

Evaluation of the community-oriented medical education in two medical schools in Sudan

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تقييم مدى وتأثير التثقيف الطبي المجتمعي التوجّه في كُليّتين للطب في السودان
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الخلاصة: أجري تقييم لمدى وتأثير التثقيف الطبي المجتمعي التوجّه في كل من كليّتي الطب في الخرطوم والجزيرة في السودان، وذلك باختبار كفاءة الخريجين بعد 3-7 سنوات من تخرجهم وتحريّ المؤشرات الصحية في المقاطعات التي تضم تلكما الكليتين. وقد وجد في كلية طب الجزيرة منهاج دراسي يهتم بالتوجّه المجتمعي أكثر من الجوانب الأخرى. وكان، درجة شراكة الكليتين مع وزارة الصحة ومع المجتمع ضعيفة، ولم يكن البرامج البحثية فيها توجّه مجتمعي. ويتمتع الخريجون بنفس المرتسم من الرضا الوظيفي، وبالخدمات المجتمعية والمعارف والمواقف والتعلم الذاتي، ولو أن كلية الطب في الجزيرة تركز أكثر على التثقيف الطبي للمجتمع، ومع ذلك فإن كلتا الكليتين مهياة لخدمة البيئة التي رسخها نظام إيلاء الرعاية الصحية والقيّم الثقافية.

ABSTRACT An evaluation was made of the extent and impact of community-oriented medical education in the Khartoum and Gezira medical schools in the Sudan. Competency of graduates 3-7 years after graduation and health indicators of the provinces of both medical schools were examined. Gezira had a more community-oriented curriculum although it was deficient in other aspects. The degree of partnership of both schools with the Ministry of Health and the community was weak and the schools' research programmes had no community orientation. Graduates had similar profiles of job satisfaction, community service, knowledge, attitudes and self-learning. Although Gezira had more emphasis on community medical education, graduates of both schools adapted themselves to the environment dictated by the health care delivery system and cultural values.

Evaluation de l'enseignement de la médecine à orientation communautaire dans deux écoles de médecine au Soudan

RESUME On a procédé à une évaluation de la place accordée à l'enseignement de la médecine à orientation communautaire et de son impact dans les écoles de médecine de Khartoum et de Gezira au Soudan. La compétence des diplômés 3 à 7 ans après l'obtention du diplôme et les indicateurs de santé des provinces dans lesquelles se trouvent les deux écoles de médecine ont fait l'objet d'un examen. L'école de Gezira avait un programme d'études davantage axé sur les besoins de la communauté alors qu'elle présentait des insuffisances dans d'autres aspects. Le partenariat des deux écoles avec le Ministère de la Santé et la communauté était faible et les programmes de recherche des écoles n'avaient pas d'orientation communautaire. Les diplômés avaient des profils similaires concernant la satisfaction professionnelle, le service communautaire, les connaissances, les attitudes et l'auto-apprentissage. Bien que l'école de Gezira ait privilégié l'enseignement médical communautaire, les diplômés des deux écoles s'adaptaient à l'environnement imposé par le système de prestation des soins de santé et les valeurs culturelles.

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Received: 30/09/01; accepted: 14/02/02

Introduction

In the last quarter century, the attention of medical educators has focused on improving the community aspects of medical education [1,2]. A community-oriented medical education network has been formed, the results of which have been praised [3,4]. There are still questions, however, about the superiority of this type of education and it remains unclear just how community-oriented most of these institutions really are. In addition, it is possible that graduates of community-oriented medical schools do not maintain the knowledge, skills and attitudes that they acquire in medical schools years after graduation.

In order to evaluate community-oriented medical education in the Eastern Mediterranean Region, the World Health Organization in 1997 consulted Azizi and Richards who had developed a tool for evaluating the degree of community orientation in medical school curricula (S. Richard, F. Azizi, unpublished assignment report, 1997). Thereafter, Azizi was asked to evaluate two medical schools and their graduates from two Sudanese states (F. Azizi, unpublished assignment report, 1997).

Khartoum Medical School was established in 1924 by the British government and is the oldest medical school in the Sudan. Since 1956, the deans of the medical school have been Sudanese. The curriculum is a traditional one, but efforts have been made to introduce community medicine and some aspects of community orientation. The curriculum consists of 1 year of pure science, 2 years of basic medical sciences and 3 years of clinical medicine.

