THOR
The Health and Occupation Research network

The Health and Occupation Research (THOR) network Annual Report

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http://www.coeh.man.ac.uk/thor

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Dear colleague,

Please find enclosed the THOR annual report for 2019, presenting and overview of cases reported to the 4 schemes last year.

With the UK and many parts of the world in the grip of the second wave of the Covid-19 pandemic, the role of occupational health professionals continues to be of critical importance in reducing the risk of transmission of the virus in the workplace as well as to mitigate against direct and indirect consequences of the pandemic. Working from home is now the norm for many professions, but few will have the ability to set up the work space at home properly which may lead to increase in musculoskeletal problems. Work-life-balance will be affected too for many employees, and together with increased uncertainty, increased demands and isolation and reduction of peer-support and social interactions, this could negatively affect mental health and wellbeing of large parts of the UK workforce.

Reporting to all the THOR schemes was, understandably, significantly reduced since the start of the pandemic, and although it has improved over the summer, it remains low. I would all like to urge you to continue to report work-related cases to us, as for the reasons mentioned above, this is now even more important than previously. We are particularly interested in potential sentinel cases, i.e. cases that are unusual and may indicate a new occupational disease or a new risk factor for an existing disease; and THOR-EXTRA is available for sample reporters to report such cases outside their reporting month. You can do so by accessing the following page and using your centre number and email address to log in:
https://coeh.manchester.ac.uk/thor/thorextra/form.php.

Please, report work-related Covid-19 cases too!

I am very pleased to inform you that we have been asked by the Health and Safety Executive to submit a proposal for running all the schemes of THOR for another 3 years. In addition to the business as usual element of reporting work-related disease, we are looking to improve our engagement you as reporters and see it is possible to involve you in some or our research activities (on a voluntary basis of course). In addition, we will aim to improve on the direct availability of THOR data for HSE and our reporters. Finally, we will be implementing an improved methodology for identifying sentinel cases and disseminating this to you and other stakeholders. We will inform you as soon as we have further information on this.

If you have any questions or comments on any THOR related matter, please contact me at martie.j.van-tongeren@manchester.ac.uk or my colleague Dr Ireny Iskandar at ireny.iskandar@manchester.ac.uk.

With best wishes

Martie van Tongeren
Professor of Occupational and Environmental Health

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SUMMARY

Physicians reported 1086 actual (5244 estimated) cases of work-related ill-health (WRIH) to The Health and Occupation Research network (THOR) in 2019. Occupational physicians (OPs) reported 34%; dermatologists reported 25%; chest physicians reported 35% and general practitioners (GPs) reported 5% of the total number of estimated cases.

For work-related respiratory disease, non-malignant pleural disease was reported by chest physicians most frequently, followed by pneumoconiosis and mesothelioma. OPs and GPs reported mainly asthma or 'other' respiratory disease that included symptoms such as cough or wheeze. The industry sectors reported most frequently for these respiratory cases were construction and manufacturing. Skin cases reported to THOR in 2019 were predominantly contact dermatitis, with clinical specialists also reporting a proportion of neoplasia cases. In terms of industry sector, cases were reported most frequently from human health and social work, and the specific occupation most frequently reported by dermatologists were nurses. For musculoskeletal disorders, hand/wrist/arm and lumbar spine/trunk disorders were the most frequent anatomical sites reported by OPs and GPs, particularly within the health and social care and manufacturing sectors. In terms of mental ill-health, work-related stress and anxiety and depression continue to be the two diagnostic categories reported most often by OPs and GPs. Most reported mental ill-health cases were employed in the human health and social work sector for both schemes.

1. BACKGROUND

The Health and Occupation Research (THOR) network is hosted by the Centre for Occupational and Environmental Health (COEH) at the University of Manchester, and collects data on work-related ill-health (WRIH) and its determinants throughout the UK and (since 2005) the Republic of Ireland (ROI). THOR is (partially) funded by the two regulators of health and safety: the Health and Safety Executive (HSE) in the UK and the Health and Safety Authority (HSA) in the ROI. The network comprises a number of health surveillance schemes that utilise voluntarily submitted, medically certified data on WRIH. The schemes first developed from SWORD (Surveillance of Work-Related and Occupational Respiratory Disease) set up for occupational and respiratory physicians in 1989, and at present, 4 schemes are in operation enabling different groups of physicians to report cases - SWORD (chest physicians), EPIDERM (dermatologists), OPRA (occupational physicians) and THOR-GP (general practitioners).

The clinical specialist schemes (SWORD and EPIDERM) continue to provide estimates of the incidence of occupational disease in the UK based on medical specialist diagnoses. These data inform the national agenda as well as providing a resource for applied occupational health epidemiology and other research besides information for participating physicians. In addition, since 2005, THOR collects data and conducts research on the burden of work-related sickness absence. THOR remains one of the main sources of statistical information with which the HSE (and other agencies) determine their priorities and work programs on occupational health. For work-related respiratory disease, SWORD is the HSE's preferred data source in the UK.

This report describes the cases of WRIH reported to THOR (UK only) in the latest full calendar year (2019).

2. METHODS

Participating physicians were asked to provide anonymised case reports of incident cases seen during their reporting month that they believe to have been wholly or partly caused or aggravated by work. All physicians report either every month ('core' reporters) or for 1 randomly assigned month per year ('sample' reporters). Reporters are requested to give information on diagnosis, age, sex, geographical location, occupation, industry and suspected agent(s). The occupation and industry are coded using the Standard Occupational Classification (SOC) and the Standard Industrial Classification (SIC), respectively. Suspected agents are coded using in-house coding schemes developed in conjunction with the Health and Safety Executive (HSE) in the UK. All coding is undertaken independently by two researchers, and any discrepancies are reconciled by a third person.

Physicians reporting to EPIDERM are requested to assign their case to one or more of the following major sub-groups: contact dermatitis (CD), contact urticaria (CU), folliculitis/acne, infection, mechanical dermatoses, nail disorders, neoplasia, and 'other dermatoses' (with the ability to specify the diagnosis if the latter is chosen). Similarly, the sub-groups for chest physician reporting to SWORD are occupational asthma, inhalation accidents, allergic alveolitis, bronchitis/emphysema, infectious disease, non-malignant pleural disease (NMPD), mesothelioma, lung cancer, pneumoconiosis, and 'other respiratory disease'. Physicians reporting to OPRA and THOR-GP (who can return case details for all causes of occupational ill-health) record the diagnosis which is subsequently coded using the International Classification of Disease 10th Revision (ICD-10) so that comparisons can be made between reporting schemes.

Cases of occupational disease reported to EPIDERM, SWORD, OPRA and THOR-GP for 2019 have been extracted from the databases and analysed using the statistical package SPSS V25.0.

3. RESULTS

3.1 PARTICIPATION

Approximately 818 physicians participated in THOR in the UK during 2019. Figure 1 shows the location of the various groups of THOR reporters (chest physicians, dermatologists, occupational physicians, general practitioners).[1]

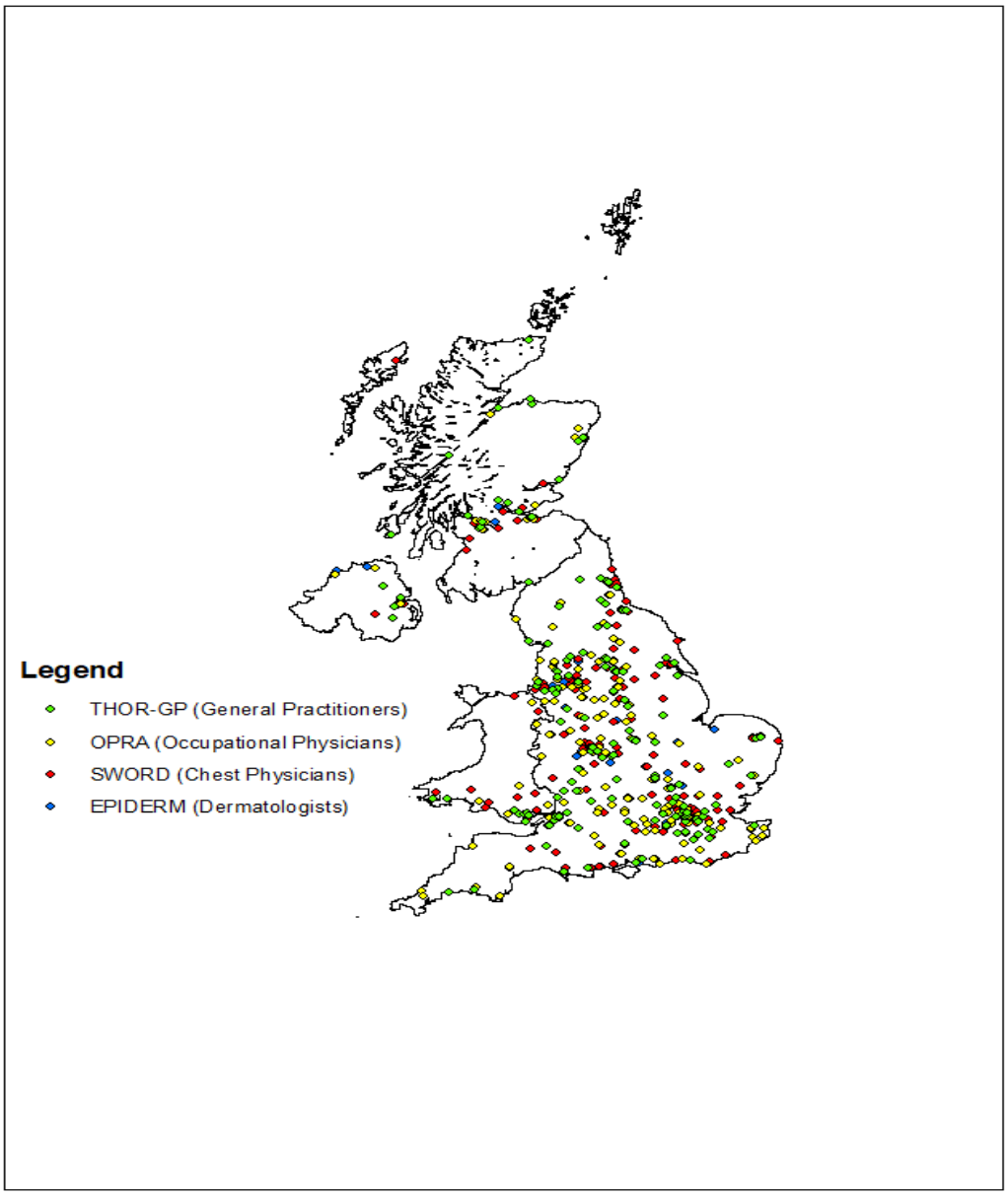

Figure 1: Location of THOR reporters (2019).

Response rates for THOR take into account submission of cases of work-related ill-health seen in the reporting month and nil returns i.e. when reporters have not seen any cases of work-related ill-health in their reporting month. Response rates differ by scheme and reporter type, with slightly higher

[1] A dot may reference multiple physicians in the same area

response rates for sample reporters (Figure 2 and 3). Table 1 provides an overview of the number of reporters per scheme and number of actual and estimated cases reported for the period Jan-Dec 2019 compared with Jan-Dec 2018.

