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**Definition of Research Center :**

The health research Center established in the Ministry of Health at the year 1997, It's considered to be specialized in quality tasks and Goals. It's a main supporter of Health policies, programs and reformes. It's depend on national caders for it's programs and Goals.

**General Objective:**

- 1- To determine the policies, strategies and priorities of Health research.
- 2- To strength the ability of Health & medical research and to develop the skills of the professional researchers in preparing and bringing out health researches and studies to gain from it's results.
- 3- Formation of the national health and medical research committee and it's roll especially in ethical review.
- 4- Establishment of the health research brunches in the main cities :- Aden, Al-Hodeidah, Hadramout, and Taiz.
- 5- Establishment of specialized referenced library with update technical methods.
- 6- Coordination and cooperation with health programs, academic institutions, governmental and International organizations to develop and speed up the activities of health research.

***priorities of Health and medical research in Yemen***

In June 2003, Research and Documentation Center of Ministry of Public Health and Population (MoPH&P) in collaboration with World Health Organization (WHO) has organized a workshop on medical and health research priorities in Yemen, which was facilitated by the WHO consultant, Prof. ElSheikh Mahgoub and participated to national experts from Medical Schools, Deputy Minister of Higher Education and Scientific Research, MoPHP program officers, and researchers from other public health-related agencies. Suggestions were distributed among participants in three groups to weigh the priority of each health problem following specific criteria. Group discussion resulted in five areas of priorities, to be reviewed and updated every two or three years. These research priorities are:

**1. Research in Communicable and Endemic Diseases.**

All Epidemiological Research, particularly on:

- Malaria.
- Tuberculosis.
- Diarrhea
- Respiratory Infections.
- Schistosomiasis.
- HIV/AIDS.
- Leprosy.

**2. Research in Maternal and Child Health.**

- Maternal and Child Health Care.
- Reproductive Health.
- Nutrition.

**3. Research and Studies in Health Systems.**

- Health Policies.
- Health Economy and Resource Development.
- Managerial and Manpower Development.
- Health Legislation.

**4. Research in Health-enhanced Behavior and Environments.**

- Health Education and Information.
- School Health, Environmental Health, and Occupational Health.
- Rationalization of Drug Usage.
- Qat.
- Traditional Folk Medication (the Alternative Complementary Medicine).

**5. Research in Non-communicable Diseases.**

- Renal Diseases (Nephropathies).
- Cardiovascular Diseases.
- Cancer, and Blood Diseases (Homeopathies)
- Diabetes mellitus.



## SCREENING FOR CIN AMONGST ATTENDANTS OF AL-SABEEN HOSPITAL, SANA'A

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### **Abstract: -**

- Objective:** - Screening for CIN in attendants of a Yemeni Hospital.
- Design:** - Prospective and descriptive study.
- Setting:** - Al Sabeen Maternity Hospital, Sana'a, Yemen.
- Patients:** - Out of 13, 521 attendants, 316 were in the high-risk group for CIN and cancer cervix. They were the subjects of this study.
- Intervention:** Cervico-vaginal smear, including endocervical sampling, colposcopy and directed biopsy for histopathology, were done to all patients included in this study.
- Results:** - Atypical smear was found in 58 cases, but only 16 of them proved to have CIN I or CIN I – II. Colposcopy showed abnormal findings in 113 cases including all of the 28 cases of pathologically – proved CIN – cases.
- Conclusion:** - Invasive cancer cervix was found in 3/13, 521 = 22.18/100.000 women. This might be an overestimation as the hospital is the largest referral hospitals in Sana'a–High-risk factors include early age at marriage, high parity. Illiteracy and lower socio – economic status. Khat-chewing was not found to be a risk factor in this concern. The need for screening of hospital attendants for CIN is valid, but periodic checking for this lesion in the whole population is not cost – effective.
- Key word:** - Cancer cervix – Yemen. CIN – Yemen.

***Introduction:***

Cancer cervix is the most common cancer in females in developing countries, where 80% of its cases are diagnosed <sup>(1,2)</sup>. Meanwhile it is the most common cancer in women below the age of 50. World-standardized. Age – adjusted incidence rates range from 5 to 42/100.000 women. Higher rates are observed in Sub-Saharan Africa. Central and South America and South Eastern Asia, more in urban than in rural areas <sup>(2)</sup>. In developed countries, it is the fifth most common cancer in women, but it ranks seventh in USA <sup>(1,2)</sup>. Lower incidence rates are found in North America, Australia, North Western Europe, Israel and Kuwait <sup>(2)</sup>. In Egypt, CIN accounts 0.7% of women attending gynecology clinics with higher incidence among women with STD <sup>3</sup>.

Cervical intraepithelial neoplasia, (CIN), is recognized to be precursor to invasive carcinoma. The process to invasive cancer takes as much as 20 years. It is estimated that, within 10 years, CIN I will proceed to invasiveness in 1% of cases, while the corresponding figures for CIN II and III are 5% and > 12% respectively <sup>(4)</sup>.

Various epidemiological factors are associated with the development of CIN. These include early age at first intercourse, especially those who start this practice at age of 15 – 17, while it is almost unknown among those who started it after the age of 37 <sup>(5)</sup>, female with multiple sexual partners especially female prostitutes <sup>(6)</sup> and also wives of males who have multiple female sexual partners <sup>(7)</sup>, Multiparity, irrespective of the number of pregnancies, is an important factor <sup>(6,7,8)</sup>. Cigarette smoking has been reported to be an important risk factor and smoking – related DNA – damage of cervical epithelial cells was reported this was dose – dependent <sup>(7)</sup>.

Other factors include STD – clinic attendants <sup>(3)</sup>, especially those infected with HSV2 and HPV. Lesbians, bed sharing, joint-use of towels, bathing suits and tub – baths. Also increased incidence of CIN was found in association with prolonged use of oral contraceptives <sup>(1,6,7,9)</sup>.

Yemeni women have some of the high risk factors and some of the low risk ones. Of the high risk factors, one may mention early age at marriage as

they marry as early as age of 12, taken as a religious habit, multiparty and even grand parity<sup>(10)</sup>. Smoking is not prevalent among Yemeni women but khat-chewing and narghile smoking are not probed yet. On the other – hand women adhere to Islamic commandments and extra-marital relations are almost unknown. Even if the woman is married more than once, it is either after divorce or death of a husband i.e. promiscuity is almost unknown in Yemen.

This study is planned to detect the prevalence of CIN and cancer cervix amongst patients attending Al Sabeen Maternity Hospital, Sana'a, and to probe the need for a national program to screen females for cancer cervix.

