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# PUBLICATION REPORT

94-30226



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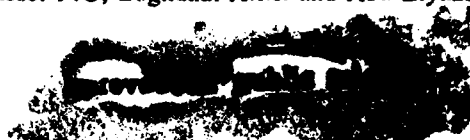
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THE EFFICACY OF EXAMINING THREE SUCCESSIVE URINE SAMPLES  
IN THE EPIDEMIOLOGIC STUDY OF URINARY SCHISTOSOMIASIS

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FPO AE 09835-0007

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE October 1993	3. REPORT TYPE AND DATES COVERED
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4. TITLE AND SUBTITLE The Efficacy of Examining three Successive Urine Samples in the Epidemiologic study of Urinary Schistosomiasis	5. FUNDING NUMBERS  WU 3M161102BS13.AK311.
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6. AUTHOR(S) Youssef Fouad, G., Boghdadi Abdullah, M., Abu-Elyazeed Remon, R.	
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  U.S. Naval Medical Research Unit No. 3 PSC 452, Box 5000 FPO AE 09835-0007	8. PERFORMING ORGANIZATION REPORT NUMBER  29/94
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9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)  Naval Medical Research and Development Command, National Naval Medical Center Building 1, Tower 12 Bethesda, MD 20889-5044	10. SPONSORING / MONITORING AGENCY REPORT NUMBER
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11. SUPPLEMENTARY NOTES Published in: J. Trop. Med. 2(5):47-49, 1993; Acc. No. 1782b
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12a. DISTRIBUTION / AVAILABILITY STATEMENT  Approved for public release; Distribution is unlimited.	12b. DISTRIBUTION CODE
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13. ABSTRACT (Maximum 200 words)  This study evaluated the efficacy of examining three successive urine specimens using Bell's technique in the diagnosis of <u>Schistosoma haematobium</u> infection in endemic areas in Fayoum Governorate, Egypt. Generally, there was an increase in the percent of positivity by examining the second and the 3rd. urine specimens in these study groups. The results showed an increase of 36% in the prevalence of infection when three urine specimens were examined instead of one. This study emphasized the need of repeated urine sample examinations in the epidemiological studies and control programs of urinary schistosomiasis.  <div style="text-align: center; font-weight: bold; margin-top: 20px;">DTIC QUALITY INSPECTED 3</div>
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14. SUBJECT TERMS Urinary schistosomiasis; Diagnosis; Epidemiologic study; Egypt	15. NUMBER OF PAGES
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT
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ISSN 1110-0796

Vol. 2, No. 5, PP. 1 - 154.

October. (1993)

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	20

# Journal of Tropical Medicine

**JTM**



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"Egyptian branch"**

Tager Building, 1, Ozoris Street, Garden City, Cairo, Egypt. Tel.: 3541857  
Legalized No. 3605

**DTIC QUALITY INSPECTED 3**

**Editorial Board Address : Professor Kabil S M, 41, Talaat Harb St.,  
Cairo, Egypt. Tel. (202): 3915115 - Tel/Fax. (202): 3938723.**

## THE EFFICACY OF EXAMINING THREE SUCCESSIVE URINE SAMPLES IN THE EPIDEMIOLOGIC STUDY OF URINARY SCHISTOSOMIASIS

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### Abstract

This study evaluated the efficacy of examining three successive urine specimens using Bell's technique in the diagnosis of *Schistosoma haematobium* infection in endemic areas in Fayoum Governorate, Egypt. Generally, there was an increase in the percent of positivity by examining the second and the 3rd. urine specimens in these study groups. The results showed an increase of 36% in the prevalence of infection when three urine specimens were examined instead of one.

This study emphasized the need of repeated urine sample examinations in the epidemiological studies and control programs of urinary schistosomiasis.

### Introduction

*Schistosoma haematobium* causes great morbidity and has an impact on the individuals' productivity in endemic areas in Egypt (Abdel-Wahab et al., 1992). The parasitological diagnosis of urinary schistosomiasis either in the epidemiological or in the control program

studies depends upon the detection of characteristic eggs in urine specimens. Urine filtration with filter paper, nucleopore or Nuclei filters has become the World Health Organization's recommended method for quantitative and qualitative diagnosis of *S. haematobium* infections in control programs. Several studies have evaluated the efficacy of the different types of filters used in the diagnosis of urinary schistosomiasis (Klumpp and Southgate, 1986 and Mshinda et al., 1989).