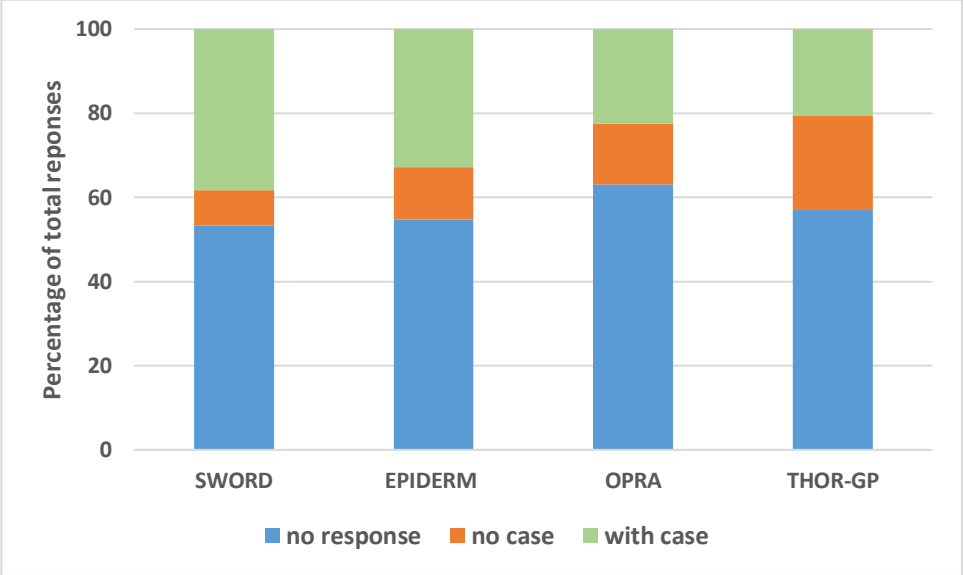

Figure 2: Response rates by scheme for core reporters (2019)

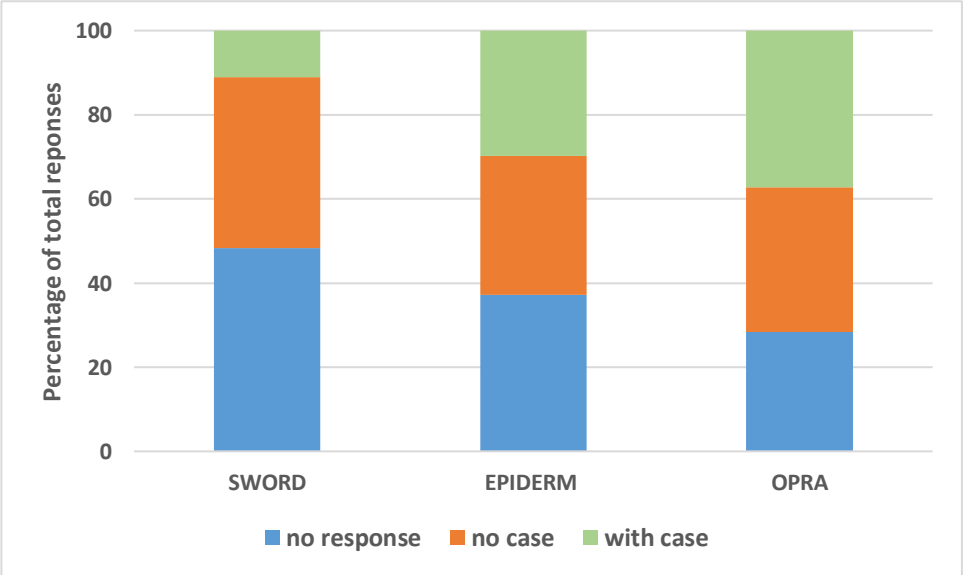

Figure 3: Response rates by scheme for sample reporters (2019)

Table 1: Number of reports and actual and estimated cases reported by scheme (Jan – Dec 2019/2018)

	Jan-Dec 2019		Jan-Dec 2018	
	Average number of physicians	**Actual cases (estimated)**	**Average number of physicians**	**Actual cases (estimated)**
OPRA	181	369 (3009)	195	314 (2283)
EPIDERM	126	274 (1099)	128	286 (1144)
SWORD	345	384 (1077)	361	328 (1065)
THOR-GP	166	59*	180	73*
TOTAL	**818**	**1086 (5244)**	**864**	**1001 (4565)**

*THOR-GP physicians report actual cases only

The following sections provide the results by major diagnostic category: respiratory cases reported to SWORD, OPRA and THOR-GP; skin cases reported to EPIDERM, OPRA and THOR-GP; musculoskeletal cases reported to OPRA and THOR-GP and mental ill-health cases reported to OPRA and THOR-GP.

3.2 RESPIRATORY

Work-related respiratory disease cases are reported to THOR via our clinical specialist scheme, SWORD and via OPs and GPs to OPRA and THOR-GP. In total, 407 actual (1265 estimated) cases of respiratory disease were reported to THOR in 2019, 384 (94%) reported by chest physicians to SWORD, 20 (5%) by OPs and 3 (1%) by GPs. The actual and estimated cases reported by chest physicians in 2019 are provided in Figure 4. Non-malignant pleural disease was reported most frequently (31%), followed by pneumoconiosis (20%), mesothelioma (19%) and asthma (15%)[2]. For the respiratory cases reported to the other THOR schemes, OPs reported asthma (53%), 'other' respiratory disease (30%), inhalation accidents (6%), bronchitis/emphysema (6%) and pneumoconiosis (6%). GPs reported asthma (2 diagnoses), mesothelioma (1 diagnosis) and 'other' respiratory disease (1 diagnosis was specified as wheezing and cough).

[2] Percentages calculated from the total number of diagnoses of respiratory disease reported by physicians.

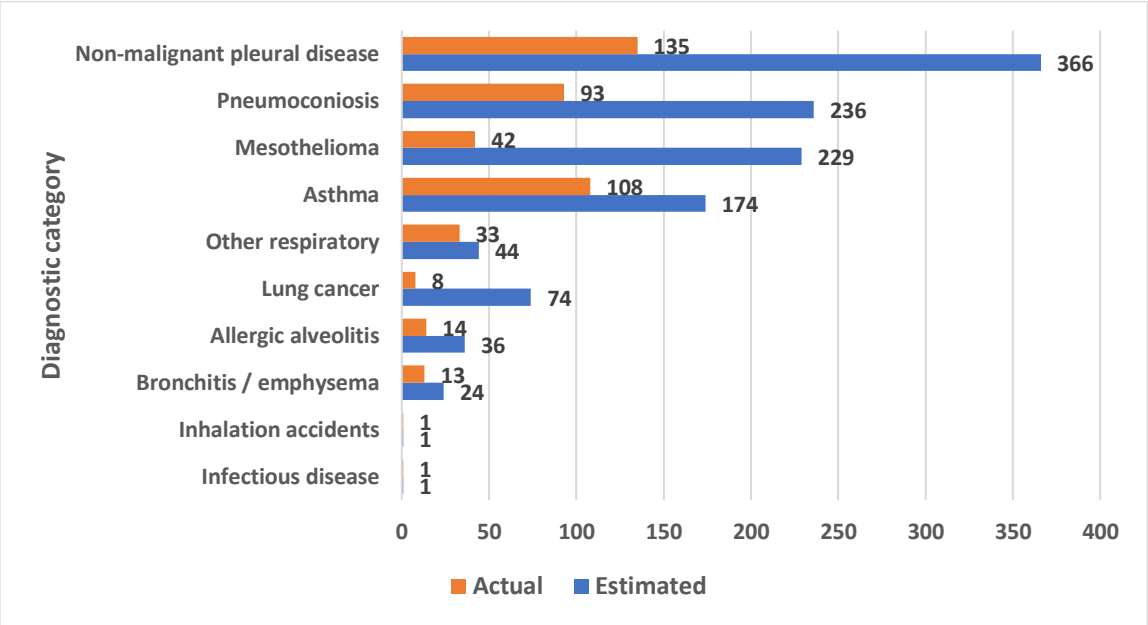

Figure 4: Actual and estimated cases of work-related respiratory cases by diagnostic category reported to SWORD (2019).

The mean age of the cases reported to SWORD was 63 years old (age range, all cases 19-93 years). Figure 5 shows the proportion of cases reported by age group for SWORD. The mean age of the cases reported to OPRA is 46 years old (age range, all cases 25-81 years) and 50 years (age range, all cases 18-73 years) for those reported to THOR-GP. In total, 87% of the respiratory cases returned to SWORD in 2019 were reported in males. Cases reported to OPRA were 55% in females and 45% in males, and of the 3 respiratory cases reported to THOR-GP in 2019, 1 was reported in females and 2 in males.

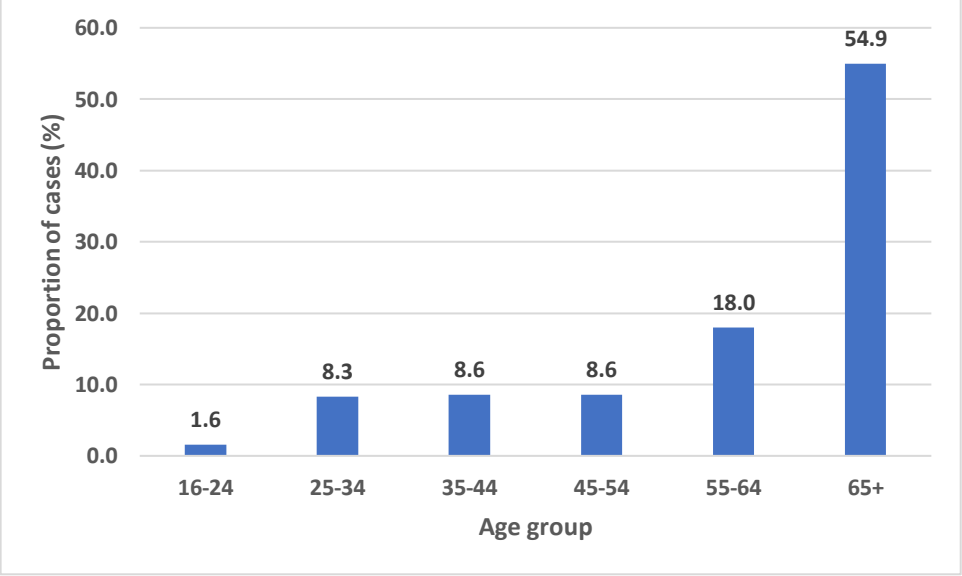

Figure 5: Proportion of actual cases of work-related respiratory disease by age group reported to SWORD (2019).

The industry sectors reported for cases of work-related respiratory disease to SWORD are provided in Figure 6. The most frequently reported sectors for 2019 were construction and manufacturing. Human health and social work activities (58%) and manufacturing (27%) were the most frequent industry sectors reported by OPs. The remaining sectors were education (7%), public administration and defence (6%), and professional, scientific and technical activities (1%). The 3 cases reported by GPs were in manufacturing (2 cases) and wholesale and retail trade (1 case).

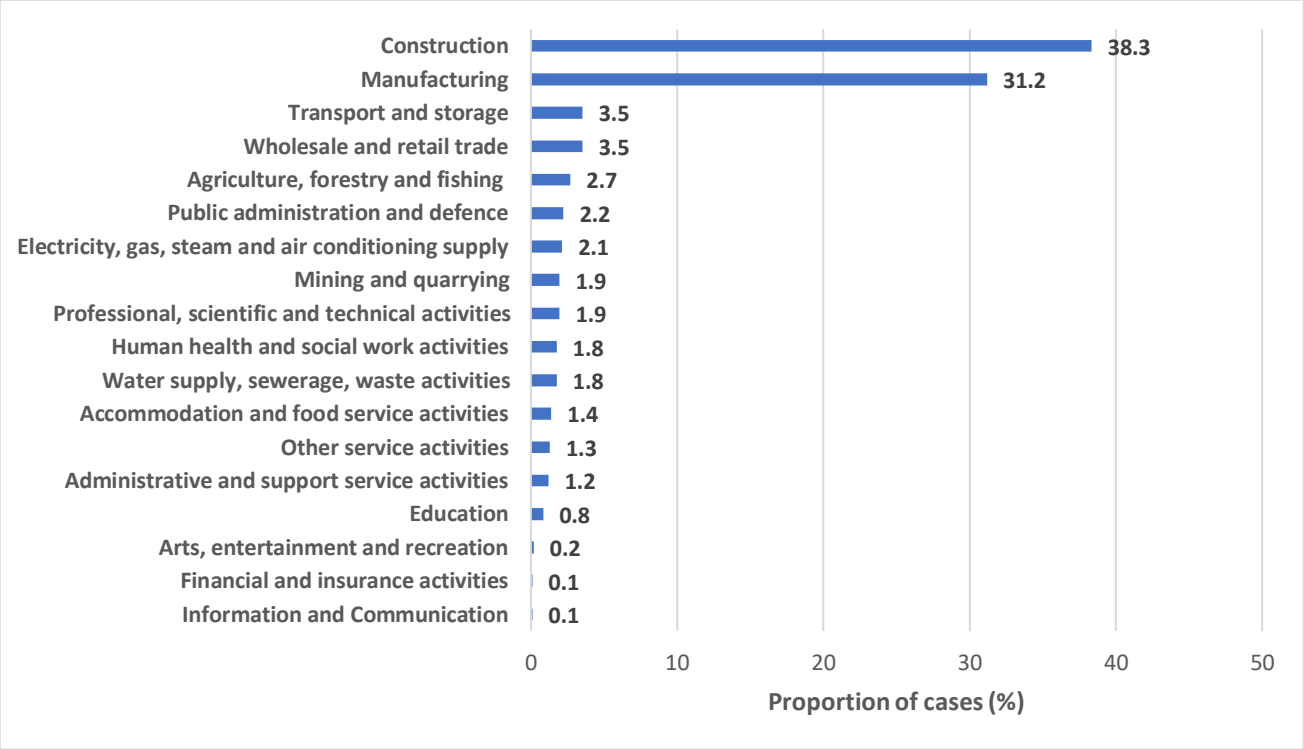

Figure 6: Proportion of estimated cases of work-related respiratory disease by industry sector reported to SWORD (2019).

