Impact of patient education on improvement of acid-fast smear examination in an HIV epidemic area

Kafwabulula M, Mitarai S, Habeenzu C, Lubasi D, Mambo M, Mwale F

Background

- Study site:
  - University Teaching Hospital, Lusaka, Zambia
- TB epidemiology
  - Notification: 512/100,000 (2000)
  - HIV +ve rate among TB: approximately 70%
- Laboratory services
  - AFB smear microscopy
  - Culture and DST for limited number of cases

Patients and Method

- Study period:
  - February to December 1999
- Patients:
  - Symptomatic TB suspects (cough more that 3 weeks) referred to the Chest Clinic in UTH for the diagnosis of TB
- Eligibility:
  - Age >15

Patients and Method

Subjects were requested to submit three sputum specimens and were grouped randomly into two categories.

- One group was left to the routine system where no specific instructions were given on how to collect the sputum samples.
- The other group was recruited as part of a major informed consent study on drug-resistant tuberculosis surveillance. The suspects were given exact instructions on how to collect good sputum specimens.

- It was explained that sputum came from the lower respiratory tract and was different from saliva. It was also explained that a good quality sputum specimen could normally be obtained on awakening with a deep cough and the reason for collecting it was given. This information was provided in written form and wherever possible, the local language of the patient was used.

Patients and Method

- The sputum specimens were treated with sodium hypochlorite and centrifuged at 3,000g for 15 minutes.
- The sediment was re-suspended and stained employing a conventional fluorescent (auramine O) staining method.
- Designated laboratory technicians were in charge of sputum smear examination for the study.

Results

- The number of subjects
  - in the first group (routine cases) was 6,815 yielding 12,546 sputum specimens. There were 3,336 females and 3,443 males in this group (unknown 36). Their age was 34.6 ± 11.3 years (mean ± standard deviation).
  - The number of patients in the education/surveillance study was 1,032 providing 2,421 sputum specimens. This group consisted of 475 females and 557 males. The mean age was 32.1 ± 9.6 years.
- 1.2% of the specimens submitted for analysis by the routine patients were in fact wrong specimens (urine, stool and so on).

Results

Table 1. Smear examination results in relation to the number of patients

	Routine subjects	Study based subjects
Smear positive subjects	1,038 (15.2%)	601 (58.2%)
Smear negative subjects	5,777 (84.8%)	431 (41.8%)
Total	6,815	1, 032

Results

Table 2. Smear examination results in relation to specimen numbers

	Routine sputum specimens	Study based specimens
Smear positive specimens	1,773 (14.1%)	1,314 (54.3%)
Smear negative specimens	10,773 (85.9%)	1,107 (45.7%)
Total	12,546	2,421

Conclusion

- The explanation and education to TB suspects was shown to be effective for the improvement of smear microscopy examination.
- This sort of patient education and the assurance of results within 36 hours can be accomplished even in low-income countries because the only cost for this method is the time taken to explain to the patients on how to provide good quality specimens.