Policy and Practice

Occupational health issues experienced by UK embryologists: informing improvements in clinical reproductive science practice

Helen Priddle[a], Sarah Pickup[b] and Catherine Hayes[c,d] on behalf of the Association of Reproductive and Clinical Scientists (ARCS).

[a]London Women's Clinic Wales, Cardiff, UK; [b]School of Psychology, University of Sunderland, Sunderland, UK; [c]School of Nursing and Health Sciences, University of Sunderland, Sunderland, UK. [d]Visiting Professor, University of Cumbria, UK.

CONTACT: Helen Priddle, London Women's Clinic Wales, 15 Windsor Place, Cardiff, CF10 3BY; Telephone: 02920 236301; Email: helen.priddle@londonwomensclinic.com

ABSTRACT

A consultation exercise was undertaken with UK embryologists to construct knowledge of the occupational health issues they experience in everyday practice. Data were obtained from 223 eligible survey responses. Work-related ill health was self-reported by 58.3% of respondents, 76.2% of whom reported multiple issues. The most frequently disclosed ill-health conditions were musculoskeletal disorders (45.3%) and stress and mental health problems (27.8%). Other issues with an incidence above 3% were ocular and auditory problems and needlestick and liquid nitrogen injuries. Shoulder injury or pain correspondingly increased in incidence with length of time in service. Absence from work and/or light duties were necessitated for 34.5% of those affected. Assessment of the evidence base for these work-related ill-health conditions explored contributory and ameliorating factors, which enabled a series of evidence-based recommendations to be formulated via the adoption of a GRADE-based framework.

KEYWORDS: healthcare science, occupational health, embryologists, reproductive scientists, qualitative survey, workplace stress, musculoskeletal disorders, in vitro fertilisation (IVF).

Introduction

Annual Health and Safety Executive (HSE) statistics for the United Kingdom (HSE, 2019) revealed 1.4 million workers suffering from work-related ill-health, the most commonly reported issues being stress, depression and anxiety and musculoskeletal disorders (MSDs). Overall, work-related ill-health in the UK led to 23.5 million working days lost in 2019, costing fifteen billion pounds. Moreover, health and social work professions have significantly higher rates of work-related ill health than most other industries.

Regulators, professional bodies, employers and employees have a shared responsibility to safeguard the wellbeing of the workforce. In this Policy and Practice paper, the Association of Reproductive and Clinical Scientists (ARCS) aims to assess the prevailing occupational risks for reproductive scientists and propose the best practice to mitigate them. This involved a workforce occupational health consultation, a review of the evidence base and legislation regarding commonly reported issues and a series of recommendations.

Materials and methods

In January 2018, the membership of the Association of Clinical Embryologists (ACE) (which was incorporated into ARCS in January 2020 (see Kasraie et al., 2020)) was consulted about their experiences of occupational health issues. An anonymous, online survey (see Supplementary Material) was emailed to all 405 ACE members, and data were collated from the responses received. To preserve the anonymity of respondents, infrequent health events were recorded as broad categories.

For each occupational health issue recorded, the published evidence base for work-related factors was explored using searches of PubMed and APA PsychNet.

Information, guidance and requirements from relevant UK bodies were also collated. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) system (Guyatt et al., 2008) was adapted for use in this context (summarised in Table 1). Since the use of any grading system is inherently subjective, this paper was distributed to the ARCS Executive Committee for critique prior to final drafting and manuscript submission.

Results

A total of 252 survey responses were received (response rate 62.2%). Only respondents who worked/trained as embryologists were eligible for inclusion and incomplete responses were excluded (see Figure 1). Although data was collated from a cohort of embryologists, it is generalisable to all clinical reproductive scientists since modern IVF laboratories also include andrologists, practitioners and/or technicians sharing the caseload. The 223 eligible responses were employed in 80 different Human Fertilisation and Embryology Authority (HFEA) licensed treatment centres in the UK. In addition, 6 responses were obtained from embryologists working outside the UK. Over half of the respondents (56%) had over 10 years of experience (see Table 2).

