# Trip Report

Nutrition CRSP

Cairo, Egypt

July 20-August 7, 1984

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Report

Research trip to Egypt

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The objective of this research trip was to determine the types and incidence of urinary and intestinal parasite infections in the subjects chosen for CRSP research at the village of Kalama, Egypt. Preparation for the project was started during the Spring of 1984. The facilities to carry out parasitology diagnosis at the Nutrition Institute had to be assessed. It was decided that in order to complete this project in two weeks time, all the materials and equipment needed had to be purchased in the U.S. and carried as extra luggage to Cairo. Consequently all the needed requirements except the microscopes, and centrifuges were procured in West Lafayette and shipped as extra baggage with Dr. Norge Jerome and myself.

Through a telephone conversation I was assured that there would be several microscopes and centrifuges available to conduct the project. I was also assurred that there will be several staff and technical personnel to assist in the procedures and learn how to perform them. On July 20, 1934 I travelled form West Lafayette via Chicago, New York, Rome, to Cairo where I arrived during the afternoon of July 21st. At the customs house there was some problem concerning the release of the equipment shipped as extra baggage particularly the scales. After explaining what they will be used for and the institute where they were destined, they were released. Reservations had been made for me at the Shepherd's hotel where I stayed.

On July 22, Dr. Gail Harrison picked me up at the hotel and we went to the Nutrition Institute. After meeting with the irector (Dr. Osman Galal) I learned that it was decided to perform all the parasitology diagnostic work at the Health Unit at Kalama. The microscopes and centrifuges had been taken there. I met Dr. Ghoral who would be the coordinator for this project. The kits to obtain the urine and stool samples were then assembled and were prepared to be taken to the families.

----- July 23 was an Egyptian vacation.

----- On July 24, we went about 9:30 AM with the physicians (±20) to Kalama arriving about 11 AM at the health unit. Dr. Ghorab and I had to talk to and obtain the consent of the director to perform the work there. However, upon examination of the physical facilities and discussion with the local technician it was decided to do all the work at the Nutrition Institute in Cairo. The kits would therefore be sent to the village and collected daily. Consequently some were distributed then. All of the equipment was taken back. Upon return to the Institute at Cairo, the kits for next days distribution were prepared.

----- On July 25. The social worker and technician departed at 9:30 AM with the prepared kits. The rest of the morning was spent preparing the solutions and assembling and testing the equipment. The social worker and technician returned about 2:30 PM. Processed and examined the urine samples. Stool samples were fixed and stored to be examined the next day.

----- On July 26. Preparation of kits for distribution by the social workers who left about 9:30 AM to go to Kalama. Worked

the stool samples collected yesterday. Only two microscopes available, one of which does not have a high power and therefore not suitable for protozoal examination. Attended meeting of CRSP personnel and reported on program so far. Indicated that the transportaiont problem between the Nutrition Institute and Kalama has to be solved. Social workers with samples arrived at 2:30 PM. Worked the urine samples with the two technicians. Only one table centrifuge with six places suitable for use. No tubes for the other centrifuge.

----- July 27 (Friday). Prepared kits. Social worker and conpanion took them at 9:30 AM to the village. Worked on stool samples during morning. Samples arriving about 1:30 PM, the urine samples were processed and examined. The stool samples were fixed and stored to be examined the next day.

----- July 28. Same work as day before.

----- July 29,30,31, August 1 and 2. Same schedule of work as previous days. Dr. Ghorab, the coordinator and recorder of the results on the data processing forms, left for Germany after work on August 1, 1984.

----- August 3 (Friday). Last day of obtaining samples. No kits taken to village. Social worker and companion departed at 9:00 AM. Processed yesterday's stool samples in the morning, and the urine and stool samples brought back that afternoon. Everything finished about 6:00 PM.

The objective of this project were:

1. To determin the incidence of protozoal and multicellular parasite infection in the families participating in the research project.

2. To obtain a base value of prevalence of certain parasites in the various age groups.
3. To identify parasitized individuals in order that they may be advised of their disease condition and thus be treated.
4. To train research workers and technicians in the procedures for diagnosis of parasite infections.

