

**Research in priority areas
of public health**

Summary of final reports 2001-2004



**World Health
Organization**

Regional Office for the Eastern Mediterranean

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Part 1

Review of final reports

1. Introduction

Following the endorsement of the renewed policy for health research and development in the Eastern Mediterranean Region by the WHO Regional Committee for the Eastern Mediterranean at its 48th Session in October 2001, a new scheme of grants for health research entitled Eastern Mediterranean Regional Office Special Grants for Research in Priority Areas of Public Health was established in 2002. The broad objective of these grants was to address local problems and issues of public health importance in the countries of the Region, with special emphasis on health systems research. Through a competitive process of selection, funds of up to US\$ 10 000 are provided to successful research proposals. By the end of 2005, nearly 125 research proposals had been funded through three calls for applications. On completion of the funded projects, usually one to two years after being funded, the principal investigators are requested to submit a final report according to a prescribed format.

This review is based on 68 final reports of studies conducted between 2001 and 2004, and that were received by the Research Policy and Coordination unit in WHO's Regional Office for the Eastern Mediterranean by the end of the third quarter of 2005. It follows an earlier review of 28 final reports received prior to the ones covered in the present review (*Research in selected areas of public health, 1997–2002*. Cairo, WHO Regional Office for the Eastern Mediterranean, 2005).

The majority of the reports were of projects that were funded during the first and second calls for research proposals. These calls invited proposals dealing with: health sector reform; strengthening district health systems; health management information systems; quality of care and client satisfaction; healthy lifestyles, including behavioural research; mental health, including drug and substance abuse; issues of ethics

and equity; the impact of the environment on the health of children; and quality assurance systems for health services and hospitals and user satisfaction surveys. There were a few reports of projects that were funded prior to 2002.

Of the 68 final reports, 24 (35.3%) were from Islamic Republic of Iran, 12 (17.6%) from Egypt, 8 (11.7%) from Pakistan, 6 (8.8%) from Yemen, 4 (5.9%) each from Morocco and Sudan, 3 from Oman, 2 from Lebanon and 1 report each from Afghanistan, Saudi Arabia, Somalia, Syrian Arab Republic and Tunisia. The large number of reports from Islamic Republic of Iran reflects the number of proposals (28) approved for funding (Figure 1).

The domains covered by the final reports and corresponding to the topics on which proposal were invited were as follows. The number of reports for each domain is given in brackets.

- Healthy lifestyles and behaviour-related research (19), of which 5 were related to smoking and 2 to injury and violence.
- Environmental health (9).
- Quality of care (5) and client satisfaction surveys (3).
- Noncommunicable diseases including cancer epidemiology (3) and cardiovascular diseases (3).
- Mental health (4).
- Health systems (7), of which only one dealt with health sector reforms.
- Health economics (2).
- Health management information systems (2).
- Bioethics (2).
- Other reports that did not fit in one of the above categories (9), of which 3 reports were laboratory-oriented studies (Figure 2).

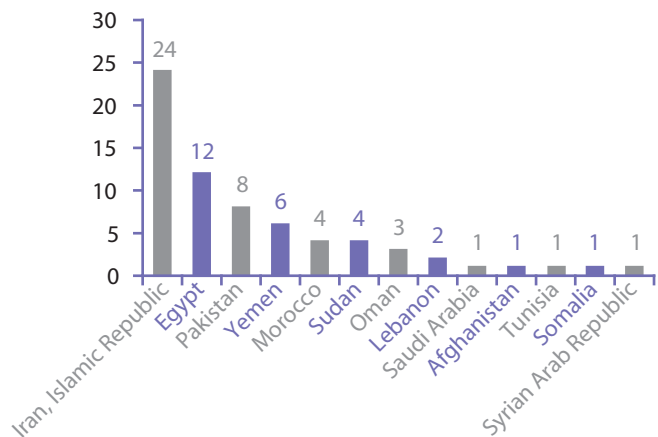


Figure 1. Number of reports received by country

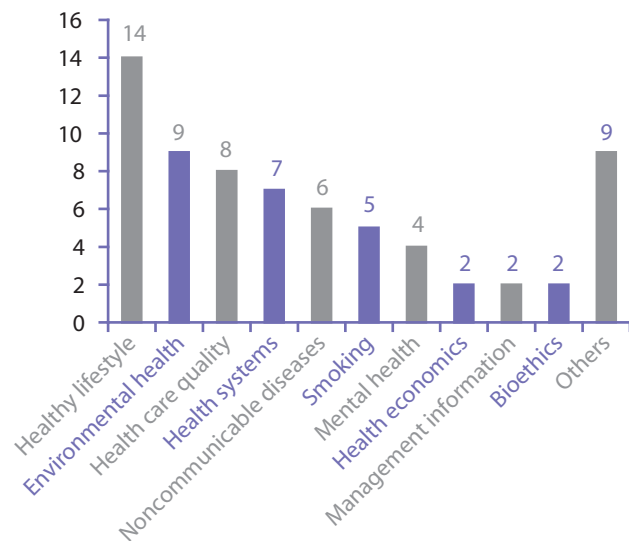


Figure 2. Number of reports received by subject area

2. Review process

The broad objectives of the review were to: assess the quality of final research reports; identify the direction and emphasis of research; highlight the implications and scope of use of the results presented in these reports; and to prepare summaries of the reports. Other expected outcomes of the review were to identify reports that could be considered for publication in the *Eastern Mediterranean health journal* and to suggest methods to enhance the use of research findings.

The methodology employed for the review included careful perusal of the reports in conjunction with the original research proposals. Attention was paid to the rationale for research, the methodology employed, including the sampling procedure, presentation of results, discussion of the findings and implications for use of the findings.

All the final reports were in English, except for one which was submitted in French. By and large they were well written. In a few there was a problem with language and/or the report itself was not properly arranged or a section such as discussion of the findings was missing. In one report (66) the results were not included; however, it did contain some conclusions and recommendations. The reports included sufficient information on the background to the research (in a few cases this was supplemented with an extensive literature review). The sampling procedures adopted were spelt out in all the reports. The quality of presentation of results through tables and graphs was variable. The majority of the reports included a discussion section and recommendations for action in light of the findings but did not include any specific suggestions for disseminating the results and/or informing policy makers and health programme managers of the findings.

Most of the reports were of descriptive cross-sectional surveys using close-ended questionnaires. Overall and strictly speaking, none of the reported research appeared to generate any new scientific knowledge or advance. A positive aspect was that, except for three reports that dealt with quality of care studies and were hospital-based and another that was laboratory-orientated, the reports were all community-based. This reflects the ability and confidence of investigators in the Region to carry out community-based studies. Nine reports included an intervention, usually a health education package. In two of the nine reports, there was no description of a post-intervention assessment. There were another two reports where it appeared from the original proposal that an intervention had been planned but there was no mention of it in the final report.

The summaries of the final reports are in Part 2. However, a brief analysis of the final reports according to the domains is given below. The numbers in brackets after the title of each domain refers to the serial numbers of the reports as they appear in the summaries.

3. Findings

3.1 Healthy lifestyles and behaviour-related research

(Reports 3, 7, 8, 9, 10, 12, 29, 30, 33, 35, 36, 39, 44, 45, 51, 54, 56, 59 and 61)

A broad range of topics were covered in the final reports grouped under this domain.

Two of the projects (3 and 7) related to HIV/AIDS and were from the Islamic Republic of Iran. The results of one (3), which was a well carried-out study with a clear and lucid report, showed a potential for wider application on how best to communicate correct information effectively to the at-risk population of young people in those cities where there is a rapidly increasing problem of drug abuse and AIDS. The other HIV/AIDS-related report attempted to develop a multidisciplinary approach to the prevention of HIV/AIDS in an area of the country where the prevalence is higher than the rest of the country, and the findings are now being used for developing an intervention programme integrated in the health network of the country.

Report 44 describes the knowledge, attitude and practices of substance abusers in Sana'a, Yemen. Khat chewing was a very common practice among males and females although it was more common among males. Other substances used included tobacco, alcohol and diazepam. Again the practice of substance abuse in all forms was found to be more common among males.

Another two projects from the Islamic Republic of Iran dealt with the reproductive health of young people. The results of one of them (8), dealing with parental knowledge, attitudes and behaviour concerning the reproductive health of boys aged 15–18 years, are important in the Iranian context, as the country has a large population of young adults. The project addressed how best parents could inform boys about puberty, reproductive and sexual health, as a preventive measure against sexually transmitted diseases and AIDS. However, the investigators

make no mention in their final report about how they intend to communicate these results to the mass media, clergy and health policy-makers for helping drawing a national strategy of IEC on this subject. The other study (35), dealing with promotion of reproductive health behaviour among young people, illustrates how the health needs of the young can be assessed using their peers. Peers might also be used for disseminating information on health-promoting behaviour. This model can be replicated in other countries where there is active community involvement in health-related activities.

Report 9 was on a school-based health education intervention to inform households about cardiovascular health. Even though the study lacked a control group, it did demonstrate the potential of school-based health intervention (which in this study was only for one week) for imparting health-related knowledge to families; the programme should be duplicated in school health education programmes across the country. The long-term impact of the week-long intervention should be further studied. In other words, should the intervention be repeated often or reinforced to ensure a sustained change in the lifestyle of families of students?

Report 10 was a study to assess the effectiveness of community leaders in conveying information on healthy lifestyles in their communities. However, the final report was sketchy and poorly written and did not provide adequate information to judge the outcome and the potential for using the results in a satisfactory manner.

Street children are a feature of large cities in many developing countries. Report 29 was a socio-medical study of street children in Khartoum, Sudan. It discusses in some detail the reasons

behind the phenomenon of street children. The report also includes information on the organizations and programmes working with street children in Khartoum and makes several brief recommendations.

Report 61, a study of the health behaviour of school-aged children in Tehran, Islamic Republic of Iran, appears to have been inspired and modelled along the lines of a European cross-national study on health behaviour in school-aged children conducted initially in 1983–84 and every four years subsequently. The findings have little scientific significance unless the studies are repeated at periodic intervals and in different parts of the country to observe any adverse changes in health-related behaviour of schoolchildren that would point to the need for a corrective action by educational authorities and parents.

Report 45 dealt with the important issue of developing an action-oriented intervention for the prevention of obesity at the primary health care level in Assiut city, Assiut, Egypt. The report was poorly prepared and lacked definitions of several categories of observation. It did, however, provide some information about the prevalence of obesity in adults in a circumscribed area of Assiut city and the perception of respondents about their body weight. It mentions the establishment of facilities at the primary health care level for clinical evaluation, dietary counselling and health education but no information was given about the impact of the intervention.

Report 36, on nutrition education demands by primary school children in Tehran, Islamic Republic of Iran, identified the serious need of the children for nutrition education. Mothers seemed to be as eager as their children to know about proper nutrition. Television and food commercials were identified as the most important teaching methods to convey nutrition education messages.

Report 56, which examined the relationship between the knowledge of female teachers in Shiraz, Islamic Republic of Iran,

of their own risk factors for cancer of the breast and cervix and the carrying out of diagnostic tests, was a well implemented study which demonstrated that administration of the health belief model in order to increase screening rates for cancer does seem to work in the Iranian context. Adherence to screening can be further improved through interventions aimed at increasing women's awareness of their own risk factors. The report however, did not touch on the current status of the sensitivity and specificity of the two screening tests and their cost-effectiveness.

This group of reports included five related to smoking, of which three were cross-sectional surveys to determine the prevalence of smoking. The most comprehensive was the survey carried out in Alexandria, Egypt, and described in report 54. Another report (33) was a comparatively limited survey of female university students in Sana'a, Yemen, the results of which could be used to develop an intervention programme aimed specifically at this group of smokers. A third report (59) was a survey of smoking in secondary school students in Assiut governorate, Egypt, that was combined with a school-based health education intervention that did reduce the prevalence of smoking in this group.

Of the remaining two reports related to smoking, one (12) dealt with the effects of maternal waterpipe smoking on neonatal weight and delivery outcomes and the other with the health of family members of smokers (51). The investigators in report 12 stated the limitations of the study, which included the small number of waterpipe smokers in the sample, the possibility of bias in recall and the disregarding of attributes of social inequity that can contribute on their own to low birth weight. Technically this was a well executed study with a well written, clear report including detailed statistical analysis. However, with the limitations mentioned above, the potential for use of its results are negligible. The results of the second study only confirm the widely known harmful effects of passive smoking. In the context of Karachi, Pakistan (where this study was carried out), where a high level of environmental pollution exists

and where there is no demarcation between commercial and residential areas, the study makes no mention of the harmful effects of air pollution for respiratory illness.

Finally under this broad domain there was a report (30) on a community-based programme for injury prevention among pre-school children in rural Damascus, Syrian Arab Republic, and another (39) dealing with the pattern of violence among secondary school students in Assiut governorate, Egypt. The first report provided useful information on the prevalence and type of injuries in children under the age of 5 years.

3.2 Environmental health, including assessing environmental health risks

(Reports 4, 6, 14, 17, 31, 32, 38, 57 and 63)

These reports were quite diverse and included a very detailed report on assessment of chemical contamination of drinking-water in Alexandria, Egypt (4) with clear recommendations and good potential for their implementation. Report 14, which assessed the potential health risks in people living close to waste dumping sites in Muscat, Oman, was methodologically the best of all the studies under this domain. Having data on morbidity and environmental pollution in a control population living away from a waste dumping site would have added scientific significance to the findings of the study. The results certainly should have an impact in governing the location of dumping sites.

Report 6 examined the effect of a diesel-fuel ban on emergency admissions of children with respiratory problems in Beirut, Lebanon. The investigators used diesel consumption as a proxy for diesel emissions. In view of the several limitations in the study, which were mentioned by the investigators themselves, and the need for further clarification of the reported association between imports of diesel fuel and emergency admissions for respiratory problems, there is no potential for using the findings.

The investigators were, however, unable to implement an intervention programme due to lack of funds and have proposed developing an educational pamphlet which will be used with home visits and focus groups as an intervention for prevention of childhood accidents. The second report appeared to be a well executed social-psychological study. The final report was well prepared, clearly written and was supported by a large number of tables and figures. Possible use of the results is limited as the investigators did not make any suggestions for tackling the problem of violence in schools.

Report 17 was a cross-sectional study of a village population in Kurdistan, Islamic Republic of Iran, that determined the arsenic content of drinking-water and tried to link these findings to the skin lesions observed in the community. The final report does not include any discussion of the findings or their implications, or any suggestions for developing a strategy for safe water supply in the affected villages.

Report 31, on the impact of drinking water and salt mining on the health of children in Al-Munirah district, Al-Hodeidah governorate, Yemen, was a rather superficial socio-medical cum environmental study trying to relate environmental pollution and social factors to various physical and mental disabilities in an underprivileged village that was also poorly served with public health and social services. The results were inconclusive and cannot be used.

Report 32, on environmental and health monitoring to identify sources of lead exposure and its impact on health status of population in Oman, was a well written, detailed report including a lengthy review of literature and included specific recommendations for follow-up. These have a good chance of being implemented as the study was carried out by the

directorates of environmental health within the Omani ministry of health.

The uncontrolled use of pesticides in agricultural communities is a combined agricultural and public health problem. Report 38 examined the impact of pesticides on neurobehavioral performance of children living in Menoufiya governorate, Egypt. This appeared to be a scientifically well executed study. The final report was clear and very well written, and the investigators made several feasible recommendations for follow-up and implementation.

3.3 Quality of care and client satisfaction surveys

(Reports 13, 22, 25, 26, 43, 49, 50 and 60)

Three of the reports in this group (43 and 49 from Islamic Republic of Iran and 50 from Pakistan), dealt with surveys on client satisfaction through exit interviews at family planning or reproductive health services offered in different parts of the country. The findings were not unexpected and have implications for local health authorities wishing to improve the services being offered. In a related study from Monastir, Tunisia (26), results of a client satisfaction survey were used to develop and institutionalize a quality assurance programme which addressed three main problems identified by clients. The report does not mention any post-intervention client survey. The process carried out would appear to have good potential for duplication in other family planning and reproductive health centres in the country. Client satisfaction surveys have also been used to improve the quality of care in a secondary level private hospital located in a peri-urban area of Karachi, Pakistan (22). This well designed and implemented study was conspicuous in the way the results were disseminated locally in the community, the media and the medical community.

Respiratory problems in females using biomass fuel in the kitchen in rural Peshawar, Pakistan, was the topic of research in report 57. This was a case-control study, and the final report was well presented. The most significant result of the study was the lack of a positive correlation between chest diseases in children under 5 years and use of biomass fuel for cooking.

Report 63 was a cross-sectional study to determine the prevalence of methaemoglobinaemia in young children in a rural area of Morocco who are exposed to drinking-water contaminated with nitrates. The final report was sparse in details and not easy to follow in places, probably because of language problems. Also, no tables or figures showing the analysis of results were included in the report.

Report 13 describes the impact of training primary health care workers on the quality of their treatment of common illnesses and on patient satisfaction in primary health care facilities in three districts of North-West Frontier Province of Pakistan. The results confirm what is widely known—that training, proper monitoring and supervision of health workers can improve their performance as measured objectively and also enhance client satisfaction with services provided.

Report 25 from Urmia, Islamic Republic of Iran, described the development of control charts for studying and monitoring and improving health care processes. This was a good example of a pilot study on the introduction of a new statistical technique for improving patient care processes as a component of total quality management. The impact can only be assessed after wider adoption of this technique and the implementation of possible remedial actions suggested after the construction and subsequent analysis of the different types of control chart.

Report 60 was preliminary and a rather superficial study of the status of quality assurance in teaching hospitals in Sana'a,

Yemen. Details of how certain scores for client satisfaction were calculated were not given in the report, which even otherwise

was incomplete. There was no discussion of the findings and their implications for use or follow-up.

3.4 Noncommunicable diseases including cancer epidemiology and cardiovascular diseases (Reports 40, 47 and 53) and cardiovascular diseases (Reports 5, 15 and 21)

Reports 40 and 47 were well designed and carefully implemented analytical cancer epidemiology studies. The first looked at the geographic distribution of childhood cancers in Tehran municipality to explore possibilities of clustering. The results merit further in-depth analysis, and there are no suggestions for the use of the reported results at this stage. The second study was a multi-centre study exploring the environmental and genetic risk factors for nasopharyngeal carcinoma in Algeria, Morocco and Tunisia. This particular study seems to have received both technical and financial support from sources other than WHO. The results in this case provide information for designing a primary preventive strategy aimed at changing behaviour of population at risk and reducing exposure to the identified risk factors for nasopharyngeal carcinoma. The third report (53) dealt with pesticide and aflatoxin B1 risk assessment for control and prevention of hepatocellular carcinoma in Egypt. The final report was poorly prepared; basically it consists of the results from two biochemical tests, one of which was conducted outside Egypt. Reference is made in the report to collection of information on dietary intake but no results are given. No definite implications of the reported results are given.

Regarding the three reports dealing with cardiovascular diseases, one (5) was an attempt to develop a database on cardiovascular diseases in Egypt including the collection of relevant clinical features and biochemical parameters of a group

of patients with cardiovascular diseases and of healthy adults. The report did not include any discussion about the differences, if any, between the observed values for different clinical and biochemical parameters for the patients and healthy subjects. As reported, the results have limited implications for eventual use except for providing some idea about the values of certain biochemical parameters for "healthy" persons of different ages and thus contributing to the knowledge about the distribution of risk factors among Egyptians, which can be assessed using the WHO stepwise surveillance approach. The second report (15) was a well written and concise report of a cross-sectional survey to determine the prevalence of rheumatic heart disease in school children in Yemen. The report highlighted the difference in the prevalence rate of rheumatic heart disease in different parts of the country. The suggestion for including primary prevention and prompt treatment of sore throats in school health programmes is appropriate and worthy of follow-up by the public health and school health authorities. The third (21) was the report of a large well designed school- and community-based intervention study for primary prevention of noncommunicable diseases in Islamic Republic of Iran. The subject is now considered a priority public health problem, and the findings are already being used in the country to implement a school-based national programme for surveillance of noncommunicable diseases.

