HEALTH & SAFETY INSIGHT

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Offshore Energies UK

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Health & Safety Insight

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1 Introduction

The health and safety of all personnel remains the priority for everyone: this is why our members dedicate their time to OEUK work groups and initiatives that share lessons learned and good practice. This report also marks the first occasion that wind aviation data has been gathered. While only 2.5% of the total flying hours relate to wind operations, this recognises the integrated nature of the offshore energy industry.

Last year we were proud to report the safest year on record for the offshore workforce was 2022. An important milestone, but one that is hard to emulate. In 2023, an individual fell overboard from a drilling rig. We extend our condolences to families and friends who have been impacted by this tragedy. Following the incident the industry came together to review practices related to gratings.

In 2023 we began to see an increase in the development of technologies that help us gain safety insights from big data and this trend has continued into 2024.

Hydrocarbon releases numbers continue at a stubbornly high level having effectively plateaued in recent years. During this time a number of installations have been decommissioned therefore the corrected trend would be negative. There were no major releases reported, the highest risk category, however, there were a concerning number that resulted from aging assets. Asset integrity requires particular attention. In 2025 OEUK will launch a Principles of Process Safety Leadership Strategy which will highlight the work of the Asset Integrity Technical Group alongside that of the Operating Integrity Technical Group and Major Accident Hazard Technical Group. These three groups make a significant contribution to the management of major hazards across the industry.

The maintenance backlog improved significantly last year, a trend which has continued. OEUK has worked with members and stakeholders to deliver a strategic approach to backlog reduction. However, the hydrocarbon release (HCR) data show that companies still have work ahead of them in this area.

Personal injuries rose while the causes remain the same: slips, trips and falls, followed by lifting and handling. Occupational health is an area of focus from the regulator and the Occupational Health and Hygiene Technical Group continues to find ways to protect our workforce.

The OEUK medical is an international benchmark for offshore workers and is used in other sectors. In 2023 over 164,000 medicals were conducted or overseen by OEUK registered doctors. The workforce is prone to high blood pressure and diabetes and other ailments typical of the population demographic at large. While mental health poses challenges which appear to be growing more frequent.

There were a fifth fewer offshore helicopter flight hours year on year while the total man-hours spent offshore fell 5.5%. OEUK continues to take a central role in UK offshore aviation safety and compliance.

We hope you find this report interesting and informative, we are very grateful to our members for their valued contribution. Any queries should be directed to the OEUK HSE team, at: hseandoperations@OEUK.org.uk

2 Graphical overview

Health

Medevac

- There was a significant reduction in medevac flights from 337 to 253 carried out by the coastguard and industry search and rescue helicopter. Cardiac incidents remained the commonest reason for requesting medevac accounting for a quarter of the total. Mental distress acounted for 4% of all medevacs carried out up from 2%.

Medicals

- Over 164,000 medicals were carried out globally. A tenth of those were issued for a limited duration owing to underlying health conditions. High blood pressure accounted for 26% of those restrictions.

Obesity

- 28% of offshore medicals are failed for either diabetes or weight, with blood pressure the single biggest cause. Emergency medical evacuations are dominated by cardiac incidents which account for a quarter of all calls. These conditions are often associated with the chronic effects of obesity.

Safety

Process

- 2023 recorded an increase in the number of hydrocarbon releases but there were no major releases. The total number of all types of dangerous occurrences reported under RIDDOR leglisation was 174. This was one more than in 2022 that saw a historic low.
- Safety critical maintenance backlog was down 29% year on year.

Personal

- The tragic loss of a worker from an offshore installation marks the first fatality for seven years and is acutely felt by the industry.
- Personal injury rates increased again in 2023 which is a worrying trend. The causes of these injuries remain consistent with fractures, strain/ sprain and lacerations acounting for more than three in four of all reported injuries.

Aviation Safety

- UK helcopter aviation remains one of the safest in the world, with another year of accident free operations.
- Flying hours reported to OEUK by helicopter operators decreased by more than 20%.

3 Safety

Safety is a key focus for the offshore energy industry's social licence to operate. Consistently seen as the benchmark performance for industrial environments the UK offshore oil and gas industry represents global good practice. Given the hazardous nature of our worksites, and the challenging harsh environment of the North Sea and other locations, continued vigilance, and appetite for continued improvement is critical to successful safe operations.

Whilst all attempts are made to prevent incidents, offshore installations are superbly equipped to deal with offshore health and safety incidents, with trained medics and well-equipped sickbays, vital when weather conditions do not allow rapid evacuation. Our emergency response plans are regularly tested through exercise to develop familiarisation with the plan in the event of a serious incident.

