Proposal title:

EU and North African Migrants: Health and Health Systems

Kick Off Meeting
Thursday, May 5 - 6

Location: German Cancer Research Center (DKFZ),

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Location: German Cancer Research Center (DKFZ),

D-69120 Heidelberg, Im Neuenheimer Feld 580
(Technologiepark), Seminar room B4.101 (4th floor)

CONSORTIUM AGREEMENT FOR THE EU PROJECT EUNAM

BETWEEN:

- **DEUTSCHES KREBSFORSCHUNGSZENTRUM (DKFZ),** Heidelberg, Germany, the Coordinator
- **LUNDS UNIVERSITET (University Lund),** Lund, Sweden
- **UNIVERSITA DEGLI STUDI DI FERRARA (Ferrara University),** Ferrara, Italy
- **INSTITUT DE RECHERCHE ET DOCUMENTATION EN ECONOMIE DE LA SANTE ASSOCIATION (IRDES),** Paris, France
- **INSTITUT NATIONAL DE SANTE PUBLIQUE (NIH Algeria**), Alger, Algeria
- **CENTRE D'ETUDES ET RECHERCHES PROSPECTIVES (CE),** Ariana, Tunisia
- **Ain Shams University Asu Faculty of Medecine (Ain Shams University), ABASSYIA CAIRO, Egypt**
- **Institut Pasteur Du Maroc (IPM),** Casablanca, Morocco

1) Presentation of yourself, your colleagues and your institution (max 10 min)

Thursday, May 5

قسم طب المجتمع والبيئة وطب الصناعات
Department of Community, Environmental and Occupational Medicine, Ain Shams University

Faculty of Medicine, Ain Shams University, Egypt (FM ASU)

Ain Shams University, the third largest Egyptian university was founded in 1950 as a governmental organization.

- **180,000 students,**
- **5,000 staff members,**
- **4,000 assistant staff**
- **more than 100 centers and special units),**

It has a long collaboration with different European framework programs (19 EU funded projects in different fields).

The Faculty of Medicine, (http://med.shams.edu.eg/)

It serves more than **6000 undergraduate students** over the 6 years of undergraduate teaching, and more than **1500 post-graduate students** (Diplomas, Master of Science in Medicine and Medical Doctorate) in various academic and clinical departments.

The University hospital serves 1-2 million patients annually.

Departments: The school comprises

- 10 Academic departments including Anatomy, Histology, Biochemistry, Physiology, Pharmacology, Pathology, Parasitology, Microbiology, Community Medicine (Community, Environmental & Occupational Medicine), Forensic and Toxicology.
- 21 clinical departments are located in the University hospitals, including the 6 major Clinical departments (Ophthalmology, Ear, Nose and Throat (ENT), Internal medicine, Surgery, Obstetrics & Gynecology and Pediatrics).

Ain Shams University Educational Hospital

It consists of an outpatient clinic and inpatient department. Both have approximately **3200 beds (**in 1997),[with more than **10,000 staff** working in all departments and serving about **2,000,000 patients** from all over Egypt annually. It is managed by doctors who are professors of medicine and the other faculty staff in all specializations. **The capital of the hospital** was estimated to be 6 billion EGP in 1997.

- **Cardiothoracic** surgery department (10 inpatient beds, 11 adult cardiac surgery ICU beds, 6 pediatric cardiac surgery ICU beds, 4 Thoracic surgery beds, Blood bank, Lab, Trans-thoracic & Trans-oesophageal Echo, 3 adult cardiac surgery OR, 1 Pediatric cardiac surgery OR, 1 Chest surgery OR, Diagnostic endoscopy unit and Valve surgery follow up clinic)
- **Emergency** department (male and female sections), ECG, X-ray and lab.
- **Cardiology** department (Coronary care unit, Pediatric cardiology ICU, Cardiac intermediate care unit (225 beds), Inpatient department, Echocardiography, Stress ECG unit, Electrophysiological studies unit, Outpatient clinic)
- **Respiratory diseases** department (Respiratory diseases ICU, Inpatient, Outpatient, Pulmonary function tests, Respiratory infections lab, Fungal infections lab)
- **Dermatology & Andrology** department
- **Physical medicine** department
- **Diagnostic radiology** department
- **Clinical pathology** department
- **Rheumatology** department
- **Hematology/Oncology** department
- **Gastro-enterology/hepatology** dpt
- **Nephrology** department
- **Endocrine diseases** department
- **Neurology** department Allergy & **Clinical Immunology** department
- **Geriatric** medicine department Medical ICU (20 beds) Geriatrics ICU (10 beds)

El-Demerdash hospital

The original hospital, it was established in 1931.

Contains 769 beds and 970 employees (Excluding Professors).

It contains :

- **General surgery departments.**
- **Orthopedics**
- **Department of Neurosurgery**
- **Urology**
- **ENT, Audiology & Phoniatrics departments.**
- **Plastic surgery and Burn management unit.**
- **Diagnostic radiology units (Neuroradiology, Mammography, etc.)**
- **Clinical pathology units (Including Histopathology unit) Surgical endoscopies unit.**

Obstetric and gynecology hospital

This hospital was included with the pediatrics hospital in a single building, then was separated in 1963. It is a 7-floored building containing:

- **Outpatient clinics** (Infertility, breast disorders, Oncology, Gynecology, Diabetes in pregnancy, Endocrine disorders, Assisted reproductive techniques, Cardiac disorders in pregnancy, Preterm clinic, Cervical smear clinic, clinics) serving more than 40,000 cases annually from all over Egypt (in 1997).
- **Inpatient department** (580 beds), serving 12,000 deliveries annually and other specialized units (Oncology diagnosis, Fetal ultrasound, Oncology management, Assisted reproductive technology, Urodynamics and laparoscopy units).
- **Lab and blood bank** service available 24 hours daily.
- **Teaching rooms**,
- **library, Obstetrics and Gynecology museum**.
- Obstetrics and Gynecology **intensive care unit** (8 beds),
- **Neonatal ICU** (36 incubators),
- **10 delivery rooms and 11 operation rooms**.

Pediatrics hospital

The Pediatrics hospital contains:

- **Emergancy (**A & E) department (for Pediatric Medical & Surgical Emergancies)
- **Inpatient** department (more than 200 beds)
- Pediatrics **Hemodialysis** Unit(since 1991) (12 machines) & peritoneal dialysis units
- **Hematology** & **Oncology** unit (Since 1974) and Bone marrow transplantation unit (since 2005) (located in the Nearby Radiotherapy building)
- **Neonatal** & Preterms **Intensive Care** Unit (since 1995) (19 beds) serving (more than 484 cases annually).
- Pediatric Intensive Care Unit: 12 beds with invasive and non-invasive monitoring, mechanical ventilation (invasive, non-invasive and high frequency oscillation).
- **Pediatric surgery** department (since 1995): 19 beds Inpatient department & outpatient clinic .
- **Diagnostic Radiology** unit (Classic radiology, Pediatric echocardiography, Abdominal ultrasound), EEG, Clinical pathology lab, Clinical immunology lab.
- **Specialized units** (Genetics unit, Pediatric Physiotherapy unit)
- **Pediatric specialized Outpatient** clinics (Hematology & Oncology clinic, Pediatric Neurology clinic, Pediatric Cardiology & Pulmonology clinic, Diabetes clinic, Endocrine disorders clinic, Allergy & Immunology clinic, Genetic disorders clinic, Clinical nutrition clinic, Hepatology clinic, Disability & Rehabilitation clinic, Polio & Pediatric Orthopedics clinic and Nephrology clinic)
- **Immunodeficient isolation** unit.
- Vaccination unit. Medical nursery and children's club.
- Pediatrics Library

Medical Centers and Outpatient Clinics

Institute of Psychiatry Hospital. Established in 1987. It contains 100 beds, serving about 1000 patients annually at its emergency service, inpatient departments. In addition to the outpatient clinics (Addiction control, Sleep disorders, Psychosexual disorders, Child Psychiatry and Psychogeriatrics/Memory Clinics) and the laboratories (EEG, Sleep disorders and Clinical pathology & psychoactive drug monitoring labs), the center includes departments for Psychologic assessment, Cognitive therapy, occupational therapy, Electro-convulsive therapy and Biofeedback therapy. The Center contain teaching rooms and a specialized library. It was also chosen by the [World Health Organisation] to be the regional center for collaboration in the Eastern Mediterranean region.

Poison Control Center The first poison control and toxicology center in Egypt (established 1981). It contains 26 beds and treats about 25,000 patients annually from allover Egypt. It holds an intensive care unit (8 beds) and a medical analysis laboratory including toxicological screening (providing its services 24 hours). It also has a clinical toxins database providing information to many departments. The center contain an anti-toxin bank. The Center was chosen as the Middle-East representative in the World Federation of Poison Control Centers in 1990.

Radiation Oncology & Nuclear Medicine Center Specialized in diagnosis and treatment of malignant tumors, it contains 28 beds, serving about 19,000 patients annually.

Outpatient Clinics Receive around 1000 patients daily in all specializations (General and Special Medicine, General and Special Surgery, Pediatrics, Gynecology and Obstetrics, Blood Diseases, Viral Hepatitis, Endoscopes, Vascular Surgery).

Emergency Departments Receive around 500 cases daily and provide 24-hour service.

Medical Research Center (MRC) : A 4 floored building (Established in 1996) containing 24 labs, 2 Animal labs, an isolation & quarantine room, a library, a microfilm center, Computer lab and lecture room.

- It has high quality laboratory research and educational facilities and provides teaching and research to all medical and healthcare professionals, students and researchers in the University. The centre will provides expertise and organize the International Training Course.

Ain Shams University Specialized Hospital

- Established in 1984 as a self sponsored unit to provide advanced medical care service.

The Cardiac Surgery Academy (CSA)

- **CSA** is an independent establishment, belongs to Ain Shams University, with a 400 bed capacity, most of them are surgical, also provides many free services.

Intensive care units

- Internal Medicine, Geriatrics, Surgical, Trauma & Surgical ER, Neurology, Department of Neurosurgery, Toxicology, Coronary, Pediatric Cardiology, Respiratory system, Burns, Cardiothoracic surgery, Pediatric surgery, Obstetrics & Gynecology, Pediatrics, Neonatal.

- **Radiology department**
- **Blood bank & Clinical Pathology Complex**
- **Ain Shams University Hospital Administration Compound**
- **Training & Education Enhancement Center**
- **Doctors' Hostel and Restaurant Compound**

The Department of Community Medicine provides the expertise in training programs on research methodology and different epidemiological tools that will help in designing intervention studies and national programs.

It **offers programs** of health care to serve the Egyptian society, enhancing health education, preventive care, environmental development and targeted scientific research for continual improvement of community health.

It has **strong links** with the Ministry of Health and Population in planning and evaluation of health and health related problems and continuous collaboration with the numerous Egyptian research institutes (e.g. Institute of Environmental Research and Studies, National Training Institute, National Research Center, Academy of Scientific Research and Technology, National Cancer Institute).

PROF. WAGIDA A. ANWAR (WA),

M.B.B.Ch, M. Sc., M.D

- Professor at the Department of Community, Environmental and Occupational Medicine; Faculty of Medicine, Ain Shams University, Cairo, Egypt.
- Adjunct Associate Professor, University of Texas, Medical Branch (UTMB), Galveston, Texas, U.S.A;
- Collegium Ramazini Fellow, Italy since 2006 and
- Marie Curie Fellow, EC since 2008.

- Graduated (*M.B.B.Ch)* in December 1977.
- Master degree *(M.Sc.,1981)* and
- Doctorate degree *(M.D., 1984)* in Public Health from Faculty of Medicine, Ain Shams University, Egypt.

- In 1993, established the Molecular Epidemiology Unit, Laboratory of Cytogenetics
- 2002-2008 Director of the Genetic Engineering and Biotechnology Center, Ain Shams University

Obtained training from several countries.

- In 1986 she spent Post Doctoral Fellowship in **France;**
- in 1987-1988, Fogarty International Fellowship (US) Department of Preventive Medicine and Community Health, UTMB, Texas, **USA.**
- During the period from 1989 to 1991, visited UTMB, Galveston, Texas U.S.A. as a visiting scientist several times, to participate in projects on Environmental Mutagenesis.
- 1993-1996, several training visits on Molecular genetics and its use in environmental mutagenesis and genetic susceptibility to cancer.

As an examples of the visited institutions,

- US Environmental Protection Agency, Genetic Toxicology Division; NIEHS, NIH, **USA;**
- Institute of Occupational Health in **Finland**;
- Karolinska Institute, **Sweden**
- Center for Nutrition and Toxicology, **Sweden**;
- Heidelberg Cancer Center, **Germany**;
- National Cancer Center, **Japan**
- University of Kuopio, **Finland**.

- Alexander Hollender course in Cairo 1984
- Several scientists attended 1992 conference in Cairo
- Attended several conferences and training courses in Finland

International Symposium on Health Hazards of Butadiene and Styrene, Espoo, Finland, 18-21 April 1993

University of Texas, Medical Branch, (UTMB)
Galveston, Texas , U.S.A.

Principal investigator of several research projects.

Director of the Technical Support Office and Advisor to the Minister of Health and Population for Scientific Research and International Cooperation (1996-2002). Has a major role in the planning and implementation of the Health Sector Reform Program, the Healthy Egyptians 2010 Initiative and the Integrated National Women Health Project.

Participated in several national and international activities such as the humanitarian missions to different parts of the world.

Visited several universities, agencies, centers, faculties, and organizations to give seminars and lectures and to discuss the possibilities for promoting cooperation and organizing training programs.

Member of several international and national professional forums and bodies such as:

- Harmonization Steering Committee, International Programme on Chemical Safety (IPCS), WHO, Geneva, Switzerland;
- Regional Advisory Panel (RAP) for Reproductive Health Research, WHO, Geneva, Switzerland,
- President, Pan African Environmental Mutagen Society, Secretary General, Egyptian Environmental Mutagen Society,
- Board Member of the Council on Health Research for Development (COHRED) (1998-2002), Geneva, Switzerland;
- Secretary General of the International Association of Environmental Mutagen Societies (IAEMS) (2005-2009).

- **Participated in national and international conferences and meetings**, such as the World Health Assembly Meetings, the WHO Executive Board Meetings, WHO Regional Meetings, and WHO meetings on Women and Reproductive Health, Health and Environment and Prevention and Management of Genetic Disorders and Birth Defects in Developing Countries.

International Visitors

Official Representation, WHO, UN, Arab League

Organized many international conferences and meetings including:

- **International Conference on Environmental Mutagen in Human Populations (1992-2012)**
- **Pan African Environmental Mutagen Society (PAEMS) from (1993–2012)**
- **African Genome Initiative conferences (2003–2005)**

First International Conference on Environmental Mutagen in Human Populations was held in Cairo, Egypt,

January 19-24, 1992

FIFTH INTERNATIONAL MEETING
"GENOMICS AND PROTEOMICS ERA"

Fès, Morocco

24-26 November, 2005

The Second Conference of Africa Genome Initiative
"Genomics & African Society"

26-29 March 2004
Mena House Hotel- Giza- Egypt

Received a number of international awards

including :

- **Shousha Foundation Prize (WHO) in 2001;**
- **Fogarty International Fellowship Award, (1987);**
- **the CEES Award (1986) to spend one year in the Center of Atomic Energy, France,**
- **the Marie Curie Fellowship, EC, 2008.**

Professor Diaa Marzouk Abd El Hamid

Professor at the Community Medicine Department

She will be the coordinator of the project activities in Egypt.

She is the Manager of Molecular Epidemiology Unit in the Community Medicine Department.

Her scientific experience is mainly in the field of epidemiology of communicable, non communicable diseases, nutrition and research methodology.

She has been certified as trainer of Health Research Ethics from University of Maryland, in 2006, and

she is the Moderator of Research Ethics Committee Faculty of Medicine, Ain Shams University since 2007.

She has carried out research on the life style of adult diabetic patients attending outpatient clinics in Egypt.

Her international collaborations include groups from Pasteur Institute, Paris, and Imperial College, London.

