

THOR The Health and Occupation Research network

The Health and Occupation Research (THOR) network Annual Report

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OVERVIEW OF RESULTS

A total of 1398 actual cases, 6128 estimated cases were reported to THOR in 2017.

56% of the cases were reported by occupational physicians to OPRA; 22% by chest physicians to SWORD; 20% by dermatologists to EPIDERM and 2% by general practitioners to THOR-GP. Approximately 930 physicians currently participate in THOR / THOR-GP (as of June 2018).

Table 1 provides the average number of physicians and actual and estimated cases reported by scheme for 2017 compared with 2016.

 Table 1 Average number of physicians and actual and estimated cases reported by scheme Jan-Dec 2017 and Jan-Dec 2016

	Jan-Dec 2017		Jan-Dec 2016	
	Average number of	Actual cases (estimated)	Average number of	Actual cases (estimated)
	Physicians		pnysicians	
OPRA	216	491 (3472)	229	479 (3207)
EPIDERM	131	364 (1211)	134	401 (1391)
SWORD	382	442 (1344)	397	408 (1299)
THOR-GP	196	101*	207	103*
TOTAL	925	1398 (6128)	967	1391 (6000)

*Actual cases only for THOR-GP - methods for calculating estimated totals based on GP reports are being reviewed.

The average number of physicians reporting to THOR has decreased slightly across all schemes in 2017 compared to 2016, however the total number of cases reported increased in 2017 compared to 2016.

For the first quarter of 2018, 269 actual cases, 1171 estimated cases were reported to THOR – 59% to OPRA; 20% to SWORD and EPIDERM and 1% to THOR-GP (see Table A1 for details).

Analysis of the industry sectors and occupational groups most frequently reported for cases of work-related ill-health in 2017 continue to reflect the large industry sectors in the UK: health and social care, manufacturing, public administration and defence, wholesale and retail trade and construction.

Table 2 shows the overall results of the number of diagnosis by reporting scheme, providing both actual and estimated reports.

Table 2Diagnoses* by major category and diagnostic group – January to December 2017

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATI	GENERAL PRACTITIONERS			
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
RESPIRATORY									
DISEASE	Asthma	102	212	16	11	66	65	1	50
	ascribed to sensitisation	88	187	-	-	-	-	-	-
	ascribed to irritation/RADS	14	25	-	-	-	-	-	-
	Unspecified	0	0	-	-	-	-	-	-
	Inhalation accidents	4	15	1	1	12	12	0	0
	Allergic alveolitis	14	58	4	0	0	0	0	0
	Bronchitis/emphysema	6	17	1	1	12	12	1	50
	Infectious disease	2	13	1	0	0	0	0	0
	Non-malignant pleural disease	155	452	34	0	0	0	1	50
	predominantly plaques	124	344	-	-	-	-	-	-
	predominantly diffuse	36	113	-	-	-	-	-	-
	Unspecified/other	11	33	-	-	-	-	-	-
	Mesothelioma	47	344	26	0	0	0	0	0
	Lung cancer	8	41	3	0	0	0	0	0
	Pneumoconiosis	96	184	14	0	0	0	0	0
	Other	33	44	3	2	24	24	0	0
	Total diagnoses	467	1380		15	114		3	
	Total cases	442	1344	100	14	102	100	2	100

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATI	ONAL PHYSICIAN	GENERAL PRACTITIONERS		
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
SKIN									
	Contact dermatitis	324	940	78	10	65	58	6	75
	Allergic	113	256	-	-	-	-	-	-
	Irritant	146	465	-	-	-	-	-	-
	Allergic and irritant	61	204	-	-	-	-	-	-
	Unspecified	5	27	-	-	-	-	-	-
	Contact urticaria	5	16	1	0	0	0	1	12.5
	Folliculitis/acne	0	0	0	0	0	0	0	0
	Infective	0	0 0 0		0	0	0	1	12.5
	Mechanical	2	24	2	1	12	11	0	0
	Nail	2	24	2	0	0	0	0	0
	Neoplasia	33	231	19	0	0	0	0	0
	Other	4	15	1	4	37	33	0	0
	Total diagnoses	370	1250		15	114		8	
	Total cases	364	1211	100	14	113	100	8	100
MUSCULOSKELETAL	Hand/wrist/arm				102	520	46	8	18
	Elbow				3	14	1	7	16
	Shoulder				18	150	14	6	14
	Neck/thoracic spine				4	26	2	3	7
	Lumbar spine/trunk	No case re	ports from clinie	cal	28	204	18	11	25
	Hip/knee	S	pecialists		11	110	10	6	14
	Ankle/foot				4	48	4	2	5
	Other				10	76	7	5	11
	Total diagnoses				180	1137		48	
	Total cases				176	1111	100	44	100