### **Subjects and Methods: -**

All attendants of Gyn. Outpatient, or family planning clinics, Al Sabeen Hospital, Sana'a, were interrogated; history was taken and clinically examined. CIN high-risk patients, (Contact bleeding, sanguineous and mucopurulent discharge, cervical erosion, lacerations and ectropion and cervical polyps<sup>(7,11)</sup>) were further submitted to cytological and colposcopic examination. Cytology was performed on a vagino – cervical smear using a dry speculum, forceful scraping of the squamo – columnar junction with routine sampling of the endocervix<sup>(11)</sup>, stained by Pap. Stain and interpreted<sup>(12)</sup>. Colposcopy was performed, using Medgyn colposcope model Al 104 NK Optics, Chicago, USA. Looking for findings suggestive of CIN, preinvasive or invasive carcinoma. Green filter was used to identify abnormal blood vessels while 3% acetic painting was used to identify aceto-white areas<sup>(13,14)</sup>. Suspicious areas were submitted to a directed histopathology. Results are statistically analyzed and presented .

### **Results: -**

Out of 13.521 patients, attending gyn; and family planning clinics of Al Sabeen Hospital, Sana'a, in the period from 1.7.1999 to 2.8.2000, 316 cases were at the high – risk group. Data of age marital duration and age at marriage, are shown in table 1.

Age distribution, in terms of age – groups is shown in figs. 1 and 2.

Gravidity of these subjects ranged from 0–20 with a mean of  $7.25 \pm 4.48$  (total is 315 as one case was virgin with a polyp protruding outside the vulva which proved to be myomatous). Gravidity, in terms of groups is presented in fig. 3.

Marital State: All these patients were married to one person, except for 6 who got married twice or thrice because of divorce or death of husband. All male partners were circumcised. The group belonged to the low – mid and lower socio – economic groups, mostly from Sana'a and its surrounding areas. Of the 152 were habituated to Khat chewing and/or narghile or cigarette smoking (48.1%), all of Khat chewers were illiterate house – wives or farmers. Cervical lesions in the high – risk group are shown in table 2.

The three cases of invasive cancer were directly submitted to biopsy and pathological examination.

Vaginal cytology showed atypical smears in 58 patients, but only 16 proved to have CIN I or I – II at biopsy.

Colposcopy showed abnormal findings in 113 cases (Punctate and mosaic areas, aceto – white areas and abnormal blood vessels).

The distribution of these findings, in relation to histopathology examination, is shown in table 3.

Patients, with above – mentioned colposcopic findings, showed the following clinical data: -

(1) Mean age was  $40.58 \pm 8.77$  years, while the mean age at marriage was  $17.5 + 4.48$ . In terms of age groups, these cases are presented in table 4 and Fig. 2.

(2) As compared to the high-risk group, age was slightly higher but significantly different in colposcope suspicious group ( $t = 2.5271$ ,  $P < 0.05$ ), while the age at marriage was not significantly different ( $t = 0.454$ ,  $P > 0.05$ ).

(3) Gravidity ranged from 0 to 19 with a mean of  $8.95 \pm 4.36$ . The difference from the high risk group was statistically significant ( $t = 2.28$   $P < 0.05$ ).

(4) Khat chewing, and/or narghile or cigarette smoking was found in 50 cases (out of 113). The difference from the high-risk group was not statistically significant ( $X^2 = 2.0636$ ,  $P > 0.05$ ).

#### **Histopathology Results: -**

There were three cases of invasive cancer cervix (22.18 / 100.000 women), while CIN was found in 19 cases of CIN I and 9 cases of CIN II – III (207.08/100.000 women). All shared being married before the age of 20 except for three teachers who were married at ages of 23.25. Only four of these

subjects were Khat chewers. Atypical cytological smear was found in 16 cases, while suggestive colposcopic findings were found in all of the 28 CIN cases.

Table 1: Data of age, Marital duration and age at marriage.

	Range (Years)	Mean (Years)	Standard Deviation (Years)	Number
Age	16 – 16	37.97	10.43	316
Marital duration	0.5 – 50	19.39	9.51	316
Age at marriage	10 – 38	17.743	4.38	316

Table 2: Cervical lesions in the study - group.

Lesion	Number
Cervical erosion	153
Laceration and / or ectropion	30
Nobothian follicle	22
Cervical polyps	49
Contact bleeding	31
Sanguineous cervical discharge	11
Mucopurulent discharge	28
Evident cancer cervix	3
Myomatous polyp in a virgin	

Table 3: Colposcopic VS. Histopathological Findings.

Pathological Findings	Colposcopic Findings			
	Punctate Areas	Mosaic Areas	Aceto-white Areas	Abnormal blood vessels
Normal Endocervix	10	-	-	-
Chr. Non-specific endocervicitis	52	3	27	7
CIN. I or I – II	28	4	8	9
Polyps	6	1	6	2
Squamous Metaplasia	5	1	2	2

Table 4: Distribution of age and age –at-marriage in colposcope-suspicious Cases.

	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-
Age	-	-	6	5	14	12	29	26	15	1	5
Age –at marriage	11	45	23	12	12	14	-	-	-	-	-