3.5 Mental health (Reports 11, 16, 20 and 23)

Report 11, which dealt with depressive disorders and sex-based victimization in Islamic Republic of Iran, was a clear and well written report addressing a topic that is not much talked about

in the Iranian or even the regional context, and therefore this study breaks new ground. The investigators made several suggestions for tackling this problem. As the implications

of the results touch on several sectors of the government, it will be a real challenge to translate the findings into action. The other three reports were cross-sectional studies to determine the prevalence of psychiatric disorders in children between the ages of 7 and 10 in Yemen (16), of depressive disorders among school adolescents in Oman (20) and of depression among high-

3.6 Health systems

(Reports 34, 37, 48, 52, 58, 62 and 66)

It was rather disappointing, in view of the priority given by the grants scheme for research on priority areas of public health to research on health systems and to health systems research in general, that only 8 out of 68 (11.7%) final research reports belonged to this domain.

Report 34 from Morocco, which dealt with the issue of decentralization in the health system, was a good example of action-oriented health research where the research was initiated at a peripheral level and was supported technically by a team drawn from the provincial and central levels and from a public health research institution. The results/outputs are being used by the health authorities to delegate more responsibility to the peripheral levels in implementing national health policies and programmes. Report 37 was a straightforward cross-sectional household survey to determine the health needs of the urban population in Hormozgan province in Iran and to assess if these were being met by the existing health services. The community considered the highest priorities to be: easy access to health care; family planning; prevention and control of substance abuse and HIV/AIDS; and health education of mothers, children and young people.

Report 48 dealt with the issue of hospital use. A cross-sectional study was carried out in tertiary teaching hospitals in three governorates in Egypt to determine the inappropriateness of hospital admissions and the duration of stay in hospitals. The lowest proportion of inappropriate admissions was found in the participating hospital in Alexandria governorate, which was part of a health sector reform project and where a quality

school students in Qeshm Island, Islamic Republic of Islamic Republic of Iran (23). The first two were very well conducted studies with detailed analysis of the results. The implications of the findings are obvious for the health system (both formal and informal) and the school health and educational system, and there should be considerable scope for use of the results.

management system had been adopted. The report itself is rather sparse on details and does not include any reference to similar studies conducted elsewhere in Egypt.

Report 52 was not strictly a research study but, equally important, a detailed evaluation of a public health intervention for the control of severe iodine deficiency in communities living in rural areas north of Tehran, Islamic Republic of Iran. The scientific value of this comprehensive and well written report was enhanced by the availability of baseline data for the parameters that were reassessed nearly 10 years later.

Report 58 from Afghanistan was the outcome of a preliminary and understandably, not very well designed study to assess the availability of a limited number of essential drugs in public sector health facilities and the appropriateness of drugs being prescribed, both in the public and private sectors in Kabul. In view of the prevailing situation in Afghanistan, this was a laudable effort, and the findings indicate an immediate need for an intensive educational campaign directed at improving the rational use of essential drugs in both the public and private sectors.

Report 62 was a community-based cross-sectional study carried out in villages that serve as field training areas for students at the Faculty of Medicine, University of Gezira, Wad Medani, Sudan. It was carried out to compare the role of medical students in promoting child health through improving family and community practices in villages where the basic development needs programme was being implanted and in villages where

it was not being implemented. This was a commendable exercise, and the results were presented in a number of tables comparing the various indicators in the test and control groups of villages. The quality and comprehensiveness of the report was somewhat diminished by the absence of a discussion of the findings to indicate the added impact of basic development needs on community practices in the presence and absence of student intervention.

3.7 Health economics

(Reports 27 and 42)

One of the studies on health economics (27) dealt with the economic burden of morbidity attributable to malaria on households in Khartoum province, Sudan, during the transmission season of 2003. This was a clear and well documented report and provided hard data on the economic costs of malaria in a province in Sudan. The implications of the findings are important for the national control programme. The second study (42) on the efficiency of holding companies

Report 66 attempted to analyse lessons learnt from the implementation of a programme of health sector reform emphasizing decentralization and community financing of basic health care in northwest Somalia. Unfortunately, the version of the final report available for review was incomplete and poorly prepared, without any results. However, it included a section on conclusions and recommendations. Therefore, the summary prepared should be considered as provisional and subject to revision when a completed final report is received.

in the pharmaceutical industry in Islamic Republic of Iran was an academic exercise carried out by a postgraduate student using information already available; it is doubtful if its findings would be able to influence policy at decision-making level in the Ministry of Health and Education in the Islamic Republic of Iran. The scientific validity of the study should best be judged by a qualified economist.

3.8 Health management information system

(Reports 24 and 65)

The methodologies used in these two studies, one of which (24) was from Saudi Arabia and the other (65) from Pakistan, were roughly similar, and both assessed the health management information system at the primary health care level. The study in Saudi Arabia included in its assessment a few secondary level hospitals and conducted exit interviews with patients at primary and secondary health centres. The implications of the

findings included the need for continuous training, re-training and supervision, and regular feedback from the central level on the information provided by the peripheral health facilities. The study in Pakistan also highlighted the need for revising the type of data being collected as they no longer reflected the current needs of health managers. There was also a need to integrate the information systems for individual programmes.

3.9 Bioethics

(Reports 41 and 64)

Report 41 described the development of a questionnaire to elicit the opinion of a selected group of medical specialists and theologians on certain bioethical issues. The report could have been better written to separate the results from discussion and to compare the salient agreements and disagreements between

the observations of the two groups of respondents. The idea of developing a framework for eliciting opinions and engendering a debate on these newly emerging issues is interesting and could be adapted for similar types of study in other countries of the Region.

Report 64 details the outcome of a survey on capacity for bioethics in the medical teaching institutions in Pakistan. Even though the number of responding institutions was small, due to a high non-response rate, the report, which was well prepared,

3.10 Other reports

(Reports: 1, 2, 18, 19, 28, 46, 55, 67 and 68)

Reports 1 and 2 dealt with research carried out to see if there was a correlation between skeletal bone mineral density and mandibular bone density so that dental radiological examination could detect osteoporosis in peri- and post-menopausal women. Undue space in the reports was given to review of the literature on osteoporosis and details of radiological techniques to detect it. The results of the comparison of findings of mandibular X-rays with the gold standard for definitive diagnosis of osteoporosis in the relatively small sample of subjects were inconclusive. At this stage there are no implications for use of the findings.

Report 18 was a preliminary report on establishment of a twin registry system in the Islamic Republic of Iran. One positive aspect of this report was the steps taken by the investigators to disseminate information about the registry in the media and in establishing a web site that included provision for registration by twins.

Report 19 was a cross-sectional sociological study of the health of the care givers of elderly people suffering from loss of autonomy which demonstrated a significant relationship between the loss of autonomy of the elderly person and the sense of well-being of the care giver. In view of the progressive and rapid increase in the proportion of the elderly who need care givers in developing countries, the findings highlighted the need for an intervention to meet the social, psychological and medical needs of the care givers.

provided useful information on the capacity of medical institutions to teach bioethics and the existence or otherwise of institutional mechanisms to review research protocols involving human subjects.

Report 28 examined the feasibility of the introduction of the strategy of integrated management of childhood illness in the refugee camps in Sudan, and found that relevant conditions exist in the health facilities of these camps for introduction of integrated management of childhood illness.

Reports 46, 55 and 67 were laboratory studies that dealt, respectively, with screening of some plants for antihypertensive activity, screening pregnant women for the rarely occurring neonatal alloimmune thrombocytopenia and use of polymerase chain reaction to detect *Chlamydia trachomatis* infection in women. The results of these studies have no practical public health implications.

Report 68 examined the quality of clinically oriented dissertations submitted by postgraduates in Pakistan as part of the requirements for qualifying for the Fellowship of the College of Physicians and Surgeons Pakistan. In spite of the poor response from the study sample, this study underscored the weakness in the medical education system in Pakistan in not providing students with necessary skills for carrying out even basic types of clinical research studies. The findings have definite implications for authorities responsible for medical education and for the Fellowship of the College of Physicians and Surgeons Pakistan programme.

4. Quality and applicability of reports

4.1 Preamble

An attempt was made to identify projects where the subject of research was of public health importance, and the results could be used at policy and programme levels. These are given below.

The order in which they are listed refers to their number in the line listing of final reports and does not denote any ranking order.

4.2 Egypt

38. Impact of pesticides on neurobehavioural performance of children (catalogue no. 52/EGY/04)

This well executed study dealt with an important subject—uncontrolled use of pesticides in agricultural communities. The final report itself is well written, and the investigators have made useful and appropriate recommendations for follow-up and implementation.

54. Prevalence of tobacco use in Alexandria. A community-based approach (catalogue no. 67/EGY/01)

This study is mentioned because it is a comprehensive community-based study on smoking, unlike other reports dealing with surveys for smoking. The report, though long (150 pages), is well written, and the extensive data collected have been thoroughly analysed. It can well serve as a benchmark for future studies on this subject in the country.

39. Study of violence patterns, attitudes and perception among secondary school students in Assiut governorate (catalogue no. 51/EGY/04)

This was one of two studies dealing with violence (the other being report 11 mentioned under Islamic Republic of Iran), a subject that has been lately recognized as a major public health problem). The report is well organized and clearly written and is supported by a large number of tables and figures. A shortcoming is the lack of any suggestions by the investigators for dealing with the problem.

4.3 Islamic Republic of Iran

11. Depressive disorder and sex based victimization: an Iranian scenario (catalogue no. 78/IRA/05)

Apart from the clear and well written report, this study broke new ground and presented data on a sensitive subject that is not much discussed; the full magnitude of the problem is not known, not just in Islamic Republic of Iran, but in other countries

of the Region. The findings could influence policy-makers (not just in the field of health) to show a greater concern for the victimization of women and to introduce pragmatic solutions for its control and prevention.

21. School-based and community-linked interventions for noncommunicable diseases prevention from childhood (catalogue no. 73/IRA/05)

This well designed interventional study was carried out at national level and dealt with an important public health area—primary prevention of noncommunicable diseases. The results have shown the feasibility of a school-based intervention that could be profitably replicated in other countries of the Region where noncommunicable diseases are a fast emerging public health problem.

41. Attitude of biomedical and human science experts on the most important bioethical issues in Tehran, a poll study (catalogue no. 54/IRA/04)

In view of the current interest in the bioethical aspects of genetic screening, human cloning, patenting of human material and confidentiality in genetic screening, the investigators made considerable efforts at designing a questionnaire to solicit the

opinion of a small group of biomedical researchers and of theologians on the above-mentioned issues. Even though the report is not very well written, the approach of developing a framework for eliciting opinions from selected sections of the society and engendering a debate on these newly emerging issues (at least in the Region) is interesting and could be emulated by investigators in other countries.

52. Retrospective analysis of a public health iodine intervention programme (catalogue no. 74/IRA/05)

This study evaluated the impact of an iodine intervention programme conducted in villages north of Tehran over a period of nearly 10 years. The value of the study lies in the availability of baseline data and their comparison with observations made a decade later. The report is well written and contains detailed analysis of data individually from all the villages covered by the intervention programme and, on the whole, is a good example of a systematic evaluation of a public health intervention programme.

4.4 Morocco, Oman, Sudan and Yemen

34. Local information system development for advanced management of primary health care in Khemisset province, Morocco (catalogue no. 57/MOR/04)

This is in some ways a unique report among those reviewed. It is a good example of action-oriented health system research carried out by a multidisciplinary team drawn from different levels of health care to analyse the role of primary health centres with a view to proposing a new framework to give the administrators of these centres more autonomy and an active role in implementing national health programmes. The results of the research have already begun to be implemented.

14. Environmental monitoring and assessment of potential health risks in populations near waste dumping sites in Oman (catalogue no. 79/OMA/05)

This well written report highlighted the risks posed by waste dumping sites to population groups living close by. It is an important environmental health problem that is commonly encountered in many of the countries of the Region.

20. Study of depressive disorders among school adolescents in Oman (catalogue no. 44/OMA/04)

This study was apparently a first attempt in Oman to study adolescent mental health and to sensitize policy-makers, health care providers and the community about the problem of mental health, particularly depression, in adolescents. Scientifically, it was a well conducted study with a clear and comprehensive report and detailed analysis of results. However, the report sadly lacks suggestions for dissemination of findings to the three main parties mentioned above.

62. The role of medical students in promoting child health through the improvement of family and community practices. A comparison between BDN areas, Umm Alghora locality, Gezira, Sudan (catalogue no. 61/SUD/04)

Like the research in report 34 from Morocco, this was an unusual study. It was an interesting community-based study with a complicated study design that assessed improvements in integrated management of childhood illness-related family and community practices resulting from the intervention of medical students posted to rural communities as part of their training, and compared these improvements in villages that had implemented basic development needs projects versus those that had not. The only drawback with this report is that, although there a lot of tables comparing various indicators among the four groups of study villages, the investigators have not included a discussion of their findings to indicate the added

impact of basic development needs on community practices when combined with student interventions.

27. The economic burden of morbidity attributable to malaria on households in Khartoum state, Sudan, during the transmission season (catalogue no. 91/SUD/05)

This is one of two final reports dealing with health economics. The study provides estimates of the direct cost of malaria treatment and prevention at household level and of the indirect cost of malaria borne by households due to lost economic opportunities and earnings forgone by adults while sick or caring for a sick person.

16. The prevalence of psychiatric disorders in 7–10 year olds in Yemen (catalogue no. 94/YEM/05)

This detailed and lengthy final report (124 pages excluding references) looks like a dissertation submitted in fulfilment of a requirement for an academic qualification. It is very well written. Besides including background information on Yemen and its health services, especially those for mental health, it provides detailed accounts of the methodology used and of sampling procedures. The investigator has made useful suggestion about the implications of the findings for health professionals and primary health care workers, school teachers, traditional and religious healers and the need for training these categories of health providers in the formal and non-formal sectors in basic child mental health diagnosis and treatment methods.

4.5 Pakistan

22. Introducing quality of care dimensions in health management information systems to improve patient satisfaction of services: a study in Malir, Karachi (catalogue no. 72/PAK/05)

There were several reports dealing with various aspects of quality of care but this report stand out both in the way the research was carried out and in the manner the findings were

used to improve the quality of care in a secondary level private hospital. The report itself is well written.

Part 2

Summaries of final reports

1. Title: Assessment of oral health in osteoporotic Egyptian females—a pilot study in Alexandria (Phase 1)

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Country: Egypt
Catalogue #: 66/EGY/05

This study was undertaken to see if there was a correlation between skeletal bone mineral density and mandibular bone mineral density (in other words whether trabecular bone pattern and bone mineral density (BMD) in the mandible can be used to detect osteopenia and osteoporosis) in order to detect those peri-menopausal and post-menopausal women whom were at high risk of sustaining a fracture by using a simple dental radiological examination.

125 females between the ages of 40–50 years living in different parts of the city of Alexandria participated in this study as volunteers. Each underwent an oral examination to determine the status of tooth loss and periodontal condition, and digital periapical radiographs were performed using a standardized method to estimate BMD in horizontal and vertical directions. Each volunteer was also subjected to densitometry measurements by dual energy X-ray absorptiometry (DXA) to estimate bone density in the spine and proximal femur.

A positive correlation was found between osteoporosis risk factors and BMD for the mandible after menopause. A positive correlation was also found between trabecular architecture of the mandible, width, spacing and orientation. There was some indication of a relationship between skeletal bone mass and mandibular bone mass. The report is poorly organized and not well written. Undue space has been given to a literature review of osteoporosis and to details of the X-ray examinations. A clear analysis of the relationship between the findings of mandibular X-rays and those of the DXA was not given.

Regarding the possible use of findings, given the small number of volunteers and the lack of significant relationship between the findings of the X-ray examination of the mandible and the DXA in peri- and post-menopausal women, it is doubtful if X-rays of the mandible should replace the conventional radiological assessment for osteoporosis.

2. Title: Assessment of oral health in osteoporotic Egyptian females (Phase 2)

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Alexandria University

Country: Egypt
Catalogue #: 53/EGY/04

This is part of a series of studies carried out by the investigators to assess mandibular bone density, which is easily ascertained through oral radiological examination, as a proxy indicator of osteoporosis. In this particular study the ability of a digital radiological system (Sidexis) to diagnose osteoporosis was compared with the standard test of dual energy X-ray absorptiometry (DXA). A sample of 94 women, drawn from the staff of the Faculty of Dentistry, Alexandria University,

was enrolled in the study. All of them underwent a dental examination, took a questionnaire about osteoporosis risk factors and had a digital X-ray examination. An analysis of bone mass density was carried out by DXA examination at the same site in the hip and lumbar spine in all subjects.

The ages of the subjects ranged from 41 to 75 years with 42.6% between the ages of 50 and 59 years. 61.7% of the women

were menopausal. 10.6% of the subjects in the sample had osteoporosis and 52% has low bone mass. Nearly a quarter of women over the ages of 60 years had osteoporosis as compared to 10 % in the age group 50–59 years. Digital readings at the anterior alveolar region in the post-menopausal group of women had 82% accuracy compared to DXA diagnosis of low bone mass. This result was based on 46 subjects, six of whom had osteoporosis. In a smaller group of subjects aged 40–49 years

composed of 31 women, of whom only one had osteoporosis by DXA examination, posterior alveolar and posterior basal readings had 83% and 73% validity respectively.

The investigators suggest including more patients with osteoporosis to increase the diagnostic power of the study, and a larger sample will provide a more robust estimate of the prevalence of osteoporosis in the population.

3. Title: The effect of face-to-face education on AIDS and drug abuse on high school students in Bandar Abbas, Islamic Republic of Iran

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**Institute: Hormozgan University of
Medical Sciences**

**Country: Islamic Republic
of Iran**
Catalogue #: 90/IRA/05

This case–control study was undertaken in the port city of Bandar Abbas, Hormozgan province, Iran, to determine the attitude of high school students (girls and boys) to AIDS and drug abuse and then to compare the attitude of students who were given information about AIDS and drug abuse by medical doctors in a formal and traditional manner with those who received the information from their peers in an informal face-to-face manner.

Four high schools (two girls and two boys) in different parts of the city were randomly selected. Two of the schools served as controls and two as case. Before the study was initiated all students (113 girls and 128 boys) underwent a pre-test to determine their knowledge of and attitudes to AIDS and drug abuse. In the schools considered as cases, students with communication skills were trained by a specialist on necessary information on AIDS and drug abuse and their impact on personal and community health. These students served as coordinators for discussion on these topics with their classmates. Students (58 girls and 69 boys) in the schools considered as controls received information on drug abuse and AIDS from medical doctors in formal and traditional sessions. After a period

(not specified in the final report) of education (for controls) and discussion (in the group of cases) all the study participants took another test in order to compare the impact of the two different ways of conveying information on their knowledge and attitudes towards AIDS and drug abuse.

The results showed that the education programme increased the rate of self-confidence of participants. The rate was significantly higher for those who received face-to-face education. Comparison of results of some of the other questions showed that students can discuss these subjects and convince their peers in a more effective manner compared to formal teachers. Regarding questions about the effect of environment, cultural or familial and educational factors on AIDS and drug abuse in the community, 69.3% of the cases and only 47.6% of the controls believed that all the above factors have a role, more or less, in the prevalence of drug abuse and AIDS in society. 75.6% of the respondents in the case group and 56.3% of those belonging to the control group were able to respond correctly about ways in which AIDS cannot be communicated. Overall the mean number of correct answers was significantly higher in those belonging to the case group.

Due to the small number of participants the investigators are cautious about their conclusions but do indicate that using a face-to-face method of education is likely to yield effective

learning outcomes and offer practical recommendations for follow-up.

4. Title: Assessment of chemical contamination of drinking-water in Alexandria and Beheira governorates

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Institute: Central Laboratory of Pesticides,
Agricultural Research Centre

Country: Egypt
Catalogue #: 98/EGY/02

This project was carried out for monitoring the quality and safety of urban and rural water supply in districts of Kafr El-Dawar in Alexandria governorate and of Etay El-Baroud in Beheira governorate, where there is considerable environmental stress resulting from agricultural, industrial and domestic activities. A comprehensive analysis of drinking-water, including estimation of pesticide residues, chemical and bacteriological examination, and estimation of chlorinated compounds, was carried out. The study also examined the relationship between the quality of drinking-water and health status of the community.

This is a comprehensive and well written report (about 200 pages long; the summary itself is 18 pages), including a large number of tables showing the results of various analyses. According to the investigators, the study has shown a critical deficit in basic water supply and sewage treatment thus increasing the likelihood of risk of exposure to infectious and parasitic diseases and to a large number of industrial chemical, heavy metals and algal toxins. The study was not able to demonstrate a cause-effect relationship between community health and consumption of contaminated drinking-water.