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATI	GENERAL PRACTITIONERS			
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
MENTAL ILL- HEALTH	Anxiety/depression	No case reports from clinical			131	967	47	25	57
	Post-traumatic stress disorder				16	170	8	1	2
	Other work-related stress				154	1144	56	26	59
	Alcohol or drug abuse	sp	ecialists		0	0	0	0	0
	Psychotic episode				1	1	<1	0	0
	Other				10	43	3	5	11
	Total diagnoses				312	2325		57	
	Total cases				275	2057	100	44	100

*As more than one diagnosis may be reported the sum of percentages and total cases in each diagnostic category may be greater than 100%

OTHER CASES REPORTED

OPs and GPs also report work-related ill-health cases not included within the major diagnostic categories given in Table 2. These are referred to as 'other' cases. OPs reported 13 'other' cases in 2017: multi system sarcoidosis, hepatitis C infection, lead poisoning, 2 cases of assault with one leading to abscess, dizziness/vertigo, a case of co-morbid depression, self-harm, and anorexia, a case of sleep loss with tiredness and agitation, 7 cases of hearing loss (1 with a co-diagnosis of carpal tunnel syndrome), and 3 cases of emotional distress. GPs reported 9 'other' cases: vertigo/viral illness, abdominal pain, prostatitis, and spotty rash (chicken pox).

INDUSTRY AND OCCUPATION

The most frequently reported industries and occupations to each of the four THOR constituent schemes: EPIDERM, SWORD, OPRA, and THOR-GP in 2017 are described in the following sections.



EPIDERM

Figure 1. Actual and estimated cases of work-related skin disease by major industrial division, reported to EPIDERM in 2017

For work-related skin disease reported by consultant dermatologists, health and social care was the most frequently reported sector making up nearly one quarter of all the reports received, followed by the construction industry (15%) (Figure 1). The most frequently reported occupations included those in SOC code 531 construction and building trades (7%).



Figure 2. Actual and estimated cases of occupational lung disease by major industrial division, reported to SWORD in 2017

For work-related respiratory disease reported by chest physicians, cases were reported most frequently from the manufacturing industry sector (43%) followed by construction (33%) (Figure 2). Occupations included in SOC code 531 construction and building trades were the most frequently reported in 2017 (27%).

OPRA All WRIH cases



Figure 3. Actual and estimated cases of work-related ill-health by major industrial division, reported to OPRA in 2017

Health and social care and public administration and defence were the most frequently reported industry sectors for cases of WRIH reported to OPRA in 2017 (Figure 3).

Mental ill-health cases

For mental ill-health cases reported to OPRA in 2017, health and social care and public administration and defence were again the most frequently reported industry sector (Figure 4). In terms of occupations most frequently reported, health related professionals were most frequently reported, including medical practitioners (12%), nurses (11%) and nursing auxiliaries (5%).



Figure 4. Actual and estimated cases of work-related mental ill-health by major industrial division, reported to OPRA in 2017

Musculoskeletal disease cases

For musculoskeletal disorders, manufacturing overtook health and social care as the most frequently reported sector (Figure 5) and the most frequently reported occupations were non-commissioned officers (NCOs) (8%), metal working production and maintenance fitters (7%) and labourers in building and woodworking (6%)



Figure 5. Actual and estimated cases of musculoskeletal disease by major industrial division, reported to OPRA in 2017

Skin and respiratory cases

For skin and respiratory cases reported to OPRA in 2017, health and social care and manufacturing were the most frequently reported industries (Figures 6 and 7). Nurses and nursing auxiliaries (24%) were the occupations reported most frequently for OPRA skin cases and OPRA respiratory cases (26%).



Figure 6. Actual and estimated cases of work-related skin disease by major industrial division, reported to OPRA in 2017



Figure 7. Actual and estimated cases of occupational lung disease by major industrial division, reported to OPRA in 2017

THOR-GP

All WRIH cases



Figure 8. Actual cases of work-related ill-health by major industrial division, reported to THOR-GP in 2017

Over 55% of the cases reported in 2017 to THOR-GP were reported in 5 industry sectors (Figure 8).