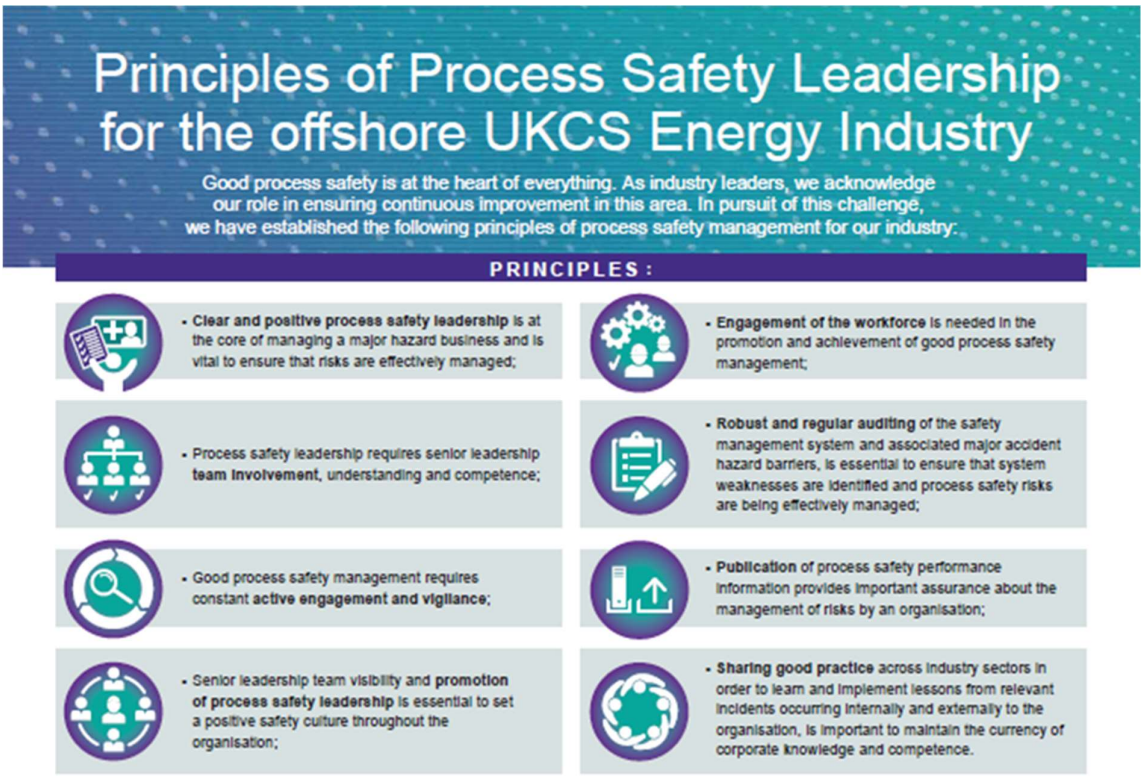
Transporting people to and from installations, whether for routine work or in response to emergencies, is predominantly done by helicopter. Managing the thousands of landing and take-off events from helidecks is an integral part of safe operations. These interfaces of management systems, equipment, and teams require a multidiscipline approach from across the operator and contractor community with competent individuals delivering a high-quality service.

The following sections outline the key performance indicators that combine to give an overview of the safety performance across the sector in 2023.

3.1 Process Safety

Hydrocarbon releases (HCR) present a significant process safety risk. But other categories of risks can also cause harm in a single event. These can include dropped objects, structural damage, or wells incidents. To manage all these events using the most robust principles, OEUK promotes the Process Safety Leadership Principles (PSLP) (*see Figure 1*). OEUK held PSLP workshops for sharing good practice and learning from others. OEUK also supports industry by publishing HCR data and gathering process safety performance. In 2025 OEUK will launch its Process Safety Strategy.

Figure 1: Principles of Process Safety Leadership information



3.1.1 Hydrocarbon releases

The Health & Safety Executive (HSE) collated data on HCR: events where hydrocarbons posed the primary risk, rather than a pipeline or a well, or a fire or explosion. Reports only identify the primary cause of the risk.

The HSE classifies HCR as minor; significant; or major. In some cases, a minor release may cause serious injuries to anyone in the immediate vicinity, if not a multiple casualty event; or it could lead to significant escalation. A significant release is one with the potential to cause serious injuries or even kill personnel within the vicinity and to escalate, for example, causing structural

damage. A major HCR has the potential, if ignited, to cause multiple casualties; or a rapid escalation affecting, for example, other modules, the temporary refuge, or escape routes.

There were 85 HCRs in 2023 (*see Figure 2*) with just 62 solely reportable to the HSE as required by the RIDDOR legislative categorisations (*see Figure 3*). These figures indicate that HCR numbers are plateauing. This is at a time where decommissioning of installations is occurring year on year, suggesting that there is an upward trend on production installations. There were no major hydrocarbon releases in 2023 (*see Figure 4*).

Figure 2: RIDDOR only HCRs (EU not included)