The proportions of respiratory cases by major occupational grouping (SOC) are provided in Figure 7 for SWORD cases. Occupations within SOC group 5, skilled trades, were reported most frequently; and the most frequently reported specific occupation within the SOC 5 group were carpenters and joiners (8%).

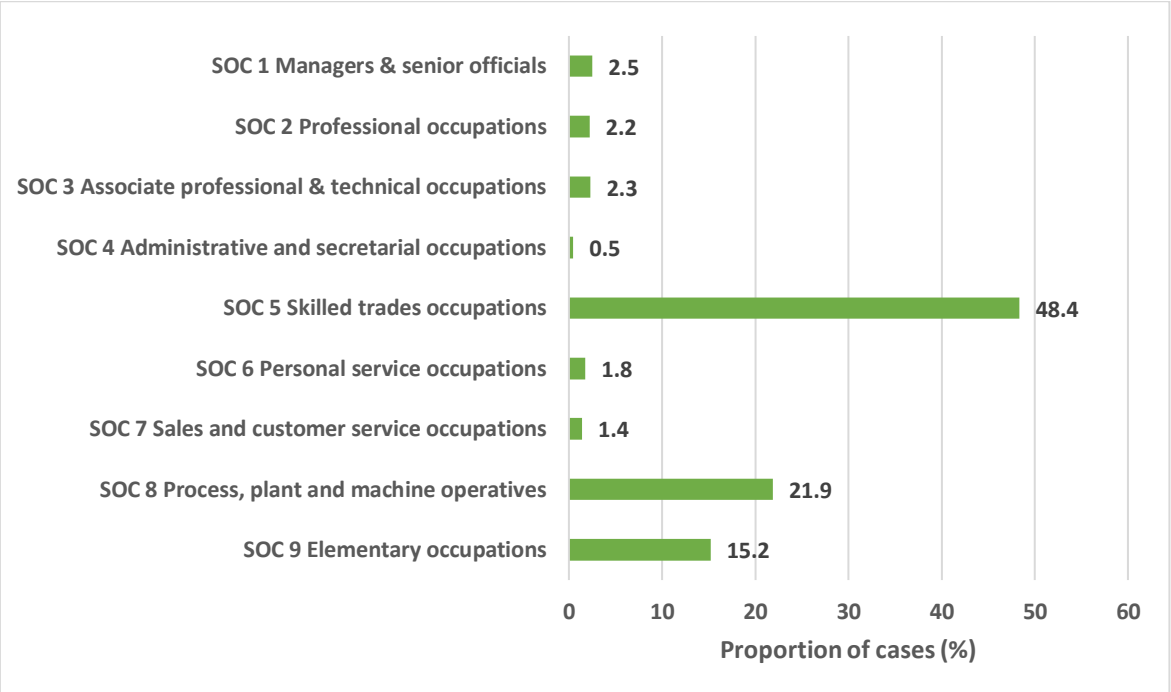

Figure 7: Proportion of estimated cases of work-related respiratory disease reported to SWORD by major occupational grouping (2019).

The most frequent occupational groups reported for the respiratory cases returned by OPs were professional occupations (21%), process, plant and machine operatives (20%), elementary occupations (19%) and administrative and secretarial occupations (19%). The remaining occupational groups reported by OPs were skilled trades occupations (13%), associate professional & technical occupations (6%) and personal service occupations (1%). The 3 cases reported to THOR-GP comprised a ships carpenter, a mechanic and a factory worker.

Physicians can report up to 3 suspected agents for each case of work-related respiratory disease reported to THOR. Figure 8 provides the most frequently reported suspected agents for returns by chest physicians to SWORD based on actual cases. Asbestos was associated most frequently (51%) with the reported cases, which is not unexpected considering that the first and third highest cases reported to SWORD in 2019 were NMPD and mesothelioma, and both are associated with asbestos exposure.[3] Other agents, including silica (5% of reported agents), isocyanates (4%), laboratory animals (4%) and flour (4%) were reported with much lower frequency.

[3] **Percentages calculated from the total number of suspected agents reported by physicians.**

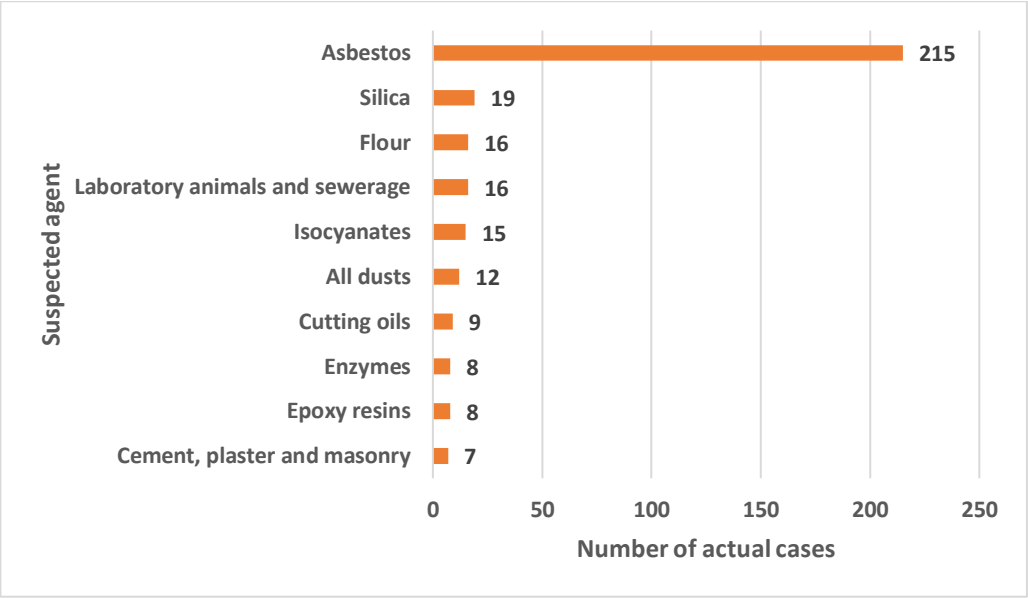

Figure 8: Most frequently reported suspected agents for work-related respiratory cases (actual) reported to SWORD (2019).

The most frequent suspected agents reported for the cases of respiratory disease to OPRA included sterilising and disinfecting agents, asbestos, colophony and flux/solder, laboratory animals, isocyanates, and fungi, moulds and yeast (all 2 cases). The 3 respiratory cases reported to THOR-GP were attributed to asbestos, high temperatures and/or hot work, and ill-defined fumes.

3.3 SKIN DISEASE

A total of 294 actual (1251 estimated) cases of work-related skin disease were reported to THOR in 2019 by dermatologists to EPIDERM, OPs to OPRA and GPs to THOR-GP. Dermatologists reported 93% of the skin cases in 2019 (274 actual, 1099 estimated), with the largest proportion of diagnoses reported as contact dermatitis (83%) followed by neoplasia (15%).[4] Figure 9 shows the actual and estimated cases reported by dermatologists in 2019. OPs reported 17 actual (149 estimated) cases of skin disease to OPRA in 2019, with 15 diagnoses reported as "contact dermatitis" and 2 diagnoses reported as mechanical. GPs reported 3 cases of skin disease to THOR-GP in 2019; all were diagnosed as contact dermatitis.

[4] **Percentages calculated from the total number of diagnoses of skin disease reported by physicians.**

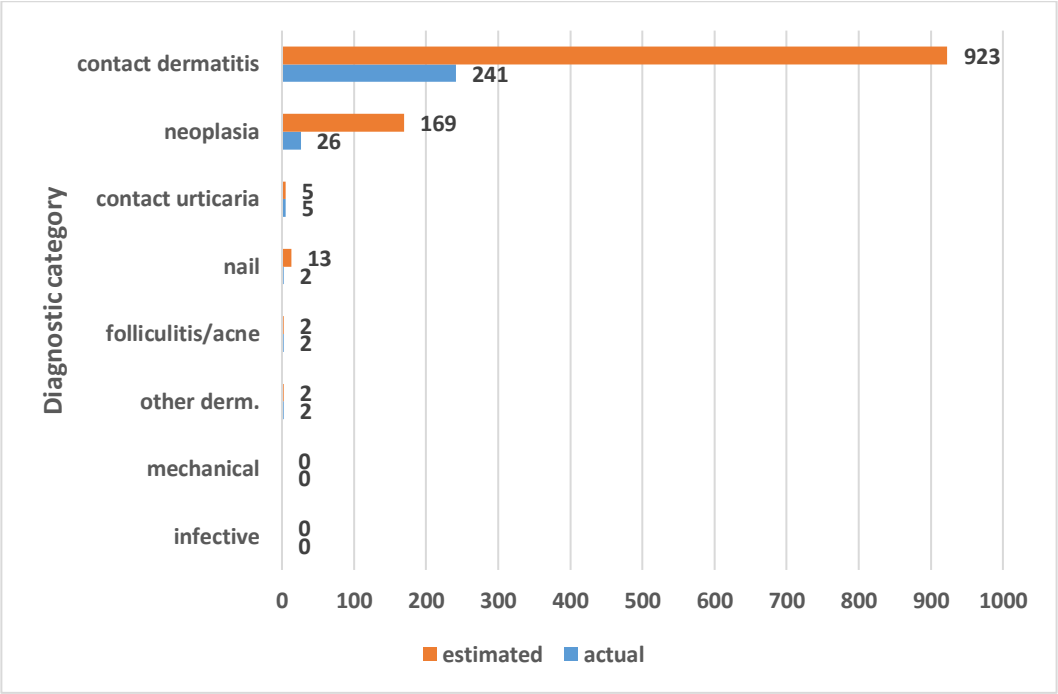

Figure 9: Actual and estimated skin cases by diagnostic category reported to EPIDERM (2019).

The reported mean age of the cases reported to EPIDERM is 39 years old (age range, all cases 17-99 years). Figure 10 shows the proportion of cases reported by age group (EPIDERM 2019). For cases reported to OPRA, the mean age is 33 years old (age range, all cases 21-58 years), and for GP reported cases, the mean age is younger at 24 years old (age range, all cases 21-27 years).