The present study evaluated the efficacy of examining three successive daily urine samples obtained from people in three rural communities in Fayoum Governorate Egypt where schistosomiasis haematobia is endemic.

### Materials and Methods

A total of 2085 urine samples obtained from 695 male individuals aged 18 to 40 years participated in this study, 248, 262 and 185 individuals from 3 villages in Fayoum Governorate: Kahk, Mosharak Bahari and Mosharak Kebly, respectively. Urine specimens were collected between 9:00 a.m. and 2:00 p.m., in 50 ml. screw cap plastic centrifuge tubes containing 0.05 gm. Sodium azide was used as preservative (Mansour et al., 1981). They were processed and examined using Bell's

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technique, (1964).

### Results

Results showed an increase in the percent of positivity by examining the second and the third urine specimens for each group of individuals in the three villages (table -1). The percent of positivity was 39%, 29% and 44% after a single urine examination, compared to 79%, 67% and 74% positivity, respectively, after examining three urine specimens. It is worth mentioning that some positive cases in the first sample examination became negative in the second and third sample examination. Moreover, when three urine examinations instead of one were performed for every individual, an increase of 36% in the prevalence of infection was detected.

### Discussion

This work has demonstrated that the epidemiological study of *S. haematobium* in endemic areas cannot depend on a single urine examination and that for an accurate evaluation of all infected individuals, especially those with very low intensities

(from 1 to 3 *S. haematobium* egg/10 ml.), repeated examination of urine specimens is required. A similar conclusion was reached by Thomson et al., (1984) who, in ruling out intestinal protozoa and helminthic infection, stressed the need for repeated stool examination. Moreover, the authors recommend that to increase the reliability of a single urine examination for the detection of urinary schistosomiasis, the addition of immunologic diagnosis, whether through the detection of specific antibodies or antigens of *S. haematobium*, should be explored.

### Acknowledgement

*This work was supported by the U.S. Naval Medical Research and Development Command, Bethesda, MD, Work Unit No. 3M161102BS13. AK. 311. The opinions and assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the views of the Navy Department, Department of Defense, the U.S. Government or the Egyptian Government.*

**Table -1:** The relationship between the number of urine samples examined and the infection rate in three villages in Fayoum Governorate.

Villages	Number of individuals	Number of positive cases and % based on examination of:					
		1 Urine sample		2 Urine samples		3 Urine samples	
		+	%	+	%	+	%
Kahk	248	97	39	149	60	197	79
Mosharak Bahari	262	75	29	117	45	176	67
Mosharak Kebly	185	82	44	130	70	137	74
<b>Total</b>	<b>695</b>	<b>254</b>	<b>37</b>	<b>396</b>	<b>57</b>	<b>510</b>	<b>73</b>

**References**

- Abdel-Wahab MF, Esmat G, Ramzy I, Fouad R, Abdel-Rahman M, Yosery A, Narooz S and Strickland T. (1992):** *Schistosoma haematobium* infection in Egyptian school children: Demonstration of both hepatic and urinary tract morbidity by ultrasonography. *Trans. Roy. Soc. Trop. Med. Hyg.*, 86, 406: 409.
- Bell DR. (1964):** Evaluation and comparison of egg-counting techniques. Assignment report WHO regional office for the Eastern Mediterranean. EM/Bil/30 Egypt 49/Regular Unicef.
- Klumpp RK and Southgate BA. (1986):** Nytrex filters not reusable. *Trans. Roy. Soc. Trop. Med. Hyg.*, 80, 494: 495.
- Mansour NS, Higashi GI, Schinski VD and Murrell KD. (1981):** A longitudinal study of *Schistosoma haematobium* infection in Qena Governorate, Upper Egypt. *Am. J. Trop. Med. Hyg.*, 30, 4, 795: 805.
- Mshinda H, Lengele C, Hatz C and De Savigny D. (1989):** Field diagnosis of urinary schistosomiasis by multiple use of nucleopore urine filters. *J. Parasitol.*, 75, 3, 476: 478.
- Thomson RB, Haas RA and Thomson JH. (1984):** Intestinal parasite: the necessity of examining multiple stool specimens. *Mayo Clin. Proc.*, 59, 641: 642.