5. Title: Development of a cardiovascular diseases database by meta-analysis, Egypt

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Institute: Ain Shams University

Country: Egypt
Catalogue #: 99/EGY/03

Cardiovascular diseases are emerging as a major health problem in Egypt as in many other developing countries. However, there is no national surveillance system for cardiovascular diseases in Egypt and only limited data on morbidity and mortality are available. This project has attempted to develop a national database on cardiovascular diseases. Material for this study was obtained from 104 research studies conducted by postgraduate students as part of their thesis requirements from 1985 to 2002. Most (47.2%) of these studies were conducted at the Ain Shams University hospitals, followed by Cairo University hospitals (21.1%), Zagazig University (14.6%), Tanta University (7.2%) and other university-based hospitals (9.9%).

Data were collated from 6196 healthy subjects on their body weight, body-mass index, blood pressure, and a number of biochemical parameters. Mean values and standard deviation was computed for each variable, for different age groups, separately for males and females.

Similarly data were compiled from 5977 patients suffering from various forms of heart disease. Of the 432 patients under 18 years of age, 48.2% were suffering from congenital heart disease and 47.9% from valvular heart disease. The report does not specify the type of common defects. In the remaining 5545 patients above the age of 18 years, 53.2% suffered from

coronary heart disease and 28.3 % from hypertension. Here too, the investigators have calculated the mean values and

standard deviation of the same biochemical parameters that were calculated for the healthy subjects.

6. Title: The effect of a recent diesel-fuel ban in Beirut on children's respiratory health: an analysis of emergency admissions

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of Beirut**

Country: Lebanon
Catalogue #: 82/LEB/05

This project was undertaken to assess and document the impact of a recent ban on diesel-powered motor vehicles in Beirut, Lebanon, on the respiratory health of children under the age of 17 years. Data on the rates of emergency admissions of children under the age of 17 years for respiratory diseases were recorded from all hospitals in Beirut with an emergency room and more than 50 beds (the period of collection of data was not specified in the report). Weather data as well as monthly imports of diesel and gasoline in Lebanon were collected.

Three sets of analysis were conducted: diesel and gasoline imports before and after the ban in order to assess the impact of ban on consumption of fuel; emergency respiratory admissions before and after the diesel ban; and regression models of time series of monthly admissions were run for various respiratory disorders using monthly diesel or gasoline imports.

The results showed that the imports of diesel fuel to Lebanon did not appear to have dropped after the ban on diesel

powered motor vehicles. There was no significant reduction in recorded monthly admissions across age, sex, hospital and disease category. However, a significant positive association was found between diesel imports and monthly admissions for upper respiratory tract infections and bronchitis. Asthma and pneumonia were strongly associated with temperature but not with diesel imports. The inability of the study to link the ban on diesel imports with a drop in respiratory admissions could be attributed to the lack of adequate enforcement of the diesel ban and to the fact that the outcome in the study was limited to emergency admissions that reflect only more severe respiratory cases.

Unlike other studies trying to link diesel emissions with respiratory diseases and that have used proxy measures such as traffic density and particulate concentration in the atmosphere, which also reflect the effects of emission of other fuels, this study used diesel consumption as a proxy for diesel emissions.

7. Title: A multidisciplinary approach to preventing HIV/AIDS in Saravan, Islamic Republic of Iran

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of Health and Medical Education**

**Country: Islamic Republic
of Iran**
Catalogue #: 77/IRA/05

The leading cause of transmission of HIV/AIDS in Iran is injection by drug users, followed by high-risk sexual behaviour. However,

the pattern of spread is different in border areas where the predominant mode of transmission is through sexual contact,

and the prevalence rate of HIV-positive cases is much higher compared to the rest of the country.

This study was undertaken to develop and determine the effects of interventional programmes on promoting the knowledge, attitude and practice of target groups with regards to sexually transmitted diseases (STD) and AIDS in areas of Kermanshah, Gilan, Sistan and Baluchistan, and Tehran (Islamshahr) provinces. The study participants included high-risk individuals, groups at risk for STD and young (15–25 years) single males and females. Pre-intervention data were collected through a questionnaire. For the participants from Kermanshah, who comprised women with high-risk sexual behaviour, focus group discussions were held in addition to gather more precise information.

Prior to administering the questionnaire, a situation analysis in the selected regions was carried out. This showed that there was insufficient knowledge about the STD/AIDS situation in the community and that the current health system was unable to deal with these diseases and with promoting methods for their prevention. The magnitude of these diseases as a social problem was still not recognized and, therefore, the health education provided was inadequate.

The analysis of the questionnaire showed that AIDS was the most well known venereal disease amongst the participants. In

women with high-risk behaviour, gonorrhoea was recognized as the most common STD. About one-third of the sample was not familiar with the sign and symptoms of sexually transmitted diseases, and 10%–30% did not know about the route of transmission of AIDS. About two-thirds of the people in the community knew that AIDS was transmitted via sexual contact with an infected person and by using an infected syringe. 40% of women with high-risk sexual behaviour did not know about transmission of AIDS via sexual contact but they knew about the use of infected syringes as the most common route of transmission. About one-third of the people were not aware that an apparently healthy person could be infected, and one-quarter held incorrect beliefs about transmission of AIDS. Nearly all persons in the high-risk group had a past history of infection with sexually transmitted diseases. About 80% of the respondents knew about condoms but only 40% were aware of their role in preventing AIDS and sexually transmitted diseases. The rate of drug abuse in the at-risk group was about 55%.

Based on the above findings a comprehensive programme for capacity-building of the staff in the health network to deal with these diseases and for integrating control activities in their work has been planned. The final report provides a detailed account of this programme. Presumably as the programme had not been fully implemented at the time of submission of the report, there is no information on a post-intervention assessment.

8. Title: Parents' knowledge, attitude and behaviour on reproductive health of adolescent boys aged 15–18 years, Tehran, Islamic Republic of Iran

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Institute: National Research Centre for Medical Sciences

Country: Islamic Republic of Iran

Catalogue #: 86/IRA/05

This community-based study was carried out in Tehran on a sample of 600 parents with at least one adolescent boy aged 15–18 years to determine the knowledge, attitude and practices of parents towards issues related to their adolescent boy's reproductive/sexual health. Data for the study was collected through a self-administered questionnaire. To respect

confidentiality the respondents were asked not to identify themselves in the questionnaire form.

The study found that friends were considered as an important source of information on puberty both by fathers and mothers, and only 41.3% of fathers and 33.5% of mothers considered

themselves as an important source of information on sexual issues; a large majority of parents acknowledged that adolescents needed to receive accurate information on reproductive health (72%) and on adolescence (91%), and more than 75% of the parents recognized the major adolescent reproductive health risks. A majority of parents were aware of the various contraceptive methods, with mothers significantly better

informed. Parents found it easier to communicate with their boys on puberty than on sexual health. The parents displayed a positive attitude towards their boy's access to services providing information on prevention of sexually transmitted diseases and AIDS. Parents with a higher income and better educational background better appreciated adolescent reproductive health needs.

9. Title: Household cardiovascular health education: a school-based approach

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Institute: Endocrine and Metabolism
Research Centre

Country: Islamic Republic
of Iran
Catalogue #: 89/IRA/05

Coronary heart disease is a leading cause of death in Islamic Republic of Iran, but many people still do not have sufficient knowledge about cardiovascular risk factors. As school-based health-related intervention programmes can influence the knowledge of children and their parents, the investigators used a school-based intervention programme to promote better understanding of risk factors for cardiovascular diseases.

A total of 1100 fifth-grade children and their parents in Tehran were invited to participate in this study; of which 603 families accepted. A pre-test questionnaire was distributed amongst the parents before the intervention. The children attended

a briefing meeting to inform them about heart health and risk factors for heart disease and were supplied with a family information package about cardiovascular health, which was to be studied and discussed by their family members. After a study period of seven days, a post-test questionnaire was obtained from the families.

There was a significant increase in the knowledge of the families about cardiovascular health. The parents of sons achieved a greater level of health knowledge as compared to parents of daughters. Educational level of families had no effect in raising their knowledge after intervention.

10. Title: To estimate the effectiveness of healthy life-style education on the knowledge, attitudes and practices of Chamkaka village

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Institute: Environmental and
Occupational Health Centre

Country: Islamic Republic
of Iran
Catalogue #: 92/IRA/05

Recognizing the importance of educational intervention for imparting knowledge about healthy lifestyles and that this cannot be carried out by health personnel due to a number of constraints, the investigators trained the members of the village development committee and cluster representatives to impart this knowledge to their fellow villagers.

The study was implemented in a village in Chahar Mahal ve Bakhtiari province, Islamic Republic of Iran, and another village similar in economic and sociocultural condition but geographically located far away was selected as a control. Educational material dealing with individual health, nutrition, environmental health, the and effect of sport and smoking on health was prepared, and members of the village development

committee and cluster representatives were trained to use this material.

A pre-intervention questionnaire was administered to 40 literate men and women between the ages of 15 and 40 years in the test and control villages. In the test village, the trained persons held an educational programme for the target group. No such activity took place in the target group in the control village. After a period (not stated in the report) a post-intervention questionnaire was administered to the target groups in both the villages.

In the realm of knowledge about individual health and nutrition, there was no difference between the test and control groups, but the target group in the test village had acquired greater knowledge about environmental health and nutrition and about the effect of sports on health. Regarding attitude, the control group showed an improvement in their attitude towards environmental health and nutrition but no difference was observed in the two groups regards their attitude towards smoking, sports and physical activity.

11. Title: Depressive disorder and sex-based victimization: an Iranian scenario

P.I.: Dr Ghassemi Gh. Reza

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Institute: Behavioural Sciences Research

Centre

Country: Islamic Republic of Iran

Catalogue #: 78/IRA/05

Major depression is commoner among women, and diverse sociocultural explanations have been offered for this observation. This case-control study was designed to assess sex-based victimization as a risk factor for depression in a segment of Iranian women and was carried out from March 2003 to August 2004. Using a random sampling method, 709 women aged between 20 and 45 years from six municipal areas of Isfahan were initially screened by Beck Depression Inventory and assigned into a case group of 143 women and a control group of 566. Lifetime history of violent victimization was determined by interpersonal relationship questionnaire, while major depression was assessed by means of a structured clinical interview based on Diagnostic Statistical Manual criteria by two psychiatrists. A focus group interview method was employed to supplement and tease out quantitative data.

About 20% of the participants had experienced abuse in their adolescence. The most common type of abuse was physical, and most of the women perceived their experience as severe.

Compared with women who reported no abuse, risk of major depression was four times higher in women who experienced abuse throughout their childhood and adolescence. Focus group sessions showed that women were victimized by their first- and second-degree relatives and received little support from the community. In the process they developed mixed feelings of fear, hatred, guilt and poor self-confidence.

The investigators point out that while the full magnitude of the problem is not yet known, the results of this study require policy-makers to show greater concern for victimization of women and to introduce pragmatic solution to their needs. Some of their suggestions for tackling this problem include: educating women so that they can assume respectable jobs and about their rights in the society; introducing specialized mental health centres for promotion of mental health of women; providing legal support for victimized women and community support against victimization.

12. Title: The effect of maternal waterpipe (narghile) smoking on neonatal weight and delivery outcomes

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Iran
Catalogue #: 85/IRA/05

A causal relationship between smoking in pregnancy and birth weight is generally accepted. However, this association has not been studied for waterpipe smoking. This study was carried out in order to estimate the prevalence of smoking waterpipe among rural pregnant women in Bushehr province in south of the country (where this practice is common) and to determine its impact on delivery outcomes. The study was retrospective in nature and used two data sources: the health records of the health houses, in order to obtain the weight, height and sex of the newborns, and an interview of mother 10 days after delivery to collect background characteristics and smoking status. Women with a history of cigarette smoking during pregnancy, diabetes and hypertension were excluded.

Complete data were available on 2808 women and was analysed. 8% of them were smokers, of whom 3.2% and 4.8% were respectively occasional and daily smokers. A history of at least one previous low birth weight was reported by 6.6%. 24%

were passively exposed to waterpipe smoke during pregnancy. The prevalence of low birth weight was 5.9%. Using multiple linear regression and controlling for baseline variables, the adjusted mean of birth weight in water pipe smokers and non smokers was not statistically different. However, the time of the onset of water pipe smoking showed a deleterious effect on birth weight—those starting at the first trimester had low birth weight babies. The most potent predictor of low birth weight was a positive previous history of low birth weight. No significant association was found between birth weight and passive exposure to cigarette smoke and passive exposure to waterpipe smoke.

The investigators in their reports mention the limitations of this study, which included a small number of waterpipe smokers in the sample, possibility of bias in recall and the lack of consideration of attributes of social inequity that can contribute on their own to low birth weight.

13. Title: The impact of training of primary health care providers on quality of prescriptions, treatment of common illness and patient satisfaction

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Catalogue #: 93/Pak/05

The aims of the study were to assess the needs for training of primary health care providers and the impact of training on their case management of common illnesses, including physical examination, recording of important information, rational prescribing and counselling patients.

The study was carried out during December 2004 and January 2005 in a stratified sample of 34 primary health care facilities (out of total of 201 such facilities) located in three districts of North-West Frontier Province, Pakistan. In the selected facilities, 47 primary health care providers including medical officers (22), medical technicians (19), dispensers (1), and lady health

visitors (5) were interviewed regarding their case management of common illnesses and their own training status and job experience.

Exit interviews of 497 patients were conducted to know their satisfaction with health care provided at the selected facilities. After recording baseline data, health care providers were given four days' training in recognition and rational prescribing of common illnesses. Following the training the primary health care workers were revisited, and exit interviews were performed on 203 patients. Of the 47 primary health care workers, only 6

(13%) had been trained under the primary health care system. The follow-up survey showed that while record-keeping of important information on patients had improved, there was little improvement in the various items of physical examination. There was some improvement in the prescribing pattern on follow-up with fewer prescriptions for antibiotics for common ailments. Also, there was some improvement in the counselling of patients. The follow-up exit interview showed that patient satisfaction with services provided to them had increased from 70% at baseline to 90% after training of primary health care workers.

14. Title: Environmental monitoring and assessment of potential health risks in populations near waste dumping sites

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The existence of waste dumping sites in and around the capital city Muscat, Oman, close to human dwellings, has been a cause of concern for some time. A study was undertaken to assess the adverse health effects related to environmental factors in the population around two waste-dumping sites in Muscat with a view to providing a rational basis for undertaking necessary measures by the city planners and decision-makers. The main objectives of the study were to identify prevalence of pollution-related morbidity by retrospective analysis of health records; to conduct environmental monitoring; and to estimate adverse health effects in the population.

There were 26 villages around two dumping sites with a population of 190 374. From these two villages, 498 houses containing 4240 persons were selected for the study. The period of stay of the population in the villages varied between 1 and 70 years with 10% of the population staying for more than two years. The health record of the selected population were obtained and analysed for morbidity related to respiratory and skin diseases, abortions, congenital abnormalities, infertility and

cancer. Environmental monitoring of air, water and soil samples was done at the dumping sites and in the villages. Ambient air was analysed for sulfur dioxide, ammonia, methane, dioxane and nitrous oxide. The soil and water samples were tested for lead, cadmium and DDT/BHC. Monitoring of health effects was carried out by household interviews.

Analysis of retrospective data revealed a high incidence of respiratory diseases (asthma, bronchitis and upper respiratory tract infection) in the sampled population. Skin diseases such as dermatitis and eczema were widely prevalent. The environmental data showed a high level of sulfur dioxide in the air. The soil and water were not contaminated with heavy metals, but high levels of BHC were found in the soil samples. The study of health effects identified by household interview were comparable to the results of the retrospective analysis of health records; in other words they revealed a high occurrence of respiratory problems, dermatitis and conjunctivitis; and a high number of still births and abortions were noted.

15. Title: Prevalence of rheumatic heart disease among Yemeni schoolchildren in Aden city

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Catalogue #: 83/YEM/05

This cross-sectional study was carried out on a representative sample of 4150 primary school children of both sexes, between the ages of 5 and 16 years, in Aden, Yemen, to determine the prevalence of rheumatic heart disease from February 2004 to April 2005. All children were screened by paediatricians and later by paediatric cardiologists, and the diagnosis was confirmed by echocardiogram.

Overall 192 students were documented to have cardiac defects. Based on modified Duckett Jones criteria, presence of significant aortic or mitral murmur and Doppler echocardiographic evidence, rheumatic heart disease (RHD) was confirmed in 98 (46 boys and 52 girls) students giving a prevalence of 23.6 per 1000 students. Mitral regurgitation was present in 67 (47%), mitral with aortic regurgitation in 29 (20.3%) and mitral regurgitation with mitral valve prolapse in 41 (28.7%). Anti streptolysin O titre and C-reactive protein was positive in 44

and 21 students respectively. Congenital cardiac lesions were detected in two boys and two girls. Socioeconomic factors of low income, presence of overcrowding in families and poor housing was present respectively in 56.1%, 71.4% and 33% of RHD cases. Comparable findings in children without RHD are not given in the report.

The investigators have commented on the rather high prevalence of RHD in Aden found in this study as compared to results of similar surveys in Sana'a (3.6/1000), Oman (0.8/1000), Saudi Arabia (2.8/1000) and in Egypt (9.4/1000) but have offered no hypothesis for this difference.

The investigators suggest that school health education programmes be used as a vehicle to educate and motivate teachers, parents and children about prevention and prompt treatment of sore throat.

16. Title: The prevalence of psychiatric disorders in 7–10-year-olds in Yemen

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Catalogue #: 94/YEM/05

This was a very detailed final report (124 pages long excluding references) including about 20 pages that were devoted to background information on Yemen and its health services, including those for mental health, and 26 pages to a literature review on assessment of mental health disorders and to findings from developing countries.

The prevalence study was preceded by a methodological study to validate the Arabic version of the standard child psychiatric measures—the Strength and Difficulties Questionnaire (SDQ) and the Development and Well-being Assessment (DAWBA). The validation study was carried out in Aden on a clinical sample obtained from the local paediatric and neuropsychiatric teaching hospitals and from school-based psychiatric clinics, and a community sample of 100 children was obtained from

schools in two different areas of the city. The Arabic DAWBA agreed with the clinical diagnosis in 86% of cases, and there was overall substantial agreement between DAWBA and the clinic diagnosis on two main diagnostic groupings of emotional disorders and externalizing disorders. The study also provided evidence that the Arabic version of SDQ may predict psychiatric diagnosis accurately enough to be of value for screening and epidemiological studies and is a valid measure for assessing different behavioural aspects of children.

The objective of the prevalence study was to obtain an estimate for the three commonest child mental health problems (conduct, hyperkinetic and emotional disorders, including anxiety and depressive disorders) in 7–10-year-olds attending school and to provide data for planning child mental health services. The size of the planned sample was 1600 children. The urban study sample was obtained from children attending primary schools in Al-Mukalla city in Hadramawt province (total of 13 323 children) and the rural sample from Tuban district in Lahij province where the total number of primary school children was 2800.

In Al-Mukalla using the school attendance register, one in ten children was selected using random sampling procedure. In the first phase, parents and teachers filled the SDQ questionnaire that allowed the children to be divided in to screen-positive, as having probable psychiatric disorder or screen-negative as having possible or unlikely disorder. A sociodemographic questionnaire was completed at the same time. In the second phase DAWBA was administered to all the screen-positive

children and to a sample of screen-negative children. The Self-reporting Questionnaire (SRQ) as a measure of the mother's mental health was also administered.

In the Tuban district rural area, again one in every ten children was selected, and a single phase design was employed, administering the SDQ questionnaire and the DAWBA assessment to the parents and teachers of all children selected. Concurrently the sociodemographic questionnaire and the SRQ were administered.

No difference was found in the prevalence of the main diagnostic groupings or in the prevalence of individual mental disorders between the children in the urban and rural sample. The overall prevalence was 15.7%. Anxiety disorders were the most common diagnostic disorders (9.3%) followed by oppositional-conduct disorders (7.1%) and hyperkinetic disorders (1.0%). Significant sex differences were found in the oppositional-conduct disorders (10.8% for boys versus 3.4% for girls) and for hyperkinetic disorders (1.8% for boys and 0.2% for girls).

The investigators in their report make useful suggestions about the implications of the findings for health professionals, school teachers, traditional healers and for parenting and child rearing and the need for training large numbers of primary health care workers, religious and traditional healers, school teachers and community workers in basic child mental health diagnosis and treatment methods.

