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Occupational Health Services in Sri Lanka: A Health-System Perspective on Current Arrangements, Gaps and Priorities for Strengthening

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Abstract:

Occupational health is an essential component of public health, yet access to comprehensive occupational health services remains uneven, particularly in low- and middle-income countries and among workers in informal and small-scale settings. Sri Lanka has an established preventive health system, a national occupational health programme within the Ministry of Health, labour-sector regulatory mechanisms, and a long history of attempts to integrate workers' health with primary health care. This narrative review examines occupational health services in Sri Lanka from a health-system perspective, focusing on governance and legislation, service delivery, workforce, surveillance and information, intersectoral coordination, access and equity, and system capacity. Published literature, national policy and programme documents, legislation, and material from the World Health Organization and International Labour Organization were narratively synthesized. Sri Lanka's principal strengths are its island-wide public health infrastructure, Medical Officer of Health network, Public Health Inspector workforce, national policy framework, and established institutions within the health and labour sectors. Important gaps remain in the priority given to occupational health within routine preventive services, district technical capacity, coordination between health and labour authorities, surveillance of occupational diseases and injuries, coverage of informal and small-scale workers, access to occupational screening and biological monitoring, and translation of workplace findings into corrective action. Strengthening occupational health requires a coordinated health-system approach rather than isolated workplace activities. Priority actions include strengthening provincial and district environmental and occupational health capacity, clarifying referral and enforcement pathways, integrating occupational health into primary health care and surveillance systems, developing a minimum service package, and directing resources towards underserved workers.

Keywords: Health systems, occupational health, occupational health services, primary health care, Sri Lanka, workers' health

1. Introduction

Work is a major determinant of health. Occupational exposures contribute to injuries, respiratory and cardiovascular disease, cancer, musculoskeletal disorders, hearing loss, mental ill-health and other adverse outcomes. The first joint World Health Organization (WHO) and International Labour Organization (ILO) estimates attributed at least 1.9 million deaths in 2016 to 19 major occupational risk factors [1]. The burden is especially important for health systems because many work-related conditions are preventable, yet they are often managed only after disease or injury has occurred.

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Occupational health services are intended to be predominantly preventive. ILO Convention No. 161 describes them as services responsible for advising employers, workers and their representatives on maintaining a safe and healthy working environment and adapting work to workers' physical and mental capabilities [2]. WHO has similarly emphasized universal access to essential interventions and the use of primary health care to reach workers who do not have access to specialized occupational health services [3]. The Basic Occupational Health Services approach provides a practical framework for extending such services to workers regardless of enterprise size, employment arrangement or geographical location [4].

Sri Lanka provides an important setting in which to consider occupational health as a health-system function. The country has a long-established public preventive health network and has previously attempted to integrate occupational health services with primary health care [5]. The Ministry of Health operates a National Occupational Health Programme, while the Department of Labour holds major regulatory responsibilities under the Factories Ordinance. However, the presence of institutions and assigned functions does not necessarily ensure equitable coverage, consistent implementation, effective surveillance or timely corrective action. This review examines the current arrangements for occupational health services in Sri Lanka, identifies key health-system gaps and proposes priorities for strengthening the system.

2. Approach to the narrative review

This narrative review was developed to synthesize evidence relevant to the organization and delivery of occupational health services in Sri Lanka rather than to estimate a pooled effect or prevalence. Literature was identified through targeted searches of PubMed and the wider scholarly web for combinations of terms related to Sri Lanka, occupational health, occupational health services, occupational safety and health, primary health care, small-scale industries, informal work, surveillance and health systems. Priority was given to peer-reviewed Sri Lankan studies and internationally recognized occupational health literature. Official documents and legislation from the Ministry of Health, Department of Labour, National Institute of Occupational Safety and Health (NIOSH), WHO and ILO were used to describe policy, institutional responsibilities and statutory arrangements. Sources were considered in relation to major health-system functions: governance and regulation, service delivery, workforce, information and surveillance, access and equity, intersectoral coordination, and resources. Because this is a narrative review, the search was purposive rather than a systematic review with exhaustive database coverage and formal risk-of-bias assessment.

3. Occupational health within Sri Lanka's health system

Sri Lanka's public health system provides a strong platform for population-based preventive services. The country's health-system review describes Medical Officer of Health (MOH) units as the operational base for preventive services delivered to defined geographical populations, with Public Health Inspectors (PHIs) carrying responsibilities that include environmental and occupational health [6]. This geographical organization is particularly relevant to occupational health because it offers a route to workplaces that may not maintain their own occupational health service.