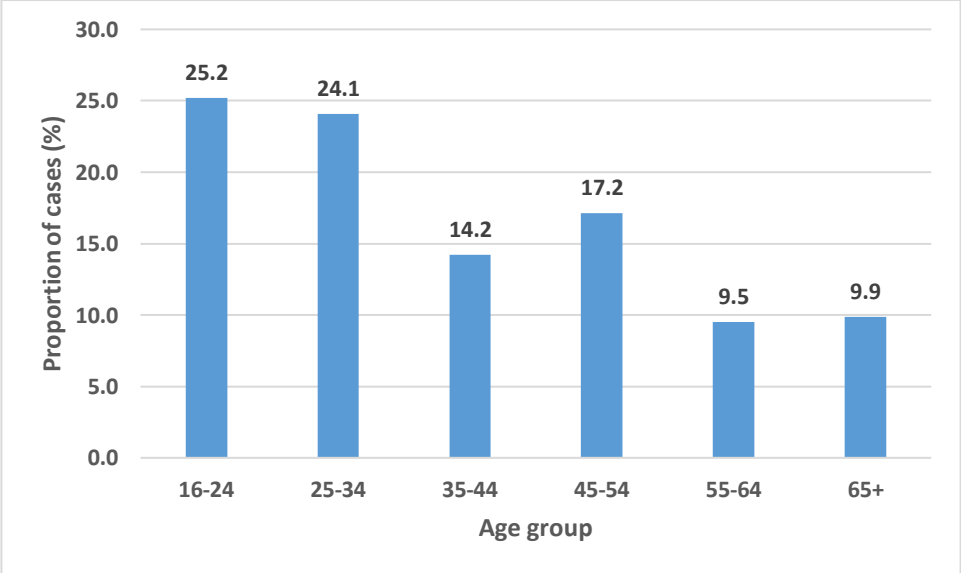

Figure 10: Proportion of actual cases of work-related skin disease by age group reported to EPIDERM (2019).

The skin cases reported by consultant dermatologists to EPIDERM in 2019 comprised 57% females and 43% males. For OP reported skin cases, 53% of cases were reported in females. For GP reported skin cases, 2 cases were reported in males and 1 case was reported in females.

Cases reported by consultant dermatologists to EPIDERM most frequently include human health and social work activities (27%), other service activities (16%) and manufacturing (10%) (Figure 11). Cases were also reported most frequently by OPs in the health and social care sector (74%) along with public administration and defence (16%) and manufacturing (10%) sectors. The industries reported for the 3 GP reported skin cases were the health and social care sector (2 cases) and construction (1 case).

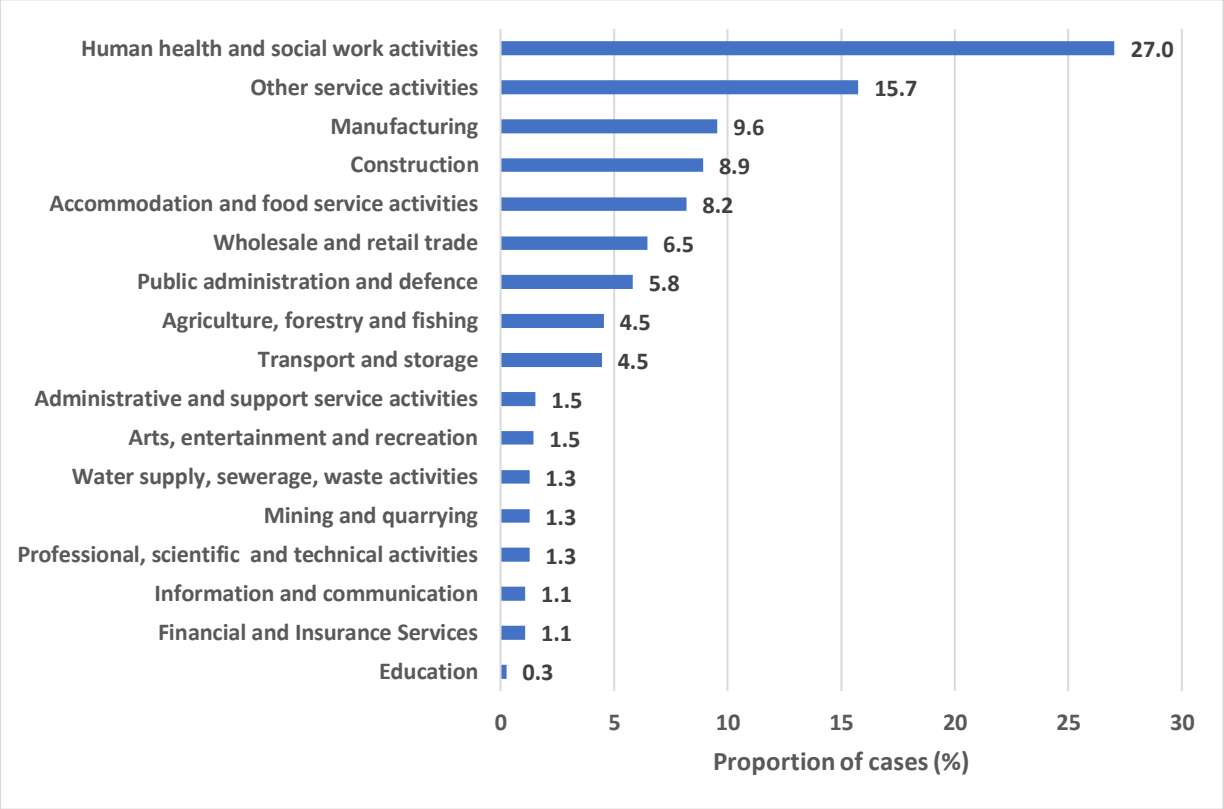

Figure 11: Proportion of estimated cases of work-related skin disease by industry sector reported to EPIDERM (2019).

The proportion of skin cases by major occupational grouping (SOC) reported by dermatologists to EPIDERM are provided in Figure 12. In terms of SOC categories, the largest proportion of cases were coded to SOC group 5 (skilled trades occupations). However, the specific occupation most frequently reported by dermatologists were nurses (12%). The highest proportion of skin cases reported by OPs to OPRA were SOC 2 (professional occupations), and this group included scientists, medical practitioners, nurses, and medical radiographers. For GP skin cases, the occupations reported were care assistants (1 case), medical practitioners (1 case) and labourers (1 case).

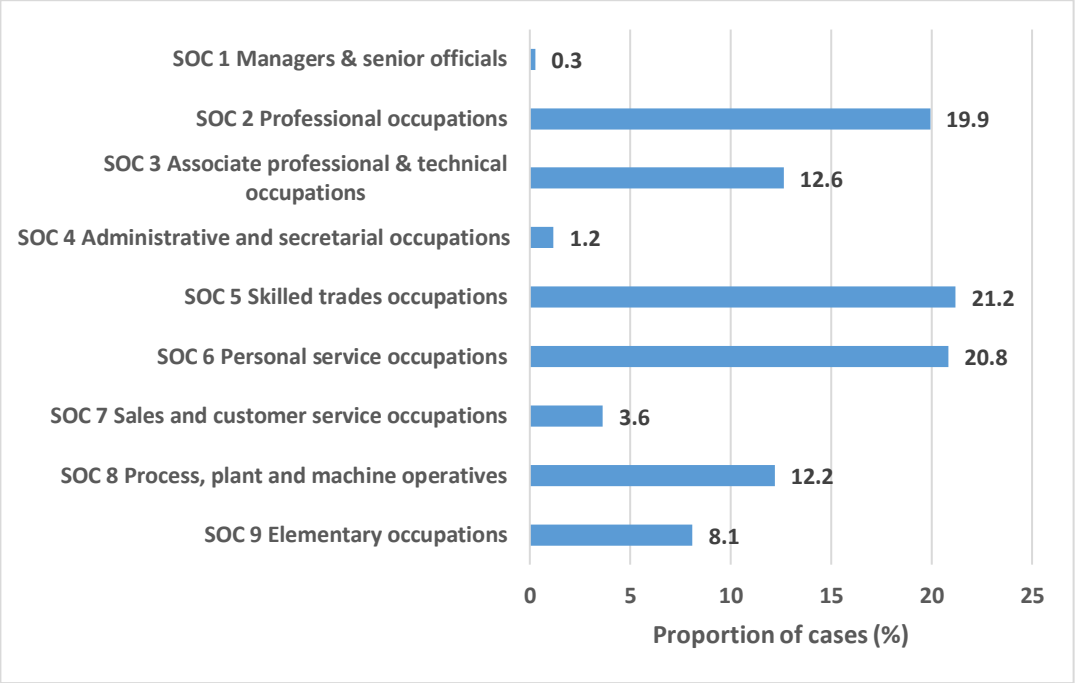

Figure 12: Proportion of estimated cases of work-related skin disease by major occupational grouping reported to EPIDERM (2019).

Physicians can report up to 6 suspected agents for each case of skin disease reported to THOR. The most frequently suspected agent for skin disease cases reported to EPIDERM and OPRA in 2019 was water/wet work/washing/washing up (13% and 44%, respectively)[5]. In addition, the most frequently reported suspected agent reported to THOR-GP was also wet work (all 3 cases). Other frequently reported agents to the three schemes included gloves, soaps and detergents, preservatives, sterilising and disinfecting agents, and non-ionising radiation.

3.4 MUSCULOSKELETAL

Cases of work-related musculoskeletal disorders are reported to THOR via OPs to OPRA and GPs to THOR-GP. In 2019, a total of 129 actual (712 estimated) cases of musculoskeletal disorders were reported; 102 actual (685 estimated) cases reported by OPs and 27 actual cases reported by GPs. Figure 13 shows the proportion of actual cases by diagnostic category reported to OPRA and THOR-

[5] **Percentages calculated from the total number of suspected agents for skin disease reported by physicians.**

GP. Hand/wrist/arm (OPRA 33%; GP 31%) and lumbar spine/trunk disorders (OPRA 24%; GP 21%) were the most frequently reported anatomical site for both sets of physicians.[6]

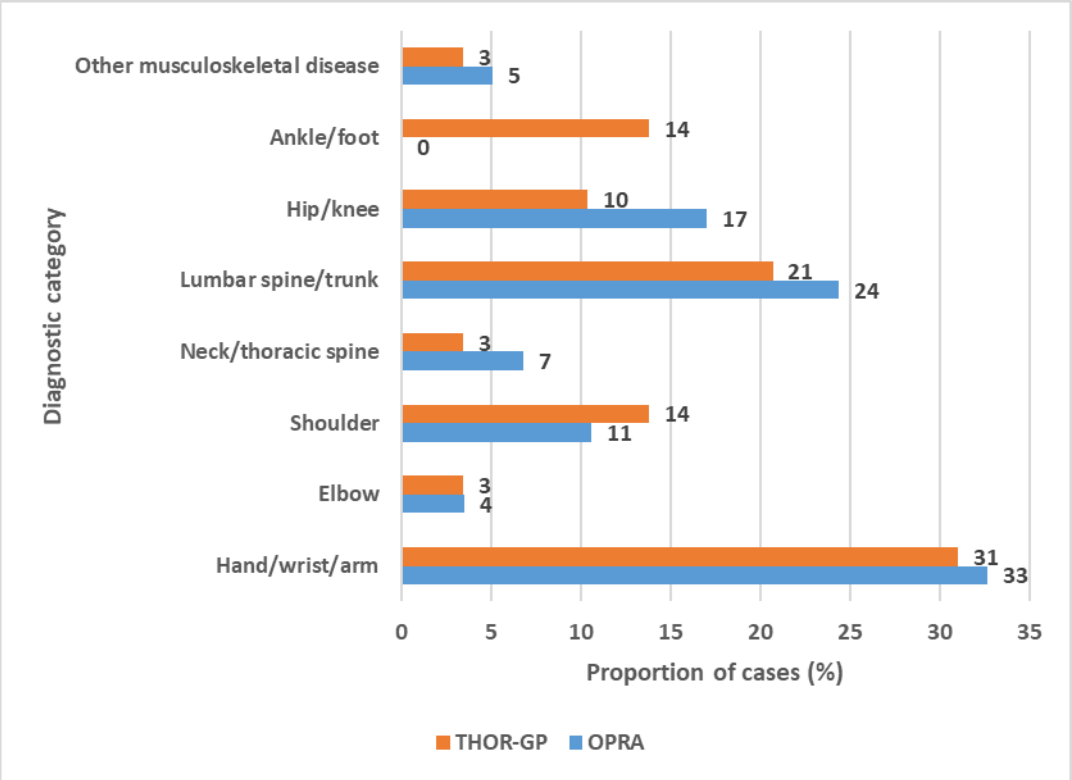

Figure 13: Proportion of actual cases of work-related musculoskeletal disorders by diagnostic category reported to OPRA and THOR-GP (2019).

The proportion of musculoskeletal cases by age group reported to both schemes is provided in Figure 14. The mean age of the cases reported to OPRA is 48 years old (age range, all cases 22-70 years) and the mean age of the cases reported to THOR-GP is 47 years old (age range, all cases 28-69 years).

