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Organization of medical services for the Winter Olympic Games: the Milano-Cortina 2026 case

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Abstract

The Milano-Cortina 2026 Winter Olympics represent a paradigmatic case of a widespread Olympics, with alpine and metropolitan clusters that transform medical services from a system centered on a single area into a multijurisdictional network. This narrative-comparative study analyzes the contemporary evolution of Olympic health management models (2006-2026) and contextualizes the Milano-Cortina plan through a literature review and documentary analysis of official reports from past editions, bid dossiers, and International Olympic Committee strategic documents. The results show a transition from host-city models to host-region arrangements, with a progressive increase in governance requirements, standardization, and informational interoperability. In the Milano-Cortina case, the multi-cluster architecture, the dualism between closed-loop pathways and care for the general population, and the integration with emergency care and public health further increase organizational complexity. Consistent with Winter Games surveillance showing sport-specific injury variability and a non-negligible illness burden, internal medicine—alongside emergency care—emerges as a stabilizing component for non-traumatic conditions and comorbidities. The model's effectiveness will depend on centralized oversight, interregional coordination, and monitoring mechanisms to ensure continuity of care and territorial equity.

Key words: Olympic medical services, Winter Olympic Games, Milano-Cortina 2026, health system management, widespread Olympics.

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Introduction

In the past two decades, mega sporting events have shown increasing criticalities in terms of economic sustainability, with recurring cost overruns, the risk of infrastructural overbuilding, and social tensions that have contributed to growing public opposition and, in some cases, the withdrawal of bids.[1] In the case of the Olympic Winter Games, these issues intertwine with geographic and climatic constraints that make hosting feasible only for countries with territories and infrastructures suited to the needs. In this context, the healthcare dimension assumes a dual strategic role: on the one hand, it acts as an enabling function of the event, ensuring safety, operational continuity, and response to major incidents; on the other, it can represent a driver of public value and legacy, provided that the solutions implemented during the Games are designed to be integrated and sustained within the local healthcare service in the medium-long term.[2]

The shift from a host-city to a host-region paradigm implies a change in spatial and organizational scale associated with an increase in the number of stakeholders and greater complexity in the planning of mobility, logistics, and essential services, including healthcare.[3,4] At the same time, local communities increasingly expect the investments generated by the event to deliver lasting benefits, rather than being limited to the Olympic period.[4] In this direction, the conceptual framework of the New Norm promotes more flexible bids, characterized by greater reuse of existing infrastructure and territorially distributed venues. However, this approach can heighten the tension between the event's standardization requirements and local specificities, with implications for governance models and service delivery methods.[5]

Milano-Cortina 2026 fits into this trajectory as a paradigmatic case of a widespread Winter Olympics, structured across multiple alpine and metropolitan clusters (an area of more than 22,000 km^2),[6] requiring interregional health coordination and multi-level governance. In parallel, literature on public value and policy ecosystems highlights how network design and institutional interdependencies influence the event's ability to generate collective value beyond the duration of the Games, substantially affecting the transferability of its legacy.[7] These dynamics are particularly relevant in mountain areas, marked by infrastructural constraints, environmental pressures, and often peripheral healthcare services, which can benefit from organizational innovations and capacity upgrades, but also suffer from externalities such as congestion, service overload, and logistical complexity.[4]

Within this framework, legacy should be understood as a multidimensional construct, encompassing both tangible elements (facilities, technologies, networks) and intangible ones (skills, protocols, interinstitutional cooperation), contributing to the sustainability of public investment over time.[2] Therefore, this study

proposes an analysis of Olympic medical services not as isolated operational units, but as a networked architecture, where performance depends on the integration of clinical nodes, logistics, and governance. Although Winter Games are often associated with sports traumatology, the experience of medical services reveals a broader clinical care workload, including a significant proportion of non-traumatic medical conditions and complex diagnostic-therapeutic needs. In particular, data from Olympic polyclinics show that illness accounts for a substantial share of visits, thus requiring cross-disciplinary skills in clinical assessment, comorbidity management, and definition of care pathways consistent with the field of internal medicine.[8,9]

From this perspective, the present study aims to: i) describe the functioning and roles of Olympic medical services; ii) reconstruct the evolution of organizational models at the Winter Olympics from 2006 to 2026, interpreting the transition from more concentrated configurations to polycentric networks; and iii) discuss the rationale and main implications of the widespread Olympics model, with a focus on the trade-offs between sustainability and coordination complexity.