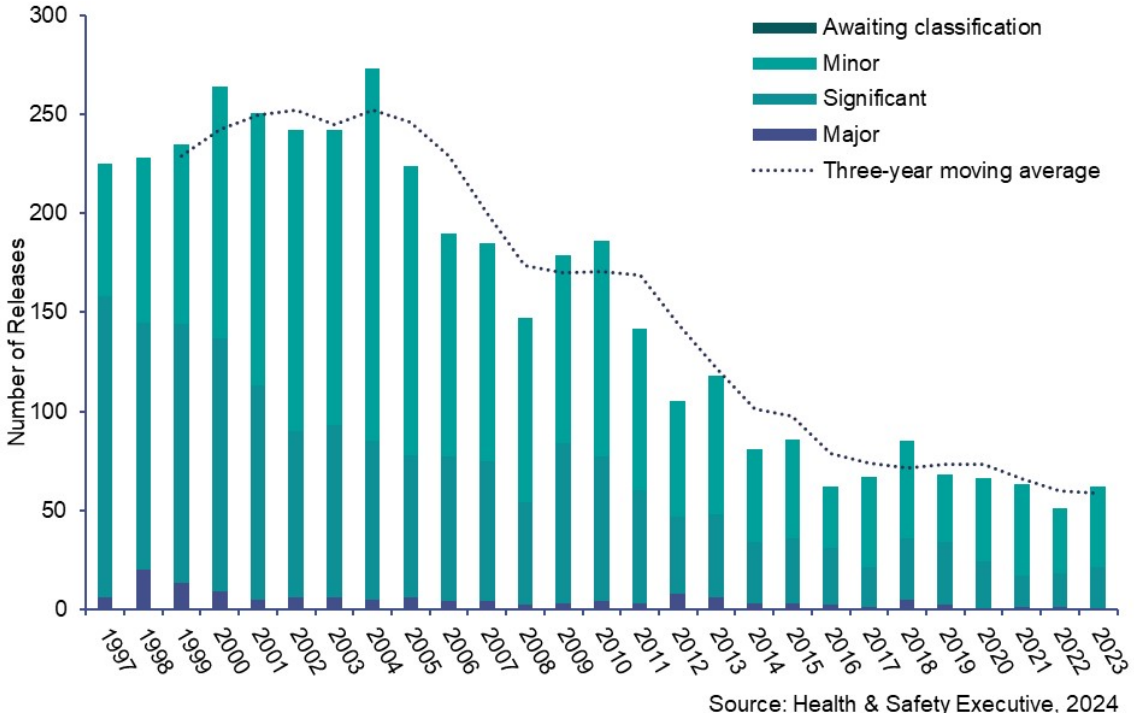
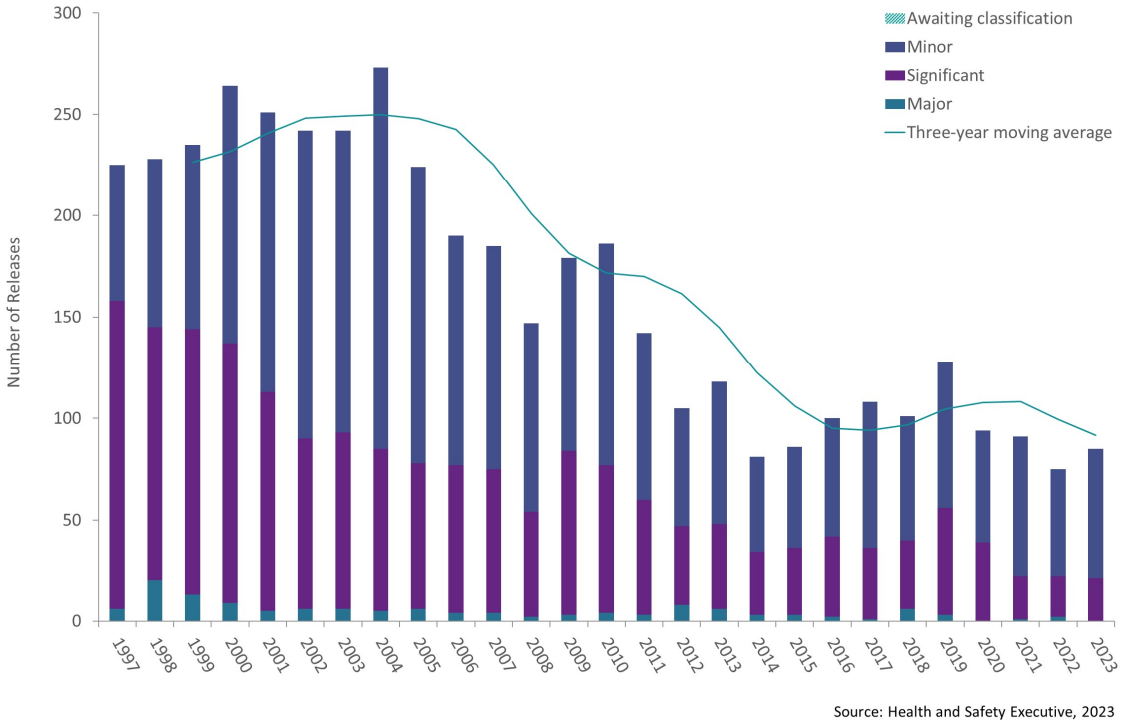
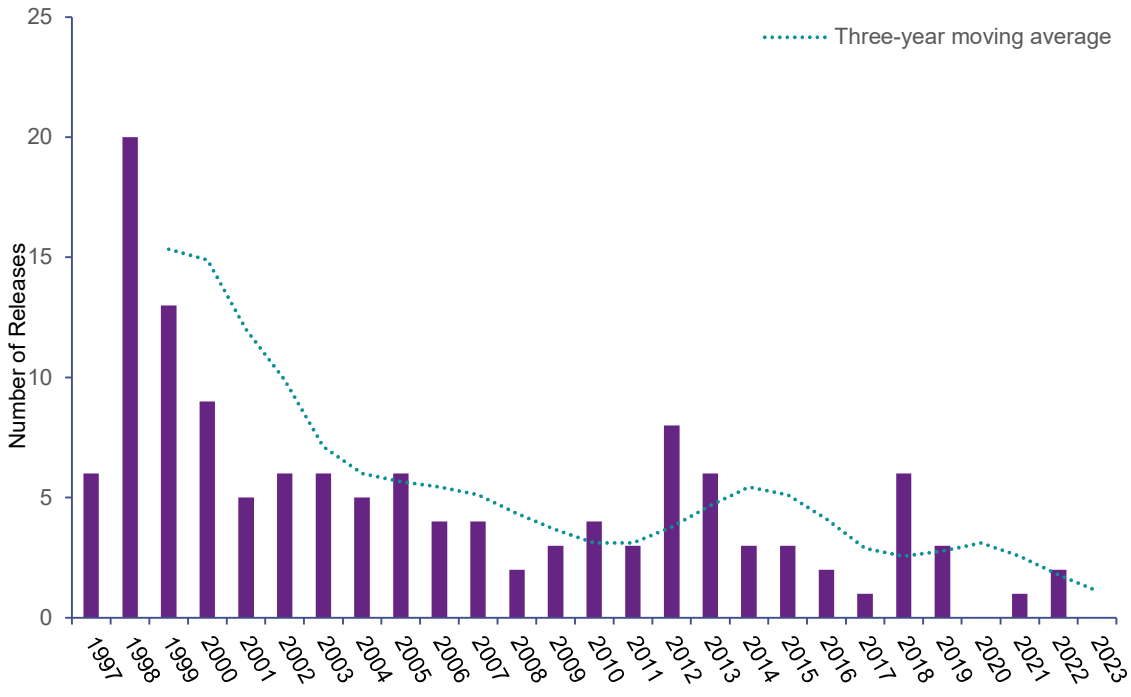


Figure 3: All HCRs (RIDDOR & EU)



Source: Health and Safety Executive, 2023

Figure 4: Major HCRs



Source: Health & Safety Executive, 2024

3.1.2 Other reportable Process Safety incidents

In 2023 there were 109 dangerous occurrences other than HCR (*see Figure 5*). After HCR, dropped objects; well-related incidents; and fires and explosions were the second largest category, accounting for 32%, consistent with recent years. These events can be viewed as precursor events to major hazards where a number of barriers prevented escalation. This shows the need for continued vigilance and a high level of barrier assurance to demonstrate on their availability. shows the need for continued vigilance and a high level of barrier assurance to demonstrate their availability.

