This version dated: April 2015

The incidence of work-related ill-health as reported to The Health and Occupation Research (THOR) network by physicians in the Republic of Ireland between 2005 and 2014.

Money A, Carder M and Agius R

Centre for Occupational and Environmental Health, Centre for Epidemiology, Institute of Population Health, The University of Manchester, 4th Floor C Block Ellen Wilkinson Building, Oxford Road, Manchester M13 9PL

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GLOSSARY OF TERMS

EPIDERM - The EPIDERM scheme began in 1993 and collects reports of cases of occupational skin disease from consultant dermatologists.

HSA - The Republic of Ireland Health and Safety Authority.

HSE - The UK Health and Safety Executive.

OPRA - The OPRA scheme began in 1996 and collects reports of work-related disease from occupational physicians employed in the public sector and private sector. OPRA reports are not confined to a particular disease category.

ROI-EPIDERM – The ROI-EPIDERM scheme began in 2005 and collects reports of cases of occupational skin disease from consultant dermatologists within the Republic of Ireland.

ROI-OPRA - The ROI-OPRA scheme began in 2007 and collects reports of cases of work-related ill-health from occupational physicians within the Republic of Ireland.

ROI-SWORD - The ROI-SWORD scheme began in 2005 and collects reports of cases of occupational respiratory disease from consultant respiratory physicians within the Republic of Ireland.

ROI-THOR - The Health and Occupation Research network in the Republic of Ireland which includes ROI-EPIDERM, ROI-SWORD and ROI-OPRA. THOR-ROI began in 2005.

SWORD - The SWORD scheme began in 1989 and collects reports of cases of occupational respiratory disease from consultant respiratory physicians.

THOR - The Health and Occupation Research network which runs several surveillance schemes for work-related disease including EPIDERM, SWORD and OPRA. THOR took over from the Occupational Disease Intelligence Network (ODIN), which had the same role until 2001.

THOR-GP – The THOR-GP scheme began in 2005 and enables general practitioners to report cases of work-related ill-health seen in a general practice setting. All THOR-GP reporters have a diploma in occupational medicine.

THOR-GP in the ROI – THOR-GP in the ROI began in 2015 and enables general practitioners with an interest in occupational medicine to report cases of work-related ill-health seen in a general practice setting.

MAIN MESSAGES

- ROI-THOR currently comprises 4 surveillance schemes collecting data on work-related illness (WRI) in the Republic of Ireland (ROI); ROI-SWORD (chest physicians, data collection commenced 2005), ROI-EPIDERM (dermatologists, 2005), ROI-OPRA (occupational physicians (OPs), 2007) and THOR-GP in the ROI (general practitioners (GPs), 2015)
- This is the latest annual report describing reporting activity to ROI-THOR including a comparison with reports to analogous THOR schemes in Northern Ireland (NI) and Great Britain (GB)
- Currently 13 dermatologists, 12 chest physicians, 25 OPs and 21 GPs participate in ROI -THOR, reporting incident cases that they believe to have been caused or aggravated by work
- A total of 146 cases were reported in 2014 (OPs: 125, dermatologists: 11, chest physicians: 10). This brings the total ever reported (2005-2014) to 1770 (OPs:1242, dermatologists:411, chest physicians:117)
- Case reports from OPs (2007-2014) were predominantly mental ill-health (53%) and musculoskeletal (34%) with smaller proportions of skin (9%), respiratory (2%) and 'other' WRI (3%). The majority (78%) of cases were reported in health and social care (mainly nurses) with a significant proportion also reported in transport (bus/train drivers) (14%)
- The breakdown of cases (by diagnostic group, industry, agents etc.) was very similar between the three geographical areas (ROI, NI and GB)
- Case reports from dermatologists (2005-2014) were predominantly contact dermatitis (CD) (96%), female (54% of CD cases) with a mean age (all CD cases) of 35 years. Frequently reported industries/occupations were healthcare (nurses), manufacturing (process operatives) and hairdressing and beauty, and agents included rubber, nickel, wet work and preservatives
- The main difference between reports to EPIDERM in the ROI and the UK is that the latter contained proportionally more diagnoses of skin neoplasia
- Case reports from chest physicians (2005-2014) were predominantly asthma (38%), male (81%) with a mean age (all cases) of 53 years. Frequently reported industries/occupations were construction (labourers) (25%) and manufacturing (32%) with isocyanates the most frequently reported agent
- The main difference between reports to SWORD in the ROI and the UK is that the latter contained proportionately more asbestos related diagnoses (74%)

EXECUTIVE SUMMARY

BACKGROUND: The Health and Occupation Research (THOR) network in the Republic of Ireland (ROI-THOR) currently comprises 4 surveillance schemes enabling chest physicians, dermatologists, occupational physicians and (since January 2015), general practitioners (GPs) to (voluntarily) report cases of work-related illness (WRI). The aim of this report is to describe cases of WRI reported to ROI-THOR in the latest full calendar year (2014) and to provide a summary of reporting activity since the commencement of reporting (2005), including a comparison with cases reported to analogous THOR schemes in Great Britain (GB) and Northern Ireland (NI) over the same time period. .

METHODS: Participating physicians were asked to provide anonymised case reports of incident cases seen during their reporting period. Cases reported to ROI-THOR were analysed by age, gender, occupation/industry and suspected causal agent, and compared with cases reported in GB and NI over the same time period.

RESULTS: The 50 physicians enrolled in ROI-THOR in 2014 (13 dermatologists, 12 chest physicians and 25 OPs) reported a total of 146 cases during 2014. Of these, 125 were reported to ROI-OPRA (70% mental ill-health, 20% musculoskeletal, 7% skin, 2% respiratory and <1% other), 11 were reported to ROI-EPIDERM (all contact dermatitis (CD)) and 10 were reported to ROI-SWORD (3 non-malignant pleural disease, 2 inhalation accidents, 1 infectious disease, 1 bronchitis/emphysema, 2 pneumoconiosis and 2 ‘other respiratory). This brings the total cases ever reported

(2005-2014) to 1770 case reports (dermatologists: 411, chest physicians: 117, OPs: 1242 case reports).

Case reports to ROI-EPIDERM (2005-2014) were predominantly CD (96%), female (54% of CD cases), with a mean age (all CD cases) of 37 years (age range: 15-81 years). Cases of CD reported in NI and GB were also predominantly CD (but proportionally more neoplasia was also reported) with a similar age/gender mix. The most frequently reported industries and occupations for CD cases showed similarities between the three geographical areas, with cases frequently reported in health and social care (23% of ROI cases), manufacturing (25% of ROI cases) and other service activities (which includes hairdressers and beauticians) (12% of ROI cases) with related occupations being nurses (13% of ROI cases), chemical and related process operatives (9% of ROI cases) and hairdressers (7% of ROI cases). Rubber chemicals and materials, nickel, wet work and preservatives were the most frequently reported agents for CD in the ROI. Rubber and wet work, along with soaps and detergents, were also the most frequently reported agents for CD cases reported in GB and NI.

The largest proportion of the 117 case reports to ROI-SWORD (2005-2014) was asthma (38%), whilst for GB and NI the highest proportion was benign pleural plaques (NI 38%, GB 42%), attributable to asbestos exposure. Other diagnoses to ROI-SWORD included 24 diagnoses of benign pleural plaques, 17 diagnoses of pneumoconiosis and 12 diagnoses of inhalation accidents were also reported to ROI-SWORD, with a further 1 or more diagnoses reported in each of the remaining

SWORD reporting categories. Respiratory cases reported in the ROI were predominantly male (81%), and had a mean age of 53 years (age range 19 - 83). Cases of asthma in the ROI and GB had a mean age of 44 years, compared to 56 years in NI. The two industrial sectors from which cases were most frequently reported by chest physicians to SWORD (ROI, GB and NI) were construction and manufacturing with related occupations being labouring in building and woodworking trades (ROI) and carpenters and joiners (NI and GB). The 45 diagnoses of asthma in ROI were associated with 56 different agents, with isocyanates being the most frequently reported. For comparison, the most frequently reported agent for asthma in GB was also isocyanates followed by flour.

Case reports to ROI-OPRA (2007-2014) were predominantly mental ill-health (53%) followed by musculoskeletal (34%), skin (9%), 'other' (3%) which included lead toxicity and ethanol sensitivity and respiratory (2%). A similar diagnostic breakdown was seen for cases reported in GB and NI. Cases reported to ROI-OPRA were predominantly female (68%) with a mean age (total cases) of 43 years (age range 19-69). A similar age gender mix was seen in NI and GB. The most frequently reported industry and occupation for ROI was the health and social care sector (78%) and nurses (24%). Cases in GB and NI were also frequently reported in the health and social care sector (although some industry sectors, such as health and social care, have better provision of occupational health services compared to others and therefore proportionally more cases might be expected). (For all three geographical areas, mental ill-health case reports were most frequently attributed to 'factors intrinsic to the job' which included 'workload', 'travel', and 'organisational

factors' and to 'interpersonal relationships'. Commonly reported tasks and movements associated with the musculoskeletal disorders were 'lifting/carrying/pushing/pulling', 'accidents' and 'materials handling'.

CONCLUSION: The information currently produced by surveillance schemes such as THOR is an important source of information for work-related ill-health, and is currently the best available overall source of data relating to medically attributed occupational disease incidence. Overall, the addition of an extra year of data (2014) strengthened the patterns that were emerging in previous ROI-THOR reports allowing us to draw stronger conclusions over time. Additionally, as exemplified by the comparisons presented here (with GB and NI), comparisons can be made with other EU countries to enable benchmarking on a wider scale.

1 INTRODUCTION

The Health and Occupation Research (THOR) network in the Republic of Ireland (ROI-THOR) currently comprises 4 surveillance schemes enabling different groups of physicians to (voluntarily) report cases of work-related illness (WRI)[1, 2]. These are SWORD (chest physicians), EPIDERM (dermatologists), OPRA (occupational physicians) and THOR-GP (general practitioners). SWORD and EPIDERM both started data collection in the ROI in 2005, whilst OPRA commenced in 2007. THOR-GP is the newest ROI scheme with data collection commencing in January 2015. The ROI schemes are based on the analogous well-established UK-wide schemes[3-7].

The aim of this report is to describe cases of WRI reported to SWORD, EPIDERM and OPRA in the ROI during the previous calendar year (2014) and for the combined period (2005-2014) and to compare these with cases reported in Great Britain (GB) and Northern Ireland (NI) over the same period. This builds on previous reports submitted annually to the ROI Health Safety Authority (HSA) since 2006[8-15]. Cases reported to THOR-GP are not described (as reporting only commenced in January 2015) but a progress update regarding the launch of this scheme is provided.

2 METHODS

The methodology behind THOR has been described in detail previously with participating physicians being asked to report only new cases of disease seen during their reporting month that they believe to have been caused or aggravated by work (general guidance on reporting is provided via the web site)[3]. The methodology was established using paper-based reporting (a reporting card). However, more recently reporters have been given the option to provide data in an electronic format and since 2002, all new THOR schemes, including those in the ROI, have been designed to be exclusively electronic. Reporters are requested to give information on diagnosis, age, gender, 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[16, 17]. Suspected agents are coded using in-house coding schemes developed in conjunction by 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)[18] so that comparisons can be made between reporting schemes.

Participants in THOR contribute data as ‘core’ reporters (who report every month) or as ‘sample’ reporters (who report for one randomly allocated month each year). Currently, all physicians in the ROI participate as core reporters whilst in the UK there is typically a smaller group of core reporters with the majority of physicians participating on a sample basis. To estimate the total number of incident cases for the UK, cases reported by the ‘sample’ reporters are multiplied by 12 and this sub-total added to the cases reported by the ‘core’ reporters. Unless otherwise specified, the UK derived results presented in this report are based on estimated cases.

Cases of occupational disease reported to EPIDERM, SWORD and OPRA by physicians in the Republic of Ireland (ROI) from 2005 to 2014 have been extracted from the databases (current at end of December 2014) and compared with data reported by physicians in NI and GB. Data were analysed using the statistical package SPSS V20.0.

Ethics Committee approval has been given for THOR in the Republic of Ireland by the Public Health Research Ethics Committee of The Royal College of Physicians of Ireland.

3 RESULTS

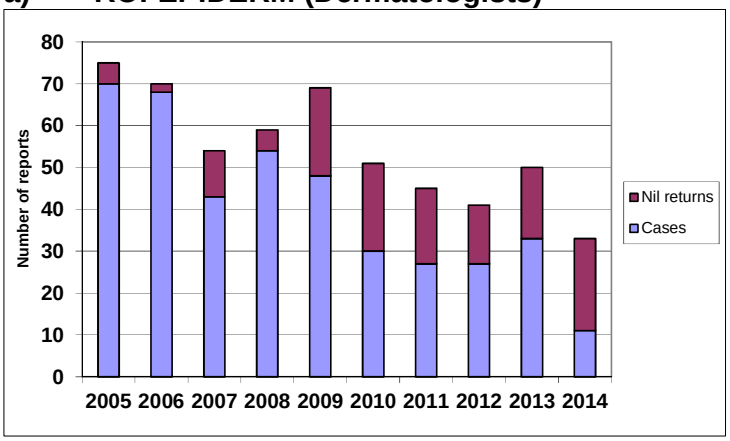
3.1 PARTICIPATION

The number of reports received for ROI-EPIDERM, ROI-SWORD and ROI-OPRA by year is shown in Figure 1 whilst Figure 2 shows the cases per active reporter per year. A total of 13 dermatologists, 12 chest physicians and 25 OPs were enrolled in ROI-THOR in 2014. Of these, 4 (31%) dermatologists actively participated in 2014 (i.e. returned a web form at least once either containing cases or declaring 'I have nothing to report this month') with 9 (69%) dermatologists actively participating at least once during 2005-2014. Of the 12 chest physicians, 1 actively reported in 2014 with 6 (50%) actively participating at least once during 2005-2014. Of the 25 OPs enrolled in ROI-OPRA, 7 (28%) actively participated in 2014 with 16 (64%) actively participating during 2007-2014.

