Iranian Journal of Clinical Infectious Diseases
2008;3(2):79-87

ORIGINAL ARTICLE

Research priority setting of Shaheed Beheshti Medical University Infectious Diseases and Tropical Medicine Research Center in 2007

Ali Asghar Kolahi [1*], Shahrokh Tahmooreszadeh [1], Latif Gachkar [2], Masoud Mardani [2]

[1] *Department of Community Medicine, Faculty of Medicine, Shahid Beheshti University, M.C., Tehran, Iran*

[2] *Infectious Diseases and Tropical Medicine Research Center, Shahid Beheshti University, M.C., Tehran, Iran*

ABSTRACT

Background: It is obvious that because of the lack of resources, we should devote our limited resources to priorities in order to reach an acceptable level of health. The objective of this study was research priority setting of infectious diseases using COHRED (Council on Health Research for Development) model.

Materials and methods: First of all, the stakeholders were identified and the situation of the field of infectious diseases was analyzed. Then, research areas and titles were specified using announcement, infectious diseases sources, (International Classification of Diseases 10) ICD10 and consensual qualitative techniques including brainstorming sessions, focal group discussion and Delphi. Finally, research priorities were specified by giving scores according to the criteria.

Results: Twenty-five research areas were obtained as priorities of infectious diseases and tropical medicine. These areas are HIV/AIDS, tuberculosis, drugs, infections in special hosts, avian flu, nosocomial infections, infections due to needle stick injury, malaria, viral hepatitis, viral hemorrhagic fevers, surgical- and burn- related infections, fever, central nervous system infections, effectiveness of vaccination, bloodstream infections, influenza, lower respiratory tract infections, gastrointestinal infections due to Entamoeba histolytica, bone and joint infections due to brucella, bioterrorism, brucellosis, hydatidosis, anthrax, botulism, and the role of migrants in the distribution of infectious diseases in Iran.

Conclusion: Three subheadings including treatment, prevention and control and diagnosis methods got the most priorities, respectively. Although about half of the priorities are related to two subheadings including treatment and diagnosis methods, research priorities of prevention and control methods (22% of all priorities) indicate the importance of prevention for clinicians who gave scores to the titles.

Keywords: *Priority setting, Research, Infectious disease.*
(Iranian Journal of Clinical Infectious Diseases 2008;3(2):79-87).

INTRODUCTION

Research in the field of health and medical sciences is a process to produce systematized knowledge and test the theories in the field of experimental, behavioral and social sciences. We can promote the personal and community health by using the knowledge that we obtain from this process (1). In developing countries, most of the medical researches are clinical, medical and laboratorial. In contrast, the researches in the field of health information system, epidemiology, demography, behavioral sciences and health economy are rare (2). Most of the medical researches are done on available patients without

Received: 9 June 2007 *Accepted*: 19 November 2007
Reprint or Correspondence: Ali Asghar Kolahi.
Department of Community Medicine, Faculty of Medicine, Shahid Beheshti University, M.C., Tehran, Iran.
E-mail: a.kolahi@sbmu.ac.ir

considering the community concern/demand, vulnerable persons and the population at risk, although research in the field of medical sciences should lead to the goal of health and treatment which is health for all(3). In Iran, the results of the researches are not used to cover community needs (4). As a result, researchers tend to do descriptive and short-term researches without considering community needs and priorities (5). In developed countries, 2.2% of gross domestic product (GDP) is devoted to researches (6). In contrast, in developing countries, just 0.39% of GDP is devoted to researches (7). Could we produce knowledge and solve the problems of our health system with this trivial budget? As a result, in order to devote our resources optimally, we have to set our priorities.

In 1992, the first report of the national researches was published by National Scientific Researches Council (8). In 1993, the criteria of priority setting were defined according to the opinion of researchers and executive managers (9). Moreover, in 1991, 1995, and 1999, Medical Commission of National Scientific Researches Council set the research priorities of medical group according to the opinion of researchers, experts and executive managers in the field of health using a ranking method (10,11). In 1996, the Research Deputy of Ministry of Health and Medical Education set the national research priorities of medical sciences according to the opinion of researchers, experts and executive managers (12). Although research priority setting in a national level was valuable, it was not useful because of different reasons: The progression of related national proposals was slow, there were some problems in supplying material, equipments and budget and so on (5).