Figure 5: Total number of Dangerous Occurrences

*Period of reporting changed from fiscal to calendar year

Source: Health & Safety Executive, 2024

3.1.3 Maintenance backlog as a Process Safety Indicator

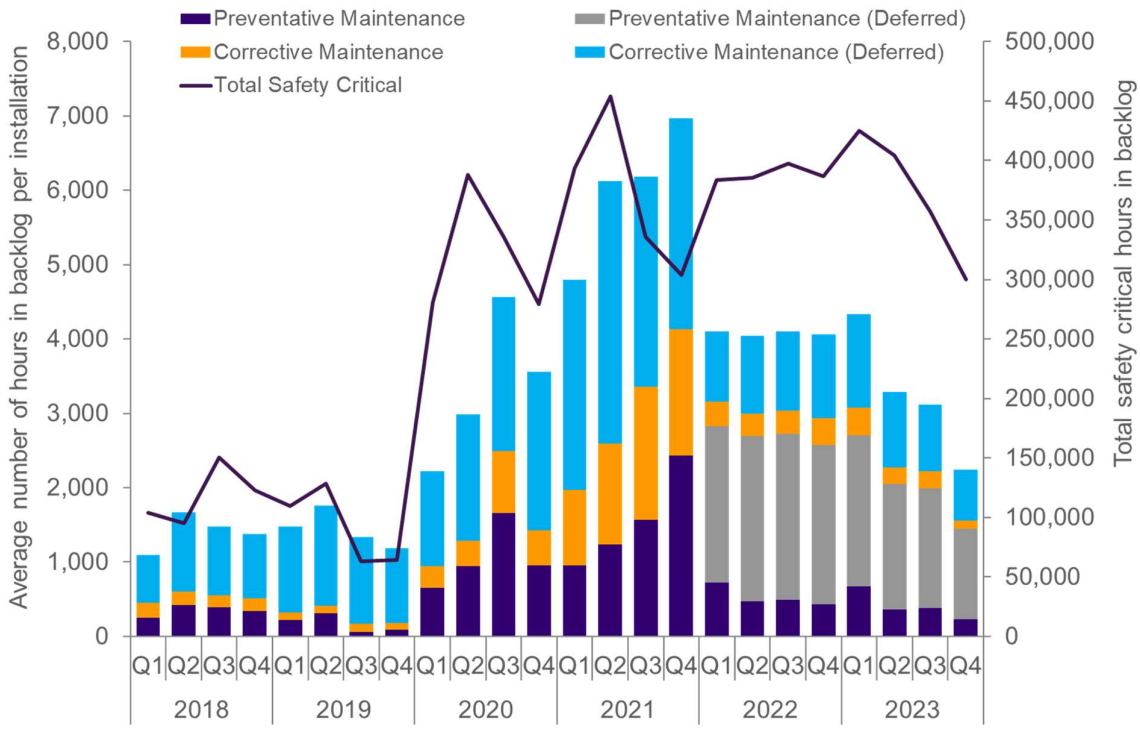
There are many process safety indicators (PSIs) measuring the health of the systems and barriers that protect people and plant on installations. Maintenance backlog is one metric.

Zero safety-critical maintenance would be a perfect scenario. But in practice there will be delays in executing maintenance tasks. Spare parts may not be available; or an appropriate process shutdown to safely execute the tasks might take time. These delays should be competently risk-assessed and in any case as short in duration as reasonably practical.

3.1.4 Total SECE backlog / installation plus total SECE backlog

In 2023 industry came together with OEUK and regulators to make significant inroads to the maintenance backlog. They produced a strategy document: *Principles of Process Safety Leadership – Maintenance Backlog Reduction*. This describes how OEUK interacts with industry to enable backlog reduction across the industry (*see Figure 6*). In addition to the displayed data, the total backlog reduced by 17% during 2023 and OEUK has kept its eye on the ball this year too, documenting good practice and monitoring performance. It is expected that sufficient progress will be made in 2024 to allow the withdrawal of the OEUK Maintenance Backlog Reduction Strategy.