Gezira Medical School was established in 1978 as an innovative school with emphasis on community orientation and problem-solving. The curriculum consists of 10

semesters with an introduction to medicine beginning in the first semester. There are frequent visits to the community, including family visits, and to rural areas, both as block visits as well as longitudinal visits in some semesters.

The present study was conducted in 1997. The study determined the extent of community orientation in the curriculum of the Khartoum and the Gezira medical schools and the extent of community orientation of current and former students.

Methods

The author visited the deans of both schools of medicine, and officials at local hospitals, outpatient departments and community settings. Students, graduates and health personnel from both medical schools were interviewed, as well as officials of the Ministry of Health (MOH) in both cities.

The study consisted of two parts. Part 1 was the questionnaire developed by Azizi and Richards (S. Richard, F. Azizi, unpublished assignment report, 1997). The deans of Khartoum and Gezira medical schools completed this questionnaire separately. The questionnaire asked about the following aspects of the faculty of medicine: its mission and goals, educational programmes, research programmes, partnerships with MOH, partnerships with the community, institutional policies and factors constraining achievement of goals. The questions on the educational programme were divided into three sections: undergraduate, postgraduate and continuing medical education. The undergraduate medical education section asked about: training in community settings, the time spent by students, the curriculum, programmes for development of faculty mem-

bers, and selection and evaluation of medical students.

Part 2 of the study contained four sets of questions. These were completed by all current medical students at both schools (54 at Khartoum; 59 at Gezira), all graduates of both medical schools working as registrars in Wad Madani Hospital, Gezira (21 from Khartoum; 17 from Gezira), and randomly selected health personnel and MOH officials. Eighteen health personnel (16 nurses, 1 occupational therapist and 1 technician) completed a questionnaire about each of the registrars they worked closely with (7 graduates of Khartoum and the 11 graduates of Gezira). The questionnaire sought their opinions about the knowledge, attitudes and practices of the graduates. Responses were scored: 0 'weak', 1 'fair', 2 'good' and 3 'excellent'.

Data were sought about primary health care (PHC) coverage and health status indicators for Khartoum and Gezira states.

Results

Part 1: community orientation of the medical schools

Mission and goals of the faculty

The deans in both Khartoum and Gezira stated that the medical schools are community oriented and that they have education, research and health service programmes for health promotion. Gezira emphasized its problem-solving methods.

Undergraduate education

The percentage of total curriculum time spent at community sites was 3% for Khartoum and 20% for Gezira. The main reasons given by both medical schools for having students in these sites were similar: orientation with and attainment of the ap-

propriate skills, attitudes and knowledge for identifying and dealing with community problems.

Khartoum offered 4 block visits in the community (7 to 25 days each) during the last 3 years of medical school and a longitudinal half day per week during the fourth year. Gezira offered 7 block visits in the community (14 to 30 days each) throughout 5 years and longitudinal visits 2 days a week from years 2 to 6.

Both medical schools offered courses with the aim of providing students with knowledge and attitudes about their community. Khartoum had 10 courses, 1 in the first year and 9 in the fifth year of medical school. In 4 of these courses, community based physicians and/or health team members took part as teachers. All courses were taught by university-based physicians. In Gezira, 5 intensive courses were offered from the first to the fifth year. In all courses, community-based physicians and health team members took part as teachers; in 2 of these courses, members of the community took part as teachers.

In the last 2 years, 5 community programmes were offered to the faculty members of the Khartoum medical school and between 12%–37% of them participated. In Gezira, only 1 community programme of the Diploma for Public Health was offered to 8 faculty members in the last 2 years.

In both medical schools, 20% of faculty members spend a half-day per week in community teaching or tutoring. In Khartoum, an additional 8% spend 2 half days and 5% spend 3 half days per week for this purpose.

Although both of the schools had formal systems for the evaluation of students' community experiences, neither of them had a formal system for assessing the ex-

tent to which educational goals were achieved.

The National Admission Board assigned students to each medical school on the basis of grades. Although there was an interview at the medical school site, it was seldom that a student assigned to a medical school was rejected. The MOH and the community had no role in the selection.

Postgraduate education

Khartoum and Gezira medical schools had 19 and 7 postgraduate medical education programmes respectively. The emphasis in Khartoum was on clinical specialties and in Gezira it was on community medicine and health education programmes.