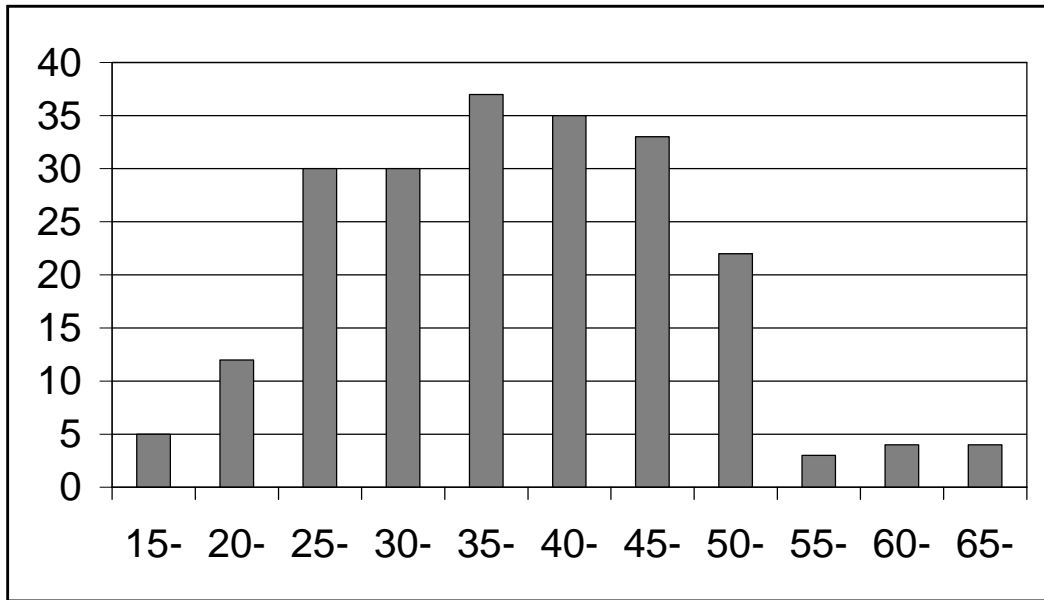


Figure 1: Age distribution of women of suspicious cervix

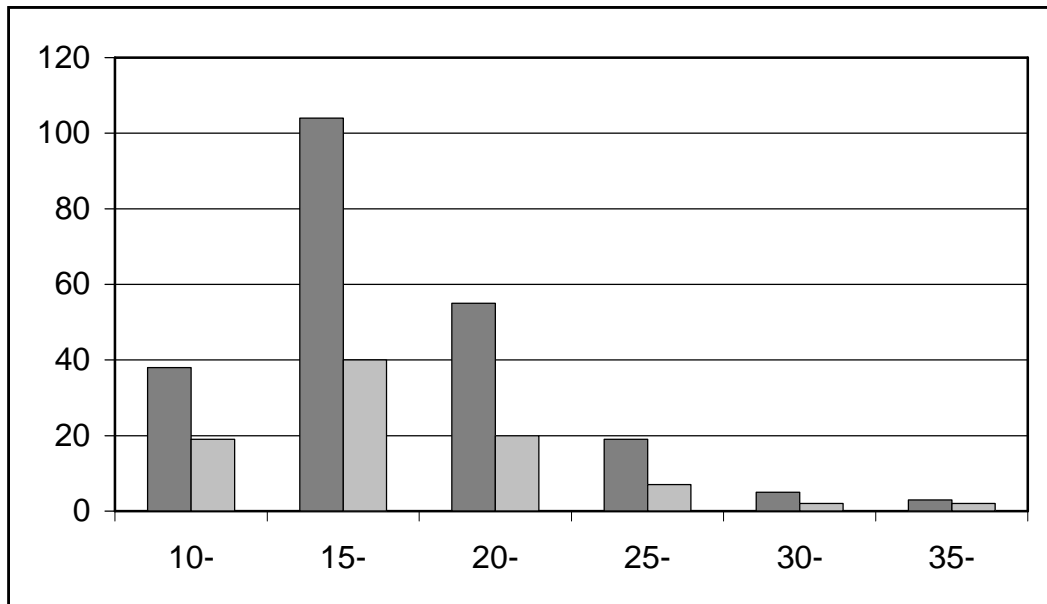
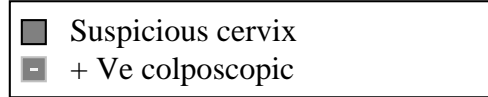


Figure 2: Distribution of age at marriage of women with suspicious cervix and

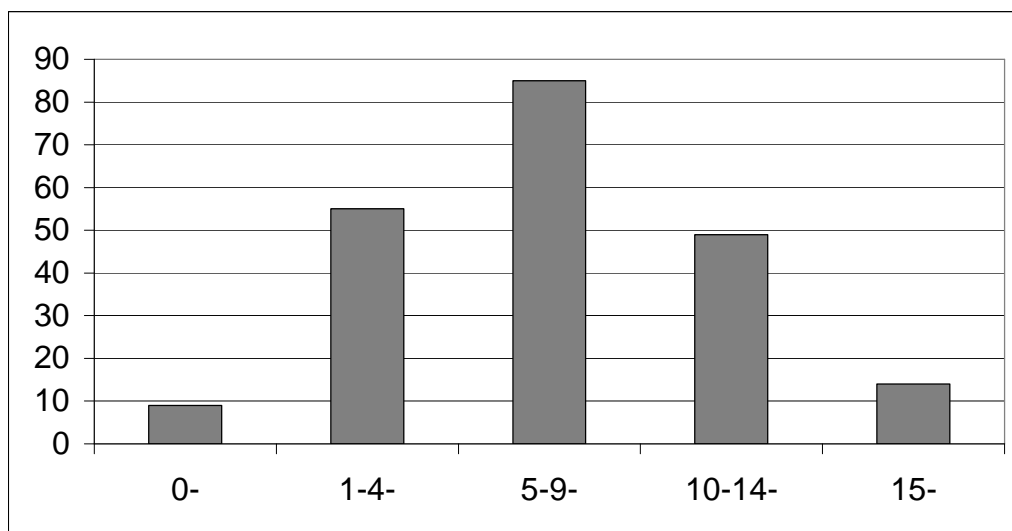


Figure 3: Gravidity distribution of women of suspicious cervix

**Discussion: -**

The incidence of cancer cervix in Yemen, according to this study is 22.18/1000.00 women. This puts Yemen midway among nations at low-risk of cancer cervix (5-42/100.000 women)<sup>(2)</sup>. However, this may be an over-estimate, because Al-Sabeen Hospital is the largest maternity hospital in Sana'a, Capital of Yemen, which makes it the referral hospital for major cases in Yemen.

The mean age at presentation, in the high – risk group, was slightly less than in women with positive colposcopic findings. This is due to inclusion of five cases, above the age of 60 in the latter group, with one-aged 70 who had had invasive cancer cervix. However, the mean age at marriage was 17.7 years with 79 of them married before age of 25 (70 %), all of them were illiterate farmers and house-wives. In this class of population, marriage, as early as the age of nine, is a common, and accepted practice, which is considered to have religious roots<sup>(10)</sup>.

Gravidity was high ( $8.98 \pm 4.36$ ), which is quite common amongst Yemeni women and 30% of women of high – risk had had 10 children or more.

It is noteworthy that early age at first intercourse and multiparty are important risk factors in the development of cancer cervix <sup>(6,7,8,18)</sup>.

In this study, all male partners were circumcised; no woman had more than one male partner. Even the six women, who married more than once, did so because of divorce or death of the husband i.e. still mono-androus with no promiscuity, i.e. two of the important risk factors<sup>(6,7)</sup> are missing due to strict compliance to Islamic rules, which regulate family affairs.

All the subjects, except few, belonged to the low, or low – mid socio – economic group of farmers or house – wives. It is the same group where early age at marriage prevails, and also the group who attend a free hospital as Al-Sabeen Hospital, De Asia<sup>(1)</sup>. Stafl <sup>(5)</sup>, Reid <sup>(6)</sup>. And Morris <sup>(8)</sup> included low socio – economic status and its inter – relation to early marriage and multiparty as an important risk factor predisposing to cancer cervix.

Cigarette smoking, more than 10 cigarettes per day, is considered to be an important risk factor <sup>(16,17)</sup>. This habit is not prevalent amongst Yemeni women, but Khat-chewing and narghile-smokings are. However, Khat-chewing constituted 48.1% of the high – risk group, 44.2 % of the colposcopic-positive group and 26.7 % of pathologically proven CIN and invasive cancer. So, Khat-chewing cannot be considered as a risk factor in this concern.

Pap – smear was atypical in 58 patients but, out of 28 cases CIN – proved cases, it was atypical in 16 only. It is time than cytology is the most commonly used screening method <sup>(7)</sup>. Yet, its place remains controversial. It carries a false – negative risk, for a single Pap, smear of 20 – 50% (Jones III 2000) and approximately one third of women with mildly abnormal Smear harbour CIN III <sup>(17,18,19)</sup>. Missing such a lesion means that it is located where it is away from sampling or the cells of the lesion are not easily recognized as being abnormal <sup>(20)</sup>. Add to this faulty specimen collection, laboratory error and deficiency of laboratory assurance mechanisms <sup>(19)</sup>. However, combination with colposcopy raises the accuracy to 90 % <sup>(16)</sup>.