Figure 6: Safety-critical backlog



Source: OEUK, 2024

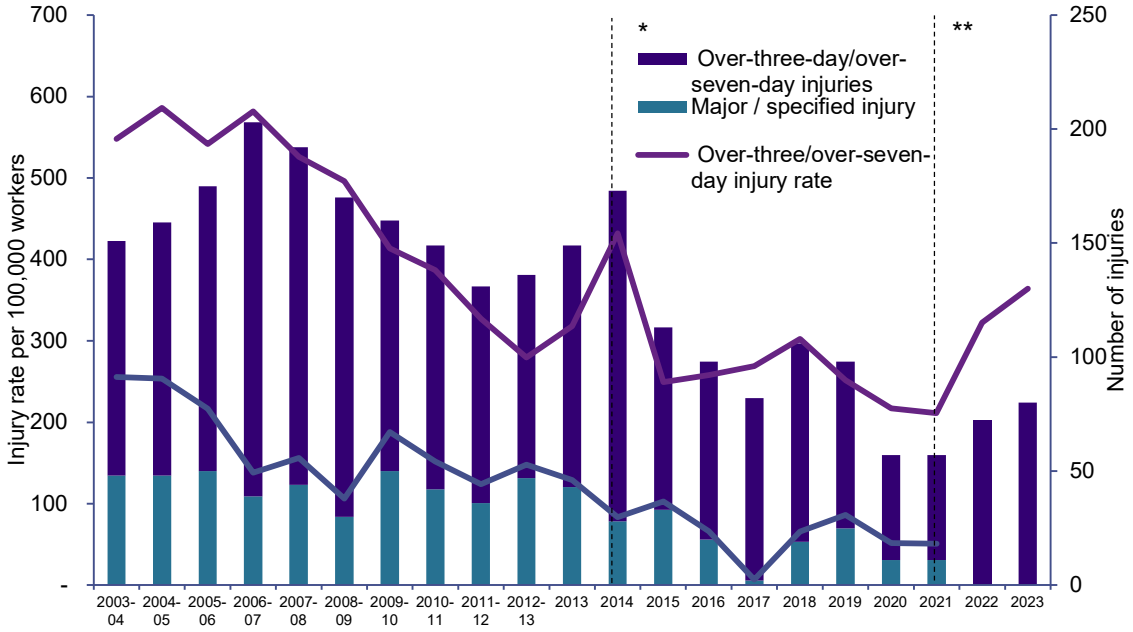
3.2 Personal safety

Injuries that must be reported under UK law fall into two categories: those that result in seven or more days off work; and specified injuries and fatalities. In 2022 the categories were combined into a single reported number by the HSE (*see Figure 7*). The number of reportable injuries increased in 2022 and again in 2023 and is a strong indication that continued attention to personal safety is required. Aviation statistics are reported separately within this report.

3.2.1 Reportable injuries and injury rate

RIDDOR-reported accidents peaked above 100 in 2018, then dropped in 2020 to 58. Since 2020 there has been a gradual creep upwards of accidents, with 80 serious injuries recorded in 2023. Bone fractures, strains/sprains and lacerations continue to account for the majority of accident outcomes with hands and fingers being the most commonly injured body parts (*see Figure 8*) with lifting and handling injuries the most common cause followed by slips, trips and falls (*see Figure 9*).

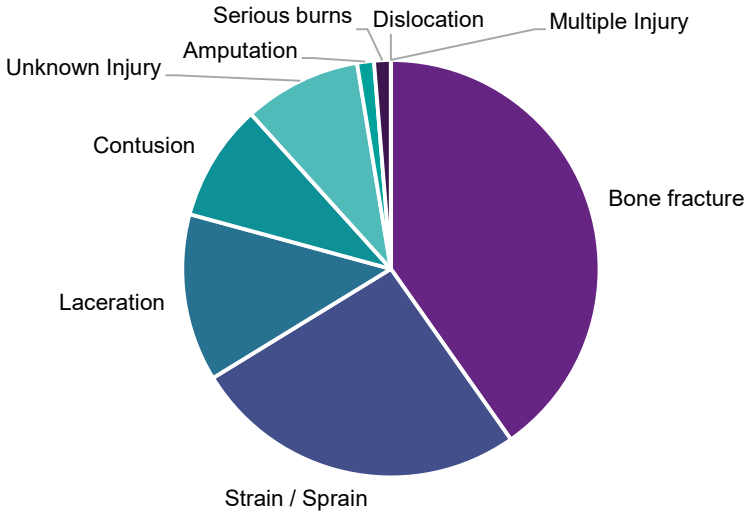
Figure 7: Injury numbers and rates by classification



*Period of reporting changed from fiscal to calendar year
**HSE grouping of major/specified and over-seven day injuries

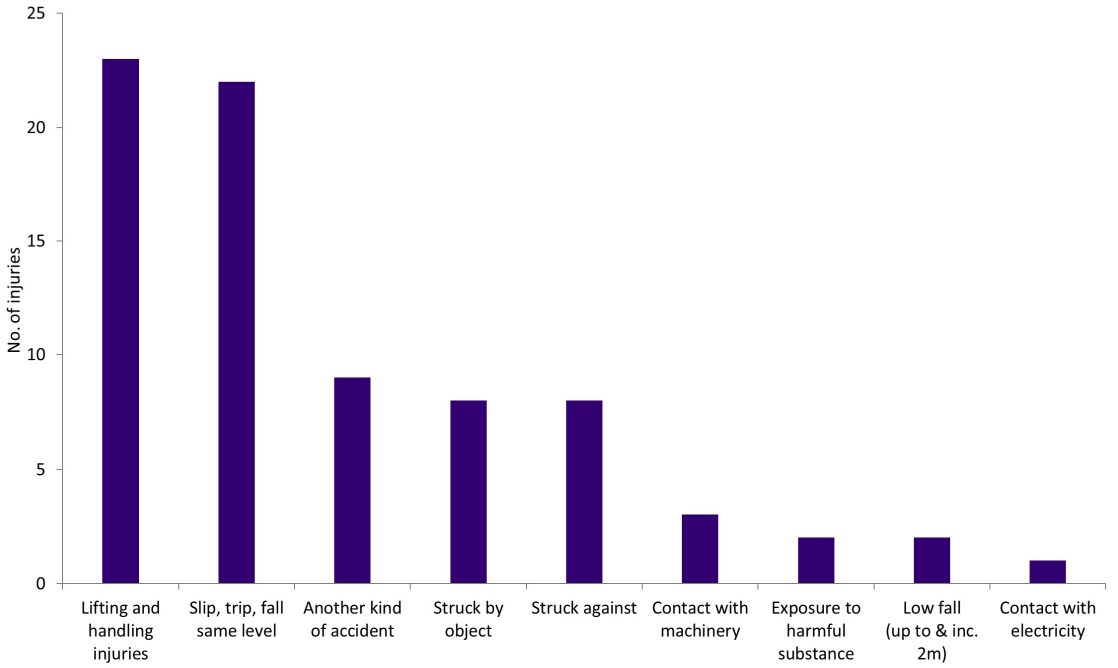
Source: Health & Safety Executive, 2024; Vantage POB

