MANCHESTER 1824
The University of Manchester

THOR

The Health and Occupation Research network
(Incorporating specialists' and THOR-GP reports)

http://www.population-health.manchester.ac.uk/epidemiology/COEH/research/thor/
Or
http://www.coeh.man.ac.uk/thor

Dear colleague,

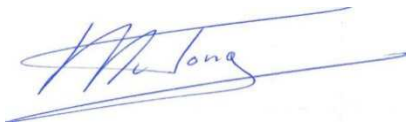
I am pleased to provide you with the latest interim report of THOR, covering data collected between July and September of this year. We hope that you find the information in this report useful and informative. As mentioned previously, we are currently reviewing the format and content of the interim reports. Please let us know if there are particular items that you would like us to cover in these updates.

In addition to a summary of the cases reported in the various schemes, the interim report includes a summary of allergic alveolitis cases reported to SWORD, as well as the Beck report, prepared by Dr Mark Wilkinson. The latter includes a note of caution when relying on safety datasheets, as these do not always appear to be accurate.

The Lane Lecture this year was delivered by Professor John Cherrie on Tuesday 6th November; John talked about the topic of the Exposome and work. Next year, we are planning a celebration of the SWORD reporting scheme as it will be 30 years since the late Professor Corbett McDonald started this reporting scheme. Dr Jennifer Hoyle has very kindly agreed to give the Lane Lecture in 2019. Please watch this space for more information on date and location!

I would like to wish you all a Merry Christmas and all the very best for 2019!

Yours sincerely



Martie van Tongeren
Professor of Occupational and Environmental Health

QUARTERLY REPORT December 2018

This THOR (including THOR-GP) combined quarterly report summarises the cases reported in the quarter July to September 2018. It includes a special feature on allergic alveolitis cases reported to THOR.

If you have any comments regarding the type of information you would like to see included (or not) in future reports, or suggestions as to how we could improve the reports then please contact THOR's Manager, Dr Melanie Carder at melanie.carder@manchester.ac.uk or phone 0161 275 5636. We are pleased to hear from you.

CASE REPORTS: July to Sept 2018

Approximately 900 physicians currently participate in the THOR schemes. Physicians can report either on a core (reporting each month) or a sample (reporting for one randomly selected month each year) basis. A total of 209 actual, 935 (estimated) cases were reported during this period, with estimated cases being those reported by sample reporters multiplied by 12 and added to the core cases.

The actual and estimated number of cases by major category and diagnostic group, for clinical specialists (chest physicians, dermatologists, occupational physicians (OPs) and general practitioners (GPs)) are shown in Table 1.

Table 1 Actual and estimated cases by major category and diagnostic group, July to Sept 2018

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATIONAL PHYSICIANS			GENERAL PRACTITIONERS	
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
RESPIRATORY DISEASE	Asthma	19	63	*20*	**No case reports from OPs this quarter**			**No case reports from GPs this quarter**	
	ascribed to sensitisation	*16*	*38*	-					
	ascribed to irritation/RADS	*4*	*26*	-					
	Unspecified	*0*	*0*	-					
	Inhalation accidents	1	1	*<1*					
	Allergic alveolitis	0	0	*0*					
	Bronchitis/emphysema	3	3	*1*					
	Infectious disease	0	0	*0*					
	Non-malignant pleural disease	22	88	*29*					
	predominantly plaques	*16*	*60*	-					
	predominantly diffuse	*5*	*5*	-					
	Unspecified/other	*0*	*0*	-					
	Mesothelioma	12	111	*36*					
	Lung cancer	1	1	*<1*					
	Pneumoconiosis	20	42	*14*					
	Other	5	5	*2*					
	Total diagnoses	**83**	**314**						
	Total cases	**77**	**308**	***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%
NB. only actual cases are provided for THOR-GP; since methods for calculating estimated totals based on GP reports are under further development.