[6] **Percentages calculated from the total number of diagnoses of musculoskeletal disorders reported by physicians.**

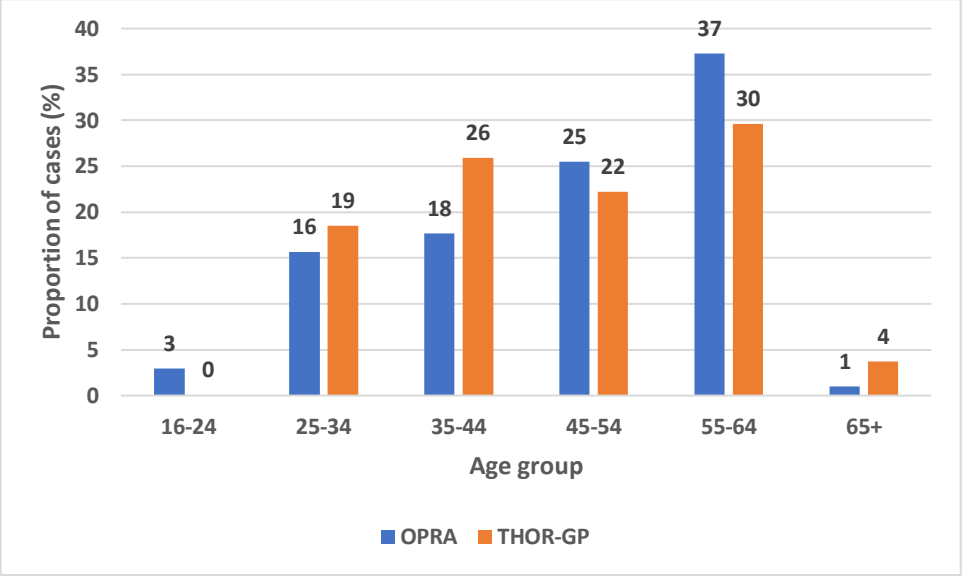

Figure 14: Proportion of actual cases of musculoskeletal disorders by age group reported to OPRA and THOR-GP (2019).

Of the musculoskeletal cases reported to OPRA, 75% were reported in males and 25% in females. For THOR-GP cases, 74% were reported in males and 26% reported in females (Figure 15).

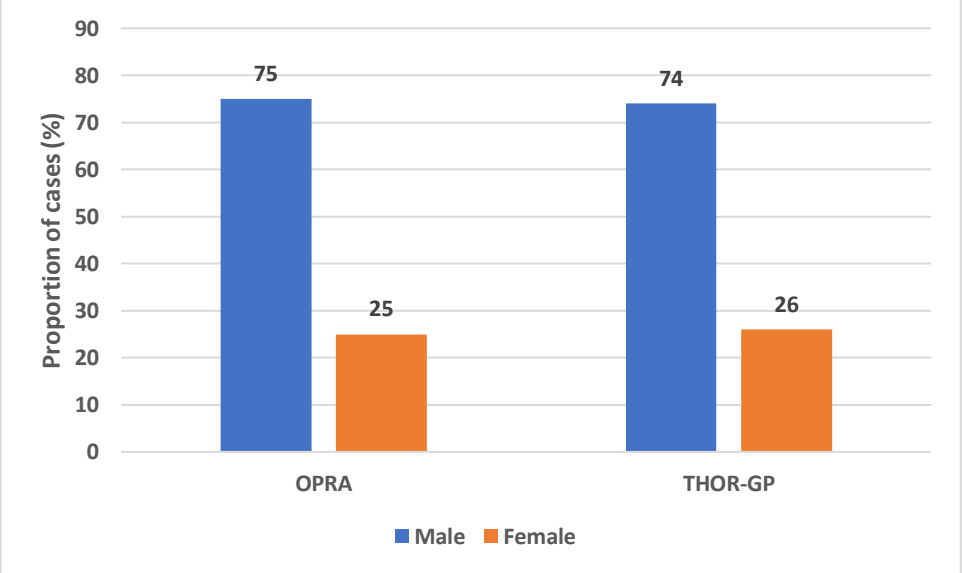

Figure 15: Proportion of actual cases of musculoskeletal disorders by sex reported to OPRA and THOR-GP (2019).

Figures 16 and 17 provide the proportion of cases of work-related musculoskeletal disorders by industry sectors reported to OPRA and THOR-GP in 2019. The industry sector most frequently reported by OPs was human health and social work activities (26%), followed by public administration and defence (18%), and transportation and storage (18%). Whereas for cases reported by GPs,

manufacturing was reported most frequently (26%), followed by transportation and storage (15%), and accommodation and food service activities (11%).

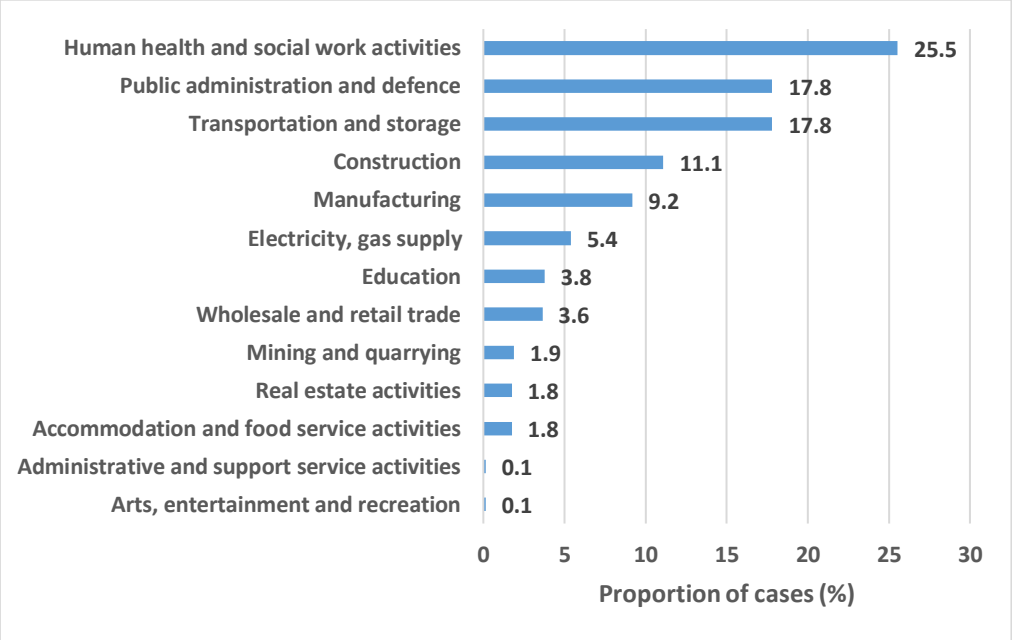

Figure 16: Proportion of estimated cases of work-related musculoskeletal disorders by industry sectors reported to OPRA (2019).

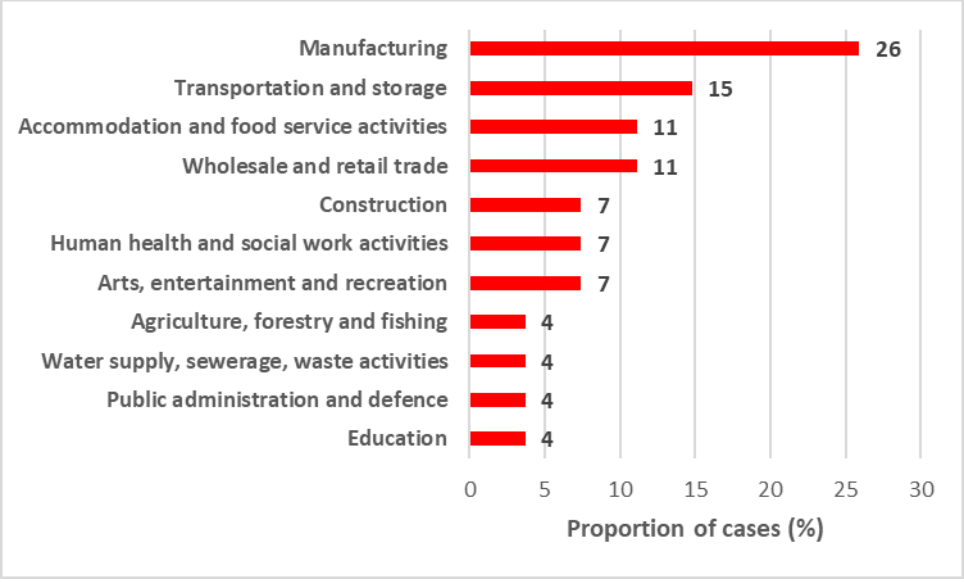

Figure 17: Proportion of actual cases of work-related musculoskeletal disorders by industry sectors reported to THOR-GP (2019).

The proportion of musculoskeletal cases reported to OPRA and THOR-GP by major occupational grouping is provided in Figure 18. The largest proportion of estimated cases reported by occupational physicians were in SOC group 8 consisting of process, plant and machine operatives (31%), followed

by SOC group 3, associate professional & technical (16%), and the most frequently reported occupation was van drivers (9%), from the SOC 8 group consisting of process, plant and machine operatives. For actual cases reported by GPs, the largest proportion were from SOC group 5, skilled trades (26%), and the most frequently reported occupation was motor mechanics and auto engineers (7%).

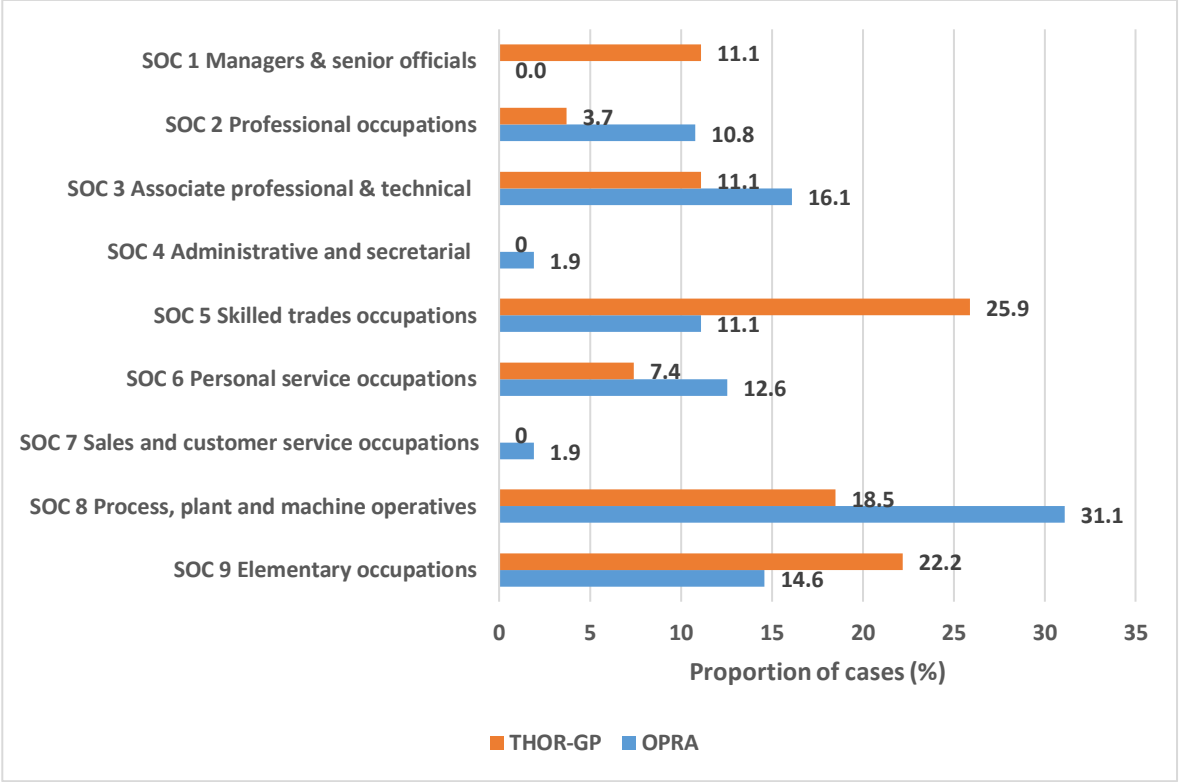

Figure 18: Proportion of cases of work-related musculoskeletal disorders by major occupational grouping reported to OPRA and THOR-GP (2019).