3) Country presentation, relating to immigrant health (Europeans), general health situation and emigration history (North Africans)

Friday, May 6

<u>Concept and objective 2:</u>
in order to understand the health status of immigrants in EU were need to know the conditions in the NA countries of origin

Migration in Egypt

International Migration

Local Migration

Migration in Egypt

Legal Migration

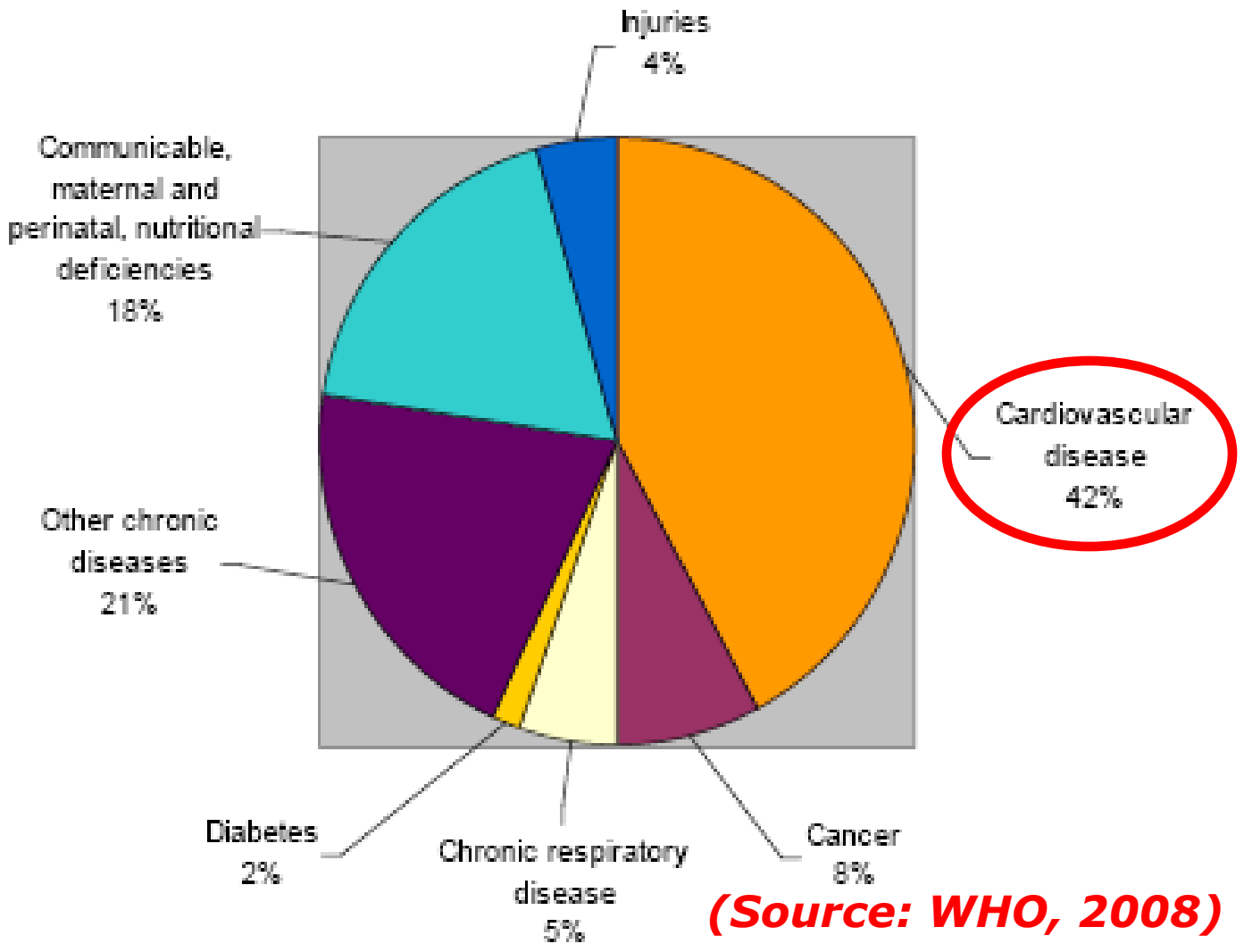
Controlled by:

- **Ministry of Migration**
- **Ministry of Foreign Affairs/ Embassies**

Illegal Migration

- **Need control**

Deaths by cause, all ages, Egypt, 2002



(Source: WHO, 2008)

Twin burden of communicable and non-communicable diseases in Egypt

- **Egypt has the highest Hepatitis C virus (HCV) prevalence in the world (18% among rural residents)** ***(El-Zanaty and Way, 2009).***

- **The Egyptian population is also prone to Cardiovascular Disease (CVD) and Diabetes** ***(WHO, 2008).***

Communicable diseases

Generally well controlled.

High immunization rates have been achieved and sustained.

Although the prevalence of **schistosomiasis infections** (Schistosoma mansoni and S. hematobium) have decreased in recent years, this remains a significant public health problem followed by **viral hepatitis** (C and A) and **tuberculosis.**

The prevalence of **HIV/AIDS** in 15-49 year-olds is low (0.01%); Egypt is considered a low epidemic country for HIV/AIDS but risk factors exist.

Journal of Tropical Medicine and Hygiene 1984, 87, 119 – 121

Assessment of efficacy of praziquantel against *Schistosoma mansoni* infection

A. A. E. Massoud, A. M. El Kholy and W. A. Anwar

Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University, Cairo, Egypt and Biomedical Research Center for Infectious Diseases, Cairo, Egypt

Table 1. Number and percentage of cases cured after 1 month and remained cured after 6 months follow-up

Dosage groups	Low egg count		Moderate egg count		High egg count	
	No. treated	Cured cases No. (%)	No. treated	Cured cases No. (%)	No. treated	Cured cases No. (%)
20 mg/kg	21	9 (42.8)	21	4 (19.0)	19	4 (21.1)
30 mg/kg	21	13 (61.9)	20	8 (40.0)	18	8 (44.4)
40 mg/kg	19	14 (73.6)	17	13 (76.4)	23	17 (73.9)
	*$\chi^2 = 1.5$ $P > 0.05$		$\chi^2 = 1.28$ $P > 0.05$		$\chi^2 = 1.36$ $P > 0.05$	
	**$\chi^2 = 3.94$ $P < 0.05$		$\chi^2 = 10.32$ $P < 0.05$		$\chi^2 = 8.29$ $P < 0.05$	
	***$\chi^2 = 0.65$ $P > 0.05$		$\chi^2 = 5.11$ $P < 0.05$		$\chi^2 = 2.45$ $P > 0.05$	

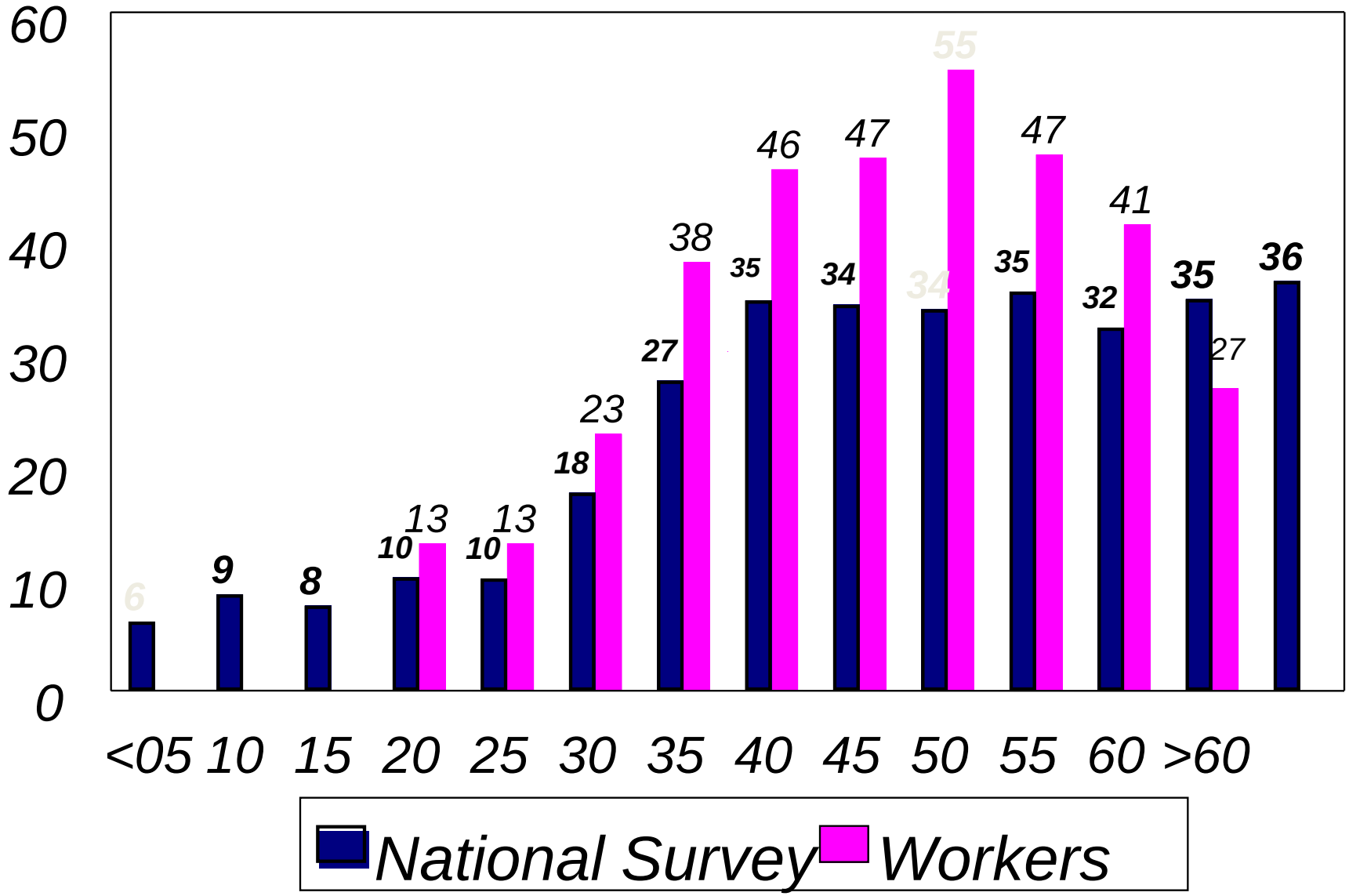
*30 mg compared to 20 mg in corresponding egg count group.
**40 mg compared to 20 mg in corresponding egg count group.
***40 mg compared to 30 mg in corresponding egg count group.
Yate's correction was used for calculating the value of χ^2, when the expected number was less than 5.

Prevalence of HCV infection by country

Maheshwari et al., 2008)

	Prevalence
Middle East and Australasia	
China[1,2]	3·0–3·2%
India[1,3]	0·9–1·8%
Indonesia[1]	2·1%
Saudi Arabia[1,4]	0·4–1·8%
Pakistan[1,5]	2·4–6·5%
Japan[1,6]	0·6–2·3%
Taiwan[7]	4·4%
Iran[8]	0·2%
Australia[1]	0·3%
New Zealand[1]	0·3%
Philippines[1]	3·6%
Thailand[1,9]	0·9–5·6%
North and South America	
USA[1]	1·8%
Brazil[1]	1·1%
Mexico[1]	0·7%
Venezuela[1]	0·9%
Argentina[1]	0·6%
Chile[1]	0·9%
Canada[1]	0·5%
Europe	
UK[1]	0·02%
Spain[1]	0·7%
France[1]	1·1%
Germany[1]	0·1%
Italy[1]	0·5%
Russia[1]	2·0%
Sweden[1]	0·003%
Poland[1]	1·4%
Ukraine[1]	1·2%
Romania[1]	4·5%
Africa	
Egypt[1,10]	18·1–22·0%
Libya[1]	7·9%
Sudan[1]	3·2
Democratic Republic of the Congo[1]	6·4%
Zimbabwe[1]	7·7%
South Africa[1]	1·7%
Rwanda[1]	17·0%

Seroprevalence of Hepatitis C Among Egyptian Workers and in the National Survey



The role of parenteral antischistosomal therapy in the spread of hepatitis C virus in Egypt

Christina Frank, Mostafa K Mohamed, G Thomas Strickland, Daniel Lavanchy, Ray R Arthur, Laurence S Magder, Taha El Khoby, Yehia Abdel-Wahab, El Said Aly Ohn, Wagida Anwar, Ismail Sallam

Summary

Background The population of Egypt has a heavy burden of liver disease, mostly due to chronic infection with hepatitis C virus (HCV). Overall prevalence of antibody to HCV in the general population is around 15–20%. The risk factor for HCV transmission that specifically sets Egypt apart from other countries is a personal history of parenteral antischistosomal therapy (PAT). A review of the Egyptian PAT mass-treatment campaigns, discontinued only in the 1980s, show a very high potential for transmission of blood-borne pathogens. We examine the relative importance of PAT in the spread of HCV in Egypt.

Introduction

Egypt has a very high prevalence of antibody against hepatitis C virus (HCV)[1–3] resulting in a high morbidity and mortality from chronic liver disease, cirrhosis, and hepatocellular carcinoma. Around 20% of blood donors are seropositive by ELISA for antibodies to HCV.[1] Children have lower rates of disease, but prevalence rises steeply with age.[4,5] Desert areas of Egypt have the lowest rates of infection and cities have lower rates than rural areas. Rates in the Nile Delta (Lower Egypt) are higher than in the Nile Valley (Middle Egypt and Upper Egypt).[1,3,6,7] Egypt has a much higher prevalence of antibodies to HCV than other countries in the region and elsewhere with comparable socioeconomic conditions and hygiene for invasive medical,

The National Survey on HCV

HCV antibody prevalence is at the average of 13%, (19% rural and 9% urban)

Viremia is 7% among the population survey

Noncommunicable diseases

They are on the rise.

Neuro-psychiatric disorders and digestive system diseases are leading causes of morbidity accounting for 19.8% and 11.5% of the non-fatal burden respectively, followed by chronic respiratory diseases (6.9%), injuries (6.7%) and cardiovascular diseases (5.6%).

Osteoarthritis, injuries and asthma are the leading causes of disability.

The most common cancers are breast, liver, bladder and lymph nodes.

Lifestyle-associated disorders are of growing importance.

- Smoking,
- substance abuse,
- lack of exercise,
- over-consumption of fatty and salty foods,
- non-use of car seatbelts and
- non-observance of traffic rules contribute to a significant proportion of the overall morbidity and mortality.

Available online at www.sciencedirect.com
ScienceDirect
Mutation Research xxx (2008) xxx–xxx
Reviews in Mutation Research
www.elsevier.com/locate/reviewsmr

Changing pattern of hepatocellular carcinoma (HCC) and its risk factors in Egypt: Possibilities for prevention

Wagida A. Anwar [a,*], Hussein M. Khaled [b], Hassan A. Amra [c], Hani El-Nezami [d], Christopher A. Loffredo [e]