Mental ill-health cases



Figure 9. Actual cases of work-related mental ill-health by major industrial division, reported to THOR-GP in 2017

The majority of mental ill-health cases reported by GPs (Figure 9) were from the health and social care sector (16%), education (16%), and public administration and defence (14%). In 2017, the most frequently reported occupations for mental ill-health cases were secondary education teaching professionals (12%), accounts and wages clerks (9%), general office assistants (7%), and police officers (7%).

Musculoskeletal disease cases



Figure 10. Actual cases of work-related musculoskeletal disease by major industrial division, reported to THOR-GP in 2017

The most frequently reported industries for musculoskeletal disease cases to THOR-GP (Figure 10) in 2017 were manufacturing (18%) and wholesale and retail trade (14%) with the most frequently reported occupation being cleaners and domestics (9%).

OBSERVATIONS FROM OPRA

Dr Martin Seed, Clinical Senior Lecturer

Whilst determination of incidence rates and trends requires sophisticated statistical methods, simple inspection of the details of actual cases on the OPRA database can provide useful insights into emerging patterns and causes of work-related ill-health (WRIH). There were 491 actual cases reported to OPRA in 2017 which excludes the 130 cases reported by occupational health nurses in one occupational health clinic (see feature in this report). It is a striking statistic in itself that one small group of nurses reported greater than 25% of the number of cases reported by physician reporters (average number 216) throughout the UK and ROI.

Taking the 491 cases by diagnostic categories as they appear on the OPRA reporting card, 11/15 reported respiratory diagnoses were work related asthma (WRA). Two cases of occupational asthma (OA) attributed to metal working fluids, now one of the most frequently reported causes of occupational asthma by respiratory physicians. Two cases of WRA were reported in health care workers and attributed to Chlorclean. This cleaning agent is widely used for cleaning clinical areas because of the biocidal properties of chlorine released from its main constituent sodium dichloroisocyanurate (aka traclosene sodium). The type of WRA was not specified for the two cases so it is possible that the asthma was either pre-existing asthma that had been aggravated by chlorine or new onset irritant induced asthma. Another possibility, supported by a high asthma hazard index (0.97) using our asthma hazard prediction QSAR model (http://www.coeh.man.ac.uk/asthma/login.php) is that these cases were due to sensitisation to dichloroisocyanurate itself.

Of the 15 skin diagnoses reported by occupational physicians in 2017 ten were contact dermatitis attributed to a range of agents, none of which stood out as sentinel cases due to a new cause. It is noteworthy that the same small group of nurses as discussed in this report's feature reported 11 cases with skin diagnoses, almost doubling the number of dermatological reports when restricted to physicians alone. Under-reporting by physicians and over-reporting by nurses may partly explain this mismatch in reporting rates, but it may also be an indication of the significant potential for nurse reporting to improve the overall detection of WRIH by the OPRA scheme.

At first glance the predominance of hand/wrist/arm diagnoses in the 176 musculoskeletal cases might suggest an epidemic of forearm tendinitis but it is important to remember that hand arm vibration syndrome (HAVS) is included in this subcategory of musculoskeletal diagnoses and accounts for 69 of the 102 cases. Health Surveillance was the reason for consultation in 56 of the 69 reported HAVS diagnoses, a good reminder of the importance of this clinical activity. The HAVS stage was only specified in 8 cases but included the full range from stage 1 vascular to stage 3 HAVS. In contrast to the relatively high number of HAVS cases there were only 6 cases of noise induced hearing loss reported in 2017.

Last, but by no means least, of the specific diagnostic categories on the OPRA reporting card is 'Stress/Mental Illness'. In 2017 this diagnostic category contained the greatest number (275) of case reports, in which 'anxiety/depression' and 'other work related stress' accounted for approximately 90% of the diagnoses. Work is underway to map the suspected causative agent for cases of work related mental ill-health to the HSE management standards. The majority of the 16 cases of Post-traumatic stress disorder (PTSD) were in soldiers or emergency service workers.

FEATURE - OCCUPATIONAL HEALTH NURSE REPORTING IN 2017

In this feature, we take a look at a trial where occupational health nurses (OHNs) report to the Occupational Physicians Reporting Activity (OPRA) scheme.

Occupational health care in the UK is delivered by various professions including specialist occupational physicians (OPs) and occupational health nurses (OHNs). Specialist OPs hold a skill set unique from other doctors and occupational health professionals, such as the ability to manage complex problems. However, data indicate that only ~12% of the UK's labour force has access to an OP ^{1 2}. On the other hand, OHNs represent the "largest single professional group in a growing UK OH market" ³.

