Athens Journal of Sports - Volume 11, Issue 4, December 2024 – Pages 193-202

Health and the 2004 Olympic Games

By Zoe Boutsioli[*]

Athens hosted the 2004 Olympic Games. As part of the event, it was necessary to develop a strategic and operational health program to address various contingencies. This paper reviews that program and compares it with the health programs implemented in Atlanta and Sydney. An ex-post analysis of the operational program shows that the planning was effectively executed, as Athens 2004 did not encounter major health risks.

Keywords: *Olympic Games, Health, Athens, Structural funds, Atlanta, Syndey, Operational Program*

Introduction

In 2004, Greece took on the challenge of organizing the Olympic Games. This undertaking involved risks but also offered numerous benefits for Greece, including economic, social, and cultural advantages. However, successfully hosting the Games required significant effort, and Greece worked intensively to ensure everything was ready for the Opening Ceremony. The successful execution of the Games earned Greece worldwide recognition.[1]

A successful organization requires, among other things, effective coverage of health service needs to help Greece meet the demands of the Olympic and Paralympic Games. This paper examines the preparation involved in meeting these health service needs.

The Ministry of Health and Welfare developed an operational plan for the health sector, organized around five priority areas: hospital care, primary care, emergency medicine, public health and hygiene, and organization and administration.

Within this framework, a series of measures were introduced to support the strategic objectives of the program. These measures are designed with a unified approach, focusing on operational and organizational effectiveness, infrastructure suitability, and the effective use of human resources across all priority areas (Table 1).

[*]Research Fellow, The Athens Institute, Greece.

[1]There are many studies that evaluated the economic, social and cultural effects of Olympic Games; see among many others Bakkenbüll & Dilger (2020), Cabralis et al. (2018), Clayton (2024), Costas (2017), Magee & Weese (2023), Máté (2018), Nicoliello (2021), Ortiz et al (2020), Papanikos (2024, 2022, 2020), Stefani R (2022), Zare & Géczi (2022), and Ziakas & Boukas (2014).

https://doi.org/10.30958/ajspo.11-4-1 doi=10.30958/ajspo.11-4-1

Table 1. *Structure of the Operations Program Olympic Games 2004 - Health*

Axes	**Measures/ Initiatives**			
	1	2	3	4
Hospital Care	Support for the operation of hospital care units.	Support for the organization of the hospital care network.	Support and equipment of specialized hospital care units for emergencies and special needs.	Human resources for hospital care units.
Primary Health Care	Support for the operation of primary health care production units.	Support for the organization of primary health care networks.	Support and equipment of primary health care units with medical, telecommunication, and telemedicine infrastructure.	Human resources for primary health care units.
Emergency Medicine	Support for the emergency care patient handling units.	Support for the organization of emergency medical units.	Support and equipment of emergency medical units with necessary facilities and telemedicine systems.	Human resources for emergency medicine units.
Public Health and Hygiene	Support for the operation of public health and hygiene units.	Support for the organization of public health and hygiene network units.	Support and equipment of public health and hygiene units with telecommunication and telemedicine facilities.	Human resources for public health and hygiene network units.
Organization and Administration	Support for the operation and coordination of bodies for the completion of Olympic Games health tasks.		Support and equipment for Olympic administration with medical infrastructure.	Human resources for Olympic administration and health network staffing.

This article aims to present the initiatives promoted through the "Olympic Games 2004 - Health" Operational Plan and to compare Greece's approach with the experiences of Atlanta and Sydney in the 1996 and 2000 Olympics, respectively. As shown in Table 1 below, the five focus areas of the "Olympic Games 2004 - Health" plan are funded with 367 million euros. Of this amount, 28.8% (€106 million) is allocated to Axis 1: Hospital Care; 17.6% (€65 million) to Axis 2: Primary Care; 36.8% (€135 million) to Axis 3: Emergency Medicine; 14.4% (€53 million) to Axis 4: Public Health and Hygiene; and 2.4% (€8.8 million) to Axis 5: Organization and Administration (see Table 2 below).