Within the Ministry of Health, the Occupational Health Unit of the Directorate responsible for environmental and occupational health functions as the national focal point for the National Occupational Health Programme. Its responsibilities include planning, coordination, monitoring, evaluation, capacity building, awareness, research and liaison with other sectors. At grassroots level, preventive and promotive occupational health activities are delivered through provincial and district health systems, particularly by MOHs and PHIs [7], [8]. The Ministry describes the occupational health package as including identification of hazards in the work environment, improvement of workplace welfare facilities, improvement of workers' health and workplace health promotion [8]. Curative and rehabilitative care for occupational disease and injury is largely integrated into the general public healthcare system [7].

District environmental and occupational health units were established to strengthen the connection between the central programme and field implementation [7]. The national programme has also identified Medical Officers responsible for Environmental and Occupational Health as district-level technical personnel, alongside other supervisory public health staff [8]. In the provincial system, Consultant Community Physician posts with responsibility for Environment and Occupational Health, together with district Consultant Community Physician and Medical Officer posts for Environment and Occupational Health where established, can provide an important technical bridge between national policy and MOH-level implementation. Strengthening and appropriately deploying these posts would support supervision, technical guidance, coordination, referral and monitoring of occupational health activities at grassroots level.

4. Governance, legislation and institutional responsibilities

Occupational safety and health in Sri Lanka is inherently intersectoral. The National Occupational Safety and Health Policy, approved in 2014, seeks a national system developed through collaboration among government, employers and workers. The policy itself identified inadequate integration of occupational health into the healthcare system, weak coordination and insufficient resources as concerns, and called for stronger linkages between primary health care and occupational safety and health [9].

The principal factory legislation remains the Factories Ordinance No. 45 of 1942, as subsequently amended. It contains provisions on factory registration, general health, machinery safety, dangerous processes, notification and investigation of accidents and industrial diseases, and administration and enforcement [10]. The Department of Labour's Industrial Safety Division identifies enforcement of the Factories Ordinance, factory inspection, investigation of complaints and accidents, appointment of authorized officers and institution of legal action among its functions [11]. The National Institute of Occupational Safety and Health Act No. 38 of 2009 separately established NIOSH with functions in policy advice, research, training, consultation, hazard assessment and inter-ministerial coordination [12]. The Workmen's Compensation Ordinance provides a statutory route for compensation for employment-related injury and specified occupational disease [13].

This institutional distribution has advantages because occupational health requires both health expertise and regulatory authority. It also creates an interface that must function reliably. A PHI or MOH may identify an unsafe condition during a public-health workplace assessment and provide recommendations, but formal enforcement under the Factories Ordinance rests with officers empowered under that legal framework. Where an employer does not comply, the health sector therefore requires a clear, documented and time-bound pathway for referral to the relevant District Factory Inspecting Engineer or another duly authorized officer. The distinction between public-health assessment and statutory enforcement should be explicit in operational guidance, while communication between the two systems should ensure that referred hazards are followed through to resolution.

5. Service delivery: a strong platform with uneven implementation

Sri Lanka's central advantage is that occupational health does not need to be built from an entirely new service platform. MOH teams already reach communities, schools, food establishments and other settings, and PHIs have defined geographical areas. Occupational health can therefore be delivered as part of an established preventive health infrastructure. This principle is not new: a WHO-assisted Sri Lankan project described integration of occupational health with primary health care as early as 1985 [5].

Nevertheless, routine implementation competes with numerous other responsibilities. MOH teams have substantial workloads in communicable disease control, food safety, water and sanitation, school health, environmental health and other programmes. The 2022 review of Sri Lanka's National Health Policy specifically identified occupational health as a competing priority for MOHs and PHIs and noted inadequate monitoring, uncertainty regarding their roles and insufficient engagement between health staff and District Factory Inspecting Engineers [14]. This is a health-system problem rather than simply a question of individual motivation: when a programme has limited protected time, weak performance indicators, inconsistent technical support and uncertain escalation pathways, delivery is likely to become reactive or event-driven.

Evidence from small-scale industries illustrates the service gap. In a Sri Lankan study of small-scale industry workers, only a small proportion reported pre-employment and periodic medical examinations, while use of personal protective equipment was also limited [15]. A subsequent study in two districts found work-related musculoskeletal symptoms and other health issues among workers and concluded that workplace health promotion and ergonomic interventions were needed [16]. These findings are consistent with international evidence that small and medium enterprises often have less access to organized occupational health services and require approaches adapted to limited resources [17].

6. Workforce and technical capacity

The occupational health workforce should be considered as a tiered system. PHIs and MOHs require competencies for basic workplace assessment, recognition of common hazards, occupational history, health promotion, initial risk communication, documentation, referral and follow-up. More complex assessments require access to professionals with expertise in occupational medicine, occupational hygiene, ergonomics, toxicology, engineering and laboratory

monitoring. The Basic Occupational Health Services model supports such a stepwise arrangement, in which first-line services are backed by progressively more specialized expertise [4].