For cases of work-related musculoskeletal disorders reported to THOR, we ask the physicians to record the tasks and movements that are associated with each case. Figure 19 shows the proportion of tasks reported to OPRA in 2019. The most frequently reported task was guiding and holding tools (26%) followed by accidents (24%).[7] Figure 20 shows the proportion of tasks reported to THOR-GP in 2019. Heavy lifting, carrying, pulling or pushing was the most frequently reported task (27%), followed by materials manipulation (20%).

[7] **Percentages calculated from the total number of tasks for musculoskeletal disorders reported by physicians.**

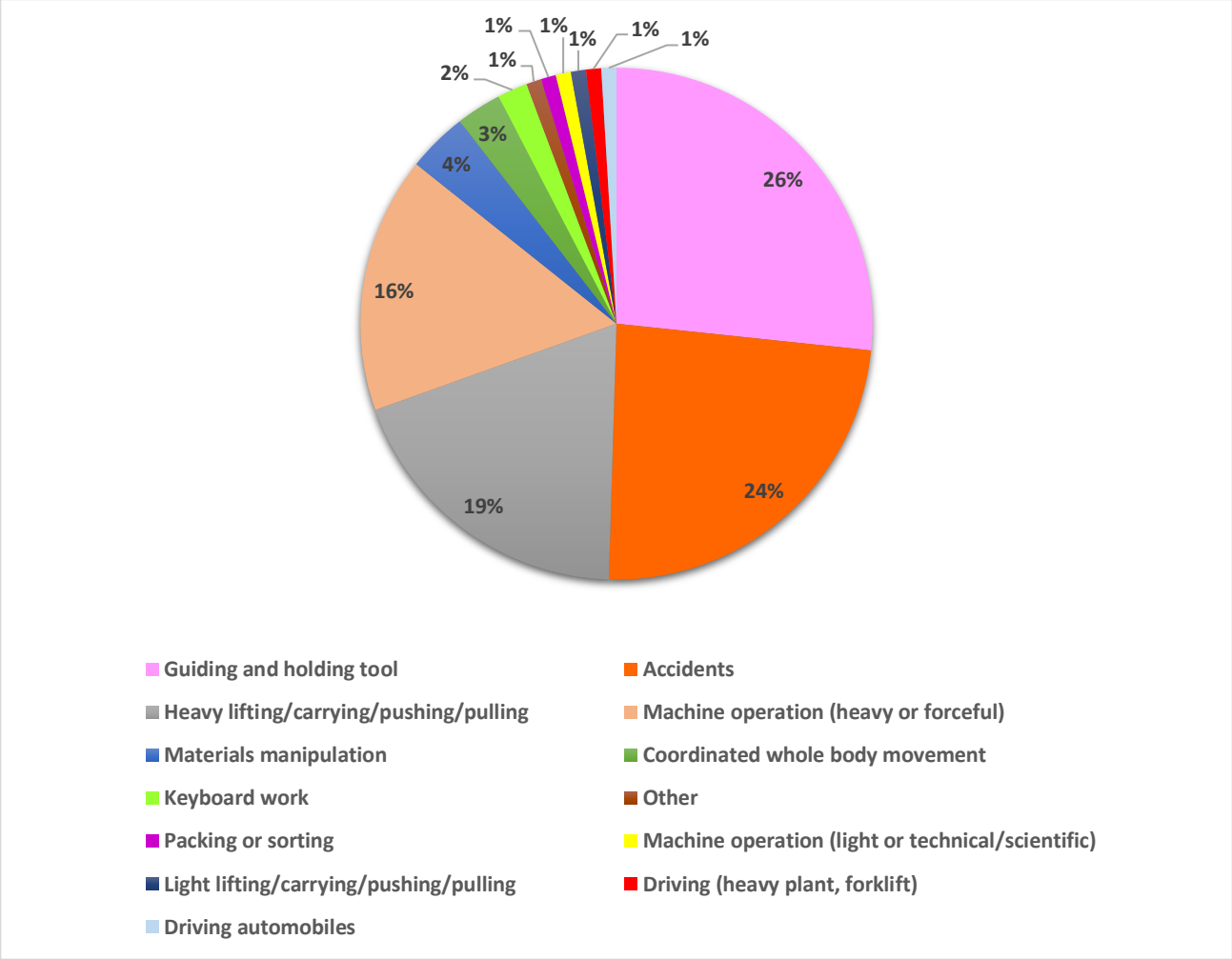

Figure 19: Percentage of reported tasks for cases of work-related musculoskeletal disorders reported to OPRA (2019).

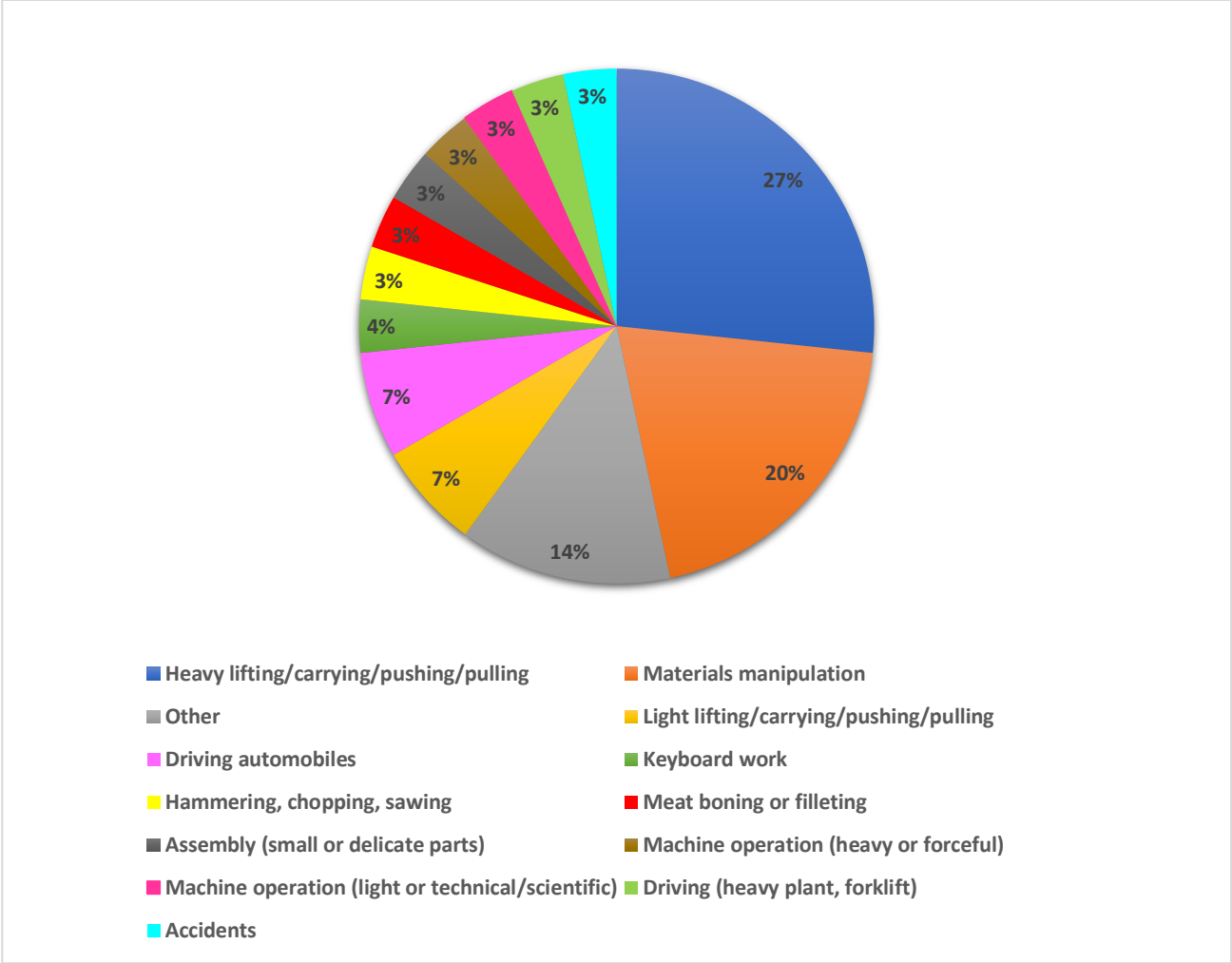

Figure 20: Percentage of reported tasks for cases of work-related musculoskeletal disorders reported to THOR-GP (2019).

3.5 MENTAL ILL-HEALTH

Cases of work-related mental ill-health are reported to OPRA and THOR-GP. In 2019, a total of 242 actual (1892 estimated) cases of work-related mental ill-health disorders were reported; 220 actual (1870 estimated) cases reported by OPs and 22 actual cases reported by GPs. Figure 21 shows the proportion of cases by major diagnostic category for both schemes; other work-related stress (OPRA 55% and THOR-GP 38%) and anxiety/depression (OPRA 31% and THOR-GP 38%) are reported most frequently by both OPs and GPs.[8]

[8] **Percentages calculated from total number of diagnoses for work-related mental ill-health reported by physicians.**

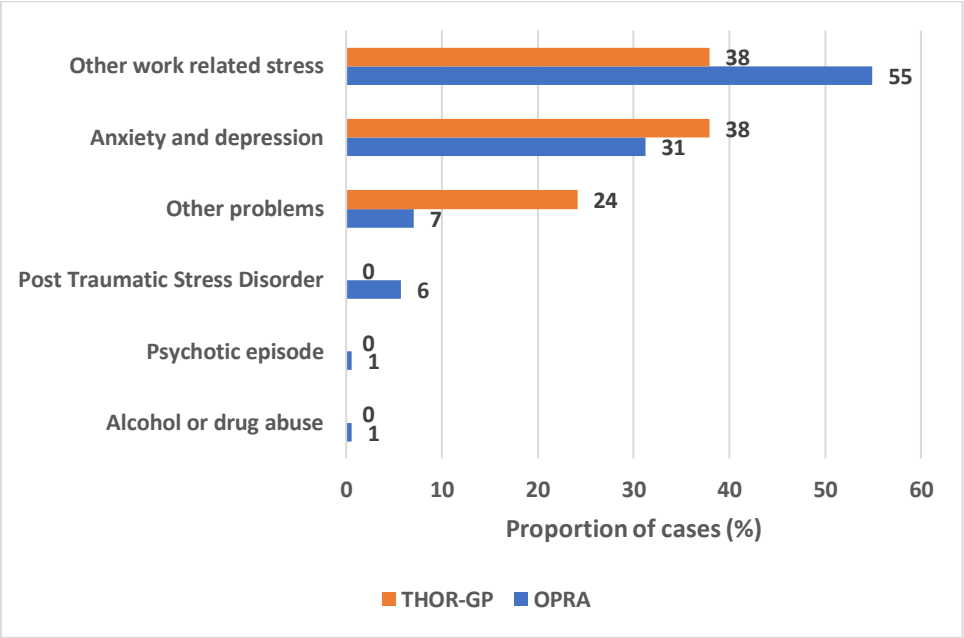

Figure 21: Proportion of cases of work-related mental ill-health by diagnostic category reported to OPRA and THOR-GP (2019).

The proportion of actual cases of mental ill-health by age group for both schemes is provided in Figure 22. The mean age of the cases reported to OPRA is 47 years old (age range, all cases 19-76 years) and for GP reported cases, the mean age is slightly younger at 43 years old (age range, all cases 22-62 years).