This work is organized into five parts, beginning with this introduction. The second part provides a detailed overview of the program's priority axes and sixteen measures. The third and fourth parts describe the experiences of Atlanta and Sydney, specifically regarding the organization and provision of medical services during the Games. Finally, the fifth part presents the conclusions, highlighting the most significant actions of the Operational Program.

Priority Axes

The Ministry of Health and Welfare had planned a series of measures focused on operational and organizational improvements, infrastructure development, and the strengthening and effective utilization of human resources at Olympic hospitals. As noted above, these measures were designed with a unified approach, adapting as needed to align with each specific priority axis and specific finance (Table 2)

Table 2. *Funding of Operational Program (OP) Olympic Games 2004 - Health*

Axis	Regular Budget (R.B.)	Public Investment Program (PIP)		Financial Weight of OP
		National Resources	Community Resources	
Axis 1: Hospital Care	€ 30814380	€ 32868672	€ 41966251	28.8%
Axis 2: Primary Care	€ 19075569	€ 24944974	€ 20542920	17.6%
Axis 3: Emergency Medicine	€ 74834923	€ 30961115	€ 29200294	36.8%
Axis 4: Public Health and Hygiene	€ 24651504	€ 20542920	€ 7630227	14.4%
Axis 5: Organization and Administration	€ 8804109	—	—	2.4%
Subtotal	€ 158180485	€ 109317681	€ 99339692	100%
Total (R.B., National, & Community Resources)				**€366,837,858**

Source: Ministry of Health (2001).

Axis "Hospital Care"

The first operational measure under the Hospital Care Axis involved designating the Olympic hospitals and ensuring their readiness and quality through specific actions. Ensuring comprehensive hospital care services required integrating hospital units into a network of hierarchically organized, complementary functions. This network's development aligned with the zoning of sports venues and parks, as well as the locations of planned cultural events.

The second organizational measure aimed to systematically organize the Olympic hospitals through interdepartmental cooperation among all health sector units and departments to fully and promptly meet urgent needs. The telecommunication and telemedicine networks connecting Olympic hospitals, along with the resources and mechanisms of EKAB, played a crucial role in supporting this measure.

The third measure addressed the adequacy of infrastructure—buildings, medical networks, and equipment—at Olympic hospitals. Implementing this measure required ensuring the effective operation of network infrastructure to support access to hospital care units.

The fourth measure focused on strengthening and effectively utilizing human resources within the Olympic hospitals. Through this measure, the Ministry of Health and Welfare aimed to secure the necessary number of specialized staff across all

hospital departments (diagnostic, therapeutic, and nursing). Volunteer involvement contributed significantly to achieving this goal.

The timeline for implementing the measures under the Hospital Care Axis began in the first quarter of 2001 and concluded in the third quarter of 2004. Activities related to hospital care were projected to peak between the fourth quarter of 2001 and the fourth quarter of 2003.

Axis "Primary Health Care"

Primary Health Care was provided through Service Networks based on both the geography of competition and accommodation sites, as well as existing units within the Primary Care Network of the NHS. These Networks included established health centers, urban-type health centers, and new health units (such as first aid stations and EKAB "unit" stations) created at sports and cultural venues, along with surrounding zones.

Among the new health units established was a Polyclinic in Olympic Village, covering approximately 2,700 sq.m., which was designed to provide 24-hour emergency health services and other medical services from 8:00 a.m. to 10:00 p.m. This initiative was funded with €7.3 million.

The first operational measure focused on ensuring the full functionality of primary health care units and hospital outpatient clinics. This measure also aimed to enhance the quality of services provided, based on medical protocol standards and referral process guidelines within primary health care units.

The second measure under the Primary Health Care Axis promoted the interconnection of Primary Health Care Network units, Olympic hospitals, and EKAB stations. It also included actions to ensure the network's preparedness for providing emergency medical care and transport to designated Olympic hospitals.