17. Title: The ecological study of arsenic-induced skin lesions in Bijar city, Kordestan, Islamic Republic of Iran

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Catalogue #: 40/IRA/04

Since the 1980s, the presence of arsenic in water has been reported in Bijar city, Kordestan province, Islamic Republic

of Iran, together with observation of skin lesions suggestive of arsenic poisoning. An ecological study was carried out to

investigate this problem through an ecological risk assessment and to determine the relationship between consumption of arsenic-polluted drinking-water and adverse health effects with a view to developing a health management programme and strategy for safe drinking-water.

Three samples of water were taken from each of eight villages, one for analysis of heavy metals by hydride generation atomic absorption spectrometry, the second for determining cation and anion concentration, acidity and alkalinity etc and the third for the determination of arsenic concentration using silver diethyldithiocarbamate. The total arsenic contents ingested by each person during his/her stay in the village was estimated by using a formula which assumed a daily intake of 2 litres of water and took into account the arsenic content of the water source used by the study participant and the duration of use of this water source.

The study sample consisted of 752 subjects (420 males and 332 females), who were 10 years old and older from eight villages in Bijar city. All the study participants had lived in the villages for a minimum of five years. Apart from recording personal information the study subjects had their blood pressure taken and skin examined for keratosis and pigmentation. Samples of hair were taken 39 subjects from villages with different sources of drinking-water and with different levels of arsenic in drinking-water.

In five of the eight villages studied, arsenic levels in the water were much higher than national or WHO guidelines (respectively 50µg/l and 10 µg/l). Clinical examination of the skin revealed that 6.5% of the study participants suffered from hyperkeratosis and 2.7% had hyperpigmentation. In the no exposure group (intake < 0.1 g) and in the low exposure group (intake between 0.1 g and 1 g) hyperpigmentation was not observed in any participants. In those with high exposure (intake of 1–3 g) or very high exposure (intake >3.0 g) the frequency of hyperpigmentation was respectively 3.5% and 6.0% ($p < 0.001$). Similarly the prevalence of hyperkeratosis was negligible in those with no or little exposure and in persons with high and very high exposure, it was respectively 4.9% and 15.4% ($p < 0.001$). Systolic blood pressure in the high and very high exposure groups was also high. Using a logistic regression model no significant relation was observed between either age or sex and hyperkeratosis. The average concentration of arsenic in the hair samples of people unexposed to arsenic, in those with disrupted low exposure and in those with high exposure were respectively 0.06 mg/kg, 0.30mg/kg and 1.21 mg/kg. A close correlation was found between arsenic concentration in hair and the calculated lifelong intake of arsenic in drinking-water as well as with the current arsenic content of drinking-water.

18. Title: Twin registry system in Islamic Republic of Iran

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Country: Islamic Republic of Iran
Catalogue #: 41/IRA/04

This report describes the establishment of a registry for twins in a medical university in Tehran, Islamic Republic of Iran. The investigators set up a web site that included presentation of the registry, news, frequently asked questions and a section for twins to register themselves. News about the registry and its

purposes were distributed to the TV channels, radio and print media. **Country: Egypt**

The investigators registered 1230 twin pairs comprising 1009 males and 1421 females of whom 2230 were single and 15

married. The marital status of the remaining was not known. The occupation of half of them was not known, and 36% were students. Nearly half of them did not give their occupation. 52% were monozygotic twins and 42% were dizygotic twins, no information was available about the remaining. Information on hereditary relations between parents was available for 355 of the registered twins, and of them the parents were unrelated in 56% and were first cousins in 28%. The ethnicity was not known in over half (55%), 38% were Farsi and 8.8% were Turks.

The report included a lengthy section on review of literature on twin registries and their use and photocopies of newspaper articles in Persian about the registry. It is too early to make a scientific assessment of the progress but the lack of basic information on a large number of registered twins is worrisome and the investigator needs to make more efforts to obtain the missing data. This is an esoteric area of research, and further support for studies of this kind should ideally come from national sources.

19. Title: Study of the predictive factors for the health of family carers of the elderly

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Country: Lebanon

Year: 2005
Catalogue #: 42/LEB/05

In Lebanon, elderly relations who are losing their autonomy are almost exclusively helped and cared for by their families. The objectives of this study were to identify changes in the health status of the carers after 18 months of caring for their elderly relative, using three health indicators (well-being, stress experienced and feeling of helplessness related to the caregiving role) and to identify the sociodemographic factors and the aspects of the care context which could be used to predict changes in their health status.

The study used a correlational and predictional design. A door-to-door procedure in sampling was used. One hundred and fifty two (152) family carers participated in two measurement times (T1 and T2) with an interval of 18 months. Almost 50% of the carers left the study between first and second times, the main reason being the death of the cared for relative. Recognized Arabic versions of psychometric measurement instruments were used. A standardized questionnaire was used to collect the data during two interviews each lasting an average of one hour.

The carers are more likely to be the daughters than the spouses. Over two thirds of the them did not have any health insurance, and 47.4% had a monthly family income of less than 750 000

Lebanese pounds, which is considered to be insufficient. Most carers do not receive any services from community health centres. At T2 of the study, a quarter of the carers had no one in their family circle whom they could count on to help them take care of their relative. Moreover, the health status of the great majority of cared relatives was poor and 38% of them had memory disorders. The relative's loss of autonomy in the area of personal care had significantly increased between T1 and T2.

The results also indicated that out of 10 carers 6 had negative changes (a deterioration) in their state of health; this held true for all three health indicators (well-being, stress experienced and feeling of helplessness related to the caregiving role). However, some carers seem to adapt to the chronic sources of stress that they are facing. The most noticeable predictive factor for changes in the carer's health status was living in an urban region, which was found to be a predictive factor for negative changes.

The investigators recommend that the social norm that requires families to be responsible for the care of their aging relatives must be changed. Instead, a policy providing support for the carers should be developed to meet the needs of the family carers.

20. Title: Study of depressive disorders among school adolescents in Oman

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Catalogue #: 44/OMA/04

This study, the first in Oman dealing with adolescent mental health, was carried out to estimate the prevalence of depression in adolescence and to investigate its correlates. It was also aimed at sensitizing the community, policy makers and health care providers about problems of mental health in adolescents.

The study sample comprised 2739 male and 2670 female adolescents between the ages of 14 and 20 years and was drawn from the secondary schools in the country using a multistage stratified random sampling method. A two-stage survey was carried out. In the first stage all the subjects in the sample completed the Arabic versions of the 12-item General Health Questionnaire (GHQ) and the 27-item Child Depression Inventory. In the second stage, structured interviewing of a random sample of 1836 subjects by Composite Interview Diagnostic Interview (CIDI) was carried out by school health doctors who were trained to interview by CIDI.

Seventeen percent (17%) of the sample had at least mild depressive symptoms whereas 36.4% had high scores on the

GHQ. Depression was most prevalent in boys aged 19–20 years (33%) and those between 16–17 years (27%). Students studying in arts classes were less likely to be depressed than those in science classes. Regarding the distribution of depressed adolescents according to the location of their residence, those living in Dhofar region had the least prevalence of depression (10.3%) while those living in North and South Batina had the highest rate (respectively 21.4% and 21.6%). Higher levels of depression were found to be associated with: increase in adolescent's age; female sex; personal history of psychological disturbances; chronic organic illness; physical abuse during childhood and adolescence; disrupted family; bad relation with parents, siblings and teachers; smoking; stressful life events and lack of positive health practices.

The investigators conclude that depression is a public health problem and made several pertinent recommendations for follow-up.

21. Title: School-based and community-linked interventions for noncommunicable disease prevention from childhood

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Catalogue #: 73/IRA/05

This study was undertaken obtain information on the levels of modifiable risk factors for noncommunicable diseases and the behaviour, attitude, skills and knowledge of children, their parents and school staff in Islamic Republic of Iran, and to assess the effectiveness of a multi-component school-based and community-linked intervention for the primary prevention

of noncommunicable diseases. In this study, 21 111 students between the ages of 6 and 18 years living in 23 counties in Islamic Republic of Iran were selected according to the WHO/MONICA protocol by multistage random sampling. During the first phase, validated questionnaires were filled out by students and parents. Body measurements and blood pressure were

recorded and a fasting venous blood sample was obtained from a subset of 4284 students for estimation of blood sugar and lipids. In the second phase, which lasted for a year, an action-oriented intervention integrated with the existing school health framework was implemented. Schools were randomized in equal numbers to an intervention group and a control group. The intervention group was further randomized into two equal subgroups, one that received a school-based programme (S) and another that received the same programme plus parental education (SP). The intervention included different types of education, modification of school meals, increased curricular exercise time, organizing campaigns, etc. In the third phase a survey similar to the baseline survey was repeated in the same population. Through out the study quality assurance and control were taken into account.

Of the 21 111 students included in the study, 84.6% lived in urban and 15.4% in rural areas of the 23 countries and 90% were in public schools and 10% in private. The mean age of the students was 12.2 years, SD 3.3. In the subsample of students who had blood chemistry, 44.9% had no noncommunicable diseases related biological risk factor, and 34.4% had at least one. The most frequent type of dyslipidaemia was high triglyceride and low HDL-C, as is seen in the metabolic syndrome. The baseline survey showed that the students had a low consumption frequency of fruits and vegetables (16 times per week) and of vegetable proteins (6.7 times per week) and had a high frequency of consumption of deep-fried food and unhealthy snacks.

After interventions, a significant change was noted only for decrease in the consumption of salty/fatty snacks (4.9 versus

16.6 times per week) and an increase in the consumption of dairy products (14.5 versus 16.6 times per week) with no significant difference between S and SP groups. The use of hydrogenated solid fat for cooking decreased significantly only in those receiving parental education (73.8% at baseline versus 70.5%). The behaviour of adding salt to table foods decreased significantly in the intervention group compared to the control group. After intervention the mean time spent on sedentary activities decreased (16.4 hours/day versus 14.8 hours/day) and time spent on moderate activities increased (4.6 hours/day versus 5.7 hours/day) in the intervention group. The anthropometric and biochemical variables did not show much change after intervention except for triglyceride levels, which decreased from a mean level of 96 ± 21.7 mg/100 ml to 91.47 ± 17.2 mg/100ml.

The authors conclude that noncommunicable disease-related behavioural and biological risk factors are prevalent among Iranian schoolchildren and adolescents. This study shows that simple interventions aimed at students and integrated with the school health framework are feasible in different parts of the country with diverse socioeconomic backgrounds. Adding parental education to the school-based programme resulted in changes only in some parts of family nutrition such as decrease in solid fat consumption. The lack of improvement in biological factors after an intervention lasting a year suggest that such changes need more time, and it may be more important for this age group to modify their risk behaviour leading to life-time health habits. The investigators are following up this study by trying to establish a school-based surveillance system at the national level based on a modified protocol of the WHO-STEP wise approach to noncommunicable diseases in adults.

22. Title: Introducing quality of care dimensions into health management information systems to improve patient satisfaction with services: a study in Malir, Karachi

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Catalogue #: 72/PAK/05

The objective of this study was to introduce a tool to periodically assess some quality of care dimensions—reliability, responsiveness, assurance, empathy and tangibility—and to estimate the periodic levels of patient satisfaction through the use of this tool. With this objective, a cross-sectional facility-based study with an intervention component was conducted over a period of a year during 2004–2005 in a secondary-level private hospital situated in a peri-urban area of Karachi, Pakistan. Patient satisfaction with services was assessed every quarter through an exit interview of 384 clients. The respondents comprised those who were willing to be interviewed, had been resident in the catchment area for the past six months and were 18 years or older at the time of the interview. A total of 1533 patients was assessed over a period of one year for satisfaction on the five quality of care dimensions mentioned above. All of the five dimensions had three questions each and each item was measured against a response scale of satisfied, somewhat satisfied and dissatisfied (Likert's scale of 0–2).

The maximum possible score was 30 for a patient rating all 15 items as satisfactory. In this study a score of 24 and above was considered "excellent satisfaction", between 18 and 24 as "good satisfaction" and below 18 as "poor satisfaction" with the quality

of services received. In each quarter, after data collection and analysis, the results were shared with the staff of the hospital, and areas for improvement identified accordingly in a capacity-building workshop. The level of satisfaction of the patients with the health services provided showed an increase from a baseline of 34.4% to 82% in the fourth and final round of data collection. There was a gradual increase in satisfaction in all age groups, and it was slightly more pronounced in women of reproductive age. Analysis of satisfaction levels with education status showed that among the illiterate and those who could just read and write, satisfaction levels improved more as compared to other groups. The contribution of experienced staff in improving the level of satisfaction was demonstrated by a drop in the level when an experienced doctor left the hospital and a replacement was being recruited.

The investigators conclude that the study helped identify the constraints and gaps in communication between the clients and health care providers and the differences between their respective perceptions. The difficulties of the health providers were examined and solutions to problems were discussed. The study also served to explain the concept of quality of care and patient satisfaction to the staff of the hospital.

23. Title: Depression prevalence among high school students in Qeshm Island, Islamic Republic of Iran

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Catalogue #: 39/IRA/04

A survey was undertaken among high school students of Qeshm Island, Islamic Republic of Iran, to determine the prevalence of depression during the academic year of 2003–2004. The study sample consisted of 1611 students including 823 males (51%) and 788 females (49%) and excluded first-year students who were not familiar with the new environment and students in their last year as they were under pressure of university entrance examinations. The students were given two self-administered questionnaires. The first was to collect sociodemographic and other relevant background information; the second was the Standard Beck Depression Inventory, which is a 21-item self-report measure of severity of depression. The mean age of males participants was 16.56 years (SD 1.2) and of females was 16.25 years (SD 0.98). Overall, 31.3% of students suffered from a degree of depression (who had a score of 17 or more based on the standard Beck test). The figures for males and females were respectively 23.11% and 39.85%.

There was no difference in the frequency of depression in students in the 2nd and 3rd year of high school. Iranian students had a higher proportion of depressed as compared

to non Iranians (32% versus 24.86%). When the frequency of depression was analysed in relation to the literacy level of their parents there were insignificant differences. In other words parental literacy was not an independent indicative factor for their children's depression. The birth order did not seem to have any effect on the prevalence of depression. The rate for depression was considerably lower in students who lived with both parents (27.7%) as compared those living with father alone or other family situation (40%). 6.9% of those with depression scores of 17 and above had expressed a positive idea for suicide. The same feeling was expressed by 1.2% of those with scores less than 17. Risk factors associated with positive idea for suicide included physical quarrels among parents, physical punishment of students, smoking, alcohol ingestion, drug addiction and dropping out of school.

The investigators conclude that this study highlighted the need to educate teachers and school health staff to recognize depression and to ensure the provision of counselling and support services for students at risk.

24. Title: Situation analysis of the health management information system at primary and secondary health care levels, North Zone, Saudi Arabia

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Catalogue #: 75/KSA/05

A health management information system (HMIS) was introduced into Saudi Arabia in 1987. A study was undertaken to assess the effectiveness of the system in the North Zone of the country in 21 randomly selected primary health care units out of total of 41

and in three main hospitals of more than 100 beds which served as secondary health facilities. Exit interviews were held with nearly 20% of patients from the total daily intake of outpatients in these facilities to determine the satisfaction of patients with

the existing HMIS. Interviews were held with medical officers working at the primary (18) and secondary health facilities (36) to find out about the training and availability of resources for an effective HMIS; knowledge about various components of HMIS and their use; flow of information from different levels; feedback of information and use of data.

Exit interviews were conducted with 300 patients at the primary health care centres and with 152 at the secondary health care centres. The interviews focused on verification of information about record-keeping; frequency of follow-up; perceived weakness and strengths of the file system; evaluation of the referral and feedback system; and the level of satisfaction with services provided. The interviews with the doctors showed that since the HMIS was implemented, no training courses had been conducted, and that, to a great extent, was responsible for their lack of basic knowledge about HMIS. 66% of the staff at the primary health care level and 31% at the secondary level were able to define the referral system correctly and to identify the main objectives of the system. The current system was considered time-consuming. Even though there was 100%

compliance with submitting monthly and yearly reports, the facilities did not receive any comparative or analytical data from the health directorate. Only 50% of the primary health care centres received feedback from the hospital where cases were referred. The patients interviewed at the sampled at the primary and secondary health care centres were comparatively young with mean ages of respectively 35.19 years (SD 13.3) and 34.2 years (SD 12.3). Females were a majority at both levels and most were literate. 97% at the primary health care level and 51% at the secondary health care level had family folders, and 79% of all patients interviewed were satisfied with this file system but the remaining 21% complained that it was time-consuming. Only 29% were satisfied with the referral services.

The investigators conclude that while the study participants consider the HMIS an important tool, they felt that it was time-consuming; there were problems in its implementation due to lack of training; and there was no feedback of analysed data. The system though equipped is handicapped by a shortage of staff. The patients were more satisfied with the file and the referral system at the primary health care level.

25. Title: Development of control charts for studying, monitoring and improving health care processes

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Country: Islamic Republic of Iran
Catalogue #: 71/IRA/03

Since the late 1990s, the concepts, principles, methods and tools for total quality management and continuous quality improvement have been adopted in the health care system in Islamic Republic of Iran. The objective of this study was to train staff in the Urmia University of Medical Sciences, Urmia, Islamic Republic of Iran, in the use of control charts, which are an important tool used in process improvement. Control charts display the statistical analysis of process data in order to understand, monitor and improve process performance. The aim was to develop control charts for measurable or continuous

quality characteristics of processes (variable control charts) and for discrete data from processes (attributable control charts).

Seven process improvement teams were formed and trained in the process improvement methodology. Each of the team selected a health care process for improvement, selected a key quality characteristic, identified the data type and the control chart to be used and prepared a data collection plan. The relevant process data were recorded and a control chart was plotted. Finally conclusions were drawn about the existence or

lack of control and possible remedial actions considered. The following processes were selected for construction of control charts on a trial basis (the first three were for variable control charts and the latter four for attributable control charts): turn-round time for complete blood count and urinalysis for patients attending the emergency room with suspected acute abdomen; timing of prophylactic antibiotics in surgical patients; the contracting-out by provincial health insurance organizations to physicians and diagnostic/therapeutic services; medical charts with missing history and physical examination; rate of caesarean section; medication error; and peri-operative adverse events.

The investigator points out some of the limitations of this study. The team members took a long time to acquire sufficient theoretical knowledge of the control process and in spite of training did not feel comfortable with the methods of data collection, calculation of control charts and their interpretations, and considered them of secondary importance to their routine activities.

26. Title: Institutionalizing a quality improvement programme in a Tunisian family planning centre

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Population National Board

Country: Tunisia
Catalogue #: 88/TUN/05

The objective of this study was to implement a family planning and reproductive health services provision quality assurance programme in Monastir Family Planning Centre. In order to achieve this objective the investigators carried out in the first phase an exit interview using a questionnaire on a systematic random sample of 215 women attending the centre. The results revealed several quality-related problems mainly related to integration of reproductive health and family planning services. Over 90% of clients reported that they were not informed about cervical cancer prevention and did not receive clear information about prevention of sexually transmitted infections and about breast cancer. The clients felt that there was a need to improve the communication and interaction between them and the health care professionals. During the second phase, three brainstorming sessions were organized aimed at training the staff of the centre in quality improvement methods. Problems were prioritized using multi-voting and weighted-voting methods. Possible causes were listed for the prioritized problems and solutions were selected by using a simple rating scale. The team selected three problems to be addressed in a quality assurance framework.

The selection was based on the importance of the problem and on the feasibility of implementing a solution requiring team effort. The three problems were: long waiting time, insufficient integrated services, and insufficient holistic approach. For each of the three problems the team developed the contents of a quality assurance programme including indicators for monitoring the implementation of quality assurance-related activities. The contents of the programme are summarized in the final report.

The report does not refer to any post-intervention test to assess if the implementation of the quality assurance programme had improved client satisfaction with services provided by the centre. The investigators include several recommendations about extending the quality assurance programme to other family planning centres in the country.

27. Title: The economic burden of morbidity attributable to malaria on households in Khartoum State during the transmission season

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Country: Sudan
Catalogue #: 91/SUD/05

This study was carried out with specific objectives: to calculate the direct costs of malaria treatment and prevention at the household level in Khartoum state, Sudan, during the transmission season of 2004; to estimate the indirect costs of malaria for households associated with lost economic opportunities and earning foregone by adults while sick or while caring for a sick person; and to identify the effect of care-seeking behaviour and occupation on the cost of malaria to households.

Data were collected from 1203 households using a stratified cluster sampling technique. Two forms were used for data collection: one for background information on households including practices for malaria prevention and the other for data on malaria cases including care-seeking behaviour during malaria episodes, lost days of activity and expenditure on treatment during the month prior to data collection.