In this study, colposcopy revealed abnormal findings (Punctate areas, mosaic areas, aceto – white areas and abnormal blood vessels) in 113 cases including 10, which proved normal cervices (punctate areas only). All cases of CIN were disclosed<sup>(1)</sup> have already mentioned that that these abnormalities were seen in cases of minimal dysphasia to carcinoma in situ. The place of

colposcopy, as a screening method, is at debate. It is agreed – upon that all cases of high – grade squamous intraepithelial lesions (SIL) should be referred for colposcopy and directed biopsy<sup>(17,18)</sup>. While low grade SIL-cases are at debate<sup>(18)</sup> are of the view of immediate colposcopy for such cases, while prediville and walker<sup>(17)</sup> advocate a repeated smear within 4–6 months and reserve immediate colposcopy, in such cases, for those who have another risk factor (virus subtype, smokers. etc). In cases of Atypical Squamous Cells of Unidentified Significance (ASCUS), immediate colposcopy provides the best method to separate such cases from those with no evidence of HPV or CIN<sup>(20)</sup>.

Biopsy remains the final step to establish the diagnosis, and cytology, colposcopy and biopsy form the most cost – effective screening option in USA for early detection of cancer cervix<sup>(7)</sup>.

Multicentric study to establish the incidence of cancer cervix and CIN in Yemen is proposed, but a national program, screening the whole Yemeni population is not needed on the basis of low incidence of this lesion in Yemen.

### **References:**

1. Di Asia, P.J.: Malignant Lesions of the uterine cervix. In, Danforth's Obst. Of Gyn, 7 th Ed. By Soctt, J.R. Di Saia, P.J. Hammand C.B. and Spellacy W.N. Pub. Lippincott Co. Philadelphia. 1994: P. 901.
2. Wilson. S. And Woodman, C.: Assessing the Effectiveness of Cervical screening Clin. Obstet. And Gynecol 1995. 38 (3): 577 – 586.
3. El Gharib. M. N.: Vancer of the Cervix. In. El Gharib Manual of Gyn. I st Ed. Pub. By the author 1997 (a) P. 279.
4. Pinto. A.P.and Christoph. P.C. Natural History of Cervical Neoplasia. Clin. Obstet & Gynecol 2000. 34 (2): 352 – 362.
5. Stafl. A.: Cervical Intra – epithelial Neoplasia In, Te Linde's Operative Gyn. 7 th Ed. By Thompson. J.D. and Rock, J.A. Vol. II Pub. Lippincott Co. Philadelphia. 1992. PP. 1141 – 1160.
6. Reid. BL.: The cusation of cervical cancer. A general Review. Clinics in Obsted , & Gynecol . 1985, 12 (1): 1 – 17.
7. Kaufman. R.H. Adam. E. And vonka. U.: Human popilloma virus infection and cervcal carcinoma. Clin. Obstet of Gynecol. 2000. 43 (2): 363 – 380.
8. Morris. M.: Preinvasive lesions of the femal Genital Tract: In. Principles and Practice of Clin. Gyn. By Kase. Weingold and Gershenson 2<sup>nd</sup> Ed. Vol. II, Pub . Churchill . Livingstone. New York. London 1990 pp 763 – 788.

9. Thompson. J. D.: Cancer of the Cervix. In. Te Lende's Operative Gyn. 7<sup>th</sup>. Ed. By Thompson. J.D. and Rock. J.A. Vol. ii Pub. Lippincott Co. Philadelphia . 1992 pp 116 – 119.
10. Moqbel. A.B.: Vesico – Vaginal Fistual in Yemen. M.S. Thesis (Gyneol. and Obstet ) . Faculty of Medicine. Cairo Univ. 1991.
11. Fetherston . W.C.: False – Negative Cytology in Invasive Cancer the Cervix.
12. Grubb. C.: Pre – invasive and Invasive Carcinoma. In Practical Colposcopy 1 st Ed. Pup .S. Krager London. Basel. Munchen. 1977 pp. 143 – 166.
13. Cartier. R.: Micro invasive carcinoma and hidden carcinoma in. Practcal don. 1997 PP. 161 – 167.
14. kolstad . P.: Vascular changes in cevervical intraepithelial neoplasia and invasive cervical carcinoma Clin. Obstet. & Gynecol. 1938, 26 (4): 938 – 948.
15. El Gharib: Biostatistics in El Gharib Manual Obstetrics 1997(b) pp259 – 266.
16. Stafl. A.: Diagnosis and treatment of Intraepithelial Cervical Neoplasia. Foreword. Clin. Obstet. & Gyecol. 1983. 26 (4): 925 – 928.
17. Prendiville W. and Walker. P.: Every Woman with Abnormal cervical smear should Not Be Referred colposcopy: Debate: Clin. Obst. And Gynecol .1995, 38 (3): 592 – 599.
18. Flannelly, G. and Kitchner, H.: Every Woman with an Abnormal Cervical Smear Should be Referred for Treat – ment: Debate. Clin. Obstetric. & Gynecol. 1995, 38 (3): 600 – 609.
19. Greenberg, M.D. Sedlacek T.V. and Champion. M.J.: Cervical Neoplasia: Are Adjunctive Tests. To Cervical Cytology. Worth while? Clin. Obstetric. & Gynecol. 1995, 38 (3): 6000 - 609.
20. Jones. H.W. III: Clinical treatment of women with atypical squamous cells of undetermined significance or atypical glandular cells of undetermined significance cervical cytology. Clin. Obstetric. & Gynecol. 2000. 43 (2): 381 – 393.

## Coverage and perceptions of Medical Sciences students toward Hepatitis B virus Vaccine in Sana'a City , Yemen .

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### **ABSTRACT:** -

- Objective:** - The present study was conducted to estimate vaccination coverage against hepatitis B virus and the perceptions of 1198 medical sciences students in Sana'a City, Yemen.
- Method:** - Only those who practice clinical training or are in contact with body fluids were included. They are enrolled in the Faculty of Medicine and Health Sciences, Sana'a University, Republic of Yemen. Arabic pre-tested questionnaire forms were filled by 840 students at a response rate of 70.6%.
- Results:** - The study revealed a reported vaccination rate of 29.5%. The rate among Faculty of Medicine and Health Sciences students was 32.3% , whereas only 21.3% among the students of High Institute of Health Sciences . Students of dentistry attained the highest rate of vaccination (38.8%), while nursing students of the High Institute of Health Sciences achieved the lowest rate (17.1%). Rate of vaccination (46.6 %) among female students was significantly higher than male students (22.3 %) with a P-value of 0.0001. Medical assistants of the High Institute of Health Sciences scored the best (56 %) in terms of knowledge, medical laboratory sciences students achieved the highest (43.6 %) in attitude and dentistry students were the highest scores (35.5 %) in practices. The mean knowledge of females and males were comparable, however, females achieved higher attitudes and practices. Final stage students attained the better attitude scores than the pre – final and intermediate students.
- Conclusion:** - Vaccination coverage of medical sciences students in Sana'a City, Yemen is low. Knowledge of medical assistants is the best, attitude of medical laboratory sciences students and practices of dental students is the highest. Attitudes and practices of female students are better than that of males.
- Key word:** - Hepatitis B vaccine, KAP, medical sciences students, vaccination coverage.