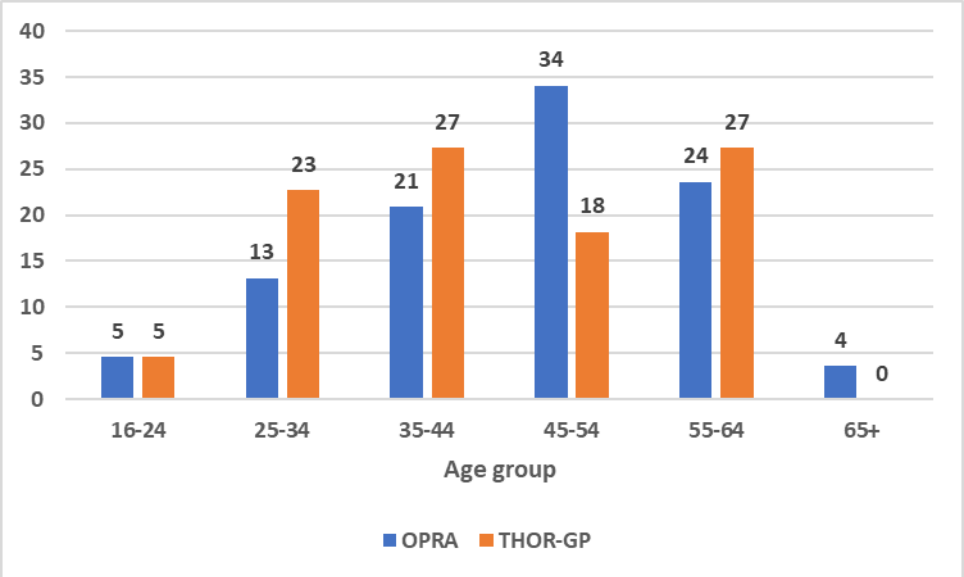

Figure 22: Proportion of actual cases of work-related mental ill-health by age group reported to OPRA and THOR-GP (2019).

In terms of the sex breakdown of the mental ill-health cases, a higher proportion of cases were females for both OPRA and GP (OPRA 63%; GP 68%) (see Figure 23).

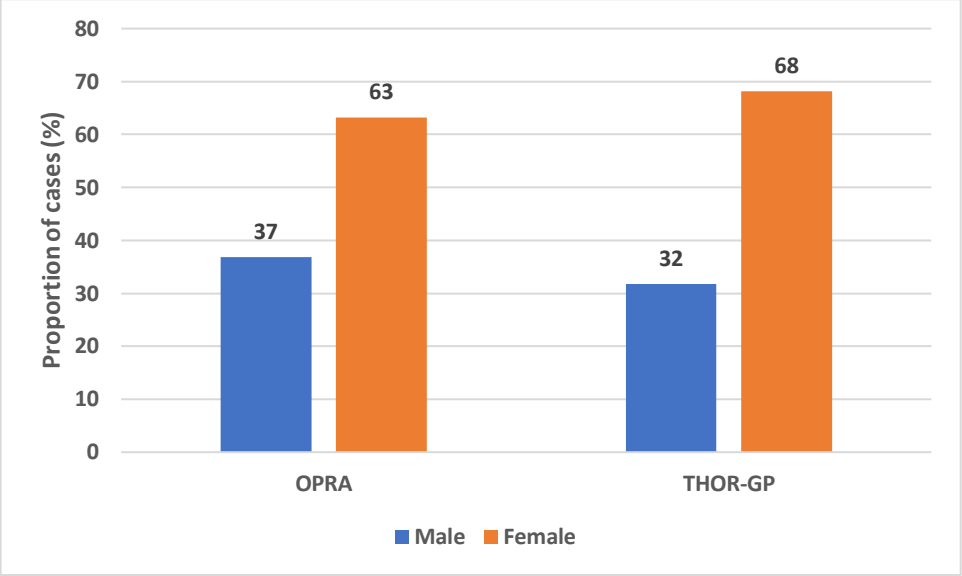

Figure 23: Proportion of actual cases of work-related mental ill-health by sex reported to OPRA and THOR-GP (2019).

The proportions of mental ill-health cases reported by OPs to OPRA by industry sector are provided in Figure 24. The most frequently reported sector was human health and social work activities (57%) followed by public administration and defence (16%) and education (11%).

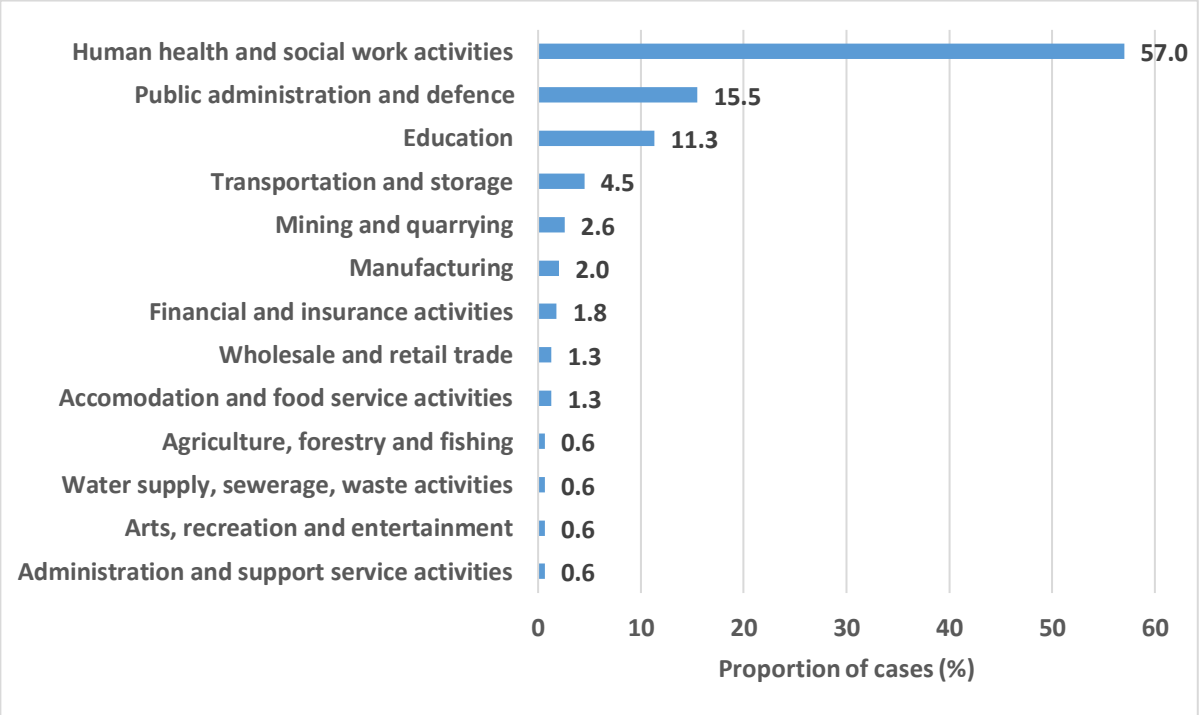

Figure 24: Proportion of estimated cases of work-related mental ill-health by industry sector reported to OPRA (2019).

For GP reported mental ill-health cases, human health and social work activities was the most frequently reported sector (23%), followed by education (14%) and transportation and storage (14%) (Figure 25).

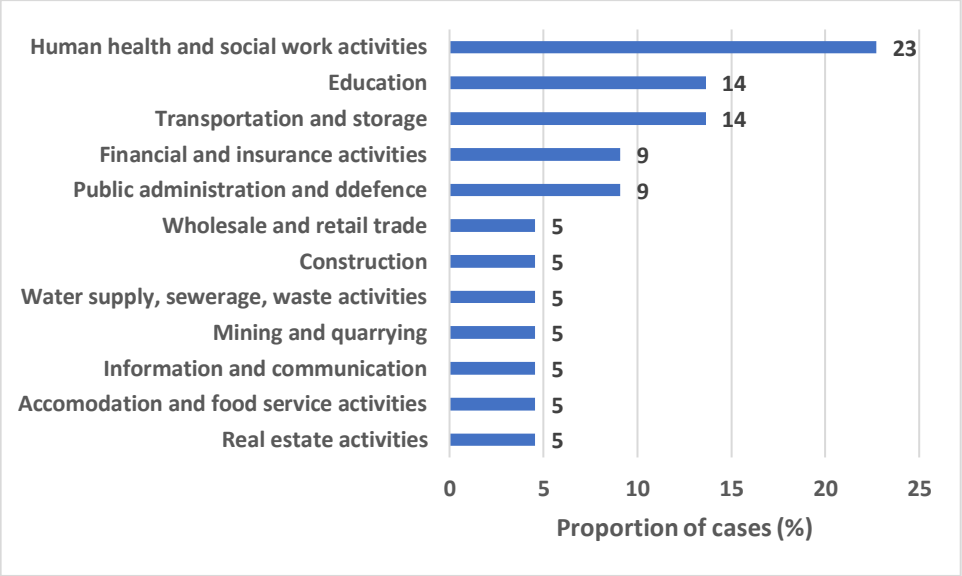

Figure 25: Proportion of actual cases of work-related mental ill-health by industry sector reported to THOR-GP (2019).

The proportion of work-related mental ill-health cases by major occupational grouping for cases reported by OPs and GPs is shown in Figure 26. The SOC 2 group, professional occupations, made up the largest proportion (34%) of estimated cases reported by OPs, followed by the SOC 6 group, personal service occupations (18%). The most frequently reported occupations were medical practitioners (12%) and nurses (11%) within the SOC 2 group, professional occupations. For mental ill-health cases reported by GPs, SOC group 4, administrative and secretarial occupations, comprised the largest proportion of actual cases (27%), followed by SOC group 1, managers and senior officials (18%).

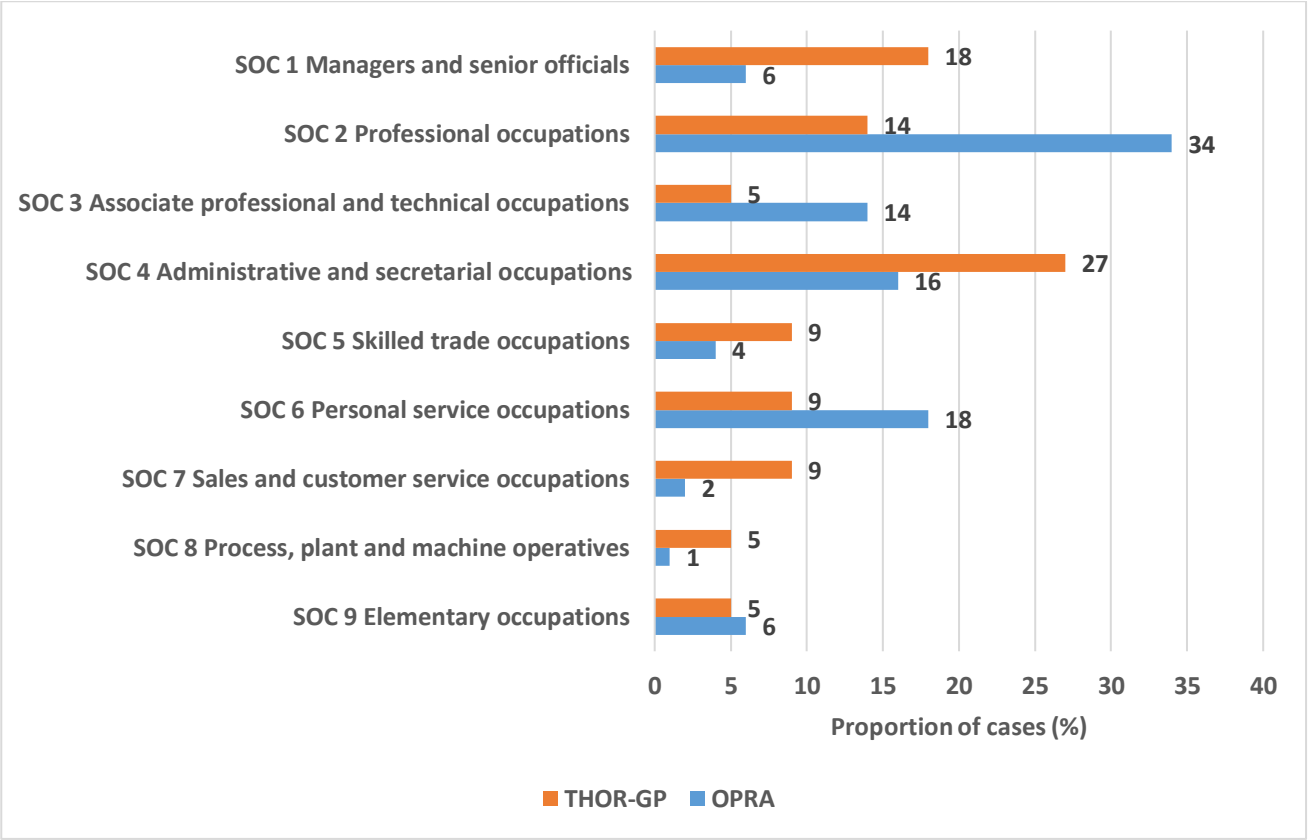

Figure 26: Proportion of cases of work-related mental ill-health by major occupational grouping reported to OPRA and THOR-GP (2019).

