

Global Trends in Occupational Medicine: Results of the International Occupational Medicine Society Collaborative Survey

Ronald Loepke, MD, Richard Heron, MD, Theodore Bazas, MD, David Beaumont, MD, Herman Spanjaard, MD, Doris L. Konicki, MHS, Barry Eisenberg, CAE, and Hilary Todd

In 2013, the American College of Occupational and Environmental Medicine (US) and the Society of Occupational Medicine (UK) launched a new initiative aimed at improving global worker health and wellbeing through the exchange of information and ideas. As a first step, the two organizations convened leaders from 18 international occupational medical (OM) societies to discuss mutual issues and concerns in global OM. This meeting led to the establishment of the International Occupational Medicine Society Collaborative (IOMSC), an ongoing assembly intended to promote best practices in OM and greater awareness of issues impacting worker health worldwide. Participants are delegates appointed by OM organizations the world over. Since its inception in 2013, IOMSC has grown from 18 societies in 16 countries to a roster that now includes 36 societies in 34 countries. IOMSC member societies represent approximately 40% of the world's total workforce, defined as the percentage of the working-age population in a country.

At its 2015 meeting in Washington, DC, the participating societies requested that IOMSC conduct a member survey to help quantify the reach of IOMSC globally and to identify common modes of OM practice and key changes that are occurring in the workplace. An electronic survey was initiated in July 2015, and results were finalized and compiled in the spring of 2016. The survey

used "occupational medicine" as a broad term to describe the professional sector for physicians and nurses who specialize in workplace health and safety.

Survey results indicated that worldwide, OM practitioners encounter similar issues and challenges including the growing complexity of diseases and illnesses; rapid change in workforce and population trends; and shifting legislative and economic policies that impact the profession. While many of the professional challenges and societal trends are similar, the scope and delivery mode of OM services varies widely from country to country, being influenced by governmental/regulatory structures. However, as a group, IOMSC medical societies report being well positioned to address these professional issues, and to advance OM through education, sharing of best practices, and advocacy.

ABOUT THE SURVEY

In July 2015, IOMSC consisted of 30 member countries. Of these, representatives from 21 countries (70%) responded to the survey (Table 1):

The 21 countries that responded to the survey represent 34.83% of the world's population or 2,528,211,971 people (Table 2).¹ The workforce population in the responding countries at the time of the survey was 1,186,362,399, approximately one-third of the world's working population.² The worker profile in participating countries indicated that 54% were employed by small- to medium-size companies (less than 300 employees); 27% were employed by large companies (more than 300 employees); and 18% were self-employed. In addition to answering questions about general issues and trends in OM, survey participants also provided data about the modes and scope of OM practice services in their respective countries.

SURVEY RESULTS

Trends in Professional Structure, Scope of Practice, and the Future OM Workforce Supply

Of the 21 respondents, 18 (85%) offer national or government-sponsored health care. Seven of these government

systems include OM services as a part of overall health care delivery.

Though employer-facilitated access to primary medical care is common in the US, few employers facilitate such access globally. Survey participants indicated that 35% of companies facilitate primary medical care, and of these, 10.5% facilitate primary medical care for families or dependents. At the same time, 75% of companies in the 21 responding countries do provide some level of health promotion or wellness activities for their employees, but only 10% extend these activities to families or dependents.

Survey respondents also reported that the majority of physicians working in OM are recognized as specialists, practicing in the general categories of occupational health or public health. But the number of OM specialists in practice worldwide, compared with the overall population of physicians, is small and in general aging. Fifteen of the responding countries indicated that those practicing OM in their countries were, on average, aged 55 or older. Many respondents predicted a lack of specialists in the next 10 years in their countries, noting that the current pipeline of trainees is not sufficient to replace retirees.