For Sri Lanka, strengthening the provincial and district technical layer is particularly important. Consultant Community Physicians responsible for Environment and Occupational Health at provincial and RDHS levels, and Medical Officers responsible for Environment and Occupational Health at RDHS level, should have clearly defined responsibilities for programme coordination, supportive supervision, review of high-risk workplaces, training, surveillance and liaison with labour-sector authorities. Where these posts are vacant, inconsistently available or combined with extensive unrelated duties, the national programme has a weak link between central policy and frontline delivery. Cadre planning should therefore consider not only the existence of designated posts but their availability, competencies, workload and authority to coordinate across institutions.

Training should be competency based rather than limited to awareness. Core competencies should include hazard identification and risk assessment; recognition of occupational and work-related disease; ergonomics; chemical, biological and physical hazards; psychosocial risks; use and limitations of personal protective equipment; occupational history taking; relevant legislation; communication with employers and workers; report writing; and referral. Evidence reviews show that effective interventions exist for several important occupational risks, but implementation requires the ability to select and apply controls beyond simple worker education [18].

7. Surveillance and occupational health information

A health system cannot prioritize what it cannot measure. Occupational disease is especially vulnerable to under-recognition because the relationship between work and disease may not be identified during routine clinical encounters. Injuries may be captured through hospital or labour-sector systems without sufficient information on occupation, industry, exposure or causal circumstances. Fragmented data reduce the ability to identify high-risk sectors, detect emerging hazards, evaluate prevention and allocate resources.

The National Health Policy Review recommended revision of occupational health data flows, strengthening the occupational component of national injury surveillance, revising the list of notifiable occupational diseases and strengthening occupational disease surveillance [14]. These recommendations remain central to system development. A minimum occupational dataset should link occupation, industry, employment arrangement, suspected exposure, diagnosis or injury, severity, and outcome. Sentinel surveillance through selected hospitals and MOH areas could be developed while broader digital integration is strengthened. Clinicians in primary and secondary care also require prompts and training to ask about occupation and relevant exposures when compatible diseases or injuries are encountered.

Information should serve action at several levels. MOH teams need workplace registers and follow-up records; RDHS and provincial teams need dashboards that identify high-risk workplaces and unresolved referrals; the national programme requires data on coverage, hazards, disease and service performance; and labour-sector authorities require

information that supports inspection and enforcement. Data-sharing arrangements should protect confidentiality while allowing occupational risks to be addressed across institutional boundaries.

8. Equity: informal workers, small enterprises and underserved groups

Universal access is one of the most difficult occupational health challenges. WHO notes that only a minority of workers globally have access to specialized occupational health services and specifically calls for essential interventions for workers in the informal economy, small and medium enterprises, agriculture, and migrant and contractual work [3]. This is highly relevant to Sri Lanka. WHO reported in 2023 that nearly 67% of the country's working population was in the informal occupational sector and identified expansion of occupational health services to informal occupational groups and assessment of small enterprises as national priorities [19].

Formal workplaces, particularly large enterprises, may have internal safety systems, medical services or access to private expertise. Informal workers and workers in small establishments are less likely to have these arrangements. Home-based work presents an additional challenge because the workplace may also be the household and may fall outside conventional inspection models. An ILO review of home-based workers in Sri Lanka identified occupational safety and health concerns alongside limited labour and social protection [20].

The MOH system is therefore strategically important for equity. Geographic responsibility allows the public health service to reach workers who are invisible to enterprise-based occupational health models. This opportunity should be converted into a risk-based outreach programme rather than attempting identical inspection intensity for every workplace. Priority groups could include small enterprises using hazardous chemicals or machinery, agriculture, construction, home-based production, waste-related work, transport, fisheries and other sectors identified through district risk mapping. Community and workplace organizations, local authorities, employers' organizations and worker organizations can support identification and engagement of hard-to-reach groups.

9. Resources, diagnostic support and referral

Basic occupational health activity requires relatively modest resources for workplace assessment, education and follow-up, but more advanced prevention depends on access to exposure measurement and clinical monitoring. Noise assessment, spirometry, audiometry, biological monitoring and targeted laboratory testing may be required for particular hazards. NIOSH provides workplace risk assessment, medical monitoring, audiometry, lung function testing and other specialized services [21], but a national system must also define how frontline and district teams obtain such support, particularly outside Colombo and for workers who cannot pay for employer-initiated services.

Referral pathways should extend in both directions. MOH teams need access to specialist clinical services when occupational disease is suspected, while hospitals should be able to notify or refer relevant cases back to public-health teams for workplace assessment and prevention of further exposure. Rehabilitation and return-to-work considerations should also be linked to the occupational health pathway. Financing arrangements require attention because preventive workplace services generate benefits for workers, employers and the health system, yet responsibility for paying for specialized assessment may be unclear, particularly in small enterprises and informal work.