**Introduction: -**

High morbidity and mortality due to hepatitis B virus (HBV) infection has been reported worldwide.<sup>1-3</sup> It influenced health care planners in moderately and highly endemic areas to take account of HBV vaccination within their national programs of immunization. Yemen is one of the highly endemic areas.<sup>4,5</sup> By the year 1998, more than 90 countries, including Yemen, adopted HBV vaccine to all neonates.<sup>6</sup> High-risk groups were also considered for immunization.<sup>5,7</sup> Health care workers are at risk of infection as revealed in the studies that were carried out in the United States of America (USA),<sup>8-10</sup>. Nigeria<sup>11,12</sup> and Jamaica.<sup>13</sup> Vaccination coverage of health care workers was studied in many countries. Locally, coverage of 32% was reported in public hospitals of Sana'a City, Yemen.<sup>14</sup> In California, USA the coverage ranged between 17 % and 68 %.<sup>15</sup> In the public hospitals of Argentina, vaccination coverage reached up to 51%.<sup>16</sup> The coverage among Brazilian dentists was 69%.<sup>17</sup> In a University Hospital in Bangkok the coverage was 65 %.<sup>18</sup> Among medical schools students, 11 % of health and medical sciences in Southern Florida were vaccinated.<sup>19</sup> While 75.5 % of students of medicine and 68.8% of nursing were vaccinated in Thailand.<sup>18</sup> With regard to knowledge 'attitudes ' practices, (KAP), 94.2 % of village doctors in China sterilize syringes,<sup>20</sup> 91.8 % of Canadian dentists use gloves regularly, and 74.8% use masks normally and 83.6 % use goggles.<sup>21</sup> Hot air oven was used by 83.6 % of the Canadian dentists to sterilize metallic tools.<sup>21</sup> KAP of health workers in Thailand improved from 56.9–77.7 % after exposure to a health education program on HBV vaccination.<sup>22</sup> The present study aimed at determination of reported vaccination coverage and KAP of medical sciences students for HBV vaccine in Sana'a City. In addition, to correlate their KAP and coverage with sex, educational level and type of study.

**Methods: -**

This study describes the KAP of all medical sciences students who are exposed to patients' body fluids or in clinical contact with patients. They are enrolled in the Faculty of Medicine and Health Sciences (FMHS), Sana'a University, Republic of Yemen (N = 629). Another 211 students were from the high Institute for Health Sciences (HIHS), Ministry of Public Health and Population. The students were contacted after they performed routine tests in the teaching centers. Response rate was 70.65 %. A pre-tested (20 students) Arabic questionnaire was designed and referred by 2 experts in the Department

of community medicine in FMHS, for content validation. The questionnaire was found to be reliable when examined by the Split Half Method where  $r = 0.657$  and  $p < 0.0001$ . The questionnaire which included 12 questions for knowledge, covered the vaccine existence, types, protectivity, contraindications, complications, number of doses and prevention of infection and practices, the infective agent, infectivity, complications of the infection and high risk groups. With regard to attitude and practices, 4 questions were asked about the motive behind vaccination, 5 questions for practices included taking the vaccine in full or partial, advising others to take the vaccine and actions taken in case of exposure. Each part of the questionnaire was weighed to 100 degrees. The students completed the questionnaire forms after the consented. Data was entered in a Personal Computer (PC), analyzed by Statistical Package of Social Sciences (SPSS) version 10 to find the mean standard deviation (SD) and to calculate Chi – squares, t – tests and ANOVA. Differences were considered at a  $P < 0.05$ .

### **Results: -**

An overall rate of reported vaccination of 29.5 % was found. The rate among FMHS students: (32.3 %) was higher than that (21.3 %) among HIHS students ( $p = 0.002$ ). Within the field of study, the highest coverage (38.8 %) was among the dentistry students, while the lowest (17.1 %) was among higher nursing students of HIHS (Table1).

Table 1 – Reported vaccination against HBV among medical sciences students in Sana'a, Yemen in the year 2000.

Field of study	Vaccination N (%)
Medicine	350 (30)
Dentistry	49 (38.8)
Medical laboratory	193 (36.3)
Nursing	37 (234.3)
Medical assistants	111 (18.9)
Laboratory technicians	59 (28.8)
High nursing	41 (17.1)
Total	840 (29)
Likelihood Chi square = 15.82, P = 0.015, N – number, HBV – hepatitis B virus	

Table 2 – Reported vaccination against HBV among medical sciences students according to sex in Sana'a, Yemen in the year 2000.

Field of study	Vaccination N (%)	Chi Square	P - value
Medicine			
Male	236 (23.7)	13.57	< 0.0001
Female	114 (43)		
Dentistry			
Male	19 (15.8)	6.091	0.009
Female	30 (53.3)		
Medical laboratory			
Male	130 (26.9)	15.05	< 0.0001
Female	63 (55.6)		
Nursing: - Male	24 (20.8)	0.45	0.501
Female	13 (30.8)		
Medical assistants			
Male	97 (16.5)	4.2	0.040
Female	9 (44.4)		
Laboratory technicians			
Male	53 (22.6)	9.67	0.002
Female	6 (83.3)		
High nursing: - Male	24 (12.5)	1.04	0.308
Female	16 (25)		
Gender was not mentioned in 6 questionnaires, N – number, HBV – hepatitis B virus			

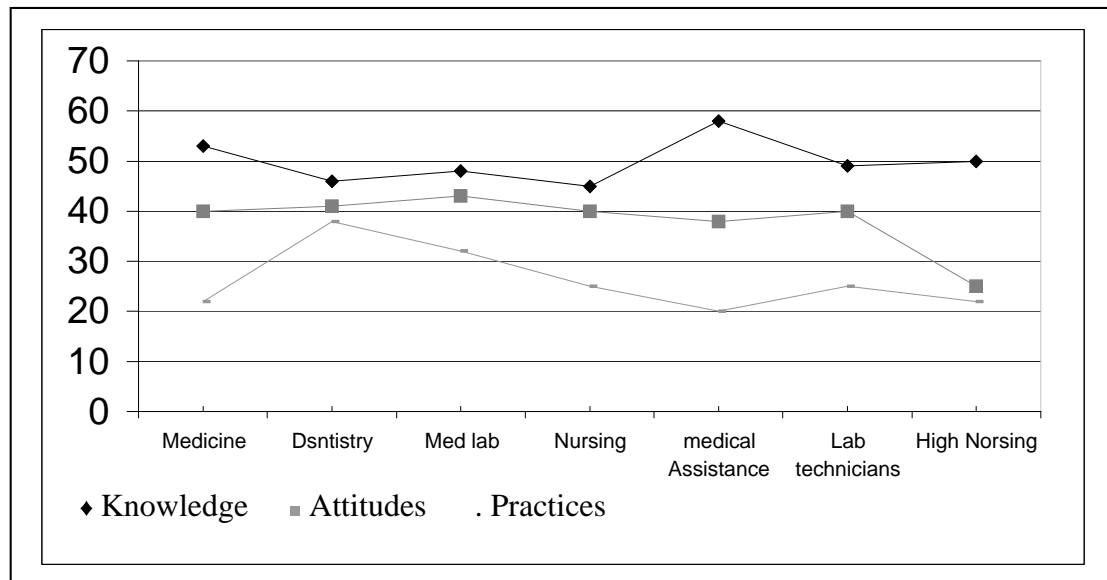


Figure 1: Mean KAP of medical sciences students about hepatitis B in Sana'a City, Yemen, in the year 2000

Table 3 – Knowledge, attitudes and practices of medical sciences students Towards HBV immunization according to sex in Sana'a City, Yemen, in the year 2000.