Most IOMSC participants surveyed indicated a need to train a greater number of OM physicians, but noted that marketing the specialty to new generations is difficult. Some respondents noted that in their countries internal medicine specialists have been those seeking specialized training in OM; others reported expanding OM access by encouraging physicians in public health, preventive, or aerospace medicine to train in OM. However, according to survey participants, the gap in the number of new OM trainees is projected to continue and will take considerable efforts to narrow.

To gauge the scope of practice for OM physicians globally, survey participants were asked to list the most widespread professional activities within their country. The 10 most commonly listed activities included occupational health-risk/targeted screenings, occupational injury/illness management, primary health care services, return-to-work examinations, pre-employment examinations, administrative duties,

From the American College of Occupational and Environmental Medicine, Elk Grove Village, Illinois.

This guidance document was reviewed by the Committee on Policy, Procedures, and Public Positions, and approved by the ACOEM Board of Directors on November 5, 2016. ACOEM requires all substantive contributors to its documents to disclose any potential competing interests, which are carefully considered. ACOEM emphasizes that the judgments expressed herein represent the best available evidence at the time of publication and shall be considered the position of ACOEM and not the individual opinions of contributing authors.

The authors declare no conflicts of interest. Address correspondence to: Marianne Dreger, MA, ACOEM, 25 Northwest Point Blvd, Suite 700, Elk Grove Village, IL 60007 (info@acoem.org). Copyright © 2017 American College of Occupational and Environmental Medicine DOI: 10.1097/JOM.0000000000000974

TABLE 1. IOMSC Member Countries Participating in Survey

Australia	Netherlands
Brazil	New Zealand
Canada	Nigeria
China	Norway
Denmark	Portugal
Estonia	Qatar
Greece	South Korea
Ireland	Switzerland
Italy	United Kingdom
Japan	United States
Malaysia	

IOMSC, International Occupational Medicine Society Collaborative.

general health screenings, workers' compensation services, health promotion/disease prevention activities, and evaluation of worksite environments. Other activities ranged from disability management to safety assessments (Table 3).

These services are in alignment with work definitions from the International Labor Organization (ILO), which defines *occupational health services* as preventive functions, that is, the prevention of workplace disease and injuries and maintaining a safe and healthy workplace to facilitate optimal physical and mental health.³ ILO further clarifies *occupational health services* to include first aid, rehabilitation, and health promotion/education.³ IOMSC findings are also consistent with the results of a 2011 survey of 61 countries by the International Commission on Occupational Health. That survey found that a large majority of countries responding (72%) offered a combination of occupational health services including first aid and health promotion activities.⁴

When asked, "In your country, has the scope of OM changed over the last decade?" survey participants agreed that the scope has changed, with the two most

TABLE 3. Most Common Activities of OM Physicians Worldwide (in Descending Order)

1. Occupational health-risk/targeted screenings
2. Traditional occupational injury/illness management
3. Primary health care
4. Return-to-work examinations
5. Pre-employment examinations
6. Administrative duties
7. General health screenings
8. Workers' compensation
9. Health promotion/disease prevention
10. Evaluation of worksite environment
11. Health education
12. Disability management
13. Training/teaching/mentoring
14. Research
15. Emergency medical care
16. Safety assessments of workplace
17. Health benefits management
18. Evaluation of effects of worksite activities on external environment

OM, occupational medical.

common areas of change being legal/administrative/regulatory changes (five respondents), along with changes in educational and post-graduate training requirements for OM practitioners (five respondents).

Some participants noted that the types of illnesses OM specialists treat is changing, thus impacting scope of practice. For example, in Denmark, OM specialists have seen a decline in such traditional occupational health problems as lung disease and musculoskeletal issues; while work-related mental illness, including psychosocial stress and burnout, has risen dramatically. About 30% to 50% of patients in OM clinics in Denmark suffer from depression and other psychological disorders. In the UK, musculoskeletal problems are still prevalent, but the incidence of mental health conditions needing treatment is increasing.

