

Parasitic Disease Control in a Residential Facility For the Mentally Retarded

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Abstract: Asymptomatic infection with either *Entameba histolytica* or *Giardia lamblia* was found in 61 per cent of the residents of a dormitory in an institution for the mentally retarded; two other dormitories had rates of 20 per cent and 22 per cent. Drug therapy was successfully undertaken in all three dormitories, and environmental improvements were introduced in the heavily infected dormitory. A one-year follow-up showed a reduction in parasitic disease in two dormitories but, in the most heavily infected dormitory, infection had returned to pretreatment levels. (*Am J Public Health* 69:1279-1281, 1979.)

Amebiasis and giardiasis continue to cause significant morbidity and mortality in institutions for the mentally retarded.¹⁻⁶ Prevalence is usually in the range of 20-40 per cent; there is one report of a 64 per cent prevalence for *Entameba histolytica*.⁷ Prevalence is estimated at less than five per cent for the general population.^{1, 8}

Parasitic infection among institutionalized populations has been controlled with a broad range of drug therapy and environmental modification, but eradication has never been effectively attained.^{6, 9, 10} Reports on the effect of sanitary measures alone are contradictory.^{3, 11}

In the fall of 1976, a seven-year-old girl was admitted to an acute-care hospital in Washington, DC with amebic dysentery. The girl had recently been living in a facility housing about 1,000 mentally retarded residents. Stools from 10 other children living in the dormitory of the index case showed six children positive for either amebiasis or giardiasis. An investigation was undertaken to determine the extent of pathologic parasitic disease and to evaluate the effect of drug therapy and environmental hygienic measures on the control of parasitic disease.

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Materials and Methods

Three stools of all children and staff in the index dormitory (A) and the residents of two other dormitories (B, C) were examined for ova and parasites, as were stools from a group of 21 volunteer workers in the index dormitory.

Raw-stool and methiolate-formalin (MIF)-preserved¹² specimens were delivered twice daily, on the same day passed, to a private parasitology laboratory over a four-month period. All MIF-prepared samples were accessioned and examined, utilizing the MIF-direct and -concentration techniques.¹³ Raw samples from specimens positive for intestinal protozoa were then stained by the Lawless rapid stain technique¹⁴ for confirmation. Posttreatment specimens were collected only in MIF and were examined similarly.

Any resident found to have stools positive for *E. histolytica* or *Giardia lamblia* was treated with diiodohydroxyquin (650 mg, TID \times 20 days) or quinacrine hydrochloride (100 mg, TID \times 7 days), respectively. Patients with mixed infection were treated with metronidazole (35-50 mg/kg of body weight/24 hours, in three divided doses \times 10 days). Four weeks after the end of therapy, three follow-up stools collected once weekly were done on each resident. Therapeutic failures were treated with metronidazole; employees were treated by their private physicians.

Treatment was initiated in March 1977 in all dormitories. In March 1978, three follow-up stools were obtained from all residents of dormitories A, B, and C, as well as from all employees and volunteers found to be positive in the initial survey (91 per cent of all persons surveyed in 1977).

Dormitory A housed 28 boys and eight girls from seven to 18 years of age with various degrees of mental retardation in four nine-bed wards. Although the children rarely left the building, some attended special off-campus programs. Residents from other dormitories worked in Dormitory A. The newest resident of the dormitory was the index case who entered the dormitory five months prior to her illness.

Dormitory B housed 37 women between 13 and 73 years of age. Dormitory C housed 25 boys from 11 to 22 years of age. There were no clear differences in physical facilities or the physical health of the residents among study and control dormitories.

In March 1977, substandard environmental conditions were found in all of the buildings evaluated, including evidence of soil accumulation on windows and floors; improper solid waste management; overcrowded dormitories; improper laundry processing and handling; fecal material on walls, floors, and ceilings; absence of proper handwashing facilities; defective plumbing; and inadequate food service facilities.

TABLE 1—Diagnostic Accuracy of Successive Stool Specimens Analyzed for Parasites during Study of *E. histolytica* and *G. lamblia* in a Washington, DC Residential Center for the Mentally Retarded, 1977–1978

Specimen	Patients positive for:					
	<i>E. histolytica</i>		<i>G. lamblia</i>		Total††	
	No.	%	No.	%	No.	%
1977						
First Stool	23	67.6	9	40.9	32	58.2
Second Stool	8	23.5	8	36.4	16	29.1
Third Stool	3	8.8	4	18.2	7	12.7
Any Stool	34	99.9	22**	95.5**	55*	100.0
1978						
First Stool	11	28.2	4	22.2	15	26.8
Second Stool	17	43.6	6	33.3	23	41.1
Third Stool	10	25.6	8	44.4	18	32.1
Any Stool	39†	97.4†	18	99.9	56	100.0

*Stools from 7 patients were found to have both *E. histolytica* and *G. lamblia*.

**One episode of giardiasis was diagnosed after 3 negative stools.

†One episode of amebiasis was diagnosed after 3 negative stools.

††This table includes data from residents and staff in other dormitories not discussed elsewhere in this report.

Protocols were developed to correct each of these conditions in Dormitory A. Educational seminars were presented to professional and nonprofessional staff in the dormitory. Environmental standards were monitored during two site visits in the study period, and a final evaluation of environmental conditions was completed at the time of the final stool analyses in March 1978. No specific environmental intervention was implemented in Dormitories B and C.