The OPRA scheme has been receiving work-related ill-health reports from 3 OHNs based at one occupational health clinic since November 2016. In 2017, OHNs reported a total of 130 actual cases. Here, we describe cases reported by OHNs and compare these with cases reported by the occupational physician at the same clinic during the same time period.



Figure 11. Number of actual cases of work-related ill-health reported by occupational physician and occupational health nurses to OPRA in 2017

Figure 11 shows that OHNs reported a greater number of cases to the OPRA scheme in 2017 with a total of 130 cases (134 diagnoses) compared to 31 cases (39 diagnoses) reported by the occupational physician. OHNs reported an average of 11 cases per month while the OP reported an average of 3 cases per month. There is also a difference in the case mix reported by the OP and OHNs as illustrated in Figures 12 and 13.

^{1.}McDonald, J (2002) The estimated workforce served by occupational physicians in the UK. *Occup Med*, 52(7), pp.401-406.

^{2.} Carder, M., Money, A., Turner, S. and Agius, R. (2014). Workforce coverage by GB occupational physicians and disease incidence rates. *Occup Med*, 64(4), pp.271-278.

^{3.} Position Paper: Occupational Health Nurse Education, Funding and Regulation. (2015). [ebook] Available at: https://pdfs.semanticscholar.org/4fbf/22c9d262f80146cd5e3d56323df9e2794e8d.pdf Accessed 13 Jun. 2018].



Figure 12. Case mix of diagnoses reported by occupational physician by disease category, reported to OPRA in 2017



Occupational health nurse

Figure 13. Case mix of diagnoses reported by occupational health nurses by disease category, reported to OPRA in 2017.

The majority of cases reported by both the OP and OHNs were mental ill-health cases (95% and 78% for OP and OHNs, respectively). However, where OP only reported 1 / 2 cases of MSD, the OHNs reported a greater variety of cases, including also skin, and hearing cases (Figure 13).

Looking at the mental ill-health cases only, the OP reported a greater variety of cases (Figure 14), compared to OHNs (Figure 15), including severe mental ill-health cases such as psychotic episodes and post-traumatic stress disorder while OHNs reported only anxiety/depression and work-related stress cases.



Occupational physician

Figure 14. Mental ill-health diagnoses by occupational physician, reported to OPRA in 2017

Occupational health nurse



Figure 15. Mental ill-health diagnoses by occupational health nurses, reported to OPRA in 2017

The OP tended to see more patients in the managers, senior officials, and professional occupational groups than elementary occupations, whereas OHNs mostly saw patients from the associate professional and technical group (Figure 16).



Figure 16. Actual cases of work-related ill-health reported by occupational physician and occupational health nurses by major occupation group to OPRA in 2017

This initial descriptive analysis of cases reported by OHNs indicate a greater variety of workrelated ill-health cases and differential occupational groups reported than the OP case mix. This suggests that there may be under-reporting, in particular, of skin and respiratory cases by OPRA reporters and that it may be valuable to recruit OHNs as reporters to the OPRA scheme to provide a more accurate snapshot of work-related ill-health in the UK.

We are keen to extend the trials to other OHNs over the next years, so we would like to encourage you to contact us if you work with OHNs who would be interested to being part of the trial.

BECK REPORT

We are most grateful to Dr Mark Wilkinson for providing the Beck Report, which provides a commentary for cases of work-related skin disease reported to THOR and THOR-GP throughout January to March 2018. Please note that the information used by Dr Wilkinson incorporates case reporting to EPIDERM, OPRA and THOR-GP, so the "numbers" cited here may differ to those within the table in Appendix 1.

BECK REPORT

I was surprised at a report from OPRA detailing a generalised eruption in a paediatric nurse after wearing a protective gown in an isolation room. This resulted in 3 months sick leave! It raised the question in my mind of what might be expected following such an exposure and what we know of the prognosis of occupational dermatitis. During the quarter, there was also a report of occlusion from a theatre cap resulting in symptoms. Typically, I'd expect an acute irritant or allergic response to settle over 6-8 weeks, perhaps longer if severe. A gown is an unlikely cause, not being irritant and unlikely to contain potent allergens. In any situation where the features don't fit, a re-evaluation may be helpful to exclude other diagnoses or co-incidental events. The precise clinical situation may have been different from what I imagined and the outlook becomes less good as exposure continues. Following persistent disease, the term post occupational dermatitis⁴ has been coined for situations where dermatitis persists long after relevant exposures have been removed. It is said to occur in up to 10% of cases. This leaves us with a very variable prognosis but the potential for permanent disease. Consequently, there is a strong argument for investigating and treating suspected occupational dermatitis promptly⁵; delayed diagnosis having been shown to be associated with chronicity⁶.

