates of the program effects of participant subgroups provide some insights into how the MMEP achieves its impact. First, the MMEP effect was as great for those who participate after their freshman or sophomore years as it was for upper-division participants. This finding is consistent with the view that the MMEP is not simply a “crash course” for the MCAT or other aspects of preparation for application and that it has a sustained effect. The MMEP may shape the way its participants prepare for medical school application well after the summer experience.

Second, MMEP had a positive and significant impact on groups of participants with a broad range of academic preparation, but the degree of impact varied. The MMEP had a significantly larger impact among applicants with relatively high cumulative science grades and MCAT scores compared with those with lower grades and scores. This evidence supports the view that MMEP is not remedial, but that it augments skills even in the group with relatively strong academics.

Finally, estimates of program impact in the 1992 and 1996 application cohorts are statistically equivalent to the 1997 estimate. These additional observations show that the MMEP effect is robust in the face of changes in the medical school application pool and the changing affirmative action environment, at least through 1997.

Several important evaluation questions were beyond the scope of our analysis. First, additional studies of participant subgroups or selected programmatic components of the MMEP (or similar programs) would assess more fully the mechanisms by which the program achieves its effects. Second, description of the group of MMEP participants who never apply to medical school could help program managers refine their recruitment strategies. Finally, long-term follow-up comparing MMEP participants who are accepted to medical school with nonparticipants would measure the degree to which MMEP may lead to different outcomes (eg, attrition rates, specialty choice, and levels of service to underserved populations).

Our analyses draw on a rich source of existing data derived from the medical school application process, but these data have some limitations. Data available to adjust for the SES of the study population are limited. In addition, other than controlling for the timing of the decision to seek a career in medicine, we could not adjust for the degree of applicant motivation to become a physician. Thus, although we were able to adjust for many factors related to MMEP participant self-selection and the underlying probability of acceptance, we cannot rule out the possibility that failing to include better measures may have biased our results. But because we control for some aspects of SES, and applicant motivation and controls for academic factors are strong, we believe that the likelihood of substantial bias is small.

In conclusion, this study provides strong evidence that intensive premedical preparation programs have their desired effect—boosting the chances of medical school acceptance among minority applicants. In the near term, the MMEP and similar programs cannot bring the minority physician population into parity, but continuing or expanding summer programs can be an important part of a broader strategy to diversify the physician workforce.

This study was supported by a grant from the Robert Wood Johnson Foundation, Princeton, NJ. The authors wish to thank Kevin Harris for his assistance in assembling the data for this study and Derek DeLia, PhD, for statistical advice.

The following medical schools or consortia of schools where the MMEP is conducted include: the University of Alabama School of Medicine, Birmingham; Baylor College of Medicine, Waco, Tex; Rice University, Houston, Tex; Case Western Reserve University School of Medicine, Cleveland, Ohio; the Chicago Summer Science Enrichment Program (a consortium of Northwestern University, Loyola University, the University of Chicago Pritzker Medical School, and Rush University), Ill; the United Negro College Fund Pre-medical Summer Institute at Fisk and Vanderbilt Universities, Nashville, Tenn; the University of Virginia School of Medicine, Charlottesville; the University of Washington School of Medicine, Seattle/University of Arizona College of Medicine, Tucson; and Yale University School of Medicine, New Haven, Conn.

References

Rapid HIV Screening During Labor

To the Editor.—Although we agree wholeheartedly that identifying mothers infected with the human immunodeficiency virus 1 (HIV-1) to reduce vertical transmission can be implemented systematically as suggested by Drs Minkoff and O’Sullivan,1 we do not agree that rapid HIV-1 antibody testing at the time a woman gives birth is the solution because of the way this practice would affect our obstetrics population. The rapid HIV-1 antibody test licensed by the Food and Drug Administration (SUDS, Murex Corp, Norcross, Ga) has stated sensitivity and specificity of 99.9% and 99.6%, respectively. Even with this superb performance, the positive predictive value (PPV) of a positive test result can exceed 50% only when the prevalence of HIV-1 infection exceeds 0.5%. Seropidemiology data collected from our obstetrics population revealed an overall HIV-1 seroprevalence of 0.2% in 1992 and 0.1% in 1994. Thus, the PPV of a positive SUDS test result in our population could be no higher than 33%. In other words, 2 of every 3 positive results would be false-positive, and 2 women and their newborns would be treated unnecessarily for every mother-child pair treated appropriately. A subset of our population may benefit from testing: the seroprevalence in our white population was 1 in 611, or 0.16%, which would have a PPV of 29%, whereas the seroprevalence in our black population was 3 in 279, or 1.08%, which would have a PPV of 73%.

The predictive value of a positive SUDS result would most likely be significantly lower in actual use. Field trials of rapid HIV-1 antibody tests have yielded sensitivities and specificities lower than those specified by manufacturers.2 In addition, temperatures exceeding those specified by the manufacturer or malfunctioning centrifuges (since the SUDS test uses serum or plasma, necessitating separation of whole blood) can increase the false-positive rate 7.7-fold.3 Moreover, and not widely appreciated, is the 0.17% prevalence of “false-positive” HIV-1 antibody tests associated with pregnancy,4 a prevalence matching the “true-positive” HIV-1 seroprevalence in our obstetrics population.

Minkoff and O’Sullivan suggest that “the small chance of unnecessary treatment may . . . be a reasonable risk for a woman to assume.” A National Institutes of Health expert panel concluded that transplacental careinogenes discussed in one study of rodents exposed to high doses of zidovudine did not outweigh the proven clinical benefit of zidovudine therapy in reducing vertical transmission in humans.5 A high false-positive rate would, however, expose many infants to zidovudine unnecessarily. Furthermore, zidovudine therapy for the neonate rather than the mother may not reduce vertical transmission.6

Clinicians considering the use of rapid HIV tests at the time of birth need to be aware of the difficulty in interpreting positive results and communicating risks and benefits to parents during a stressful period.

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