Participants also noted that the shift of production work to lower-income countries accounts for much of the change seen in the types of worker illnesses and injuries. Norway, for example, reported that historically common occupational diseases have "migrated" out of the country as production work has declined, leaving only primarily older workers needing treatment for these diseases. Australia also noted this trend, as the country moves away from industrial/manufacturing industry to more office-based work. According to several survey participants, including Canada and Estonia, another factor influencing the scope of work for OM specialists is a growing emphasis on preventive health strategies and health promotion.

In some countries, the employment model for OM physicians is also shifting. Australia and New Zealand reported that the number of occupational physicians employed directly by large organizations has greatly decreased—their roles being outsourced to private consultants or corporate occupational health service providers. The trend has occurred as a result of restructuring and cost-saving initiatives by large employers. Corporate health organizations in such environments increasingly provide OM services to a wide range of employers.

Impact of OM on Societal Needs Globally

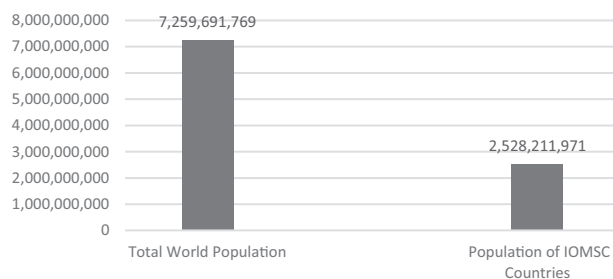
In response to the question—"How is the specialty of OM responding to your country's current societal needs?"—the 21 participants all indicated that their country's OM practitioners are responding to societal needs and addressing national health and work priorities. Some participant-countries cited national goals, such as:

- "Seeking to build a safe, secure, equitable, and stable society, based on effective institutions that provide the population with their basic needs."
- "Defining employment and working conditions as determinants of health."
- "Including in the continuum of care illness prevention and health promotion, public health, screening, diagnosis, primary, secondary, and tertiary prevention, chronic disease management, and rehabilitation."

Examples cited by survey participants of how OM is helping their economies and society at large included:

- Lowering sick leave and as a result delivering a measurable benefit for companies.
- Determining work-relatedness in assessing workers' diseases.
- Providing much-needed health services for the aging work-population.

TABLE 2. Population of IOMSC Member Countries Compared With Total World Population as Compiled by the World Bank



IOMSC, International Occupational Medicine Society Collaborative.

- Addressing the public health challenges related to obesity and the lack of exercise in the working population.
- Providing health-related activities that extend clinical impact, such as health promotion and return-to-work management.
- Supporting those at risk of becoming unemployed as a result of sickness-related absence stay employed, and helping those with disabilities get back to work.
- Increasing the role of occupational physicians in managing workers' mental health.
- Addressing illicit drug use and its impact on the workforce, particularly the increasing use of drugs such as methamphetamines.
- Increasing occupational risk-evaluation resulting in a decrease in occupational accidents/injuries.

Future Role of OM

“What do you perceive to be the future of OM in your country?” In response, the majority (20 countries) expressed optimism about OM's future, articulating the perception that over the next 10 years, the profession will evolve and adapt to workplace changes, and new technologies. Eight participants noted that the demand for OM specialists will continue to grow globally as the workforce ages, psychosocial, and mental health issues become more common, and new technologies and health threats emerge. However, most agreed that it is unlikely the current OM capacity can meet the growing demand for OM services.

Many participants noted that public funding to support OM training—as well as to support practicing OM physicians in some countries—will be an important issue. In Greece, a separate survey of members of the Hellenic Society of Occupational and Environmental Medicine was conducted to determine the views of occupational physicians about the specialty training and practice and examination modes for gaining Board specialty certification in OM. The study concluded that there were opportunities for improvement in specialty training in OM as well as improvement in the conditions in which physicians' practice.⁵

To continue to be relevant, participants indicated that OM will need to shift its main focus from secondary prevention (eg, periodic medical examinations) to primary prevention, screening, and wellness programming. Some respondents also stated that OM will need to focus increasingly on the aging workforce as it will need more medical attention due to chronic illnesses and impairments.