A total of 58.3% of respondents reported that they had experienced work-related ill-health. Given nine ill-health categories and free text for other issues, 76.2% reported having suffered more than one issue and 14.6% listed additional issues (see Table 3). The incidence of ill-health was reported (Table 3, Figure 2) and a Friedman test comparing frequency across categories found a significant difference (X^2 (8) =214.428, $p<0.001$). Specifically, Dunn-Bonferroni post-hoc tests revealed higher frequencies of back pain/injury (<0.001), stress/mental health (<0.001), neck pain/injury (<0.001),) and shoulder pain/injury (<0.001) compared to other categories.

Of those with incidences of ill-health, 91.5% answered regarding the impact on their work; of these 34.5% required leave or light duties. Short-term absence (less than 1 month) was the most frequent amount of sick leave (16.8%). There were no significant associations between the ill-health categories identified and the length of time absent.

Since the majority of reproductive scientists experienced work-related ill-health, assessment and control of risks should become a priority. Moreover, this is required by the UK Health and Safety at Work etc Act (1974), HFEA Licence Conditions (HFEA, n.d.), HFEA Code of Practice (HFEA, 2019), Health and Care Professions Council (HCPC) Standards of Proficiency (HCPC, 2014), ACE Guidelines (Hughes, 2012) and ARCS Code of Professional Conduct (ARCS, 2019). This study permitted the evaluation of the evidence base and the proposal of key recommendations regarding the most prevalent occupational health issues identified (summarised in Table 4).

Musculoskeletal disorders (MSD)

The most commonly reported issue for respondents was back pain/injury (28.3%). Incidents of shoulder pain/injury and neck pain/injury were also high (27.8% and 25.6% respectively) and 29 respondents reported repetitive strain injuries (13%). Combined, MSDs were the most frequently reported (45.3% of respondents). High rates of MSDs were also identified in research with Spanish embryologists (López-Lería et al., 2014).

If workplace stressors were having a cumulative impact, a relationship between length of service and incidence of MSD would be anticipated. However, there were no associations between back pain/injury (X^2 (4) =8.110, p=0.088) and neck pain/injury (X^2 (4) =9,122, p=0.058) but there was a significant association between shoulder pain/injury and length of service (X^2 (4) =11.607, $p<0.05$). Post-hoc tests with Bonferroni adjustment found differences between 0-5 year (5.3%) compared to 5-10 (35.1%) and 15-20 years

(26.3%) of experience. Cramér's V (0.228) suggests a medium-sized effect.

Some professions have greater levels of work-related MSDs. Roles involving repetitive tasks, static postures, or working with raised arms or hands are particularly problematic (Hagberg & Wegman, 1987) and this can be influenced by psychosocial workplace factors (J.H. Andersen et al., 2007). The rate of work-related MSDs in surgeons (42%) is high (Grant et al., 2020). Occupational risks which cannot be eliminated may be partially mitigated by physical or psychological exercises (Jay et al., 2015) or periodic mini-breaks for stretching (Park et al., 2017).

Studies of professions in related settings also identify specific risks for reproductive scientists. Pipetting is associated with work-related upper limb disorders (WRULD; David & Buckle, 1997). Prolonged microscope use contributes to MSD in over 85% of cytotechnologists (Thomson et al., 2003). A study of laboratory technologists showed neck/shoulder problems in approaching 70% of participants (Jay et al., 2015).

Recommendations

Since MSDs are a significantly frequent issue for embryologists, employers have a duty to proactively address risks, with reference to The Health and Safety (Display Screen Equipment) Regulations (1992), The Manual Handling Operations Regulations (1992) and The Provision and Use of Work Equipment Regulations (1998). The HSE produced an MSD Toolkit (HSE, n.d.-a) and guide regarding upper limb disorders (HSE, n.d.-b) which provides a particularly relevant risk assessment and control tool for implementation.

The procedures undertaken by reproductive scientists which should be assessed include manual handling of equipment and consumables, use of display screens (office-

or lab-based), and ergonomics associated with standard operating procedures. Where opportunity arises, design of new laboratories or equipment should consider user ergonomics (Colombini & Occhipinti, 2006). ACE guidance (Hughes, 2012) requires staff training in manual handling, and attention to be paid to user comfort (adjustable chairs, bench heights, microscope heights, air conditioning, temperature, humidity). Risks associated with microscopy and pipetting have been discussed but other risks exist, such as repeated musculoskeletal twisting and reaching, or prolonged maintenance of static postures. Workplace stress predisposes to the development of work-related MSDs (Devereux, et al., 1999) and should be addressed.