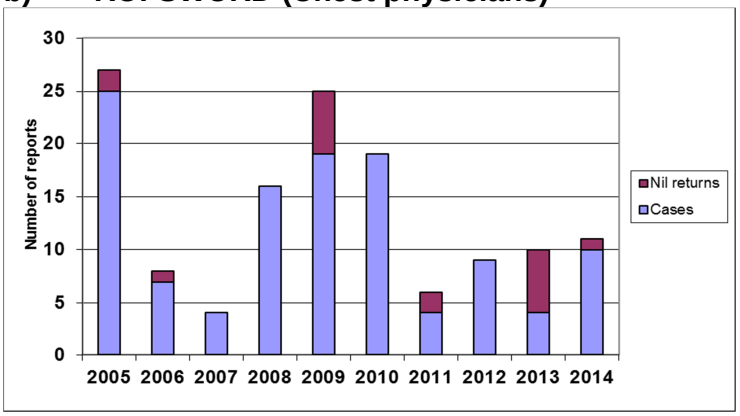
For comparison, 59% of (approximately 430) chest physicians enrolled in SWORD in the UK actively participated during 2014 with 88% (of approximately 720, including 18 physicians from NI) ever actively participating (2005-2014). The equivalent figures for dermatologists enrolled in EPIDERM were 68% (of approximately 150 physicians, 2014) and 87% (of approximately 300 physicians, including 11 in NI, 2005-2014) and for occupational physicians enrolled in OPRA were 69% (of approximately 300 physicians, 2014) and 86% (of approximately 500 physicians, including 16 in NI, 2007-2014).

Figure 1 **Reports (cases and nil returns) in a) ROI-EPIDERM (2005-2014) b) ROI-SWORD (2005-2014) and c) ROI-OPRA (2007-2014)**

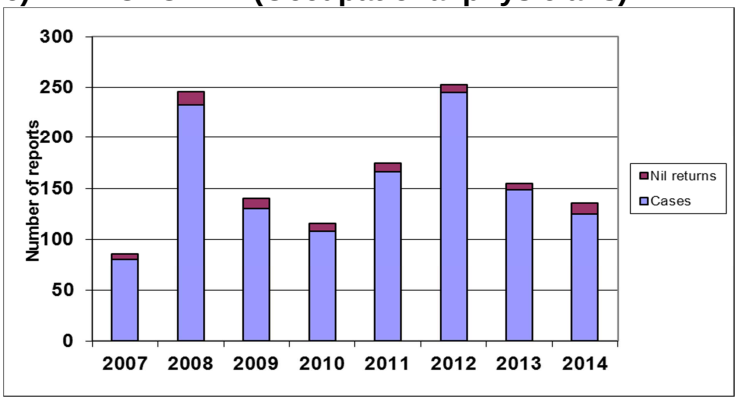
a) ROI-EPIDERM (Dermatologists)



b) ROI-SWORD (Chest physicians)



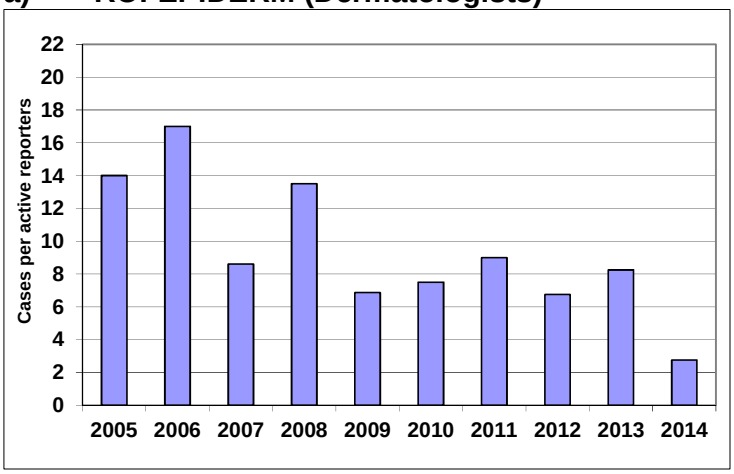
c) ROI-OPRA (Occupational physicians)



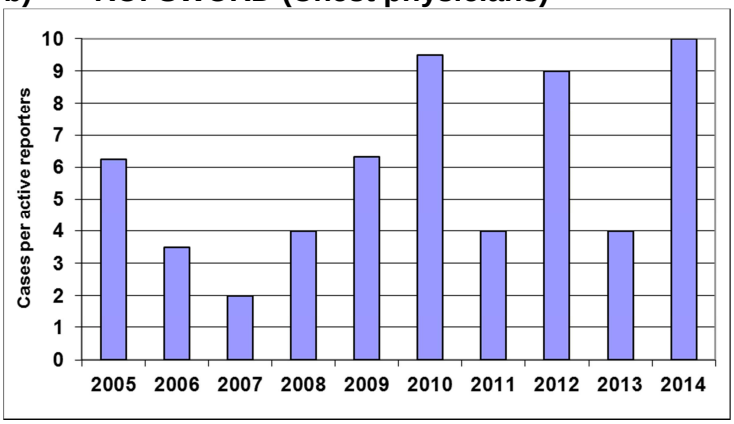
NOTE: Scale differences

Figure 2 Cases per active reporter* in a) ROI-EPIDERM (2005-2014) b) ROI-SWORD (2005-2014) and c) ROI-OPRA (2007-2014)

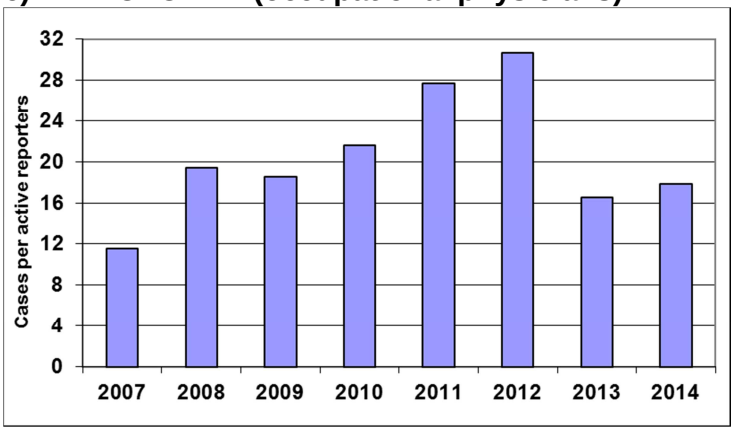
a) ROI-EPIDERM (Dermatologists)



b) ROI-SWORD (Chest physicians)



c) ROI-OPRA (occupational physicians)



***An active reporter is defined as someone who returns a case report or responds 'I have nothing to report' in a calendar year.**

NOTE: Scale differences

3.2 OVERVIEW OF 2014 CASE REPORTS

A total of 146 cases were reported to ROI-THOR in 2014 (Table 1). These comprised 125 cases reported by OPs to ROI-OPRA, 11 skin cases reported by dermatologists to ROI-EPIDERM and 10 respiratory cases reported by chest physicians to ROI-SWORD.

The cases reported to ROI-EPIDERM were all diagnoses of CD and included 4 in manufacturing (2 process operatives and 2 laboratory technicians), 3 in the beauty industry (nail technician, beautician, and aromatherapist), 2 in healthcare (home help, retired dentist), and one case each in catering (chef) and retail (cashier) (Table 2) . The agents associated with the 11 cases of CD were hand washing (cited 3 times), cobalt (cited twice), fragrances/essential oils (cited twice), soaps, nickel, thiuram, acrylates, preservatives and glycidyl trimethylammonium chloride.

The 10 cases reported to ROI-SWORD included 3 diagnoses of non-malignant pleural disease (all reported in construction labourers), 2 inhalation accidents (both in workers in manufacturing, one attributed to metabisulphite and one to cleaning agents), 1 infectious disease (farm worker, attributed to toxoplasma), 1 bronchitis/emphysema with a co-diagnosis of sinusitis (manufacturing operative, attributed to food additives), and 2 pneumoconiosis (labourer and plasterer). The remaining 2 diagnoses were a diagnosis of hyposmia in a mechanic attributed to exhaust fumes and hard metal disease in a grinder attributed to tungsten.

The 125 cases reported to ROI-OPRA in 2014 were predominantly diagnoses of mental ill-health (70%) followed by musculoskeletal (20%), with smaller proportions of skin (7%), respiratory (2%) and other WRI (<1%). The most frequently reported industries for the 87 mental ill-health cases reported to ROI-OPRA in 2014 was health and social care (51%) and public transport (31%) with frequently reported occupations within these industries being nurses (13% of total mental ill-health cases) and bus drivers (24%), respectively. The types of events reported as associated with these cases included workload, difficulties with managers/co-workers etc. (including bullying) and assault. The most frequently reported industry and occupation for the 25 musculoskeletal cases reported to ROI-OPRA was health and social care (68%) and nurses (36%) with frequently reported tasks/movements including manual handling/lifting and assault.

The 9 skin cases included 6 diagnoses of CD, 2 of which were reported in the transport industry (bus driver, bus cleaner), with the remainder in health and social care (physiotherapist, home help, nurse, medical technician). The agents associated with these 6 CD cases were wet work/hand washing (cited 4 times), diesel fuel, oil and 'contact with chemical'. The remaining skin cases were one diagnosis of urticaria (doctor, attributed to latex), a diagnosis of burn in a nurse (laser) and a diagnosis of pompholyx eczema (healthcare worker, attributed to wet work/skin cleansers). The 3 respiratory cases included one diagnosis of asthma (pharmaceutical technician, attributed to a biocide), one diagnosis of sinusitis (bakery worker, flour) and one diagnosis of tuberculosis (doctor). The one diagnosis reported under 'other' WRI was an assault in a nurse.

Table 1 Number of cases reported to ROI-SWORD, ROI-EPIDERM and ROI-OPRA, 2014

	Diagnosis	ROI-SWORD	ROI-EPIDERM	ROI-OPRA
Skin disease	Contact dermatitis	/	11	6
	Urticaria	/	0	1
	Other skin	/	0	2
	Total skin diagnoses	/	11	9
	Total skin cases	/	11	9
Respiratory disease	Asthma	0	/	1
	Non-malignant pleural disease	3	/	0
	Inhalation accidents	2	/	0
	Infectious disease	1	/	0
	Bronchitis/emphysema	1	/	0
	Pneumoconiosis	2	/	0
	Other respiratory disease	3	/	2
	Total respiratory diagnoses	12	/	3
	Total respiratory cases	10	/	3
Mental ill-health	Anxiety and depression	/	/	26
	Adjustment disorder	/	/	17
	Other work stress	/	/	41
	Other mental ill-health	/	/	6
	Total mental diagnoses	/	/	90
	Total mental cases	/	/	87
Musculoskeletal disorders	Upper limb	/	/	9
	Spine/back	/	/	14
	Lower limb	/	/	2
	Other musculoskeletal	/	/	1
	Total musculoskeletal diagnoses	/	/	26
	Total musculoskeletal cases	/	/	25
Other work-related illness	Assault	/	/	1
	Total diagnoses	**12**	**11**	**129**
	Total cases	**10**	**11**	**125**

Table 2 Cases of work-related illness reported to ROI-THOR, 2014

	Occupations	Industries	Agents
Skin reports to ROI-EPIDERM	Lab technician, process operator, nail technician, chef, home help, beautician, cashier, aromatherapist, retired dentist	Manufacturing, beauty, healthcare, catering, retail	Hand washing, cobalt, fragrances/essential oils, soaps, nickel, thiuram, acrylates, preservatives and glycidyl trimethylammonium chloride.
Skin reports to ROI-OPRA	Bus cleaner, bus driver, doctor, healthcare worker, home support worker, medical technician, nurse, physiotherapist,	Health and social care, public transport	Hand washing, diesel fuel, laser, latex, oil, skin cleaners/washing, wet work
Respiratory reports to ROI-SWORD	Labourer, farm worker, general operative, mechanic, plasterer, grinder, engineer	Construction, agriculture, engineering, manufacturing, automotive testing	Asbestos, food additives, cleaning agent, tungsten, exhaust fumes, metabisulphite, toxoplasma
Respiratory reports to ROI-OPRA	Production technician, doctor, factory Worker	Bakery, healthcare, pharmaceutical	Biocide, flour, mycobacterium tuberculosis
Musculoskeletal reports to ROI-OPRA	Butcher, care attendant, clerical officer, general operative, hospital porter, dentist, nurse, paramedic, pharmaceutical technician, railway maintenance operative, vehicle bodywork repairer, warehouse porter	Catering, healthcare, manufacturing, public transport, retail	Assaulted, manual handling, lifting/pulling, repetitive movements, slips/trips, vibrating tools, work ergonomics,
Mental ill-health reports to ROI-OPRA	Banker, clerical officer, healthcare workers (ambulance, healthcare assistant, laboratory scientist, nurse, doctor, physiotherapist, surgeon, managers), transport workers (bus/train driver, operatives, electrician, maintenance worker), teacher	Banking, civil service, education, healthcare, public transport, retail, telecommunication	Assault, bullying, conflict/work relationships, organizational change, role uncertainty, workload, witnessing traumatic events

3.3 OCCUPATIONAL SKIN SURVEILLANCE (EPIDERM), 2005-2014

3.3.1 DIAGNOSES

In total 411 case reports were reported by dermatologists to ROI-EPIDERM between January 2005 and December 2014. These 411 case reports produced 398 diagnoses; 13 cases were not assigned a diagnosis (however information on occupation, industry and suspected agent was provided). The most frequently reported skin diagnosis in the ROI was CD (96%) (Table 3). The majority of the reported diagnoses in NI (59%) and GB (82%) were also CD. However, unlike the ROI case mix, the NI and GB case mix also included a proportion of neoplasia diagnoses (NI 41%, GB 12%).

3.3.2 AGE AND GENDER

Of the 11 cases of CD reported in 2014, 8 were reported in females and the average age (all cases) was 41 years (age range: 27-74 years). Overall (2005-2014) cases of CD in the ROI were most frequently reported in the 25-34 year age group for both males and females (Figure 3). This compared to 45-54 (males) and 25-34 (females) year age group in NI and 35-44 (males) and 16-24 (females) year age group in GB. Overall in the ROI, there were more cases of CD reported in females (54%) than males (46%), and females were younger than males (mean age; females 34 years, males 38 years) (Table 4).