The results showed that there was a low use of preventive measures in all sectors of the population. In one-quarter of the households in the sample there was at least one case of malaria during the preceding month. Regarding care-seeking

behaviour, there was a high rate of health facility use (89.3%) and a low rate of self treatment (5.8%). Public health facilities were used more than private health facilities (86.4% versus 13.6%). An average of 6.2 days and 3.1 days were lost respectively by the malaria cases and by the individuals attending them. The annual expenditure on malaria prevention was US\$ 3 and the mean monthly expenditure on malaria treatment was per household was US\$ 1.7. The expenditure on treatment per fully cured patient was US\$ 6.3, accounting for 5.3% of the monthly income of the household. The expenditure was lower for those covered by health insurance and was higher in those using private health facilities. The indirect cost associated with malaria per household was US\$ 0.8. The indirect cost per fully treated malaria case was US\$ 3.2. The burden of the indirect cost was greater on individuals belonging to the informal sector, comprising casual labour and the self-employed.

The investigators conclude that malaria imposes a high economic burden, especially on those belonging to the informal sector, and recommend increasing the coverage by preventive measures in order to reduce the treatment costs and increase coverage by health insurance.

28. Title: Implementation of integrated management of childhood illness in refugee camps in Sudan: a situation analysis

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Country: Sudan
Catalogue #: 81/SUD/05

The Ministry of Health in Sudan adopted the strategy of integrated management of childhood illness in 1996, and

the strategy using the adapted national guidelines has been implemented in several states of the country since then.

However the strategy has not been adopted for use in refugee camps. This study was carried out to determine the enabling factors for implementation of integrated management of childhood illness in eight selected refugee camps in the eastern provinces of Gedaref and Kassala.

A three-pronged assessment was carried out. Focus group discussions and interviews with key informants were held with various categories of health workers and health managers. An evaluation of individual programmes such as nutrition, malaria infection and respiratory infection was carried out. Morbidity and mortality data was collected from the central health unit.

Evaluation of health worker performance was assessed by observational checklists, interviews of health workers and by exit interviews of the care-takers of children coming to the clinics/hospitals. Finally a population based cluster survey was carried out to determine the knowledge, attitudes and practice of children's care-takers.

The investigators found that the existing health system in the camps including its management and referral system and the level of community participation was satisfactory for implementation of integrated management of childhood illness. Some gaps in monitoring and supervision needed to be corrected. The health workers agreed that integrated management of childhood illness was a viable strategy which could integrate all vertical primary health care programmes addressing child health. The health units surveyed had the necessary staff and equipment. However, the drug supply to health facilities was deficient, and some essential drugs were not available. Malaria, diarrhoea and acute respiratory infection are the main causes of morbidity and mortality in children under 5 years of age. The mothers and care-takers had good health care-seeking behaviour, and the camp health facilities, which were easily accessible, were the first choice for most of them. A functioning referral system exists and was frequently used. It was concluded that the health system and community participation in the refugee camps was conducive to the implementation of the integrated management of childhood illness strategy.

29. Title: The impact of the environment on physical and psychosocial well-being of street children

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Country: Sudan
Catalogue #: 84/SUD/05

Armed conflict, drought and famine have led to a mass displacement of the Sudanese population leaving many children either separated from their families or orphaned. Most of these children find their way to major cities and try to eke out a living on the streets. It is estimated that there are about 35 000 unaccompanied children on the streets of Khartoum, of whom about 80% are working street children This sociomedical study was undertaken from August 2004 to May 2005 in order Armed conflict, drought and famine have led to a mass displacement of the Sudanese population leaving many children either separated from their families or orphaned. Most

of these children find their way to major cities and try to eke out a living on the streets. It is estimated that there are about 35 000 unaccompanied children on the streets of Khartoum, of whom about 80% are working street children This sociomedical study was undertaken from August 2004 to May 2005 in order to explore the profile of street children and to determine the common type of health problems in street children and to suggest possible interventions for their rehabilitation.

In-depth interviews and focus group discussions were held with 21 staff members of different lodging and rehabilitation centres

for street children. A total of 206 street children (189 boys and 17 girls) were interviewed in order to obtain information on sociodemographic and family background and on survival and deviant behaviour on the street. Clinical examination was carried out for skin conditions and for nutritional assessment. A subset of 77 children was subjected to Hospital Anxiety and Depression Scale testing. Laboratory investigations included HIV/AIDS testing (101), stool for parasitic diseases (81), urine examination (55) for schistosomiasis and sputum testing for tuberculosis (28). The figures in brackets indicate the number of samples obtained for testing.

The results showed that most of the street children were boys from the southern and western states of Sudan. They appeared to be a product of push and pull factors including natural and manmade disasters and tragedies. Two-thirds of the children returned to their families after being involved in street life;

the remaining did not maintain any contact with their families. Nearly 70% did some kind of work to make money. 50% slept in the street environment, 25% near police stations and 10% with family or relatives. 86% admitted using one or more type of addictive substances. Fungal infection of the skin was present in 15%, and old scars of injuries were found in 21%. 30% of street children had parasitic intestinal infections and 24% tested positive for urinary schistosomiasis. Only 1% of the samples were positive for HIV/AIDS. Nearly half the children suffered from moderate to severe depression and a quarter of them had moderate to severe levels of anxiety.

The report included information on the organizations and programmes working with street children and discussed in some detail the reasons behind the street children phenomenon in Khartoum and made several brief recommendations.

30. Title: A community-based programme for safety at home and injury prevention among preschool children in rural Damascus

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This was a retrospective study to measure the magnitude of accidents among preschool children in Damascus, Syrian Arab Republic, over a 12-month period. A total of 1125 children under the age of 5 years from 1817 households were recruited for the study from four different type of residential areas—rural (agricultural), rural (not agricultural), peri-urban and urban—that were randomly selected from a list of areas served by health centres. Data were collected by female sociologists using two questionnaires for recording personal data on the family history of accidents in the previous year, mother's knowledge of childhood accidents, environmental description of the house and information on one randomly selected child under 5 years in case there were more than one child in this age group in the household.

Nearly 75% of the children were aged between 2 and 5 years. 23.2% of the households reported accidents during the preceding year and nearly three quarters of them took place inside the house and in 40% of cases the child was on its own. The most frequent type of accident was cuts (49%) followed by burns (23%) and falls (11%). All reported accidents were mild to moderate with complete recovery in the majority of cases and residual effects were noted in only 9%. An analysis of the potential risk factors showed that living in rural areas was associated with an increase in accidents compared to urban settings. As regards the perception of mothers interviewed in the study, 79% felt that accidents could be prevented, and 75% felt that lack of attention and care was responsible for childhood injuries.

According to the investigators they were unable to implement an intervention due to lack of funds and propose developing an educational pamphlet which will be used with home visits and focus groups as intervention for childhood accidents.

31. Title: Impacts of drinking-water and salt mining on the health of children at Al-Haroniah village, Al-Munirah district, Al-Hodeidah governorate, Yemen

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Country: Yemen

Catalogue #: 63/YEM/04

This study was carried out in the village of Al-Haroniah, located north-west of the city of Al-Hodeidah and a few kilometres away from the Red Sea coastline. The total population of the village is around 3000 people. Most of the inhabitants work as farmers, fishermen and in the local salt mine and are poor. The objective of the study was to investigate the relationship between a high reported prevalence of deafness, mutes and other developmental abnormalities in this village with environmental factors—specifically the water quality.

Thirty disabled or handicapped children and adults were examined, and blood samples were collected from 20 of them for estimation of lead and cadmium. Observations were made of the dwelling and work places of the inhabitants. 29 water samples were collected from the main water supply well and storage tanks in houses for analysis of lead, cadmium nitrate and phosphate.

The 30 disabled children and adults comprised 17 females and 13 males who were distributed among 22 families. 40% of them suffered from deafness and aphasia, 23% from physical deformities, 14% from paralysis, 10% from mental retardation

and 7% from after-effects of poliomyelitis. Sixteen out of 22 families had one disabled child each, four families had two and two families had three disabled children each. Nine families had intermarriages and between them accounted for half of the disabled (15). The parents of the remaining 15 disabled were not related to each other. Regarding blood levels of lead and cadmium, the former was normal in all cases except one but the cadmium levels were higher than normal ($< 1 \mu\text{g}/\text{dl}$) in all the samples tested. The results of the water samples showed high levels ($> 50 \text{ mg}/\text{l}$) of nitrate, of cadmium ($> 0.003 \text{ mg}/\text{l}$) and lead ($> 0.01 \text{ mg}/\text{l}$).

The investigators believed that the high cadmium levels could be attributed to excessive intake of shellfish and from the corrosion of galvanized pipes and the high lead levels could be due to the large areas surrounding the village being used for solid waste disposal from which lead may be leaching down to the shallow source of groundwater in the area. They also thought that environmental factors, intermarriages and poor socioeconomic conditions contributed to the high prevalence of disabilities.

32. Environmental and health monitoring to identify the sources of lead exposure and impact on health status of population

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Catalogue #: 65/OMA/03

This cross-sectional study was undertaken to measure lead concentration in the environment and in a population of schoolchildren, antenatal patients and industrial workers in order to assess exposure to lead and its sources in the environment with an ultimate view to provide baseline data for future studies on lead exposure and for initiating a community- and school-based prevention programme for children.

Blood lead levels (BLL) were estimated in a randomly selected sample of 334 school children 7–11 years of age from a total population of 8391 school children from 18 schools from 4 areas of which three were in urban regions and one in a rural region. In addition, a structured questionnaire was introduced through school health staff to mothers and teachers to collect socio- demographic characteristics and potential risk factors and health effects of lead exposure.

The mean blood lead level of 334 children was 4.46 µg/dl (range: 0.0–38.5 µg/dl, SD 3.7 µg/dl) with 22 children with blood lead levels of 10 µg/dl or over. No significant difference was found between levels for boys and girls and among children of different areas. The mean blood lead levels and frequency of high blood lead levels were significantly more in children of one school located in the rural area and in two schools in the urban areas. The vast majority of the children were Omanis with an average economic background, and none of the parents was employed

in occupations using lead. The lead levels in the air and other environmental samples suggested the possibility of exposure through food, water, soil or dust in the home environment.

An analysis of risk factors, considering 22 children with blood lead levels of 10 µg/dl and above as exposed to lead and the rest (312 children) as less or not exposed to lead, showed that the habit of not washing hands was strongly associated with high blood lead levels. The risk of exposure was also significantly associated with playing near garages. Other risk factors such as regular consumption of canned food items, use of kohl and herbal medicines and playing with painted toys was not associated with exposure. Among the health effects, the exposed children did not show any higher prevalence of having loss of appetite, sleepiness or leg pains. However, they were more prone to reading deficits, poor concentration and poor school grades.

The blood lead levels in 93 antenatal cases were less than 5µg/dl except for one foreign national who had 42.3 µg/dl. The blood lead levels in 51 occupationally exposed battery workers and radiator repair workers were high, with a mean value of 40.9µg/dl. Among these workers, there appeared to be a lack of awareness about the toxic nature of lead and about the need for preventive measures, suggesting stricter implementation of occupational and environmental regulations.

33. Title: Smoking habits among female university students in Sana'a University

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Country: Yemen
Catalogue #: 50/YEM/04

This study was conducted during 2002–2003 among the female students studying in the University of Sana'a to determine their smoking habits. Employing a simple random sampling method, 904 female students with ages between 17 and 26 years, were enrolled in the study and were requested to complete a pre-tested questionnaire. The response rate was 96%.

The prevalence of current smokers was 8.7% with a slightly higher proportion of smokers in the senior classes (11.8% in level 4 as compared to 6.6% in level 1) and with increasing age (5.5% in those older than 19 years versus 9.6% in those between 20 and 24 years of age). The prevalence of smoking also varied between students enrolled in different faculties/colleges. While medical, engineering and education colleges had low prevalence of smoking (respectively 4.2%, 8.1% and 3.8%),

the colleges of science, arts, commerce and languages had a high prevalence of smoking (respectively 10%, 11.9%, 13.3% and 10.3%). 60% of the students smoked shisha, and about 14% smoked cigarettes. 5% of all smokers could be classified as heavy smokers (smoking shisha for more than three hours per day or smoking more than 20 cigarettes per day). The majority of smokers (94%) were aware of the health hazards of smoking. 61% considered home as the best place for smoking when it was combined with the social activity of khat chewing.

The investigators concluded that friends and parents were important factors in encouraging smoking in female students and as most of the smokers started smoking in high school or university, school-based intervention programmes should be emphasized.

34. Title: Local information system development for advanced management of primary health care in Khemisset province, Morocco

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Catalogue #: 57/MOR/04

In Morocco the activities undertaken at the primary health care level or health district level (*circonscription sanitaire*) are defined and standardized at a central level, and the health information activities are limited to collecting and transmitting data to the central level. The aim of this study was to analyse the role of the health district and propose a new framework that would give it a more active role in its function and activities. A research–action approach was adopted by a multidisciplinary research team constituted for this study and which included decision makers and health professionals from different levels of health system and researchers.

The research team elaborated a set of planned activities aimed at defining a new model of the health district; development of a management information system (MIS) for the health district; assessment of training needs and identification of the required measures; implementing the activities and monitoring and evaluation. There were a few activities that were not planned but were implemented, such as information systems to manage medical supplies and vehicles. Data, which were mostly qualitative, were collected by brain-storming, focus group discussions and interviews.

The investigators presented their findings in their final report under the headings of diagnosis of the health district, the proposed model for the health district, the MIS diagnosis, the MIS support inventory, the functions of the health district, informatics application and other outputs. The proposed model for the health district gives more autonomy to the local

administrators in implementing national health policy and programmes. The implementation of this model has already been initiated in two health districts. An important output of the research has been the development of a dynamic between various levels of the health care system.

35. Title: Promotion of reproductive health among young people

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Catalogue #: 70/IRN/05

This community-based study was undertaken in a community located in the western part of Tehran (Ekbatan), Islamic Republic of Iran, with the broad objective of promoting the physical, mental and social health of young unmarried people between the ages of 10 and 25 years. The total population of the community was around 60 000 with a target population of 10 000. A broad-based executive committee consisting of representatives of community and various governmental and nongovernmental organizations was formed to steer the activities of the project. This committee used male and female community leaders to deliver information about the project to the community and to find volunteers between 10 and 25 years of age to participate in the project and to carry out a census of all young people in this age group. Sixty volunteers were selected and trained in a special four-day course on topics such as the role of religion and morality in health, mental health, nutrition, high-risk sexual behaviour and life skills. Following the course, the volunteers went through a priority determination procedure to arrive at the following topics considered important for the health of young people in Ekabatan: nutrition; AIDS; drug addiction; and lack of interest in sports. The volunteers also underwent a three-day workshop on qualitative research methods, especially on the use of focus group discussions.

The study sample was composed of 9972 persons between the ages of 10 and 24 years. The proportion of persons between

the ages of 10 and 14 (19% for both girls and boys), 15 and 19 years (38% for girls and 36 % for boys) and 20 and 24 years (43% for girls and 45% for boys) were more or less similar for males and females. This population was divided into eight groups according to age (10–19 and 19–24 years), educational background (having primary or middle school education and those with high school diploma) and sex; and two focus group discussions were held for each group to ascertain their views on psychological health, identifying high-risk behaviour, attitudes to nutrition and the role of sports in health.

Some of the salient findings from the focus group discussions included: the lack of close relationship with parents with most teenagers considering themselves better and more efficient; the need for learning interactive social skills, especially self-confidence; the critical role of self-expression in interpersonal relationships was ignored; lack of skills for identifying problems and in problem-solving; most of the young people considered sexual activities and failure to use condoms as high-risk behaviour: there was good awareness about AIDS and on its mode of transmission; they preferred receiving information on sexual and reproductive health from friends, consultants, the media or from schools; the impact of nutrition on health was not clearly understood; and while they were aware of the importance of sports for their health most of them did not exercise regularly.

The groups suggested several strategies to promote health in adolescents in the areas that were discussed during the focus group discussions. Some of these were: empowering the young through life skills training programmes; organizing training

courses and dialogue sessions for parents in order to enable them take a proper approach to the common problems of the young; education by peers on prevention of AIDS and STD; and organizing food festivals to promote healthy diets.

36. Title: A qualitative study (focus group) of the nutrition education demands of primary school children in Tehran

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Catalogue #: 33/IRA/04

As dietary habits form in early childhood, and the pattern of dietary intake established at this stage may be responsible for some of the chronic diseases later in life, nutrition education and improvement in nutrition knowledge was considered an effective intervention. Prior to developing such as intervention programme, a qualitative study was carried out to determine the demands for nutrition education by primary school children.

Eight primary schools each from an urban and a rural educational district were randomly selected, and a total of 16 focus group discussions were held separately for boy and girls in classes 1 and 2 and in classes 3 and 4. A number of mothers were invited to join the focus group discussions in both educational districts. Some of the topics covered in these focus group discussions for children included: children's opinion about food; recognition of existing consumption patterns and their determinants; understanding of the existing conditions for nutrition education; and recognition of children's understanding of nutritional needs and for nutrition education. The focus group discussions for mothers touched on topics such as their understanding of

food, knowledge about children's nutritional needs and their views about how children obtained their nutrition education.

The findings of the focus group discussions showed that children were eager to know about good and harmful foods, about their contents and the effects on their bodies. Television was considered both by the children and mothers as the most important and effective medium for imparting nutrition education. Commercial advertisements were also considered as an important source of nutrition education. Schoolteachers were singled out as having an important influence on children's nutrition behaviour. Other mass media such as radio, magazines, newspapers and text books were also mentioned as effective factors.

The study concluded that that current text books do not present nutrition factors in an attractive and informative manner and similarly teaching methods have not been successful in communicating appropriate nutritional facts to the children.

37. Title: Needs assessment and priority setting for urban areas of Hormozgan province, Islamic Republic of Iran

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Catalogue #: 56/IRN/04

A cross-sectional community-based household survey was carried out in the southern province of Hormozgan in Islamic Republic of Iran. The provincial capital, Bandar Abbas, is the main commercial port for the country. The broad objective of the survey was to determine the health needs of the urban population and whether these were being met by the existing health services in the province. The urban population of the seven cities in the province was around 620 000 living in around 120 000 households. Using a multi-stage sampling technique, a 5% sample of the households were selected. Data were collected by trained interviewers using a pre-designed and tested questionnaire. In addition to the household survey, 20 focus group discussions were held, each with six–nine key informants from the community.

Almost 45% of the sampled population was under 20 years of age, and 16% of the population was between the ages of 20–29 years. The need to invest in youth-related services was repeatedly stressed. The priorities for the young were an increased focus on education, elimination of substance abuse, developing employment-related services, improving family relationships to reduce violence in the community, promoting community mental health, especially that of schoolchildren. The mean age of marriage and the age of first pregnancy were considerably lower in the province compared to the national average. Also, the rate of contraceptive use in the sampled

group (58.2% in women between the ages of 15 and 49 years) was lower than the national figure. Among contraceptive users, there were 11.36 % unplanned pregnancies, suggesting that contraceptive use was either inconsistent or ineffective. Most of the participants in the survey felt that investing in family planning and prenatal and neonatal care was useful for meeting community health needs. There were 10.8% of people who were 60 years and above. Almost all the elderly participants requested special medical services to meet their health needs, transport services and coverage with medical insurance. This group of population believed that low income at their age had a great role in reducing access to needed services, especially medical services.

In the focus group discussions, the participants expressed their concerns about the low coverage with health insurance and inadequate services provided by the insurance organizations. Most participants considered that substance abuse, AIDS and sexually transmitted diseases were increasing rapidly and threatened the community. There was general concern about the disabled and the lack of adequate facilities for their care. It was also felt that not enough attention had been paid to promotion of mental health. The highest priorities for the community were considered to be easy access to health care; family planning; control of substance abuse and AIDS; and education, especially of mothers, children and young people.

38. Title: Impact of pesticides on neurobehavioural performance of children

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Country: Egypt
Catalogue #: 52/EGY/04

Children can be exposed to serious health risks from environmental hazards. Pesticides represent a particular group of environmental hazards to which children in agricultural communities are inequitably exposed. This study was undertaken to reduce the potential impact of pesticide exposure on the neurobehavioural performance of pre-school children in a rural area in Egypt and to develop and evaluate a culturally appropriate educational intervention directed towards agricultural workers for protecting their children from the harmful effects of pesticides.