Materials and Methods

Study design

This study was designed as a narrative review combined with a comparative qualitative analysis of institutional and programmatic documents. Its aim was to reconstruct the evolution of medical service organization in the Winter Olympic Games over the last two decades and to contextualize the Milano-Cortina 2026 case within this trajectory. The analytical approach was descriptive-comparative and focused on identifying organizational patterns across Olympic editions rather than on estimating pooled quantitative effects.

Source selection and document analysis

The literature search was conducted in PubMed, Scopus, and Google Scholar, and covered the period 2006-2026. Sources were eligible if they addressed the organization of Olympic medical services, polyclinic models, venue-based care, integration with emergency medical systems, public health preparedness, continuity of care in mass gatherings, or non-traumatic conditions relevant to internal medicine during major sporting events. To complement the scientific literature, institutional and programmatic documents were also analyzed when indexed publications did not provide sufficient organizational detail. These included: i) official reports and technical documentation from recent Winter Olympic editions; ii) the Milano-Cortina 2026 bid dossier; and iii) International Olympic Committee (IOC) strategic documents on sustainability, flexibility, and legacy in Games delivery. Sources focused exclusively on sports performance or on clinical issues unrelated to healthcare organizations were excluded.

Clinical demand profile

To complement the organizational analysis with an estimate of clinical demand, a synthesis of epidemiological evidence on injuries and illnesses observed during recent Winter Olympic Games was included. Injury data by discipline were derived from a systematic review and meta-analysis covering Vancouver 2010, Sochi 2014, PyeongChang 2018, and Beijing 2022. In parallel, scientific articles addressing illnesses during the same editions were reviewed, with attention to frequency, affected systems, symptoms or causes, and higher-risk sports. This synthesis also considered non-traumatic conditions relevant to internal medicine, in order to inform discussion of healthcare needs and referral pathways within a multi-cluster model.

Operational definitions

In the absence of a standardized definition in indexed scientific literature, this study adopts an operational definition of the term "widespread Olympics". This construct was derived through a qualitative analysis of programmatic documents and grey literature, synthesizing established institutional practices. Henceforth, a widespread Olympics is defined as an organizational model in which competition venues, ceremonies, and support services are spread across multiple locations/clusters over a large territorial area (often multi-regional), relying primarily on existing or already planned facilities, with the goal of reducing infrastructure concentration, containing costs and environmental impact, and distributing both benefits and organizational burden across the territory.

This definition was considered conceptually aligned with the IOC's orientation toward more flexible and sustainable delivery models.[10,11]

Results

Functioning and roles of Olympic medical services

Olympic medical services can be described as a multi-level clinical-logistical network that integrates on-field care, intermediate facilities (medical stations/polyclinics), the designated hospital network, public health services, and information systems. The operational goal (and equity constraint) is to ensure high standards of care for participants without compromising routine service delivery for residents, an especially critical condition in public healthcare systems facing personnel and capacity constraints.

Alongside musculoskeletal injuries, previous Winter Games have consistently documented a relevant burden of non-traumatic conditions, particularly respiratory and gastrointestinal illnesses, with direct implications for internal medicine support and non-trauma care planning.[12] Olympic medical services should therefore be interpreted not only as trauma-oriented systems, but as integrated clinical networks managing a heterogeneous case-mix across different care settings.