A national study showed that the process of priority setting in universities, research centers and executive departments was not favorable. In other words, from 117 units, just 61 units set their priorities. Moreover, just 21(34%) of these 61 units set their priorities by using criteria. In addition, the utilized criteria were different and diffuse. Overall, the process of research priority setting in Iran was based on the opinion of research and executive managers without need assessment or systematized use of data banks. It seems that it has not had proper efficiency (13).

Today, 4 different bases are mentioned for research management: managing and coordinating research activities, research priority setting, strategies formulation and policy making and finally information management (14).

It seems that research priority setting leads the research flow to priorities. In current condition of research status in Iran, research budget may be the main tool that can help the research management to reach its goal. Therefore, after research priority setting we need a strategic thinking to define all of the research needs of research centers by strategies formulation and policy making and determine the proportion of each research fields according to the priorities. It is obvious that we should consider a part of the research budget for creativity and innovation on important and immediate problems. The process should be systematic and continuous. In other words, we should devote the research budget to priorities on time and continue the process of priority setting. Furthermore, we should add the new information and findings to our data banks, and set research priorities every 2 years.

In this study, the research priorities of infectious diseases were set by using the existing information and the method of scoring according to the defined criteria and with participation of all stakeholders including researchers (faculty members or not), residents of infectious diseases, and medical students. By proper devotion of research credit and budget, the findings of this study can be used to produce knowledge for solving problems, create motivation in researchers, create a good basis for research and finally promote the level of community health.

MATERIALS and METHODS

First of all, an executive-strategic committee was organized. The committee was consist of 4 faculty members (including full and associate professors), two specialists of community medicine, and one general practitioner who had experience of working in Center for Disease Control and Prevention (CDC) of a health center. The faculty members were expert and interested to the subject, had enough time, had at least two original papers in reliable journals, and were executives of at least 2 research proposals. A workshop on research priority setting was held for the members of the committee and at last a consensus on the method, criteria and scoring system was obtained.

Then, a letter was sent to all of the specialists of infectious diseases working at the university (faculty members of the department of infectious diseases and other departments and other colleagues working at CDC of the province) in order to get their suggestions of research titles. We also used consensual qualitative techniques including brainstorming sessions, focal group discussion and Delphi to get research titles and areas. Totally, twelve faculty members suggested 220 research titles.

As these research titles covered just some of the infectious diseases and some of them were repetitive, we decided to cover all areas of infectious diseases in our research priority setting. So, we obtained 317 areas according to Mandell's Principles and Practice of Infectious Diseases (15), Harrison's Principles of Internal Medicine (16) and ICD10 (International Classification of Diseases 10) (17). Finally, 216 of these 317 areas were selected according to the opinion of professors of infectious diseases based on the condition of Iran. These areas included major clinical syndromes, viral diseases, chlamydial diseases, mycoplasma diseases, bacterial diseases, mycotic diseases, protozoal diseases, diseases due to helminthes, ectoparasitic diseases, nosocomial infections, infection in special hosts, surgical- and trauma-related infections, immunization and so on. Then we built about 9 different subheadings including epidemiology, agents, risk factors, clinical manifestation, diagnosis, treatment, prognosis, prevention and control and Knowledge, Attitude and Practice study (KAP study) in each area. Although by using this method we covered almost all of research titles which the professors of infectious diseases had suggested, we added 21 suggested research titles which were very important to our list. The names of those specialists who suggested research titles were not included in the list and no body knew their identities. We held separate meetings for residents, medical students and health workers to get their suggestion of research titles, but no new research titles were suggested. At last, 2029 titles were listed.

Then, we presented this list to four specialists of infectious diseases, two specialists of community medicine and one general practitioner (members of the committee). They were asked to give scores (1 to 4 or 7 to 9) to each of 2029 titles according to the defined criteria and the data bank of infectious, parasitic and mycotic diseases. In our model, each title had minimally one point (least priority) and maximally nine points (most priority). The goal of this stage was primary screening of research titles and decreasing their numbers. As four of these seven persons did not give score, all of the titles were scored by just three professors of infectious diseases. Those titles which were scored 7 or more by at least two professors remained in the process of priority setting and the other titles were deleted. With this screening, 1077 research titles were deleted and 952 research titles were remained.