The participants in the study were 188 families living in two villages in Menoufiya governorate whose main occupation was farming, and all of them had a least one or more child 4–6 years of age living with them. The farmers' pesticide-related knowledge was assessed by a pre-tested and validated questionnaire. The neurobehavioural performance of children was assessed by using tests from the Stanford–Binet battery (Arabic version, 4th edition). Morning urine specimens were collected from each child for measurement of organophosphate and/or carbamate pesticide exposure. Each village had been randomly assigned into either lecture or video and poster educational training on the hazards and safe use of pesticides. Ability to recall

information or change in practice after a lecture or watching the video in the first session was tested by applying the same questionnaire twice at two-week intervals.

The majority of participants were lacking sound knowledge and proper practice of handling pesticides whether at home or on the farm. After implementation of the educational programme, there was a sustained improvement in knowledge and practice of participating families and some practices were further improved with time. After education, about 60% of the participants thought that they could completely stop the use of pesticides inside their homes as compared to 30% before starting the programme. Knowledge and practice scores of younger and educated participants were significantly higher compared to older and less educated participants after the educational sessions. Organophosphates and/or carbamates were detected in 44% of children. Nearly 70% of the participating children had below-average IQ. Lower neurobehavioural performance was associated with lower knowledge and practice score of their parents. Vocabulary, copying and IQ scores of children were significantly lower in children with positive pesticides in their urine as compared to those whose urine was free of pesticides.

39. Title: Study of violence patterns, attitude and perception among secondary school students in Assiut governorate

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Catalogue #: 51/EGY/04

The purpose of this study was to estimate the extent of violence and of attitudes towards aggressive behaviour among secondary school students in the district of Assiut, Assiut governorate, in

southern Egypt. Eleven secondary schools out of total of 36 such schools in the district were selected by random sampling. Of the actual number (1807) of enlisted students in the randomly

selected classes, 1404 (77.7%) successfully completed a self-administered questionnaire which collected information on student aggression levels, school fighting behaviour, weapon carrying, victimization, attitudes towards violence, family and school environmental factors as well as sociodemographic and family background. Also, five focus group discussions were held, three with boys and two with girls and each with 9–11 participants, to explore concepts, causes, types and consequences of violence as well as suggestions for prevention of violence.

The sample of 1404 students comprised 810 (57.5%) boys and 594 (42.3%) girls, with a mean age of 15.47 ± 1.22 years. From the educational levels of the parents and their occupations, it appeared that the majority of students came from lower to

lower-middle socioeconomic strata of society. Nearly 60% (79.4% for boys and 32.2% for girls) of the students reported having been involved in a physical fight during the 12 months before the survey and 10% of these fights resulted in injuries that needed medical attention. Most of the fight took place outside the school in order to avoid disciplinary action. In multivariate analysis the strongest predictor of aggression was depression/anxiety. The students manifested problems with self-control and lack of cooperation skills. The findings suggest that victimization was mainly emotional rather than physical. The commonest form of aggression was physical fighting. The focus group discussions identified deficits in the school and family environments and community-level factors that rewarded violence. The schools appeared helpless to deal with violence.

40. Title: Geographic distribution of childhood cancers in the Tehran municipality districts: exploring possibility of clustering

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Iran
Catalogue #: 55/IRN/04

The search for clusters of cancer cases is an essential feature of the epidemiological approach to the etiology and control of cancer, especially of childhood cancer. The broad objective of this study was to describe and explore possible clustering of cancer cases in the Tehran metropolitan area in Islamic Republic of Iran. The investigators included all cases of cancer for age group under 20 years who were living in one of the 22 districts of Tehran municipalities from 1998 till 2002. These cases were identified through the database of Tehran population-based cancer registry, the Mahak (a charity organization providing treatment and support to children with cancer) database of childhood cancer and the mortality database of Tehran municipality which is a database of death certificates issued in Tehran. Only cases that were resident in Tehran were included in the study.

A total of 1954 cases was available for analysis. The overall incidence of all cancer cases in the population under 20 years was 176.3 per million. The most frequent categories were leukaemia in the age group of 5–9 years with an incidence of 50 per million, lymphoma in the age group 10–14 years with an incidence of 40.6 per million, bone and soft tissue sarcoma in the age group 15–20 years with an incidence of 40.4 per million. The incidence of all cancers for both males and females were calculated separately for each of the 22 districts. The highest and the lowest incidence noted in a district were respectively 242 and 69.4 per million.

An analysis for any clustering effect was performed for the commonest five categories of cancer (leukaemia, lymphoma, Hodgkin and non-Hodgkin variety, brain and central nervous system, bone and soft tissue sarcoma, and retinoblastoma). For

all categories of cancer there was clustering in nine districts, however, the likelihood of clustering was marginally significant ($P < 0.06$) with an overall relative risk of 1.23. In terms of magnitude of relative risk of accommodating in the cluster, retinoblastoma with relative risk of almost 4 showed a likelihood of clustering

in three districts but the P value was not significant (< 0.35). The investigators conclude that the incidence of childhood cancer varies considerably across the different districts in Tehran municipality and the present analysis did not show any significant clustering effect at the district level.

41. Title: Attitude of biomedical and human science experts on the most important bioethical issues in Tehran, Islamic Republic of Iran, a poll study

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**Country: Islamic Republic of
Iran**
Catalogue #: 54/IRA/04

With increasing interest in genetic research in Islamic Republic of Iran, a national ethics committee has been established under the Ministry of Health and Medical Education. However, no government regulation or framework has been formulated to meet and guide the debates and legal problems concerning genetic information. As the engagement of health professionals in the formulation of such a framework is important, this study was carried out to outline for scientific discussion the bioethical considerations of genomic research and to solicit the attitudes of Iranian scholars towards key bioethical considerations of cloning, genetic screening, patent and confidentiality.

The investigators after a lot of deliberation developed a questionnaire containing 62 statements that were divided into four groups: patenting of human material, genetic screening, human cloning and confidentiality in genetic research. For each positive statement one corresponding negative statement was developed. Any given statement was a measure of one or more bioethical principles—autonomy, justice, beneficence and non-maleficence. The response to each question was arranged on the basis of a five-item Likert scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire was used to interview two groups of people. One group comprised paediatricians, psychiatrists and obstetricians from two medical universities in Tehran. Of the 170 approached, 136 agreed to be

interviewed. The second group was made up of clergymen and women and senior fellows (equivalent to PhD students in basic sciences) from the seminaries in Tehran and Qom. From 123 candidates, 65 (53%) responded to the questionnaire. The main reasons for the high non-response in this group were that they were too busy or had no knowledge about the subject or no interest in being interviewed.

Some of the salient findings of the interviews were: the highest number of agreement was given to the statement stressing that the banning of cloning would lead to deprivation of presently untreatable patients of the possibility of cure; nearly 61% of the respondents agreed that genetic research should be done in developing countries like Islamic Republic of Iran regardless of expense; the majority disagreed that information should be withheld on the results of genetic testing in order to avoid emotional distress; the majority voted to respect an individual's right to decide about the confidentiality of genetic information; the majority also disagreed that personal information should be disclosed to research groups; and the participants had an undecided attitude towards patenting human material.

The investigators point out the limitations of the study, including non-random selection of study participants and that the closed questionnaire hindered the respondents in expressing their

views thoroughly. However, according to them this study has outlined some of the attitudes of Iranian medical professionals

and theologians on bioethical consideration of cloning, genetic screening, patenting of human material and confidentiality.

42. Title: The efficiency role of holding companies in the pharmaceutical industry

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Education**

**Country: Islamic Republic of
Iran
Catalogue #: 69/IRA/04**

This study was undertaken to investigate whether holding companies formed for managing pharmaceutical companies in Islamic Republic of Iran were able to influence efficiency of the managed companies. It also analysed the role of the government and the monopolistic structure of the industry. A quantitative analysis of time series data was carried out by soliciting financial data from all the pharmaceutical companies in Islamic Republic of Iran. The largest 18 companies, which account for more than 80% of production, provided this information. The performance of these companies was studied before and after application of the holding strategy as an integration policy.

The detailed final report explains some basic economic concepts such as holding companies, technical and allocative

efficiency; traces the history of pharmaceutical industry before the Islamic revolution, during the war with Iraq and since 1986; discusses the government's role in the operation of the pharmaceutical industry; and includes an analysis of profitability and performance.

The investigators conclude that government intervention and central planning reduce the incentive for the companies' management to perform economically in order to realize a profit. The application of a holding strategy as an integration policy had a negative effect on the technical efficiency of the companies due to lack of cost savings, and at the same time government monopoly increased the allocative inefficiency.

43. Title: Iranian women's perceptions of family planning services quality: a client satisfaction survey

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Iran
Catalogue #: 35/IRA/04**

This study was a survey to determine client satisfaction with family planning services through exit interviews and was carried out in the capital cities (Shiraz and Kerman) of two large provinces (Fars and Kerman) in the country. In order to obtain a representative sample, all health care centres in the two cities were divided into three categories according to their geographical distribution and the socioeconomic status of the population served by them. Then after considering the proportion of population served by each centre, a sample was

obtained by a process of systematic sampling. A questionnaire administered by a skilled interviewer was used to interview the participants. The questionnaire consisted of baseline data and a five-point Likert-scaled 17 items measuring the satisfaction of clients and perceived importance of each item.

A total of 930 women between the ages of 15 and 50 years were invited for interview; 903 individuals agreed to participate of which 603 resided in Shiraz and 300 in Kerman. Half of these

women were between 26 and 35 years of age and 84% of them were housewives. The most common methods of contraception were pills (36%) and condoms (34%). Subjects belonging to higher socioeconomic strata, those who were older and health workers were more satisfied with the services offered.

Participants were most dissatisfied with the lack of privacy and confidentiality and the absence of information on other methods of contraception. Competence of staff and politeness in treating clients were considered most important by the respondents.

44. Title: Knowledge, attitude and practice of university students toward substance abuse in Sana'a, Yemen

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Catalogue #: 49/YEM/04

A cross-sectional study was carried out among the students in Sana'a University to estimate the prevalence of *khat* chewing, smoking and substance abuse and to ascertain their knowledge and attitude towards substance abuse. Sana'a University is the largest in the country with nearly 50 000 students. A sample of 3420 students was randomly selected, out of which 3263 responded by filling in a questionnaire designed and pre-tested by the investigator for collecting the above information. Data was collected from August to December 2003.

The respondents included almost the same number of males and females with a slightly higher proportion studying in levels 1 (26.4%) and 3 (26.6%). The mean age for males was 22.7 ± 2.4 years and for females 21.2 years. The prevalence of *khat*, tobacco, drug and alcohol use among male students was respectively

81.6%, 26.9%, 3.7% and 3.5%, and were significantly higher than the rates for the female students, which were respectively 25.9%, 7.7%, 1.7% and 0.6%. In the case of male students, the rates for *khat* chewing, tobacco smoking and alcohol use were found to increase with level of study. The prevalence rate of tobacco smoking, alcohol drinking and drug use among *khat* chewers (respectively 31.5%, 3.7% and 4.2%) was significantly higher than the rates found among non-chewers (1.4%, 0.4% and 0.9% respectively). The most common substance used by substance abusers was diazepam (15.8% in males and 25.6% in females) followed by hashish (13.5% in males and 7.7% in females). A large proportion of both boys (65%) and girls (51.3%) who admitted substance abuse did not identify the substance. Female students had better knowledge than males about the hazards of substance abuse.

45. Title: Action-oriented intervention research for prevention of obesity at the primary health care level

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Catalogue #: 30/EGY/04

The objectives of the study were to estimate the prevalence and determinants of different grades of obesity in a circumscribed area of Assiut city in Upper Egypt and to suggest and implement an intervention programme through counselling and a weight

reduction clinic at the primary health care level. The study sample was obtained from a well defined area in the west of the city. Sociodemographic data of all the residents (about 22 000) in the area was already available.

The study sample, which included all persons 15 years and above in the randomly selected households, was initially calculated as 200 but was subsequently increased to 592 (230 men and 362 women) to replace the drop-outs. 20% of the men and 17% of the women were below 20 years of age and about 23% of both men and women were 50 years and above. Information was collected through a questionnaire from the study participants on their dietary habits, lifestyle and about obesity-related diseases and their ideas about ideal body weight. The participants also underwent a systematic clinical examination that included anthropometric measurements, blood pressure, ECG, and abdominal ultrasonic examination. Blood was obtained for estimation of sugar and cholesterol.

Of males 30% and of females 35.9% had a body mass index (BMI) of 30 and above—in other words were obese—and 36.5% of males and 23.5% of females had a BMI between 25.0 and 29.9 (were overweight). Most (68.8%) of the obese and over half (54.8%) of the overweight persons were convinced that physical activity and sports were not important. 47.7% of the

obese and 53.3 % of the overweight categorized their lifestyles as sedentary. Dietary history revealed that over half of the obese and 69% of the overweight had less healthy dietary habits. Nearly one-third of the obese and about half of the overweight subjects considered themselves as underweight.

Results of the clinical examination showed that chronic chest diseases, chronic heart disease, chronic hepatic and abdominal diseases, chronic musculoskeletal diseases, chronic neurological diseases and the presence of abdominal ultrasound abnormalities were significantly higher in the obese as compared to persons of normal weight (BMI between 18.5 and 24.9). The report does not mention the results of the blood tests.

An intervention programme has been introduced through the establishment of a clinic at the primary health care level that provides services (clinical evaluation, dietary counselling and health education) for the obese and their related health problems.

46. Title: Isolation of new antihypertensive substances from plants used in the phytotherapy of hypertension in eastern Morocco

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Catalogue #: 43/MOR/04

The objectives of this pharmacological study were to determine the antihypertensive effects of some of the medicinal plants used in eastern Morocco to treat hypertension, to determine their acute toxicity and to study the mode of action of extracts of these plants in order to isolate the active compound(s).

Acute toxicity (LD 50) of *Petroselinum sativum* (Apiaceae) was tested in five groups of 10 mice using different doses of aqueous extract and was found to be more than 8 g/kg and was considered nontoxic. A preliminary report (not included in the final report) had shown that the plants *Arbutus unedo* and *Urtica*

dioica have antihypertensive effects. In order to search for the active fractions responsible for this effect, chromatography was used to separate different fractions, and strips of isolated mouse aorta was used to evaluate the vasorelaxing effect of isolated fractions. The leaves of *Arbutus unedo* were found to possess strong vasorelaxant activity that was associated with polyphenolic compounds such as oligomeric condensed tannins and catechin gallate. For *Urtica dioica*, a chromatographic fraction of acetate extract assigned the vasorelaxant activity to a fraction numbered 3, and work is in progress to identify this fraction.

47. Title: Study of the environmental and genetic risk factors for nasopharyngeal carcinoma in the Maghrebian population

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Catalogue #: 87/MOR/05

Nasopharyngeal carcinoma (NPC) is a rare disease in Europe (incidence 0.5 cases/100 000 per year) but in Maghrebian countries, China and parts of south-east Asia it is more frequently seen with an incidence varying between 5–25 cases/100 000 per year. In the Maghrebian population NPC is the most frequent ear, nose and throat cancer and accounts for 7%–12% of all cancers. As a large sample size was required to define clearly the role of various risk factors specific to the Maghreb, a multi-centre case–control study and family-based study was undertaken in Algeria, Morocco and Tunisia in order to quantify the degree of familial clustering of NPC and to evaluate the impact of parental consanguinity on the risk of the disease and to explore various environmental factors in its causation.

A total of 664 cases and 625 controls (matched for age, sex and urban/rural housing) were recruited from five centres, one in Morocco and two each in Algeria and Tunisia. The pre-tested questionnaire included a genetic part examining ethnicity, consanguinity and detailed family history of all first and second degree relatives, and an environmental part that examined systematically exposure to the environmental factors that had been previously incriminated in this type of malignancy during childhood and adult age.

The rate of NPC was higher among males than females with a sex ratio of 2.32. This sex ratio disequilibrium was lower in young patients. The distribution of cases showed a bimodal distribution regardless of sex with a first minor peak in the age group 16–19 years and second peak around 45–49 years. After adjusting for potential confounding factors, NPC was clearly associated with poor socioeconomic conditions. Compared to controls, cases lived more frequently in overcrowded houses with animals inside. The presence of all type of fumes in the home increased the risk of NPC. Occupational exposure to dust and fumes also significantly increased the risk. Other factors associated with increased risk of NPC were regular consumption of rancid fat, hot and spicy food, frequent otitis, angina and episodes of common cold, exposure in early life to saliva of adults through kissing, and spitting inside the home suggesting an early exposure to Epstein-Barr virus. Consumption of vegetables was associated with a decreased risk. Regarding the role of consanguinity, the results were inconclusive.

The investigators conclude that the results from this large multi-centre study have defined the risk factors involved in the development of NPC and may provide information to design a primary preventive strategy aimed at changing behaviour to reduce risk and reducing exposure to the identified risk factors.

48. Title: Appropriateness evaluation of hospital use at a general public hospital

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Catalogue #: 29/EGY/04

The escalating cost of health care, particularly hospital-based, has led to the development of use review (which is a

component of use management) that includes the necessity and appropriateness of admission, level of care, use of resources,

continued stay, discharge and hospital care. A cross-sectional study was undertaken in three general public hospitals in three governorates of Egypt, namely El Mounira Hospital in Cairo, Imbaba Hospital in Giza and Abu Qir Hospital in Alexandria, in order to determine the appropriateness of admission, of hospital days use and to determine the reasons behind inappropriate admissions and days of care. A sample size of 400 patients for each hospital was determined, and all cases admitted through emergency room and outpatient clinics were included from the time of starting the study until completing the sample size. A questionnaire was filled by a designated resident for each newly admitted patient in the departments of internal medicine, surgery, paediatrics, and obstetrics and gynaecology.

There was a slightly higher proportion of surgical patients in the samples from all three hospitals (25.9%, 41.6% and 38.7%), while the proportion of females was 76.2%, 64.7% and 62.4%. Using the admission criteria of the Appropriate Evaluation Protocol, inappropriate risk admissions were found was in 4.6% of admissions in Abu Qir Hospital, 2.6% in Imbaba Hospital and 4.7% in Mounira Hospital. Risk and time inappropriate admissions were found to be 39.8% in Imbaba Hospital, 39.9% in

Mounira Hospital and 7.6% in Abu Qir Hospital. The last-named hospital is part of the health sector reform project and a quality management system has been adopted.

Considering inappropriate admissions in different departments, a higher percentage was observed in the department of surgery in Imbaba Hospital (63.6%) and in Mounira Hospital (76.3%) as compared to Abu Qir (4.1%). A similar difference was noted in the proportion of inappropriate admissions in the department of obstetrics and gynaecology where it was respectively 55.4%, 18.5% and 6.9% in the three hospitals. The reason for inappropriate admission in surgical departments was due to inappropriate time of admission while in the medical departments it was either due to seeking free consultation and/or investigations.

The investigators conclude that until such time as the health insurance system in the country is extended and improved, the problem of admission for free investigations could be resolved through modifying the rules and regulations governing admission in general public hospitals.

49. Title: Assessment of women's satisfaction with the reproductive health services in Urmia city

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Catalogue #: 37/IRA/04

This objective of this study was to evaluate client satisfaction with reproductive health services provided by three health centres located in the area covered by the population laboratory in Urmia city, West Azarbaijan, Islamic Republic of Iran. The area has 6300 married women between the ages of 15–49 years, and a sample of 600 married women (200 women from each health centre) was randomly selected for interview. The questionnaire consisted of 30 questions covering issues such as conscious selection of contraceptive methods, technical skills of providers,

relationship with staff and comprehensiveness of services. The responses were evaluated on a five-point Likert scale ranging from completely satisfied (5) to completely dissatisfied (1).

Of the women in the sample 51% were between the ages of 25 and 35 years and 37% between 15 and 25 years. Only 6% of the sample was illiterate; the rest had schooling up to primary or high school. Nearly 48% of the women had no children, 36.2% had one and 12.7% had two. All the women were

using a contraceptive, the commonest being the pill (49.7%) followed by IUD (20.7%) and condom (13.2%). Regarding women's satisfaction with informed choice of contraceptive, the vast majority (83%) were completely satisfied or satisfied. Similarly, most (80%) of the women were completely satisfied or satisfied with the skills of the providers. Very few of the women were dissatisfied with the comprehensiveness of the services available and with the information given to them by the providers (respectively 0.3% and 2.6%). The proportion of

women who were satisfied with services provided was nearly similar in the three centres.