Sex (N)	Knowledge			Attitudes			Practices		
	Mean ± SD	T - Test	P-value	Mean ± SD	T - Test	P-value	Mean ± SD	T - Test	P-value
Male (583)	50.9 ±12.7	0.45	0.66	38.0±20.6	3.58	<0.001	22.6 ± 27.0	7.2	<0.0001
Female (251)	50.4±11.8			44.3±21.0			38.8 ± 30.8		
Gender was mentioned in 6 questionnaires, N – number, SD – standard deviation, HBV – hepatitis B virus									

Table 4 – Mean KAP medical students according to phase of study, Sana'a Yemen, in the year 2000.

Phase (N)	Knowledge			Attitudes			Practices		
	Mean ± SD	F-value	P-value	Mean ± SD	F-value	P-value	Mean ± SD	F-value	P-value
Final (447)	51.3 ±12.3	1.57	0.21	43.0±21.4	13.0	<0.0001	29.4±29.5	2.5	0.09
Pre – final (230)	55.2 ±11.4			36.0±19.0			25.6±28.2		
Intermediate (163)	56.8 ±13.8			35.6±20.0			24.2±29.1		
N – number, SD – standard deviation, HBV – hepatitis B virus									

Female students (46.6 %) were significantly more vaccinated than males (22.3 %) with Chi square of 49.8 and P – value of < 0.0001 (Table 2) .

Thirty – two percent of the students enrolled in the final year of study reported that they are vaccinated (32.2 %) whereas only 24.3 % of the students in the pre–final stage reported that they are vaccinated and 28.2 % of the students in the middle stage reported that they are vaccinated. F–value is a statistical value (such as that of t – test) used for differences between more than 2 means. As far as knowledge is concerned, medical assistant students of HIHS scored the highest mean (56 degrees), followed by students of medicine (53.1 degrees) with F – value of 13.5 and P < 0.0001. Further analysis, Scheffe test, revealed significant differences (p < 0.05) between mean scores of medical assistants and medical students with those of dentistry, medical laboratory

sciences and nursing. With respect to attitudes, medical laboratory sciences students scored the highest (43.6 degrees) with F value of 5.5 and  $P < 0.0001$ . A higher nursing student scored the lowest score (24 degrees) and was significantly ( $p < 0.05$ ) lower than medicine, dental, medical laboratory sciences and laboratory technicians. Concerning practices; dental school students achieved upper mean (35.5 degrees) with F – value of 2.8 and  $P = 0.0011$  (Figure 1).

Regarding gender, the mean knowledge was comparable in both sexes, while attitudes and practices were significantly higher in females than males (Table 3).

Final students attitudes were significantly higher than others (Table 4).

Attitudes were found positively correlated ( $r = 0.56$ ) with practices with  $p - \text{value} < 0.00001$ . Knowledge also was positively correlated ( $r = 0.21$ ) with practices with  $p - \text{value} < 0.0001$ .

### **Discussion: -**

The found rate (29.5 %) of vaccination was low, especially for a country classified as a high endemic area such as Yemen <sup>4,5</sup>. It is lower than the rate (69%) found among medical students in Bangkok <sup>18</sup>, but higher than the mean coverage (11%) found among medical students of South Florida <sup>19</sup>. Hence, fees of vaccination should be reduced or offered free. Female students reported better coverage (46.6 %) than males (22.3 %) in all fields of study. Dental and medical laboratory students of FMHS, reported better coverage rates (38.8% and 36.3 %) whereas, poorer coverage was reported by higher nursing (17.1%) and medical assistants students (18.9 %). These findings imply generalizing an education program on HBV vaccination to all medical science students with special emphasis on male sex, higher nursing and medical assistants students of HIHS. With regard to knowledge, medical assistant students of HIHS scored highest (56 degrees) followed by students of medicine (53.1 degrees) of FMHS, while nursing students of FMHS scored (43.1) the lowest knowledge. This result may be attributed to information recall, therefore, depends on the time of exposure to the information. Attitudes of medical laboratory science students were found highest followed by dental students. Both disciplines scored higher than that scored by others in practices, which is logical. Although mean knowledge scores were comparable in males and females, female students' attitudes and practices were found significantly higher than males. These findings may indicate differences in the views toward risk between the 2 sexes. This implies giving more attention to male students when designing

educational programs on HBV vaccination. Despite the significant differences in the knowledge of various groups of students, final year students scored better attitudes and practices. Thus, more emphasis should be given to earlier years students in any intervention programs.

In conclusion, vaccination coverage among all medical science students is low. Attitudes and practices of females and final year students were better than males and earlier year student.

**References: -**

1. Kane M. Global program for control of Hepatitis B infection. *Vaccine* 1995; 13 suppl: 47 – 49.
2. Cotran RS, Kumar v, Robbline SL, Robbins pathologic basis of disease, the liver and billiary tract. 5<sup>th</sup> ed. UAS: WB Saunders; 1994. P. 945.
3. Kant I, Hall A. Epidemiology of childhood hepatitis B in India: Vaccination related issues, *Indian J Pediatric* 1995; 62: 635 – 653.
4. Al-Zaggar L. Report of the Yemen national infectious viral hepatitis control programme .No .43/97. Yemen Republic: Ministry of Public Health 1999.p. 1.
5. Monto A. Diseases spread by close personal contact. In: Last J, Wallace R, and editors. *Public health and preventive medicine* 13 th ed. USA: Prentice Hall International Inc; 1992. p. 134.
6. Kane M. Status of hepatitis B immunization programmes in 1998. *Vaccine* 1998; 16 suppl: 41-43.
7. Gully M. Status risk group strategies in North America *Vaccine* 1995; 13 Supp: 47 – 49.
8. Wisnom C, Lee R. Increased seroprevalence of hepatitis B in dental personnel necessitates awareness of revised pediatric hepatitis B vaccine. *J Public Health Dent* 1993; 35: 231 – 234.
9. Hakre S, Reyes L, Bryan J, Cruess D. Prevalence of hepatitis B virus among health care workers in Belize, Central America. *Am J Trop Med Hyg* 1995; 53: 118 - 122.
10. Barie P, Dellinger E, Dougherty S, Fink M. Assessment of hepatitis B virus immunization status among North American surgeons. *Arch Surg* 1994; 129: 27 – 32.
11. Abtodun P, Olomu A, Okolson OA, Freeman O. The prevalence of hepatitis B antigen and anti – HBE in adults in Benin City. *West Afr J Med* 1994; 13: 171 – 174.
12. Adebamowo C, Ajuwon A. The immunization status and level of knowledge. About hepatitis B virus infection among Nigerian surgeons. *West Afr J Med* 1997; 16: 93 – 96.