Then, 3 other specialists of infectious diseases (including associate and assistant professors) were asked to give scores (1 to 4 or 7 to 9 points) to the remained 952 titles according to the defined criteria and the data bank of infectious, parasitic and mycotic diseases.

Therefore, using this model, the most obtained score of a research title was 54 (6 multiplied by 9) and the least obtained score was 35 (5 multiplied by 7). The important point of this model was that because of dividing the scores to 2 different categories, 1 to 4 (low priority) and 7 to 9 (high priority), the consensus of experts were initially considered in scoring and not the algebraic sum. In other words, whenever five experts gave 7 (5 agreements) and one experts gave 1 (1 disagreement) to a research title (totally 36 points), that title was considered as a priority. But if four experts gave 9 points (4 agreements) and two experts gave 2 points (2 disagreements) to a research title (totally 40), that was not considered as a priority. We asked the experts not to use 5 and 6 for giving scores so that the two different categories (low priority and high priority) were clearly separated. We used this strategy because of the great numbers of research titles and prevent regression to mean bias among those who gave scores.

The data bank of infectious, parasitic and mycotic diseases includes 510 articles in English, 798 articles in Persian, 2164 abstracts of articles presented in Congresses of Infectious Diseases and Tropical Medicine, 289 approved research proposal and 367 internship and residency theses of the university in previous five years (2001 till 2005). Totally, it includes 4128 documents which are classified according to the areas of infectious diseases (18).

The criteria which we used for research priority setting were obtained from Council on Health Research for Development (COHRED) manual (19). The criteria consider 4 different categories (appropriateness, relevancy, the chance of success, and impact on research outcome) and include ethical and moral issues, support of policy makers, community concern/demand, frequency, intensity and trend of the problem, compatibility to national priorities, urgency; equity focus, capacity of the system to carry out the research, justification of the cost/investment, justification of time, funding support, application of the research outcome, impact on community health, probability of decreasing the intensity, partnership building, and research capacity building.

RESULTS

Twenty-five research areas were obtained as priorities of infectious diseases and tropical medicine. Obtained areas of research priorities according to their priority levels are: HIV/AIDS, tuberculosis, drugs, infections in special hosts, avian flu, nosocomial infections, infections due to needle stick injury, malaria, viral hepatitis, viral hemorrhagic fevers, surgical- and burn- related infections, fever, central nervous system infections, effectiveness of vaccination, bloodstream infections (bacteremia, sepsis, septicemia), influenza, lower respiratory tract infections, gastrointestinal infections due to Entamoeba histolytica, bone and joint infections due to brucella, bioterrorism, brucellosis, hidatidosis, anthrax, botulism, and the role of migrants in the distribution of infectious diseases in Iran.

The best obtained score was 52 (first priority) and the least obtained score was 37 (last priority). Because of the fact that most research areas had more than one subheading, 99 research titles were totally listed and sorted according to their priority levels. Table 1 shows the research priorities of infectious diseases according to their priority level.

Three subheadings including treatment, prevention and control and diagnosis methods got the most priorities (28, 22 and 10 priorities, respectively). Although 47% of the priorities are related to two subheadings including treatment and diagnosis methods, 22% of obtained priorities are related to prevention and control methods. Table 2 shows the frequency of research priorities among different subheadings.

Table 1. The research priorities of infectious diseases according to their priority level