Table 3 Number and type of diagnoses reported by dermatologists to EPIDERM (2005-2014) in the Republic of Ireland, Northern Ireland & Great Britain

	ROI (actual)	NI (actual)	NI (estimated)	GB (actual)	GB (estimated)
Contact dermatitis	394 (96%)	41 (59%)	448 (57%)	6207 (83%)	13291 (72%)
• **Allergic**	• 209 (53%)	• 11 (27%)	• 132 (29%)	• 2070 (33%)	• 5095 (38%)
• **Irritant**	• 146 (37%)	• 18 (44%)	• 216 (48%)	• 2961 (48%)	• 5535 (42%)
• **Mixed**	• 38 (10%)	• 7(17%)	• 84 (19%)	• 1018 (16%)	• 2052 (15%)
• **Unclear**	• 1 (<1%)	• 5 (12%)	• 16 (4%)	• 159 (3%)	• 610 (5%)
Contact urticaria	3 (<1%)	0	0	285 (4%)	549 (3%)
Folliculitis/acne	0	0	0	30 (<1%)	52 (<1%)
Infective	1 (<1%)	1 (1%)	12 (2%)	18 (<1%)	51 (<1%)
Mechanical	0	0	0	75 (1%)	207 (2%)
Nail	0	0	0	19 (<1%)	96 (1%)
Neoplasia	0	28 (41%)	336 (43%)	874 (12%)	4185 (23%)
Other dermatoses	0	0	0	91 (1%)	377 (2%)
Total cases	**411 (100%)**	**69 (100%)**	**784 (100%)**	**7463 (100%)**	**18485 (100%)**
Total diagnoses	**398***	**70**	**796**	**7599**	**18808**

*13 cases were not assigned a diagnosis. However, information on occupation, industry and suspected agent was provided

Figure 3 Proportion of cases of contact dermatitis reported to EPIDERM by age and gender (2005-2014)

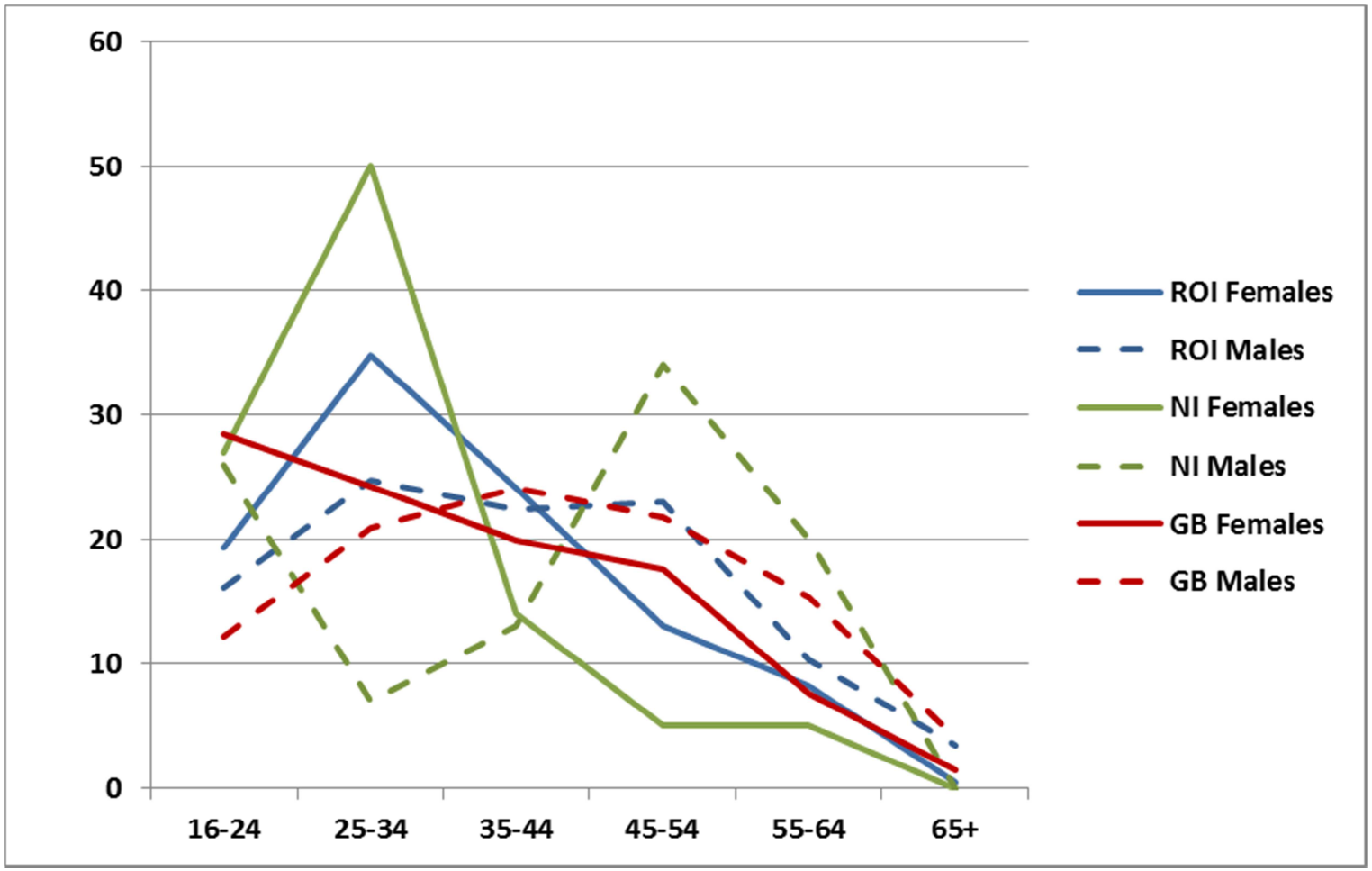


Table 4 Age and gender of contact dermatitis diagnoses in ROI-EPIDERM (2005-2014)

DIAGNOSIS	MALES	FEMALES	ALL
Allergic CD			
Number of diagnoses (%)	112 (54%)	97 (46%)	209 (100%)
Mean age (years)	41	36	39
Age range (years)	15-81	17-64	15-81
Irritant CD			
Number of diagnoses (%)	54 (37%)	91 (62%)	146 (100%)*
Mean age (years)	36	32	34
Age range (years)	16-62	19-62	16-62
Mixed CD			
Number of diagnoses (%)	15 (39%)	23 (61%)	38 (100%)
Mean age (years)	39	41	40
Age range (years)	19-54	17-65	17-65
All CD			
Number of diagnoses (%)	182(46%)	211 (54%)	394 (100%)
Mean age (years)	39	35	37
Age range (years)	15-81	17-65	15-81

*1 diagnosis had no gender assigned

3.3.3 INDUSTRY AND OCCUPATION

The most frequently reported industrial sectors for cases of CD reported to ROI and GB were health and social care and manufacturing, whilst cases in NI were most frequently reported from 'other service activities' (which includes hairdressing and other beauty treatments) and health and social care (Figure 4).

The most frequently reported occupations for cases of CD reported to ROI-EPIDERM were nurses (13% of the 394 CD cases) which fall under SOC group 3 'Associate professional and technical occupations' (Figure 5), chemical and related process operatives (9%) which fall under SOC group 8 'Process, plant and machine operatives' and hairdressers (7%) which fall under SOC group 6 'Personal service occupations'. For comparison, in GB, 13% (of the 13921 CD cases), 1% and 10% cases were reported in nurses, chemical and process operatives and hairdressers, respectively, whilst for NI, 19% (of the 448 CD cases) were reported in nurses and 21% were reported in hairdressers (no cases in NI were reported in chemical and process operatives). Cases of CD in GB were also frequently reported in chefs/cooks (5%), which falls within SOC group 5 'Skilled trades occupations' and cleaners and domestics (4%), which falls within SOC group 9 'Elementary occupations'. Cleaners/domestics was also a frequently reported occupation in cases of CD in NI (16%). For comparison, only 3 cases were reported in cleaners and domestics in the ROI.

Of the 4 non-CD cases reported to ROI-EPIDERM, the 3 cases of contact urticaria were reported in a nurse, a cleaner and a carpenter whilst a single (unspecified) infective case was reported in an agricultural student.

3.3.4 SUSPECTED AGENTS

Up to 6 suspected agents may be cited for each case report, and the agents most frequently associated with CD are shown in Table 5. The most frequently reported agents for the ROI were rubber chemicals and materials, nickel, wet work, and preservatives. Wet work, soaps and detergents and protective clothing and equipment (PPE) were the most frequently reported agents for CD cases reported in NI and wet work, soaps and detergents, and rubber chemicals and materials were the most frequently reported agents for CD cases reported in GB.

For allergic contact dermatitis (ACD) rubber chemicals and materials were the agent most often associated with case reports in the ROI, in irritant contact dermatitis (ICD) the agent was wet work, while for mixed contact dermatitis, nickel was most frequently reported.

The suspected agents associated with the 3 cases of contact urticaria reported to ROI-EPIDERM were latex, cobalt chloride, nickel sulphate and wood shavings, whilst the single (unspecified) infective case was in an agricultural student and was associated with ‘coming into contact with infected animals’.

Figure 4 **Proportion of cases of contact dermatitis reported to EPIDERM by Standard Industrial Classification (SIC), 2005-2014**

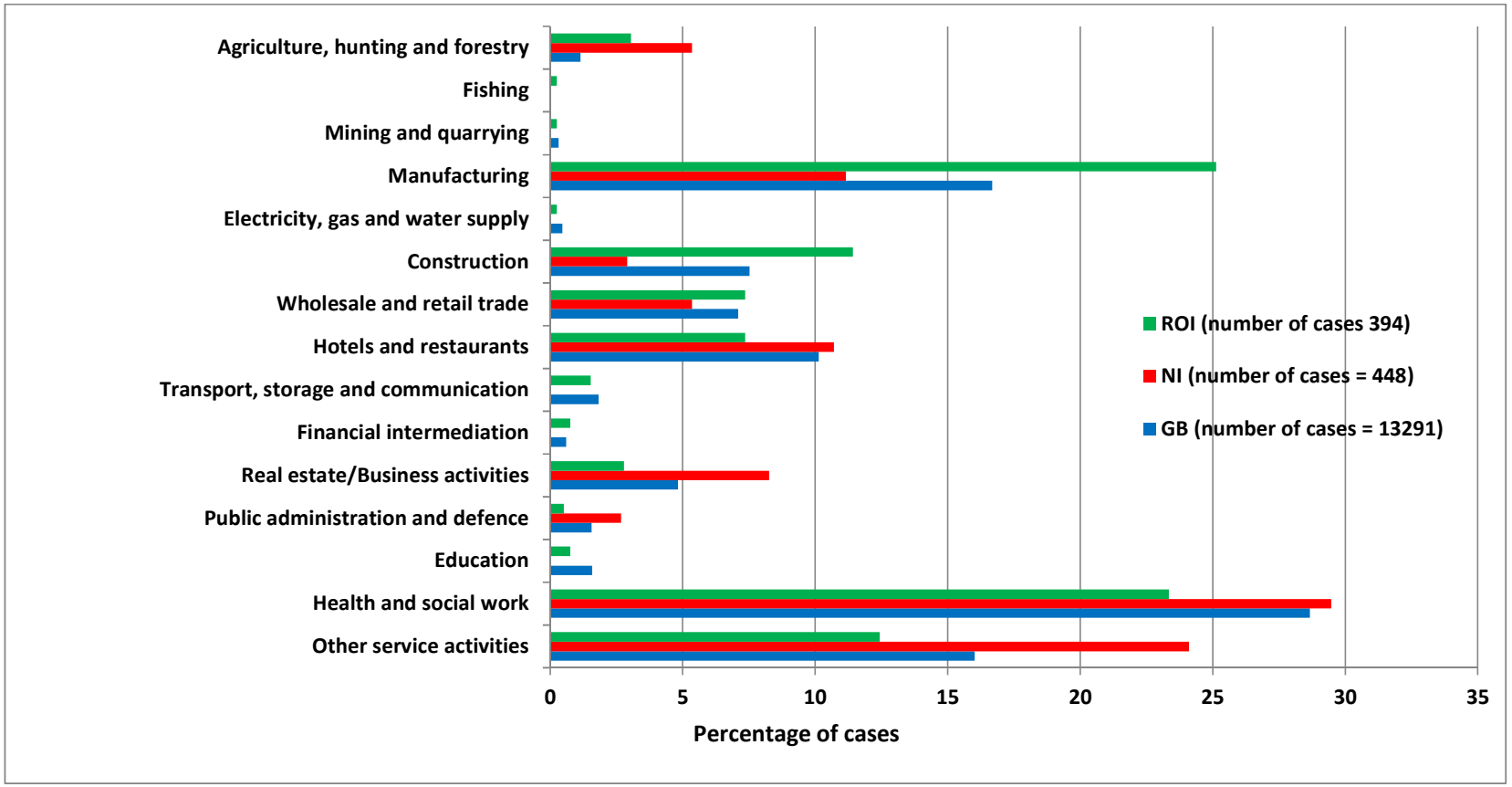


Figure 5 **Proportion of cases of contact dermatitis reported to EPIDERM by Standard Occupational Classification (SOC), 2005-2014**