Physicians can report up to 3 precipitating events for each case of work-related mental ill-health reported to THOR. OPs recorded 337 precipitating events for the 220 cases (Figure 27) and GPs recorded 37 events for the 22 cases reported in 2019 (Figure 28). For both reporting schemes, 'factors intrinsic to the job', which includes events associated with workload, demand, work schedule, poor management and responsibilities was reported most frequently (OPs 40%; GPs 35%) followed by 'interpersonal relationships' which includes bullying and difficult working relationships (OPs 29%; GPs 27%).[9]

[9] **Percentages calculated from the total number of precipitating events for mental ill-health reported by physicians.**

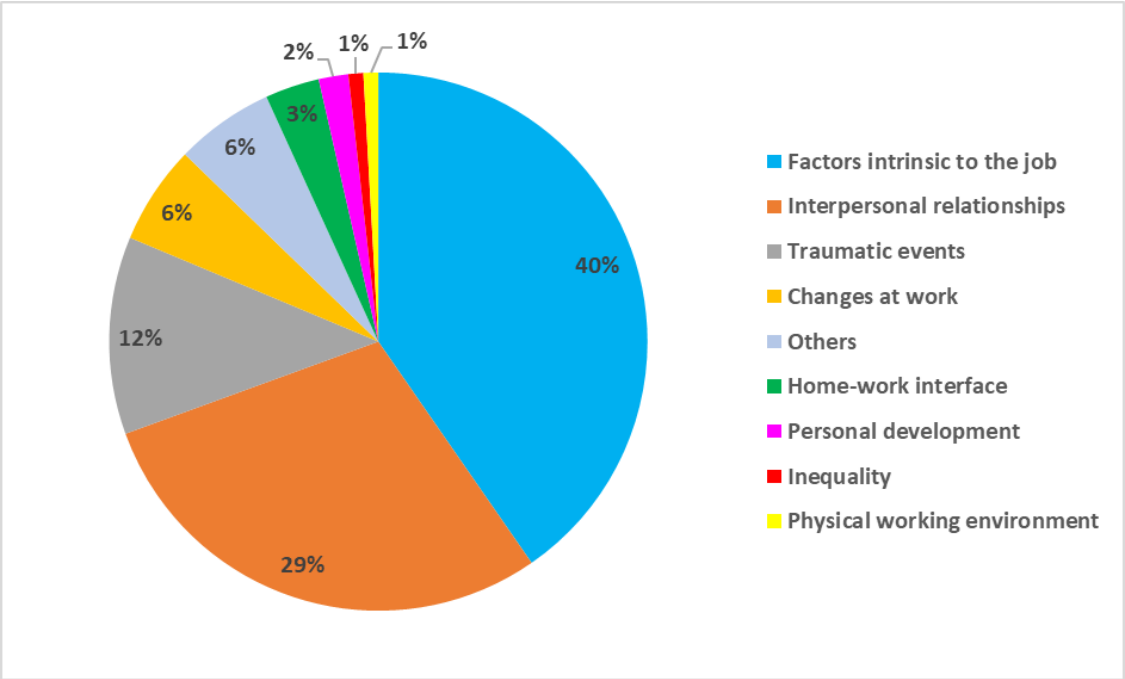

Figure 27: Proportion of precipitating events associated with work-related mental ill-health cases reported to OPRA (2019).

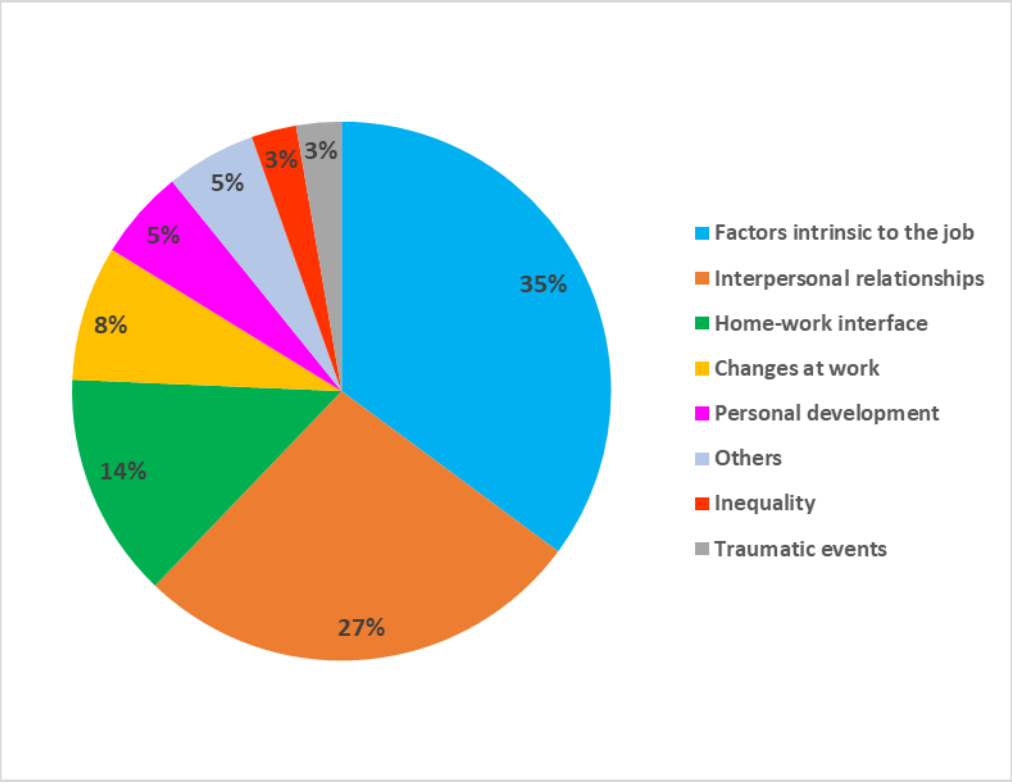

Figure 28: Proportion of precipitating events associated with work-related mental ill-health cases reported to THOR-GP (2019).

3.6 OTHER WORK-RELATED ILL-HEALTH

In addition to the diagnostic categories outlined above, OPs and GPs can report other cases of work-related ill-health to THOR. There have been 12 actual (133 estimated) cases of 'other' work-related diseases reported to OPRA (Table 2) and 4 actual cases reported to THOR-GP (Table 3).

Table 2: Overview of 'other' work-related diseases reported to OPRA in 2019.

Diagnosis	Sex	Age	Job (SOC)	Industry (SIC)	Suspected agent
Scleritis	M	44	Medical Practitioner	Healthcare	Long exposure to visual display unit and sleep loss.
Takotsubo cardiomyopathy (secondary diagnosis to work related stress)	F	53	Educational support assistant	Education	Work trauma and anxiety
Toxic effect of lead	M	27	Metal making and treating process operative	Manufacture of basic metals	Exposure to inorganic lead dust
Inflammatory bowel disease (secondary diagnosis to organisational stress)	F	35	Youth and community worker	Social work activities	Bullying, and harassment, demand, support
Left arm haematoma	M	63	Van driver	Public administration and defence	Warehouse racking
Effect of reduced temperature	M	29	Aircraft pilot	Public administration and defence	Survival training
Effect of reduced temperature	M	34	Non-commissioned officer	Public administration and defence	Cold exposure
Penetrating right eye injury	M	30	Vehicle mechanic	Public administration and defence	Grinding
Concussion	M	51	Inspector of standards and regulations	Education	Road traffic collision
Crohn's disease – symptoms exacerbated	F	26	Nursing assistant	Healthcare	Night shift and long hours
Epilepsy - symptoms exacerbated	F	29	Nursing assistant	Healthcare	Sleep deprivation and night shift
Migraine	F	25	Nurse	Healthcare	Frequent shift pattern

Table 3: Overview of 'other' work-related diseases reported to THOR-GP in 2019.

Diagnosis	Sex	Age	Job (SOC)	Industry (SIC)	Suspected agent
Crohn's disease – associated sacroiliac pain	M	61	Rail travel assistant	Land transport	Unable to manage job due to illness. Lack of toilets
Diarrhoea, abdominal cramps, weight loss	M	34	Shelf filler	Retail trade	Night shifts
Acute tonsillitis	F	20	Retail assistant	Food and beverage service activities	Possible customer contact
Tension headaches	M	35	Painter and decorator	Construction	Working close-up to paint fine detail

4. CONCLUSION

This report provides an overview of the cases of work-related ill-health reported to THOR in 2019. The average number of physicians reporting to THOR has decreased slightly across all schemes in 2019 compared to 2018. For work-related respiratory disease, chest physicians predominantly reported cases of non-malignant pleural disease, followed by cases of pneumoconiosis and mesothelioma. Cases were reported most frequently from the construction and manufacturing industry sectors, with skilled trades reported more frequently than any other occupation. OPs and GPs reported mainly asthma or 'other' respiratory disease. Asbestos was the most frequently reported agent for respiratory disease, comprising more than half of cases reported by chest physicians. The largest proportion of skin cases reported by dermatologists was contact dermatitis, followed by neoplasia. Cases in human health and social work were reported most frequently by dermatologists, followed by 'other' service activities. OPs and GPs predominantly reported cases in the human health and social work sector. Dermatologists most frequently reported cases from the skilled trade occupations, closely followed by personal service occupations and professional occupations. The most frequently reported specific occupation were nurses. All three schemes reported water/wet work more frequently than any other suspected agent. For work-related musculoskeletal disorders, cases of hand/wrist/arm and lumbar spine/trunk were the most frequently reported anatomical site for both OPs and GPs, and were mostly within the human health and social work (OPRA) and manufacturing (THOR-GP) sectors. OPs mostly reported musculoskeletal disorders in van drivers, and GPs predominantly reported cases in motor mechanics and auto

engineers. The most frequently task reported by OPs was guiding and holding tools, followed by accidents. Heavy lifting, carrying, pulling or pushing was the task most frequently reported by GPs, followed by materials manipulation. Work-related stress and anxiety/depression continue to be the two main work-related mental ill-health categories reported most often by OPs and GPs to THOR. Cases in human health and social work were reported most frequently by both OPs and GPs. The occupations most frequently reported by OPs were medical practitioners and nurses. Administrative and secretarial occupations comprised the largest proportion of mental-ill health cases reported by GPs, followed by managers and senior officials.

When comparing the 2019 data with cases reported in 2018, the key industry sectors reported most frequently by physicians in 2018 are also those reported most frequently in 2019, including construction (respiratory) and health and social work (skin, musculoskeletal and mental ill-health). The only variation is that GPs in 2018 most frequently reported musculoskeletal cases from the retail sector, and musculoskeletal cases reported by GPs in 2019 were predominantly from the manufacturing sector. Additionally, GPs reported an equal number of mental ill-health cases from the education sector and human health and social work sector in 2018. Whereas mental-ill health cases reported by GPs in 2019 were predominantly from the human health and social work sector only.

The importance of THOR as an existing UK resource on WRIH is well-established, with the database generating numerous outputs which help inform HSE and others to determine their priorities and work programmes on occupational health. It also acts as a sentinel scheme to identify any new causes of WRIH.

5. APPENDIX 1 – PUBLICATIONS

Mason, Howard J; Carder, Melanie; Money, Annemarie; Evans, Gareth; seed, Martin; Agius, Raymond; van Tongeren, Martie. Occupation asthma and its causation in the UK seafood processing industry, Annals of Work Exposures and Health 2020; in press. doi: 10.1093/annweh/wxaa055