Priority	
1	HIV/AIDS
	Study of HIV/AIDS Treatment Methods
	Study of HIV/AIDS Prevention and Control Methods
	Specification of HIV/AIDS Risk Factors
	Study of HIV/AIDS Diagnosis Methods
	KAP Study about HIV/AIDS
	Study of The Relationship of HIV/AIDS with Religion
2	Tuberculosis
	Study of Pulmonary Tuberculosis Prevention and Control Methods
	Study of Pulmonary Tuberculosis Treatment Methods
	Study of Pulmonary Tuberculosis Diagnosis Methods
	Study of Pulmonary Tuberculosis Epidemiology
	Determination of Pulmonary Tuberculosis Risk Factors
	Study of Extrapulmonary Tuberculosis Diagnosis Methods
	Study of Extrapulmonary Tuberculosis Treatment Methods
3	Drugs
	Study of Drug Resistance
	Study of Drug Side Effects
	Comparison of the Therapeutic Effects of Iranian Antibiotics with Similar Non-Iranian Antibiotics
4	Infections in Special Hosts
	Study of Infection Prevention and Control Methods in Diabetics
	Study of Infection Treatment Methods in Diabetics
	Study of Infection Diagnosis Methods in Diabetics
	Specification of Infection Agents in Diabetics
	Study of Infection Treatment Methods in Injection Drug Users
	Study of Infection Prevention and Control Methods in Injection Drug Users
	Study of Infection Diagnosis Methods in Injection Drug Users
	KAP Study about Infection in Injection Drug Users
	Study of Infection Epidemiology in Injection Drug Users
	Study of Infection Prevention and Control Methods in Transplant Recipients
	Study of Infection Treatment Methods in Transplant Recipients
	Study of Infection Diagnosis Methods in Transplant Recipients
	Specification of Infection Agents in Hematopoietic Stem Cell Transplant Recipients
	Study of Infection Prevention and Control Methods in Immunocompromised Host
	Study of Infection Treatment Methods in Immunocompromised Host
	Study of Infection Diagnosis Methods in Immunocompromised Host
	Study of Infection Treatment Methods in Dialysis Patients

	Study of Infection Diagnosis Methods in Dialysis Patients
	Study of Infection Prevention and Control Methods in Dialysis Patients
	Study of Infection Treatment Methods in Cancer Patients
	Study of Infection Prevention and Control Methods in Cancer Patients
	Study of Infection Diagnosis Methods in Cancer Patients
5	Avian Flu
	Study of Health System Readiness Against Avian Flu in Iran
	Study of Avian Flu Treatment Methods
	Specification of Avian Flu Risk Factors
	Study of Avian Flu Prevention and Control Methods
	Study of Avian Flu Prognosis
6	Nosocomial Infections (Respiratory, ICU, and Due to Percutaneous Intravascular Devices)
	Study of Nosocomial Infection Treatment Methods
	Study of Nosocomial Infection Prevention and Control Methods
	Study of Nosocomial Infection Epidemiology
	Study of Nosocomial Infection Diagnosis Methods
7	Infections Due to Needle Stick Injury
	Study of Infection Prevention and Control Methods Due to Needle Stick Injury
	Study of Infection Treatment Methods Due to Needle Stick Injury
8	Malaria
	Study of Malaria Prevention and Control Methods
	Study of Malaria Treatment Methods
	Study of Malaria Diagnosis Methods
9	Viral Hepatitis
	Study of Chronic Hepatitis Treatment Methods
	Study of Acute and Chronic Hepatitis Diagnosis Methods
	Study of Hepatitis C Prevention and Control Methods
	Study of Acute Hepatitis Prevention and Control Methods
	Study of Hepatitis B Carriers
	Study of Hepatitis E Epidemiology
	Specification of Acute Hepatitis Agents
	Specification of Chronic Hepatitis Risk Factors
	Specification of Hepatitis E Risk Factors
10	Viral Hemorrhagic Fever
	Study of Viral Hemorrhagic Fever Treatment Methods
	Study of Viral Hemorrhagic Fever Prevention and Control Methods
	Study of Viral Hemorrhagic Fever Diagnosis Methods
	Study of Viral Hemorrhagic Fever Epidemiology
11	Surgical and Burn Related Infections
	Study of Burn Related Infections Treatment Methods
	Study of Burn Related Infections Diagnosis Methods
	Study of Burn Related Infections Prevention and Control Methods
	Study of Surgical Related Infections Treatment Methods
	Study of Surgical Related Infections Diagnosis Methods