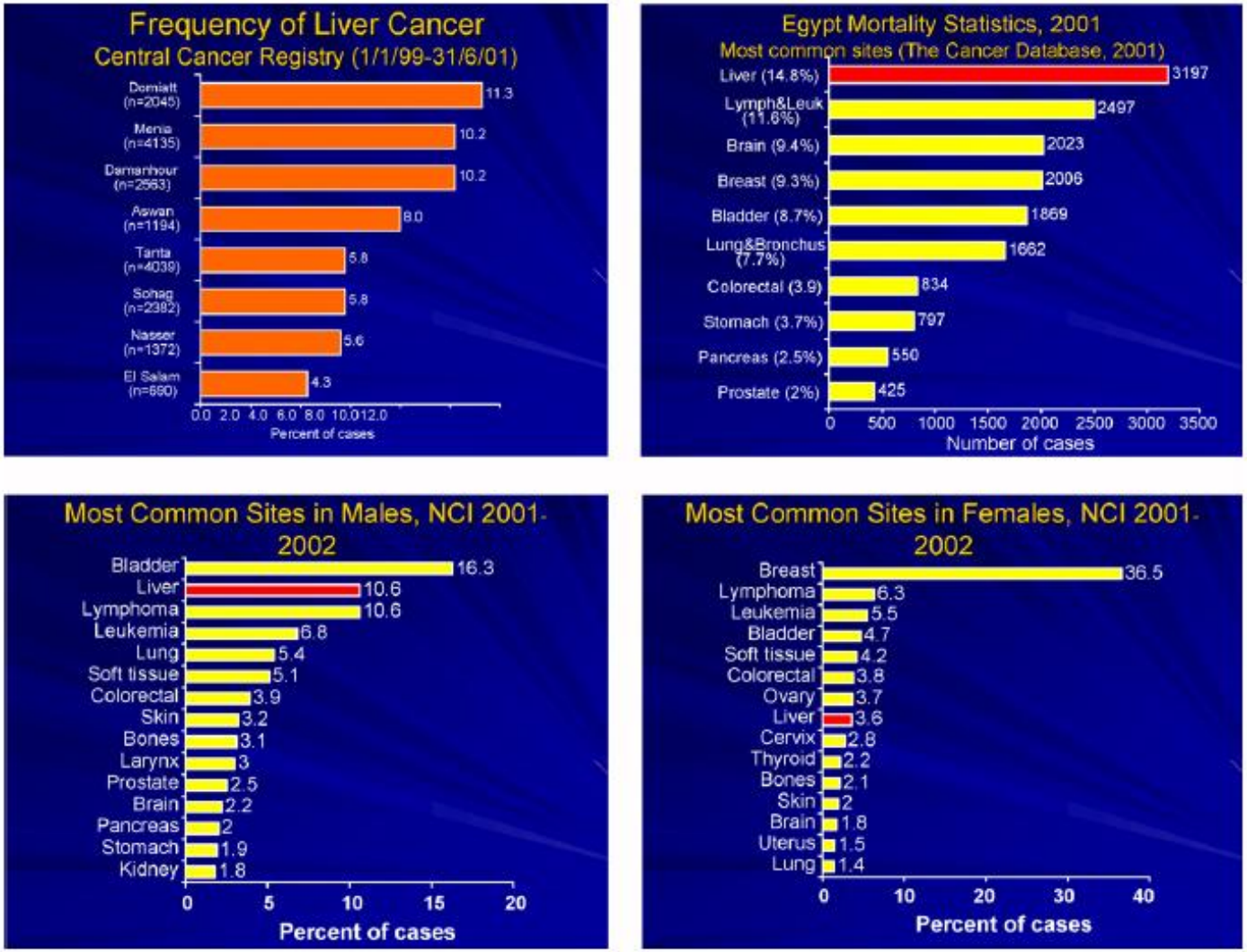
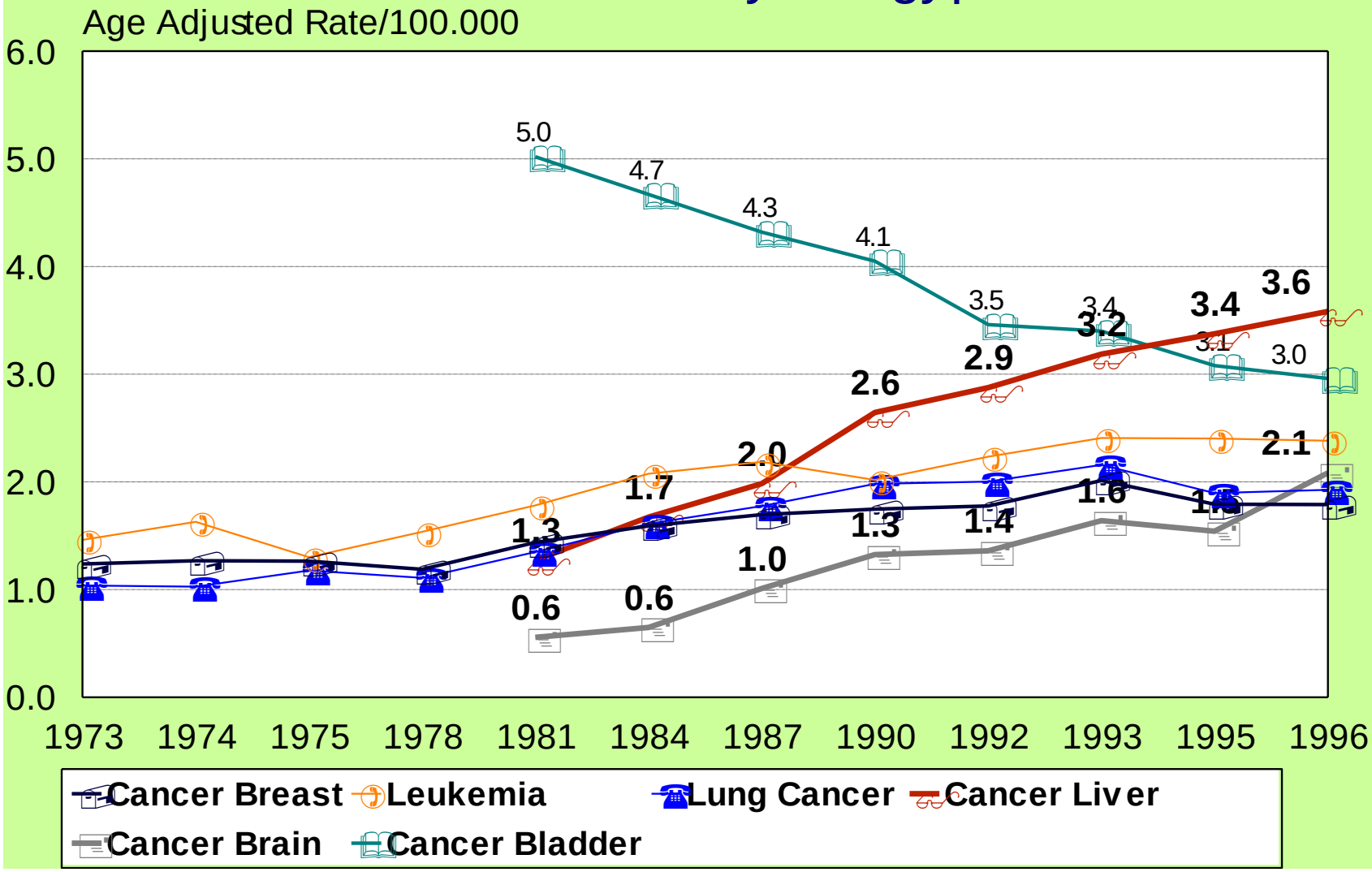
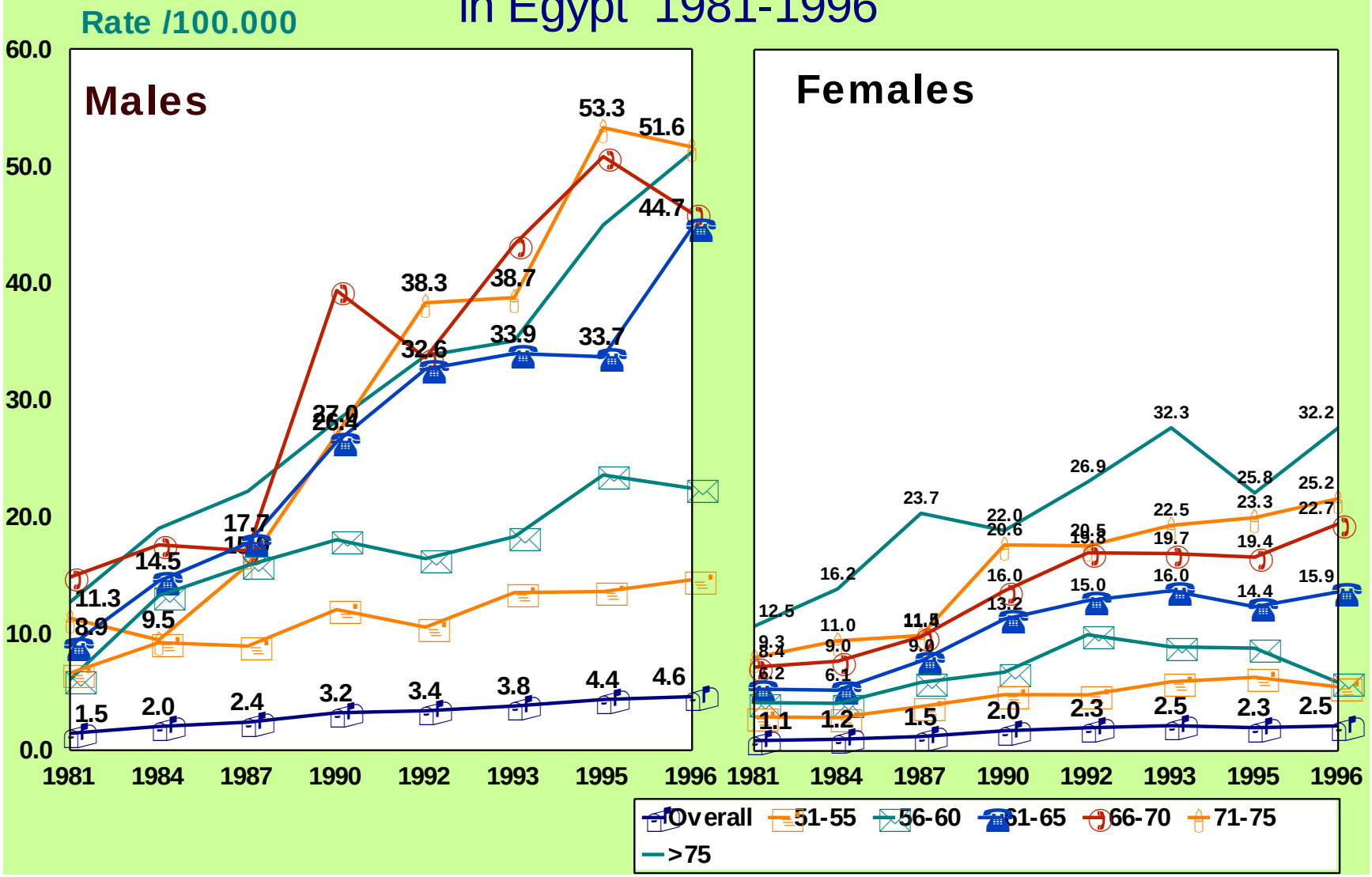


Fig. 2. Frequency of liver cancer, in Egypt according to the National Cancer Institutes records, NCI 1975–2003 [6].

Trend of Cancer Mortality in Egypt 1973-1996



Trend of National Mortality due to Hepatocellular Carcinoma in Egypt 1981-1996



Hepatitis Markers and Aflatoxin B1 among Hepatocellular Carcinoma Cases and Controls

Marker	Patients =321 N	%	Control =3258 N	%	RR (95% C.L.)
HCV Ab	**275**	**86**	965	33	2.3 (2.1-2.5)*
HBsAg	**61**	**19**	169	5.7	3.3 (2.5-4.5)*
None	**12**	**3.7**	170	48.2	
Aflatoxin B1	**N=200**		**N=120**		
Number +ve (%)	**34**	**17%**	10	8.3	2.0 (1.1-4.0)
Mean + S.D. in ng/ml	**225.6+20.6**		**4.5+16.29**		**t-test**

*** Mantel Haenzel Age and Gender Adjusted**

HCV Infection and Atherosclerosis

- **HCV infection provokes oxidative stress leading to a state of low-grade chronic inflammation** ***(Abbas et al., 2008).***

- **HCV infection is associated with increased carotid intima-media thickness (IMT) in some but not all studies** ***(Ishizaka et al., 2003 and Volzke et al., 2004).***

- **IMT is a direct proxy for the risk of developing CVD** ***(Vassale et al., 2004).***

HCV infection and Metabolic syndrome

- **Hepatitis C is associated with extra-hepatic metabolic derangements (such as insulin resistance, diabetes, dyslipidemia, and central fat deposition)**

- **The term Hepatitis C–associated dysmetabolic syndrome maybe more applicable as it may not feature the typical components of the metabolic syndrome.**

(Lonardo et al., 2008)

Metabolic syndrome

Definition: is a cluster of 3 or more of the most dangerous CVD risk factors:

- **Prediabetes (Insulin resistance)**
- **Type 2 Diabetes**
- **Abdominal obesity**
- **Dyslipidemia**
- **High blood pressure**

(National Cholesterol Education Program-Adult Panel III, 2004)

WHO, 2004

Prevalence of overweight and obesity among some countries of the Eastern Mediterranean Region [*8–12*]

Country	Overweight/ obesity (%)	
	Males	Females
Bahrain	56.4	79.0
Egypt	43.8	41.0
Islamic Republic of Iran	57.0	67.7
Jordan	46.0	43.7
Lebanon	60.0	53.0
Libyan Arab Jamahiriya	42.5	74.9
Morocco	37.2	21.7
Oman	40.5	43.5
Pakistan	10.5	34.6
Saudi Arabia	64.0	70.0
Tunisia	13.1	41.9
United Arab Emirates	25.5	39.9

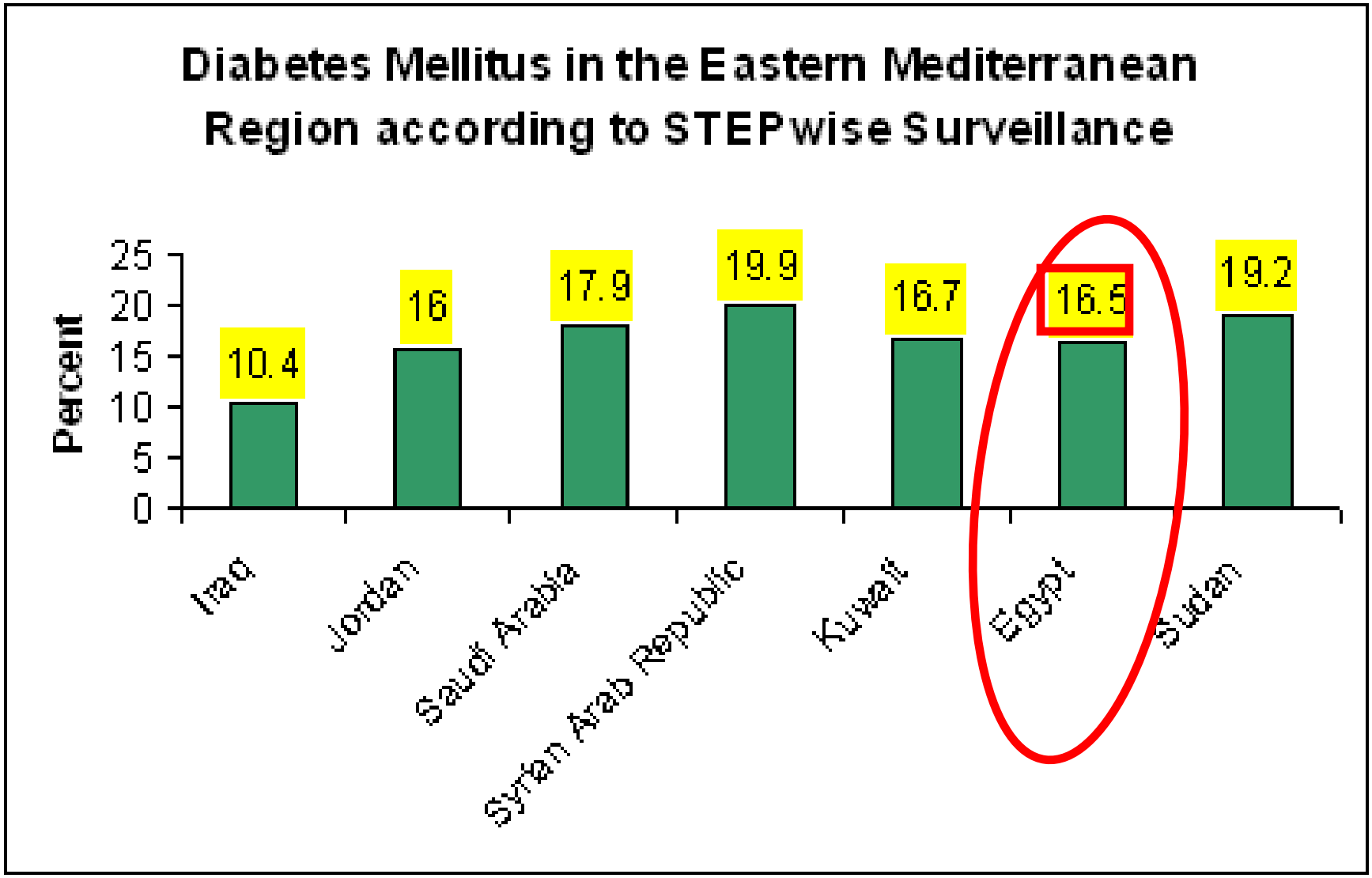
(Galal, 2002)

- The prevalence of obesity in adults is very high in Egypt, particularly among women, and that the prevalence of diabetes and hypertension parallels that of obesity.
- Overweight and obesity affected:
  - 1.6% of 2–6 year olds,
  - 4.9% of 6–10 year olds,
  - 14.7% of 10–14 year olds, and
  - 13.4% of 14–18-year-old children

(WHO, Stepwise Survey, 2005)

Data collected among adults aged 15-65 years showed:

- highest Prevalence of Overweight 34.4% among Age group >25 – 35,
- Obesity prevalence of 41.7% among age group >45 – 55.
- Over weight was higher in males (38.2%), while obesity is more in females (39%),



STEPwise approach to chronic disease risk factor surveillance (STEPS)

(Source: WHO, 2008)

Dietary intake in normal weight, over weight and obese groups

	Group (1) Normal weight (n=60)	Group (2) Over-weight (n=30)	Group (3) Obese (n=39)
Energy intake (k. cal)	2184 (±530.72)	2713 (±321.57) [a]	3338.38 (±1176.42) [b, c]
Protein intake (g)	82.26 (±17.76)	101.66 (±20.06) [a]	116.73 (±36.90) [b, c]
% of energy intake as protein	14.95 (±2.16)	14.65 (±3.34) [c]	12.56 (±3.25) [b, c]
Fat intake (g)	81.32 (±11.71)	116.16 (±36.72) [a]	140.24 (±127.82) [b]
% of energy intake as fat	33.65 (±4.55)	36.42 (±6.23)	35.28 (±15.84)
Carbohydrate intake (g)	292.78 (±103.98)	344.85 (±73.35)	492.50 (±189.56) [b, c]
% of energy intake as carbohydrate	51.39 (±6.35)	48.93 (±6.96)	52.16 (±13.60)
Fiber (g)	5.64 (±3.36)	7.26 (±3.24)	10.86 (±7.67) [b, c]
Vitamin A (IU)	1275.60 (±883.68)	1456.30 (±1322.59)	1337.84 (±1424.19)
Vitamin C (mg)	154.60 (±168.26)	18.60 (±35.01) [a]	21.61 (±33.15) [b]
Calcium (mg)	1089.40 (±339.88)	950.83 (±572.30) [a]	820.91 (±634.30) [c]
Magnesium (mg)	170 (±55.14)	156 (±40.25)	198.69 (±130.40)
Iron (mg)	10.34 (±1.54)	12.16 (±4.44)	18.58 (±7.14) [b, c]
Zinc (mg)	9.74 (±2.53)	10.81 (±5.47)	13.84 (±7.20) [b, c]
Cupper (mg)	1.63 (±0.30)	1.67 (±0.65)	1.67 (±1.13)

TV watching (hours/day) and number of reported exercise or weekly play sessions in normal weight, over weight and obese groups

	Group (1) Normal weight (n=60)	Group (2) Over-weight (n=30)	Group (3) Obese (n=39)
TV watching, hours/day (mean ±SD)	(1.2 ±1.17)	(3 ±2.18) [a]	(3.2 ±2.45) [b]
Sports sessions One time/week	36 (60%)	18 (60%)	23 (58.9%)
Sport sessions 2 times/week	12 (20%)	6 (20%)	7 (18%)

Other Health Problems

Maternal and child health present continuing challenges. Maternal mortality and infant mortality rates remain high.

Iron deficiency anaemia is prevalent and malnutrition is common in children under five particularly in rural Upper Egypt.

Around 1.2% of the population **is blind**, mainly due to cataract; trachoma is prevalent in some governorates.

Environmental conditions are a major determinant of health.

Air pollution, particularly in urban areas, has been of concern for some years; particulate matter and lead are the most important pollutants responsible for a great deal of respiratory pathology.

One of the most important health and environmental problems is air pollution resulting from using fuel, burning operations, and the increase of automobile exhaust in cities.

Lead was phased out of petrol in Cairo , Alexandria and most of Lower Egypt 's cities in late 1997, leading to a reduction in atmospheric lead concentration.

There are several examples of exposure to chemical genotoxicants, and lifestyle exposures in the population, which create unique combinations of environmental risk factors for diseases such as cancer.

Environmental factors may interact with infection and lead to enhancement of carcinogenicity processes.

Currently, there is a growing interest in environmental mutagenicity and carcinogenicity research. The use of different biomarkers and genetic susceptibility testing can contribute effectively to risk assessment.

Demographic transition, characterized by higher birth rates than death rates, high population growth .

- Active population policies that contribute significantly to reductions in total fertility rates.
- Improvements in girls' access to education and female participation in the labor force have probably contributed to the smaller family size.

Moreover, the **deficiency of efficient sanitation services and water pollution** caused by the breaking down of old and consumed water networks, as well as the various problems in construction, designing and maintenance of sewage system resulted in the appearance and prevalence of communicable and non-communicable diseases.