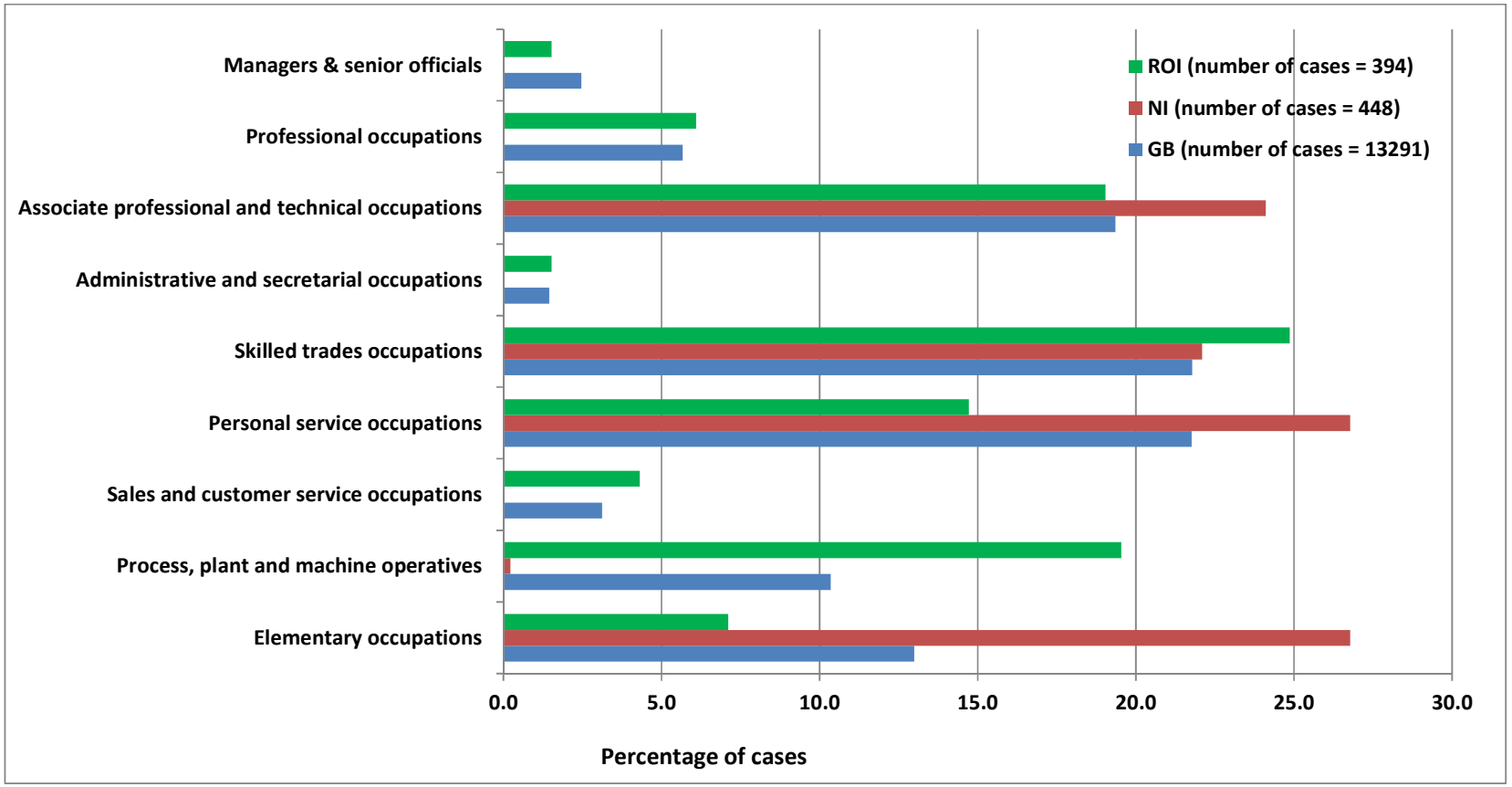


Table 5 **Most frequently reported agents for contact dermatitis, reported by dermatologists to EPIDERM (2005-2014) – number of cases and (percentage of total cases in the respective column)**

	ROI (actual)	NI (actual)	NI (estimated)	GB (actual)	GB (estimated)
Rubber chemicals & materials	84 (21%)	5 (15%)	60 (15%)	1220 (20%)	2452 (19%)
Nickel & its compounds	58 (15%)	5 (15%)	60 (15%)	438 (7%)	1197 (9%)
Wet work	58 (15%)	16 (39%)	192 (43%)	1844 (30%)	2790 (21%)
Preservatives	51 (13%)	4 (12%)	48 (12%)	693 (11%)	1221 (9%)
Chromium & its compounds	43 (11%)	2 (6%)	24 (6%)	197 (3%)	560 (4%)
Cobalt & its compounds	26 (7%)	0	0	219 (4%)	571 (4%)
Resins	21 (6%)	0	0	274 (4%)	516 (4%)
PPE	18 (5%)	7 (17%)	84 (19%)	1027 (17%)	1467 (11%)
Hairdressing chemicals	18 (5%)	2 (5%)	12 (3%)	458 (7%)	1129 (8%)
Acrylics & acrylates	17 (4%)	1 (2%)	12 (3%)	275 (4%)	473 (4%)
Foods, additives & flavourings	16 (4%)	0	0	131 (2%)	428 (3%)
Soaps & detergents	15 (4%)	11 (27%)	132 (29%)	1535 (25%)	2965 (22%)
Drugs & medicaments	16 (4%)	0	0	85 (1%)	151 (1%)
Perfumes & fragrances	15 (4%)	0	0	277(4%)	609 (5%)
PPD	13 (3%)	4 (12%)	48 (12%)	254 (4%)	826 (6%)
Plants	12 (3%)	2 (5%)	24 (5%)	232 (4%)	551 (4%)
Number of cases	**394**	**41**	**448**	**6207**	**13291**

*Each case can have more than one reported agent. Therefore the percentage of cases with each agent may equal more than 100

3.4 SURVEILLANCE OF WORK-RELATED AND OCCUPATIONAL RESPIRATORY DISEASE (SWORD), 2005-2014

3.4.1 DIAGNOSES

The addition of the 2014 case reports brings the total cases reported by chest physicians to ROI-SWORD (2005-2014) to 117. These produced 130 diagnoses, with 17 cases having 2 or more diagnoses, and 5 cases not being assigned a diagnosis (involving a dentist exposed to adhesive/bonding agents, a machine operator exposed to urea formaldehyde, a labourer exposed to acid anhydrides, and a labourer and a tunnel worker - both exposed to asbestos). Diagnoses of asthma comprised the largest proportion of cases (38%) reported to ROI-SWORD, whilst for NI and GB the highest proportion was benign pleural plaques (38% and 42% respectively) (Table 6).

3.4.2 AGE AND GENDER

Case reports to ROI-SWORD were predominantly male (81%), with a mean age (male plus female combined) of 53 years (age range 19 - 83 years). 12 of these case reports were in the 75+ age group (all males). Of these, 9 had a diagnosis of non-malignant pleural disease (1 with a co-diagnosis of lung cancer and 2 with a co-diagnosis of pneumoconiosis), with the occupations listed as a retired tunneller, construction labourer (3 cases), power station worker, painter, retired demolition worker, peat operative and carpenter. The remaining 3 cases were a diagnosis of lung cancer (construction operative), asthma (horse allergy reported in a riding

instructor) and pneumoconiosis (attributed to silica: reported in a sand blaster working in an iron foundry). The 6662 GB cases (6796 diagnoses) in the 75 and over age range were mainly non-malignant pleural disease (46%), mesothelioma (36%) and pneumoconiosis (11%).

Restricting the analysis to cases of asthma, 67% of ROI cases were males with a mean age (male plus female combined) of 44 years (age range 19 - 76 years). By comparison, 96% of the cases of asthma reported to NI were males, with a mean age of 56 years (age range 33 - 62 years); 68% of the cases of asthma reported to GB were males with a mean age (male plus female combined) of 45 years (age range 17 - 76 years).

Table 6 **Number and type of diagnoses reported by chest physicians to SWORD (2005-2014) in the Republic of Ireland, Northern Ireland & Great Britain**

	ROI (actual)	NI (actual)	NI (estimated)	GB (actual)	GB (estimated)
Asthma	45 (38%)	6 (7%)	28 (14%)	1078 (18%)	2453 (11%)
Inhalation accidents	12 (10%)	2 (2%)	2 (1%)	43 (1%)	175 (1%)
Allergic alveolitis	4 (3%)	3 (4%)	25 (12%)	93 (2%)	412 (2%)
Bronchitis/ emphysema	5 (4%)	0	0	123 (2%)	420 (2%)
Infectious disease	1 (1%)	0	0	36 (1%)	300 (1%)
Non-malignant pleural disease	24 (21%)	33 (41%)	77 (38%)	2553 (43%)	9439 (42%)
Mesothelioma	5 (4%)	18 (22%)	29 (14%)	1036 (18%)	6063 (27%)
Lung cancer	7 (6%)	4 (5%)	15 (7%)	186 (3%)	879 (4%)
Pneumoconiosis	17 (15%)	15 (19%)	26 (13%)	584 (10%)	1981 (9%)
Other respiratory	10 (9%)	3 (4%)	3 (1%)	410 (7%)	762 (3%)
Total cases	**117 (100%)**	**81 (100%)**	**202 (100%)**	**5869 (100%)**	**22358 (100%)**
Total diagnoses	**130**	**84**	**205**	**6142**	**22884**

3.4.3 INDUSTRY AND OCCUPATION

For all three geographical areas (ROI, NI and GB), cases of work-related respiratory disease were most frequently reported in the construction and manufacturing sectors (Figure 6). Within the manufacturing sector, cases in ROI were most frequently reported in the manufacture of other non-metallic mineral products (for example, cement), and chemicals and chemical products. For NI and GB the most frequently reported manufacturing sector was manufacture of other transport equipment (other than motor vehicles, for example ship building).

The most frequently reported occupations for cases reported in the ROI were labouring in building and woodworking trades (which fall under the major category of elementary occupations) and coal mine operatives (which fall under the major category of process, plant and machine operatives). The most frequently reported occupation for cases reported in both NI and GB was carpenters and joiners (skilled trades occupations) (Figure 7).

Figure 6 **Proportion of cases of respiratory disease reported to SWORD by Standard Industrial Classification (SIC), 2005-2014**

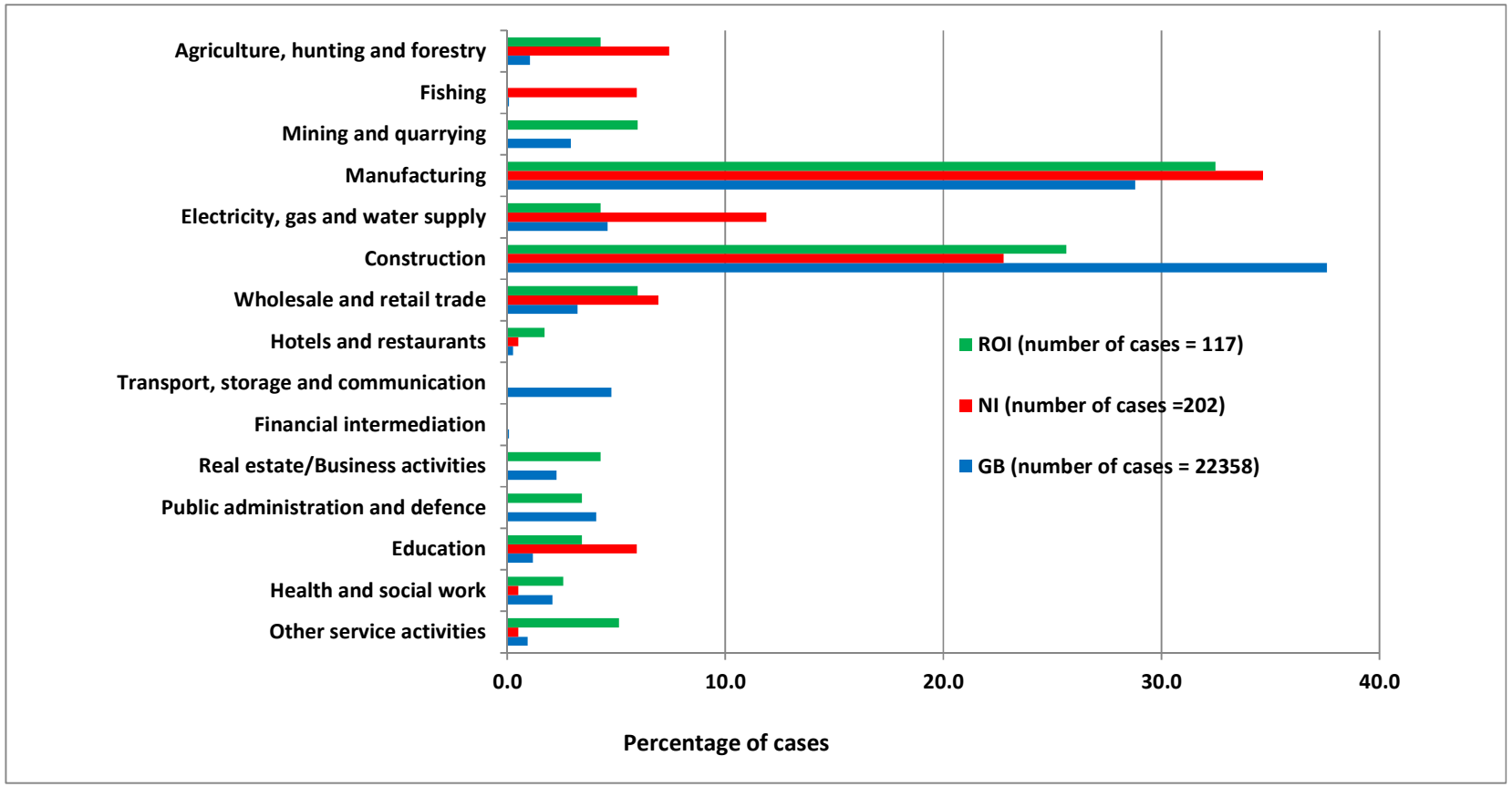
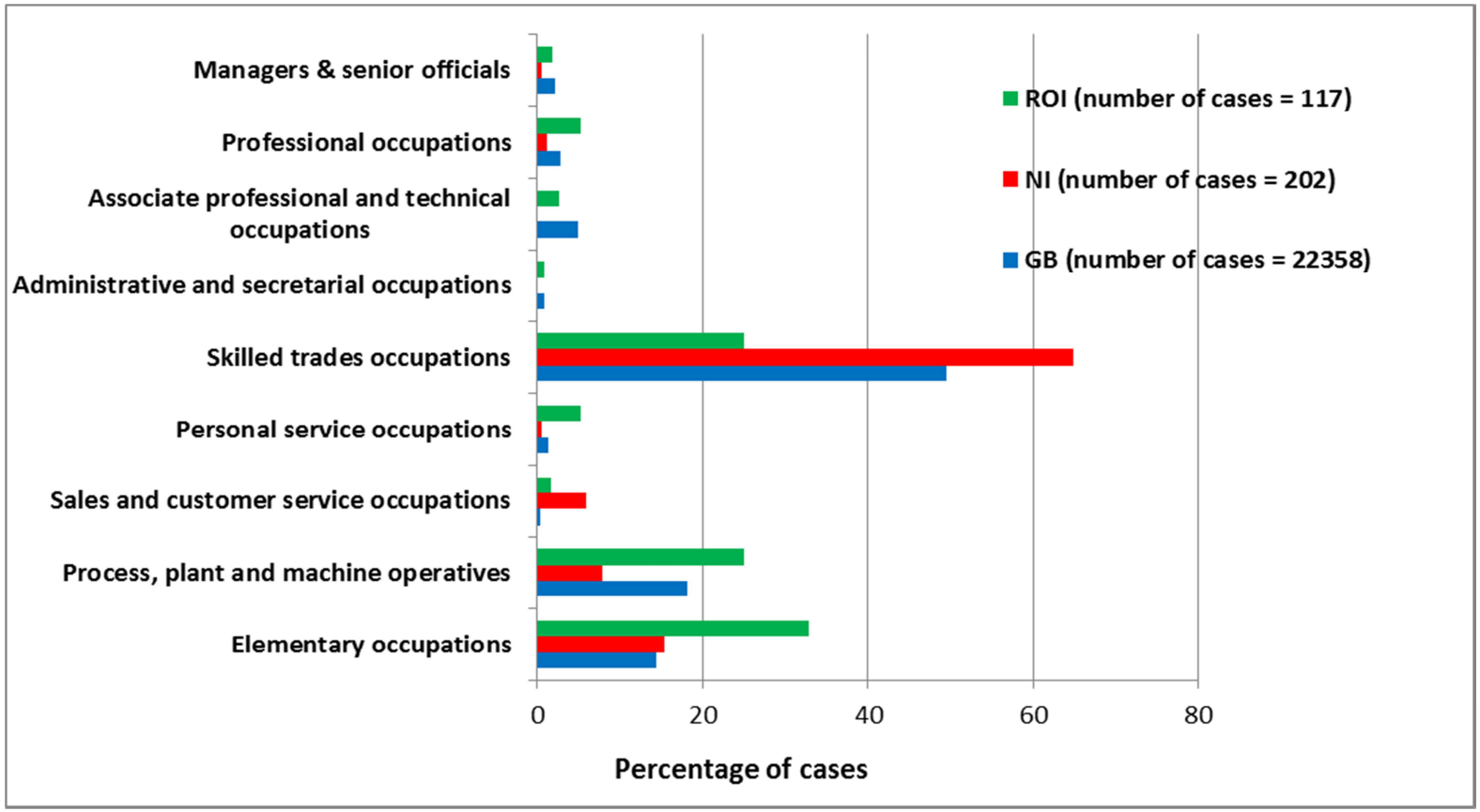


