

# THOR

## The Health and Occupation Research network

(Incorporating specialists' and THOR-GP reports)

<http://research.bmh.manchester.ac.uk/epidemiology/COEH/research/thor>

or

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

Dear colleague,

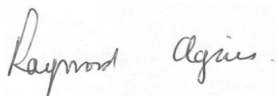
Thanks to your continuing support the THOR programme continues to be of great benefit to the health of workers through the dissemination of the analyses of our data, both in the peer-reviewed literature and in response to specific requests. Indeed the latter often lead to the former.

For instance we have contributed to a recent HSE exercise to assess the risks to health of the fish and other sea-food processing industry, and responded to or initiated research collaborations about asthma caused by cleaning agents or allergy associated with fragrances in hairdressers and allied occupations. Taking account of the ageing population, we have been analysing the influence of age on the incidence of work-related ill-health.

Unfortunately, in the current financial climate the funding of THOR research has been on a short term scale recently. However we hope to conclude an agreement with HSE to fund data collection for EPIDERM and SWORD until the end of 2017, with reporting in 2018.

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 me or THOR's Manager, Dr Melanie Carder at [melanie.carder@manchester.ac.uk](mailto:melanie.carder@manchester.ac.uk) or phone 0161 275 5636. We are pleased to hear from you.

Best wishes



Raymond Agius  
Professor of Occupational and Environmental Medicine

This THOR and THOR-GP combined quarterly report summarises all the cases reported in the quarter April to June 2016. It includes a special feature on work-related ill-health in musicians/singers.

### **CASE REPORTS: April to June 2016**

Over 1000 physicians currently participate in THOR / THOR-GP (as of September 2016). Physicians can report either on a 'core' basis (reporting each month) or a 'sample' basis (reporting for one randomly selected month each year). A total of 324 actual, 1281 (estimated) cases were reported during this period. The 'estimated cases' are those reported by sample reporters multiplied by 12 and added to the core cases.

The actual and estimated 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 (NB. only actual cases are provided for THOR-GP; since methods for calculating estimated totals based on GP reports are under further development).

**Table 1 Actual and estimated cases by major category and diagnostic group, April to June 2016**

| CATEGORY                   | DIAGNOSTIC GROUP                   | CLINICAL SPECIALISTS |                     |            | OCCUPATIONAL PHYSICIANS |                     |            | GENERAL PRACTITIONERS |            |
|----------------------------|------------------------------------|----------------------|---------------------|------------|-------------------------|---------------------|------------|-----------------------|------------|
|                            |                                    | Actual diagnoses     | Estimated diagnoses | %          | Actual diagnoses        | Estimated diagnoses | %          | Actual diagnoses      | %          |
| <b>RESPIRATORY DISEASE</b> | Asthma                             | 21                   | 43                  | 13         | 2                       | 24                  | 65         | 0                     | 0          |
|                            | <i>ascribed to sensitisation</i>   | 19                   | 41                  | -          | -                       | -                   | -          | -                     | -          |
|                            | <i>ascribed to irritation/RADS</i> | 2                    | 2                   | -          | -                       | -                   | -          | -                     | -          |
|                            | <i>Unspecified</i>                 | 0                    | 0                   | -          | -                       | -                   | -          | -                     | -          |
|                            |                                    |                      |                     |            |                         |                     |            |                       |            |
|                            | Inhalation accidents               | 1                    | 12                  | 4          | 0                       | 0                   | 0          | 0                     | 0          |
|                            | Allergic alveolitis                | 5                    | 5                   | 2          | 0                       | 0                   | 0          | 0                     | 0          |
|                            | Bronchitis/emphysema               | 1                    | 12                  | 4          | 0                       | 0                   | 0          | 1                     | 25         |
|                            | Infectious disease                 | 0                    | 0                   | 0          | 1                       | 1                   | 3          | 1                     | 25         |
|                            |                                    |                      |                     |            |                         |                     |            |                       |            |
|                            | Non-malignant pleural disease      | 29                   | 95                  | 28         | 0                       | 0                   | 0          | 0                     | 0          |
|                            | <i>predominantly plaques</i>       | 26                   | 81                  | -          | -                       | -                   | -          | -                     | -          |
|                            | <i>predominantly diffuse</i>       | 4                    | 15                  | -          | -                       | -                   | -          | -                     | -          |
|                            | <i>Unspecified/other</i>           | 1                    | 12                  | -          | -                       | -                   | -          | -                     | -          |
|                            |                                    |                      |                     |            |                         |                     |            |                       |            |
|                            | Mesothelioma                       | 11                   | 66                  | 20         | 0                       | 0                   | 0          | 0                     | 0          |
|                            | Lung cancer                        | 4                    | 37                  | 11         | 0                       | 0                   | 0          | 0                     | 0          |
|                            | Pneumoconiosis                     | 17                   | 50                  | 15         | 0                       | 0                   | 0          | 0                     | 0          |
|                            | Other                              | 12                   | 45                  | 13         | 1                       | 12                  | 32         | 2                     | 50         |
|                            | Total diagnoses                    | <b>101</b>           | <b>365</b>          | <b>-</b>   | <b>4</b>                | <b>37</b>           | <b>-</b>   | <b>4</b>              | <b>-</b>   |
|                            | Total cases                        | <b>95</b>            | <b>337</b>          | <b>100</b> | <b>4</b>                | <b>37</b>           | <b>100</b> | <b>4</b>              | <b>100</b> |