Several participants noted that recent major workplace disasters—including the Fukushima nuclear plant explosions and Dhaka building collapse and factory fire—illustrate the need for strong country-wide occupational health and safety standards. Others expressed belief that implementation of such standards will take time, especially in countries experiencing economic crisis.

Emerging Role of Technology and its Impact on OM

According to survey participants, technology will play an essential role in the global future of OM, and will impact the discipline in several ways:

- It will improve the reach of training via the increasing use of webinars and other forms of e-learning for both employers and OM professionals.
- Through telemedicine, technology is likely to significantly add to the reach and scope of OM practice.
- As a result of the introduction of new safer and healthier materials and production processes, technology will assist in reducing risk factors and occupational hazards in the workplace, thus reducing occupational accidents and diseases and their severity.
- Electronic health records will continue to improve recordkeeping while enabling the mining of data to better identify health and work needs (eg, causes of sickness-related absence).
- Electronic (portal) referral systems for web-based health-related advice will emerge.
- Technology will increase the use of self-administration of risk assessments in office environments.
- New technologies (eg, nanoparticle development) will introduce potentially novel workplace exposures and health hazards requiring updating and modification of OM practice. Hazard-assessment, diagnostic skill development, and surveillance systems will need to evolve in response.
- Technology will enhance epidemiological, exposure assessment and gene-analysis methods, resulting in research work and practices requiring new ethical standards and guidelines.

Difficulties Faced by OM Practitioners

“What are the main difficulties that OM practitioners in your country encounter in their positions?” In response to this question, participants overwhelmingly indicated that the major difficulties faced by OM practitioners in their countries center on the lack of awareness and

understanding of the scope and value of OM, mainly by business and government, but also by the workforce. In many countries, other health care providers also lack this basic understanding. A major challenge is the case of general practitioners not fully grounded in or aware of OM competencies, providing OM services to businesses.

Another difficulty cited by participants was the issue of costs. In some of the countries with a national health service, for example, OM is not incorporated into the system and thus, patients must pay a premium for these services. Some survey participants noted that even in countries that mandate OM in health delivery, private OM practitioners operate outside the government system, resulting in issues of cost and overall care coordination. Some participants also expressed the opinion that in their countries, socialized medicine creates a system in which accountability for the costs of health care and health risks is not transparent, creating challenges in incentivizing employers to invest in occupational health. A number of participants also noted a lack formal OM guidelines and standards and supporting legislation to promote health and safety in the workplace.

Most Important Challenges Facing OM

Survey participants were asked to name the most important challenges facing OM practitioners in their country. The challenges identified can be categorized into three major areas:

- Addressing the future complexities of illnesses/diseases.
- Predicting and responding to future workforce needs and the need for OM manpower.
- Increasing legislation/government's support for OM and expansion to all types of businesses.

Challenge 1: Future Complexities of Occupational Injury, Disease, and Chronic Health Conditions

In general, survey respondents identified fast changing demographic trends of the workforce, along with the growing burden of health risks (eg, stress, obesity, and smoking), their related chronic illnesses (eg, depression, diabetes, heart disease), and their complex comorbidity linkages to occupational injury and disease as overarching challenges for all OM practitioners.

Many participants agreed that aging workforce populations are increasing the demand for OM services globally as more people try to stay at work longer. Many older workers have one or more chronic

medical conditions and/or risk factors, thus increasing the complexity of cases. The increasing complexity, and the need for appropriate assessment to determine if an individual is able to return to work and/or work at modified capacity, will continue as the workforce ages, especially where unemployment rates are high.