The investigators recommend that provision of additional information through educational materials and activities aimed at increasing awareness of health workers to have better relations with their clients would further increase the degree of satisfaction with services provided.

50. Title: Users' knowledge and perspective of family planning services in Pakistan

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Country: Pakistan

Catalogue #: 80/PAK/05

The objectives of the study were to assess the contraceptive needs of women of childbearing age presenting to family planning outlets in an urban area of Karachi, Pakistan, and to determine their views about contraception and family planning services available to them. A cross-sectional study was conducted between January 2003 and December 2004 using a questionnaire to interview 410 clients in two reproductive health centres, one of which was run by the government and the other by a nongovernmental organization. In addition, 10 focus group discussions were held in which participated 60 women from different areas of the city attending the outpatient department of a busy department of obstetrics and gynaecology.

The demographic features of 410 women interviewed showed that all were city dwellers, with 60% of families earning less than US\$ 85 per month. 41% of the respondents were illiterate and 45% had had some years of schooling. The majority (65%) were between 25 and 40 years of age with three or more children. 90% were aware that it was possible to prevent or time the occurrence of pregnancy and almost the same proportion (88.5%) desired to have a birth interval of two or more years between pregnancies. 82% of the women interviewed had never used any modern method of contraception but 97% of those who had arrived at the reproductive health centres

desired to do so. Nearly two-thirds of those intending to use or continue using contraception were doing so with their husband's approval. Most of the clients knew about more than three methods of contraception, and of those who wished to or had ever used contraception, female sterilization, pills and injectable contraceptives were the preferred methods. The service provider's attitude was judged as good by 68% and 84% felt that time spent by the service provider was sufficient.

The salient findings from the focus group discussion were: three or four children were the preferred family size; most participants had more children than they claimed to have desired (due to a variety of reasons including pressure of in-laws, desire for male children, etc.); there was general agreement that there should be a reasonable space between births of children, however there was no agreement on the period of spacing; pills and injectables were the preferred methods and IUD was not viewed as a desirable method by most; family planning services could be improved by ensuring privacy during consultations and examinations and by a pleasant manner among service providers; lack of awareness and information about the type of contraceptive and about places where family planning services were offered and fear of side effects were thought to be some of the major barriers to use of family planning services.

Based on the findings, the investigators have made some pertinent recommendations that include: provision of broader-based services by family planning centres; sociocultural issues determining attitudes and service-seeking behaviour should be addressed; service provision centres should be easily accessible

and coupled with outreach services in the community; and service providers should be trained in appropriate counselling skills and should ensure privacy in order to overcome concerns and barriers in the client mind and subsequent behaviour.

51. Title: Effect of smoking on the health of family members in a district south of Karachi

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Country: Pakistan
Catalogue #: 46/PAK/04

This study aimed at ascertaining the effects of passive smoking on respiratory illnesses in family members of smokers in a district south of Karachi, Pakistan, in 2003. After determining the sample size for this study (104 families each of smokers and non-smokers), a multi-stage sampling technique was used to recruit these families from the three townships (Lyari town, Jamshed town and Saddar town).

A family was considered as a smoker family if either or both of husband and wife had been smokers for at least three years or more. A nonsmoker family was one where neither the husband nor the wife had ever smoked. Apart from collecting basic personal and sociodemographic data from each family, information was collected about history of allergic rhinitis, asthma and bronchitis in family members exposed to passive smoking, and a mean of three peak flow readings was recorded.

Complete data were available on 98 smoker families and a similar number of nonsmoker families. Most of the families (59.2% of smokers and 48% of nonsmokers) belonged to the middle-income group and 55.1% of smoker and 67.3% of nonsmoker families shared one room for all purposes and the living quarters of 38.8% of smokers and 41.9% of non smokers

had only one window for ventilation. Of the smokers, 92.8% were males and 7.2% were females, 37.8% had been smoking for more than 20 years and 69.4% were smoking more than 20 cigarettes per day, 59.2% were smoking up to 10 cigarettes per day at home and a similar number at work.

In the three towns taken as a whole, history of upper and lower respiratory illness was present in 23% of smoker and in 17.9% of non-smoker families. This history was present in the 19.7%, 23.1% and 25% in smoker families living respectively in Saddar, Lyari and Jamshed towns. The figures for the nonsmoker families living in these towns were respectively 18.3%, 18.75% and 20.1%. The history of these illnesses was present in the 21.6% of spouses and 35.7% of children under 5 years of age in smoker families while the corresponding figures for the nonsmokers were 15.5% and 32.9%. No difference was observed in the peak flow readings of the two groups. The risk of developing respiratory illnesses was found to be 28 times more in smoker families compared to nonsmoker families, and this risk was highest (38 times more) in the spouses and 8 times more in children under the age of 5 years. Sleeping in the same room as the smoker and long duration of exposure to passive smoking were considered the most significant risk factors for harmful effects of passive smoking.

52. Title: Retrospective analysis of a public health iodine intervention programme in rural Islamic Republic of Iran

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Country: Islamic Republic of Iran
Catalogue #: 74/IRA/05

Villages in the northern rural areas of Tehran, Islamic Republic of Iran, were known as areas of severe iodine deficiency, and in 1989 the whole population of these villages received iodized oil injection (containing 480 mg iodine) and from 1992, as part of a national strategy of control of iodine deficiency diseases, received iodized salt. This study was undertaken to evaluate the impact of the iodine supplementation intervention programme on the prevalence and severity of goitre, through assessing the indicators of iodine deficiency disorder (IDD), in schoolchildren 6–15 years of age residing in these villages from 1989 to 1999. It was planned to compare these indicators of IDD status with those studied by the investigators in schoolchildren in 1989.

A total of 571 children were studied. Goitre was graded according to the WHO classification. Serum thyroid hormones and thyroid-stimulating hormone (TSH) concentration were determined using commercial kits, and urinary iodine was measured using a digestion method. The total goitre rate decreased by 42% in 1999 compared to that in 1989. A significant ($P < 0.001$) decrease in grade 2 goitres concomitant with an increase in grade 1 goitres was seen. A comparison of IDD-related variables studied in 1989 and 10 years after iodine supplementation showed: median urinary iodine excretion 2.0 versus 19.0 $\mu\text{g}/\text{dl}$; T4: 6.5 \pm 2.0 $\mu\text{g}/\text{dl}$ versus 8.4 \pm 1.6 $\mu\text{g}/\text{dl}$; T3: 177 \pm 38.0 ng/dl versus 145 \pm 29.0 ng/dl; TSH: 10.8 \pm 15.1 $\mu\text{U}/\text{ml}$ versus 1.8 \pm 0.8 $\mu\text{U}/\text{ml}$; IQ: 93.8

\pm 5.4 versus 100.3 \pm 4.1. The difference between the two values for all the variables was statistically significant ($p < 0.001$) except for the values for the IQ. Based on linear regression analysis no correlation was found between levels of thyroid hormones and TSH on the one hand and between goitre and urinary iodine on the other. Serum T4, T3 and TSH concentrations were within normal range in all schoolchildren studied in 1999.

This study showed that iodine supplementation in area of severe iodine deficiency restored normal thyroid function and caused a rise in urinary iodine, a fall in the goitre rate and an increase in IQ. These changes occurred in all children irrespective of the time of iodine supplementation except for IQ, which showed the greatest improvement in the group in which iodine supplementation to the mother had been started between one and three years before conception.

This study also demonstrated that euthyroidism induced by administration of iodized oil in hypothyroid iodine-deficient schoolchildren is sustained following iodized salt consumption. This was a study to evaluate the impact of an intervention programme initiated in a population 10 years ago, and its value has been enhanced by the availability of baseline data. The final report is comprehensive and includes detailed analysis of data separately from all the villages included in the study.

53. Title: Pesticides and aflatoxin B1 risk assessment for control and prevention of hepatocellular carcinoma in Egypt

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Country: Egypt
Catalogue #: 31/EGY/04

There is concern that the incidence of hepatocellular carcinoma (HCC) may be increasing in Egypt. In addition to hepatitis viruses B and C, aflatoxins are also considered as a risk factor for HCC. A well validated biomarker for exposure to aflatoxin is aflatoxin-albumin adducts, which reflects ingested aflatoxin exposure over the previous two to three months. In view of the limited information on the risks associated with aflatoxin in combination with infection with viral hepatitis B and C, the investigators have carried out a case control study to determine the level of aflatoxin albumin adducts and of free aflatoxin B1 in blood.

Cases suffering from HCC were recruited from the National Cancer Institute, Cairo, and age-matched controls were recruited from the Department of Orthopaedics, Kasr El Aini Faculty of Medicine, Cairo. Both hospitals are major referral centres from the Cairo-Giza metropolitan area and cater to a socioeconomically somewhat homogenous population. Frozen serum samples (23 cases and 20 controls) for the measurement of aflatoxin albumin adducts (AF albumin adduct) were sent to a laboratory in Leeds, UK, and specimens for measurement of free aflatoxin B 1 (94 cases and 96 controls) were processed in Cairo. The level of aflatoxin-albumin adducts in 15 out of 22

cases of HCC was below the level of analytical detection and was thus described as negative. Five cases had levels that were just above the detection limit (3.0 to 6.3 pg/mg albumin) and two had modestly elevated levels (27.4 and 32.8 pg/mg albumin). In case of controls, AF albumin adducts was detectable/positive in 79% and mean levels were 10.3 pg/mg albumin.

The mean level of free aflatoxin B1 in the HCC samples was 0.302ng/ml (median: 0.235 ng/ml, IQR: 0.07/0.417 ng/ml) and in the controls the mean level was 0.155 ng/ml (median: 0.081 ng/ml, IQR: 0.051/0.232ng/ml). The difference between the values was statistically significant ($P < 0.001$).

The investigators believe that the difference in the levels of AF albumin adducts between the cases and controls may be a chance observation due to the small number of cases or may reflect modification in the diet of HCC cases or this may not a good biomarker to measure the exposure of HCC cases to dietary aflatoxin B1 (AFB1) as due to severe liver injury in HCC cases the activity of enzymes responsible for the metabolism of AFB1 is inhibited and the production of AF-albumin adduct is prevented.

54. Title: Prevalence of tobacco use in Alexandria: a community-based approach

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Country: Egypt
Catalogue #: 67/EGY/01

A community-based survey was carried out in the city of Alexandria, Egypt, to determine the prevalence of current smokers, ex-smokers and of nonsmokers (never smoked) and to

ascertain the knowledge and perception of study participants regarding the harmful effects of smoking. A cross-sectional survey was conducted between May and August 2000 on a

sample of the population above the age of 15 years. The sample size was calculated as 2048 subjects and cluster sampling technique was used to enrol the participants for the study from 30 clusters. In order to collect information an anonymous interview questionnaire was designed which covered items such as general and family characteristics of the participants, information on tobacco use, knowledge of the harmful effects of tobacco use and the participants' perception regarding the danger associated with tobacco use.

A total of 1017 households in 30 clusters were surveyed, from which 2120 subjects were interviewed. Some of the salient features of the study population were: a little over half (54.8%) of the participants were males; the mean age of the participants was 35.01 ± 13.81 years; about one-tenth (10.8%) were school students and 51.6% were illiterate or barely able to read and write; 84.8% of men and 13.6% of women were employed at the time of the survey; nearly half of the employed participants were manual labourers while professional or semi-professional constituted 19.3%. The majority (86.6%) of the participants led a sedentary life. About one-third of the study population were tobacco users (ever users: 30.7%. 95% CI = 28.74–32.66). Among men, the prevalence of ever users was 54.5% whereas it was only 1.9% among women. The prevalence of current daily smokers was 25.5%, that of occasional smokers was 1.7%, and 3.5% were ex-smokers. The current smokers consumed an average 22.8 ± 12.5 cigarettes per day and they had started smoking at a mean age of 18.21 ± 4.04 years. The mean age of initiation of tobacco use in women (22.64 ± 8.38 years) was insignificantly higher than that of men (18.10 ± 3.83 years).

Compared to male university graduates, illiterates or barely literate persons were 2.62 times more likely to be tobacco users.

A different trend was found for females, where women with university degrees were 15.33 times more likely to be smokers compared to illiterate or barely literate women. Relative to professionals and semi-professionals, drivers, traders and fishermen were 1.93 times more likely to be current smokers; and this risk decreased to 1.04 among skilled and semiskilled workers. Chronic health problems were encountered in 9.6% of current smokers, who were 1.7 times more likely to suffer from health problems compared to never smokers.

Regarding the knowledge and perception of the study participants about harmful effects of tobacco use, a higher percentage of never smokers knew that tobacco use was associated with a wide range of malignancies and with premature death. On the knowledge scale the mean score of never smokers (25.77 ± 8.38) was higher than the current smokers (24.96 ± 6.97). Nearly three-quarters of current smokers (75.4%) and never smokers (73.7%) knew that the danger associated with tobacco use was related both to the duration and the amount consumed.

Of the surveyed population, 74 subjects reported cessation of tobacco use. Ex-smokers and current smokers were comparable in all respects except for their ages and existing health problems as well as the age of initiation and the duration of tobacco use. Ex-smokers were younger (35.16 ± 13.10 years) compared to current smokers (39.27 ± 12.29 years). 17.6% of the ex-smokers reported having a chronic health problem compared to 9.9% of current smokers. Ex-smokers had initiated the habit at an older age as compared to current smokers (20.50 ± 6.94 versus 18.21 ± 4.04 years). Among current smokers, 25.1% reported attempting tobacco cessation, number of attempts being 2.67 ± 1.81 .

55. Title: Antenatal and neonatal diagnosis and management of neonatal alloimmune thrombocytopenia (NAITP)

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Catalogue #: 64/EGY/04

Neonatal alloimmune thrombocytopenia (NAITP) is one of the causes of neonatal thrombocytopenia and is estimated to occur with a frequency of 1 in 1000–2000 live births. Platelet destruction is caused by a maternal antibody directed against fetal platelet antigen inherited from the father and lacking in the platelets of the mother. Intracranial haemorrhage is the most devastating complication, occurring in about 20% of all proven cases. This study was undertaken to survey the prevalence of this condition in a random population of pregnant females attending Al-Galaa maternity hospital in Cairo, in association with a co-investigator in Tromsø, Norway.

HPA-1a phenotyping of 6774 pregnant females was carried out, and 255 (3.76%) were found to be HPA-1a negative. 166 husbands of HPA-1a negative pregnant females were HPA-1a phenotyped,

and 10 were HPA-1a negative and were excluded from the study. 245 HPA-1a negative pregnant females were analysed for anti HPA-1a antibody detection and quantification. Of them 23 (9.38%) had detectable alloantibodies. Of these 23 pregnant women, 18 were followed until full term delivery, one had an abortion and three were lost to follow-up. Of the 16 followed deliveries, six had thrombocytopenia of mild to moderate degree, and only one baby had severe thrombocytopenia, which required HPA-1a negative platelet transfusion. No severe complications due to NAITP, especially intracranial haemorrhage, were noted. The occurrence of NAITP in the studied sample was 0.088%.

This study allowed for the establishment of platelet immunological techniques in the investigator's department with assistance from the Norwegian co-investigator.

56. Title: Study of the relationship between teachers' knowledge of their own risk factors for cancer of the cervix and the breast and the degree of carrying out diagnostic tests in Shiraz, Islamic Republic of Iran

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A clear association has not been identified between the perception of cancer and carrying out a screening test; this points to a need to explore women's health beliefs regarding mammography and Pap smear examination as a function of their risk perception of respectively, cancer of the breast and cervix. A questionnaire based on the self-assessment form used by the American Cancer Society for assessing the risk of

breast and cervical cancer was distributed to 4830 teachers who were involved in teaching in high and guidance schools in the city of Shiraz, Fars province, in Islamic Republic of Iran. 3121 respondents completed and returned the questionnaire, giving a response rate of 65%. The non-respondents comprised more women in the younger age group. The section on cancer of the cervix was completed by only 2817 women who were married.

The distribution of risk for developing breast cancer showed that of the 3121 participants 2236 (71.7%) were in a low-risk group, 882 (28.3%) at moderate risk and only 3 in the high-risk group. In 2367 women who were 35 years or older only 871 (36.8%) reported having had a baseline mammogram and follow-up. In the remaining 1496 women, 958 (64%) were in the low-risk group and of these 36 (3.8%) were referred for mammography. Of the 538 (35.9%) women at moderate risk, 232 (43.1%) were referred for mammography. This significant finding confirmed the relationship between individual awareness about the degree of susceptibility to breast cancer and motivating women to go to their physicians for screening. In the entire sample of 3121 women, only 3 women reported

performing self-breast examination regularly. It was also found that 85.5% of women with positive family history of breast cancer referred themselves to a physician for screening compared to 12.8% of women with negative family history.

Regarding risk for developing cancer of the cervix, of the 2817 women who completed the questionnaire, 1149 (40.8%), 1253 (44.5%) and 415 (14.7%) were found to be at, respectively, low, moderate and high risk. As was found in the case of risk assessment for breast cancer, here too, following the risk assessment for cancer cervix, 31.9%, 42.2% and 88.4% of those respectively at low, moderate and high risk referred themselves for a screening test.

57. Title: Health problems of females using biomass fuel in the kitchen in rural Peshawar

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Catalogue #: 45/PAK/04

Biomass fuel is mainly composed of wood, animal dung and crop residue. A very large proportion of the rural communities in developing countries use biomass as its single source of energy. The biomass smoke contain many substances, such as carbon monoxide, nitrous oxide, polycyclic organic compounds and particulate matter that are hazardous to human, health and can cause a variety of acute and chronic respiratory diseases. This study was undertaken to document the impact of biomass smoke on the respiratory health of females responsible for cooking and their children under the age of five years. Three test villages (where biomass fuel was the predominant source of energy for cooking) and three control villages (where natural gas was available and used for cooking) located in a rural area of Peshawar, Pakistan, were selected for study. The population in the test and control villages was roughly similar in size and socioeconomic status. 20% of the households in both the test and control villages were randomly selected for detailed investigation. In each household the female responsible for

cooking was interviewed, and history of chest diseases in the respondent and her children under the age of five years was recorded. Information was also collected on the type of fuel and stove used for cooking, period of cooking and time spent in kitchen. In addition to measuring height and weight, blood pressure and peak flow was recorded.

Results are based on the analysis of data obtained from 1426 test and 1131 control female subjects. 93% of households and in the test and 47% in the control villages were using solid biomass fuel. History of chest diseases was present in 69.8% of respondents from test villages and in 30.2% of those from the control villages. A history of chronic bronchitis with sputum for more than three years was present in 144 (10.1%) females from test and 35 (3.1%) from control villages. A history of wheezing and whistling was present in 140 females (9.8%) from the test and in 100 (6.4%) from the control village. One-third of these females from the test village and nearly one-quarter of those

from the control villages had five or more episodes of wheezing and whistling per year. In children under five years of age, a history of whistling and wheezing was present in 43.1% living in the test villages and in 39.7% living in the control villages. Apart from this, there was no difference between the prevalence of chest diseases in children in the two groups. A high degree of association was found between the prevalence of chest disease and the use of biomass, cooking in the living room, period of

exposure to biomass smoke and family size. No association was found between chest diseases and ventilation of kitchen and the type of stove used for cooking. Mean values for peak expiratory flow rate of respondents from the test villages were lower than that of the age and height-matched controls, and the respondents with chest diseases had lower values as compared to those without.

58. Title: Rational use of drugs

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Catalogue #: 76/AFG/05

This study was carried out between September and November 2004 in order to get an overview of the availability and adequacy of drugs in the public sector and the appropriateness of drugs being prescribed and dispensed both in the public and private sector. 300 prescriptions were collected from each of 10 health centres from four districts in Kabul, 10 urban polyclinics in Kabul city and from 10 private clinics. In addition 100 prescriptions written for diarrhoea in children under the age of five years at public health facilities were also collected for analysis. Besides prescriptions, questionnaires were used to investigate the availability of 11 key drugs and their dispensing at the sampled public sector outlets.

In the sampled public sector health facilities, nearly 81% of key drugs were available and 88% of the prescribed drugs were dispensed. On an average two drugs were prescribed per prescription in the public sector versus four per prescription in the private sector.