Stress and mental health problems

Over a quarter (27.8%) of respondents reported work-related stress/mental health problems. In a study with Spanish embryologists, López-Lería et al. (2014) demonstrated their poorer mental health compared to the general population, and 36.3% scored highly for a feature of burnout. Surgeons are acknowledged to be amongst the most stressed professionals, with a meta-analysis reporting burnout in up to 34% of American surgeons (Bartholomew et al., 2018). This phenomenon not only impacts the physician's wellbeing, but their quality of care (Panagioti et al., 2018). Since rates of burnout are similar in embryologists, we must be cognisant of an impact on professional effectiveness.

Our respondents' comments provided appreciation of some of the existing stressors. Working conditions can be claustrophobic, with limited or irregular breaks, limited exposure to daylight, and uncomfortable temperatures seasonally. Increased workload can result from understaffing, case overloading, or challenging case distribution. Procedures require a high level of focus and/or fine motor skills, maintained

for long periods. As avoiding light damage to embryos/gametes is important, many laboratories use reduced or filtered lighting. However, disruption of circadian rhythms can cause changes in mood (Walker et al., 2020) and reduced daylight causes seasonal affective disorder (Magnusson, 2000). Filtering out blue light also has this effect (Hu et al., 2020). Workplace stress additionally permeates family life exacerbating worker fatigue and depression (van Hooff et al., 2005).

Burnout is associated with emotional exhaustion, depersonalisation (cynicism towards/detachment from colleagues and patients) and reduced self-esteem. Promoting factors include a lack of positive feedback, a lack of autonomy, high job demands and a lack of support. Overly high ideals held by workers about their profession can also contribute (Aronsson et al., 2017; Maslach & Jackson, 1984). Workers cope using personal (self-esteem, optimism) or job (autonomy, advancement opportunities) resources (Hobfoll, 1989). When demands overwhelm resources, an employee can become disengaged (Demerouti et al., 2001). This can pervade the whole team, although a well-resourced individual's positive response is more influential (Chen et al., 2015). When workload is high, having some control over its management can help and may lead to an enriched sense of accomplishment (Fernet et al., 2004). In one study, young workers tended to use avoidance tactics to cope, whereas older workers actively problem solved, leading to better adaptation to workplace stress (Hertel at al., 2015). This suggests focused mentoring may be a beneficial intervention.

Recommendations

The employer has a legal obligation to address workplace stress (Health and Safety at Work etc Act, 1974; The Management of Health and Safety at Work Regulations, 1999) and State Registered Clinical Scientists must make adjustments if their health affects their

competence (HCPC, 2014). Since our data and that of López-Lería et al. (2014) shows stress/mental health problems are a significant issue for embryologists, employers should take a proactive approach. The World Health Organisation (WHO) has developed strategies involving awareness raising, risk assessment and control, and the treatment and phased workplace re-integration of affected individuals (WHO, 2005).

Raising awareness of workplace stress can be achieved during education and continued professional development of reproductive scientists. Additionally, treatment centres can raise multidisciplinary awareness, advocating a culture of interdisciplinary care. Validated, questionnaire-based assessment tools are available (HSE, n.d.-c; Maslach & Jackson, 1984) to objectively assess the workplace for stress 'hotspots'. Risks identified can inform a strategy of workplace change, compensated by increased productivity (HSE n.d.-d).

Quality Management Systems can be modernised to ensure balanced feedback (including praise), and that non-conformance reporting systems result in improvements without disproportionately punitive measures. Working conditions should be examined, providing adequate rest facilities and a comfortable working environment, including access to daylight (HFEA, 2019; Hughes, 2012).

Workloads should be addressed through attention to staffing levels and/or cycle numbers, as required by HFEA Licence Condition T12 (HFEA, n.d.), and professional guidelines (Alikani et al., 2014; Hughes, 2012). Registered Clinical Scientists are required to "manage their own workload and resources effectively" (HCPC, 2014). Concerns about workload can be reported to line managers, the Person Responsible for the centre; or ultimately to the HFEA.