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

| CATEGORY        | DIAGNOSTIC GROUP             | CLINICAL SPECIALISTS                      |                     |     | OCCUPATIONAL PHYSICIANS |                     |     | GENERAL PRACTITIONERS |     |
|-----------------|------------------------------|-------------------------------------------|---------------------|-----|-------------------------|---------------------|-----|-----------------------|-----|
|                 |                              | Actual diagnoses                          | Estimated diagnoses | %   | Actual diagnoses        | Estimated diagnoses | %   | Actual diagnoses      | %   |
| SKIN            | Contact dermatitis           | 85                                        | 162                 | 75  | 13                      | 90                  | 86  | 2                     | 67  |
|                 | <i>Allergic</i>              | 30                                        | 63                  | -   | -                       | -                   | -   | -                     | -   |
|                 | <i>Irritant</i>              | 43                                        | 65                  | -   | -                       | -                   | -   | -                     | -   |
|                 | <i>Allergic and irritant</i> | 11                                        | 33                  | -   | -                       | -                   | -   | -                     | -   |
|                 | <i>Unspecified</i>           | 1                                         | 1                   | -   | -                       | -                   | -   | -                     | -   |
|                 |                              |                                           |                     |     |                         |                     |     |                       |     |
|                 | Contact urticaria            | 3                                         | 3                   | 1   | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Folliculitis/acne            | 0                                         | 0                   | 0   | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Infective                    | 0                                         | 0                   | 0   | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Mechanical                   | 0                                         | 0                   | 0   | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Nail                         | 0                                         | 0                   | 0   | 0                       | 0                   | 0   | 1                     | 33  |
|                 | Neoplasia                    | 8                                         | 52                  | 24  | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Other                        | 0                                         | 0                   | 0   | 4                       | 15                  | 14  | 0                     | 0   |
|                 | Total diagnoses              | 96                                        | 217                 | -   | 17                      | 105                 | -   | 3                     | -   |
|                 | Total cases                  | 96                                        | 217                 | 100 | 17                      | 105                 | 100 | 3                     | 100 |
| MUSCULOSKELETAL | Hand/wrist/arm               | No case reports from clinical specialists |                     |     | 18                      | 84                  | 45  | 1                     | 17  |
|                 | Elbow                        |                                           |                     |     | 3                       | 3                   | 2   | 2                     | 33  |
|                 | Shoulder                     |                                           |                     |     | 2                       | 24                  | 13  | 2                     | 33  |
|                 | Neck/thoracic spine          |                                           |                     |     | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Lumbar spine/trunk           |                                           |                     |     | 6                       | 39                  | 21  | 1                     | 17  |
|                 | Hip/knee                     |                                           |                     |     | 2                       | 13                  | 7   | 0                     | 0   |
|                 | Ankle/foot                   |                                           |                     |     | 0                       | 0                   | 0   | 0                     | 0   |
|                 | Other                        |                                           |                     |     | 2                       | 24                  | 13  | 0                     | 0   |
|                 | Total diagnoses              |                                           |                     |     | 33                      | 187                 | -   | 6                     | -   |
|                 | Total cases                  |                                           |                     |     | 33                      | 187                 | 100 | 6                     | 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%

| 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 |                     |   | 25                      | 179                 | 48  | 1                     | 25  |
|                   | Post-traumatic stress disorder |                                           |                     |   | 2                       | 13                  | 3   | 0                     | 0   |
|                   | Other work-related stress      |                                           |                     |   | 39                      | 248                 | 66  | 3                     | 75  |
|                   | Alcohol or drug abuse          |                                           |                     |   | 1                       | 1                   | 1   | 0                     | 0   |
|                   | Psychotic episode              |                                           |                     |   | 0                       | 0                   | 0   | 0                     | 0   |
|                   | Other                          |                                           |                     |   | 3                       | 14                  | 4   | 0                     | 0   |
|                   | Total diagnoses                |                                           |                     |   | 70                      | 455                 | -   | 4                     | -   |
|                   | Total cases                    |                                           |                     |   | 58                      | 377                 | 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