Results

Twenty-two of the 36 children (61 per cent) in Dormitory A had evidence of *E. histolytica* or *G. lamblia* infection at the time of the 1977 survey. Only one patient other than the index case had evidence of diarrhea.* Two of 53 employees of Dormitory A had stools positive for amebiasis, and one other had giardiasis. One of 21 volunteers was found to be infected with cysts of both *E. histolytica* and *G. lamblia*.

The attack rate for *E. histolytica* and *G. lamblia* was 22 per cent in Dormitory B and 20 per cent in Dormitory A.

Stools obtained one month after therapy from children in Dormitory A showed only one child positive (giardiasis) and, after retreatment, a single post-treatment follow-up stool from her was negative.

Matched-pairs analysis showed infection rates to be highest in Dormitory A and independent of age. Altogether, 23 persons in the three dormitories were found to have evidence of *E. histolytica*, nine others carried *G. lamblia*, and

six were infected by both parasites. Employees were infected at a significantly lower rate (5 per cent) than residents (36 per cent).

One year after treatment, 23 of 38 residents (61 per cent) of Dormitory A, including one of two new residents,** were found to have either *E. histolytica* or *G. lamblia* in their stool. In Dormitory B, only three women were infected, and the eight previously infected women had no evidence of pathogenic parasites. There were three new infections in Dormitory C, but each of the five previously infected boys had negative stools. There was only one treatment failure among the residents.

In the 1977 survey, amebiasis was detected on the initial stool specimen in 68 per cent of cases, *G. lamblia* in 41 per cent (Table 1). In contrast, when follow-up stools were obtained in 1978, it was found that less than 30 per cent of diagnoses had been made from the initial stool specimen.

Except for new kitchen equipment, the substandard environmental conditions were not improved.

Discussion

Despite good case finding and therapy, intervention in this study was only partially successful. Successful eradication of amebae by diiodohydroxyquin reflected the fact that most patients were asymptomatic cyst carriers.

Older, more independent residents demonstrated lower rates of infection after one year with drug therapy alone. The discouraging results in Dormitory A suggest that effective control in younger children requires more than drug therapy, protocols, and lectures.

The low diagnostic accuracy of a single stool specimen (32–60 per cent false-negative rate) confirms previous findings.¹⁵ The effectiveness of drug therapy is higher than previously reported, but consistent with the pathogen-specific therapy administered to this population.

Follow-up inspection of the physical environment detected serious deficiencies in infection control. Disease surveillance took place sporadically. However, a more intense ongoing system of disease surveillance and education would necessitate greater commitment from an already overtaxed staff. Additional well-trained, properly motivated personnel could improve disease control, but at significant increase in cost. A subsequent investigation will examine the potential benefit of separating infected and noninfected residents. Such studies may help direct planning for use of available funds, but it will take a greater commitment on the part of society to begin to seriously confront the complex health problems of our mentally retarded citizens.

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*The index case was hospitalized at the time of these analyses and is not included in the initial stool survey; she was included in the follow-up study at one year.

**Two new residents had not been screened for parasites upon admission.

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Assessing Depression Outcomes in Group Practice Clinics

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Abstract: The application of a protocol for the initial assessment of medical care outcomes of geriatric depression management in four multispecialty group practice clinics is described. The clinical findings of this study are limited, but the protocol for the assessment of depression outcomes was found to be feasible, practical and acceptable in all four clinics. The success of the study has positive implications both for improving management of depressed clinic patients and for adapting this quality assurance approach to other health conditions and care settings. (*Am J Public Health* 69:1281-1283, 1979.)

Assuring the quality and cost containment of medical care is of increasing concern to health planners, policy makers, and providers. Retrospective evaluation studies primarily concerned with the process of care, e.g., chart audit, and dependent on medical records have had limited success in terms of facilitating health improvement or reducing care costs.^{1,2} On the other hand, prospective medical care evaluation methods that are not dependent on medical charts have shown more promise.^{2,3} To meet the growing need man-

dated by the Joint Commission on Accreditation of Hospitals (JCAH) and the Professional Standards Review Organizations (PSRO) for formal outcome-based quality assessment methods applicable to ambulatory as well as hospital care, an approach has been developed that has proven practical, reliable, and valid, based on studies spanning more than 15 years.⁴⁻⁸

This approach, known as health accounting, is made up of five stages: 1) priority setting, 2) initial outcome assessment, 3) definitive assessment and improvement planning, 4) improvement action, 5) and outcome reassessment.⁴ The main responsibility for conducting the health accounting study is assumed by the health accountant, a non-medical evaluation assistant, under the direction of a physician coordinator. The study reported here was undertaken to aid health accountants in acquiring basic skills for carrying out initial outcome assessment studies (Stage 2).

The purpose of this report is to describe the application of this prospective, outcome-based approach for the assessment of medical care outcomes of a common, serious mental health problem and to indicate the implications for expanded quality assurance applications of this overall experience.

Method

The topic selected and developed for the training study was the detection and management of geriatric depression. Assessment of depression outcomes was conducted in four multispecialty group medical practice settings across the United States. The clinics varied in number of physicians, payment plan, patient population size, and geographic location.

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