With the current good weather, I'd almost forgotten how cold it was earlier in the year with snow in March. A report of cold panniculitis in a young female stable groom was a classic presentation of this condition. Typically, tender subcutaneous inflamed nodules develop on the lateral thighs of young women following horse riding in tight fitting clothing in the cold. The low temperature results in crystallisation of fat and cell rupture. The condition of cold panniculitis is commoner in young children who have a higher level of saturated fats which solidify at a higher temperature than unsaturated fats. Consequently, a smaller reduction in temperature can precipitate fat necrosis. A recognised complication of letting children suck on ice lollies is fat necrosis on the cheeks and chin; so-called 'popsicle panniculitis'

Dr Mark Wilkinson, Leeds General Infirmary

⁴ Persistent post-occupational dermatitis. Sajjachareonpong P, Cahill J, Keegel T, Saunders H, Nixon R. Contact Dermatitis. 2004; 51: 278-83.

⁵ The prognosis of occupational contact dermatitis in 2004. Cahill J, Keegel T, Nixon R. Contact Dermatitis. 2004; 51: 219-26

⁶ Prognosis of occupational chromate dermatitis. Halbert AR, Gebauer KA, Wall LM. Contact Dermatitis. 1992; 27: 214-9.

REMINDER OF HOW WE CAN HELP YOU

We would again like to take this opportunity to encourage THOR reporters to contact us if they would like to present THOR-UK data at future meetings; simply email Annemarie.money@manchester.ac.uk

If you have any comments or suggestions on the type or presentation of information that you would like to see included in future reports then please contact THOR's Manager, Dr Melanie Carder at <u>melanie.carder@manchester.ac.uk</u> or phone 0161 275 5636. We look forward to hearing from you.

THOR CONTACTS

Many thanks for your continued support to THOR. Please feel free to contact us (Table 3) if you have any queries or require duplicate reporting cards / details about electronic reporting.

SCHEME	Email	Phone
EPIDERM / SWORD	Laura.byrne@manchester.ac.uk	0161 275 7103
OPRA / THOR-GP	Susan.taylor@manchester.ac.uk	0161 275 5531
DATA REQUESTS	Melanie.carder@manchester.ac.uk	0161 275 5636
GENERAL ENQUIRIES	Melanie.carder@manchester.ac.uk Annemarie.money@manchester.ac.uk	0161 275 5636 0161 275 8492
	Siti.rusdhy@manchester.ac.uk	0161 275 5284

 Table 3
 THOR Contact details (UPDATE)

Appendix 1 Quarterly report – January-March 2018 Table A1. Estimated diagnoses* by major category and group – January to March 2018

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATI	GENERAL PRACTITIONERS			
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
RESPIRATORY									
DISEASE	Astnma	27	27	11	1	12	86	0	0
	ascribed to sensitisation	27	27	-	-	-	-	-	-
	ascribed to irritation/RADS	-	-	-	-	-	-	-	-
	Unspecified	-	-	-	-	-	-	-	-
	Inhalation accidents	1	1	<1	0	0	0	0	0
	Allergic alveolitis	4	4	2	0	0	0	0	0
	Bronchitis/emphysema	5	5	2	0	0	0	0	0
	Infectious disease	0	0	0	0	0	0	0	0
	Non-malignant pleural disease	24	79	33	0	0	0	0	0
	predominantly plaques	21	54	-	-	-	-	-	-
	predominantly diffuse	4	26	-	-	-	-	-	-
	Unspecified/other	2	2	-	-	-	-	-	-
	Mesothelioma	10	65	27	0	0	0	0	0
	Lung cancer	3	25	11	0	0	0	0	0
	Pneumoconiosis	15	15	6	2	2	14	0	0
	Other	12	23	10	0	0	0	0	0
	Total diagnoses	101	244		3	14			
	Total cases	95	238	100	3	14	100	0	0