In addition to the main diagnostic categories described in Table 1, OPs and GPs can report 'other' diagnoses of work-related ill-health (WRIH). This quarter, OPs reported two cases of noise induced hearing loss (NIHR) in food production workers, a case of TB in a nurse and a coke oven worker with 'heat illness'. GPs reported a case of tinnitus in a bus driver, otitis externa/painful ear in a call centre worker and a university worker with headaches attributed to computer use.

## QUARTERLY FEATURE

### WORK-RELATED ILL-HEALTH IN MUSICIANS

As you may be aware, the media (1) recently picked up on a study published in Thorax (2) describing the case of ‘bagpipe lung’. The patient was diagnosed with hypersensitivity pneumonia (HP) which unfortunately proved fatal. HP is a lung disease associated to an immunological response to an inhaled antigen. The source of exposure was initially unknown, however upon investigation it was found that the gentlemen played the bagpipes and practiced every day. In addition it was found that his symptoms had rapidly improved during a three month trip abroad when he had not taken his instrument with him. Samples were taken from his bagpipes which grew a number of fungi revealing the source of the problem. There have also been reports of HP attributed to other musical instruments such as trombones and saxophones.

As well as respiratory problems highlighted in the above case, it is reasonable to expect that musicians may suffer from other work-related ill-health, in particular audiological (3) and musculoskeletal problems (4). As such, we thought it may be of interest to search the THOR databases for reports of work-related conditions reported in musicians. All major THOR datasets were searched; SWORD (1989 to 2015), EPIDERM (1993 to 2015), OPRA (1996 to 2015) and THOR-GP (2006 to 2015). A search of THOR historical schemes was also included, MOSS (rheumatologists 1996 to 2009) and SOSMI (psychiatrists 1999 to 2015). The databases were searched using the job codes for musicians and singers.

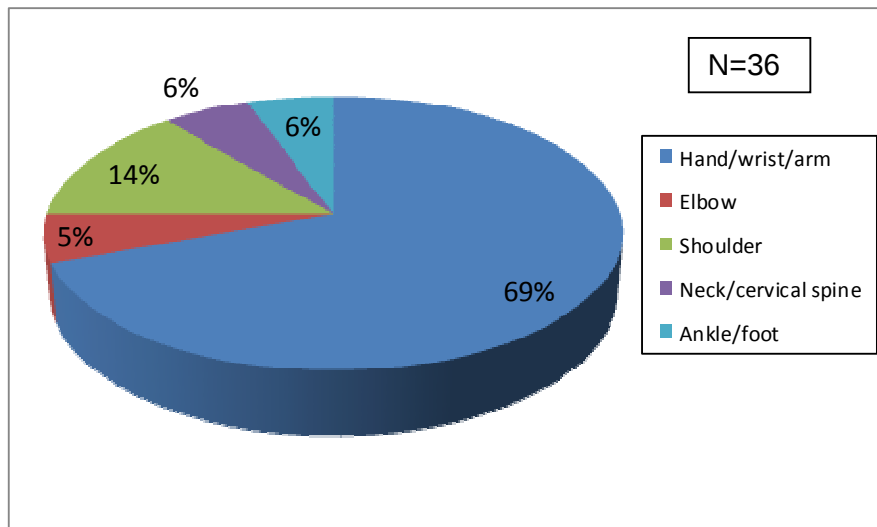
**Table 2. Cases of work-related ill-health in musicians/singers reported to THOR by major diagnostic category and reporter type.**

| Reporter/scheme                 | Musculo-skeletal | Mental ill-health | Skin      | Respiratory | Audiological | Other    | Total     |
|---------------------------------|------------------|-------------------|-----------|-------------|--------------|----------|-----------|
| <b>GPs (THOR-GP)</b>            | 10               | 0                 | 0         | 2           | 0            | 1        | 13        |
| <b>OPs (OPRA)</b>               | 8                | 2                 | 2         | 0           | 7            | 0        | 19        |
| <b>Chest physicians (SWORD)</b> |                  |                   |           | 0           |              |          | 0         |
| <b>Dermatologists (EPIDERM)</b> |                  |                   | 25        |             |              |          | 25        |
| <b>Rheumatologists (MOSS)</b>   | 18               |                   |           |             |              |          | 18        |
| <b>Psychiatrists (SOSMI)</b>    |                  | 1                 |           |             |              |          | 1         |
| <b>Total</b>                    | <b>36</b>        | <b>3</b>          | <b>27</b> | <b>2</b>    | <b>7</b>     | <b>1</b> | <b>76</b> |