To facilitate the necessary level of focus, work-pace is another important consideration. To protect concentration, multitasking should be minimised, disturbances

limited (HFEA, 2019), and regular breaks scheduled. A good work-pace for a given workload can be achieved when reproductive scientists are included in theatre list planning. This inclusion also mitigates burnout by affording reproductive scientists autonomy over their workplace contributions.

Support and mentoring should be available to those personnel identified as vulnerable during workplace stress risk assessment. In house occupational health or counselling services, or a designated Employee Assistance Program should be available, or leave for appointments offsite. If an employee experiences a mental health condition, they should be encouraged to access primary care intervention. If they become absent from work, or undertake reduced duties, their phased re-integration to the workplace should be managed gradually, with additional support to re-establish competency.

Ocular problems

Ocular issues were reported by 27 respondents (12.1%). This included dry eye, changes in visual acuity, uveitis (inflammation of the uvea) and eye fatigue. Contributing factors reported were dim lighting, prolonged near-work and/or microscope work and air conditioning.

The use of Display Screen Equipment (DSE) is associated with eye fatigue but evidence to date suggests it does not impact visual acuity (Larese Filon et al., 2019). Dry eye and eye fatigue are experienced by microscope workers in clean room facilities (Lin et al., 2019). Uveitis is not generally associated with occupational hazards other than traumatic eye injury, although since the aetiology of this condition is not fully understood, occupational factors cannot be ruled out (Choi et al., 2019). Myopia (short-sightedness) is linked with near-work (Ciuffreda & Vasudevan, 2008). Presbyopia (long-sightedness)

is viewed as a problem of age rather than environment (Gilmartin, 1995), and it is possible that pre-existing conditions may become obvious during near-work.

Recommendations

Evidence suggests that eye problems can be minimised by improved lighting (Hua et al., 2015) and allowing breaks in microscope or near-work (Lin et al., 2019). Breaks allow a change in environment and for the eyes to adjust to distant focus (Wu et al., 2013). Employers should note The Health and Safety (DSE) Regulations (1992) and offer regular sight tests to users and employees experiencing the onset of visual difficulties.

Auditory problems

Eight survey respondents reported auditory problems (3.6%) and most attributed this to noise from flow hoods. In the UK working population 2% experienced tinnitus and/or hearing loss. The incidence was greater with age and exposure to high levels of noise (Palmer et al., 2002). Studies demonstrate noise-induced hearing loss (NIHL) in industrial settings (Pelegrin et al., 2015), but limited research explores comparable environments. One study in obstetrics (Fredriksson et al., 2015) found noise levels were high and associated with tinnitus and auditory fatigue symptoms.

In addition to NIHL and tinnitus, noise can have an impact on workplace stress since noise levels and stress are linked (Thach et al., 2020). There will be individual variability in thresholds of comfort, particularly for those reproductive scientists who are neurodivergent (Khalfa et al., 2004).

Recommendations

The Control of Noise at Work Regulations (2005) requires hearing protection if average

noise exposure reaches 80dB, or if noise level peaks reach 135dB. Hearing protection (ear plugs or muffs) may help prevent NIHL, when used effectively (Tikka et al., 2020) but should follow risk assessment of reduced hearing in the laboratory. Where possible, consideration of noise should be made in equipment and laboratory design. Centres should ideally measure noise levels, and honour requests for ear protection, especially given noise is a contributor to workplace stress, and comfort thresholds are subjective.

Problems arising from needlestick injury (NSI)

NSI was problematic for 3.1% of respondents. In a meta-analysis of healthcare workers (Cooke & Stephens, 2017), 14.9%-64.9% were affected. NSI can transmit blood borne viruses and can be associated with anxiety and depression. Limited research into NSI outside a medical setting shows laboratory staff are vulnerable (Al-Abhar et al., 2020; De Carli et al., 2014). Risks associated with NSI are reduced by using safety devices, improving procedures and reducing workplace stress (Cooke & Stephens, 2017).

Recommendations

Whilst rates of NSI for reproductive scientists are low, it is still a priority to minimise risk due to the potential for transmission of infection. Where possible, safer alternatives should be used and all essential uses of glass pipettes/micropipettes, hypodermic syringes or scalpels/blades risk assessed. There must be adequate disposal facilities. Work-pace should be managed and distractions minimised to allow due care and attention during all procedures.