Continuing education

Each year there are 12 continuing medical education courses in Khartoum with many participants. There are 3 lengthy courses in Gezira as well as 3 one-day seminars.

Research programme

Neither of the medical schools provided a list of written research priorities. Responses to the questionnaires from Khartoum and Gezira medical schools deans showed the research was in: basic science (14 and 32), clinical (30 and 18), epidemiological (32 and 9) and health system topics (2 and 1, respectively). Almost all the research titles from both medical schools were in applied research areas, including research projects in basic sciences.

Partnerships

Both medical schools felt that strong partnerships existed between the MOH and the faculty of medicine in educational planning and research programmes. Of the primary health care (PHC) units in Khartoum, 8 of 10 belonged to the MOH; all 18 PHC units

in Gezira belonged to the MOH. Of eight hospitals used by the Khartoum medical school, 5 were controlled by the MOH, 2 jointly by the MOH and the faculty of medicine and 1 by the university. Of the 7 hospitals used by Gezira, 5 were MOH hospitals and 2 were jointly controlled. In Khartoum, representation of the MOH especially in policy-making and planning was limited. In both medical schools, medical faculty participated in planning MOH health policies, health services and research activities.

A partnership between the faculty of medicine and the community existed indirectly in Khartoum, but new plans were underway to address this in the Saad Abualella PHC complex. In Gezira, relationships existed through links between popular committees in family medicine and health committees in villages. The community was not involved in educational planning in either medical school. However, there was community input in setting the priorities in health services delivered by the medical faculty in PHC units only in Gezira and in the university hospital of both medical schools.

Institutional policies

In both medical schools, promotion of faculty members was carried out by structured university committees with some influence from the medical faculty. Approximately 12 faculty members in Khartoum and 20 in Gezira had been promoted because of community-oriented activities. No budget was assigned to departments in either medical school.

Both schools cited shortages of staff and financial constraints as factors constraining achievement of the goals of the faculty of medicine. Other major constraining factors at Khartoum medical school

were: a higher intake of students, and the limited experience of students in practical skills, community training sites and health team management.

At Khartoum medical school the important factors for graduating as a competent doctor were listed as: academic excellence, leadership potential, and success in the postgraduate programme and in forging international relationships. Gezira medical school stated that the production of community oriented doctors was the key outcome of the faculty of medicine.

Graduates

In the years 1987–96, Khartoum graduated 1956 medical doctors and Gezira 578. However, they had no records of the numbers of graduates working in the different sectors of general practice, basic science or clinical specialties.

Part 2: community orientation of current and former students

Students

Community orientation was evaluated with 3 questionnaires seeking the opinions of current students, graduates and health personnel. Figure 1 illustrates the opinions of students of Khartoum and Gezira medical schools about their success in attaining knowledge and competency and in gathering experience in the various domains of medicine. In general, Gezira students found the curriculum more appropriate to their aims of medical education and felt more confident in their attainment of knowledge, competency and experience of various aspects of medical education.

Figure 2 summarizes the plans of the students and their preferences of service to the community. Although more students from Gezira wanted to serve in PHC units,

no student from either medical school wished to be a general practitioner.

Over 90% of all students wanted to become clinical specialists. Reasons for planning to attend specialty programmes were to 'learn more', 'earn more' and 'be respected more'.

Graduates

Twenty-one graduates from Khartoum (mean age 28.9 ± 3.9 years) and 17 graduates from Gezira (mean age 29.4 ± 4.2 years) were interviewed. They graduated a mean of 3.8 ± 3.4 and 4.3 ± 3.8 years prior to interview, respectively. Almost all were dissatisfied with their income and with the paramedical facilities available in their practice. There were no statistically significant differences in the opinions of these physicians about their success in serving their patients (Figure 3). In Khartoum and Gezira, 47% and 94% of graduates were involved in the activities of the MOH, respectively. The time spent on preventive activities, health system research, management of health teams, self-learning and diagnosis and treatment of patients did not differ between the two groups of graduates (Table 1).

Health personnel

The views of the health personnel about knowledge, attitudes and practices of the registrars they work with are shown in Table 2. The time since graduation of the physicians was 8.0 ± 2.6 years for Khartoum and 7.7 ± 2.1 years for Gezira.