13. Figueroa J, Caarpenta H, Hospedales C. A survey of hepatitis B among health workers in Jamaica. *Eest Indian Med J* 1994; 43: 2 – 6.
14. Hanash S, Al Jaufy Ay. Hepatitis B virus markers and risk factors among health care workers in Sana'a Public Health Hospitals. Sana'a (Yemen): Faculty of Science Bulletin, Sana'a University; 2001. P. 135 – 194.
15. Murata P, Young L. Physician's attitudes and behaviors regarding hepatitis B immunization. *J Fam Pract* 1993; 36: 163 – 168.
16. Frider B, Sookoian S, Reborá N, Castano G, Rozenblat E. Professional risk: Hepatitis B vaccination strategies in a general hospital. *Acta Gastroenterol Latinoam* 1992; 22:29-25.
17. Jorge R, Almida O, Scally C, Knowledge and attitudes about blood – borne viruses and infection control in Brazilian dentist practice. *Oral Dis* 1996; 2: 41 – 44.
18. Israsena S, Kamolratanakul P, Sakulra R. Factors influencing acceptance of hepatitis B vaccination by hospital in an area hyperendemic for hepatitis B. *Am J Gastroenterol* 1992; 87: 187 – 189.
19. Ganguly R, Marty P, Herold A, Anderson M. Hepatitis B immunization in a university population. *J Am Coll Health* 1998; 46: 181 – 183.
20. Clayton S, Yang H, Guan J, Lin Z, Wang R. Hepatitis B control in China: knowledge and practices among village doctors. *Am J Public* 1993; 83: 1685 – 1688.
21. McCarthy G, MacDonald J. The infection control practice of general dental practitioners. *Infect Control Hosp Epidemiol* 1997; 18: 699 – 703.
22. Kamolratanakul P, Ungtavorn P, Israsena, S, Sakulramrung R. The influence of dissemination of information in the change of knowledge attitude and acceptance of hepatitis B vaccination among hospital personnel in Chulalongkorn hospital. *Public Health* 1994; 108: 49 – 53.



Abstracts

## Evaluation of the Nutritional Status of Children Less than ten Years of age in Sana'a and Hodeidah Governorate in Yemen.

*Dr: Yahia M AL-Abhar*

### **BACKGROUND: -**

Prevalence of Malnutrition among Pre-school children can be used to determine the need for nutritional surveillance, nutrition care, or appropriate nutrition intervention programs. Such data also indicate the target groups and where interventions are need.

### **OBJECTIVE: -**

To evaluate the nutritional status of children of Sana'a and Hodeidah Governorate, in central and west of Republic of Yemen, according of age & sex.

### **SUBJECTS: -**

924 Yemeni children (491 males and 433 females) aged, six to 120 months. " 509 from Sana'a and 415 from Hodeidah Governorate "

### **METHODS: -**

Nutritional status measured by anthropometry of body height and weight in relation to age and sex (Z – scores of: height–for–age ' H / A ' , Weight–for –age 'W/A' , and weight–for–Height 'w/h' ) which reflect, stunting, underweight, and wasting, respectively.

### **Design: -**

A community based cross – sectional Anthropometrical study was conducted to assess the nutritional status of children. A three stage stratified sampling technique was used to randomly select, eight, Districts, 24 villages in the study area. Children under ten years of age (from households for pre-school children and from schools for school children).

**RESULTS: -**

The prevalence of stunting, Underweight, wasting ( $< - 2SD$ ) were: 43.5%, 38.7%, 10.8 %, respectively (The prevalence of malnutrition among children less than five years were: stunting, 50 %, Underweight, 44.9%, wasting, 10.9 %).

The prevalence of malnutrition was highest in children aged less than five years compared to school children. Among children less than 5 years of age, the prevalence of stunting and underweight, (below  $- 2 SD$ , height – for – age, and weight – for – age) were 50% and 45% respectively, which is classified by WHO as a ‘ very high ‘ prevalence, greater than average of developing countries in the world.

Prevalence of stunting among children less than 5 years of age, was, 50%, compared to 37% among school children, “  $p < 0006$  “. Underweight: 45% and 33% “  $p < 0002$  “. And wasting, 10.9 % and 9.2 % “  $p = 0.3$  “.

Geographically, it was found that malnutrition is more prevalence in Hodeidah than in Sana’a governorate.

**CONCLUSION: -**

These results show that malnutrition is still a serious public health problem in Yemen (Sana’a and Hodeidah governorate) and requires urgent attention. The problem since the first survey in 1979 shows an upward trend (wasting), suggestion deterioration over the years. The results of this study and others Surveys in Yemen emphasize the importance of having a well – established surveillance system that would ensure necessary and timely action. There was association between malnutrition Diarrhea and chewing Qat (parents).

## Application of School Questionnaire For Schistosomiasis Screening in Yemen

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**Other investigators:** - *Oshysh A Y \*\*, Bin Gouth A S \**

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### **Abstract:** -

Schistosomiasis is an important public health problem in Yemen. Its focal distribution demands the implementation of rapid and inexpensive methods to identify communities at high risk of infection in order to efficiently use the available resources. A rapid diagnostic approach – school questionnaire and urine reagent strips were tested during the last decade in many countries and proved to be simple, cheap and reliable.

The objective of this study is to investigate the applicability of Schistosomiasis school questionnaire and to compare its cost with other diagnostic approaches for rapid identification of communities at high – risk of schistosoma infection in Yemen.

### **Methods:-**

The questionnaire was tested, and distributed through the education system with supervision of the health authority in randomly chosen 6 districts out of 11 districts in Abyan governorate. Validation was done by examining a sample of children in 4 schools in Abyan and 2 schools in Taiz governorates. The examination includes questions about schistosomiasis morbidity, blood in urine or stool, urine test by reagent strip and filtration and stool examination by modified Kato Katz smear. The financial cost of each diagnostic approach was estimated for implementation in one school, and compared with the cost of the questionnaire.

**Results: -**

The return of a correctly completed questionnaire was 81 % (101 schools out of 125 schools). Teachers interviewed 7818 school children mainly from 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> classes. Schoolchildren reported positive answers for blood in urine in 75 schools out of 101 (74 %); positive answers for blood in stool in 71 schools (70 %) and positive answers for having schistosomiasis in 64 schools (63 %). The questionnaire identified 5 schools with prevalence in the range 20%-50% for blood in urine and schistosoma hematobium, and one school with blood in stool prevalence in the same range in the screened districts of Abyan governorate.

The research team investigated 580 schoolchildren as a sample of selected schools for questionnaire validation. Their mean age 10.6 years, and 63% of them were males. The results obtained by health worker asking children about the presence of blood in urine or stool, obtained by reagent strip detecting microhematuria, and obtained by visualizing schistosoma ova in stool or urine were comparable with the results obtained by questionnaire in five out of six schools in case of urinary schistosomiasis, but not for intestinal schistosomiasis.