The third measure ensured the adequacy of the infrastructure within the Primary Health Care Networks. This involved improvements and upgrades to Health Center facilities, such as regional clinics, insurance fund clinics, and some private clinics.

The fourth measure focused on training and utilizing human resources by implementing actions to increase the specialization and experience of primary health care unit staff. It also facilitated staff interconnection and operational mobility to ensure full functionality of emergency medical departments.

The peak of the planned actions occurred in the third and fourth quarters of 2001, and throughout 2003, marking the final stages of implementing the second Axis.

Axis of Emergency Medicine

The upgrade of emergency medicine services during the 2004 Olympic Games in Athens was achieved through the facilitation of the use of the Ambulance Service and the enhancement of its services, as well as the development of an emergency response plan.

The first operational measure focused on actions that aimed at improving the quality and comprehensive provision of emergency pre-hospital medical care, while

also ensuring its availability through the competent departments of hospitals and Health Centers, as well as through the "units," "mechanisms," and "resources" of EKAB.

The actions outlined in the second organizational measure of the emergency medicine system were aimed at fostering interdepartmental organization and cooperation among all departments and units responsible for emergency pre-hospital care across the Olympic hospitals, Health Centers, and EKAB. Particular emphasis was placed on organizing First Aid Stations at the venues of the Games.

The third measure focused on the adequacy of the infrastructure of the Emergency Medicine Units. Specifically, actions were taken to ensure the availability of certified emergency medical equipment, both for mobile and permanent units, as well as telemedicine and telecommunication network infrastructure.

The fourth measure addressed the strengthening and utilization of human resources within the emergency medicine system. This measure aimed at securing the necessary staff, both in terms of numbers and expertise, for the emergency medicine units across the entire healthcare network—emergency medicine units, hospitals, Health Centers, etc.

The implementation of the actions within the third Axis of Emergency Medicine began in the second quarter of 2001 and was completed in the third quarter of 2004. The intensity of the actions increased in the first quarter of 2002, became more focused in the first, second, and third quarters of 2003, and gradually decreased as the date of the Games approached.

Axis "Public Health and Hygiene"

The strategic objective of the fourth axis focused on epidemiological surveillance and the coordination of services and organizations responsible for ensuring compliance with hygiene standards in food, water, public places, and locations providing services to the public.

The first operational measure aimed at ensuring completeness and quality in public health and hygiene services. The full provision of these services was guaranteed through the network coverage of areas hosting the Olympic Games in Athens, the Olympic cities, tourist and archaeological sites, and the country's entry points.

The second organizational measure focused on the systematic organization of all aspects of public health and hygiene (information, laboratory investigation, data collection and analysis, preventive measures, surveillance, and implementation), as well as the equipping of units with the necessary tools for epidemiological and sanitary surveillance.

The actions under the third measure addressed the adequacy of infrastructure in the Health and Hygiene Network Units. This aimed to ensure that the units had the appropriate infrastructure to develop operational standards for medical protocols and meet the needs of the public health and hygiene protection system in all risk zones.

The fourth measure, which focused on strengthening and utilizing human resources, was designed to ensure the proper functioning of the services and units

within the Public Health and Hygiene Network. This was achieved by securing the required staff, both in terms of numbers and specialization/experience, in the fields of public health and in coordination services outside the health sector (e.g., police, municipalities, communities, environmental services).

According to the Ministry of Health and Welfare's schedule, the implementation of actions within the fourth Public Health and Hygiene Axis began in the second quarter of 2004.

Between 2002 and 2004, significant efforts were made to implement actions ensuring public health and hygiene across both sports and non-sports infrastructures for the 2004 Athens Games.

Axis "Organization and Management"

The administrative coordination of the health sector was the main priority of the fifth priority axis, with special emphasis on the effective management of emergencies.

The first measure of the Organization and Administration of the Health Sector Axis was operational in nature and aimed at defining the organizational structure necessary for the rational administration and coordination of the health sector during the 2004 Olympic Games (establishment of the Coordinating Body of the Health Sector – SOTY).