Weakest marks were given to 'promotion of health', 'health education' and 'correct radiologic evaluation' for Khartoum graduates and to 'health education', 'competency in decision making', 'ability in appropriate referral' and 'attitude towards health team' for Gezira graduates. The

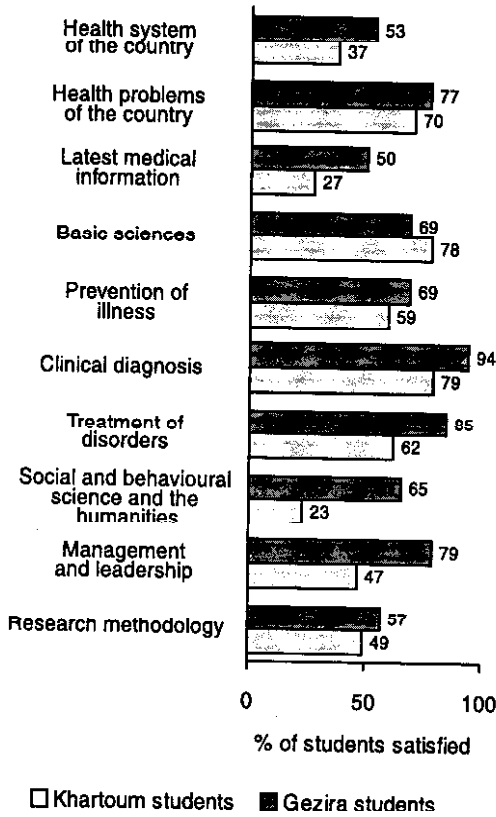
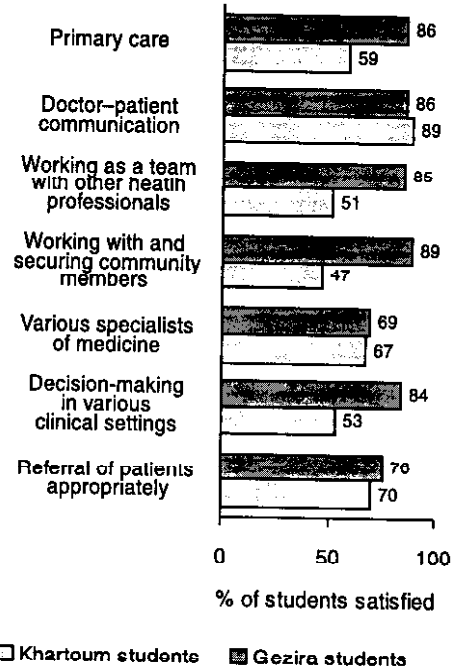
Knowledge and competency in:*Experience of:*

Figure 1 Opinions of Khartoum ($n = 35$) and Gezira ($n = 37$) medical students about their attainment of knowledge, competency and experience at the medical schools

evaluation was based on small numbers of graduates and there were no significant differences in the results.

Health indicators

No data about PIIC coverage or health status indicators were available for the population of either Khartoum or Gezira states (only national figures for Sudan were available). Gezira had fewer human and material resources than Khartoum; however, selected indicators of morbidity per head of pop-

ulation, except those for malaria, were no less favourable in Gezira.

Discussion

Although the need for unity between health services and medical education has been emphasized in the last two decades it has rarely occurred, except in the Islamic Republic of Iran [5,6]. Many medical schools have tried to develop community-oriented

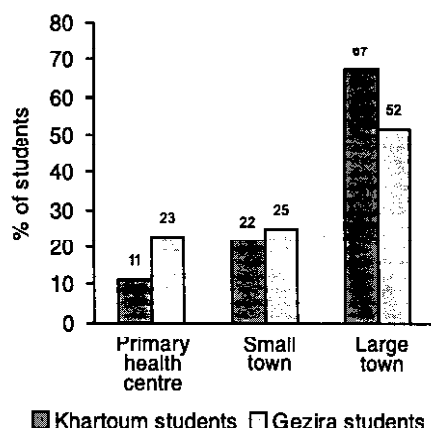


Figure 2 Opinions of Kartoum ($n = 35$) and Gezira ($n = 37$) medical students about their future plans for type of service and area to serve: primary health care (PHC) unit, small town (< 200 000 population) or large town (> 200 000 population)

teaching. In this study, the extent to which the medical faculties of Khartoum and Gezira medical schools were community oriented was assessed. In this regard, Gezira had a community-oriented curriculum and Khartoum was trying to develop one. However, neither school had control over the selection of students nor did they have much control over which faculty members were promoted. Students were evaluated on their community-based experiences in Gezira and to a lesser extent in Khartoum. However, there was no procedure for evaluating the impact of the faculty of medicine of either medical school in their respective regions. The research activities of both faculties were not guided by written research priorities.