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATIONAL PHYSICIANS			GENERAL PRACTITIONERS	
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
SKIN	Contact dermatitis	63	250	*99*	**No case reports from OPs this quarter**			**No case reports from GPs this quarter**	
	Allergic	*25*	*124*	-					
	Irritant	*28*	*94*	-					
	Allergic and irritant	*8*	*30*	-					
	Unspecified	2	*2*	-					
	Contact urticaria	2	24	*9*					
	Folliculitis/acne	0	0	*0*					
	Infective	1	1	*<1*					
	Mechanical	1	1	*<1*					
	Nail	1	1	*<1*					
	Neoplasia	1	1	*<1*					
	Other	0	0	*0*					
	Total diagnoses	**69**	**278**						
	Total cases	**66**	**253**	***100***					
MUSCULOSKELETAL	Hand/wrist/arm	**No case reports from clinical specialists**			6	6	19	1	*14*
	Elbow				0	0	0	2	*29*
	Shoulder				0	0	0	1	*14*
	Neck/thoracic spine				1	1	3	0	*0*
	Lumbar spine/trunk				2	13	41	2	*29*
	Hip/knee				0	0	0	0	*0*
	Ankle/foot				0	0	0	1	*14*
	Other				1	12	38	0	*0*
	Total diagnoses				**10**	**32**		**7**	
	Total cases				**10**	**32**	***100***	**7**	***100***

CATEGORY	DIAGNOSTIC GROUP	CLINICAL SPECIALISTS			OCCUPATIONAL PHYSICIANS			GENERAL PRACTITIONERS	
		Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	Estimated diagnoses	%	Actual diagnoses	%
MENTAL ILL-HEALTH	Anxiety/depression	**No case reports from clinical specialists**			19	140	*43*	2	*50*
	Post-traumatic stress disorder				2	13	*4*	0	*0*
	Other work-related stress				28	226	*69*	2	*50*
	Alcohol or drug abuse				0	0	*0*	0	*0*
	Psychotic episode				0	0	*0*	0	*0*
	Other				3	25	*8*	1	*25*
	Total diagnoses				**52**	**404**		**5**	
	Total cases				**43**	**329**	***100***	**4**	***100***

Other cases

In addition to the main diagnostic categories described in Table 1, OPs and GPs can report 'other' diagnoses of work-related ill-health (WRIH).

OPs reported one 'other' case this quarter, a case of memory loss with organisational stress and personal stressors in a physiotherapist manager in the NHS.

GPs reported 2 'other' cases of WRIH this quarter: 1 case of worsening deafness in a construction worker in the shipbuilding industry and 1 case of bilateral glue ear in an airline cabin crew member.

QUARTERLY FEATURE

Data Request Feature: Overview of cases of allergic alveolitis reported to SWORD (1989-2017)

The Centre for Occupational and Environmental Health (COEH) at the University of Manchester provides an ad-hoc data enquiry service for the Health and Safety Executive, participating physicians and other interested parties to request information about work-related ill-health cases reported to THOR.

COEH received and completed a total of 11 data requests this quarter. In this quarterly feature, we present the findings of one such data request: **'Overview of cases of allergic alveolitis reported to SWORD (1989-2017)'.**

Allergic alveolitis

Allergic alveolitis, also referred to as extrinsic allergic alveolitis or hypersensitivity pneumonitis, describes a spectrum of lung diseases resulting from non-IgE mediated inflammation[1]. It is largely an occupational disease where inflammation of the interstitial lung, terminal bronchioles, and alveoli are caused by sensitisation to repeated inhalation of antigenic agents[2].

There are more than 300 etiologies reported and these usually contain high molecular weight allergens such as those found in microbes, animal proteins, mouldy hay or bacterially contaminated metal working fluids[3] A few low molecular weight chemicals,

[1] Grammer L. Hypersensitivity pneumonitis - Symptoms, diagnosis and treatment | BMJ Best Practice [Internet]. BMJ Best Practice. 2017 [cited 4 December 2018]

[2] Baur X, Fischer A, Budnik L. Spotlight on the diagnosis of extrinsic allergic alveolitis (hypersensitivity pneumonitis). Journal of Occupational Medicine and Toxicology [Internet]. 2015 [cited 4 December 2018];10(15).