Under The Health and Safety (Sharp Instruments in Healthcare) Regulations (2013), clinics have an obligation to provide training and safety equipment and to only use a sharp where there is no alternative. Employees must report NSI to their employer,

who must document and investigate the incident; and where relevant offer medical advice, prophylaxis and counselling. The Control of Substances Hazardous to Health Regulations (2002) dictate that employers should offer vaccination where a vaccine exists and there is risk of occupational exposure to the corresponding biological agent. HCPC registered Clinical Scientists are obliged to be aware of immunisation requirements (HCPC, 2014).

Injury associated with liquid nitrogen

Liquid nitrogen is a serious hazard and has caused death by asphyxiation of workers whilst decanting (Kim & Lee, 2008) or transporting (Lo Faro et al., 2019). It can also cause serious cryo-trauma leading to amputations (Leu & Clodius, 1989).

Frostbite, dry/sore skin and loss of fingertip were reported by respondents, with 3.1% affected by incidents related to the use of liquid nitrogen. These involved direct exposure, touching cooled items, or exploding cryodevices.

Recommendations

UK legislation requires the risks associated with the use of liquid nitrogen are assessed and controlled (The Control of Substances Hazardous to Health Regulations, 2002) and that suitable Personal Protective Equipment (PPE) is provided, maintained and used (The Personal Protective Equipment at Work Regulations, 1992). Detailed recommendations were given by ACE (Hughes, 2012) stating that a separate, well ventilated, secure cryo-facility is required, with safe delivery of liquid nitrogen and a low oxygen detection system. The recommendations also reinforce the importance of training and PPE.

Study Limitations

Occupational health data was obtained by a cross-sectional survey sent to all ACE members (most UK embryologists), effectively reducing selection bias. Non-response bias was anticipated since individuals with occupational health issues were potentially more likely to reply. Information bias may have occurred since self-reporting of conditions is used rather than formal clinical diagnosis.

Conclusions

Our survey demonstrated that a number of occupational health issues were experienced by UK embryologists. The most acute hazards faced are NSI and exposure to liquid nitrogen, both with potentially fatal consequences. It is reassuring that the current culture of risk assessment and management has limited the incidence of these issues to approximately 3% respectively.

Most frequently encountered issues were MSD and stress/mental health problems, which consolidates evidence from a study of Spanish embryologists (López-Lería et al., 2014). Our data shows an association between length of time in service and the incidence of shoulder pain/injury. Cross-sectional surveys are not adequate to establish causal links, but this association warrants further investigation, especially as WRULD are linked to musculoskeletal activities performed by embryologists and the most affected group (5-10 years' experience) include those likely to spend the greatest time in the laboratory. A less obvious relationship exists for workplace stress in the development of MSDs, whether due to added tension in the musculoskeletal system or other factors coincident with stress.

Work related stress not only impacts the reproductive scientist but has the potential to affect their clinical effectiveness. It is important to proactively address potential causes, using validated tools to assess stress in the workplace and consider ways to ameliorate locally prevalent factors. In this study repeated themes exist of workplace

stress, irregular breaks, and lack of control of workflow. Enabling reproductive scientists to have meaningful input into the daily schedule would allow a manageable work-pace which facilitates regular pauses. There is evidence this would reduce not only stress and mental health problems, but also the development of MSDs, eye problems, and the risk of error whilst handling sharps.

It should always be remembered that the reproductive scientist bears the weight of the viability of the potential child, the hopes and investment of the potential parent, and the reputation of themselves and the clinic, with the knowledge that a micron or a moment in the wrong direction can spell disaster. They should be afforded the working culture and environment to allow them to fulfil this responsibility with due care, whilst safeguarding their health and wellbeing.

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Disclosure of Interest

The authors report no conflict of interest.

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Table 1. Summary of the adapted GRADE system (adapted from Guyatt et al., 2008).