There was no available information about to the impact of medical faculties of either medical school on the characteristics

of their graduates (geographic practice location, specialty choice, etc.). Nor did they have information about medical practices or health indicators in their region. Although both medical schools used hospitals of the MOH, there were no effective relationships between either of the medical schools and the MOH. While Gezira medical school had relationships with some communities, neither the MOH nor the communities had representation on the planning committees of the medical faculties of Khartoum or Gezira. The activities of medical faculties in the community were limited mostly to the department of community medicine and were not a major factor in the promotion procedures of the faculty staff.

Several years after graduating, graduates and house physicians were unhappy with their incomes and dissatisfied with the medical services they were offering. They felt that the paramedical facilities available in their practices were unsatisfactory. However, most of them felt that the knowledge and skills attained in medical school were very applicable in their practice. Graduates of both Khartoum and Gezira spent almost equal time on self-learning, management of health teams, preventive activities and health system research; they were not involved in the activities of the MOH. Evaluation by health personnel did not show major differences in knowledge, skills and attitudes of graduates from the two medical schools.

Although Gezira University had more emphasis on community-oriented medical education than Khartoum, graduates of both universities adapted themselves to the environment dictated by the health care delivery system and cultural values; therefore, a few years after graduation, the differences between them had narrowed.

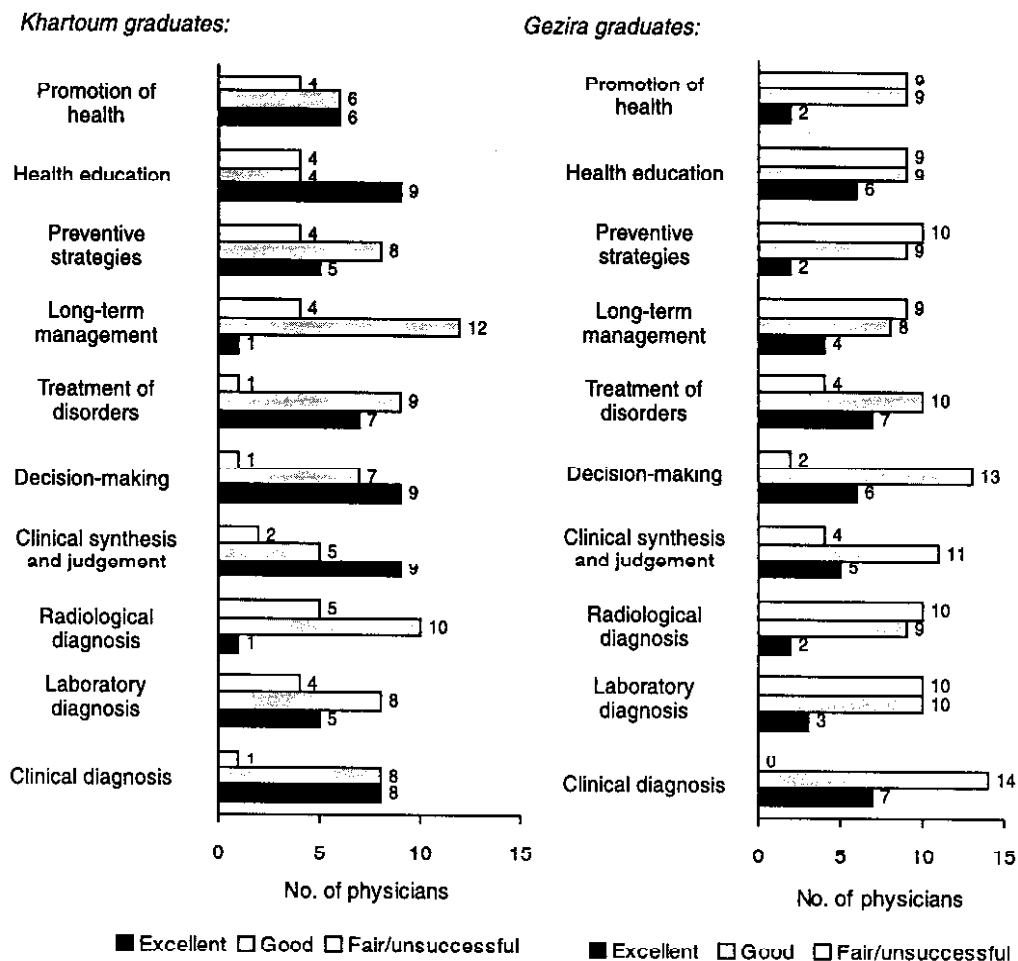


Figure 3 Opinions of physicians who graduated from Khartoum ($n = 21$) and Gezira ($n = 17$) medical schools about their success in serving their own patients

Recommendations

In order to achieve better community orientation of medical education, the following recommendations are proposed.

- Medical school faculties aiming for a community-oriented curriculum should review their goals and programmes of medical education.
- Faculties of medicine, the MOH and community representatives should control the selection of medical students.
- The MOH authorities in each state should keep health statistics and should collaborate more with medical schools. The medical faculties should be involved in all stages of planning, imple-

Table 1 Time spent on various activities by physicians who graduated from Khartoum and Gezira medical schools

Activity	Khartoum graduates (n = 21)	Gezira graduates (n = 17)
Diagnosis and treatment of patients	48.3 ± 19.8	42.2 ± 15.7
Preventive activities	8.4 ± 8.7	9.2 ± 10.6
Health system research	4.8 ± 7.4	7.4 ± 13.1
Management of health team	9.4 ± 9.8	9.3 ± 11.1
Self-learning	18.6 ± 14.6	22.8 ± 13.4

Values are mean ± standard deviation hours per week.

n = total number of physicians.