Accomplishments and Assessments

The opportunity was presented to the participating families to have their urine and stools examined for presence of parasitic infections. The kits were offered to 142 families, 18 of whom refused to provide any samples and 124 accepted and thus were examined (Table 1). Not all the members of the family provided both urine and stool samples. The results obtained from these examinations indicate that one or more members of 31.4% of these families were infected with one or more parasites. However only 32.5% of the total number of individuals examined harboured one or more parasites (Table 2). It must be noted that the data presented in this report are taken directly from the examination reports. They will have to be examined more thoroughly by the data management presonnel in Cairo and Kansas City.

Examination of the urine indicated that 38 individuals or 4.2% were infected with Schistosoma haematobium, the urinary tract bilharziasis which is acquired through direct contact (Bathing, wading, etc.) with water infested with the young blood flukes. This seems to be a lower precentage than expected but it could be related to the fact that the samples could have been

voided 12 or more hours before examination. It is also interesting that 4 individuals had eggs of Enterobius vermicularis in their urine. The eggs in the perianal area could have contaminated the urine. Their presence may be only indicative of inferior hygenic practices by these individuals.

Of a total 653 stool samples examined 240 were infected with one or more parasites. Of these, 199 were infected with one parasite, 35 with 2 parasites and 6 with three parasites (Table 3). These are indicative of intestinal infections of the individuals with these various parasites. This rate of infection (36.9%) (Table 4) could have a direct bearing on the metabolic efficiency of the individuals since these parasites are found in the intestinal wall or lumen.

There were six different species of parasites found in the fecal samples. These were the protozoal parasite Entamoeba histolytica, the blood fluke Schistosoma mansoni, the tapeworm Hymenolexis nana and the nematodes Ascaris lumbricoides, Enterolius vermicularis and Ancylostoma duodenale. The incidence of infection with these parasites is included in Table 5. It is surprising that only one case of A. duodenale was found but that could be related to the delay in examination of the samples particularly during the hot weather of the summer.

The data management personnel should be able to correlate some of these parasitological diagnoses data with age, sex, location in the village, social status, education and other parameters of the individuals and familes. It also would be interesting to find out why certain families refused to

participate in this diagnostic procedure.

Conclusions and recommendations

1. Although this project was quite successful in revealing some infection rates with parasites, these date are not totally accurate because several families refused to participate and some individuals in the families that participated did not provide one or both samples required to give the parasitological profiles.
2. It is very strongly recommended that the individuals found infected, sould be treated for these infections and examined about a week later to ascertain success of the treatment.
3. The parasitological, diagnostic procedure should be undertaken again every 6 months to determine whether the individuals who were previously infected and treated became infected again. It would also reveal any differences in summer or winter infections when exposures are completely different.
4. Since the time of retrieval of the samples after being voided has a direct effect on the results some method for obtaining them soon after should be devised. It would be better to have the whole procedure carried out in Kalama. A special room at the health unit or elsewhere would be adequate. This room sould be provided with a generator to ensure continuous electric current. Alternatively a special car should be assigned for those two weeks to this project. Such a car can make two trips a day to Kalama to retrieve the samples

before the larvae hatch out of the eggs.

5. All the needed chemicals and equipment should be shipped from the U.S. as it has been.
6. Better microscopes and centrifuges should be provided by the Nutritional Institue. There were several of them in the institute but they were assigned to certain individuals who were reluctant to release them for this project.
7. At least two more technicians and one more scientist should be assigned full time to this project during the two weeks period. A technician from the data management section would be most helpful in recording the results on the proper forms required.