12	Fever
	Study of Fever and Neutropenia Treatment Methods
	Study of Fever and Neutropenia Prevention and Control Methods
13	Central Nervous System Infections
	Study of CNS Infection Epidemiology Due to Mycobacterium tuberculosis
	Study of CNS Infection Diagnosis Methods Due to Mycobacterium tuberculosis
	Study of CNS Infection Treatment Methods Due to Mycobacterium tuberculosis
	Study of CNS Infection Treatment Methods Due to Brucella
14	Study of The Effectiveness of Vaccination
15	Blood Stream Infections (Bacteremia, Septicemia, Sepsis, and. ..)
	Study of Blood Stream Infection Treatment Methods Due to Staphylococcus
	Study of Blood Stream Infection Clinical Manifestations and Complications
16	Influenza
	Study of Influenza Prevention and Control Methods
	Specification of Influenza Risk Factors
17	Lower Respiratory Tract Infections
	Study of Lower Respiratory Tract Infection Treatment Methods
	Study of Empyema and Pleural Effusion Treatment Methods
	Study of Lower Respiratory Tract Infection Epidemiology Due to Mycoplasma pneumoniae
18	Gastrointestinal Infections Due to Entamoeba histolytica
	Study of Gastrointestinal Infection Treatment Methods Due to Entamoeba histolytica
	Study of Gastrointestinal Infection Diagnosis Methods Due to Entamoeba histolytica
19	Bone and Joint Infections Due to Brucella
	Study of Bone and Joint Infection Treatment Methods Due to Brucella
20	Bioterrorism
	Study of Infectious Diseases Based on Bioterrorism
	Study of Iran Health System Readiness Against Bioterrorism
21	Brucellosis
	Study of Brucellosis Treatment Methods
	Study of Brucellosis Prevention and Control Methods
	Study of Brucellosis Epidemiology
	Study of Brucellosis Diagnosis Methods
22	Hydatidosis
	Study of Hydatidosis Treatment Methods
	Study of Hydatidosis Prevention and Control Methods
23	Anthrax
	Study of Anthrax Prevention and Control Methods
24	Botulism
	Study of Botulism Diagnosis Methods
	Study of Botulism Prevention and Control Methods
25	The Role of Migrants in the Distribution of Infectious Diseases in Iran

Table 2. The frequency of research priorities among different subheadings

Subheading	Percent
Treatment Methods	28
Prevention and Control Methods	22
Diagnosis Methods	19
Epidemiology	9
Risk Factors	6
Drugs & Vaccination	3
Agents	3
KAP Study	3
Bioterrorism	3
Clinical Manifestation	1
Prognosis	1
Other Topics	2
Total	100

DISCUSSION

The result of this study was 99 research priorities in 25 areas of infectious diseases. Three subheadings including treatment, prevention and control and diagnosis methods got the most priorities respectively. Although about half of the priorities are related to two subheadings including treatment and diagnosis methods, research priorities of prevention and control methods (22% of all priorities) indicate the importance of prevention for clinicians who gave scores to the titles. Another specification of this study is consideration of new areas like bioterrorism, avian flu and viral hemorrhagic fevers.

In comparison with 20 research priorities reported by the research deputy of Ministry of Health and Medical Education in June 1997, we can mention that 9 priorities of that study including tuberculosis, nosocomial infections, brucellosis, malaria, respiratory tract infection, HIV/AIDS, infections in immunocompromised host, viral hepatitis and hydatid cyst are the same as the priorities of this study (12). In that study, tuberculosis was the first priority and HIV/AIDS was the 9th one, while in our study tuberculosis is the second priority and HIV/AIDS is the first one. That time, three research priorities including bioterrorism, avian flu and viral hemorrhagic fevers were not as important as today. This shows that about half of the current problems of infectious diseases are the same as 10 years ago. Moreover, new problems have also been considered.

Medical Commission of the National Scientific Researches Council reported the research priorities of medical group in 1991 (10). In that report, three subheadings related to infectious diseases were epidemiology of diseases, prevention and control of diseases and biologic agents; these subheadings are also present in our study.

In the last research priority setting of Medical Commission of the National Scientific Researches Council in 1999, prevention of 8 diseases including malaria, brucellosis, tuberculosis, leishmaniasis, typhoid fever, eltor, STD, and hepatitis were set as priorities of infectious diseases (11). In our study, 5 of them are also included among priorities.

In order to specify the relationship between the findings of our study with causes of mortality and burden of diseases, we have used the findings of the following studies:

The first four causes of mortality of infectious diseases based on the estimation of 23 provinces data are pneumonia, other acute respiratory tract infection, pulmonary tuberculosis, and viral hepatitis (20). In our study, all of these causes are also among priorities.

The findings of the only study performed in 6 provinces including East Azarbayejan, Bushehr, Chaharmahal Bakhtiari, Khorasan, Hormozgan and Yazd shows that five diseases including pneumonia, hepatitis, tuberculosis, brucellosis, and hydatidosis have the most proportion of the burden of disease among infectious diseases (21) which are comparable to research priorities of our study.