Proposal title:

EU and North African Migrants: Health and Health Systems

Kick Off Meeting
Thursday, May 5 - 6

Location: German Cancer Research Center (DKFZ),

2) Presentation of your work relating to the EUNAM themes
(max 20 min)
Thursday, May 5

Public Health Experience

As a Professor of Public Health, my research work concentrated on the following topics:

- **Communicable Diseases and Its relation to Cancer development**
- **Environmental Pollution and Effect on Health**
- **Carcinogenesis**
- **Prevention of Cancer**
- **Heath Care Services**
- **Clinical Nutrition and Prevention of T2 Diabetes (Finland Experience)**

Communicable Diseases and Its relation to Cancer development

- Shistosomiasis and Bladder Cancer

(Genetic susceptibility and cigarette smoking habits significantly influence the bladder cancer outcome).

- Hepatitis C and Hepatocellular Carcinoma
- Other Health Problems

Shistosomiasis and Bladder Cancer

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Environmental Pollution and Effect on Health

- Aflatoxins
- Pesticides
- Different Environmental Pollutants

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- **Wagida A. Anwar**, "Possibilities and pitfalls for modern biotechnology in the development of African genetic toxicology" published in Toxicol Appl Pharmacol (2005), 207(2 Suppl): 706-11.
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Heath Care Services

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-

International Experience in Environmental Mutagenesis

In 1984, I attended in Cairo one of the **Alexander Hollender Courses** which was organized to transfer the new technology about genetic toxicology to young researchers in Egypt.

More **training started** In 1987 in UTMB, Texas, USA as **NIH Fogarty International fellow and continued in different countries.**

Established the **Molecular Epidemiology Unit** that provides opportunities for scientists to conduct research on human health using relevant techniques.

In recognition of the dedication to the field of environmental mutagenesis,

- Nominated to be the **secretary general of the International Association of Environmental Mutagen Societys** (2004-2009).
- First receiver of the **Environmental Mutagen Society International Fellow Award**, 2001.

Organization of International Conferences

I initiated together with international collaborators a series of conferences known as the **International Conference on Environmental Mutagens in Human Populations.** These international conferences have been organized every four years. The overall objectives are to enhance the awareness of and to identify solutions to human environmental health problems, to facilitate interactions and to foster international collaborations.

The first conference was held in Cairo, Egypt, in January 19-24, 1992. The meeting sparked the interest in addressing environmental health concerns among scientists in the region and stimulated the organization of the Pan African Environmental Mutagen Society. The Cairo conference was so successful that the participants requested the organization of additional conferences according to the similar topic.

Subsequent conferences in Czech Republic (1995), Thailand (1998), Brazil (2003), Turkey (2007) and the next one will be in Qatar, Doha in March 2012.

Pan African Environmental Mutagen Society (PAEMS),

Established in Nairobi, **Kenya** in 1983 to encourage research on environmental mutagenesis moved the headquarter to Cairo**, Egypt** and started a new series of scientific activities. The main goals of the PAEMS are to spread the new information and technology concerning Environmental Mutagenesis and to clarify the possibility of cooperation and training programs between different African countries and other countries.

The series of meetings were **Cairo, Egypt** (1993), **Cape Town, South Africa** (1996), **Harare, Zimbabwe** (1999), **Cairo, Egypt** (2003), **Fes, Morocco,** (2006), **Cape Town, South Africa** (2008) and the seventh will be in **Cairo, Egypt** in 2012.

Ministry of Health Experience

During her work as an assistant to the Minister of Health, I have initiated several programs:

- **Health Sector Reform Program and**
- **Healthy Egyptian 2010 Initiative.**
- **Integrated National Women Health project, and the**
- **Cancer Registry**
- **Hepatitis C and Cancer programs.**

Finland Experience

- North to South Higher Education Programme (NS) started in 2004 with University of Kuopio
  - exchanges of visits between scientists from both countries.
  - Scientific workshop “the Public Health Challenges in Africa” was organized in Tanzania in 26-30 May, 2008.
- Obtaining the Marie Curie Fellowship (EC, FP7) to spend one year at the University of Kuopio, Finland (during the period 1 August 2008 – 31 July 2009) about **Clinical Nutrition and Prevention of T2 Diabetes**

Section 4: Responsibilities of Parties

4.1 General principles

- Each Party undertakes to take part in the efficient implementation of the Project, and to cooperate, perform and fulfil, promptly and on time, all of its obligations.
- Each Party undertakes to notify promptly any significant information, fact, problem or delay likely to affect the Project.
- Each Party shall promptly provide all information reasonably required by a Consortium Body or by the Coordinator to carry out its tasks.
- Each Party shall take reasonable measures to ensure the accuracy of any information or materials it supplies to the other Parties.

Work description by WP

EUNAM aims to review immigrant health aspects over several EU countries and over several groups of immigrants with a longitudinal perspective.

The basic strategy is that the WP leader prepares **a document** on his own country based on his expertise. This document will be discussed in the project meetings after which it will be widened with the help of the other WP participants.

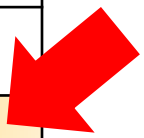
There will be a **report** at each stage to the EUNAM web site and selected documents will be published in open literature.

Joint meetings are important for the coordination action. The internal meetings plan and revise common documents and discuss the means of publication of the documents.

The **open workshops** that follow the internal meetings focus on relevant topics for which some outside experts are invited to contribute. The workshops will also discuss policy statements and recommendations.

Material produced by EUNAM is also **published** through the normal scientific and media channels as agreed by the partners who have contributed to the production of such material.

Work package No[1]	Work package title	Type of activity[2]	Lead participant No[3]	Lead participant short name	Person-months[4]	Start month[5]	End month
1	Health and biological and psychosocial well being of NA immigrants in EU compared to the natives and other immigrant groups	COORD	3	FU	35	1	48
2	Disease panorama in immigrants compared to natives: guide to prevention and etiology	COORD	2	LU	50	1	48
3	Health care utilization by immigrants compared to natives	COORD	4	IRDES	35	1	48
4	Population well being and health care in NA with time trends	COORD	6	UT	50	1	48
5	Disease spectrum in NA now and then	COORD	5	ANIH	49	1	48
6	Lessons for prevention in NA, EU and the world	COORD	7	ASU	49	24	48
7	Knowledge and skills in health studies related to immigrants are advanced through training, information transfer and outlining of research and policy targets	OTHER	1	DKFZ	55	7	48
				TOTAL	336		



Work package number	2	**Start date or starting event:**		1			
Work package title	Disease panorama in immigrants compared to natives: guide to prevention and etiology						
Activity Type[13]	COORD						
Participant number	2	3	1	4	5	7	
Participant short name	LU	FU	DKFZ	IRDES	ANIH	ASU	
Person-months per participant:	15	5	15	5	5	5	

Objectives

To describe disease panorama in immigrants compared to natives: guide to prevention and etiology

Description of work (possibly broken down into tasks), and role of participants

LU describes the situation in Sweden year 1.

DKFZ, FU and IRDES add data on EU-wide year 2.

EU-NA situation is summarized by all WP participants in year 3.

Implications to disease etiology are summarized by all WP partners in year 4.

Deliverables (brief description and month of delivery)

Reports on Swedish immigrant disease profile month 18, EU and overall EU-NA profiles month 36, considerations of etiological implications month 48.

Work package number	4	Start date or starting event:		1		
Work package title	Population well being and health care in NA with time trends					
Activity Type[15]	COORD					
Participant number	6	4	5	7		
Participant short name	UT	IRDES	ANIH	ASU		
Person-months per participant:	25	5	10	10		

Objectives

To survey population well being and health care in NA with time trends

Description of work (possibly broken down into tasks), and role of participants

UT surveys the situation in Tunisia year 1.

Algerian and Egyptian experience is added year 2.

Time tends and French experience is added years 3 and 4.

Deliverables (brief description and month of delivery)

Report on Tunisian situation month 18. NA overall situation with time trends month 48.

Work package number	5	Start date or starting event:	1			
Work package title	Disease spectrum in NA now and then					
Activity Type[16]	COORD					
Participant number	5	2	3	6	7		
Participant short name	ANIH	LU	FU	UT	ASU		
Person-months per participant:	25	3	3	5	10		

Objectives

To survey disease spectrum in NA now and then

Description of work (possibly broken down into tasks), and role of participants

Survey of disease spectrum in Algeria year 1.

Survey of disease spectrum in NA year 2 and 3.

Time trends with EU experience year 4.

Deliverables (brief description and month of delivery)

Report on Algerian disease spectrum in month 18. NA summary month 48.

Work package number	6	**Start date or starting event:**			24		
Work package title	Lessons f prevention in NA, EU and the world						
Activity Type[17]	COOR						
Participant number	7	1	2	3	4	5	
Participant short name	ASU	DKFZ	LU	FU	IRDES	ANIH	
Person-months per participant:	24	5	5	5	5	5	

Objectives

Synthesize what has been found in immigrant studies and in international disease comparisons in terms of disease etiology and prevention.

Description of work (possibly broken down into tasks), and role of participants

WP starts on year 3 and produced a summary document during year 4. This is reached through draft documents prepared by various partners which will be discussed in project meetings.

Deliverables (brief description and month of delivery)

Summary document month 44.

Work package number	7	Start date or starting event:	7				
Work package title	Knowledge and skills in health studies related to immigrants are advanced through training, information transfer and outlining of research and policy targets						
Activity Type[18]	OTHER						
Participant number	1	2	3	4	5	6	7
Participant short name	DKFZ	LU	FU	IRDES	ANIH	UT	ASU
Person-months per participant:	20	10	5	5	5	5	5

Objectives

WP includes all training, workshop, course and information actions of EUNAM.

Description of work (possibly broken down into tasks), and role of participants

Workshops twice a year in the connection of project meeting, work-place training, course at EMUNI, information events. Workshops will be used to discuss the joint documents and to draft policy statements and recommendations. Suitable training and information material will be discussed.

Deliverables (brief description and month of delivery)

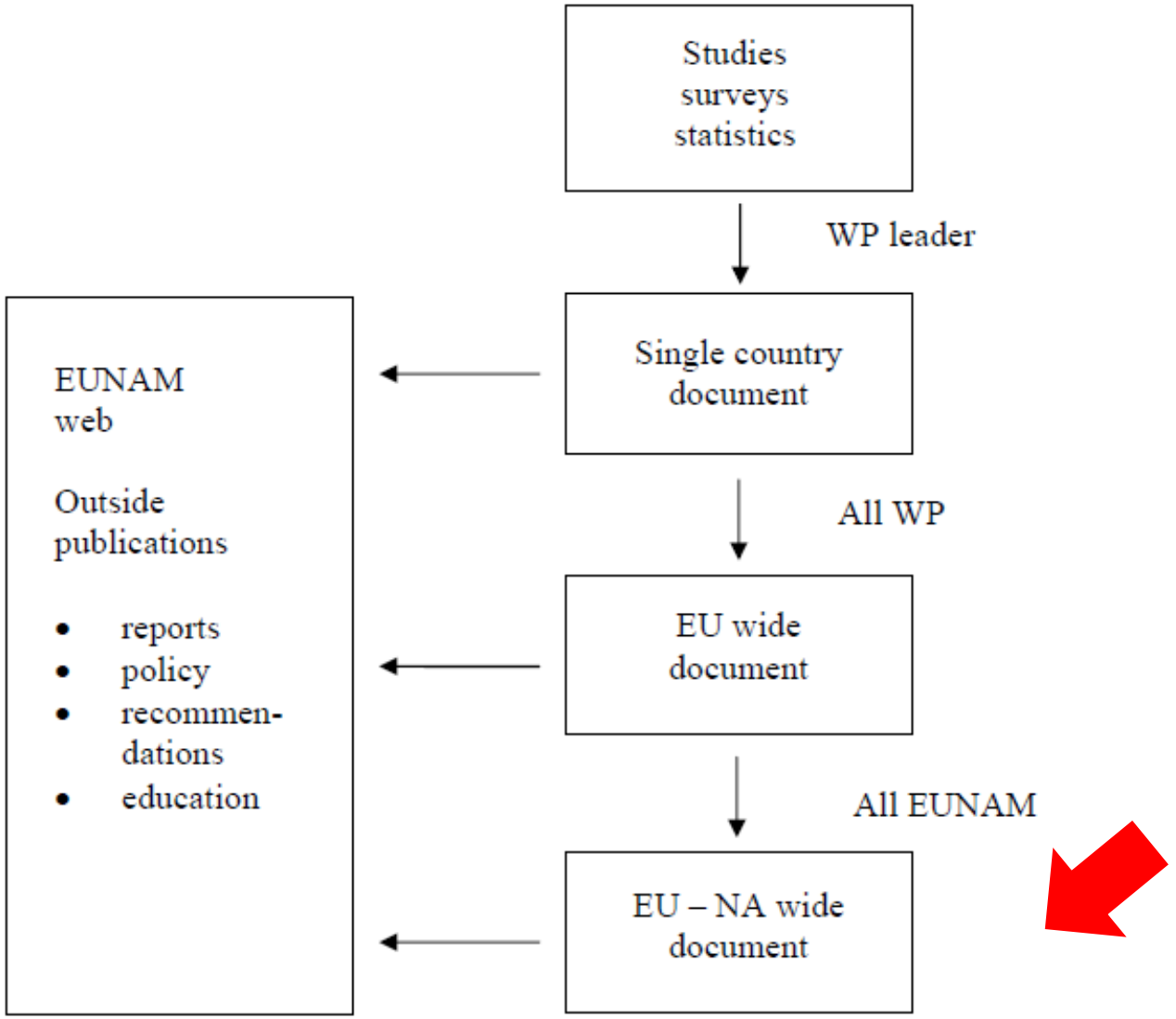
Workshops start in the second project meeting month 7 and these will be followed by written reports. Training is offered throughout the project. Final meeting in the connection of the EMUNI course around month 45.

Table 1.3 e: Summary of staff effort

A summary of the staff effort is useful for the evaluators. Please indicate in the table the number of person months over the whole duration of the planned work, for each work package, for each participant. Identify the work-package leader for each WP by showing the relevant person-month figure in bold.

Participant no./short name	WP1	WP2	WP3	WP4	WP5	WP6	WP7	Total person months
1 DKFZ		15	5		3	5	20	48
2 LU	5	15			3	5	10	38
3 FU	20	5	5		3	5	5	43
4 IRDES	5	5	20	5		5	5	45
5 ANIH		5		10	25	5	5	50
6 UT	5		5	25	5		5	45
7 ASU		5		10	10	24	5	54
Total	35	50	35	50	49	49	55	323

iv) graphical presentation of the components



Proposal title:

EU and North African Migrants: Health and Health Systems

Kick Off Meeting
Thursday, May 5 - 6

Location: German Cancer Research Center (DKFZ),

3) Country presentation, relating to immigrant health (Europeans), general health situation and emigration history (North Africans)

Friday, May 6

<u>Concept and objective 2:</u>
in order to understand the health status of immigrants in EU were need to know the conditions in the NA countries of origin

Migration in Egypt

International Migration

Local Migration

Migration in Egypt

Legal Migration

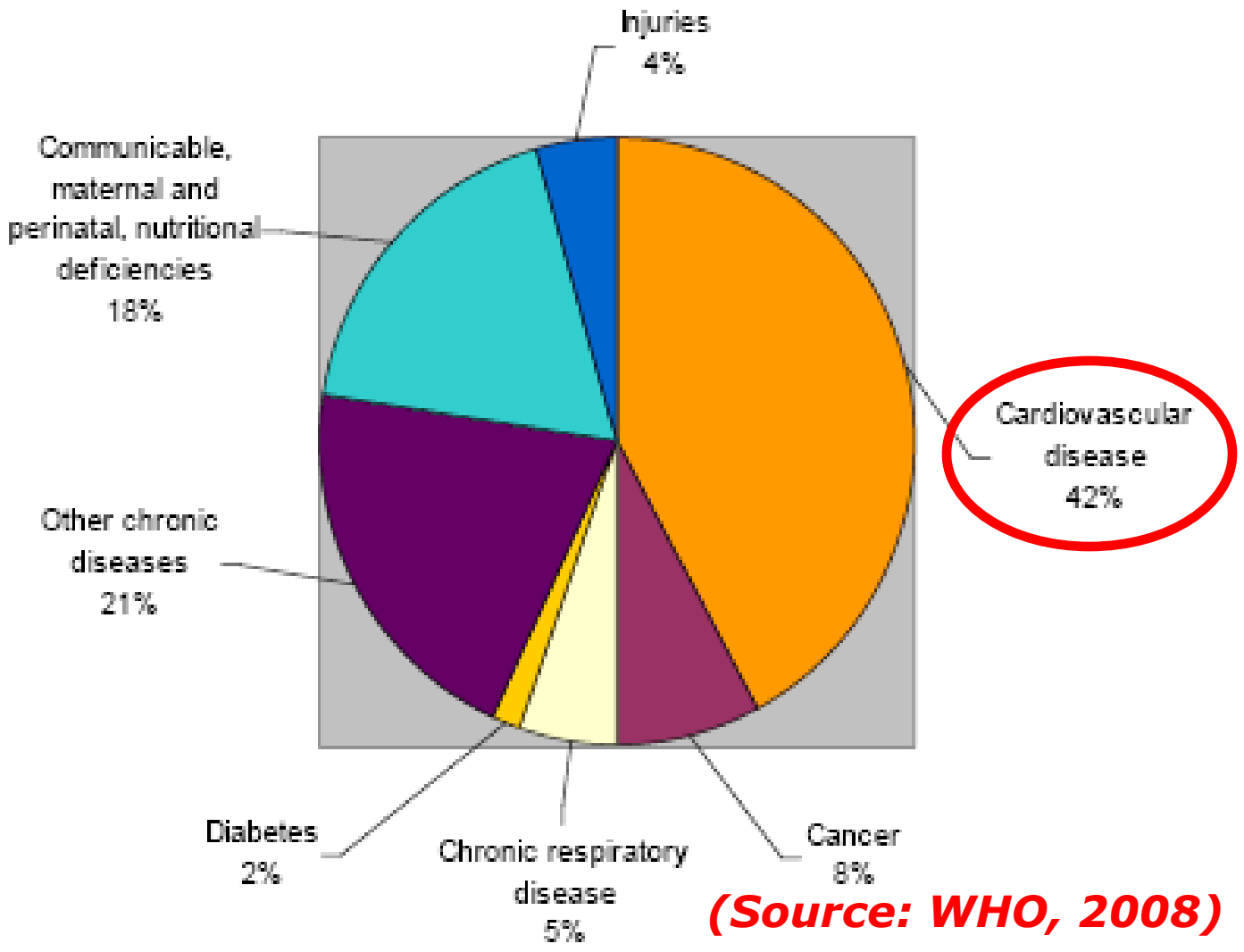
Controlled by:

- **Ministry of Migration**
- **Ministry of Foreign Affairs/ Embassies**

Illegal Migration

- **Need control**

Deaths by cause, all ages, Egypt, 2002



(Source: WHO, 2008)

Twin burden of communicable and non-communicable diseases in Egypt

- **Egypt has the highest Hepatitis C virus (HCV) prevalence in the world (18% among rural residents)** ***(El-Zanaty and Way, 2009).***

- **The Egyptian population is also prone to Cardiovascular Disease (CVD) and Diabetes** ***(WHO, 2008).***

Communicable diseases

Generally well controlled.