Table 1

NUMBER OF FAMILIES

| Block No. | Offered Kits | Refused | Examined |
|---|---|---|---|
| 1 | 23 | 1 | 22 |
| 2 | 21 | 2 | 19 |
| 3 | 18 | 4 | 14 |
| 4 | 5 | 3 | 2 |
| 5 | 3 | 0 | 3 |
| 6 | 13 | 1 | 12 |
| 7 | 16 | 2 | 14 |
| 8 | 9 | 2 | 7 |
| 9 | 8 | 2 | 6 |
| 10 | 4 | 0 | 4 |
| 11 | 16 | 0 | 16 |
| 12 | 6 | 1 | 5 |
| Total | 142 | 18 | 124 |

Table 2

INFECTION RATES

| Blocks | Families | | | | Individuals | | |
|---|---|---|---|---|---|---|---|
| | Examined | Parasitized | % | | Examined | Parasitized | % |
| 1 | 22 | 19 | 86.4 | | 117 | 36 | 30.8 |
| 2 | 19 | 11 | 57.9 | | 112 | 21 | 18.8 |
| 3 | 14 | 13 | 92.9 | | 101 | 31 | 30.7 |
| 4 | 2 | 2 | 100.0 | | 13 | 6 | 46.1 |
| 5 | 3 | 3 | 100.0 | | 28 | 11 | 39.3 |
| 6 | 12 | 11 | 91.7 | | 59 | 23 | 39.0 |
| 7 | 14 | 14 | 100.0 | | 61 | 28 | 45.9 |
| 8 | 7 | 6 | 85.7 | | 31 | 16 | 51.6 |
| 9 | 6 | 5 | 83.3 | | 39 | 13 | 33.3 |
| 10 | 4 | 2 | 50.0 | | 22 | 4 | 18.2 |
| 11 | 16 | 11 | 68.8 | | 85 | 27 | 31.8 |
| 12 | 5 | 4 | 80.0 | | 28 | 10 | 35.7 |
| Total | 124 | 101 | 81.4 | | 696* | 226* | 32.5 |

* Some results have not been tallied on the forms.

Table 3

SPECIMENS EXAMINED

| Date | Urine | | | | Feces | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Examined | S. haem. | E. verm. | | Total Examined | Total | 1 Par. | 2 Par. | 3 Par. |
| 25/7/84 | 81 | 3 | 1 | | | | | | |
| 26/7/84 | 95 | 4 | 1 | | 83 | 21 | 17 | 4 | |
| 27/7/84 | 81 | 5 | 0 | | 90 | 21 | 16 | 4 | 1 |
| 28/7/84 | 81 | 5 | 0 | | 60 | 27 | 22 | 5 | |
| 29/7/84 | 79 | 4 | 0 | | 73 | 28 | 25 | 3 | |
| 30/7/84 | 58 | 6 | 1 | | 73 | 39 | 31 | 6 | 2 |
| 31/7/84 | 54 | 3 | 0 | | 52 | 22 | 19 | 2 | 1 |
| 1/8/84 | 94 | 2 | 1 | | 48 | 9 | 9 | | |
| 2/8/84 | 44 | 2 | 0 | | 90 | 39 | 30 | 7 | 2 |
| 3/8/84 | 36 | 4 | 0 | | 81 | 34 | 30 | 4 | |
| Total | 803 | 38 | 4 | | 650 | 240 | 199 | 35 | 6 |

Table 4

INFECTION RATES

| | |
|---|---|
| Total Intestinal | 36.9% |
| Total Urinary | 4.2% |
| Total Schistosomiasis (*S. haem.* and *S. mansoni* | |
| 60 individuals | |
| 1 with both | |

Table 5

INTESTINAL PARASITES DIAGNOSED

| Date | S. mans. | A. lumb. | E hist. | H. nana | E. verm. | A. duod. |
|---|---|---|---|---|---|---|
| 26/7/84 | 6 | 5 | 6 | 7 | 1 | |
| 27/7/84 | 0 | 4 | 7 | 10 | 5 | 1 |
| 28/7/84 | 4 | 12 | 7 | 8 | 1 | |
| 29/7/84 | 0 | 8 | 10 | 8 | 5 | |
| 30/7/84 | 3 | 20 | 10 | 10 | 6 | |
| 31/7/84 | 3 | 5 | 7 | 7 | 4 | |
| 1/8/84 | 0 | 2 | 5 | 1 | 1 | |
| 2/8/84 | 4 | 8 | 12 | 15 | 11 | |
| 3/8/84 | 3 | 5 | 6 | 13 | 11 | |
| Total | 23 | 69 | 70 | 79 | 45 | 1 |