The percentage of drugs prescribed in their generic form was 95% in the public sector versus 36% in prescriptions written in private clinics. Similarly, essential drugs were prescribed more often in public clinics compared to private clinics (82% versus

39.6%). Insufficient quantities of antibiotics and of ferrous sulfate were prescribed in 7.2% and 5.3% of prescriptions respectively in public sector clinics. The practice of dispensing differed greatly between various health facilities. Injections were included in 29% of prescriptions from private physicians versus 4.3% in those written at public facilities. Similarly, antibiotics and multi-vitamins were prescribed more in the private sector compared to public health facilities (antibiotics: 58% versus 52%; multi-vitamins: 29% versus 2.6%). The majority of children suffering from diarrhoea had received oral rehydration salts, and they were prescribed more often at the polyclinics compared to health centres. While no antidiarrhoeal drug was prescribed, in more than two-thirds of cases antibiotics or amoebicides were prescribed.

This was a preliminary study and not well designed. Also, the report is rather weak. However, in view of the prevailing conditions in Afghanistan, this is a laudable effort and certainly indicates the immediate need for an intensive educational campaign directed at improving the rational use of essential drugs in both the public and private sectors.

59. Title: Implementation and evaluation of a smoking intervention control programme for secondary school students in Upper Egypt

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The objectives of this study were to estimate the current prevalence of smoking among secondary-school students (14–17 years) in Assiut governorate during 2003–2004, to identify the determinants of smoking and to design, implement and assess the effectiveness of an intervention programme against smoking. Based on an expected prevalence rate of smoking around 29%, a sample size of 2000 was estimated and was drawn from 16 secondary schools. A self-administered questionnaire was designed, pre-tested and then applied anonymously. The sampled students in half of the schools were subjected to a health education programme lasting for 5 hours consisting of lectures, video film shows and group discussion.

The prevalence of smoking was 10.3%. There was a difference in the prevalence of smoking according to the type of education being imparted in the school: in agricultural education it was the highest (12.8%) and in mechanical education it was the lowest (3.8%). The mean age at start of smoking was 13.6 years, and the mean number of cigarettes smoked per day was 12.3. Friends were the initiative for smoking in 53% of smokers. Prevalence of smoking was significantly higher among

students whose father or brother smoked (respectively 19.2% and 23.7%) as compared to those with nonsmoking father or brother (14.7% for each group). No significant relationship was found between parental education and occupation and the prevalence of smoking. Discussion with teachers on smoking and health was reported by 61% of students but teacher behaviour encouraged smoking as 53.4% of teachers smoked in the classroom, and 32% of students reported buying cigarettes for the teachers. The prevalence of smoking was higher among urban students (19.9%) compared to rural students (15.7%) and in those who lived away from their families (17.5%). The prevalence of smoking was adversely related to school achievement and positively related to the amount of pocket money received per day. Knowledge about sedatives, hypnotics and stimulants was present in, respectively, 32.9%, 34% and 40% of students. 7.8% of students in the study sample had used these substances. After the implementation of the school-based health education programme the prevalence of smoking in the intervention schools dropped from 10.8 to 8.1%.

60. Title: Quality assurance of health care at Yemeni hospitals: conceptual and empirical study

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According to the principal investigator, there is a political commitment by the Ministry of Public Health and Population in Yemen to introduce quality assurance in health services at various levels. However, this has not yet been put into practice.

Therefore, this study was undertaken with a broad objective of developing a framework for strategies for introducing quality assurance by identifying factors that may hinder or help to introduce quality assurance at facility level. The study was

conducted in June 2004 in the four main teaching hospitals in the capital city Sana'a. Exit interviews were held with 120 outpatients and a similar number of inpatients at the time of their discharge from the hospital. Also, 159 professional, administrative and technical staff of the same hospitals were interviewed.

In the sample of the outpatients there were more females (56.7%) and the average age of the patients was 23.3 ± 14.5 years. The majority (61%) were illiterate or had primary education. The hospital was the usual source of care for 55.5%. Waiting time was less than 30 minutes for 46% and more than one hour for 29%. Time spent with doctor was < 5 minutes for 37.5% and between 5 and 10 minutes for one-third of them. Outpatient services were judged by a set of indicators which assessed the services provided and was scored from excellent to bad. The overall quality of services was scored as 53.9% (no explanation was given in the report how this score was derived!). The courtesy of doctors scored 68.9% while the lowest score was given to availability of drugs (15%).

Of the 121 discharged inpatients interviewed, 45.5% were male; 23% of the sample was between 14–25; and 26.4% 25 years and above. 44% expected better service and 26% expected worst service; the remaining 30% expected the same standard of service. The overall average score of patient rating of different

items of emergency service was 56.8% with 42.2% assigned to total time spent in emergency room. The average quality score of different items of nursing service was 62.3% with the highest score (79.9%) given to carrying out doctors' orders and the lowest score (35.9%) for care and gentleness in handling patients. The average score for doctor's services was 67.2% with the lowest (50.6%) score given to availability of doctors when needed and the highest for courtesy of doctors.

Of the 159 professionals interviewed, 47.1% were specialists, 17.8% general practitioners, 6.4% nurses and 11.5% technicians. Most (64%) of the respondents had worked in the hospitals for 6 years or more. Seven areas were assessed for quality assurance. These were availability of quality assurance documents, existence of standards and protocols for process control, human resources management, quality assurance structure, involvement of patients, and process improvement based on quality assurance procedures. Each of these components had several indicators. About 43% of those interviewed had had some training in quality issues. The responses were mostly negative for the indicators covering the availability of quality assurance documents but were largely positive for the indicators covering standards and protocols for process control. The majority of respondents did not consider involvement of patients in quality assurance issues applicable.

61. Title: A study on health behaviour in school-aged children of Tehran

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A cross-sectional study was conducted on students between the ages of 13 and 15 years who were studying in second grade of guidance (middle) school and first grade of secondary school in Tehran, Islamic Republic of Iran. A sample size of 600 boys and girls was estimated and was drawn randomly from six middle and six secondary schools from three geographical zones of the city which were selected to include different

socioeconomic strata of the population. A questionnaire was developed in order to determine: the status of general health and well-being; family and peer relations; school environment; socioeconomic inequalities in adolescent health; exercise and leisure time activities; eating habits, dental care; diet; and tobacco use.

Some of the salient findings of the survey included the following. The vast majority (84.4%) of the students believed that their health was good or excellent, and 4.5% reported their health status as fair or bad. Breakfast, lunch and dinner were eaten regularly by, respectively, 84.6%, 76.5% and 82.8% of the students. Most of the students (96.6%) were not on diets nor wanted to lose weight, with 62.6% believing they were about the right size. 39.2% of students consumed fruits 2–4 times per week. Only 3.2% consumed vegetables daily. 64.9%

of students brushed their teeth at least once a day. Most of the students watched TV for less than 3 hours during weekdays and 3–5 hours during weekends. 95% of the students had never smoked, and the rest admitted to smoking once or less than once a week. 24.9% of the students had experienced an injury during the preceding year that required medical care. 42.8% could talk comfortably with their mother and 39.1% with their fathers.

62. Title: The role of medical students in promoting child health through the improvement of family and community practices, a comparison between BDN areas, Um-Alghora locality, Gezira, Sudan

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Catalogue #: 61/SUD/04

The students at the Faculty of Medicine at the University of Gezira (FMUG), Wad Medani, Sudan, are offered a module in interdisciplinary field training and rural development in the summer semesters of their first, second and third years of training, during which they are assigned to a village where they collect basic sociodemographic and health-related data and learn to analyse them, draw conclusions and develop an action plan on a priority selected with the community. In several of the villages where this field training is conducted, a basic development needs project (BDN) has also been implemented with close involvement of FMUG.

This study was undertaken to assess the effect of BDN on the outcomes of students' interventions and on community participation in student's activities, and to assess the improvements in family and community practices relating to integrated management of childhood illness resulting from students' interventions.

The study was conducted in four groups of villages: one village where students were attached and BDN was implemented; one village where students were attached but with no BDN activity; one village with BDN activities but with no students attached; and one village with no students and no BDN activity.

A cross-sectional study design was used with a questionnaire that is routinely used by students during their field work and is administered pre- and post-intervention. Also, a qualitative design was used to collect data from each of the student groups who conducted interventions in the first two villages.

The indicators focused on coverage with immunization, growth monitoring, antenatal care, knowledge about family planning and use of contraceptives, use of bednets, family practices related to diarrhoea, cough, the perception of students regarding availability of a village information centre and identification of different data sources.

There was no significant difference regarding age distribution, educational level and occupation among the four groups of study villages. Community participation, especially of women, at different steps of the projects was recorded only from the

first village. On the whole, positive changes in most of the indicators were present after intervention whether by students and BDN alone or in combination with each other.

63. Title: Prevalence of elevated methaemoglobin (issued from high levels of nitrates in ingested well water) among young children

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Catalogue #: 68/MOR/04

The presence of nitrates in subterranean water is a problem in Morocco. Septic tanks and indiscriminate use of chemical fertilizers are responsible for this problem to a great extent. The high intake of nitrates leads to the formation of methaemoglobin in the blood which is especially dangerous for children under the age of 4 months as they are poorly able to reduce methaemoglobin to normal haemoglobin. This study was undertaken from September to November 2004 with the objective of determining the prevalence of subclinically elevated methaemoglobin among young children under the age of 7 years in a study area with drinking well water contaminated with nitrate and another that has access to municipal water whose nitrate concentration was 1.99 mg/l NO₃, well below the Moroccan standard of 50 mg/l NO₃.

The first study area was Hssaine, Sale, where the population does not have access to a municipal water supply. The second area was Sala El Jadida. A questionnaire was used to elicit information on demographic and socioeconomic details of the study participants, food intake and breastfeeding of infants. Children under 7 years were examined clinically to detect any sign and symptoms of methaemoglobin.

A total of 302 blood samples were collected from the first area and 136 from the second. Methaemoglobinaemia was present

in 36.2% of the exposed area and in 27.4% in the non-exposed area. It was a mild methaemoglobinaemia with levels varying between 0.122 to 0.236 g/100 ml blood (normal values vary from 0.03 to 0.24 g/100 ml of blood).

The physical examination of the study participants showed that there was no heart disease or anaemia. The rate of respiratory infections was slightly higher in the children in the Hssaine area as compared to those in Sala El Jadida (8.6% versus 7.4%). Cyanosis was, oddly enough, more common in children from Sala El Jadida.

Regarding intake of food items containing nitrates, no statistical association was found between intake of such food and methaemoglobinaemia in Sala El Jadida, whereas in the Hssaine area an association was noted between the intake of cauliflower and fish with methaemoglobinaemia.

The investigators conclude that more studies are needed to determine the hereditary and dietary causes of methaemoglobinaemia and make recommendations about establishing facilities for analysis of methaemoglobin in areas with high nitrate levels in drinking-water and increasing awareness about proper use of chemical fertilizers.

64. Title: National survey on bioethics capacity

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A survey was carried out to determine whether bioethics is formally taught in different medical institutions in Pakistan and if ethics committees exist in these institutions and, if so, what is their mandate and composition. A list of teaching medical institutions was compiled and their heads were contacted by telephone about their willingness to participate in a structured interview on the telephone or to designate somebody else, or if they wished the questionnaire to be sent to them by facsimile, or email or courier.

Of the 68 institutions targeted to be included in the study, 63 (93%) were contacted and of these the survey could be completed in only 37 (54%). In the remaining institutions the survey could not be completed due to a variety of reasons. Of the institutions 26 offered undergraduate medical education either exclusively or with postgraduate programmes. Bioethics was included as a formal part of the undergraduate curriculum in 10 of these institutions and multiple modes were employed for teaching the subject, e.g. lectures (8), small group discussion (7), ward rounds (6), tutorials (5), workshops and other modes (3). There were 32 institutions with postgraduate programmes, and five (15%) of these required their residents/

trainees to undergo formal bioethics training through courses and lectures. Of the institutions not teaching bioethics 80% formally recognized the need to include it as a formal part of postgraduate training. Of the institutions surveyed 24 (65%) had ethical review committees for looking at research projects involving human subjects being undertaken in their institutions. The committees in these institutions had been in existence for periods ranging from 1 month to 25 years and their membership ranged from 7 to 15 members. 10 of the 24 committees included members from the community. 10 institutions also had hospital ethics committees to look at the ethics of clinical practice at their institutions. Only four institutions in the country maintained a full department or centre of bioethics.

This was a first attempt in the country to map the teaching of bioethics and the establishment of ethical review committees in medical institutions in the country. More work is needed to assess the capacities of various medical institutions and the functioning of the ethical review committees with an ultimate view to strengthen the existing bioethics infrastructure.

65. Title: Process evaluation of the national health management information system in four selected districts of Kohat, Shangla, Swat and Mardan in North-West Frontier Province

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Catalogue #: 60/PAK/04

In the early 1990s, the Federal Ministry of Health, the Government of Pakistan and North-West Frontier Provincial

Health Department developed, with external assistance, a comprehensive national health management information

system (HMIS) for implementation at the first level care facilities. Due to lack of external financing, the implementation of the system was delayed; since the mid 1990s it has been slowly implemented in a phased manner. However, operational issues such as human resources, supplies and training have continued to obstruct the smooth implementation of the system. This study was carried out to review the implementation status of HIMS in four districts in North-West Frontier Province and to assess if users' requirements were being met despite resource constraints.

A combination of methodologies were used-focus group discussions with stakeholders at the provincial and district levels, use of the national HMIS database, and field surveys of selected health facilities and discussion with field supervisors. The four districts selected included two with good performance (Mardan and Swat), one with average performance (Kohat) and one with poor performance (Shangal). Health facilities for survey were selected in each district in consultation with local and provincial health authorities to include equal representation by type and use patterns and from all the tehsil in the districts.

During visits to 12 facilities, a similar number of medical officers, dispensers, lady health visitors and lady health workers were interviewed. In addition, interviews were held with four district and two provincial HMIS coordinators. Of the 12 facilities, only six had at least one person trained in HMIS data collection methods. Other districts did not have any staff trained in HMIS. As the Health Department has linked the payment of salaries of the facility staff to the submission of monthly HMIS returns, almost all facilities were sending reports regularly. They were being completed by the facility dispenser, frequently assisted by a lady health worker. In some facilities due to lack of training,

the reports were not completed fully. The majority of the facilities received no feedback from the district or provincial levels. Nine out of the 12 facilities had had no supervisory visits during the preceding month. A comparative analysis of the monthly data sent from the field with the district HMIS data showed discrepancies, indicating that there was some loss of data or change during data transfer from the facilities to the district level. The study also revealed that information on EPI-related activities being collected by field staff was not being integrated with the HMIS facility reports, which included data limited to vaccinations carried out at the facility level. Visits to first level care facilities indicated that they were grossly underused and their activities had little or no focus on preventive aspects. Shortage of drugs and other supplies was frequently encountered.

In the interviews with the district and provincial coordinators, there was general consensus that there was a continuing need for training new staff (both supervisory and facility staff) and refresher training for staff already trained. They also felt the need to revise the list of 18 health problems covered by the HMIS as this was established in the early 1990s and it no longer reflected the current needs of the health managers.

The investigators conclude that major gaps exist in the current operation of HMIS including the lack of supervision and feedback from higher levels to peripheral health facilities. The information being collected, though useful, is rarely used for planning and management of health facilities. Due to the induction of new staff there was a need for continuous training of field and supervisory staff in HMIS data collection. The investigators in their final report made a large number of general recommendations and specific ones for application at provincial, district and peripheral facility levels.

66. Title: Study on health sector reform initiatives in Hargeisa, Somalia

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Country: Somalia
Catalogue #: 47/SOM/04

Following a participatory problem analysis, the Ministry of Health of northwest Somalia decided in 1998 to introduce and adopt health sector reforms aimed at transforming the centralized health delivery system to a decentralized system, co-financed and co-managed by the community. The broad objective of this study was to identify the best practices learnt during the implementation of the reforms in order to further improve the quality of health services and promote client satisfaction.

A cross-sectional household survey was carried out on a national representative sample of 1200 households derived by using systematic cluster sampling technique. A structured household questionnaire was developed and administered finally to 1090 households. In addition, 40 focus group discussions (involving 146 men and 88 women) and interviews with 57 key informants were held.

The results indicate that, despite economic hardships, communities have responded positively to community financing of health care and a large majority expressed its willingness and ability to pay for basic health services. The exemption schemes to assist the poorest of the poor were either not in place or non-functioning.

The investigators recommend that a sector-wide approach should be employed to improve donor coordination and intersectoral collaboration. Pre-payment schemes should be introduced to enlarge the effective size of small risk pools and to cover catastrophic events. Technical support should be provided in order to strengthen the management capacity of local schemes and to establish linkages between the formal financing and provider networks. More work needs to be carried out on how to choose those health-related interventions that would have the maximum health benefits with the available resources and to render the current referral system functional and more effective. The study underlined the need for continuous supervision and monitoring of the community financing scheme.

67. Title: An epidemiological survey on prevalence of *Chlamydia trachomatis* infection in women attending obstetrics and gynaecology clinics of Tehran

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Chlamydia trachomatis is a common sexually transmitted infection which can be asymptomatic or cause serious sequelae. The study used PCR, a highly sensitive technique, to screen for chlamydia infection. A sample size of 1000 women

was estimated, and urine samples were collected from five obstetrics and gynaecology clinics located in one of the five main municipal divisions of Tehran, Islamic Republic of Iran. Samples were collected on a daily basis and transported

immediately to the investigator's laboratory, where DNA extraction was started the same day.

A total of 1052 samples were processed of which 124 (12.3%) were positive. Slightly over 50% of the women were between the ages of 20 and 30 years. One-third was illiterate, and 56.2% had high school education. There was no correlation between educational status and chlamydia infection. Of the women in the study 94.2% were married and 32.5% were pregnant at the time of collection of specimen. The difference in the prevalence of chlamydia infection in the married and unmarried women

(respectively 12.4% and 9.8%) was not significant. Similarly, there was no significant difference between the prevalence of infection between sexually active women versus those who were not (respectively 12.3% and 10.8%), in those that were pregnant (10.9%) and those that not pregnant (12.9%) and in those who were using contraceptives versus those who were not (51.2% v 48.8%). The prevalence of infection was also not correlated with the presence of symptoms such as vaginal discharge or pain. None of the women in the study reported a history of sexually transmitted disease in their husbands or themselves.

68. Title: An evaluation of students' projects from North-West Frontier Province

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Catalogue #: 59/PAK/04

This study was carried out to assess the quality of research reports (dissertations), including attention paid to ethical aspects, compiled by postgraduate medical students from North-West Frontier Province from 1998 to 2003, as part of the requirement for qualifying for the Fellowship of the College of Physicians and Surgeons Pakistan.

During 1998–2003, about 300 postgraduates qualified in the fields of general medicine, general surgery, paediatrics, ophthalmology, ear nose and throat, and obstetrics and gynaecology and had their dissertations accepted. A random number of postgraduates from each specialty were approached to provide a hard copy of their dissertation. Despite considerable efforts only 36 dissertations could be obtained for review. Each dissertation was independently assessed by two reviewers (the principal investigators of the study), who later compared and integrated their findings. Issues assessed included: clarity of objectives; design and type of study; variables selected for study and methodology used for collecting data; sampling frame and size; statistical analysis; ethical aspects including obtaining

informed consent; benefits; financial expenses incurred by the patients; and their follow-up.

It appeared that only a synopsis was required from the postgraduates for approval by the College of Physicians and Surgeons Pakistan before they embarked on data collection for their dissertation. There was no attempt to write a detailed research proposal in the conventional sense. Therefore, in the absence of systematic problem analysis, objectives were poorly formulated, the methodology adopted in most of the studies appeared inappropriate and variables were not clearly defined. Most of the studies required special diagnostic back-up like laboratory tests, X-ray examinations and medicines that were not provided by the hospitals, and the research subjects had to pay the costs. Statistical analysis was an important area of weakness. The description of sampling techniques and sample size calculation revealed a lack of knowledge of the postgraduates in this area. The patients were recruited for studies without their informed consent being obtained and were kept as inpatients until all the required procedures

for data collection were completed. Some of the dissertations dealt with studies to establish the efficacy of certain new regimens of treatment without proper review of protocols and safeguards. In the period covered by the review, there was no institutional mechanism for ethical review of research proposed by postgraduates for their dissertations, so no ethical clearance was obtained for any of the studies included in this

review. Even with a poor response from the study sample, this was an interesting study that underscored a weakness in the medical education system of Pakistan in providing students with necessary skills for carrying out even basic types of clinical research studies. The situation regarding national capacities in bioethics was the focus of another study (64) that has been summarized above.