The second organizational measure aimed at optimizing the organization of the SOTY and ensuring its effective integration with Primary Care agencies, Olympic hospitals, "Athens 2004," services of the Ministry of Health and Welfare, relevant public health bodies, and EKAB. As part of the organizational actions, provisions were made for medical announcements throughout the Games.

Medical interpretation during the 2004 Olympic Games was provided in English, French, Russian, Mandarin, German, Arabic, and Swahili. The Ministry of Health and Welfare was responsible for interpreting medical information, offering services from the Ministry's premises, the Olympic Village Polyclinic, and the Special Center for Medical Information.

In terms of organizational actions, the importation of medicinal substances followed specific criteria. The Organizing Committee requested that National Olympic Committees submit a list of medicines they would bring into the country. These lists were subsequently reviewed by the National Medicines Agency to prevent the importation of substances banned by the International Olympic Committee.

Regarding the suitability of SOTY's infrastructure and the support systems for its operation, the third measure of the axis focused on ensuring the adequacy of building infrastructure, management and operational equipment, certified information systems (hardware), and certified health sector data collection and management software, all originating from the health sector sub-systems.

The fourth measure, aimed at strengthening and utilizing human resources for the Organization and Administration of the health sector, focused on sourcing personnel for the staffing of SOTY. This was achieved through recruitment from health sector subsystems, the open labor market, or the selection of volunteers to support the SOTY project.

The actions of the fifth priority axis—Organization and Management of the Health Sector—began in the second quarter of 2001 and concluded in the third quarter of 2004. Implementation actions were intensified between the first quarter of 2002 and the fourth quarter of 2003.

The Atlanta 1996 Experience

During the 1996 Atlanta Olympic Games, a comprehensive system was developed to monitor and provide medical services to all participants (Wetterhall et al., 1988). On one hand, the Atlanta Olympic Committee was solely responsible for providing medical services to both residents and visitors of the Games. On the other hand, the Centers for Disease Control and Prevention (CDC) developed a health surveillance system that monitored the health and safety of the participants on a daily basis.

Medical services included the provision of first aid in emergency situations to athletes, spectators, staff, and volunteers. These services were available at the Polyclinic in the Olympic Village, at 24 sports venues, including the Olympic Stadiums, and at 11 non-sports venues, such as the Olympic Park and the central Press Offices.

In case of emergencies, medical care for participants and athletes was provided by a mobile first aid unit for every 20,000 spectators. For comprehensive medical coverage, one ambulance was stationed for every 20,000 spectators, ensuring immediate transport to nearby hospitals. Nineteen hospitals in the metropolitan Atlanta area and eight in remote areas formed the Olympic hospital network.

The cost of installing and operating the medical services system was $4.36 million. Medical services at the Polyclinic and at the sports and medical service stations for spectators were provided free of charge.

Finally, to ensure the efficient operation of the medical care delivery system, a Health Information System was developed. The purpose of this system was to monitor the health status of athletes, staff, and spectators, as well as to investigate any diseases or injuries that occurred.

The Sydney 2000 Experience

Six years before the Olympic Games were held in Sydney, Australia, planning for the provision of Olympic health services began, with the assistance of the Australian Department of Health, the Organizing Committee of the Sydney Olympic Games, the Organizing Committee of the Paralympic Games, and the Principle of Olympic Coordination (Visotina & Hills, 2000).

At the Olympic health planning stage, the Ministry of Health was responsible for: a) hospital care, b) medical care for interpreters, c) public health provision, d) emergency services (ambulance transport), and e) coordination and management of general disasters.

On the other hand, the Olympic Organizing Committee was responsible for: a) providing medical care to athletes and spectators at competition and training venues, b) doping control, and c) confirming the gender of the athletes.

During the implementation phase of the Olympic health program, the Olympic Health Coordination Center of the Ministry of Health took on the role of overseeing the program. The main responsibility of this center was to make strategic decisions in emergency situations during the Olympic Games.