High immunization rates have been achieved and sustained.

Although the prevalence of **schistosomiasis infections** (Schistosoma mansoni and S. hematobium) have decreased in recent years, this remains a significant public health problem followed by **viral hepatitis** (C and A) and **tuberculosis.**

The prevalence of **HIV/AIDS** in 15-49 year-olds is low (0.01%); Egypt is considered a low epidemic country for HIV/AIDS but risk factors exist.

Journal of Tropical Medicine and Hygiene 1984, 87, 119 – 121

Assessment of efficacy of praziquantel against *Schistosoma mansoni* infection

A. A. E. Massoud, A. M. El Kholy and W. A. Anwar

Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University, Cairo, Egypt and Biomedical Research Center for Infectious Diseases, Cairo, Egypt

Table 1. Number and percentage of cases cured after 1 month and remained cured after 6 months follow-up

Dosage groups	Low egg count		Moderate egg count		High egg count	
	No. treated	Cured cases No. (%)	No. treated	Cured cases No. (%)	No. treated	Cured cases No. (%)
20 mg/kg	21	9 (42.8)	21	4 (19.0)	19	4 (21.1)
30 mg/kg	21	13 (61.9)	20	8 (40.0)	18	8 (44.4)
40 mg/kg	19	14 (73.6)	17	13 (76.4)	23	17 (73.9)
	*$\chi^2 = 1.5$ $P > 0.05$		$\chi^2 = 1.28$ $P > 0.05$		$\chi^2 = 1.36$ $P > 0.05$	
	**$\chi^2 = 3.94$ $P < 0.05$		$\chi^2 = 10.32$ $P < 0.05$		$\chi^2 = 8.29$ $P < 0.05$	
	***$\chi^2 = 0.65$ $P > 0.05$		$\chi^2 = 5.11$ $P < 0.05$		$\chi^2 = 2.45$ $P > 0.05$	

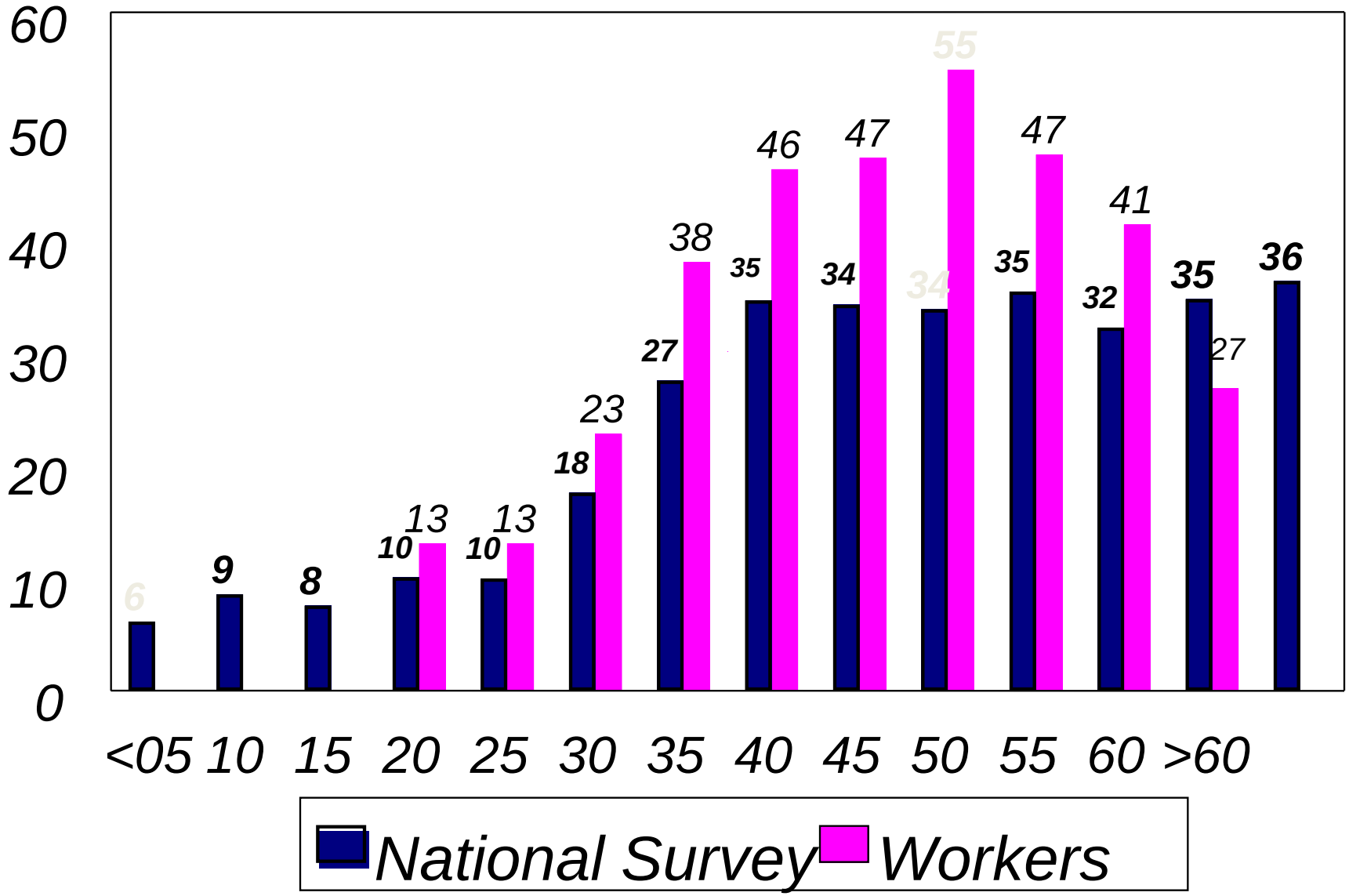
*30 mg compared to 20 mg in corresponding egg count group.
**40 mg compared to 20 mg in corresponding egg count group.
***40 mg compared to 30 mg in corresponding egg count group.
Yate's correction was used for calculating the value of χ^2, when the expected number was less than 5.

Prevalence of HCV infection by country

Maheshwari et al., 2008)

	Prevalence
Middle East and Australasia	
China[1,2]	3·0–3·2%
India[1,3]	0·9–1·8%
Indonesia[1]	2·1%
Saudi Arabia[1,4]	0·4–1·8%
Pakistan[1,5]	2·4–6·5%
Japan[1,6]	0·6–2·3%
Taiwan[7]	4·4%
Iran[8]	0·2%
Australia[1]	0·3%
New Zealand[1]	0·3%
Philippines[1]	3·6%
Thailand[1,9]	0·9–5·6%
North and South America	
USA[1]	1·8%
Brazil[1]	1·1%
Mexico[1]	0·7%
Venezuela[1]	0·9%
Argentina[1]	0·6%
Chile[1]	0·9%
Canada[1]	0·5%
Europe	
UK[1]	0·02%
Spain[1]	0·7%
France[1]	1·1%
Germany[1]	0·1%
Italy[1]	0·5%
Russia[1]	2·0%
Sweden[1]	0·003%
Poland[1]	1·4%
Ukraine[1]	1·2%
Romania[1]	4·5%
Africa	
Egypt[1,10]	18·1–22·0%
Libya[1]	7·9%
Sudan[1]	3·2
Democratic Republic of the Congo[1]	6·4%
Zimbabwe[1]	7·7%
South Africa[1]	1·7%
Rwanda[1]	17·0%

Seroprevalence of Hepatitis C Among Egyptian Workers and in the National Survey



The role of parenteral antischistosomal therapy in the spread of hepatitis C virus in Egypt

Christina Frank, Mostafa K Mohamed, G Thomas Strickland, Daniel Lavanchy, Ray R Arthur, Laurence S Magder, Taha El Khoby, Yehia Abdel-Wahab, El Said Aly Ohn, Wagida Anwar, Ismail Sallam

Summary

Background The population of Egypt has a heavy burden of liver disease, mostly due to chronic infection with hepatitis C virus (HCV). Overall prevalence of antibody to HCV in the general population is around 15–20%. The risk factor for HCV transmission that specifically sets Egypt apart from other countries is a personal history of parenteral antischistosomal therapy (PAT). A review of the Egyptian PAT mass-treatment campaigns, discontinued only in the 1980s, show a very high potential for transmission of blood-borne pathogens. We examine the relative importance of PAT in the spread of HCV in Egypt.

Introduction

Egypt has a very high prevalence of antibody against hepatitis C virus (HCV)[1–3] resulting in a high morbidity and mortality from chronic liver disease, cirrhosis, and hepatocellular carcinoma. Around 20% of blood donors are seropositive by ELISA for antibodies to HCV.[1] Children have lower rates of disease, but prevalence rises steeply with age.[4,5] Desert areas of Egypt have the lowest rates of infection and cities have lower rates than rural areas. Rates in the Nile Delta (Lower Egypt) are higher than in the Nile Valley (Middle Egypt and Upper Egypt).[1,3,6,7] Egypt has a much higher prevalence of antibodies to HCV than other countries in the region and elsewhere with comparable socioeconomic conditions and hygiene for invasive medical,

The National Survey on HCV

HCV antibody prevalence is at the average of 13%, (19% rural and 9% urban)

Viremia is 7% among the population survey

Noncommunicable diseases

They are on the rise.

Neuro-psychiatric disorders and digestive system diseases are leading causes of morbidity accounting for 19.8% and 11.5% of the non-fatal burden respectively, followed by chronic respiratory diseases (6.9%), injuries (6.7%) and cardiovascular diseases (5.6%).

Osteoarthritis, injuries and asthma are the leading causes of disability.

The most common cancers are breast, liver, bladder and lymph nodes.

Lifestyle-associated disorders are of growing importance.

- Smoking,
- substance abuse,
- lack of exercise,
- over-consumption of fatty and salty foods,
- non-use of car seatbelts and
- non-observance of traffic rules contribute to a significant proportion of the overall morbidity and mortality.

Available online at www.sciencedirect.com
ScienceDirect
Mutation Research xxx (2008) xxx–xxx
Reviews in Mutation Research
www.elsevier.com/locate/reviewsmr

Changing pattern of hepatocellular carcinoma (HCC) and its risk factors in Egypt: Possibilities for prevention

Wagida A. Anwar [a,*], Hussein M. Khaled [b], Hassan A. Amra [c], Hani El-Nezami [d], Christopher A. Loffredo [e]

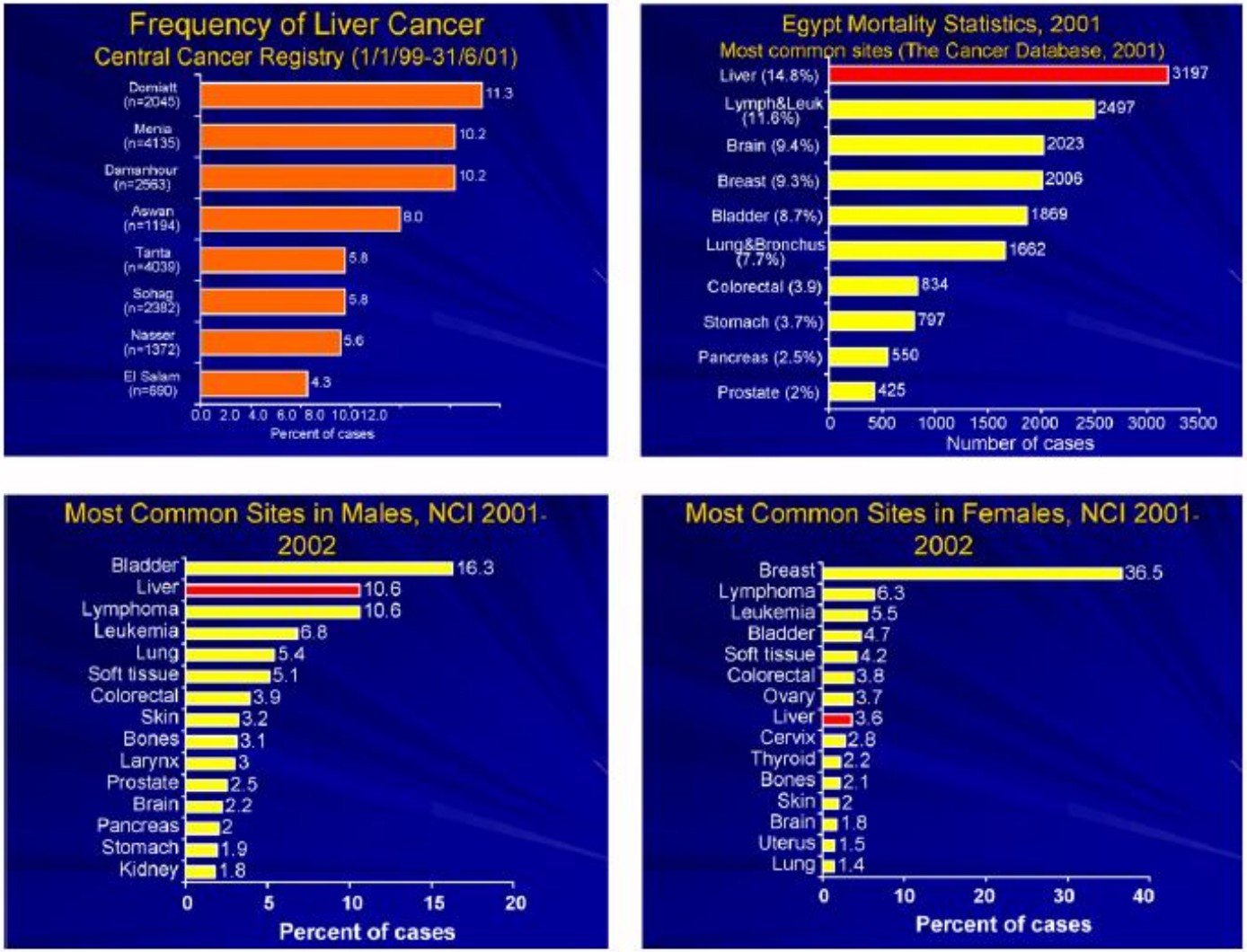
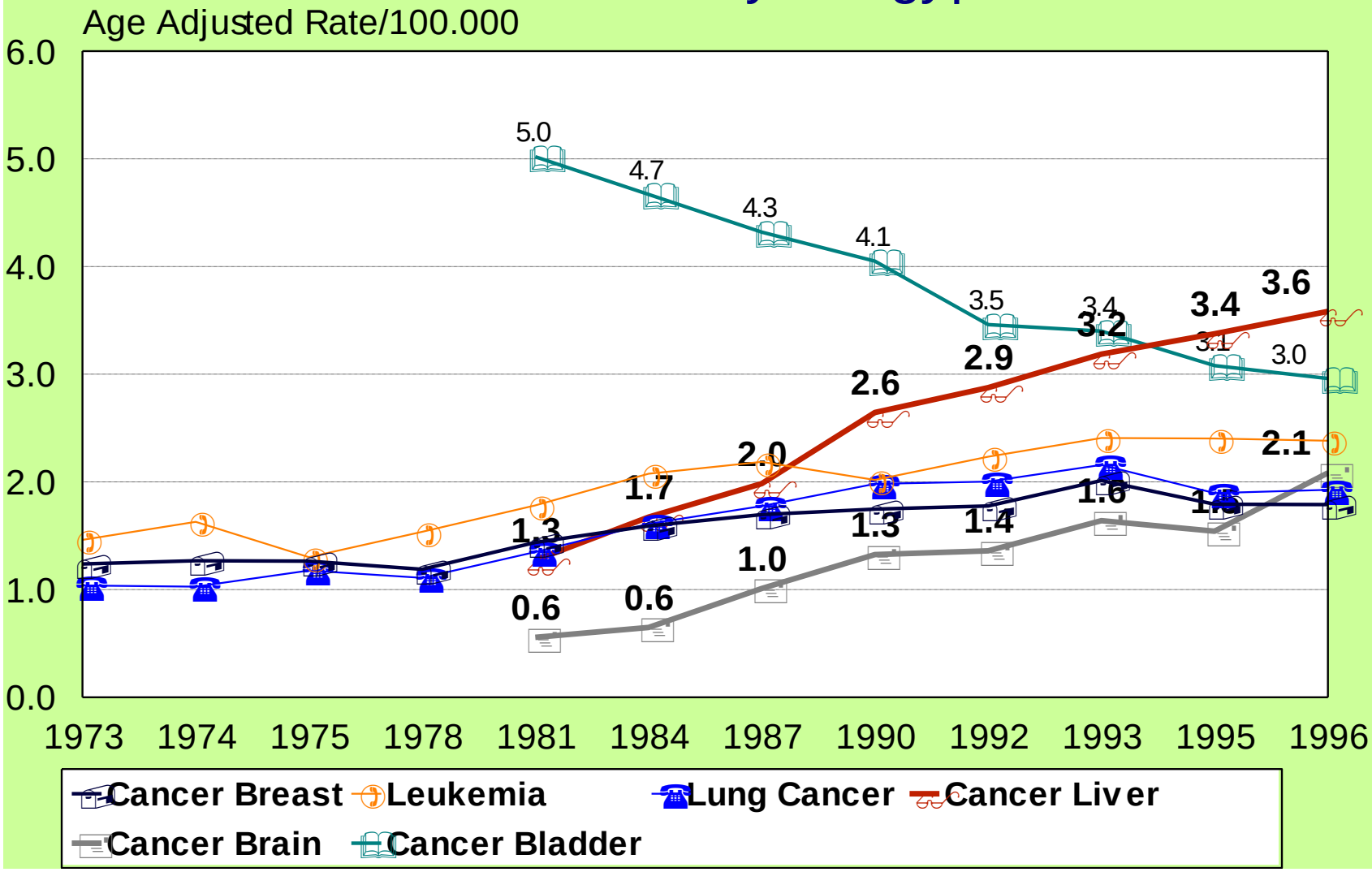
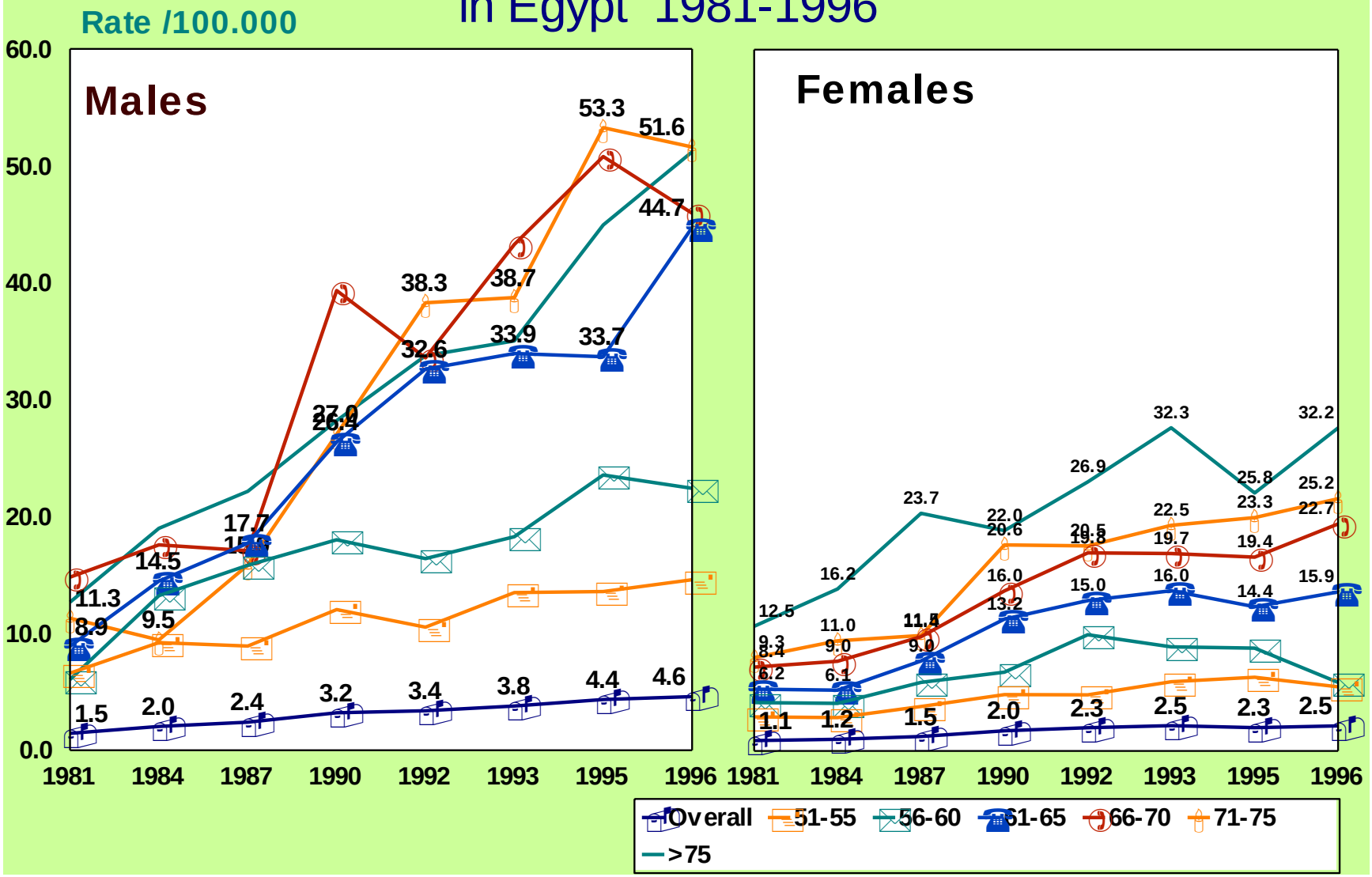