Figure 7 **Proportion of cases of respiratory disease reported to SWORD by Standard Occupational Classification (SOC), 2005-2014**



3.4.4 SUSPECTED AGENT

The agents associated with the respiratory diagnoses reported to ROI-SWORD are shown in Table 7. A total of 56 different agents were associated with the 45 diagnoses of occupational asthma, with isocyanates being the most frequently reported. For comparison, the most frequently reported agents for asthma in GB were also isocyanates (13%) followed by flour (13%). The agents associated with the 6 actual cases of asthma in NI were flour (3 cases), and 1 case each of fungicide, chloramines and meal worms.

Silica was the most frequently reported agent for cases of pneumoconiosis reported in the ROI, with 7 cases attributed to asbestos. In total, 43 diagnoses were reported as being associated with asbestos; 24 of non-malignant pleural disease, 7 of lung cancer, 5 of mesothelioma, and 7 of pneumoconiosis.

Table 7 Suspected agents associated with cases of work-related respiratory disease reported to ROI-SWORD, 2005-2014

DIAGNOSIS	SUSPECTED AGENTS (as recorded by the physician)
Asthma	Isocyanates (5 cases), inks, cement, plaster and masonry; acids; ammonia; hairdressing chemicals, glues and adhesives, bleach, soaps and detergents, formaldehyde, fuel oil, sick building syndrome, exposure to dust/fumes, hydrochloric acid, sulphuric acid, zinc, chromium, cobalt, ammonia, welding fumes, drugs and medicaments, wood/wood dust, flour, food, fungi, colophony and flux, epoxy resins, hypochlorites, dyes and pigments, persulphates and zinc welding.
Inhalation accidents	Ammonia, hypochlorite, liquid urea-formaldehyde polymers, mix of sewage gases, welding fumes, oil mists, solvents, argon, mixed cleaning sprays and metabisulphite.
Allergic alveolitis	Thermactinomycetes, mushroom/mushroom compost dust and fungal spores
Bronchitis/emphysema	Wood dust, urea / formaldehyde / ammonia, gypsum, aspartame
Infectious disease	Toxoplasma
Benign pleural disease	Asbestos
Mesothelioma	Asbestos
Lung cancer	Asbestos
Pneumoconiosis	Silica (9 cases, 1 case with additional agents reported talc/titanium/carbon black), asbestos (7 cases), weld fumes/zinc/iron/coolant oils (1 case).
Other respiratory	2 cases reported as rhinosinusitis / sinusitis (urea/formaldehyde/ammonia, mix of damp fungi, and wood dust, aspartame), 2 diagnoses of rhinitis (Toluene di-isocyanate, and 'multiple possible agents'), and 1 diagnosis each of rhinorrhoea (a specified histamine H2-receptor antagonist), hyposmia (exhaust fumes), hard metal lung disease (tungsten) and sick building syndrome (agent not cited)

3.5 OCCUPATIONAL PHYSICIANS REPORTING ACTIVITY (OPRA), 2007-2014

3.5.1 DIAGNOSES

A total of 1242 case reports (1246 diagnoses) were reported to ROI-OPRA between January 2007 and December 2014. A breakdown of the cases by major diagnostic group, and a comparison with OPRA data from NI and GB, is provided in Table 8. For all three geographical areas, the largest proportion of cases was mental ill-health, followed by musculoskeletal disorders, with smaller proportions of skin and respiratory diagnoses.

Other work stress was the most frequently reported mental ill-health diagnosis reported to ROI-OPRA (63% of the 659 cases) whilst the most frequently reported musculoskeletal disorder was spine/back disorders (63% of the 420 cases). Diagnoses reported under 'other mental' included adjustment disorder, burnout, fatigue, social phobia and mixed affective disorder whilst 'other' musculoskeletal diagnoses were primarily injuries.

CD was the most frequently reported skin diagnosis to ROI-OPRA (91% of the 11 cases) and asthma the most frequently reported respiratory diagnosis (43% of the 21 cases). Other reported dermatoses included scabies, urticaria, bleeding hands, nail infection, dry chapped hands, angio oedema and dermatophytosis. The 4 diagnoses reported under 'other respiratory' were sinusitis (2 diagnoses), tuberculosis and 'upper respiratory tract irritation'.

Table 8 Number and type of diagnoses reported by occupational physicians to OPRA (2007-2014) in the Republic of Ireland, Northern Ireland & Great Britain

	ROI	NI (actual)	NI (estimated)	GB (actual)	GB (estimated)
Skin	111 (9%)	25 (6%)	234 (5%)	503 (6%)	2780 (7%)
• **Contact dermatitis**	• 97 (87%)	• 24 (96%)	• 222 (95%)	• 412 (82%)	• 2227 (80%)
• **Other dermatoses**	• 15 (14%)	• 1 (4%)	• 12 (5%)	• 91 (18%)	• 553 (20%)
Respiratory	21 (2%)	6 (1%)	72 (2%)	217 (3%)	1218 (3%)
• **Asthma**	• 9 (43%)	• 3(50%)	• 36 (50%)	• 88 (41%)	• 495 (41%)
• **Rhinitis**	• 1 (5%)	• 1 (17%)	• 12 (17%)	• 33 (15%)	• 187 (15%)
• **Inhalation accidents**	• 4 (19%)	• 1 (17%)	• 12 (17%)	• 18 (8%)	• 95 (8%)
• **Infectious disease**	• 1 (5%)	• 0	•	•	• 88
• **Bronchitis/emphysema**	• 3 (14%)	• 0	•	•	• 26
• **Other respiratory**	• 4 (19%)	• 1 (17%)	• 12 (17%)	• 106 (49%)	• 327 (36%)
Musculoskeletal	420 (34%)	118 (28%)	1251 (27%)	2474 (31%)	13518 (33%)
• **Upper limb**	• 146 (35%)	• 68 (58%)	• 684 (55%)	• 1372 (55%)	• 6905 (51%)
• **Neck / Spine / back**	• 266 (63%)	• 31 (26%)	• 339 (27%)	• 732 (30%)	• 4538 (34%)
• **Lower limb**	• 15 (4%)	• 11 (9%)	• 132 (11%)	•	•
• **Other musculoskeletal**	• 12 (3%)	• 8 (7%)	• 96 (8%)	• 370 (15%)	• 2075 (15%)
Mental ill-health	659 (53%)	264 (64%)	3003 (65%)	5245 (65%)	25265 (61%)
• **Anxiety and depression**	• 181 (27%)	• 98 (37%)	• 1132 (38%)	• 2452 (47%)	• 11670 (46%)
• **PTSD**	• 10 (2%)	• 3 (1%)	• 25 (1%)	•	•
• **Psychotic episode**	• 1 (<1%)	• 0	• 0	•	•
• **Other work stress**	• 418 (63%)	• 159 (60%)	• 1798 (60%)	• 2474 (47%)	• 11681 (46%)
• **Other mental ill-health**	• 100 (15%)	• 4 (2%)	• 48 (2%)	• 319 (6%)	• 1914 (8%)
Other diagnoses	35 (3%)	8 (2%)	96 (2%)	285 (4%)	1594 (4%)
Total cases	**1242 (100%)**	**415 (100%)**	**4617 (100%)**	**8035 (100%)**	**41508 (100%)**
Total diagnoses	**1246**	**421**	**4656**	**8724**	**44375**

The 35 diagnoses in the 'other' category (ROI-OPRA) were reported as 'assault' (13 cases), noise induced hearing loss (4 cases), sleep problems (4 cases), latex allergy (2 cases), needle stick injury (2 cases), dry eyes (2 cases), blindness, bladder neck injury, ethanol sensitivity, eye irritation, lead toxicity, chemical splash, tinnitus and conjunctivitis (each reported once).

3.5.2 AGE AND GENDER

The proportions of cases reported to OPRA by age and gender are shown in Figure 8. In both NI and GB, cases were most frequently reported in the 45-54 years of age group for both males and females, whilst for ROI males were most frequently reported in the 35-44 year age group and females in the 45-54 year group.

3.5.3 INDUSTRY AND OCCUPATION

The majority (78%) of the cases reported to ROI-OPRA were reported in health and social care (Figure 9) with cases also frequently reported in transport, storage and communication (14%). These data need to be interpreted cautiously. Some industry sectors such as health and social care may have better provision of occupational health services and especially of occupational physicians, than other industry sectors in general. A relatively large proportion of physicians participating from one sector may therefore bias the results. The most frequently reported occupations (Figure 10) were nurses (24%), nursing auxiliaries and assistants (6%) and bus drivers (6%).

Cases in GB were also most frequently reported in the health and social care sector (but proportionally less (39%) than seen for ROI) and in nurses (11%). A substantial proportion (23%) of NI cases were also reported in health and social care, however the majority (53%) were reported in public administration and defence with prison service officers being the most frequently reported occupation for NI (13%).

Figure 8 Proportion of cases of work-related ill-health reported to OPRA by age and gender, 2007-2014

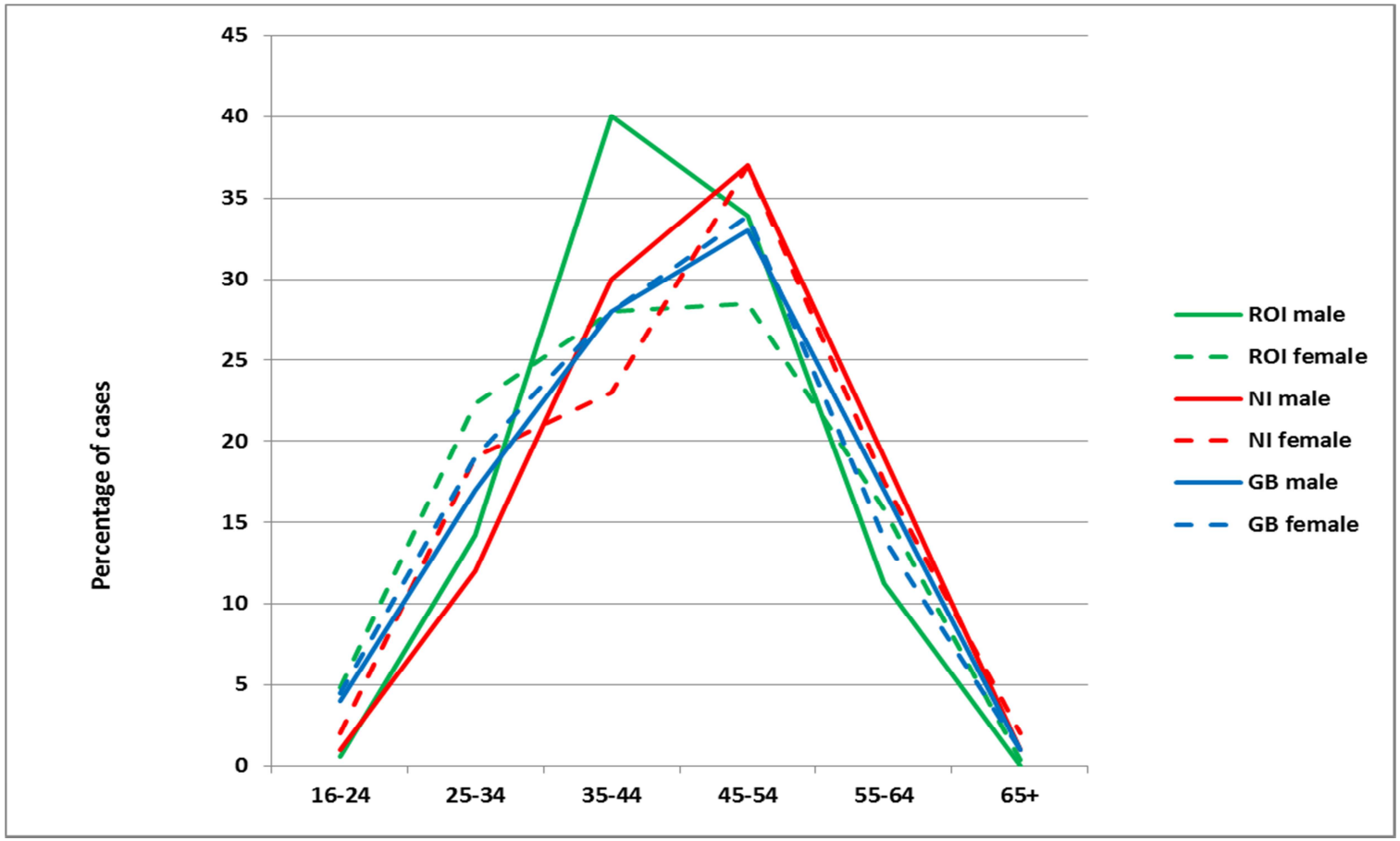


Figure 9 **Proportion of cases of work-related ill-health reported to OPRA by Standard Industrial Classification (SIC), 2007-2014**