[3] Hsieh C. Hypersensitivity Pneumonitis: Background, Pathophysiology, Etiology [Internet]. Medscape. 2018 [cited 4 December 2018].

which are often also asthmagenic and contain multiple reactive groups, have also been reported causes[4].

The major causative antigens are thermophilic *Actinomycetes* species (causing Farmer's lung), various moulds and avian proteins (causing Bird fancier's lung)[2]. Symptoms are often non-specific such as fever, cough and worsening dyspnoea[5] and clinical presentation may be acute, sub-acute, or chronic[1,2]. Here we present the case selection and findings of a data request describing allergic alveolitis cases reported to the SWORD scheme from 1989 to 2017.

Source of information and case selection

The database for the Surveillance of Work-Related and Occupational Respiratory Disease (SWORD) scheme for the period 1989 to 2017 was searched for cases diagnosed as allergic alveolitis by chest physicians.

Results

- There have been 422 actual (1302 estimated) cases of allergic alveolitis reported to SWORD (1989-2017).
- Cases were predominantly reported in males (80%).
- The mean age is 51 years, ranging from 18 to 89 years.
- Of the 422 cases, 216 also reported the industry. Almost three-quarter of cases were reported in the manufacturing (47%) and agriculture, forestry and fishing (27%) industries.
- Related to the above industries, the most frequently reported occupations were farmers (19%), farm workers (11%), fishing and agriculture related occupations not elsewhere classified (11%), and metal machining setters and setter-operators (8%).
- Approximately 92% of the actual cases had at least one suspected agent reported by physicians. (Physicians can report up to four suspected agents for each case).
- Of the actual cases with a suspected agent reported, the most frequently reported agents were 'fungi / moulds / yeasts' (27%), 'leather, skin, and furs' (16%), 'cutting oils / soluble oils' (14%), and 'grain' (including hay / straw) (7%).

Table 2. Details of the main suspected agents for allergic alveolitis

Category	Reported agents (numbers reported)
Fungi / moulds / yeasts	Farmer's lung / FLH antigens (15), Actinomycetes (6), *M. faeni* (14), *T. saccchari* (1), *T. vulgaris* (1), Aspergillus (8), mushroom including compost and spawning mixture (11), mouldy hay (28), mouldy barley (1), mouldy grain (1), thatch fungi (1) domestic mould (1), fungi in mine (1), mould on onions (1), fungus isolated from coolant fluid (1), unspecified moulds including spores (18)
Leather, skin, and furs	Avian antigens/protein/precipitins (28), bird bloom (1), bird dander (1), bird fancier's lung (2), budgerigars (1), budgies (1),

[4] Seed MJ, Enoch SJ, Agius RM. Chemical determinants of occupational hypersensitivity pneumonitis. Occupational Medicine 2015;65:673-681.

[5] Health and Safety Executive. Extrinsic allergic alveolitis - Lung disease [Internet].. 2018 [cited 4 December 2018]. Available from: http://www.hse.gov.uk/lung-disease/extrinsic-allergic-alveolitis.htm

	cockatiel (2), parrots (2), pigeon/pigeon antigens (26), turkeys (2), wildfowl (1), feathers (1)
Cutting oils / soluble oils	Metal working fluids (54), oil mists (4), cutting oils (2), machine oil (1)
Grain	Hay / mouldy hay (14), straw / mouldy straw (2), unspecified grain or grain dust (5), barley (2), corn (1), malt (1)

BECK REPORT

We are most grateful to Dr Mark Wilkinson for this quarter's 'Beck Report', which provides a commentary for cases of work-related skin disease reported to THOR and THOR-GP UK this quarter.