We hope that the findings of this study can be used to produce knowledge for solving problems, create motivation in researchers, create a good basis for research and finally promote the level of

community health by proper devotion of research credit and budget.

ACKNOWLEDGEMENTS

The authors would like to thank professors and colleagues including Dr Davood Yadegarinia, Dr. Mahmood Nabavi, Dr Mahdi Besharat, Dr Zohreh Aminzadeh, Dr Hosein Hatami ,Dr. Parviz Vahdani, Dr. Ebrahim Kheirandish, Dr. Alireza Faamily, Dr. Bahram Nasri Razin, Dr. Simindokht Shoaei, Dr. Seyed Mohammad Mehdi Hoseini Moghadam, Dr. Payam Tabarsi, and Dr. Amiri for their valuable suggestions and helps in this project. We should also appreciated Infectious Diseases and Tropical Medicine Research Center for approval and financial support of this project.

REFERENCES

1. Global forum for health research. Monitoring financial flows for health research. Geneva: Global Forum for Health Research, 2001.

2. Research in developing countries. Health research. Oxford: Oxford University Press, 1990;p:45-51.

3. Malekafzali H. Medical research development guideline. Health and Medical Development Conferences, HMDC. Avecina the Great Cultural Institute, 2001, Tehran, Iran.

4. Azizi F. The horizon of medical research in Iran. Journal of Faculty of Medicine, Shahid Beheshti University, M.C. 1999;19:1-14. [In Persian]

5. Mohammadi M, Mesgarpoor B. The research of medical sciences in Iran and the world based on a systematic view. Hakkim 2002;5:151-67. [In Persian]

6. Mansoori R. The university and its definition. Rahyaft 2001;24:16-29. [In Persian]

7. The Management and Planning Organization of Iran. The Report of governmental work, 1997-2001. Tehran: The Center of Scientific Documents of the Management and Planning Organization of Iran, 2001;p:71. [In Persian]

8. Azizi F. The situation of researches in Iran. Journal of Faculty of Medicine, Shahid Beheshti University, M.C. 1998;18:1-4. [In Persian]

9. The National Scientific Researches Council. The criteria of research priority setting. Tehran, Iran. 1983;p:2-3. [In Persian]

10. Azizi F. Research priority setting of medical group. Journal of Faculty of Medicine, Shahid Beheshti University, M.C.1995;15:3-11. [In Persian]

11. Azizi F, Eini E. The research priorities of medical sciences of Iran. Rahyaft 2002;27:14-26. [In Persian]

12. Ministry of Health and Medical Education. The research priorities of medical sciences of Iran. Tehran, Iran. 1997. [In Persian]

13. Farsar AR, Kolahi AA, editors. The situation of research priority setting of Iran. Ministry of Health and Medical Education. Tehran, Iran. 2002. [In Persian]

14. World Health Organization. Meeting of the WHO scientific working group on criteria for setting health research priorities. New Delhi, India. 2000.

15. Mandell GL, Bennett JE, Dolin R, editors. Principles and practice of infectious diseases. 6th edition. London: Churchill Livingstone, 2004.

16. Kasper DL, Braunwald E, Fauci A, Hauser S, editors. Harrison's principles of internal medicine. 16th Edition. Philadelphia: McGraw-Hill, 2004.

17. World Health Organization. International statistical classification of diseases and related health problems. 10th revision. Geneva: World Health Organization, 1993;p:30.

18. Gachkar L, Kolahi AA, editors. Databank of infectious diseases in 2005. Infectious Diseases and Tropical Medicine Research Center, Shahid Beheshti University, M.C., Tehran, Iran, 2006. [In Persian]

19. Okello D, Chongtrakul P, the COHRED Working Group on Priority Setting. A manual for research priority setting using the ENHR strategy. Geneva: COHRED, 2000.

20. Naghavi M, editor. The situation of mortality in 23 provinces of Iran in 2003. Ministry of Health and Medical Education, Tehran, Iran. 2005;p:141-45. [In Persian]

21. Naghavi M, editor. The progression report of the project of burden of diseases and risk factors in Iran. Ministry of Health and Medical Education, Tehran, Iran. 2005. [In Persian]