To systematically synthesize the functional architecture of Olympic medical services, Table 1 summarizes the main operational components, distinguishing their core functions, target populations, and key resources/infrastructures.[8-13]

Comparative evolution of Winter Olympic medical service models (2006-2026)

The comparison across Winter Olympic editions shows a progressive shift from concentrated toward increasingly distributed and interdependent organizational configurations. Three main trends emerged: territorial decentralization across multiple clusters; growing integration of venue-based care, polyclinics, referral hospitals, and public health functions; and the increasing relevance of coordination mechanisms, standardized protocols, and interoperable information systems. A first phase may be described as a city-centric model, in which the Olympic Village polyclinic represented the main clinical hub, functionally connected to designated hospitals and venue medical services within a concentrated governance struc-

Table 1. Functions and operational components of Olympic medical services.

Operational components	Core functions and services	Target populations	Key resources and infrastructures
Polyclinic (Olympic Village)	Primary care, sports medicine, 24-hour emergency services, and medical specialties.[8,9]	Accredited athletes and delegations (Closed Loop).[9,12,13]	Centralized outpatient facilities, laboratory, diagnostic imaging, pharmacy.[8,13]
Venue medical stations	First aid, on-field injury management, stabilization, referral.[13]	Separate pathways for Athletes and Spectators/Staff.[12,13]	Fixed and mobile medical stations (Rescue Teams), emergency medical kits, defibrillators, snowmobiles/ATVs.[13]
Olympic hospital network (Hub)	Complex surgery, high-level specialties, level I trauma centers, spinal units, and major emergency management.[8,13]	Hospitalized athletes, spectators, workforce, residents.[12,13]	Designated public hospitals; trauma centers; surgical capacity; advanced imaging (CT, MRI).[13]
Emergency medical services (EMS)	Territorial emergency response, secondary transport, dispatch coordination.[13]	Entire Olympic ecosystem.[13]	Integrated Control Centers, ALS/BLS ambulances, HEMS.[13]
Anti-doping control	Sample collection, processing, secure custody, transport, and laboratory processing.[14]	Athletes in and out of competition.[14]	Dedicated control stations, WADA-accredited laboratories, secure storage and transport.[10,14]
Public health system	Infectious disease surveillance, food safety, water and environmental monitoring.[13]	Residents, tourists, and Olympic participants.[12,13]	Epidemic Intelligence systems, Microbiological surveillance, inspection services.[13]
Digital ecosystem and telemedicine	Clinical data exchange, remote consultation, monitoring, inter-site coordination.[13]	Athletes and clinical staff.[8,13]	Connectivity infrastructure, electronic records, telemedicine platforms, TETRA systems.[10,13]

ALS, advanced life support; ATVs, all-terrain vehicles; BLS, basic life support; CT, computed tomography; EMS, emergency medical services; HEMS, helicopter emergency medical services; MRI, magnetic resonance imaging; TETRA, terrestrial trunked radio; WADA, World Anti-Doping Agency.

ture.[1,2] Torino 2006 reflected this logic within a metropolitan-regional framework, combining venue facilities, village polyclinics, and designated hospitals integrated with the regional health service, with the explicit aim of avoiding duplication and strengthening existing emergency pathways.[12,14] A second phase involved cluster-based configurations, characterized by moderate territorial dispersion and the need to organize services across multiple hubs. Vancouver 2010 exemplified a layered multi-actor model, with differentiated medical stations, strong collaboration with public health authorities, and attention to infectious risk preparedness.[15,16] Sochi 2014, although more centralized in governance, represented a highly infrastructure-intensive model with major investments in medical facilities.[17] In both cases, the operational challenge shifted from resource concentration to coordination of differentiated clinical nodes. A third phase is represented by polycentric host-region models, in which medical services operate across geographically dispersed clusters embedded in distinct institutional contexts. PyeongChang 2018 provided a relevant benchmark: its bi-polar configuration, supported by two polyclinics with advanced diagnostic capacity, demonstrated the importance of reducing unnecessary transfers and adapting planning to geography and local disease patterns.[8,9,18] Beijing 2022 added complexity by integrating biosecurity measures — closed-loop pathways, daily testing, and infection-control protocols — into the medical system,[19,20] highlighting the extent to which Olympic services may need to incorporate surveillance and containment functions alongside conventional care. Taken together, these editions suggest a clear organizational trajectory: from predominantly centralized arrangements toward distributed, network-based models in which effectiveness depends on the integration of multiple clinical, logistical, and public health nodes. Within this trajectory, Milano-Cortina 2026 represents the most advanced expression of the host-region paradigm.