Fig. 2. Frequency of liver cancer, in Egypt according to the National Cancer Institutes records, NCI 1975–2003 [6].

Trend of Cancer Mortality in Egypt 1973-1996



Trend of National Mortality due to Hepatocellular Carcinoma in Egypt 1981-1996



Hepatitis Markers and Aflatoxin B1 among Hepatocellular Carcinoma Cases and Controls

Marker	Patients =321 N	%	Control =3258 N	%	RR (95% C.L.)
HCV Ab	**275**	**86**	965	33	2.3 (2.1-2.5)*
HBsAg	**61**	**19**	169	5.7	3.3 (2.5-4.5)*
None	**12**	**3.7**	170	48.2	
Aflatoxin B1	**N=200**		**N=120**		
Number +ve (%)	**34**	**17%**	10	8.3	2.0 (1.1-4.0)
Mean + S.D. in ng/ml	**225.6+20.6**		**4.5+16.29**		**t-test**

*** Mantel Haenzel Age and Gender Adjusted**

HCV Infection and Atherosclerosis

- **HCV infection provokes oxidative stress leading to a state of low-grade chronic inflammation** ***(Abbas et al., 2008).***

- **HCV infection is associated with increased carotid intima-media thickness (IMT) in some but not all studies** ***(Ishizaka et al., 2003 and Volzke et al., 2004).***

- **IMT is a direct proxy for the risk of developing CVD** ***(Vassale et al., 2004).***

HCV infection and Metabolic syndrome

- **Hepatitis C is associated with extra-hepatic metabolic derangements (such as insulin resistance, diabetes, dyslipidemia, and central fat deposition)**

- **The term Hepatitis C–associated dysmetabolic syndrome maybe more applicable as it may not feature the typical components of the metabolic syndrome.**

(Lonardo et al., 2008)

Metabolic syndrome

Definition: is a cluster of 3 or more of the most dangerous CVD risk factors:

- **Prediabetes (Insulin resistance)**
- **Type 2 Diabetes**
- **Abdominal obesity**
- **Dyslipidemia**
- **High blood pressure**

(National Cholesterol Education Program-Adult Panel III, 2004)

WHO, 2004

Prevalence of overweight and obesity among some countries of the Eastern Mediterranean Region [*8–12*]

Country	Overweight/ obesity (%)	
	Males	Females
Bahrain	56.4	79.0
Egypt	43.8	41.0
Islamic Republic of Iran	57.0	67.7
Jordan	46.0	43.7
Lebanon	60.0	53.0
Libyan Arab Jamahiriya	42.5	74.9
Morocco	37.2	21.7
Oman	40.5	43.5
Pakistan	10.5	34.6
Saudi Arabia	64.0	70.0
Tunisia	13.1	41.9
United Arab Emirates	25.5	39.9

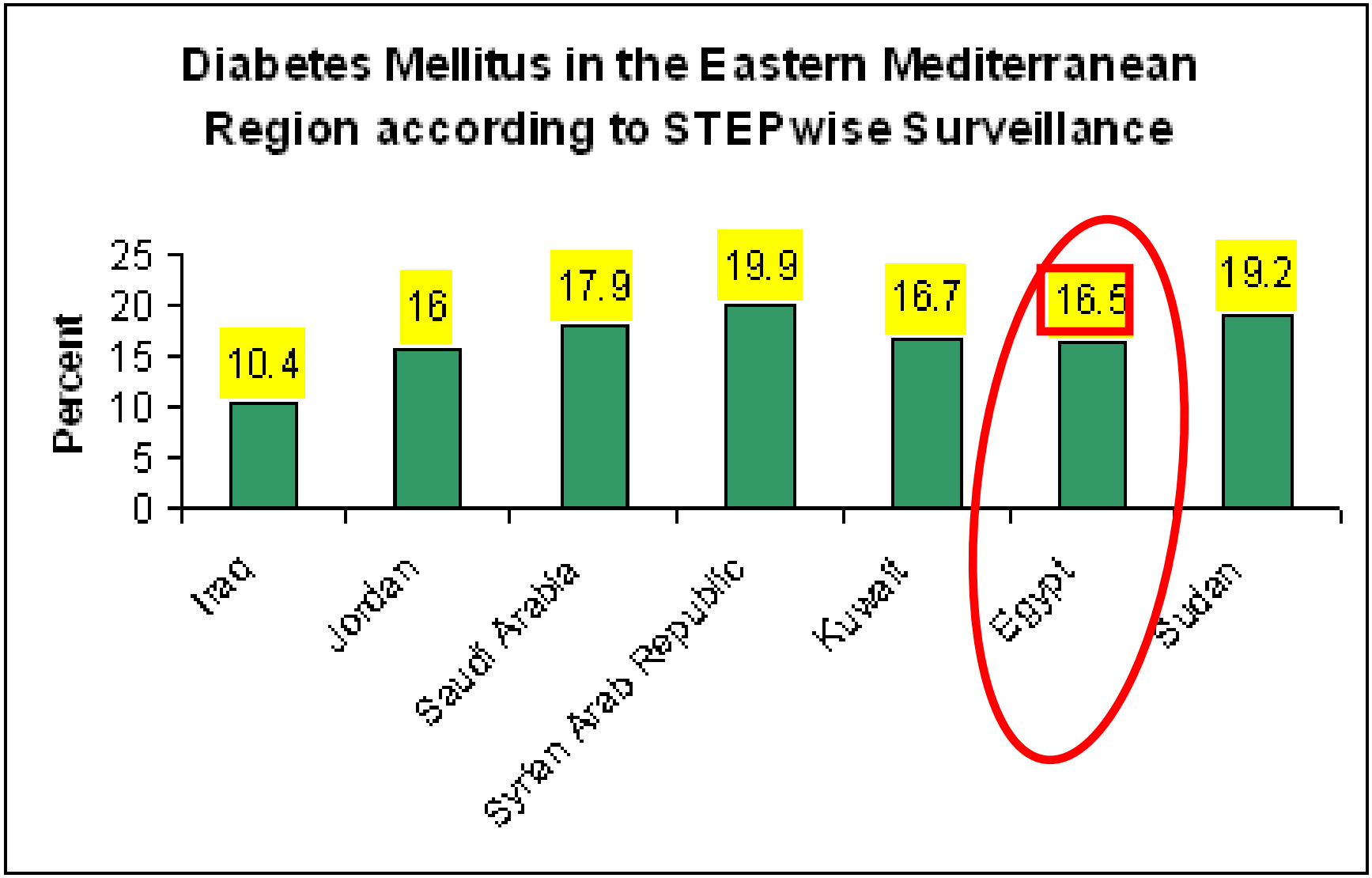
(Galal, 2002)

- The prevalence of obesity in adults is very high in Egypt, particularly among women, and that the prevalence of diabetes and hypertension parallels that of obesity.
- Overweight and obesity affected:
  - 1.6% of 2–6 year olds,
  - 4.9% of 6–10 year olds,
  - 14.7% of 10–14 year olds, and
  - 13.4% of 14–18-year-old children

(WHO, Stepwise Survey, 2005)

Data collected among adults aged 15-65 years showed:

- highest Prevalence of Overweight 34.4% among Age group >25 – 35,
- Obesity prevalence of 41.7% among age group >45 – 55.
- Over weight was higher in males (38.2%), while obesity is more in females (39%),



STEPwise approach to chronic disease risk factor surveillance (STEPS)

(Source: WHO, 2008)

Dietary intake in normal weight, over weight and obese groups

	Group (1) Normal weight (n=60)	Group (2) Over-weight (n=30)	Group (3) Obese (n=39)
Energy intake (k. cal)	2184 (±530.72)	2713 (±321.57) [a]	3338.38 (±1176.42) [b, c]
Protein intake (g)	82.26 (±17.76)	101.66 (±20.06) [a]	116.73 (±36.90) [b, c]
% of energy intake as protein	14.95 (±2.16)	14.65 (±3.34) [c]	12.56 (±3.25) [b, c]
Fat intake (g)	81.32 (±11.71)	116.16 (±36.72) [a]	140.24 (±127.82) [b]
% of energy intake as fat	33.65 (±4.55)	36.42 (±6.23)	35.28 (±15.84)
Carbohydrate intake (g)	292.78 (±103.98)	344.85 (±73.35)	492.50 (±189.56) [b, c]
% of energy intake as carbohydrate	51.39 (±6.35)	48.93 (±6.96)	52.16 (±13.60)
Fiber (g)	5.64 (±3.36)	7.26 (±3.24)	10.86 (±7.67) [b, c]
Vitamin A (IU)	1275.60 (±883.68)	1456.30 (±1322.59)	1337.84 (±1424.19)
Vitamin C (mg)	154.60 (±168.26)	18.60 (±35.01) [a]	21.61 (±33.15) [b]
Calcium (mg)	1089.40 (±339.88)	950.83 (±572.30) [a]	820.91 (±634.30) [c]
Magnesium (mg)	170 (±55.14)	156 (±40.25)	198.69 (±130.40)
Iron (mg)	10.34 (±1.54)	12.16 (±4.44)	18.58 (±7.14) [b, c]
Zinc (mg)	9.74 (±2.53)	10.81 (±5.47)	13.84 (±7.20) [b, c]
Cupper (mg)	1.63 (±0.30)	1.67 (±0.65)	1.67 (±1.13)

TV watching (hours/day) and number of reported exercise or weekly play sessions in normal weight, over weight and obese groups

	Group (1) Normal weight (n=60)	Group (2) Over-weight (n=30)	Group (3) Obese (n=39)
TV watching, hours/day (mean ±SD)	(1.2 ±1.17)	(3 ±2.18) [a]	(3.2 ±2.45) [b]
Sports sessions One time/week	36 (60%)	18 (60%)	23 (58.9%)
Sport sessions 2 times/week	12 (20%)	6 (20%)	7 (18%)

Other Health Problems

Maternal and child health present continuing challenges. Maternal mortality and infant mortality rates remain high.

Iron deficiency anaemia is prevalent and malnutrition is common in children under five particularly in rural Upper Egypt.

Around 1.2% of the population **is blind**, mainly due to cataract; trachoma is prevalent in some governorates.

Environmental conditions are a major determinant of health.

Air pollution, particularly in urban areas, has been of concern for some years; particulate matter and lead are the most important pollutants responsible for a great deal of respiratory pathology.

One of the most important health and environmental problems is air pollution resulting from using fuel, burning operations, and the increase of automobile exhaust in cities.

Lead was phased out of petrol in Cairo , Alexandria and most of Lower Egypt 's cities in late 1997, leading to a reduction in atmospheric lead concentration.

There are several examples of exposure to chemical genotoxicants, and lifestyle exposures in the population, which create unique combinations of environmental risk factors for diseases such as cancer.

Environmental factors may interact with infection and lead to enhancement of carcinogenicity processes.

Currently, there is a growing interest in environmental mutagenicity and carcinogenicity research. The use of different biomarkers and genetic susceptibility testing can contribute effectively to risk assessment.

Demographic transition, characterized by higher birth rates than death rates, high population growth .

- Active population policies that contribute significantly to reductions in total fertility rates.
- Improvements in girls' access to education and female participation in the labor force have probably contributed to the smaller family size.

Moreover, the **deficiency of efficient sanitation services and water pollution** caused by the breaking down of old and consumed water networks, as well as the various problems in construction, designing and maintenance of sewage system resulted in the appearance and prevalence of communicable and non-communicable diseases.

Proposal title:

EU and North African Migrants: Health and Health Systems

Kick Off Meeting
Thursday, May 5 - 6

Location: German Cancer Research Center (DKFZ),

D-69120 Heidelberg, Im Neuenheimer Feld 580
(Technologiepark), Seminar room B4.101 (4th floor)

CONSORTIUM AGREEMENT FOR THE EU PROJECT EUNAM

BETWEEN:

- **DEUTSCHES KREBSFORSCHUNGSZENTRUM (DKFZ),** Heidelberg, Germany, the Coordinator
- **LUNDS UNIVERSITET (University Lund),** Lund, Sweden
- **UNIVERSITA DEGLI STUDI DI FERRARA (Ferrara University),** Ferrara, Italy
- **INSTITUT DE RECHERCHE ET DOCUMENTATION EN ECONOMIE DE LA SANTE ASSOCIATION (IRDES),** Paris, France
- **INSTITUT NATIONAL DE SANTE PUBLIQUE (NIH Algeria**), Alger, Algeria
- **CENTRE D'ETUDES ET RECHERCHES PROSPECTIVES (CE),** Ariana, Tunisia
- **Ain Shams University Asu Faculty of Medecine (Ain Shams University), ABASSYIA CAIRO, Egypt**
- **Institut Pasteur Du Maroc (IPM),** Casablanca, Morocco

1) Presentation of yourself, your colleagues and your institution (max 10 min)

Thursday, May 5

قسم طب المجتمع والبيئة وطب الصناعات
Department of Community, Environmental and Occupational Medicine, Ain Shams University

Faculty of Medicine, Ain Shams University, Egypt (FM ASU)

Ain Shams University, the third largest Egyptian university was founded in 1950 as a governmental organization.