Figure 8: Reportable injuries by type



Source: Health and Safety Executive, 2024

Figure 9: Reportable injury causes



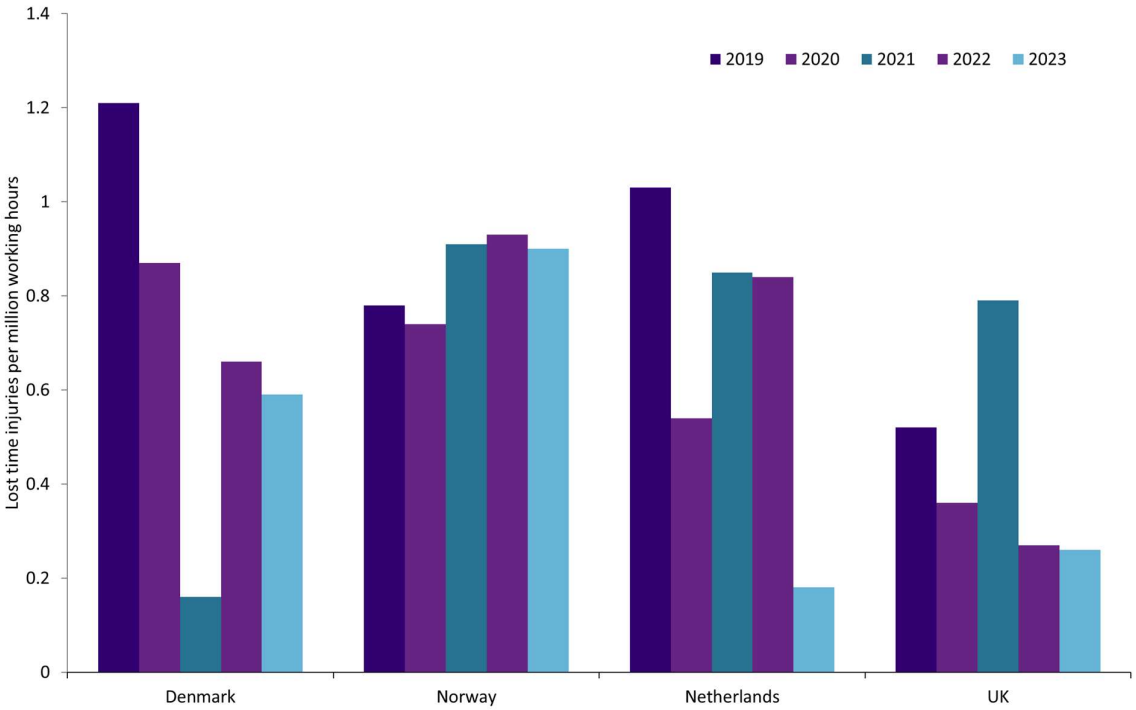
Source: Health & Safety Executive, 2024

3.2.2 Lost Time Injury frequency comparison

Lost Time Injury (LTI) is an industry standard definition used to benchmark performance across different countries and companies. It is designed to give companies an insight into injury trends and predict future performance. The UK offshore oil and gas industry's performance compares favourably with its peers in Europe (figure 10) based on data from the International Association of Oil and Gas Producers (IOGP). The UK maintained a low LTI frequency of 0.26 injuries per million working hours.

Sadly, industry suffered a fatality in 2023 when an individual fell from a drilling rig during a rig move. The industry has reviewed practices on grating management as a response to the investigation findings.

Figure 10: Lost time injury rate UK versus European peers



Source: International Association of Oil and Gas Producers, 2024

4 Health

The historical focus on physical health and hygiene is now also concerned with other aspects of health and wellbeing, such as mental health. Personnel can spend up to half their year offshore so their health and wellbeing demands attention.

Recent increases in the weight of the offshore population identified requirements to upgrade and modify some lifesaving equipment and may impact on the total number of people on board (POB) offshore installations. Aligned with general populations this change is driven not by the work environment, but largely by employees' lifestyles during leave time. Obesity creates additional risk factors and can worsen the effects of other chronic health conditions. In 2022 the average weight of an offshore worker was 96.56 kg.

4.1 Offshore Energies UK medical examinations

Employees are examined at least once every two years by a medical professional before travelling offshore. The OEUK medical has become established overseas too as the benchmark standard. Individuals are assessed for the risk of becoming ill offshore and their fitness for the work in the offshore environment. In 2023, assessments resulted in one of four certifications: unrestricted, limited duration, restricted, or failed.

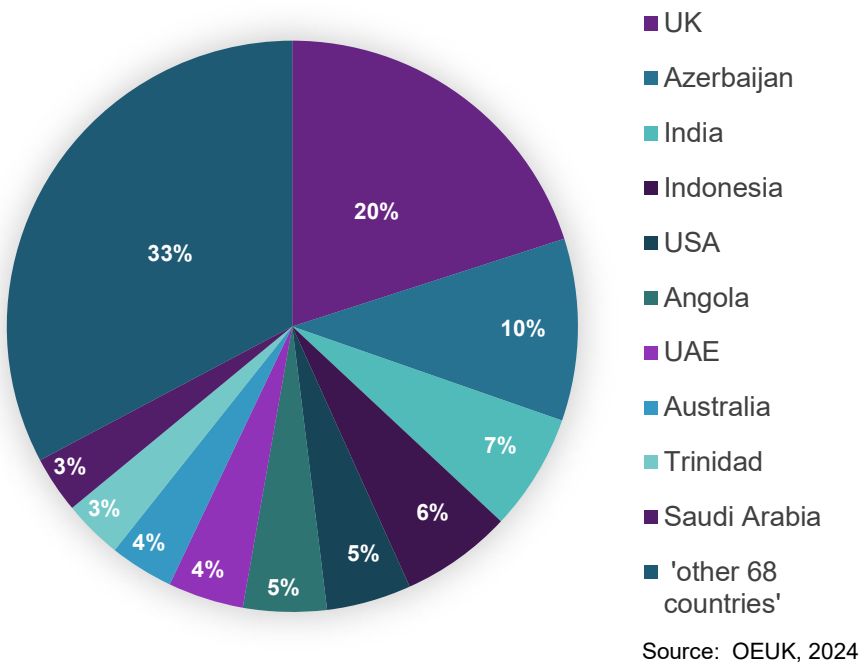
Between November 2022 and October 2023, a total of 164,203 OEUK medicals were conducted globally, (*see Table 1*). with a consistently low failure rate of around 1%. This is the highest number of medicals conducted to data and demonstrates continued growing adoption of the OEUK medical assessment process.

