

## History of Medicine

## The Life and Career of Dr. Mansour Shamsa, A Pioneer in Public Health

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Dr. Mansour Shamsa was born in Tehran on February 9, 1923 in a family who were physicians for eight generations throughout the Safavieh, Zandiyeh, Afshariyeh, Ghajarieh, and Pahlavi dynasties.<sup>1</sup>

His father, Hossein Shamsa, was a customs officer and had to travel a lot. He received his primary education in Tehran and Babolsar and his high school education in Bandar-e-Anzali, Gorgan, and Tehran. Shamsa graduated as a general practitioner (GP) from the University of Tehran in 1950. His GP thesis was on the reservoirs of *Leishmania tropica* in Iran.<sup>2</sup>

Shamsa served as an assistant at the Pasteur Institute of Iran (PII) during 1949 – 1955. In 1955, he was employed formally as a physician and an expert in epidemiology at PII with a license degree from the Legislative Assembly. Shamsa was appointed the vice president of PII in 1961 and served for eight years. He was appointed the head of the Department of Epidemiology in 1968 and served as the authority for controlling plague outbreaks and related researches in PII. He also served as the deputy of medical services and head of the Red Crescent in Iran. He was appointed as the director of PII in 1979.

From 1982 to 1989, he collaborated in preparation and improvement of the country's public vaccination program and expansion of healthcare networks in the Ministry of Health. From 1987 to 2007, he was a member of the Academy of Medical Sciences. Dr. Mansour Shamsa passed away on September 11, 2016 in the USA at the age of 93 years.

Scientific endeavors of Dr. Shamsa can be listed in the areas of research and fight against communicable infectious diseases, public health expansion, translation of books and articles, and various international activities.



**Figure 1.** Dr. Mansour Shamsa (1923–2016), Photo received from the archives of Pasteur Institute of Iran

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## Research and combating communicable diseases

Dr. Shamsa was a pioneer in studying and combating communicable diseases such as relapsing fever, plague, smallpox, tularemia, cholera, and tetanus at the Pasteur Institute of Iran, even after retirement from the Ministry of Health.

## Relapsing fever

Shamsa's early studies focused on relapsing fever.<sup>3,4</sup> He studied this disease in Afghanistan in 1955,<sup>5</sup> and studied the role of ticks in Iran regarding the epidemiology of *Borrelia* in the same year.<sup>4</sup> In 1956, Shamsa, in a joint project with the Medical Research Laboratory of Kenya, studied the behavior of spirochetes in lice,<sup>6</sup> revealing that when a person is infected with relapsing fever, spirochetes will be visible in the patient's blood even in low numbers, rejecting a common hypothesis that spirochetes would not be seen at intervals between disease attacks in the patient's blood.<sup>7</sup>

## Plague

Following an outbreak of plague in 1947 in Kurdistan, Shamsa in collaboration with Marcel Baltazard, Younes Karimi, Rasoul Pouranki, Mahmoud Bahmanyar, Abdullah Habibi, Mirhoushang Majd Teymouri, Mirza Agha Eftekhari, Biuk Seyyedian, Mostafa Pourtaghva, Shamsoddin Mofidi, Abdulrahman Farhang Azad, Pezeshkpour Mostashfi, Xavier Misonne Henri Mollaret, Jean Marie Klein, and Douglas Lay established a field laboratory to train expert technicians in this field.<sup>8</sup> Pasteur's research teams established the research center for emerging and reemerging infectious diseases in Akanlu, a village of Hamadan, as a reference center to study plague all over the world. The main task of Dr. Shamsa and his research team was to elucidate the susceptibility and resistance of wild rodents to plague. They reported that *Yersinia pestis* bacterium can survive in soil for a long time after the death of infected rodents.<sup>9–13</sup>