- **180,000 students,**
- **5,000 staff members,**
- **4,000 assistant staff**
- **more than 100 centers and special units),**

It has a long collaboration with different European framework programs (19 EU funded projects in different fields).

The Faculty of Medicine, (http://med.shams.edu.eg/)

It serves more than **6000 undergraduate students** over the 6 years of undergraduate teaching, and more than **1500 post-graduate students** (Diplomas, Master of Science in Medicine and Medical Doctorate) in various academic and clinical departments.

The University hospital serves 1-2 million patients annually.

Departments: The school comprises

- 10 Academic departments including Anatomy, Histology, Biochemistry, Physiology, Pharmacology, Pathology, Parasitology, Microbiology, Community Medicine (Community, Environmental & Occupational Medicine), Forensic and Toxicology.
- 21 clinical departments are located in the University hospitals, including the 6 major Clinical departments (Ophthalmology, Ear, Nose and Throat (ENT), Internal medicine, Surgery, Obstetrics & Gynecology and Pediatrics).

Ain Shams University Educational Hospital

It consists of an outpatient clinic and inpatient department. Both have approximately **3200 beds (**in 1997),[with more than **10,000 staff** working in all departments and serving about **2,000,000 patients** from all over Egypt annually. It is managed by doctors who are professors of medicine and the other faculty staff in all specializations. **The capital of the hospital** was estimated to be 6 billion EGP in 1997.

- **Cardiothoracic** surgery department (10 inpatient beds, 11 adult cardiac surgery ICU beds, 6 pediatric cardiac surgery ICU beds, 4 Thoracic surgery beds, Blood bank, Lab, Trans-thoracic & Trans-oesophageal Echo, 3 adult cardiac surgery OR, 1 Pediatric cardiac surgery OR, 1 Chest surgery OR, Diagnostic endoscopy unit and Valve surgery follow up clinic)
- **Emergency** department (male and female sections), ECG, X-ray and lab.
- **Cardiology** department (Coronary care unit, Pediatric cardiology ICU, Cardiac intermediate care unit (225 beds), Inpatient department, Echocardiography, Stress ECG unit, Electrophysiological studies unit, Outpatient clinic)
- **Respiratory diseases** department (Respiratory diseases ICU, Inpatient, Outpatient, Pulmonary function tests, Respiratory infections lab, Fungal infections lab)
- **Dermatology & Andrology** department
- **Physical medicine** department
- **Diagnostic radiology** department
- **Clinical pathology** department
- **Rheumatology** department
- **Hematology/Oncology** department
- **Gastro-enterology/hepatology** dpt
- **Nephrology** department
- **Endocrine diseases** department
- **Neurology** department Allergy & **Clinical Immunology** department
- **Geriatric** medicine department Medical ICU (20 beds) Geriatrics ICU (10 beds)

El-Demerdash hospital

The original hospital, it was established in 1931.

Contains 769 beds and 970 employees (Excluding Professors).

It contains :

- **General surgery departments.**
- **Orthopedics**
- **Department of Neurosurgery**
- **Urology**
- **ENT, Audiology & Phoniatrics departments.**
- **Plastic surgery and Burn management unit.**
- **Diagnostic radiology units (Neuroradiology, Mammography, etc.)**
- **Clinical pathology units (Including Histopathology unit) Surgical endoscopies unit.**

Obstetric and gynecology hospital

This hospital was included with the pediatrics hospital in a single building, then was separated in 1963. It is a 7-floored building containing:

- **Outpatient clinics** (Infertility, breast disorders, Oncology, Gynecology, Diabetes in pregnancy, Endocrine disorders, Assisted reproductive techniques, Cardiac disorders in pregnancy, Preterm clinic, Cervical smear clinic, clinics) serving more than 40,000 cases annually from all over Egypt (in 1997).
- **Inpatient department** (580 beds), serving 12,000 deliveries annually and other specialized units (Oncology diagnosis, Fetal ultrasound, Oncology management, Assisted reproductive technology, Urodynamics and laparoscopy units).
- **Lab and blood bank** service available 24 hours daily.
- **Teaching rooms**,
- **library, Obstetrics and Gynecology museum**.
- Obstetrics and Gynecology **intensive care unit** (8 beds),
- **Neonatal ICU** (36 incubators),
- **10 delivery rooms and 11 operation rooms**.

Pediatrics hospital

The Pediatrics hospital contains:

- **Emergancy (**A & E) department (for Pediatric Medical & Surgical Emergancies)
- **Inpatient** department (more than 200 beds)
- Pediatrics **Hemodialysis** Unit(since 1991) (12 machines) & peritoneal dialysis units
- **Hematology** & **Oncology** unit (Since 1974) and Bone marrow transplantation unit (since 2005) (located in the Nearby Radiotherapy building)
- **Neonatal** & Preterms **Intensive Care** Unit (since 1995) (19 beds) serving (more than 484 cases annually).
- Pediatric Intensive Care Unit: 12 beds with invasive and non-invasive monitoring, mechanical ventilation (invasive, non-invasive and high frequency oscillation).
- **Pediatric surgery** department (since 1995): 19 beds Inpatient department & outpatient clinic .
- **Diagnostic Radiology** unit (Classic radiology, Pediatric echocardiography, Abdominal ultrasound), EEG, Clinical pathology lab, Clinical immunology lab.
- **Specialized units** (Genetics unit, Pediatric Physiotherapy unit)
- **Pediatric specialized Outpatient** clinics (Hematology & Oncology clinic, Pediatric Neurology clinic, Pediatric Cardiology & Pulmonology clinic, Diabetes clinic, Endocrine disorders clinic, Allergy & Immunology clinic, Genetic disorders clinic, Clinical nutrition clinic, Hepatology clinic, Disability & Rehabilitation clinic, Polio & Pediatric Orthopedics clinic and Nephrology clinic)
- **Immunodeficient isolation** unit.
- Vaccination unit. Medical nursery and children's club.
- Pediatrics Library

Medical Centers and Outpatient Clinics

Institute of Psychiatry Hospital. Established in 1987. It contains 100 beds, serving about 1000 patients annually at its emergency service, inpatient departments. In addition to the outpatient clinics (Addiction control, Sleep disorders, Psychosexual disorders, Child Psychiatry and Psychogeriatrics/Memory Clinics) and the laboratories (EEG, Sleep disorders and Clinical pathology & psychoactive drug monitoring labs), the center includes departments for Psychologic assessment, Cognitive therapy, occupational therapy, Electro-convulsive therapy and Biofeedback therapy. The Center contain teaching rooms and a specialized library. It was also chosen by the [World Health Organisation] to be the regional center for collaboration in the Eastern Mediterranean region.

Poison Control Center The first poison control and toxicology center in Egypt (established 1981). It contains 26 beds and treats about 25,000 patients annually from allover Egypt. It holds an intensive care unit (8 beds) and a medical analysis laboratory including toxicological screening (providing its services 24 hours). It also has a clinical toxins database providing information to many departments. The center contain an anti-toxin bank. The Center was chosen as the Middle-East representative in the World Federation of Poison Control Centers in 1990.

Radiation Oncology & Nuclear Medicine Center Specialized in diagnosis and treatment of malignant tumors, it contains 28 beds, serving about 19,000 patients annually.

Outpatient Clinics Receive around 1000 patients daily in all specializations (General and Special Medicine, General and Special Surgery, Pediatrics, Gynecology and Obstetrics, Blood Diseases, Viral Hepatitis, Endoscopes, Vascular Surgery).

Emergency Departments Receive around 500 cases daily and provide 24-hour service.

Medical Research Center (MRC) : A 4 floored building (Established in 1996) containing 24 labs, 2 Animal labs, an isolation & quarantine room, a library, a microfilm center, Computer lab and lecture room.

- It has high quality laboratory research and educational facilities and provides teaching and research to all medical and healthcare professionals, students and researchers in the University. The centre will provides expertise and organize the International Training Course.

Ain Shams University Specialized Hospital

- Established in 1984 as a self sponsored unit to provide advanced medical care service.

The Cardiac Surgery Academy (CSA)

- **CSA** is an independent establishment, belongs to Ain Shams University, with a 400 bed capacity, most of them are surgical, also provides many free services.

Intensive care units

- Internal Medicine, Geriatrics, Surgical, Trauma & Surgical ER, Neurology, Department of Neurosurgery, Toxicology, Coronary, Pediatric Cardiology, Respiratory system, Burns, Cardiothoracic surgery, Pediatric surgery, Obstetrics & Gynecology, Pediatrics, Neonatal.

- **Radiology department**
- **Blood bank & Clinical Pathology Complex**
- **Ain Shams University Hospital Administration Compound**
- **Training & Education Enhancement Center**
- **Doctors' Hostel and Restaurant Compound**

The Department of Community Medicine provides the expertise in training programs on research methodology and different epidemiological tools that will help in designing intervention studies and national programs.

It **offers programs** of health care to serve the Egyptian society, enhancing health education, preventive care, environmental development and targeted scientific research for continual improvement of community health.

It has **strong links** with the Ministry of Health and Population in planning and evaluation of health and health related problems and continuous collaboration with the numerous Egyptian research institutes (e.g. Institute of Environmental Research and Studies, National Training Institute, National Research Center, Academy of Scientific Research and Technology, National Cancer Institute).

PROF. WAGIDA A. ANWAR (WA),

M.B.B.Ch, M. Sc., M.D

- Professor at the Department of Community, Environmental and Occupational Medicine; Faculty of Medicine, Ain Shams University, Cairo, Egypt.
- Adjunct Associate Professor, University of Texas, Medical Branch (UTMB), Galveston, Texas, U.S.A;
- Collegium Ramazini Fellow, Italy since 2006 and
- Marie Curie Fellow, EC since 2008.

- Graduated (*M.B.B.Ch)* in December 1977.
- Master degree *(M.Sc.,1981)* and
- Doctorate degree *(M.D., 1984)* in Public Health from Faculty of Medicine, Ain Shams University, Egypt.

- In 1993, established the Molecular Epidemiology Unit, Laboratory of Cytogenetics
- 2002-2008 Director of the Genetic Engineering and Biotechnology Center, Ain Shams University

Obtained training from several countries.

- In 1986 she spent Post Doctoral Fellowship in **France;**
- in 1987-1988, Fogarty International Fellowship (US) Department of Preventive Medicine and Community Health, UTMB, Texas, **USA.**
- During the period from 1989 to 1991, visited UTMB, Galveston, Texas U.S.A. as a visiting scientist several times, to participate in projects on Environmental Mutagenesis.
- 1993-1996, several training visits on Molecular genetics and its use in environmental mutagenesis and genetic susceptibility to cancer.

As an examples of the visited institutions,

- US Environmental Protection Agency, Genetic Toxicology Division; NIEHS, NIH, **USA;**
- Institute of Occupational Health in **Finland**;
- Karolinska Institute, **Sweden**
- Center for Nutrition and Toxicology, **Sweden**;
- Heidelberg Cancer Center, **Germany**;
- National Cancer Center, **Japan**
- University of Kuopio, **Finland**.

- Alexander Hollender course in Cairo 1984
- Several scientists attended 1992 conference in Cairo
- Attended several conferences and training courses in Finland

International Symposium on Health Hazards of Butadiene and Styrene, Espoo, Finland, 18-21 April 1993

University of Texas, Medical Branch, (UTMB)
Galveston, Texas , U.S.A.

Principal investigator of several research projects.

Director of the Technical Support Office and Advisor to the Minister of Health and Population for Scientific Research and International Cooperation (1996-2002). Has a major role in the planning and implementation of the Health Sector Reform Program, the Healthy Egyptians 2010 Initiative and the Integrated National Women Health Project.

Participated in several national and international activities such as the humanitarian missions to different parts of the world.

Visited several universities, agencies, centers, faculties, and organizations to give seminars and lectures and to discuss the possibilities for promoting cooperation and organizing training programs.

Member of several international and national professional forums and bodies such as:

- Harmonization Steering Committee, International Programme on Chemical Safety (IPCS), WHO, Geneva, Switzerland;
- Regional Advisory Panel (RAP) for Reproductive Health Research, WHO, Geneva, Switzerland,
- President, Pan African Environmental Mutagen Society, Secretary General, Egyptian Environmental Mutagen Society,
- Board Member of the Council on Health Research for Development (COHRED) (1998-2002), Geneva, Switzerland;
- Secretary General of the International Association of Environmental Mutagen Societies (IAEMS) (2005-2009).

- **Participated in national and international conferences and meetings**, such as the World Health Assembly Meetings, the WHO Executive Board Meetings, WHO Regional Meetings, and WHO meetings on Women and Reproductive Health, Health and Environment and Prevention and Management of Genetic Disorders and Birth Defects in Developing Countries.

International Visitors

Official Representation, WHO, UN, Arab League

Organized many international conferences and meetings including:

- **International Conference on Environmental Mutagen in Human Populations (1992-2012)**
- **Pan African Environmental Mutagen Society (PAEMS) from (1993–2012)**
- **African Genome Initiative conferences (2003–2005)**

First International Conference on Environmental Mutagen in Human Populations was held in Cairo, Egypt,

January 19-24, 1992

FIFTH INTERNATIONAL MEETING
"GENOMICS AND PROTEOMICS ERA"

Fès, Morocco

24-26 November, 2005

The Second Conference of Africa Genome Initiative
"Genomics & African Society"

26-29 March 2004
Mena House Hotel- Giza- Egypt

Received a number of international awards

including :

- **Shousha Foundation Prize (WHO) in 2001;**
- **Fogarty International Fellowship Award, (1987);**
- **the CEES Award (1986) to spend one year in the Center of Atomic Energy, France,**
- **the Marie Curie Fellowship, EC, 2008.**

Professor Diaa Marzouk Abd El Hamid

Professor at the Community Medicine Department

She will be the coordinator of the project activities in Egypt.

She is the Manager of Molecular Epidemiology Unit in the Community Medicine Department.

Her scientific experience is mainly in the field of epidemiology of communicable, non communicable diseases, nutrition and research methodology.

She has been certified as trainer of Health Research Ethics from University of Maryland, in 2006, and

she is the Moderator of Research Ethics Committee Faculty of Medicine, Ain Shams University since 2007.

She has carried out research on the life style of adult diabetic patients attending outpatient clinics in Egypt.

Her international collaborations include groups from Pasteur Institute, Paris, and Imperial College, London.

Proposal title:

EU and North African Migrants: Health and Health Systems

Kick Off Meeting
Thursday, May 5 - 6

Location: German Cancer Research Center (DKFZ),

2) Presentation of your work relating to the EUNAM themes
(max 20 min)
Thursday, May 5

Public Health Experience

As a Professor of Public Health, my research work concentrated on the following topics:

- **Communicable Diseases and Its relation to Cancer development**
- **Environmental Pollution and Effect on Health**
- **Carcinogenesis**
- **Prevention of Cancer**
- **Heath Care Services**
- **Clinical Nutrition and Prevention of T2 Diabetes (Finland Experience)**

Communicable Diseases and Its relation to Cancer development

- Shistosomiasis and Bladder Cancer

(Genetic susceptibility and cigarette smoking habits significantly influence the bladder cancer outcome).

- Hepatitis C and Hepatocellular Carcinoma
- Other Health Problems

Shistosomiasis and Bladder Cancer

- Massoud, A.A., El Kholy A. and **Anwar W.A.**, Assessment of Efficacy of Praziquantel against Schistosoma Mansoni Infection. Journal of Tropical Medicine and Hygiene 87(3): 119-121 (1984)**.**
- **Anwar, W.A.**, Au W.W. and Legator M.S. Enhancement of Benzene Clastogenicity by Praziquantel in Mice-Mutation Research 222: 238-289 (1989)**.**
- Rosin, M.P., and **Anwar W.A.**, Chromosomal Damage in Urothelial Cells from Egyptians with Chronic Schistosoma Hematobium Infections-International Journal of Cancer 51: 1-5 (1992).
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- Rosin, M.P., Zaki, S.S., Ward, A.J. and **Anwar, W.A.**, Involvement of Inflammatory Reactions and Elevated Cell Proliferation in the Development of Bladder Cancer in Schistosomiasis Patients. Mutation Research 305: 283-292, (1994).
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- Rosin, M.P., **Anwar, W.A.** and Ward, A.J., Inflammation, Chromosomal Instability and Cancer: The Schistosomiasis Model-Cancer Research Supplement 54, 1929s-1933s, (1994).
- Saad El Din, S., El Sharkawy, T., Zidan, A.H., Youssef, A., **Anwar, W.A**., DNA Ploidy Status and Tumor Suppressor Gene (p53) in Urinary Bladder Carcinoma-Cancer Molecular Biology, 2 (3): 549-564 (1995).
- **Anwar, W.A.**, Sherif Abdel Rahman, Randa El Zein, Hosam M. Mostafa and William W. Au., Genetic Polymorphism of GSTM1, CYP2E1 AND CYP2D6 in Egyptian Bladder Cancer Patients-Carcinogenesis 17 (9): 1923-1929 (1996).
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- Newton R; Au W A and **Anwar, W.** Schistosomiasis and Human Cancer, in the issue Cancer Surveys on "Infections and Human Cancer". Vol: 33 pages 291- 311 (1999).