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATI	ONAL PHYSICIAN	IS	GENERAL PRACTITIONERS	
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
SKIN									
	Contact dermatitis	54	164	73	5	49	100	1	100
	Allergic	19	63	-	-	-	-	-	-
	Irritant	25	69	-	-	-	-	-	-
	Allergic and irritant	9	31	-	-	-	-	-	-
	Unspecified	1	1	-	-	-	-	-	-
	Contact urticaria	0	0	0	0	0	0	0	0
	Folliculitis/acne	0	0	0	0	0	0	0	0
	Infective	0 0 0		0	0	0	0	0	0
	Mechanical	1	12	5	0	0	0	0	0
	Nail	0	0	0	0	0	0	0	0
	Neoplasia	5	49	22	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0
	Total diagnoses	60	225		5	49		1	
	Total cases	60	225	100	5	49	100	1	100
MUSCULOSKELETAL	Hand/wrist/arm				14	36	18	2	29
	Elbow				1	12	6	0	0
	Shoulder				4	37	19	1	14
	Neck/thoracic spine				0	0	0	1	14
	Lumbar spine/trunk	No case re	ports from clini	cal	6	50	26	1	14
	Hip/knee	S	pecialists		6	61	31	0	0
	Ankle/foot				0	0	0	1	14
	Other				0	0	0	1	14
	Total diagnoses				31	196		7	
	Total cases				31	196	100	7	100

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPAT	GENERAL PRACTITIONERS			
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
MENTAL ILL- HEALTH	Anxiety/depression			36	245	58	1	25	
	Post-traumatic stress disorder				5	60	14	0	0
	Other work-related stress	No case rep	orts from clinic	al	35	288	68	4	100
	Alcohol or drug abuse	spo	ecialists		0	0	0	0	0
	Psychotic episode				0	0	0	0	0
	Other				0	0	0	0	0
	Total diagnoses				76	593		5	
	Total cases				60	423	100	4	100

*As more than one diagnosis may be reported the sum of percentages and total cases in each diagnostic category may be greater than 100%

Other cases reported included:

Occupational physicians – OPs reported just 1 case of 'other' WRIH this quarter, diagnosed as noise induced hearing loss in a gardener attributed to tool use.

General practitioners – GPs reported 2 cases of 'other' WRIH this quarter, diagnosed as migraine in a hospital doctor and abdominal cramps and irritable bowel syndrome in a bank clerk, both attributed to work-related stress.

APPENDIX 2 RECENT THOR PUBLICATIONS

Published 2018

- Barber CM, Fishwick D, Seed MJ, et al **Artificial stone-associated silicosis in the UK** Occup Environ Med Published Online First: 14 February 2018
- Hulls P, Money A, Agius R, de Vocht F. Work-related ill-health in UK radiographers. Occupational Medicine 05.03.2018.
- Montgomery RL, Agius R, Wilkinson SM, Carder M. UK trends of allergic occupational skin disease attributed to fragrances 1996-2015. Contact Dermatitis. 2018 Jan;78(1):33-40. doi: 10.1111/cod.12902. Epub 2017 Oct 27.

Published 2017

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- Gittins M, McNamee R, Holland F, Carter LA. Accounting for reporting fatigue is required to accurately estimate incidence in voluntary reporting health schemes. J Clin Epidemiol. 2017;Jan;81:77-85
- Lastovkova A, Carder M, Rasmussen HM, Sjoberg L, de Groene GJ, Sauni R, Vevoda J, Vevodova S, Lasfargues G, Svartengren M, Varga M, Colossio C, Pelclova D. Burnout syndrome as an occupational disease in the European Union: an exploratory study. Ind Health. 2017 Nov 3. doi: 10.2486/indhealth.2017-0132. [Epub ahead of print]
- Zhou AY, Carder M, Gittins M, Agius R. Work-related ill health in doctors working in Great Britain: incidence rates and trends. Br J Psychiatry. 2017 Nov;211(5):310-315.
- Zhou AY, Carder M, Hussey L, Gittins M, Agius R. Differential reporting of work-related mental ill-health in doctors. Occup Med (Lond). 2017 Oct1;67(7):522-527.
- Bensefa-Colas, L., Stocks, S.J., McNamee, R., Faye, S., Pontin, F., Agius, R.M., Lasfargues, G., RNV3P members, Telle-Lamberton, M. and Momas, I. Effectiveness of the European chromium(vi) directive for cement implementation on occupational allergic contact dermatitis occurrence: assessment in France and the U.K. Br J Dermatol 2017; 177: 873– 876.
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- Carder M, Hussey L, Money A, Gittins M, McNamee R, Stock SJ, Sen D, Agius RM. The Health and Occupation Research Network (THOR) - an evolving surveillance system. SHAW 2017; 8(3):231-236