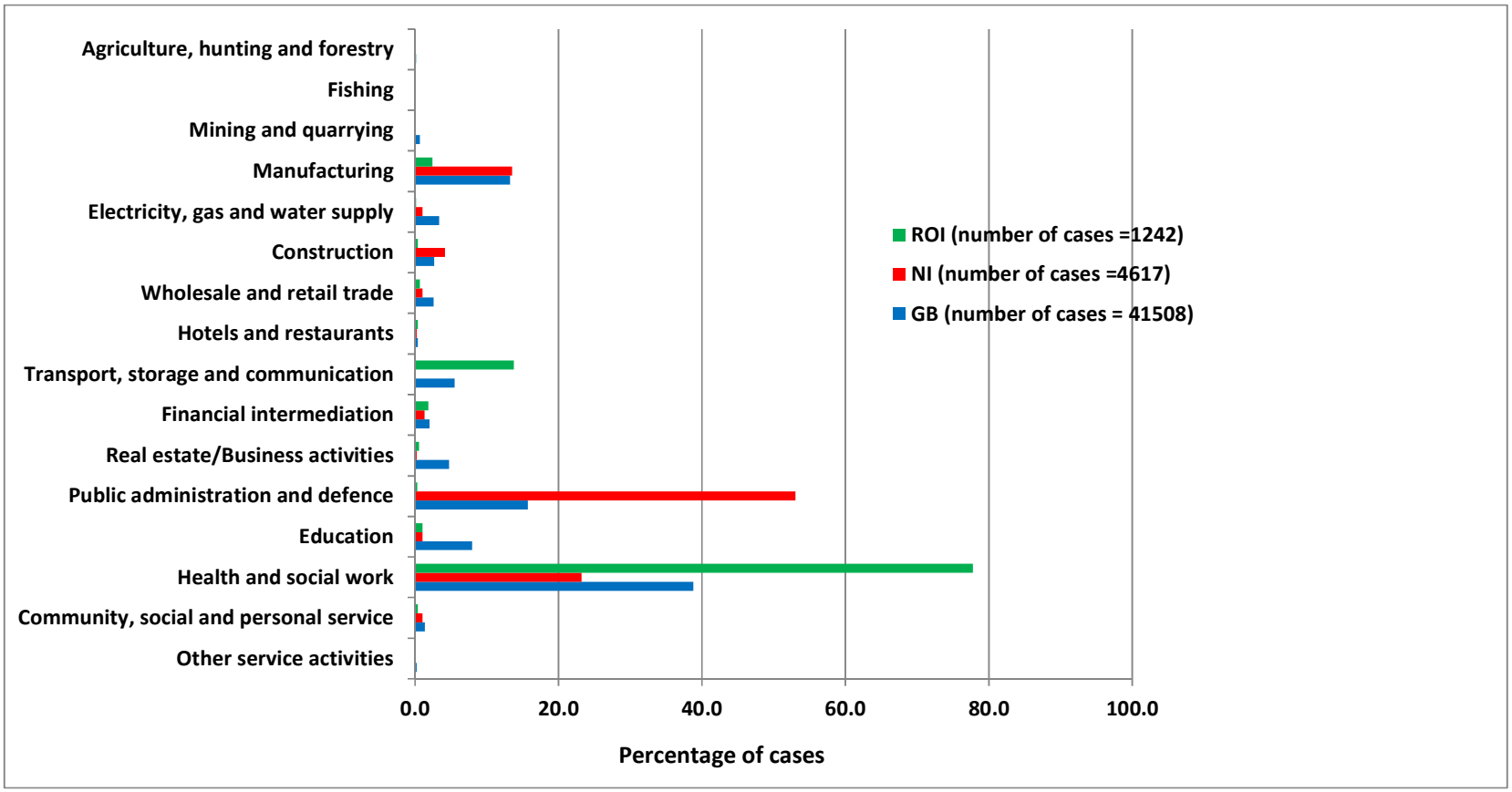
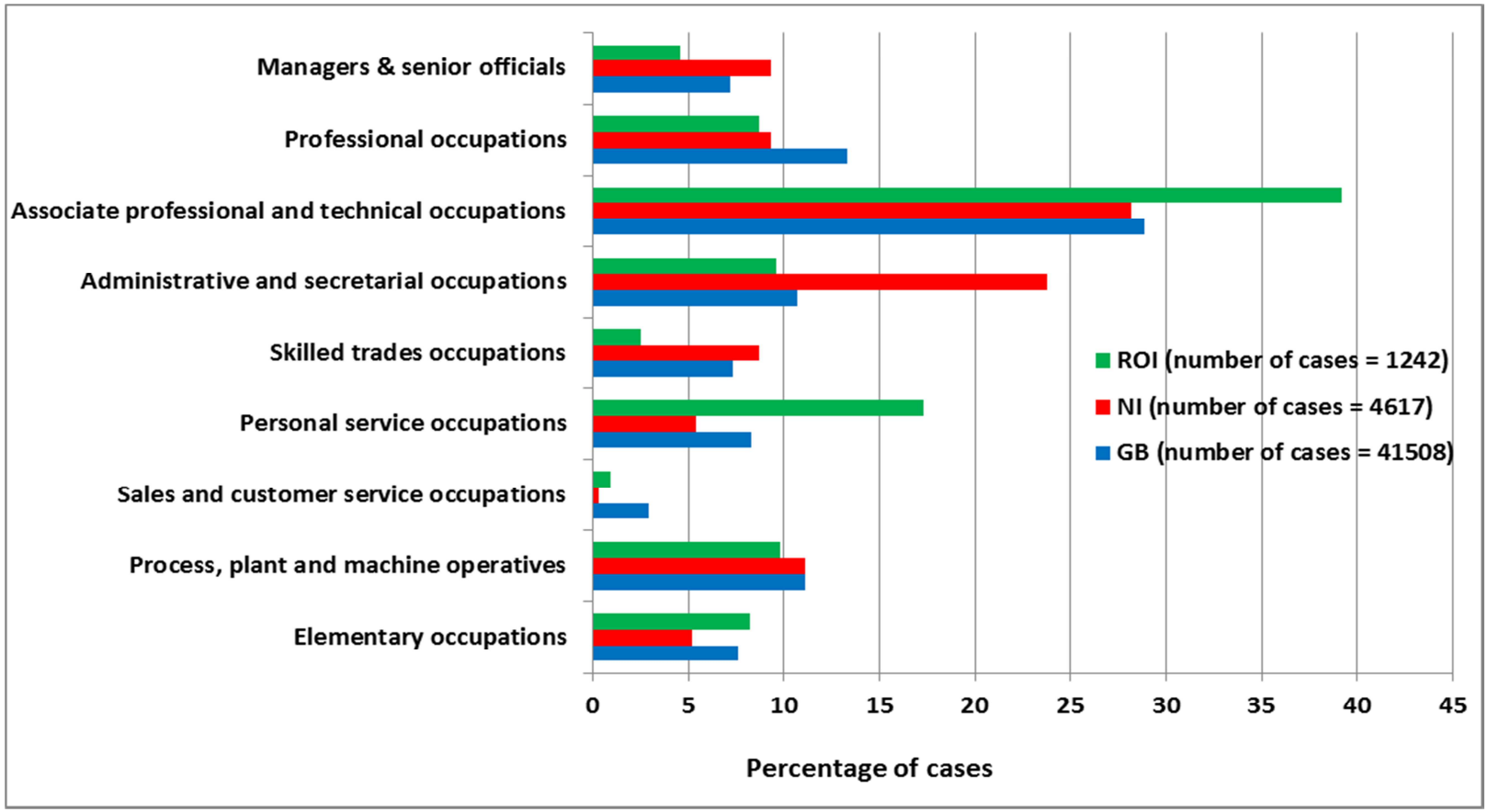


Figure 10 **Proportion of cases of work-related ill-health reported to OPRA by Standard Occupational Classification (SOC), 2007-2014**



3.5.4 SUSPECTED AGENTS

The most frequently associated precipitating events associated with the 659 mental ill-health case reports (44%) were classified as ‘factors intrinsic to the job’ which included ‘workload’, ‘travel’, and ‘organisational factors’ and ‘interpersonal relationships’ (40%) which included perceived bullying and difficulties with manager / staff / clients etc. (Figure 11). These two categories were also the most frequently reported categories for cases reported in GB and NI. Other precipitating events reported to ROI-OPRA included ‘traumatic events’ (25%), for example, assaults at work/verbal abuse at work/witnessing of suicides on railway tracks and ‘changes at work’ (5%) for example changes in work content and reduction of resources.

The most frequently associated task for musculoskeletal cases reported to ROI-OPRA was ‘lifting/carrying/pushing/pulling’ (36%) whilst the most frequently associated movement was ‘materials handling’ (49%), with approximately 30% of cases reported as ‘accidents’ (Table 9). A very similar pattern was observed for NI and GB.

The most frequently associated agents associated with the 111 skin cases reported to ROI-OPRA were wet work (36%), protective clothing (24%), sterilising and disinfecting agents (20%), soaps and detergents (17% of cases) and rubber chemicals and materials (10%). The agents associated with the 18 respiratory cases included chlorine disinfectant, acetic acid, wood dust, chlorine dioxide, grain, potassium dichromate, ‘sanitizer fumes’, cleaning agents, ethanol, denatured ethanol (IMS)/isopropyl alcohol (IPA), smoke inhalation, sewage dust, disinfectant, dusty environments and high temperatures.

Figure 11 Proportion of actual cases of mental ill-health reported to OPRA by precipitating event, 2007-2014

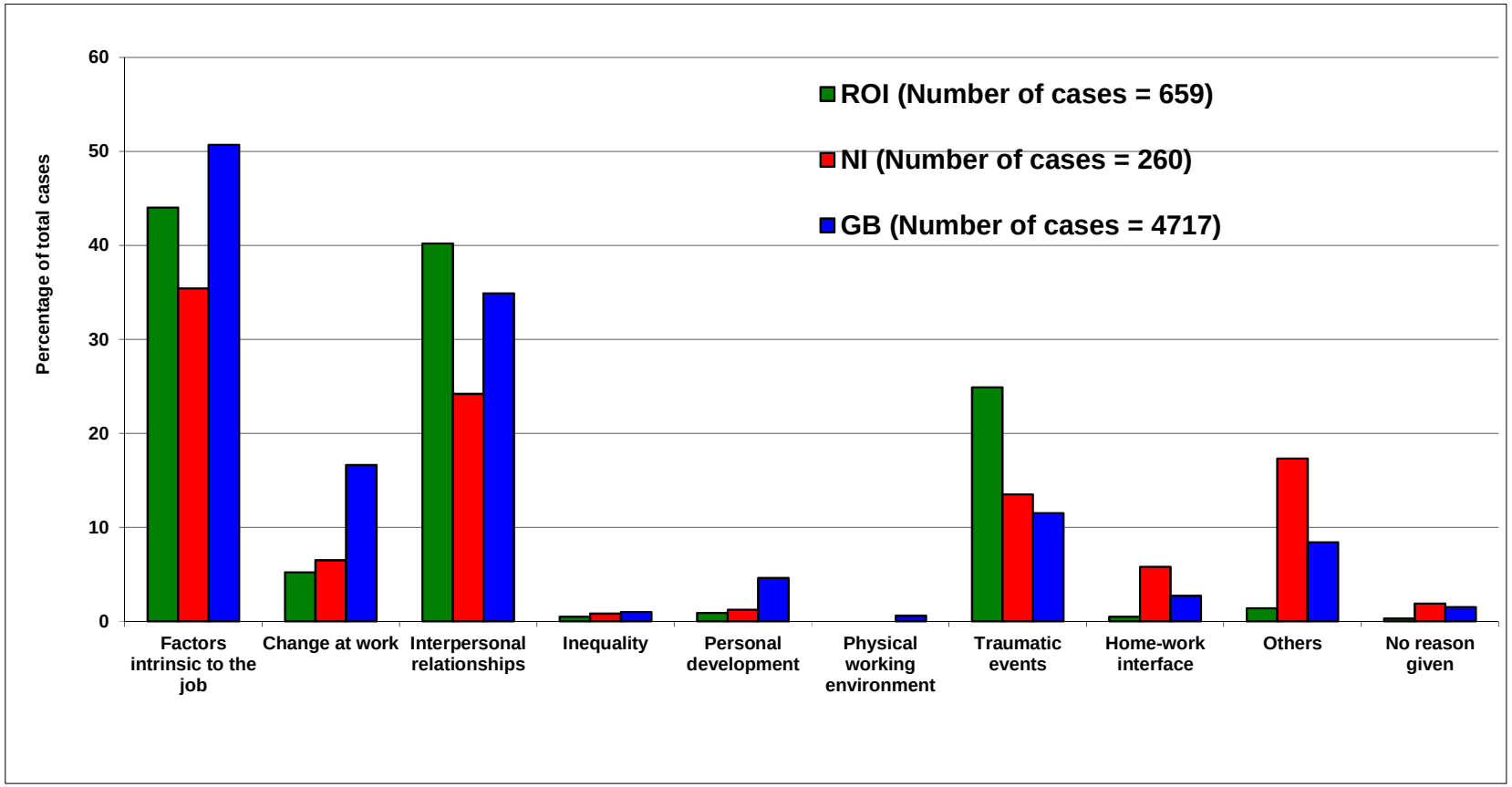


Table 9 Proportion of musculoskeletal cases reported to OPRA (2007-2013) by task and movement in the Republic of Ireland, Northern Ireland and Great Britain