Table 1: Medical assessments

Year	Total number of medicals conducted	Number of medicals failed	Percentage medicals failed
2012	93,219	1,284	1.38%
2013	113,006	1,333	1.18%
2014	118,597	1,285	1.08%
2015	111,651	1,125	1.01%
2016	99,104	1,125	1.14%
2017	110,688	1,339	1.21%
2018	127,474	1,298	1.02%
2019	146,479	1,463	1.00%

2020	111,647	1,082	0.97%
2021	111,612	1,074	0.96%
2022	150,550	1,308	0.87%
2023	164,203	1,593	0.97%

Figure 11: OEUK medicals conducted globally (November 2022 – October 2023)

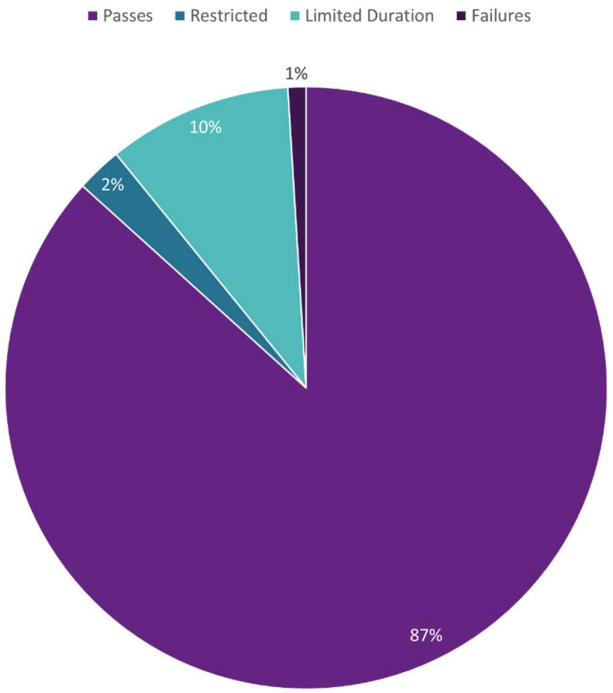


Source: OEUK, 2024

4.1.1 Proportion of failed assessments by cause

Figure 12 shows the outcome percentages of all OEUK Medicals conducted globally between November 2022 and October 2023.

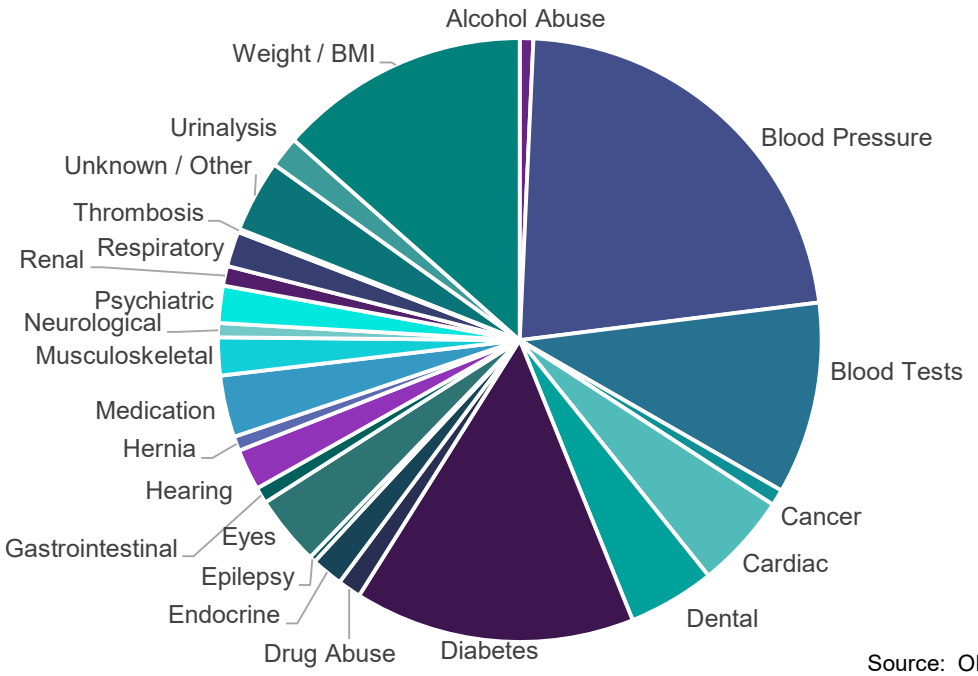
Figure 12: Global OEUK medical outcomes (Nov 2022 – Oct 2023)



Source: OEUK, 2024

4.1.2 Reasons for restricted certificates

Figure 13: Reasons for restricted, limited duration and fail outcomes (November 2022 – October 2023)