Table 2 synthesizes the main differences across editions in terms of territorial configuration, integration model, medical service architecture, and main coordination challenges.

The Milano-Cortina 2026 case: medical services in a widespread Olympics

Milano-Cortina 2026 is characterized by an unprecedented territorial dispersion for the Winter Games, with alpine and metropolitan clusters separated by long distances and embedded in different regional and provincial healthcare systems.[4,6] Compared with previous editions, this configuration does not simply increase logistical complexity quantitatively; it introduces a qualitatively different organizational problem, namely the need to govern medical services across a multi-jurisdictional and geographically fragmented network while maintaining consistent standards of care.

From a healthcare perspective, the emerging model can be interpreted as a multi-cluster hub-and-spoke system. Metropolitan hubs are expected to concentrate higher-complexity functions, including trauma care and specialist referral, whereas mountain areas require strengthened forward capacity for first response, stabilization, and selected treatment in order to reduce long-distance transfers, which may be constrained by geography and weather.[13] In parallel, the multiplication of village polyclinics and venue medical stations increases the need for standardized clinical protocols, interoperable information systems, coordinated supply chains, and clear referral criteria.[13]

The institutional architecture reflects this complexity. At national level, the regulatory framework formally recognizes the

Table 2. Comparative synthesis of Winter Olympic medical service models (2006-2026).

Edition	Territorial configuration	Integration model	Medical service architecture	Main coordination challenge
Torino 2006	Predominantly city-centric/regional, with distributed venues.[12,14]	Full integration between OCOG and Regional Health Service.[12,14]	Venue-based facilities, village polyclinics, designated hospitals integrated with the emergency network.[12]	Avoiding duplication while preserving routine service continuity.[12]
Vancouver 2010	Cluster-based configuration.[15,16]	Multi-actor collaboration between VANOC, public health agencies, and provincial authorities.[15,16]	Layered system with differentiated athlete and spectator stations, public health preparedness.[15,16]	Coordination across agencies and infectious risk preparedness.[15,16]
Sochi 2014	Concentrated but infrastructure-intensive model.[17]	Centralized governance with strong capital investment.[17]	Multiple medical stations, village clinics, and dedicated hospital facilities.[17]	Managing a highly planned system with substantial new infrastructure.[17]
PyeongChang 2018	Bi-polar cluster model.[8,9,18]	Delegation to University Hospitals.[8,18]	Two polyclinics with advanced diagnostics, referral pathways adapted to geography and weather.[8,18]	Reducing unnecessary transfers and aligning services with local constraints.[8,18]
Beijing 2022	Polycentric model within a closed-loop regime.[19,20]	Shared governance between BOCOG, IOC, and Chinese national health authorities.[19,20]	Closed-loop pathways, testing and quarantine systems, integrated biosecurity and clinical functions.[19,20]	Combining conventional care delivery with surveillance and containment (COVID-19).[19,20]
Milano-Cortina 2026	Widespread Olympics: Multi-cluster, multi-regional.[4,6,13]	Coordination across regions/provinces under central Olympic oversight.[13]	Distributed hub-and-spoke model with mountain forward capacity, village polyclinics, venue stations, and designated referral hospitals.[13]	Ensuring interregional coordination, standardized protocols, interoperability, and territorial equity.[13]

BOCOG, Beijing Organising Committee for the Olympic and Paralympic Winter Games; COVID-19, coronavirus disease 2019; IOC, International Olympic Committee; OCOG, Organising Committee for the Olympic Games; VANOC, Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games.