In 1964, the results of studying fleas of wild life in Iran were published with the support of Dr. Jean Marie Klein and Dr. Shamsoddin Mofidi in collaboration with Dr. Shamsa.<sup>14</sup> In 1969, the World Health Organization assigned him as an expert in plague control in the region of Central Java Indonesia. Dr. Shamsa studied rodents in this area and showed that *Xenopsylla cheopis* flea on the body of *Suncus murinus*, *Rattus exulans*, and *Rattus rattus diardii* rodents endemic to this area were the reason for plague's survival in this region.<sup>15</sup>

## Tularemia

Extensive studies of Dr. Mansour Shamsa, the World Health



**Figure 2.** Left to right: Dr. Marcel Baltazard, Dr. Mansour Shamsa, Dr. Younes Karimi and other staff of the Pasteur Institute of Iran; The research center for emerging and reemerging infectious diseases, Akanlu, Hamadan, 1950.<sup>16</sup>



**Figure 3.** Left to right: Dr. Younes Karimi, Dr. Marcel Baltazard and Dr. Mansour Shamsa; One of the missions of plague studies in Hamadan province, 1962.<sup>16</sup>

Organization, and Russian scientists from 1969 to 1970 resulted in the first report of tularemia among domestic animals and wildlife in the North West and East of Iran. In this study, more than 4,500 wild mammals and 200 sheep and cows were examined in 47 regions throughout the country, and positive cases were shown in sheep, cattle, and hedgehog.<sup>17</sup>

### Smallpox

Dr. Shamsa was involved as an epidemiologist consultant in smallpox eradication program in Pakistan (Karachi) in 1971 and in the eradication of smallpox in Syria in 1977.<sup>18</sup> He was an executive member of a team assigned by the World Health Organization cooperating with experts from different countries in order to eradicate smallpox. As a result of diligent efforts of this team, smallpox was eradicated in the world, undoubtedly, one of the greatest achievements of science and human health.

### Tetanus

In 1987, Dr. Shamsa, in collaboration with Dr. Hossein Malek-Afzali, studied the causes of infant deaths in Iran due to tetanus. In this study, data were gathered from 10% of rural and urban families, and it was shown that the infant mortality rate was 5 per 1,000 in newborns suffering from tetanus, which was a high rate. By improving vaccination and education on normal delivery and the living conditions of families, this rate has decreased significantly.<sup>19</sup>

### Cholera

Following eltor cholera outbreak in 1965 in the provinces of Khorasan and Kerman, Dr. Shamsa in collaboration with the Ministry of Health implemented Health Regulations across Iran and controlled this epidemic disease in about two months. Since 1965, cholera statistics have been regularly registered throughout the country, and now, surveillance system of eltor cholera is one of the oldest and most accurate patient-care systems around the country.<sup>8</sup>

### Other diseases

Other researches of Dr. Shamsa, as an epidemiologist, include investigation of the causes of an outbreak of poliomyelitis virus in Ahvaz in 1962, the study of outbreaks of botulism in Gilan in 1965, and the rodent's filariasis in Qazvin in 1967, among others.<sup>20</sup>

### Expansion of public health

Dr. Shamsa played an important role in the development of public health by controlling communicable diseases in the country during his employment in the Pasteur Institute, along with others like Dr. Rajab Ali Amjadi, Dr. Azar Andami, Dr. Mostafa Pourtaghva, Dr. Mahdokht Pourmansour, Dr. Rasoul Pouranki, Dr. Hassan Hakimi, Dr. Buick Seyedian, Dr. Sabbar Farman-Farmaian, Dr. Ahmad Fayaz, Dr. Mehdi Ghodsi, Dr. Mostafa Namvari, and Dr. Ali Mashhoon.

From 1982 to 1984, he cooperated with the center of communicable diseases for the improvement and education of the public vaccination program and training senior managers of the Ministry of Health. In these years, the bulletin of the surveillance system was published. Then, until 1989, Dr. Shamsa, Dr. Sirous Pileroudi, Dr. Kamel Shadpour, and Dr. Hossein Malek-Afzali served as the headquarters of the country's health network and continued the country's immunization program relying on primary health care.<sup>21</sup> Through 1987 to 2007, until the time Dr. Shamsa went to America, he was a member and founder of Health Sciences and Nutrition Group of Academy of Medical Sciences in Iran and pursued planning for the field of health sciences by other members of the group.