BECK REPORT

July to September seem to have been quiet months with only 63 skin cases (usually just under 100) reported to EPIDERM, 1 to OPRA and none to THOR-GP. However, cases of acrylate allergy in nail technicians continue unabated with 5 (8%) cases from this exposure. The lack of education and training was highlighted by one beauty worker who, found to be allergic, stopped applying acrylic nails but continued using gel which contains the same chemicals! Unsurprisingly their rash persisted. Following on from the SCCS opinion, representatives of the member states of the EU are due to discuss the issue in December. It is to be hoped that the dermatology societies that are responding to the consultation can encourage improved labelling to increase the awareness of both nail technicians and consumers of the risk of allergy and encourage a requirement for improved training of nail technicians in their use to reduce the risk of sensitisation. Continued home use, where education on safety measures is likely to be poorer with an increased risk of contamination, also needs to be considered.

Formaldehyde allergy in a metal machinist also allergic to the formaldehyde releasers Bioban CS 1135 & diazolidinyl urea was reported. However, formaldehyde was not reported as being present in any safety data sheets (SDS) of currently used cutting fluids. I always take SDS with a pinch of salt as generally they're only as good as the person writing them. In one survey of 137 SDS analysed, 18.6% were deficient. Of these, a R43/H317 warning was missing when an allergen was present in 63%, a preservative (such as formaldehyde) was not declared when present in 49% and allergy was not mentioned despite containing an allergen in 20%[6]. For cosmetics, which are more tightly regulated and INCI (International Nomenclature of Cosmetic Ingredient) labelling is mandatory, one study found 7% of products said not to contain formaldehyde actually did so at concentrations that might induce dermatitis using the chromotropic acid test[7]. It might pay therefore to be wary and follow up on your suspicions if you have a friendly laboratory to hand.

[6] Difficulties in using Material Safety Data Sheets to analyse occupational exposures to contact allergens. Friis UF, Menné T, Flyvholm MA, et al. Contact Dermatitis. 2015; 72: 147-53.
[7] Ten-year trends in contact allergy to formaldehyde and formaldehyde-releasers. Fasth IM, Ulrich NH, Johansen JD.Contact Dermatitis. 2018; 79: 263-269.

I was initially perplexed by the male picture framer allergic to the nail varnish allergen phthalic anhydride/trimetallic anhydride/glycols copolymer. Presumably, used as varnish for the pictures or frames? Copolymers are large molecular weight chemicals and it had been thought that they would not be allergenic as a consequence. However, there are a steady stream of case reports[8] usually in the context of cosmetic allergy[9].

Dr Mark Wilkinson, Consultant Dermatologist, Leeds General Infirmary

PUBLICATIONS

The following are recently published, or forthcoming, papers based on THOR work:

- Barber CM, Fishwick D, Carder M, van Tongeren M. **Epidemiology of silicosis: reports from the SWORD scheme in the UK from 1996 to 2017** Occup Environ Med Published Online First: 10 November 2018. doi:10.1136/oemed-2018-105337

- Seed M, Zarin N and Agius R. **How to do it series - OPRA reporting online.** Occupational Medicine

REMINDER

We are updating our quarterly and annual reports in the New Year, and will only be sending them out electronically after the update. If you wish to keep receiving these reports, please provide your scheme's Project Assistant with an email address (see Table 3 below for details).

THOR CONTACTS

Many thanks for your continued support of THOR, please contact us (Table 3) if you have any queries or data requests.

Table 3 THOR Contact details

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 Siti.rusdhy@manchester.ac.uk	0161 275 5636 0161 275 8492 0161 275 5284

[8] Allergic contact dermatitis caused by PEG-22/dodecyl glycol copolymer in a skin-repairing cream. Amsler E, Al-Raddadi R, Frances C. Contact Dermatitis. 2017; 77: 54-55.
[9] Allergic contact dermatitis to copolymers in cosmetics--case report and review of the literature. Quartier S, Garmyn M, Becart S, Goossens A. Contact Dermatitis. 2006; 55: 257-67.