Fondazione Milano Cortina 2026 as the organizing body and provides the legal basis for implementation and procurement processes.[21] At regional level, planning documents define healthcare investments, the designation of Olympic hospitals, and the configuration of emergency response and medical transport networks. Overall, the Milano-Cortina model moves Olympic medical services further away from the traditional image of a self-contained Olympic healthcare enclave and toward a distributed public-service ecosystem dependent on interregional coordination and network governance.[14]

Injury and illness profile across Winter Olympic sports: implications for medical service design

To complement the organizational comparison, the epidemiological profile of recent Winter Games confirms that medical demand is heterogeneous and discipline-specific (Table 3). Across Vancouver 2010, Sochi 2014, PyeongChang 2018, and Beijing 2022, the overall injury incidence was 11.65% (1304 injuries among 11,197 athletes), with marked variability across sports.[22] The highest incidence rates were observed in Freestyle Skiing (18.51%), Snowboarding (17.50%), Alpine Skiing (17.36%), and Bobsleigh (17.23%), while substantially lower rates were reported in Nordic Combined (1.85%) and Biathlon (2.79%).[22] These findings support differentiated planning of staffing, skill-mix, diagnostics, and referral pathways across venues and clusters.

Illness surveillance shows a non-negligible burden of non-traumatic conditions. Reported illness frequency was 7.05% in Vancouver 2010,[23] 8.90% in Sochi 2014,[24] and 9.60% in PyeongChang 2018,[9,25] whereas Beijing 2022 showed a substantially lower rate (2.79%),[26] likely influenced by the containment measures adopted under the closed-loop system. Excluding Beijing 2022, the mean illness burden across the other three editions was 8.52%. Where clinical characterization was available, respiratory and gastrointestinal conditions predominated (Table 4).

Overall, these findings indicate that Olympic medical planning cannot rely solely on sports traumatology. Beyond trauma and emergency care, the illness burden highlights the need for non-trauma expertise and pathways addressing acute conditions, infections, and comorbidities. This is especially relevant in a multi-cluster model, where internal medicine can support diagnosis, stabilization, and appropriate referral across dispersed settings.

Discussion

The Milano-Cortina 2026 case highlights a shift in the conception of Olympic medical services: the focus is moving from building new infrastructure to governing integrated systems across geographically complex territories. This transition is particularly significant within a host-region context, where the effectiveness of the healthcare response depends less on the capacity of individual facilities than on network governance, process standardization, and interoperability of information flows. In this perspective, AI-supported

approaches to hospital risk management and predictive capacity planning may further strengthen early risk identification and resource allocation in complex, multi-site settings.[27]

From an emergency approach to a healthcare ecosystem

Traditionally, Olympic healthcare has been framed within mass gathering medicine, with emphasis on emergency response and protection of elite athletes' health.[12] However, both mass gathering evidence and the epidemiological findings reviewed here indicate that a substantial share of healthcare demand during the Games derives from non-athletes and includes acute medical conditions, infectious syndromes, and exacerbations of chronic diseases.[9,23-28] Olympic medical services should not be conceived as trauma-focused systems only, but as broader healthcare ecosystems in which emergency care, public health, logistics, and non-trauma clinical management are structurally interconnected.

While Torino 2006 already pursued integration between the Organizing Committee and the regional health service,[12,14] Milano-Cortina 2026 extends this logic to a more demanding interregional setting.[7] More specifically, the event requires coordination across two Regions (Lombardy and Veneto) and two Autonomous Provinces (Trento and Bolzano). In the healthcare domain, this decentralization transforms the event from a clinical bubble into a challenge of integrating multiple regional health services, which must operate under a unified command structure while maintaining their administrative particularities. Medical services, therefore, become a co-production process involving macro-level governance, meso-level coordination, and micro-level clinical operations, balancing Olympic needs with continuity of care for residents.[7,12] This shift makes command-and-control arrangements, mutual aid agreements, shared referral pathways, and mitigation of Emergency Department flow pressures central organizational issues.[29]