### Translation of books and articles

Dr. Shamsa published all his papers in well-known international journals when he was serving in the Pasteur Institute; afterwards, he started to translate different scientific articles and books in his seventies. He also cooperated with different scientific and

cultural journals around the country. Finding Persian equivalents of English scientific words was among his contributions.

Some of his translated books are as follows:

- Manual of Epidemiology for District Health Management (1993) (in which approaches of epidemiology and community health service management are pointed).<sup>22</sup>
- Severe or Complicated Malaria (1993).<sup>23</sup>
- An Introduction to Tuberculosis Control in District Level (1995).<sup>24</sup>
- How to Manage the Cold Chain System, (1995) (the book provides comprehensive information about communicable diseases reservoir and incubation period for the disease control and prevention).<sup>25</sup>
- Action Plan to Improve Access to Immunization Services (1995).<sup>26</sup>
- Medical History: Pharmacists, Dentists, and Veterinary Medicine, the Iranian Encyclopedia Foundation (2012).<sup>27</sup>
- Journal articles, "Glanders" (1988)<sup>28</sup> and "Waiting for a Malaria Vaccine" (1999)<sup>29</sup> were also translated by him.

### International activities

Dr. Shamsa participated in different international activities, the results of which have been announced in international seminars and conferences. In 1962, in Geneva meeting, he had a presentation on the importance of medical research for developing countries. In 1965, he attended the World Health Organization seminar on plague in Moscow and presented the results of researches in the Pasteur Institute of Iran. In 1970, as the head of the team of Pakistani storm relief, he assisted the victims in the field hospitals. Through 1971 to 1977, he participated in the smallpox eradication program in West Asia as a consultant of the World Health Organization and traveled to countries such as Pakistan and Syria. In 1979, he also participated in the annual meeting of the International Network of Pasteur Institute in Casablanca, Morocco.