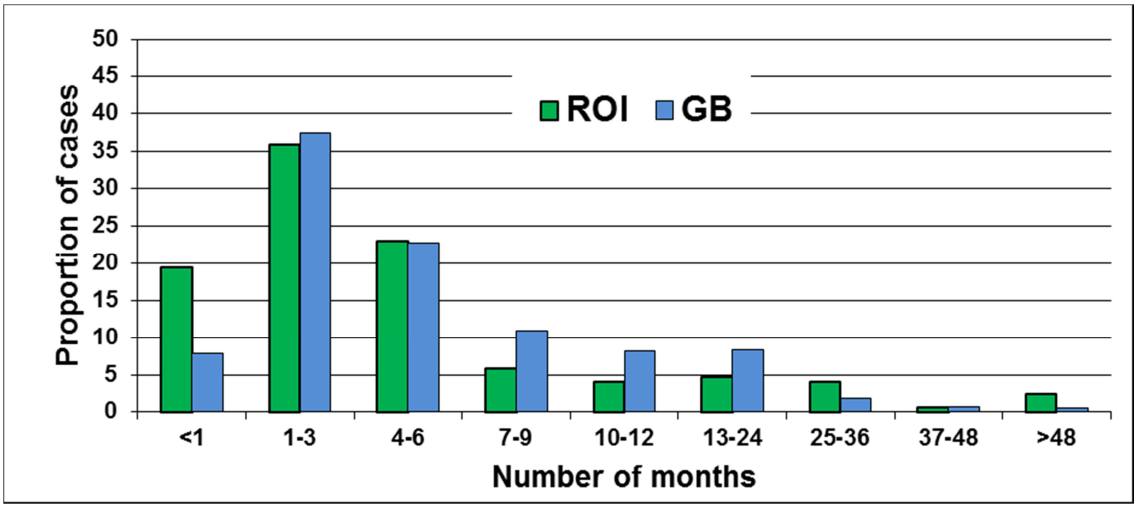
Task / movement	ROI	NI	GB
TASK			
Keyboard work	43 (10%)	3 (3%)	262 (11%)
Screwing, cutting	1 (<1%)	0	20 (1%)
Hammering, chopping, sawing	0	0	5 (<1%)
Guiding or holding tool	9 (2%)	17 (15%)	387 (16%)
Meat boning or filleting	0	0	39 (2%)
Packing or sorting	2 (<1%)	1 (1%)	66 (3%)
Assembly	1 (<1%)	0	34 (1%)
Materials manipulation	81 (19%)	13 (11%)	290 (12%)
Machine operation	9 (2%)	8 (7%)	121 (5%)
Lifting/carrying/pushing/pulling	153 (36%)	18 (16%)	467 (19%)
Coordinated whole body movement	0	0	29 (1%)
Driving	2 (1%)	0	33 (1%)
Accidents	119 (28%)	54 (46%)	581 (24%)
Other	2 (1%)	1 (1%)	76 (3%)
Not stated/uncodeable	11 (3%)	6 (5%)	120 (5%)
MOVEMENT			
Fine hand	9 (2%)	2 (2%)	168 (7%)
Forceful upper limb/grip	14 (3%)	19 (17%)	528 (22%)
Torque upper limb	0	0	7 (<1%)
Lifting	23 (5%)	3 (3%)	225 (9%)
Carrying	2 (1%)	0	21 (1%)
Pushing	0	1 (1%)	16 (1%)
Pulling	4 (1%)	1 (1%)	19 (1%)
Forceful leg movement	0	0	2 (<1%)
Overhead work	3 (1%)	0	9 (<1%)
Materials handling n.e.c.	206 (49%)	32 (28%)	546 (23%)
Bending	1 (<1%)	0	30 (1%)
Sitting	2 (1%)	0	26 (1%)
Standing/walking	1 (<1%)	0	37 (2%)
Kneeling	0	0	12 (1%)
Twisting	1 (<1%)	0	28 (1%)
Postural n.e.c.	43 (10%)	1 (1%)	228 (9%)
Accidents	124 (30%)	54 (46%)	578 (24%)
Other	28 (6%)	0	607 (25%)
Not stated/uncodeable	11 (3%)	6 (5%)	118 (5%)
Total cases	**420**	**116**	**2408**

3.5.5 SYMPTOM ONSET

In both the ROI and GB, cases of work-related mental ill-health (specifically, anxiety and depression, and other work stress) were most frequently seen by OPs reporting to OPRA 1 to 3 months after onset of symptoms. (Figures 12 and 13). For both diagnostic groups, the median number of months was 3 for ROI cases and 4 months for GB cases.

The majority of upper limb disorders were also reported within 1 to 3 months after symptom onset, with a median of 2 months for ROI and 4 months for GB (Figure 14). For spine/back disorders a slightly different pattern was observed with (overall) cases in the ROI reported slightly sooner (median of 1 month) compared to cases in GB (median 2 months) (Figure 15). For both the ROI and GB, case reports of CD were most frequently reported within 1-3 months of onset of symptoms (Figure 16).

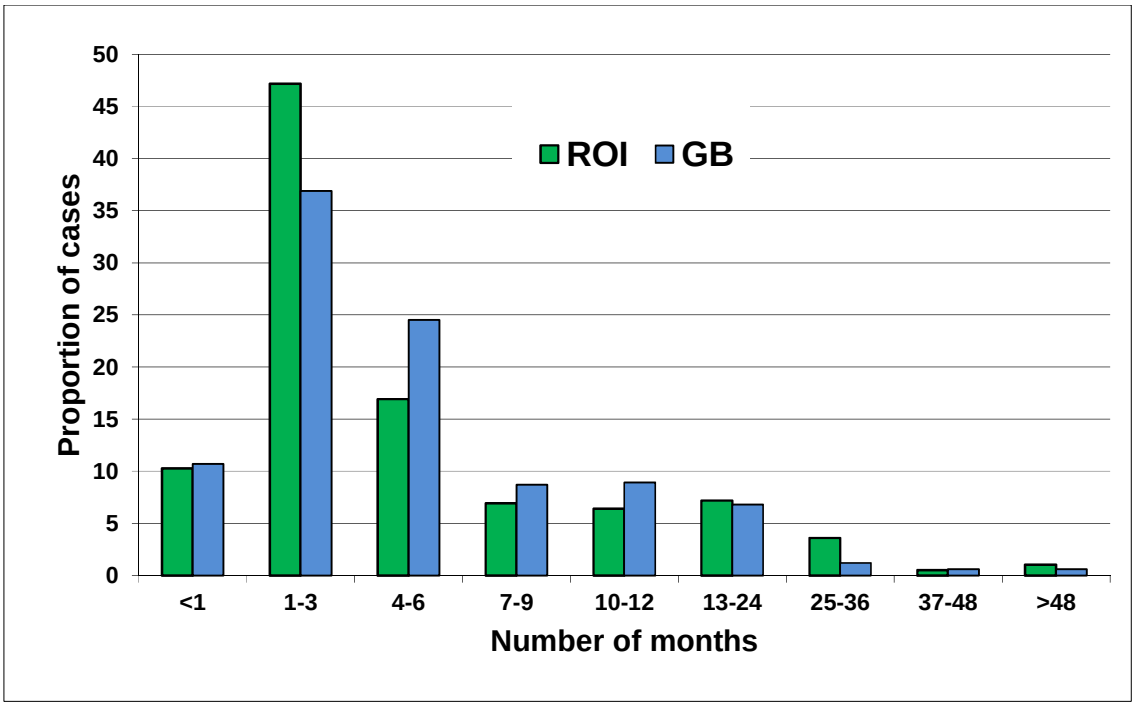
Figure 12 **Proportional time lapse between month of symptom onset and reporting month for actual cases of work-related anxiety and depression reported to OPRA (2007-2014) in the Republic of Ireland and Great Britain**



***NB Physicians can provide full (month, year) or part (year only) data for symptom onset, unlike in previous reports, this analysis is based on both full and part data.**

	MONTHS					
	Number	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. Dev**
ROI	170	0	67	6.5	3	11.7
GB	2279	0	180	7.3	4	11.3

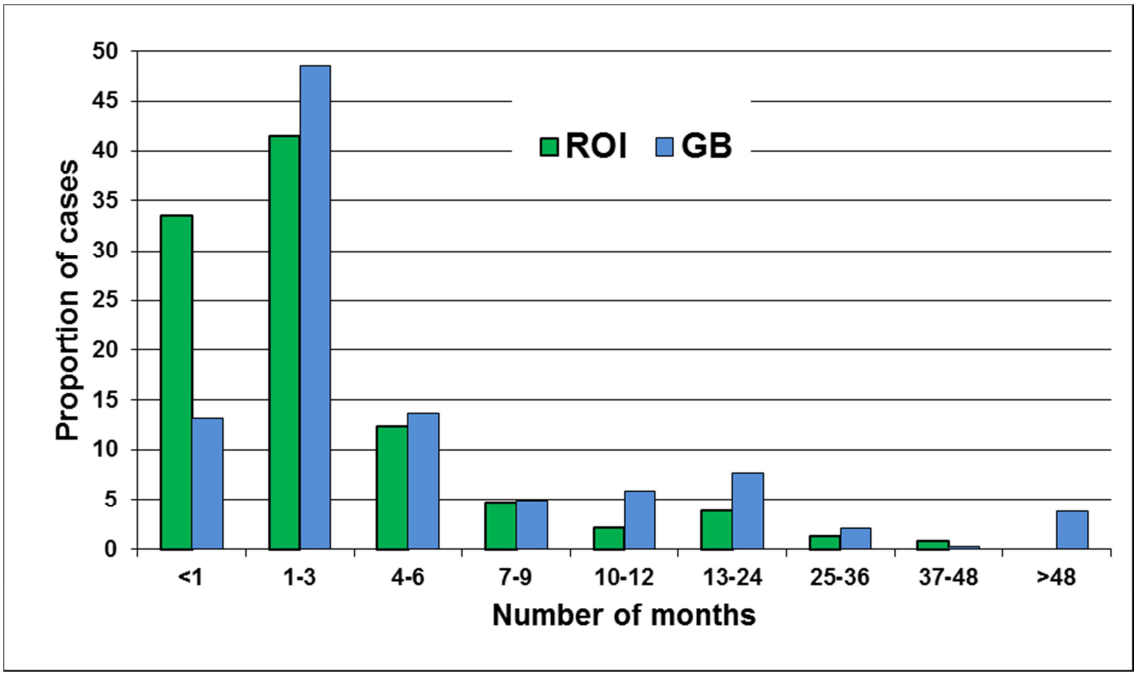
Figure 13 **Proportional time lapse between month of symptom onset and reporting month for actual cases of other work stress reported to OPRA (2007-2014) in the Republic of Ireland and Great Britain**



***NB Physicians can provide full (month, year) or part (year only) data for symptom onset, unlike in previous reports, this analysis is based on both full and part data.**

	MONTHS					
	Number	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. Dev**
ROI	390	0	62	5.9	3	8.5
GB	2291	0	156	6.6	4	10.7

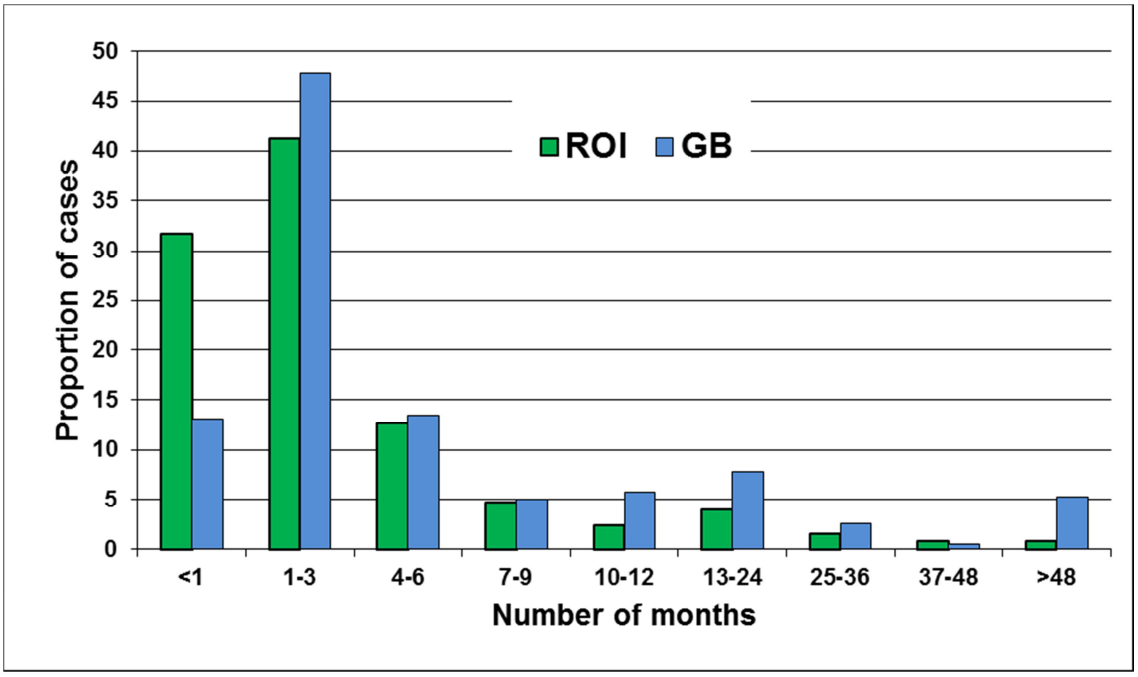
Figure 14 **Proportional time lapse between month of symptom onset and reporting month for actual cases of work-related upper limb disorders reported to OPRA (2007-2014) in the Republic of Ireland and Great Britain**



***NB Physicians can provide full (month, year) or part (year only) data for symptom onset, unlike in previous reports, this analysis is based on both full and part data.**

	MONTHS					
	Number	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. Dev**
ROI	137	0	61	4.9	2	8.2
GB	1272	0	360	22	5	40