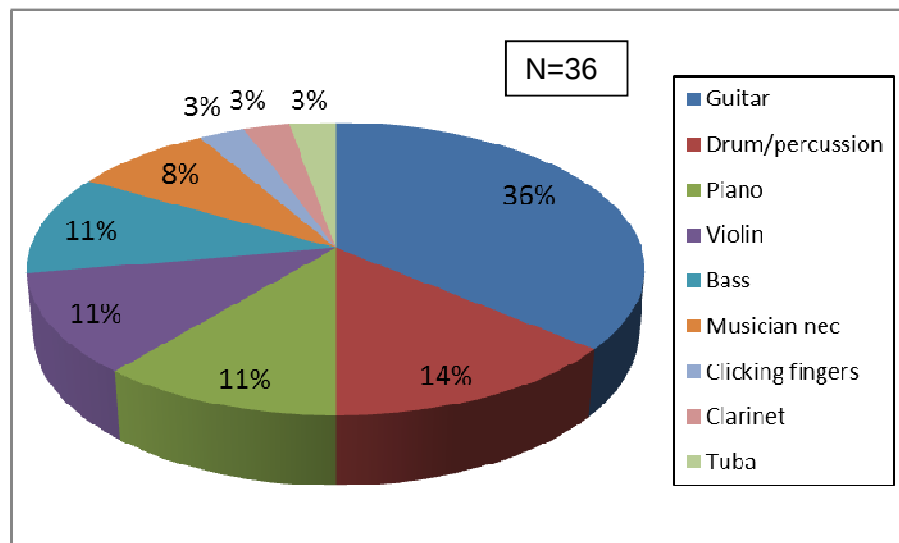
Table 2 shows the 76 cases of work-related ill-health that were found in musicians/singers. Musculoskeletal disorders (47%) were the most frequently reported, followed by skin disease (36%), most of which were reported by dermatologists. Perhaps the most surprising result was that in 26 years and from over 27,000 cases of respiratory disease, the chest physicians reporting to SWORD had not submitted a single case seen in these occupations. The cases from other physicians were reported as follows:

## Musculoskeletal disorders

The majority of cases were reported as disorders of the hand/wrist/arm (30 cases (69%)) (Figure 1). Problems were most frequently attributed to playing guitar and drums and other percussion instruments (Figure 2). Cases included back and shoulder pain in a military musician attributed to carrying a tuba, a singer who was diagnosed with lateral epicondylitis attributed to clicking their fingers in time with the music, and a double bass player with supraspinatus tendonitis through their work playing in an orchestra.