### References

1. Roostaei M. *History on medicine and medical practice in Iran (from Qajar age to end of Reza Shah era) in quoted from documents*. 1<sup>st</sup> eds: National Library and Archives Organisation of Iran, Tehran; 2003.
2. Shamsa M. *Reservoirs of leishmania tropica in Iran, Tehran, Iran*. School of Medicine, University of Tehran; 1950.
3. Baltazard M, Bahmanyar M, Chamsa M. The Use of guineapigs for the differentiation of relapsing fever spirochaetes. individuality of the group B. crocidurae. *Bulletin De La Societe De Pathologie Exotique*. 1954; 47(6): 864 – 877.
4. Baltazard M, Chamsa M, Seydian B, Editors. *Linfection occulte dans les spirochetoses*. Presse Medicale; 1955: Masson Editeur 120 Blvd Saint-Germain, 75280 Paris 06, France.
5. Baltazard M, Bahmanyar M, Chamsa M, editors. *Sur la fièvre récurrente en Afghanistan*. Presse Medicale; 1955: Masson Editeur 120 Blvd Saint-Germain, 75280 Paris 06, France.
6. Heisch R, Chamsa M, Seydian B, Harvey A. The behaviour of spirochaetes in lice with special reference to the "negative phase". *Bulletin de la Societe de Pathologie Exotique*. 1957; 50(5): 735 – 749.
7. Shamsa M. *Studies Pasteur Institute in Relapsing fever*, Ramsar, Iran. 1956.
8. Ghodssi M. The history of the fifty years of the services of the Pasteur institute of Iran. Tehran: Pasteur Institute of Iran. 1971; 15.
9. Baltazard M, Eftekhari M, Chamsa M, Karimi Y, Mostachfi P. Resistance to plague of certain species of wild rodents. Iv. the nature of the resistance. *Bulletin De La Societe De Pathologie Exotique*. 1963; 56(6): 1194 – 1201.
10. Baltazard M, Chamsa M, Karimi Y. On the resistance to plague of certain wild rodent species. Iii. trial study following a microfocus. *Bulletin De La Societe De Pathologie Exotique Et De Ses Filiales*. 1962; 56: 1119 – 1128.
11. Baltazard M, Karimi Y, Eftekhari M, Chamsa M, Mollaret H. The interepizootic preservation of plague in an inveterate focus: Working hypotheses. *Bulletin De La Societe De Pathologie Exotique Et De Ses Filiales*. 1962; 56: 1230 – 1245.
12. Baltazard M, Chamsa M, Karimi Y. Systematic survey of a "mesofocus" of wild plague in the iranian kurdistan. ii. the end of an epizootic period. *Bulletin De La Societe De Pathologie Exotique*. 1963; 56(6): 1141 – 1153.
13. Baltazard M, Karimi Y, Eftekhari M, Chamsa M, Mollaret H. Interepizootic conservation of plague in its inveterate foci: Working hypotheses. DTIC Document, 1964.
14. Klein JM, Mofidi C, Chamsa M, Karimi Y, Bahmanyar M, Seydian B. The fleas (insecta, siphonaptera) of Iran. *Bulletin De La Societe De Pathologie Exotique Et De Ses Filiales*. 1963; 56: 533.
15. Chamsa M. Assignment report on investigations in plague epidemiology, Bojolali, Java, Indonesia (Unpublished WHO document SEA/. plague/8. 1970)
16. Mainbourg J. Balta: Aventurier de la peste: Professeur Marcel Baltazard, [In French] (Translator: Yousefi Behzadi M, Editor: Mostafavi E.), Andishmand Press, Tehran, 2015.
17. Arata A, Chamsa M, Farhang-Azad A, Meščerjakova I, Neronov V, Saidi S. First detection of tularaemia in domestic and wild mammals in Iran. *Bulletin of the World Health Organization*. 1973; 49(6): 597.
18. Fenner F, Henderson D, Arita I, Jezek Z, Ladnyi D. Smallpox and its eradication. *World Health Organization*, Geneva. 1988:1460.
19. Malik-Afzali H, Chamsa M. Neonatal mortality due to tetanus in Iran. *Journal of the Islamic Medical Association of North America*. 1988; 20(3): 104 – 108.
20. Chamsa M, Weiss N. Epidemiological study of rodent filariasis (Dipetalonema viteae Krepkogorskaja 1933) in Iran. *Acta Tropica*. 1968; 26(4): 370 – 375.
21. Nasseri K, Sadrizadeh B, Malek-Afzali H, Mohammad K, Chamsa M, Cheraghchi-Bashi M, et al. Primary health care and immunisation in Iran. *Public Health*. 1991; 105(3): 229 – 238.
22. Vaughan JPMR. *Manual of epidemiology for district health management*. Translators: Hossein Shojaei Tehrani, Mansour Chamsa: Centre for Diseases Control and Prevention of Communicable Diseases, Tehran; 1993.
23. Assar M, Chamsa M. *Severe and complicated malaria*. Centre for Diseases Control and Prevention of Communicable Diseases, Tehran; 1993.
24. Chamsa M. *An introduction to tuberculosis control in district level*. Centre for Diseases Control and Prevention of Communicable Diseases, Tehran; 1995.
25. Chamsa M. *How to manage the cold chain system?* Centre for Diseases Control and Prevention of Communicable Diseases, Tehran; 1995.
26. Chamsa M. *Action Plan to Improve Access to Immunization Services*. Centre for Diseases Control and Prevention of Communicable Diseases, Tehran; 1995.
27. Pezeshkpour Mostashfi A, Saghebfar M, Chamsa M, Dilmagani F. *Medical history: Pharmacists, Dentists and Veterinary Medicine*. Iran Encyclopedia Foundation; 2012.
28. Shamsa M. Glanders. Vitral, Ledingham and Warrell Oxford's Medical Manual. Translated in Persian. 1988: 617 – 678.
29. Chamsa M. Malaria: Waiting for the vaccine. *World Health Organization*. 1999; 38(13): 19 – 21.