10. Priorities for strengthening occupational health services

The available evidence suggests that Sri Lanka needs consolidation and system strengthening more than creation of a completely separate occupational health service. Several priorities emerge.

First, occupational health should be explicitly recognized as a core preventive-health function with a defined minimum service package at MOH level. The package should specify workplace mapping, risk-based assessment, health promotion, identification of suspected work-related disease, documentation, follow-up and referral. Performance should be assessed using indicators that reflect completed preventive action rather than inspection counts alone.

Second, provincial and district environmental and occupational health capacity should be strengthened. Consultant Community Physician (Environment and Occupational Health) and Medical Officer (Environment and Occupational Health) posts should be adequately established, filled and supported, with clear responsibility for technical leadership, supervision, training, data review and coordination of difficult cases. This middle layer is essential for translating national policy into consistent grassroots practice.

Third, the interface between the Ministry of Health and Department of Labour should be formalized through an operational referral and feedback mechanism. Guidance should state when health-sector advice is sufficient, when non-compliance requires escalation, to whom the referral should be made, expected response times, and how closure is communicated. Joint district review of unresolved high-risk workplaces would improve accountability.

Fourth, occupational disease and injury surveillance should be modernized. A standardized minimum dataset, stronger clinical recognition, integration with injury surveillance and interoperable reporting between health and labour systems are needed. Surveillance should include emerging risks such as heat stress, psychosocial hazards and changing employment arrangements. Recent Sri Lankan research has already highlighted climate-related workplace risks in small and medium apparel enterprises, demonstrating that occupational health services must adapt to new environmental pressures [22].

Fifth, service development should prioritize workers least likely to receive employer-based occupational health care. WHO's recent Sri Lankan priorities regarding informal workers and small enterprises should be translated into district risk mapping, targeted outreach and practical Basic Occupational Health Services [19]. This would align the country's strong primary health-care infrastructure with the principle of universal workers' health coverage.

Finally, occupational health requires sustained investment in workforce development, technical services and programme monitoring. Sri Lanka's National OSH Policy has already recognized limitations in integration and financing [9]. Training alone will not correct structural gaps unless it is accompanied by designated responsibility, supervision, equipment, referral pathways, data systems and institutional accountability.

11. Discussion

Sri Lanka has several foundations that many countries seeking to expand occupational health coverage would need to create: a geographically organized preventive health service, a public-health inspectorate within the health system,

national health and labour institutions, a statutory framework for factory safety, and longstanding policy recognition of occupational health. The central problem is fragmentation between these assets. Occupational health sits across public health, clinical care, labour regulation, workplace management and social protection, and weaknesses at the interfaces can make the overall system less effective than the sum of its parts.

The health-system perspective changes the question from whether individual workplace inspections occur to whether workers are protected through a continuous pathway: workplaces and risks are identified; hazards are assessed; workers at risk receive appropriate health interventions; findings lead to corrective action; non-compliance is escalated; disease and injury are recognized and reported; and information feeds back into prevention. Each step requires a responsible institution and a functioning connection to the next.

The Sri Lankan experience also illustrates why primary health care remains relevant to occupational health. Specialized occupational health services alone are unlikely to reach workers dispersed across small enterprises and the informal economy. International experience and the Basic Occupational Health Services model support a tiered approach in which primary-level services provide essential preventive functions and are backed by specialist expertise [4], [17]. Sri Lanka's MOH network is well suited to such a model, provided occupational health receives sufficient programme priority and technical support.

This review has limitations. It is a narrative synthesis rather than a systematic review, and the Sri Lankan peer-reviewed literature on organization, coverage and outcomes of occupational health services is limited. Some descriptions of service structure and programme gaps therefore rely on official policy and programme documents. These documents are important for understanding intended arrangements but do not by themselves demonstrate implementation quality. Further health-systems research should quantify service coverage, staffing, workplace follow-up, occupational disease reporting, referral completion and differences between districts and worker groups.

12. Conclusion

Sri Lanka has an established institutional and public-health foundation for occupational health, but coverage and implementation remain uneven. The most important opportunities lie in strengthening the connections between national policy, provincial and district technical leadership, MOH-level delivery, clinical services and labour-sector enforcement. Occupational health should be treated as a core public-health function, not an occasional workplace activity. A defined minimum service package, stronger provincial and district Environment and Occupational Health capacity, clear Health-Labour referral pathways, improved surveillance, access to technical assessment and deliberate outreach to informal and small-scale workers would provide a practical route towards more equitable and effective protection of workers' health.

Declarations

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