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THE VALUE OF URINE SURVEILLANCE IN DRUG ABUSE PROGRAMS

AN INTERIM REPORT

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RESPONSE

The response to our postal survey was excellent, with a total of 92 replies (62%) and 80 completed questionnaires (54%) from 147 programs surveyed. Eight respondents (8.7%) stated that they were not doing urine testing, chiefly because their operations did not involve methadone maintenance; another 4 indicated that their programs were too new to provide useful information. All of the new programs, and 6 of the 8 non-methadone clinics expressed an interest in the results of the survey, even though they were unable to contribute data.

CHARACTERISTICS OF PATIENTS AND CLINICS

Most of the addicts were in their 20's (89%*), with the majority (65%) in the 20-25 age range. As expected, a majority of clinics (75%) reported that at least half their patients were from the lower socioeconomic classes. Fifty-seven percent of clinics reported that over half their patients were black, though 19% of clinics reported a black population of less than 10%. Mean clinic size was 436, with a range of 10 to 6,300, and 75% are located in the inner city.

A large majority of clinics (90%) obtain urine specimens from all their patients, usually once or twice weekly. Random sampling is also used fairly widely, in some clinics instead of, and in others as a supplement to regular sampling. Nearly all programs (92%) required in-clinic, supervised collection of the specimen, and none accepted urine brought in by the patient. The large majority of clinics (87%) were confident that less than 10% of specimens had been deliberately diluted, or were not the patient's own urine.

*Unless otherwise specified, percentages are based on the number responding to the particular question, usually around 60.

Urine usually is transported in unaltered form, and reaches the laboratory within 48 hours. For all programs, the mean number of samples per week was 481; the distribution was skewed to the right, with a mode of 100 and a median of 150. Ninety-five percent of programs submitted fewer than 2,600 samples per week, and the overall range was 3 to 6,300.

LABORATORY RELIABILITY

Nearly all laboratories (98%) were of at least "average" estimated reliability, with the largest single group (41%) being considered "highly reliable." Thirty-two percent rated their laboratories as "reliable," and 25% as "average" in reliability. However, there was no significant correlation between estimated reliability and actual error rate, though a trend in that direction was noted ($p = 0.21$). Further question about the accuracy of reliability estimates was raised by the fact that 15% of clinics making estimates had never tested their laboratories with known samples, or did not know whether this had been done.

Overall, the mean incidence of false positive reports on test samples was 2.88%, with false negatives of 5.37%. The greater number of false negatives probably reflects conscious policy on the part of clinics and laboratories, since the clinical and administrative implications of a single false negative report (except for methadone) are considerably less than for a false positive (see below).

TESTING

The commonest drugs included in screens were heroin, morphine, codeine, methadone, the barbiturates, amphetamine, and cocaine. Four percent of respondents did not know what techniques their laboratories used. Of those who did know, 95% indicated thin layer chromatography (TLC), and 42% gas chromatography (GC). Five percent used GC as a primary screen, the rest reserving it for confirmatory testing. The free radical assay test (FRAT) for opiates was employed by 9%. Reflecting the emphasis on reducing the incidence of false positives, 73% of those familiar with their laboratory's procedure indicated that positive urines on primary screen were rechecked.

COST AND ACCURACY

Both cost per test and total expenditure on urine screening varied widely among laboratories and programs. Cost per test ranged from 50¢ to \$15.00 (\$5.00, if one extreme deviant is excluded), with a mean of \$2.67. The median was \$2.50, with a 25%-75% interquartile range of \$1.96 to \$3.00.

Total annual expenditure for urine testing ranged from \$840 to \$600,000, with a mean of \$41,000. This distribution was more sharply skewed to the right, with a median of \$17,550, and a 25%-75% interquartile range of \$3,140 to \$30,000 (the mean thus being outside this range).

The major influences which might be expected to correlate with unit cost would be work volume (inverse) and accuracy (direct). However, correlational analysis indicates that only the former shows any trend toward significance ($p = 0.23$); no appreciable correlation was observed between cost per test and accuracy of results as measured by error rate on known test samples ($p = 0.51$).

RESULTS AND ACTION TAKEN

In this section of the survey, 11 statements were offered, based upon commonly-made comments on the subject of urine testing programs (DeAngelis). The respondent could express an opinion on each of these, using a five-point scale ranging from strong agreement through neutrality to strong disagreement. A final, 12th question asked for a global opinion on the value of urine testing, again on a five-point scale for "very valuable asset" to "complete waste of time and money."

There was substantial agreement* and no disagreement that urine testing programs (UTP) allow some measure of success in drug abuse programs. This level of consensus was achieved on only one other proposition. Most respondents (54%) felt that UTP are expensive and time-consuming, but do facilitate monitoring of methadone ingestion (78%). A significant minority (32%) disagreed about their costliness, a number (8%) dissenting strongly. Few (10%) disputed the monitoring value of UTP.

Concerning the accuracy of laboratory results, most respondents (65%) did not believe that error was sufficiently frequent to create behavioral or morale problems. Further, most (76%) believed that UTP give information applicable to the clinical picture, and a majority (55%) felt that some indication can be obtained of the chronicity of the patient's drug taking. Negative views were less common on the question of clinical applicability of laboratory results (16%) than on their relation to chronicity of drug use (34%). There was also fair consensus on the medico-legal value of UTP data, with 62% believing them to be useful in this regard; an unusually large proportion of respondents (26%) were neutral on this point.

*Unless otherwise specified or subdivided, "agreement" here refers to the aggregate of "strongly agree" and "agree" responses. Disagreement is summarized in the same manner.

In the area of clinical use of test results, a substantial majority (83%) felt that UTP give an opportunity for confrontation or encouragement of the addict (as appropriate to the laboratory report). Opinion was divided on the question of whether testing provides a helpful bond between patient and physician or clinic, with 47% believing this to be the case, 24% disagreeing, and 29% neutral (the only question on which there was no majority position). Consensus returned on the point of whether UTP constitute an infringement of trust between patient and physician or clinic, with a substantial majority (84%) believing that no such infringement results. There was no strong dissent from the majority view.

Eighty-one percent of respondents believed that UTP might facilitate the early detection of new trends in abuse, 21% agreeing strongly with this position. Only 6% disagreed, none strongly.

Finally, with regard to overall value of UTP, considering all their advantages and disadvantages, a large majority (92%) felt that they were either "very valuable" (51%) or helpful" (41%). Only 8% were neutral on this point, and there was no disagreement.

REFERENCE

DeAngelis, G. G., Testing for Drugs - Advantages and Disadvantages. Int. J. Addict, 7:365, 1972.