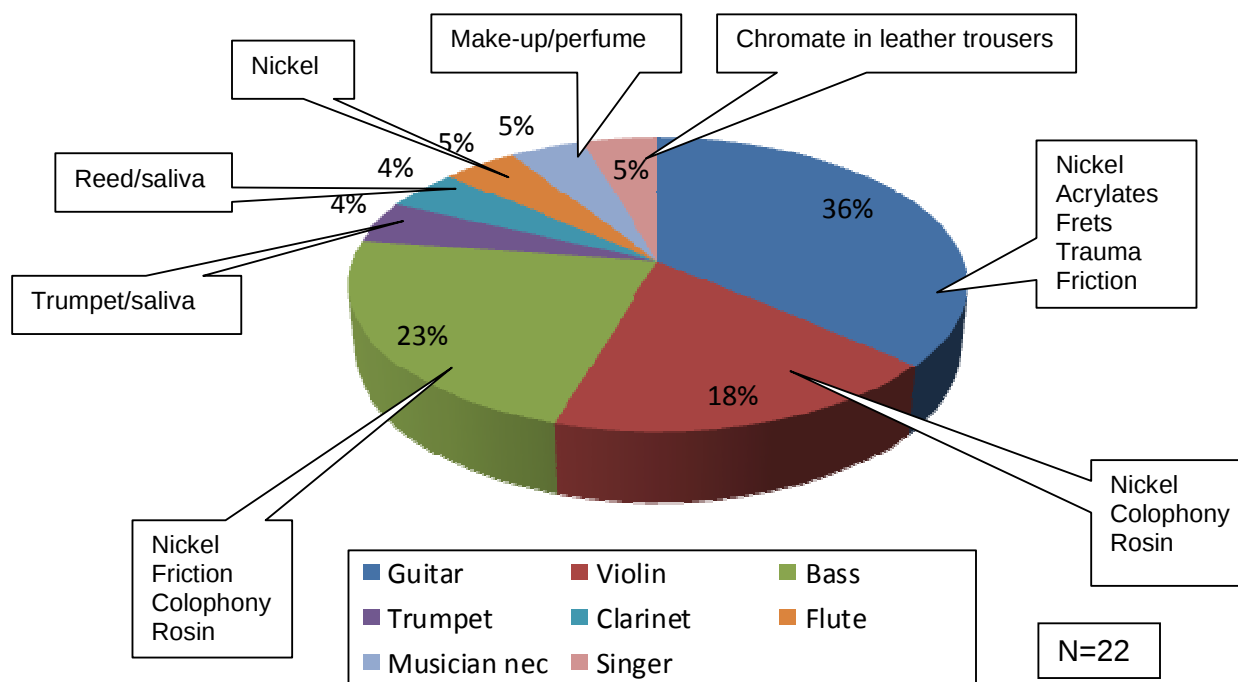
**Figure 1. Musculoskeletal disorders reported in musicians/singers reported to THOR by anatomical site**



**Figure 2. Musculoskeletal disorders reported in musicians/singers reported to THOR by instrument**

## Skin

Dermatologists and OPs reported 22 cases of contact dermatitis, 2 skin trauma cases, 2 cases of neoplasia and 1 case of facial skin ulcer. The 2 trauma cases were attributed to violin strings and a trumpet mouthpiece, the skin ulcer to irritation from a viola and the 2 neoplasia cases were reported in armed forces musicians. Figure 3 illustrates the instruments associated with the cases of contact dermatitis and the substance attributed to the diagnosis.



**Figure 3. Cases of contact dermatitis reported by dermatologists to EPIDERM by musical instrument and substance attributed to the diagnosis**

## Other cases

**Noise induced hearing loss** – 7 cases reported in musicians working within the armed forces, orchestras and operas.

**Mental ill-health** – 2 musicians (depression/stress) and 1 opera singer (psychotic episode) attributed to performance issues.

**Respiratory/throat** – a case of hiccough in a digeridoo player attributed to circular breathing and 2 cases of hoarse voice/sore throat in singers.

## References

1. 'Bagpipe lung' warning for wind musicians. BBC News. <http://www.bbc.co.uk/news/health-37152871>
2. King J et al. Bagpipe lung; a new type of interstitial lung disease? *Thorax* doi:10.1136/thoraxjnl-2016-208751
3. Jansen, E.J.M et al. Noise induced hearing loss and other hearing complaints among musicians of symphony orchestras *Int Arch Occup Environ Health* (2009) 82: 153.
4. Kok L M et al. The occurrence of musculoskeletal complaints among professional musicians: a systematic review *Int Arch Occup Environ Health* (2016) 89: 373.

## 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

Looking at the reports from occupational physicians this month I was struck by the number that were exposed to potential work related allergens but where the diagnosis was given as either irritant dermatitis or dermatitis but allergy wasn't mentioned. Four of 16 reported cases were exposed to epoxy or other sensitising resin based systems. In a dermatology clinic we have easier access to the patch test investigation whereas in an occupational setting, I suspect, a more pragmatic approach is often taken. None-the-less, UK guidelines (1) suggest that if there is no improvement in the dermatitis after 12 weeks of irritant avoidance, referral for investigation should be made. I know from personal experience that even if a referral is desired the willingness of the company to fund or a GP to refer on are barriers to prompt investigation. A requirement to refer may be of benefit in this respect.

The German system, where there is separate health insurance for occupational disease, highlights the differences in practice that can result as a consequence of the different frameworks within which we work. I was amazed 3 years ago to visit a German dermatology department where it is a routine to admit patients with severe occupational hand dermatitis for 2 weeks for a period of assessment, advice and treatment. This would be unthinkable in the UK. So what's the difference? In Germany, health insurers cover the costs (2) of the initial occupational illness and subsequent management as a result of inability to work. Cost benefit analysis has shown that the initial investment results in lower overall costs and a sustained improvement in the skin with 83% still in work after enrolment in the program (3).

