Health challenges in the offshore environment

Landing on an offshore oil and gas platform is an experience few will ever have but one for those who do, that they will never forget. Having typically been up since early morning and possibly after a long fixed wing flight or drive, the worker will sit (at least over cold waters such as the North Sea) in a survival suit, wearing hearing protection for anything up to 2 h before landing on a remote production or drilling platform. This offshore facility is a place of work, rest and recreation for ~20 000 people per day in the UK North Sea territorial waters [1].

The platform will house production, possibly drilling, power generation and utility modules and accommodation units all on one location to provide for all the needs of the on-board crew and the production needs of the operation. For ≥2 weeks the crew live, work and socialize with each other before returning to the ‘beach’ and their other life onshore with family and friends. It is a unique experience and for the occupational health professional charged with protecting and promoting the health of those employed in the sector, there are a number of interesting challenges.

Fitness for work and medical emergency response

Foremost among these is the question of fitness for work. For offshore workers, their fitness to work is unavoidably linked, and in some cases complicated, by where they work and not just the work that they do. Offshore platforms do not have dedicated on-board helicopters to evacuate medical emergencies although by either law or company policy, they are required to provide a specific level of medical care, facilities and equipment [2]. Nevertheless evacuation times can be up to ≥4 h even in the best of weather and in fog, air evacuation may be impossible for several days at a time. It is therefore in the individual worker’s interest that they are medically fit to live and work in this environment and that manageable and predictable medical conditions are planned for. The goal is to avoid those conditions that cannot realistically be dealt with, without placing other crew or operational assets, at unnecessary risk. A detailed review of fitness to work is beyond the scope of this review. The material produced by Oil and Gas UK [3] is written by experienced physicians in the sector and has evolved over a number of years to the balanced and comprehensive review that it is today. It is used worldwide by the industry, and while caution is required to ensure, it remains compatible with non-UK country laws and requirements, it is an excellent reference resource to which this review can add little.

In their review of Medical Emergency Response Ponsonby, Frano and Irons [4] describe the challenges of preparing and providing for routine and non-routine medical needs offshore. The basis for preparation for medical emergencies is a risk assessment that considers what might happen and how the location will respond. A tiered response is typical involving first aiders, the platform ‘medic’, beach-based telemedicine support and as a last option aeromedical evacuation. Night flying in helicopters is hazardous [5] and one of the guiding principles of fitness to work, safe working and on-board medical emergency response planning, is to avoid unplanned (night) flying wherever possible.

Managing health hazards in the oil and gas industry

Of course, the objective is not just to live offshore but also to complete the essential tasks that are required. Managing the working environment is reviewed by Niven and McLeod [6] and highlights the common issues. While these cover the usual spectrum of physical, chemical, biological and psychosocial hazards and ergonomics, it is perhaps the latter two that are worthy of special mention. Stress and musculoskeletal illness are commonly cited reasons for absence and risk factors in the workplace and merit special attention. In confined spaces for process modules, the layout and design of process units can make
access for maintenance and repair difficult if these issues are not addressed in design. Ross [7] reviews the psychological and social impact of shift work on the offshore worker who spends protracted periods away from family and friends and then protracted periods at home. Both bring different challenges—on the one hand separation and on the other reintegration on a regular basis to family life.

The future

The world economy is hydrocarbon based and is likely to be for many years to come despite the need to find additional and renewable resources. As some hydrocarbon basins, mature others will come on stream, typically in remote and difficult environments. Many people will continue to work in these increasingly challenging environments. The occupational health care professional must continue to lead the management of the issues that arise to protect and promote the health of the workforce.

References