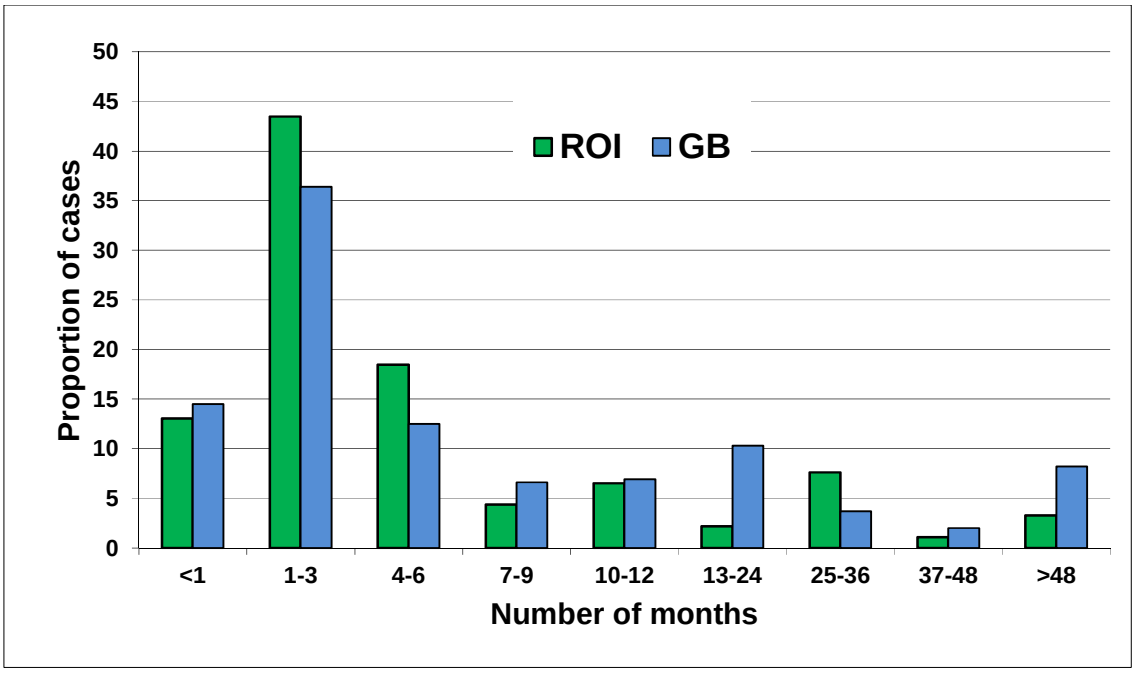
Figure 15 **Proportional time lapse between month of symptom onset and reporting month for actual cases of work-related spine/back disorders reported to OPRA (2007-2014) in the Republic of Ireland and Great Britain**



***NB Physicians can provide full (month, year) or part (year only) data for symptom onset, unlike in previous reports, this analysis is based on both full and part data.**

	MONTHS					
	Number	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. Dev**
ROI	252	0	47	3.4	1	6.6
GB	657	0	252	10	3	25.8

Figure 16 **Proportional time lapse between month of symptom onset and reporting month for actual cases of work-related contact dermatitis reported to OPRA (2007-2014) in the Republic of Ireland and Great Britain**



***NB Physicians can provide full (month, year) or part (year only) data for symptom onset, unlike in previous reports, this analysis is based on both full and part data.**

	MONTHS					
	Number	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. Dev**
ROI	92	0	122	8.6	3	16.8
GB	393	0	240	15.5	3	35.1

4 DISCUSSION

A total of 1770 incident cases were reported to ROI-THOR between 2005-2014, of which 70% were reported by OPs (2007-2014) with smaller proportions from dermatologists (23%) and chest physicians (7%).

A total of 50 physicians (12 chest physicians, 13 dermatologists and 25 OPs) were enrolled in ROI-THOR in 2014, with numbers remaining fairly stable since the inception of the schemes. These equate to participation rates of approximately 21% for ROI chest physicians, 33% for dermatologists and 31% for OPs. These estimates are lower than the UK equivalents of approximately 72%, 65% and 50% respectively (although in practice participation rates may be higher because some specialist physicians may not be eligible to report to THOR e.g. they may not see patients of working age). Measures to increase the number of cases of WRI reported to ROI-THOR are continuously undertaken, the most recent of which has been to launch a new scheme in the ROI, enabling GPs (with an interest in occupational medicine) to report cases of WRI seen in a general practice setting. The scheme (which is based on the UK THOR-GP scheme) started data collection in January 2015 with 21 GPs currently enrolled in the scheme. A summary of data reported in the first full calendar year by GPs will be included in the 2016 annual report.

In addition to launching a new scheme, steps have been undertaken to increase active membership in the three existing schemes, for example via activities undertaken to support the continued dissemination/endorsement of ROI-THOR. These include the publication, after valuable input from the HSA and the schemes' 'champions', Dr Peter Noone (OPRA), Dr Johnny Bourke (EPIDERM) and Dr James

Hayes (SWORD), in the journal "Occupational Medicine" of an article comparing data collected in the ROI with data for NI and GB[2]. Professor Raymond Agius also gave a presentation to the Royal College of Physicians in Ireland Smiley Symposium on Friday the 21st November 2014. In addition to summarising the data that has been collected in Ireland, Professor Agius also demonstrated the free, RCGP accredited CPD resource that is available to GPs in the UK and will be available in due course to physicians in ROI. Similarly, Dr James Hayes presented THOR-ROI data to the Irish Thoracic Society (ITS) annual meeting, 7th-8th November 2014 in Galway. During 2014, as the two ROI nominees to Modernet (Monitoring Trends in Occupational Diseases and New and Emerging Risks Network), Dr Peter Noone and Mr Kieran Sludds attended (at no direct cost to the ROI since expenses are paid for by the COST office) and actively participated in the final Modernet conferences, the first held in Zaragoza (9^{th} – 11^{th} April 2014), and the final meeting held in Bologna 13th and 14th October 2014. Dr James Hayes attended the SWORD annual advisory committee meeting held at the Centre for Occupational and Environmental Health on Thursday 20th March; a presentation of the 2013 ROI summary statistics was given by Dr Annemarie Money.

Following on from the substantive ROI-THOR report submitted in 2014, this report continues to compare THOR data collected by the Republic of Ireland's reporters with data from THOR schemes in NI and within GB. The addition of another year of data (2014) has strengthened the validity of the similarities and differences previously observed in terms of the findings being broadly consistent with the pattern of employment and exposure in each country.

The case mix reported by OPs in the three geographical areas continued to be remarkably similar, with the largest proportion being mental ill-health diagnoses, followed by musculoskeletal, with fewer skin and respiratory diagnoses. The main difference between cases reported to OPRA from the ROI with those reported from NI and GB is that, although health and social care is the most frequently reported industrial group for all three geographical areas, a much larger proportion of ROI cases originate from this sector and as previously mentioned, industry sectors such as health and social care generally have better provision of occupational health services than other industry sectors and may therefore bias the results[19]. Information provided by OPs in OPRA regarding the length of time between onset of symptoms and consultation with an OP was again included in this report. The overall pattern observed for both the ROI and GB was similar to that reported on last year[15] and showed that most cases were reported within 1 to 3 months after onset of symptoms.

Case reports of skin disease from dermatologists to ROI-EPIDERM continue to be almost exclusively CD. In NI and GB, a large proportion of cases were reported as CD, however dermatologists also reported a significant proportion of neoplasia diagnoses. The most frequently reported industrial sectors associated with skin neoplasia diagnoses in the UK were public administration and defence and the construction and agricultural sectors. Approximately 16% of the ROI working population are employed in these sectors, the lack of neoplasia cases reported to ROI-EPIDERM need not necessarily be a result of under-reporting (for example, because of under-recognition or because these cases are seen by physicians other than those reporting to EPIDERM) but might reflect a true lower incidence because of less actinic (sunlight) exposure in for example ROI armed forces[20].

Frequently reported industries for cases of CD reported included the health and social care sector, manufacturing and other service activities (which includes hairdressing), whilst frequently reported occupations included nurses and hairdressers. Some difference was observed for suspected agents with dermatologists in NI and GB attributing a greater proportion of the cases to 'soaps and detergents' but there were many similarities, with rubber, wet work, nickel and chromium all frequently reported.

The case mix of respiratory diseases reported by chest physicians in the ROI, NI and GB differed in terms of proportionately more asthma reported in ROI and proportionately more asbestos benign pleural plaques reported in NI and GB. The most frequently reported industries were similar in all geographical areas (manufacturing and construction), as were the characteristics of the asthma cases (predominantly male, isocyanates the most frequently reported agents). The aforementioned findings in relation to benign pleural plaques (as well as asbestos related reports) are consistent with the explanation that there probably was less exposure to asbestos in the ROI (such as ship building) than in NI or GB. Health and Safety Authority (HSA) data ranks Ireland 13th out of 20 countries for incidence of mesothelioma in a study carried out in 2003[21]. Whilst studies of asbestos use in ROI are few, there does appear to be some evidence to suggest that the scale of asbestos use in ROI was much less intensive than the UK[22]. Nevertheless THOR (specifically SWORD) has still been able to identify asbestos related occupational disease in the ROI.

In conclusion, ROI-THOR continues to provide the best overall source data relating to medically attributed occupational disease incidence in the ROI. The addition of an extra year of data again strengthened the emerging patterns in ROI-THOR$_{8\text{-}15}$ and as this dataset increases we will be able to conduct more detailed analyses and draw stronger conclusions. It is also proposed to continue to build on the initial work investigating the populations covered by the physicians in the ROI in order to refine incidence rate calculations (thus enabling a more accurate comparison both with other geographical areas and between different industries/occupations within the ROI). Similarly, as the number and types of cases reported increases, the various determinants of risk e.g. causal agent, precipitating event (mental ill-health) and task/movement (musculoskeletal) will continue to be analysed and reported upon, thus providing useful information for the HSA and ROI.

ACKNOWLEDGMENTS

THOR is partially funded by a grant from the Republic of Ireland Health and Safety Authority, awarded to Professor Raymond Agius and co-investigators at the University of Manchester. This report expresses the views of the authors, and not necessarily of the funders. We are grateful to all physicians in the Republic of Ireland who participate in THOR, for their invaluable contribution and co-operation. In particular we thank Dr Johnny Bourke, Consultant Dermatologist, Dr James Hayes Consultant Chest Physician (on behalf of the Irish Thoracic Society), and Dr Peter Noone, Dr Ken Addley and colleagues in the Faculty of Occupational Medicine

(Royal College of Physicians of Ireland). Thanks are also due to Christina O'Connor and Susan Taylor for their research and administrative assistance. Physicians who wish to join THOR and participate in the reporting schemes can find further details at

http://www.coeh.man.ac.uk/u/ire-sword
http://www.coeh.man.ac.uk/u/ire-epiderm
http://www.coeh.man.ac.uk/u/ire-opra

REFERENCES

1 The Health and Occupation Research network in the Republic of Ireland (ROI-THOR) http://www.population-health.manchester.ac.uk/epidemiology/COEH/research/thor/schemes/ireland Last accessed April 2015

2 Money, A, Carder, M, Noone, P, Bourke, J, Hayes, J & Agius, RM. Work-related ill-health: Republic of Ireland, Northern Ireland, Great Britain 2005-2012, *Occup* Med, 2015 65:15-21

3 THOR - The Health and Occupation Reporting network. Available at http://www.medicine.manchester.ac.uk/oeh/thor

4 Meredith SK, Taylor VM, McDonald JC. Occupational respiratory disease in the United Kingdom 1989: a report to the British Thoracic Society and the Society of Occupational Medicine by the SWORD project group. Br J Ind Med 1991; 48:292–8.

5 Meyer JD, Chen Y, Holt DL, Beck MH, Cherry NM. Occupational contact dermatitis in the UK: a surveillance report from EPIDERM and OPRA. *Occup Med* 2000; 50: 265-273.

6 Cherry, NM, McDonald, JC. The incidence of work-related disease reported by occupational physicians, 1996-2001. *Occup Med (Lond)* 2002;**52**:407-411.

7 Hussey L, Turner S, Thorley K, McNamee R, and Agius R. Work-related ill health in general practice, as reported to a UK-wide surveillance scheme. Br J Gen Pract. 2008; 58(554):637-640.

8 S Turner, M Carder, L Hussey, N Zarin, R Agius. The incidence of occupational skin and respiratory disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2006. Report submitted to the ROI Health and Safety Authority, April 2007.

9 S Turner, M Carder, A Money, R Agius. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2007. Report submitted to the ROI Health and Safety Authority, April 2008.

10 Money A, Carder M, Turner S, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2008. Report submitted to the ROI Health and Safety Authority, April 2009.

11 Carder M, Money A, Turner S, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2009. Report submitted to the ROI Health and Safety Authority, April 2010.

12 Carder M, Money A, Turner S, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2010. Report submitted to the ROI Health and Safety Authority, April 2011.

13 Carder M, Money A, Turner S, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2011. Report submitted to the ROI Health and Safety Authority, April 2012.

14 Money A, Carder, M, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2012. Report submitted to the ROI Health and Safety Authority, April 2013.

15 Money A, Carder, M, and Agius R. The incidence of occupational disease as reported to The Health and Occupation Reporting (THOR) network by physicians in the Republic of Ireland between 2005 and 2013. Report submitted to the ROI Health and Safety Authority, April 2014.

16 Office for National Statistics. Standard Occupational Classification. Norwich: The Stationery Office, 2000.

17 Central Statistical Office. Indexes to the Standard Industrial Classification of Economic Activities 1992. London: HMSO, 1993.

18 World Health Organisation. International Statistical Classification of Diseases and Related Health Problems (ICD-10), 10th edition. Geneva: WHO, 1992.

19 Carder M et al. Estimated incidence rates of work-related illness for GB occupational physicians. *Occup Med*, 2014; 64(4): 271-8

20 QNHS (2013) *Quarterly National Household Survey*, Dublin: Central Statistics Office.

21 Monitoring trends in Occupational Diseases and tracing new and Emerging Risks in a NETwork. Available at: http://costmodernet.org/, last accessed 2014

22 Cancer Trends No.17 Mesothelioma. National Cancer Registry Ireland, December 2012. www.ncri.ie Last accessed February 2014