Cases this quarter also highlight the importance of non-glove PPE in causing skin problems. In a 20-year-old builder, in-growing toe nails were attributed to prolonged wearing of safety boots. A young nurse was also found to be allergic to disperse blue textile dyes present in her uniform. This emphasises that whilst most occupational disease affects the hands other body sites can be affected and an occupational cause shouldn't be excluded when a less typical site is involved. Affecting the face, an army cadet developed an irritant dermatitis from his camouflage paint. A red face something to be avoided when trying not to get shot at!

**Dr Mark Wilkinson**  
**Leeds General Infirmary**

## References

1. Adisesh A, Robinson E, Nicholson P et al. UK Standards of Care for Occupational Contact Dermatitis and Occupational Urticaria. Br J Dermatol 2013; 168: 1167-1175
2. Diepgen TL, Scheidt R, Weisshaar E et al. Cost of illness from occupational hand eczema in Germany. Contact Dermatitis. 2013; 69: 99-106.
3. Brans R, Skudlik C, Weisshaar E et al. Multicentre cohort study 'Rehabilitation of Occupational Skin Diseases - Optimization and Quality Assurance of Inpatient Management (ROQ)': results from a 3-year follow-up. Contact Dermatitis. 2016 Jun 29. doi: 10.1111/cod.12614

## THOR NEWS

### LANE LECTURE

For several years the Centre for Occupational and Environmental Health has organised an annual lecture in memory of the first Professor of Occupational Medicine of this University – Ronald Lane. The University has the distinction of having the oldest extant chair in Occupational Medicine dating back to 1945.

On Tuesday 18<sup>th</sup> October 2016 we are holding our annual showcase event, the Lane Symposium, which will be held at The Chancellors Conference Centre. **This is a public lecture to which all are invited.** This year's Lane Lecture will be presented by Professor David Fishwick, Chief Medical Officer and Co-Director of the Centre for Workplace Health, at the Health & Safety Laboratory (HSL) entitled 'The lungs at work: from cotton mills to composites?'.  
<http://www.population-health.manchester.ac.uk/epidemiology/COEH/aboutus/lectures/>

### THOR PUBLICATION

A paper based on THOR-GP data has recently been published (on-line ahead of paper-based publication). The article "Reporting and prediction of work-related sickness absence by general practitioners" examines sickness absence data reported prospectively at the time the case details are submitted, and compared this to data collected on the same case, one year retrospectively. The paper discusses how well GPs are able to predict the length of absence and also the accuracy of the prospectively collected absence data

L Hussey, K Thorley, R Agius. Reporting and prediction of work-related sickness absence by general practitioners. Occupational Medicine 2016

<http://occmed.oxfordjournals.org/content/early/2016/08/10/occmed.kqw108.full?keytype=ref&ijkey=Ko8v3zE3oDS9jY4>

## 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**

| <b>SCHEME</b>            | <b>email</b>                                                                                 | <b>Phone</b>  |
|--------------------------|----------------------------------------------------------------------------------------------|---------------|
| <b>EPIDERM</b>           | <a href="mailto:Christina.O'Connor@manchester.ac.uk">Christina.O'Connor@manchester.ac.uk</a> | 0161 275 7103 |
| <b>SWORD</b>             | <a href="mailto:Christina.O'Connor@manchester.ac.uk">Christina.O'Connor@manchester.ac.uk</a> | 0161 275 7103 |
| <b>OPRA</b>              | <a href="mailto:Susan.taylor@manchester.ac.uk">Susan.taylor@manchester.ac.uk</a>             | 0161 275 5531 |
| <b>THOR-GP</b>           | <a href="mailto:Susan.taylor@manchester.ac.uk">Susan.taylor@manchester.ac.uk</a>             | 0161 275 5531 |
|                          | <a href="mailto:Louise.hussey@manchester.ac.uk">Louise.hussey@manchester.ac.uk</a>           | 0161 275 8492 |
| <b>DATA REQUESTS</b>     | <a href="mailto:Melanie.carder@manchester.ac.uk">Melanie.carder@manchester.ac.uk</a>         | 0161 275 5636 |
| <b>GENERAL ENQUIRIES</b> | <a href="mailto:Annemarie.money@manchester.ac.uk">Annemarie.money@manchester.ac.uk</a>       | 0161 275 8491 |