mentation and evaluation of the health care of the state.

- Universities should give more financial support to medical schools and should consider community teaching within the faculty of medicine as a prerequisite for the promotion of faculty staff.
- Medical schools should collaborate more with the MOH and community representatives in planning the curriculum, research activities and health service programmes.
- In the implementation of the curriculum, a significant proportion (at least 25%) of student experiences should occur outside hospitals, and community and MOH representatives should serve as teachers. A significant portion of each faculty member's time (not only the department of community medicine) should be spent in the community; this activity should be a major factor in the promotion criteria for faculty staff.

Table 2 Opinions of health personnel about the knowledge, attitudes and practices of registrars graduated from Khartoum and Gezira medical schools

Health personnel opinions	Khartoum graduates	Gezira graduates
Knowledge of disorders	2.57	2.45
Skills in procedures	2.57	2.40
Competency in clinical diagnosis	2.86	2.45
Correct laboratory evaluation	2.56	2.36
Correct radiological evaluation	2.14	2.64
Competency in decision-making	2.43	2.09
Attention to preventive instructions	2.28	2.45
Competency in treatment	2.86	2.45
Attitude towards patients	2.12	2.27
Attitude towards health team	2.43	2.11
Ability in appropriate referral of patients	2.43	2.08
Leadership of the health team	2.43	2.36
Health education	2.14	2.00
Promotion of health	2.00	2.27

Values are mean of opinion scores.

- Faculty development, including training in administration and health system delivery, should be offered to all faculty members. Some of this activity should improve teaching skills in the community. Medical faculties should have more involvement in continuing medical education.

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Forty-three new countries given low-cost access to health journals

Forty-three new countries were added to the list of eligible participants in the Health InterNetwork Access to Research Initiative (HINARI) this week, giving them online access to 2200 high-quality medical journals at drastically reduced prices. The 43 countries, which all have gross national products per capita of between US\$ 1000-3000, join the 69 low-income countries (GNP/capita below US\$ 1000) whose hospitals, medical schools and research institutions already access the package for free.

HINARI has been developed by the World Health Organization and its publisher partners to support the health sector in developing countries by enabling access to high-quality, timely and relevant scientific information at affordable prices. It builds on recent developments in academic publishing and library services, particularly the shift from print to electronic journal publishing. HINARI has evolved under the umbrella of the Health InterNetwork, a WHO-led public-private partnership initiated by UN Secretary General Kofi Annan as part of his Millennium Agenda to narrow the digital divide.

Source: WHO Press release, 17 January 2003