Hepatitis C and Hepatocellular Carcinoma

- Christina Frank, Mostafa K. Mohamed, G. Thomas Strickland, Daniel Lavanchy, Ray R. Arthur, Laurence S. Magder, Taha El Khoby, Yehia Abdel- Wahab, El Said Aly Ohn, **Wagida Anwar**, Ismail Sallam, The Role of Parenteral Antischistosomal Therapy in the Spread of Hepatitis C in Egypt. The LANCET, 355: 887-891 (March 2000).
- Nafeh, M.A., Medhat, A., Shehata, M., Mikhail, N.H., Swifee, Y., Abdel-Hamid, M., Watts, S., Fix, A.D., Strickland, G.T., **Anwar, W.,** Sallam, I. Hepatitis C in a Community in Upper Egypt: 1. Cross-sectional Survey. *Am J Trop Med Hygiene*, 63(5-6) 236-241 (2000).
- Fatma Abdel-Aziz, Mostafa Habib, Mostafa K. Mohamed Abdel-Hamid, Foda Gamil, Salah Madkour, Nabiel N. Mikhail, David Thomas Alan D. Fix, G. Thomas Strickland, **Wagida Anwar**, and Ismail Sallam; Hepatitis C Virus Infection in a Community in the Nile Delta: Population Description and HCV Prevalence. Hepatology Vol. 32, No. 1, page 111-114 (July 2000).
- Habib, M., Mohamed, M.K., Abdel-Aziz, F., Madger, L.S., Abdel-Hamid, M., Gamil, F., Madkour, S., Mikhail, N.N., **Anwar, W.**, Strickland, G.T., Fix, A.D., Sallam, I., Hepatitis C virus infection in a community in the Nile Delta: Risk factors for seropositivity, *Hepatology*, 33(1), 248-253 (2001).
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- **Wagida A. Anwar**, Hussein M. Khaled, Hassan A. Amra, Hani El-Nezami, Christopher A. Loffredo. Changing Pattern of Hepatocellular Carcinoma (HCC) and its Risk Factors in Egypt: Possibilities for Prevention, Mutation Research, Volume 659, Issues 1-2, July-August 2008, Pages 176-184 (2008).

Other Health Problems

- Ezz Al Arab, G., Tawfik, N., El Gendy, R., **Anwar, W.A**., Courtight, P. The burden of **Trachoma** in The Rural Nile Delta of Egypt: A Survey of Menofiya Governorate. Br. J. Ophthalmol., 85, 1406-1410, (2001).
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Environmental Pollution and Effect on Health

- Aflatoxins
- Pesticides
- Different Environmental Pollutants

Aflatoxins

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Pesticides

- El-Abidin Salam, A.Z., Hussein, E.H.A., El-Itriby, H.A., **Anwar, W.A.** and Mansour, S.A. The Mutagenicity of Gramoxone (Paraquat) on Different Eukaryotic Systems. Muat. Res. 319: 89-101 (1993).
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- **Anwar, W.A.**, and Kamal A.M., Cytogenetic Effects in a Group of Traffic Policemen in Cairo Mutation Research, 208: 225-231 (1988).
- **Anwar, W.A.**, Gabal M.S., Cytogenetic Study in Workers Occupationally Exposed to Mercury Fulminate-Mutagenesis 6 :(3) 189-192 (1991).
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- **Anwar, W.A.**, Chemical Interaction: Enhancement and Inhibition of Clastogenicity. Environmental Health Perspectives Supplements 101 (3): 203-206 (1993).
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- **Anwar, W.A.,** Monitoring of Human Populations at Risk by Different Cytogenetic End Points-Environmental Health Perspectives 102: 131-134 (1994).
- **Anwar, W.A.,** Sherif M.R. Zaki, Sahar S. Eldin, Samir M.H. Bedair, Fikry F. El-Bokl, Cytogenetic Changes among Personnel Exposed to Anesthetic Gases-Egyptian Journal of Anesthesiology, 10 (1): 237-253 (1994).**Anwar, W.A.,** Somia I. Salama, Mostafa M. El Serafy, Samia A. Hemida and Ahmed S. Hafez, Chromosomal Aberrations and Micronucleus Frequency in Nurses Occupationally Exposed to Cytotoxic Drugs-Mutagenesis, 9 (4): 315-317 (1994).
- **Anwar, W.A.** and Shamy M., Chromosomal aberrations, micronuclei and urinary thioethers in reinforced plastics workers exposed to styrene-Mutation Research, 327: 41-47 (1995).

Hormonal Contraceptives

- **Wagida A. Anwar et al.** Study of Cytogenetic Effects of Medroxy Progesterone Acetate (MPA) In Women Using Depo –Provera as Injectable Contraceptive – Supplement to Volume 40 (1989), Twelfth Annual Ain Shams Medical Congress, March 4-9 , 1989, Abbassia , Cairo, Egypt .
- **Wagida A. Anwar et al.** Study of Cytogenetic Effects of Medroxy Progesterone Acetate,(MPA) on Human Chromosomes In Vitro - Supplement to Volume 40 (1989), Twelfth Annual Ain Shams Medical Congress, March 4-9, 1989, Abbassia , Cairo, Egypt .
- Sherif S .EL- Ghetany , **Wagida A. Anwar** et al. Study of Cytogenetic Effects of Medroxy Progesterone Acetate (MPA) on Experimental Animals (MICE) By Micronucleus Assay - Supplement to Volume 40 (1989), Twelfth Annual Ain Shams Medical Congress, March 4-9, 1989 , Abbassia , Cairo, Egypt .
- Diaa A. Marzouk, Maha M El Gaafary, Samia I El Damaty, Sahar M Sabbour, Fatma Abdel Salam Mecky, Mona Saker, Amany M Sayed, Hoda I Fahim, **Wagida Anwar**, Breast cancer and hormonal intake among Egyptian females. European Journal of Oncology volume 14, number 1, pp. 37-51(2009).

Review articles

- **Anwar, W.A.,** Environmental Health in Egypt. International Journal Hygiene and Environmental Health 206, 339-350 (2003).
- **Wagida A. Anwar**, "Possibilities and pitfalls for modern biotechnology in the development of African genetic toxicology" published in Toxicol Appl Pharmacol (2005), 207(2 Suppl): 706-11.
- **Wagida A. Anwar** - Inas El Attar - and Hussein M. Khaled, Environmental Health and Cancer in Egypt, about.Cancer in Africa,, 39 – 61, (2006).
- David A. Eastmond, Andrea Hartwig, Diana Anderson**, Wagida A. Anwar**, Michael C. Cimino, Ivan Dobrev, George R. Douglas6, Takehiko Nohmi, David H. Phillips and Carolyn Vickers. Mutagenicity testing for chemical risk assessment: update of the WHO/IPCS Harmonized Scheme. Mutagenesis vol. 24 no. 4 pp. 341–349, (2009).

Carcinogenesis

- Au, W.W, **Anwar W.A.**, Hanania E.G**.**, Chromosome and associated changes In malignant transformation of mouse mammary cells, Cancer research, Therapy and Control, Vol. 4 (2), pp. 109 -118, (1994).
- Fawzi, R.A., Sammour, M.B. and **Anwar, W.A.,** Micronuclei in Exfoliated Cervical Cells As a Prospective Indicator Tool for Cellular Genotoxic Damage in High Risk Cancer Patients, Cytohistologic Study Versus DNA Ploidy. Ain Shams Medical Journal, Vol. 48 No. 10, 11 and 12, pp 1079-1098, (1997).

Prevention of Cancer

- **Anwar, W.A.,** Au W.W., Legator M.S. and Sadagopa Ramanujan V.M.S., Effect of Dimethyl Sulfoxide on Genotoxicity and Metabolism of Benzene in Vivo-Carcinogenesis 10(2) 441-445 (1989).
- Rosin, M.P., Ragab, N.P., **Anwar, W.A**. and Salama, S.I., Localized Induction of Micronuclei in The Oral Mucosa of Xeroderma pigmentosum Patients-Cancer Letters 81: 39 - 44 (1994).
- **Wagida A. Anwar**, H.A.E. EL-Daway and S.S.M. Tawfik. Radioprotective Role of Vit. C and E against Gamma Radiation-Induced Depletion in the Relative Testicular Weight and Sperm Shape Abnormalities. The Egyptian Journal of Radiation Sciences and Applications, Vol. 12, No. 1, pp. 53-65, (1999).
- **Wagida A. Anwar**, Environmental Mutagens and Possibilities for prevention. European Journal of Oncology XIII,4, (2008).
- **Wagida A. Anwar**, Pirkka V. Kirjavainen, Jaana Isola, Mohamed El Zarka, Tony Moros Spiros, Hani El-Nezami. Aloe arborescens preparation and liver health, European Journal of Oncology, vol. 14, n. 1, 2009

Heath Care Services

- Gadallah M., Zaki B., Rady, M., **Anwar, W.** and Sallam I. Patient Satisfaction with primary health care services in two districts in lower and upper Egypt. Eastern Mediterranean Health Journal. Vol. 9, No., 3 page 422 – 430, (2003).
- **Wagida Anwar** and Ismail Sallam. Global Governance Interfacing with National Policies. The Case of Health in Egypt. Globalisation, Global Health Governance and National Health Politics in Developing Countries. An Exploration Into the Dynamics of Interfaces. Edited by Wolfgang Hein and Lars Kohlmorgen, Hamburg, No. 60, pages 319- 334 (2003).
-

International Experience in Environmental Mutagenesis

In 1984, I attended in Cairo one of the **Alexander Hollender Courses** which was organized to transfer the new technology about genetic toxicology to young researchers in Egypt.

More **training started** In 1987 in UTMB, Texas, USA as **NIH Fogarty International fellow and continued in different countries.**

Established the **Molecular Epidemiology Unit** that provides opportunities for scientists to conduct research on human health using relevant techniques.

In recognition of the dedication to the field of environmental mutagenesis,

- Nominated to be the **secretary general of the International Association of Environmental Mutagen Societys** (2004-2009).
- First receiver of the **Environmental Mutagen Society International Fellow Award**, 2001.

Organization of International Conferences

I initiated together with international collaborators a series of conferences known as the **International Conference on Environmental Mutagens in Human Populations.** These international conferences have been organized every four years. The overall objectives are to enhance the awareness of and to identify solutions to human environmental health problems, to facilitate interactions and to foster international collaborations.

The first conference was held in Cairo, Egypt, in January 19-24, 1992. The meeting sparked the interest in addressing environmental health concerns among scientists in the region and stimulated the organization of the Pan African Environmental Mutagen Society. The Cairo conference was so successful that the participants requested the organization of additional conferences according to the similar topic.

Subsequent conferences in Czech Republic (1995), Thailand (1998), Brazil (2003), Turkey (2007) and the next one will be in Qatar, Doha in March 2012.

Pan African Environmental Mutagen Society (PAEMS),

Established in Nairobi, **Kenya** in 1983 to encourage research on environmental mutagenesis moved the headquarter to Cairo**, Egypt** and started a new series of scientific activities. The main goals of the PAEMS are to spread the new information and technology concerning Environmental Mutagenesis and to clarify the possibility of cooperation and training programs between different African countries and other countries.

The series of meetings were **Cairo, Egypt** (1993), **Cape Town, South Africa** (1996), **Harare, Zimbabwe** (1999), **Cairo, Egypt** (2003), **Fes, Morocco,** (2006), **Cape Town, South Africa** (2008) and the seventh will be in **Cairo, Egypt** in 2012.

Ministry of Health Experience

During her work as an assistant to the Minister of Health, I have initiated several programs:

- **Health Sector Reform Program and**
- **Healthy Egyptian 2010 Initiative.**
- **Integrated National Women Health project, and the**
- **Cancer Registry**
- **Hepatitis C and Cancer programs.**

Finland Experience

- North to South Higher Education Programme (NS) started in 2004 with University of Kuopio
  - exchanges of visits between scientists from both countries.
  - Scientific workshop “the Public Health Challenges in Africa” was organized in Tanzania in 26-30 May, 2008.
- Obtaining the Marie Curie Fellowship (EC, FP7) to spend one year at the University of Kuopio, Finland (during the period 1 August 2008 – 31 July 2009) about **Clinical Nutrition and Prevention of T2 Diabetes**

Section 4: Responsibilities of Parties

4.1 General principles

- Each Party undertakes to take part in the efficient implementation of the Project, and to cooperate, perform and fulfil, promptly and on time, all of its obligations.
- Each Party undertakes to notify promptly any significant information, fact, problem or delay likely to affect the Project.
- Each Party shall promptly provide all information reasonably required by a Consortium Body or by the Coordinator to carry out its tasks.
- Each Party shall take reasonable measures to ensure the accuracy of any information or materials it supplies to the other Parties.

Work description by WP

EUNAM aims to review immigrant health aspects over several EU countries and over several groups of immigrants with a longitudinal perspective.

The basic strategy is that the WP leader prepares **a document** on his own country based on his expertise. This document will be discussed in the project meetings after which it will be widened with the help of the other WP participants.

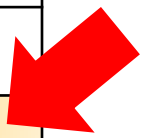
There will be a **report** at each stage to the EUNAM web site and selected documents will be published in open literature.

Joint meetings are important for the coordination action. The internal meetings plan and revise common documents and discuss the means of publication of the documents.

The **open workshops** that follow the internal meetings focus on relevant topics for which some outside experts are invited to contribute. The workshops will also discuss policy statements and recommendations.

Material produced by EUNAM is also **published** through the normal scientific and media channels as agreed by the partners who have contributed to the production of such material.

Work package No[1]	Work package title	Type of activity[2]	Lead participant No[3]	Lead participant short name	Person-months[4]	Start month[5]	End month
1	Health and biological and psychosocial well being of NA immigrants in EU compared to the natives and other immigrant groups	COORD	3	FU	35	1	48
2	Disease panorama in immigrants compared to natives: guide to prevention and etiology	COORD	2	LU	50	1	48
3	Health care utilization by immigrants compared to natives	COORD	4	IRDES	35	1	48
4	Population well being and health care in NA with time trends	COORD	6	UT	50	1	48
5	Disease spectrum in NA now and then	COORD	5	ANIH	49	1	48
6	Lessons for prevention in NA, EU and the world	COORD	7	ASU	49	24	48
7	Knowledge and skills in health studies related to immigrants are advanced through training, information transfer and outlining of research and policy targets	OTHER	1	DKFZ	55	7	48
				TOTAL	336		



Work package number	2	**Start date or starting event:**		1			
Work package title	Disease panorama in immigrants compared to natives: guide to prevention and etiology						
Activity Type[13]	COORD						
Participant number	2	3	1	4	5	7	
Participant short name	LU	FU	DKFZ	IRDES	ANIH	ASU	
Person-months per participant:	15	5	15	5	5	5	

Objectives

To describe disease panorama in immigrants compared to natives: guide to prevention and etiology

Description of work (possibly broken down into tasks), and role of participants

LU describes the situation in Sweden year 1.

DKFZ, FU and IRDES add data on EU-wide year 2.

EU-NA situation is summarized by all WP participants in year 3.

Implications to disease etiology are summarized by all WP partners in year 4.

Deliverables (brief description and month of delivery)

Reports on Swedish immigrant disease profile month 18, EU and overall EU-NA profiles month 36, considerations of etiological implications month 48.

Work package number	4	Start date or starting event:		1		
Work package title	Population well being and health care in NA with time trends					
Activity Type[15]	COORD					
Participant number	6	4	5	7		
Participant short name	UT	IRDES	ANIH	ASU		
Person-months per participant:	25	5	10	10		

Objectives

To survey population well being and health care in NA with time trends

Description of work (possibly broken down into tasks), and role of participants

UT surveys the situation in Tunisia year 1.

Algerian and Egyptian experience is added year 2.

Time tends and French experience is added years 3 and 4.

Deliverables (brief description and month of delivery)

Report on Tunisian situation month 18. NA overall situation with time trends month 48.

Work package number	5	Start date or starting event:	1			
Work package title	Disease spectrum in NA now and then					
Activity Type[16]	COORD					
Participant number	5	2	3	6	7		
Participant short name	ANIH	LU	FU	UT	ASU		
Person-months per participant:	25	3	3	5	10		

Objectives

To survey disease spectrum in NA now and then

Description of work (possibly broken down into tasks), and role of participants

Survey of disease spectrum in Algeria year 1.

Survey of disease spectrum in NA year 2 and 3.

Time trends with EU experience year 4.

Deliverables (brief description and month of delivery)

Report on Algerian disease spectrum in month 18. NA summary month 48.

Work package number	6	**Start date or starting event:**			24		
Work package title	Lessons f prevention in NA, EU and the world						
Activity Type[17]	COOR						
Participant number	7	1	2	3	4	5	
Participant short name	ASU	DKFZ	LU	FU	IRDES	ANIH	
Person-months per participant:	24	5	5	5	5	5	

Objectives

Synthesize what has been found in immigrant studies and in international disease comparisons in terms of disease etiology and prevention.

Description of work (possibly broken down into tasks), and role of participants

WP starts on year 3 and produced a summary document during year 4. This is reached through draft documents prepared by various partners which will be discussed in project meetings.

Deliverables (brief description and month of delivery)

Summary document month 44.

Work package number	7	Start date or starting event:	7				
Work package title	Knowledge and skills in health studies related to immigrants are advanced through training, information transfer and outlining of research and policy targets						
Activity Type[18]	OTHER						
Participant number	1	2	3	4	5	6	7
Participant short name	DKFZ	LU	FU	IRDES	ANIH	UT	ASU
Person-months per participant:	20	10	5	5	5	5	5

Objectives

WP includes all training, workshop, course and information actions of EUNAM.

Description of work (possibly broken down into tasks), and role of participants

Workshops twice a year in the connection of project meeting, work-place training, course at EMUNI, information events. Workshops will be used to discuss the joint documents and to draft policy statements and recommendations. Suitable training and information material will be discussed.

Deliverables (brief description and month of delivery)

Workshops start in the second project meeting month 7 and these will be followed by written reports. Training is offered throughout the project. Final meeting in the connection of the EMUNI course around month 45.

Table 1.3 e: Summary of staff effort

A summary of the staff effort is useful for the evaluators. Please indicate in the table the number of person months over the whole duration of the planned work, for each work package, for each participant. Identify the work-package leader for each WP by showing the relevant person-month figure in bold.

Participant no./short name	WP1	WP2	WP3	WP4	WP5	WP6	WP7	Total person months
1 DKFZ		15	5		3	5	20	48
2 LU	5	15			3	5	10	38
3 FU	20	5	5		3	5	5	43
4 IRDES	5	5	20	5		5	5	45
5 ANIH		5		10	25	5	5	50
6 UT	5		5	25	5		5	45
7 ASU		5		10	10	24	5	54
Total	35	50	35	50	49	49	55	323

iv) graphical presentation of the components