The direct health surveillance system operated with the goal of providing comprehensive information regarding the health status of participants in the Sydney Olympic Games. A key responsibility of the Health Surveillance Department was to issue a daily report, which included a summary of health-related events from the previous 24 hours, the recording of health data, and the identification of significant diseases.

Regarding hospital care at the Sydney Olympics, a network of hospitals was established to ensure the provision of medical care. In total, 13 hospitals were included in the network, three of which were Olympic hospitals, while the remaining ten provided supportive medical services. The main Olympic hospitals in the network also met the needs of the Paralympic athletes.

Significant efforts were made by the Australian Ministry of Health regarding environmental health and hygiene. In collaboration with Public Health units and local agencies, the ministry developed and implemented public health and hygiene programs in both competition and non-competition areas. Inspections were also conducted on ships providing health services, focusing on food storage temperatures, ensuring potable water, and maintaining hygiene in the ships' swimming pools.

Of paramount importance was the medical interpretation service for non-English-speaking participants in the Games. A department was created to serve the medical needs of these individuals at the Polyclinic in the Olympic Village. Medical information was available by phone in 55 languages, with the most frequently used languages, according to Table 3, being Arabic, French, Chinese, Russian, and Spanish. A total of 6,227 people required medical services in languages other than English during the Olympic and Paralympic Games.

Table 3. *More Frequent Use of Medical Interpretation Service in Olympic and Paralympic Games (Sydney)*

	Language	Usage (Olympic Games)	% of Total Usage (Olympic)	Usage (Paralympic Games)	% of Total Usage (Paralympic)
1	Arabic	554	15.06%	850	33.30%
2	French	763	20.74%	111	4.39%
3	Chinese	74	2.01%	336	13.18%
4	Russian	1,181	32.31%	690	27.08%
5	Spanish	979	26.61%	452	17.74%
Total		**3,551**	**96.52%**	**2,439**	**95.69%**

Source: Visotina & Hills (2000)

Conclusions

The Operational Program Olympic Games 2004 – Health placed special emphasis on Axis 3, Emergency Medicine, and Axis 4, Public Health and Hygiene,

due to the unique needs of the Olympic Games. To address these needs, the program focused on upgrading health units and training human resources in public health and hygiene services, with the completion of interventions occurring on schedule.

The first axis, Hospital Care - Olympic Hospitals, directed its efforts toward improving the infrastructure of the Emergency Departments (EDs), creating new departmental infrastructures, upgrading existing departments, completing medical and other equipment, and modernizing beds.

Within the Primary Health Care Axis, the development of primary health services was planned, including the Polyclinic of the Olympic Village, the operation of urban health centers, and the creation of first aid stations. Post-Olympics, the Polyclinic would be repurposed as an urban health center and model diagnostic center to serve the broader community.

The third axis, Emergency Medicine, focused on creating appropriate infrastructure for the EKAB Operational Centers, installing disinfection systems for biological, toxic, and chemical substances in Olympic hospitals, renewing and reinforcing the EKAB mobile units, and staffing and training EMS workers and volunteers in emergency medicine.

The fourth axis, Public Health and Hygiene, aimed at organizational and operational interventions to improve the quality of public health services. These included creating public health networks, expanding and completing equipment for public health laboratories, supplying mobile personnel and biological material transport units, establishing electronic interconnectivity for public health units, staffing with permanent personnel, training staff, and preparing and implementing a plan to address bioterrorism.

In summary, we conclude that the Operational Program "Olympic Games 2004 – Health" was a comprehensive initiative designed to meet the health needs during the 2004 Olympic Games. It provided a set of actions that spanned a wide range of health services, both in the capital region and in the other Olympic cities.

Acknowledgments

An early version of this paper—published before the 2004 Olympics—appeared in the Greek periodical *Oikonomia & Athlitismos*. This is an updated, post-Olympic version of that paper.