The used reagent strip when compared with urine filtration method proved to have high sensitivity (79.7 %) and specificity (92.2 %), positive (74.2 %) and negative (94.2 %) predictive value. For its low cost and, easy application and ability to give semi-quantitative results, it can be another feasible approach for rapid screening in case of urinary schistosomiasis.

The average cost of implementing screening for one school is 31\$, 135.2 \$ 474,7\$ and 591.7\$ for the questionnaire, reagent strip, filtration and Kato method respectively.

**Conclusion: -**

The questionnaire is applicable in Yemen as a simple, cheap and reliable approach for screening schoolchildren to identify areas at high risk of schistosoma infection. It costs at least 4 times less than screening with reagent strip, 15 times less than screening with urine filtration method for schistosoma hematobium. Using the questionnaire costs 19 times less than screening with Kato Katz smear – with lower reliability – for schistosoma mansoni.

## Rational use of antimalarial drugs In Hajjah

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**Abstract:** -

Hajjah governorate is one of the highly endemic areas for malaria in Yemen, where more than 30 % of all attendees at public health facilities have probable or confirmed malaria. The objectives of the study were to assess prescribing rationality, to describe treatment in households and to identify the available antimalarial drugs in Yemen. Drug use rationality was assessed using WHO drug use indicators, a household survey and recording the available antimalarial drug at public health facilities, and private community pharmacies and drug stores. The study was carried out in randomly selected public and private health facilities, and households in three districts of Hajjah governorate.

**Results :-**

Several patterns of irrational drug use were identified including inadequate laboratory diagnosis in public health facilities ( 21.2 % ) , informal prescriptions ( over 50 % ) , and badly written prescriptions . Patient and drug information were unlikely to be stated in prescriptions . Other patterns of irrational drug use in public and private health facilities respectively were : polypharmacy ( 2.7,4 drugs per patient ) , high incidence of prescribing antimalarial drugs by brand names ( 33 % , 64 % ) , and misuse and overuse of injectable antimalarial drugs ( 18.4 % , 33.5 % ) . Inappropriate self – medication practices were also identified . Antimalarial drugs including the newer types are available under different brand names and can be obtained over –the–counter . The inappropriate , ineffective and inefficient use of antimalarial drugs may lead to ineffective treatment , health risks , patient non – compliance and needless expenditure . The irrational use of antimalarial drugs may be due to lack of training and information .

**Conclusion :-**

The study reported common patterns of irrational use of antimalarial drugs , providing baseline information necessary for designing future interventions to promote the rational use of drugs in Yemen .

## Effect of gentamicin on serum digoxin level in patients with congestive heart failure.

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**Source:** - *Pharm-World-Sci. 2004 Apr; 26(2): 107-9.*

### **ABSTRACT:** -

#### **Objective:** -

Gentamicin is frequently used to treat infectious diseases in patients receiving digitalis therapy. The aim of this study is to evaluate the effect of gentamicin on serum digoxin level. **METHOD:** Twenty-four diabetic patients and patients with congestive heart failure and twelve normal healthy volunteers were enrolled in this study. The patients received digoxin treatment 0.25 mg/day. Gentamicin in a dose of 80 mg i.m. Twice a day for 7 days was prescribed for these patients to treat chest infection. Serum digoxin and creatinine levels were determined before and after gentamicin administration.

#### **RESULTS:** -

Gentamicin induced a significant increase in serum digoxin level of diabetic patients and patients with congestive heart failure. Serum creatinine level increased significantly before and after i.m. Injection of gentamicin.

#### **CONCLUSION:** -

The present study indicated that increase serum digoxin level when combined with gentamicin should be considered a risk factor for digitalis toxicity.

**Malaria status in Al-Hodeidah Governorate,  
Yemen: malariometric parasitic survey &  
chloroquine resistance *P. falciparum* local  
strain.**

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**Source: -** *J-Egypt-Soc-Parasitol.* 2003 Aug; 33(2): 361-72

**Abstract: -**

Malaria continues to be a major public health problem in Al-Hodeidah G. A cross-sectional malariometric parasitic survey including 4000 Yemenis of various age /sex groups were enrolled in this study from 43 villages/or Harah in five selected districts representing Al-Hodeidah G. Duplicate thin and thick blood smears were stained with Giemsa's stain and examined. Out of 4000 examined slides, 646 (16.2%) were found to be malaria positive, 508 (78.6%) of them were detected through ACD, while 138 (21.4%) cases were detected by PCD. The overall parasite rate was 16.2%, a situation of prevalently mesoendemic condition. *P. Falciparum* was the predominant species recorded (96.7%), followed by *P. vivax* (1.7%), the least prevalent was *P. malariae* (0.3%). Yemen has been considered free of ovale malaria. The recorded an indigenous case of *P. ovale* for the first time in Yemen should be taken into consideration for the existence of this particular Plasmodium species when surveying for malaria in the future. The present study was the first document in Yemen to compare simultaneously the in vivo and in vitro response to chloroquine among 209 of *P. falciparum* field isolate patients that were satisfied all criteria of WHO for the implementation of the in vivo and in vitro tests and were obtained by PCD and ACD methods. Chloroquine resistance of local strain of *P. falciparum* was recorded in all studied districts (Zabid, Bajil, Azohrah, Azaidiah and Al-Hodeidah city). RIII (high level of resistance) was recorded for the first time in Yemen and should be taken into consideration in the treatment of infected malaria patients. This calls for urgent revision of the current malaria treatment policy in Yemen where chloroquine is the first-line treatment of uncomplicated *P. falciparum* malaria.

## Endoscopic management of pediatric urolithiasis in a developing country.

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**Source:** - Urology. 2004 Jan; 63(1): 159-62; discussion 162.

### **Abstract:** -

**OBJECTIVES:** To evaluate our experience with the endoscopic management of lower and upper urinary tract stones in pediatric patients in the Republic of Yemen.

**METHODS:** From January 1, 1993 to December 31, 1998, 290 endoscopic operations were performed on 265 pediatric patients up to 14 years of age, 173 on the upper and 117 on the lower urinary tract. Of these procedures, 138 were percutaneous nephrolithotomy, 5 were endopyelotomy combined with percutaneous nephrolithotomy, 30 were urethral lithotripsy, and 117 were percutaneous cystolithotomy. Of the 265 patients, 244 were boys and 21 girls (male/female ratio 11.6:1, upper tract 7.4:1, lower tract 116:1) aged 8 months to 14 years (mean age 7.1 years). The 26F adult echoscope and 9.5F semi rigid ureteroscope were used. **RESULTS:** The overall success rate was 98.9%. Minor complications were observed in 29 patients (10.7%); severe complication did not occur. The nucleus and/or the main component of the stones were ammonium urate in 73.5% of the cases (upper tract 54%, but for those younger than 5 years, it was 75%; lower tract 93%).

**CONCLUSIONS:** The endoscopic management of pediatric urolithiasis is a safe and effective method. To our knowledge, this is the largest reported series on the endoscopic management of pediatric urolithiasis.