<table>
<tr><th colspan="2">Grading Quality of Evidence</th><th>Evaluating Strength of Recommendations</th></tr>
<tr><td>High</td><td>More data is unlikely to strengthen confidence in findings</td><td rowspan="2">Strong Recommendations are based on:

• high quality evidence
• good balance of benefit verses adverse effect
• good balance of benefit verses resource use</td></tr>
<tr><td>Moderate</td><td>More data may increase the confidence in the findings, and may lead to a re-evaluation of them</td></tr>
<tr><td>Low</td><td>More data is likely to significantly adjust the findings, or confidence in them</td><td rowspan="2">Weak Recommendations are based on:

• low quality evidence
• poor balance of benefit verses adverse effect
• poor balance of benefit verses resource use</td></tr>
<tr><td>Very Low</td><td>Validity of findings is uncertain</td></tr>
</table>

Table 2. Respondents in ACE Occupational Health Survey

	Number	**Percentage**
Survey invitations sent	405	100%
Survey responses	252	62.2%
Complete survey responses	223	55.1%
Respondents that were embryologists	223	100%
UK licenced centres represented	≥ 80	n/a
0-5 years' experience	40	17.9%
5-10 years' experience	58	26.0%
10-15 years' experience	36	16.1%
15-20 years' experience	43	19.3%
More than 20 years' experience	46	20.6%

Table 3. Summary of all ill health conditions self-reported by respondents.

Issue described	Frequency	Percentage of respondents
Back pain/injury	63	28.3%
Stress/mental health problems	62	27.8%
Shoulder pain/injury	62	27.8%
Neck pain/injury	57	25.6%
Repetitive strain injury (RSI)	29	13.0%
Eyesight problems	27	12.1%
Hearing problems	8	3.6%
Problems arising from needlestick injuries	7	3.1%
*Injury associated with liquid nitrogen	7	3.1%
Nerve Damage	6	2.7%
*Dermatitis	5	2.2%
*Headaches	3	1.3%
*Allergies	2	0.9%
*Vascular issues (varicose veins & a major life-threatening event)	2	0.9%
*Respiratory problems	1	0.4%
*Wrist/hand problems	1	0.4%
*Psychosomatic disturbance	1	0.4%
*Dry eyes	1	0.4%

* These conditions were self-reported in free text.

Table 4. Summary of Evidence and Recommendations

The quality of evidence and strength of recommendations for each occupational health issue are assessed according an adapted GRADE system (see Table 1).

Issue	Evidence	Strength	Recommendation	Strength
Musculoskeletal disorders	43.5% of respondents affected: most significant issue. Consistent with findings for Spanish embryologists. Increase in shoulder problems with increased length of service. Evidence that repetitive tasks, static postures, working with raised arms or hands and workplace stress play a role in WRMD.	High	**Proactive approach required.** Assess risks, considering those associated with ULD as well as Manual Handling and DSE associated risks. Use of HSE ULD tool advised (HSE, n.d.-b). Make changes to minimise risks if required. Provide training about the risks. Consider ergonomics in laboratories and equipment design.	**Strong.** Statutory obligations[1,2,3,4,5].
Stress and mental health problems	27.8% of respondents affected. Significant issue. Consistent with findings for Spanish embryologists. Evidence that high work demands, low work autonomy and low support play a role in work-related stress.	High	**Proactive approach required.** Raise awareness of workplace stress. Risk assess using appropriate assessment tools. Appropriate changes in work environment and/or processes if required. Support and mentor those at risk.	**Strong.** Statutory obligations[1,2].

			Treat and cautiously reintegrate those affected.	
Occular problems	12.1% of respondents affected. Evidence that near-work causes myopia, that microscopy in clean rooms can cause eye fatigue and dry eye.	High	Ensure adequate lighting. Ensure adequate breaks with opportunity to readjust focus to distant objects.	**Strong.** Statutory obligations[1,2,3].
Auditory problems	3.6% of respondents affected. Evidence that hearing loss can be induced by noise, and that noise contributes to workplace stress.	High	Measure noise in work environments. Average 80dB or peak 135dB are statutory thresholds for action. Provide hearing protection if necessary or requested.	**Strong.** Statutory obligations[1,2,6].
Needlestick injuries	3.1% of respondents affected. NSI are a route of transmission of blood born viruses and evidence shows the experience of a NSI can cause mental health problems.	High	Reduce use of sharps to a minimum. Minimise workplace stress. Provide training and information. Provide adequate disposal facilities.	**Strong.** Statutory obligations[1,2,7,8].
Liquid nitrogen associated injuries	3.1% of respondents affected. Evidence shows fatal asphyxiation and serious frostbite injury has occurred following workplace incidents.	High	Risk assess all activities and reduce/control risks. Provide training and PPE. Monitor oxygen levels and provide adequate ventilation.	**Strong.** Statutory obligations[1,2,7,9].