Furthermore, participants noted that increased job stress is a major factor across global regions and the need to address mental health and other stress-related issues is on the rise. Some respondents also noted that people with disabilities are entering the workforce resulting in a growing need for expert OM advice on whether impaired individuals meet the disability provisions in a given nation.

Several survey participants also commented on the growing burden of occupational injury and disease from migrant or seasonal workers. Addressing this unmet need and integrating the health and safety of migrant workers will continue to be a challenge for OM. In addition, participants noted that increasing the provision of OM services to small employers and remote and/or rural workforces will be a growing challenge.

Challenge 2: OM Manpower

As noted previously, survey participants strongly agreed that the number of OM physicians is not sufficient to meet current demand and with the changing complexity of workforce health/safety issues, this demand will only grow. In most of the countries surveyed, OM training is lacking at the undergraduate level, and it is difficult to attract residents into the specialty. An additional concern is the aging of the OM specialist: many survey participants indicated that 40% or more of the OM specialists in their countries are over age 50, and with fewer OM trainees, the shortage of OM specialists is likely to accelerate. Survey participants commonly expressed the belief that promotion of OM as a career to medical students and residents is paramount in order to meet the future needs of

the specialty. Determining how best to meet the OM needs of employers and workers is a continuing challenge for countries worldwide.

Challenge 3: Legislation/ Government Support of OM

In a number of countries participating in the survey, OM is a component of a national health-insurance program and/or is mandated by national legislation. However, most countries do not have a national mandate for OM, and survey participants said it is a challenge to educate employers, businesses, and governments about the need for OM. They also expressed the belief that a better understanding of the common scope and core functions of OM is needed by governments, labor and health-sector managers, and politicians. Some noted that the expansion of OM services will result in multiple benefits including healthier and happier working lives, boosted productivity, and improved economic vitality for nations—but this linkage is not well understood by stakeholders outside of OM.

CONCLUSION

In evaluating the survey results, IOMSC identified several areas in which it can serve as a forum and resource for addressing various challenges and issues. These include:

- Helping communicate the role, scope, and importance of OM to employers and workforces.
- Advocating for inclusion of OM in the global continuum of care, including illness/injury, prevention, wellness/health promotion, and overarching population health management programs to improve workforce and community health.
- Promoting public health screenings in the workplace.
- Enhancing primary, secondary, and tertiary prevention programs in the workplace.

- Educating young people at all levels about the two-way relationship between work and health.
- Advocating for OM training to non-board certified OM physicians to achieve a broader understanding among all physicians/providers of the impact of work on employee health and the impact of employee health on work.

Many global challenges and issues lie ahead, however, this survey confirms that OM specialists and the medical societies to which they belong, can have a significant impact on population health worldwide. Survey participant countries are actively responding to societal needs and addressing national health agendas. In addition, some participating countries have created explicit national goals that seek to build safe, secure, equitable societies that define employment and working conditions as determinants of health. While the survey was limited in scope, designed to gauge and benchmark activities and opinions of IOMSC members only, its results provide relevant and illuminating perspectives on OM trends worldwide and confirm the potential that OM policies and practices have to significantly impact the health and well-being of the world's working populations.

REFERENCES

1. *World Development Indicators: Series Population, Total*. Geneva, Switzerland: World Health Organization; 2014.
2. *World Development Indicators: Percent of Population Employed*. Geneva, Switzerland: World Health Organization; 2014.
3. International Labour Organization. C161-Occupational Health Services Convention, 1985 (No. 161). Available at: http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:-P12100_INSTRUMENT_ID:312306. Accessed July 31, 2016.
4. Lehtinen S, Iavicoli S, Rantenen J. *ICOH Survey on Occupational Health Services: Feedback to ICHO National/Area Secretaries*. Monte Porzio Catone, Italy: International Commission Occupational Health; 2012.
5. Zorbas S, Bazas T, Zorbas I, et al. Hellenic society of occupational medicine members' views on occupational medicine specialization and practice. *hvgiagp*. 2016;7:11–36.