Clinical implications and the role of internal medicine

The epidemiological profile of recent Winter Games suggests that healthcare planning cannot rely on sports traumatology alone. Non-traumatic conditions, acute medical presentations, and exacerbations of pre-existing diseases are a stable part of the Olympic case-mix. In this context, internal medicine has a specific role in the assessment of complex clinical presentations, management of respi-

Table 3. Injuries by discipline and overall incidence (Vancouver 2010, Sochi 2014, PyeongChang 2018, Beijing 2022).[22]

Discipline	No. of injuries	No. of athletes	Incidence (%)
Nordic combined	4	216	1.85
Skeleton	15	194	7.73
Ski jumping	20	369	5.42
Biathlon	23	825	2.79
Curling	25	426	5.87
Luge	33	431	7.66
Figure skating	60	594	10.10
Short track	60	440	13.64
Cross-country skiing	65	1203	5.40
Speed skating	67	703	9.53
Bobsleigh	113	656	17.23
Snowboarding	171	977	17.50
Freestyle skiing	181	978	18.51
Alpine skiing	217	1250	17.36
Ice hockey	250	1935	12.92
Total	1304	11,197	11.65

Table 4. Summary of illnesses (frequency, affected systems, symptoms, causes, and high-risk sports) by edition.[9,23-26]

Item	Vancouver 2010[23]	Sochi 2014[24]	Pyeong Chang 2018[25]	Beijing 2022[26]
Mean % of illnesses	7.05%	8.90%	9.60%	2.79%
Illness affected system	Respiratory, GI	–	Respiratory, GI	Dental, ophthalmologic, ENT
Main symptoms of illness	Pain, dyspnea, cough, other symptoms	–	Pain, dyspnea, cough, sputum	Pain, other symptoms
Main cause of illness	Infection; other (pre-existing, drug)	–	Infection	Infection; other causes
Sports with higher illness risk	Skating, Biathlon, Skeleton	Skeleton, Short Track, Biathlon, Curling, Bobsleigh, Curling, Cross-country	Snowboard Slalom	Nordic Skiing, Ice Track, Skating, Biathlon

ENT, ear, nose, and throat; GI, gastrointestinal.

ratory and gastrointestinal syndromes, evaluation of comorbidities, and support for referral decisions.[9,23-28] This function is particularly relevant in polyclinics and referral hospitals, where clinicians must balance diagnostic appropriateness, stabilization, observation, and transfer across dispersed venues.[8,9,13] For this reason, internal medicine should be regarded as a stabilizing component of Olympic healthcare systems, especially in a multi-cluster model where geography and transport constraints may complicate patient pathways.

The impact of the "New Norm": financial efficiency, managerial complexity, and operational flexibility

The IOC's Agenda 2020 and the New Norm have promoted more flexible and sustainable Olympic delivery models based on the reuse of existing infrastructure and the reduction of ad hoc investments.[1,30] This approach has direct implications for healthcare planning. Rather than building oversized dedicated facilities, recent editions have increasingly relied on existing hospitals and adaptable intermediate structures.[11] PyeongChang 2018 anticipated this trend by locating some advanced diagnostic services outside the Olympic Village to facilitate post-event reuse.[8,11] Milano-Cortina 2026 further develops this logic through a distributed model based largely on existing or already planned facilities, with selective investments embedded within regional healthcare planning.[5,10,13] However, lower capital expenditure is accompanied by greater managerial complexity, as multiple actors, nodes, and referral pathways must operate within a shared governance framework.[4,5,7] In the healthcare domain, the coordinating role formally assigned to the Fondazione Milano Cortina 2026 is central to aligning priorities across heterogeneous administrative settings.[21] The success of this model will therefore depend not only on operational performance during the Games, but also on the post-event use of upgraded capacities and the stabilization of organizational innovations within routine healthcare services.[7]

Evolution of legacy: from material endowment to structural and territorial dimensions