Relevant UK Acts and Statutory Instruments: [1]Health and Safety at Work Act (1974). [2]Management of Health and Safety at Work Regulations (1999). [3]The Health and Safety (Display Screen Equipment) Regulations (1992). [4]The Manual Handling Operations Regulations (1992). [5]The Provision and Use of Work

Equipment Regulations (1998). [6]The Control of Noise at Work Regulations (2005). [7]The Control of Substances Hazardous to Health Regulations (2002). [8]The Health and Safety (Sharp Instruments in Healthcare) Regulations (2013). [9]The Personal Protective Equipment at Work Regulations (1992).

Figure 1. Inclusion criteria for survey responses.

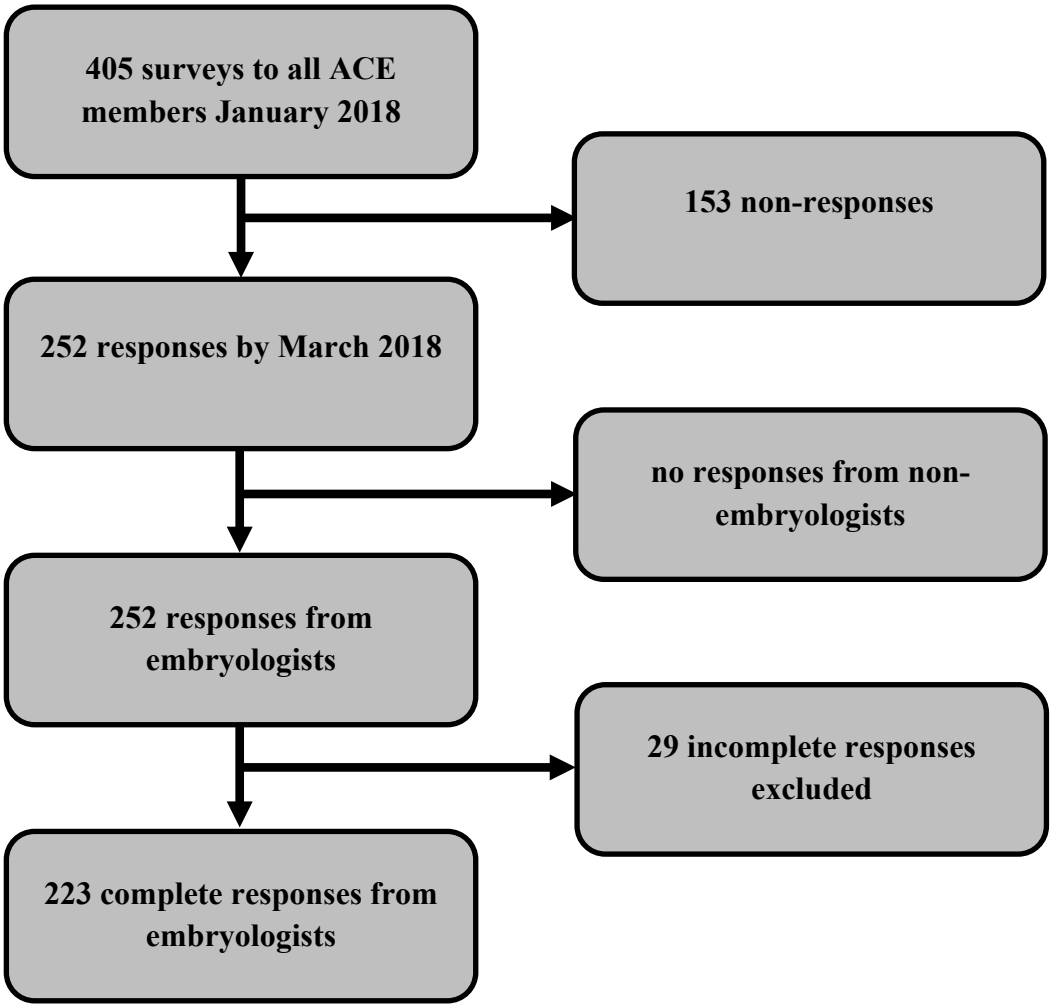

Figure 2. Percentage of respondents self-reporting each predefined category of ill health.