References

Bakkenbüll L-B, Dilger A (2020) Willingness to pay and accept for hosting Olympic Games in Germany. *Athens Journal of Sports* 7(3): 189–204. https://www.athensjournals.gr/sports/2020-7-3-4-Bakkenbull.pdf

Cabralis S, Foo C, Schaefer G (2018) Where are they now? – A review of the Trinidad & Tobago Olympic committee sports administrator courses. *Athens Journal of Sports* 5(1): 53–68. https://www.athensjournals.gr/sports/2018-5-1-3-Cabralis.pdf

Clayton E (2024) Why No Swimming in the Ancient Olympics? *Athens Journal of Sports* 11(1): 21–36. https://www.athensjournals.gr/sports/2024-11-1-2-Clayton.pdf

Costas BP (2017) Sinking, swimming or just treading water. The Olympic legacy from London 2012 – 4 years on. Has it made any difference? Pupil voice and an analysis of swimming provision. *Athens Journal of Sports* 4(1): 35–52. https://www.athensjournals.gr/sports/2017-4-1-2-Costas.pdf

Kasimati E (2015) Post-Olympic use of the Olympic venues: the case of Greece. *Athens Journal of Sports* 2(3): 167–184. https://www.athensjournals.gr/sports/2015-2-3-3-Kasimati.pdf

Magee K, Weese J (2023) Olympic Public Transportation Investments, Legacy, and City Prosperity: An Empirical Look at the 2000-2016 Summer Games. *Athens Journal of Sports* 10(4): 235-260. https://www.athensjournals.gr/sports/2023-10-4-3-Magee.pdf

Máté T (2018) Social impacts of international sport events – Based on experiences from European youth Olympic festival 2017 Győr. *Athens Journal of Sports* 5(3): 227– 242. https://www.athensjournals.gr/sports/2018-5-3-4-Mate.pdf

Nicoliello M (2021) The New Agenda 2020+5 and the Future Challenges for the Olympic Movement. *Athens Journal of Sports* 8(2): 121–140. https://www.athensjournals.gr/sports/2021-8-2-2-Nicoliello.pdf

Ortiz J, Ando M, Miyazaki T (2020) Numerical simulation of wind drift of arrows on the Olympic venue for Tokyo 2020. *Athens Journal of Sports* 7(1): 1–20. https://www.athensjournals.gr/sports/2020-7-1-1-Ortiz.pdf

Papanikos GT (1999) Tourism impact of the 2004 Olympic Games (in Greek). Athens: Tourism Research Institute

Papanikos GT (2020) The Participation Legacy at Olympic Games. *Athens Journal of Sports* 7(4): 251–262.

Papanikos GT (2022) An ex-post analysis of the 2004 Olympic effect. *Athens Journal of Sports* 9(1): 51–58.

Papanikos GT (2024) Does Success in The Olympic Games Boost Public Participation in Sport? *Economic Observatory*, 12 August 2024. https://shorturl.at/o3KV1

Stefani R (2022) Evaluation of Pre-conflict International Olympic Committee Actions against Russia for Doping Violations. *Athens Journal of Sports* 9(3): 127–134. https://www.athensjournals.gr/sports/2022-9-3-1-Stefani.pdf

Wetterhall S., Coulombier D., Herndon J., Zaza S., Cantwell J., (1998), Medical Care Delivery at the 1996 Olympic Games. *Journal of American Medical Association – JAMA* 279(18): 1463-1468.

Visotina M. & Hills M. (2000), NSW Health Services and Paralympic Games. NSW Health, State Health Publication.

Zare F, Géczi G (2022) Perceived Effects of Olympic Success on International Policies and Prestige: A Case Study of Sports Actors from Iran. *Athens Journal of Sports* 9(4): 231–254. https://www.athensjournals.gr/sports/2022-9-4-3-Zare.pdf

Ziakas V, Boukas N (2014) Post-event leverage and Olympic legacy: a strategic framework for the development of sport and cultural tourism in post-Olympic Athens. *Athens Journal of Sports* 1(2): 87–102. https://www.atiner.gr/journals/sports/2014-1-2-2-Ziakas.pdf