The concept of healthcare legacy has also changed over time. Earlier experiences emphasized material endowment, such as the transfer of medical equipment after Torino 2006.[14] More recent perspectives support a broader interpretation, including organizational learning, strengthened cooperation, and improved territorial integration.[2,7] In Milano-Cortina 2026, the main legacy may therefore lie less in isolated physical assets than in the consolidation of interregional referral models, professional networks, and service capacity in mountain and peripheral areas.[13]

Practical implications and study limitations

From a practical perspective, these findings suggest that planning for Milano-Cortina 2026 should clearly distinguish, while effectively coordinating, the care pathways dedicated to accredited populations and those concerning spectators, the workforce, and local residents.[13] Staffing models should include not only emergency and trauma expertise, but also internal medicine competencies, diagnostic support, infection prevention and control, and explicit referral criteria across venues, polyclinics, and hub hospitals.[8,9,13] The distributed nature of the event also requires standardized protocols, interoperable clinical documentation, telemedicine support, and predefined escalation pathways to reduce fragmentation between clusters.[13]

This study also has some limitations. First, it is based on a narrative review and comparative documentary analysis; therefore, source selection and interpretation partly relied on the authors judgment. Second, the analysis combines peer-reviewed publications with institutional and official documents, which were necessary to reconstruct organizational models but provide heterogeneous levels of detail and may reflect institutional priorities. Third, comparisons across Olympic editions are constrained by differences in context, governance, and reporting practices, particularly regarding illness data, which were not described with the same degree of completeness in all editions.[9,23-26] Finally, this study is prospective in nature and is based on programmatic documents concerning Milano-Cortina 2026.

Conclusions

This study has analyzed Olympic medical services as a complex socio-technical system, characterized by the integration of multiple components: clinical care, emergency services, health logistics, information systems, and public health functions. The evolution of the organizational model observed in Olympic editions from 2006 to 2022 finds further development in Milano-Cortina 2026, which adopts a polycentric host-region configuration.[3,4] While this approach enhances infrastructural sustainability through the use of existing assets, it also increases managerial complexity and coordination costs.[1,5] In this context, the effectiveness of the health system depends primarily on network governance quality, operational process standardization, and integrated flow management across territorial clusters, rather than on individual facility performance.

The widespread architecture of the Games amplifies the role of public health, which assumes more complex and decisive functions than in traditional Olympic models. The multiplication of Olympic Villages, polyclinics, and venue medical stations creates a higher number of interface points for epidemiological surveillance, infection prevention and control, food safety, and risk communication. This expansion requires interregional standardized protocols and effective coordination mechanisms to prevent implementation heterogeneity and decision-making fragmentation.[9,15,19] If properly governed, the widespread architecture can strengthen the preparedness of the territorial health service, but it requires unified oversight to ensure operational coherence.

The structure of the Olympic hospital network, based on a multi-cluster hub-and-spoke model, has significant implications in terms of healthcare legacy. The designation of reference hospital hubs and the formalization of referral and care pathways can help establish stable collaboration among healthcare facilities of varying complexity—including smaller territorial hospitals that, during the event, integrate functionally with reference centers. The stabilization of such inter-organizational relationships may evolve into more structured and lasting referral models and clinical-organizational support systems in the post-event phase.[13]

Another key legacy element concerns the transformation of professional practices and work models. Health teams will operate under non-standard organizational conditions, marked by specific shift schedules, standardized procedures, and interprofessional and interregional team composition. Operating in high-complexity contexts fosters advanced skills and professional networks across healthcare systems — a significant legacy component with medium- to long-term transferability into routine care.[2,7]

In summary, Milano-Cortina 2026 represents an opportunity to test and consolidate integrated models of healthcare service delivery

in mountainous and multi-jurisdictional contexts. However, the actual sustainability of the model and the achievement of a lasting legacy will depend on critical factors such as the robustness of network governance, the interoperability of information systems, and the implementation of ex-ante and ex-post evaluation processes focused on outcome indicators, continuity of care, and territorial equity.[2,5] Future research should focus on measuring these dimensions to identify the organizational and institutional conditions supporting the transferability of innovations introduced during complex health-related mega-events.

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