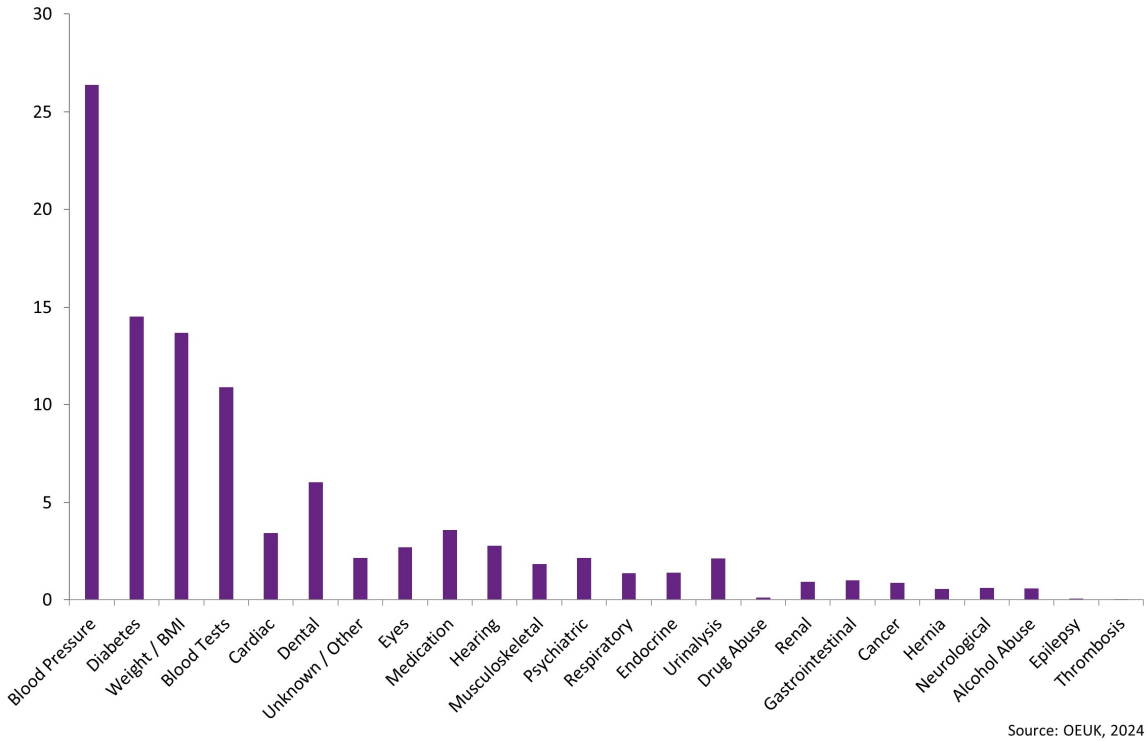


Source: OEUK, 2024

4.1.3 Commentary regarding restricted certificates

Restricted certificates are issued by the examining doctor when they are unable to issue a standard certificate of fitness, but the examinee is suitable for application for operator approval. A limited duration certificate may be issued while awaiting reports expected to confirm the subject's fitness for example, or when more frequent review of a worker is thought appropriate. A number of factors contribute to a restricted, limited, or failed medical result. Figure 13 shows that blood pressure and diabetes are the most significant causes. Cardiac and medication issues are particular problems for the 50-59 age group, and weight/body-mass index is the single largest reason among the under-30s. This is unchanged from 2022.

Figure 14: Reasons for issue of a limited duration certificate (%)



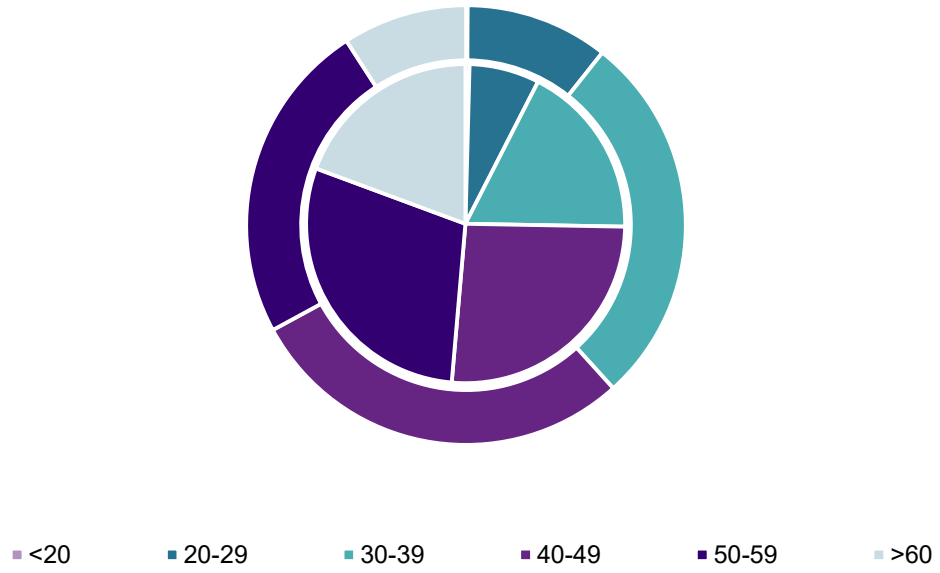
Source: OEUK, 2024

4.2 Medevacs

Trained offshore medics and well-equipped facilities are normal offshore, and onshore 'topside doctors' can provide appropriate medical treatment and care for patients until they can be returned to shore. Minor issues can be treated on the installation without recourse to onshore treatment. Unwell, but non-emergency cases can return onshore via the next scheduled flight but where treatment is a matter of urgency, it is the emergency services including the Coastguard search-and-rescue helicopters that evacuate people. In 2022 there were 337 medevacs, the highest rate in the last five years. Fortunately, medevacs have since fallen to 253 in 2023. Discussions on this topic are held in the Topside Medical Forum.

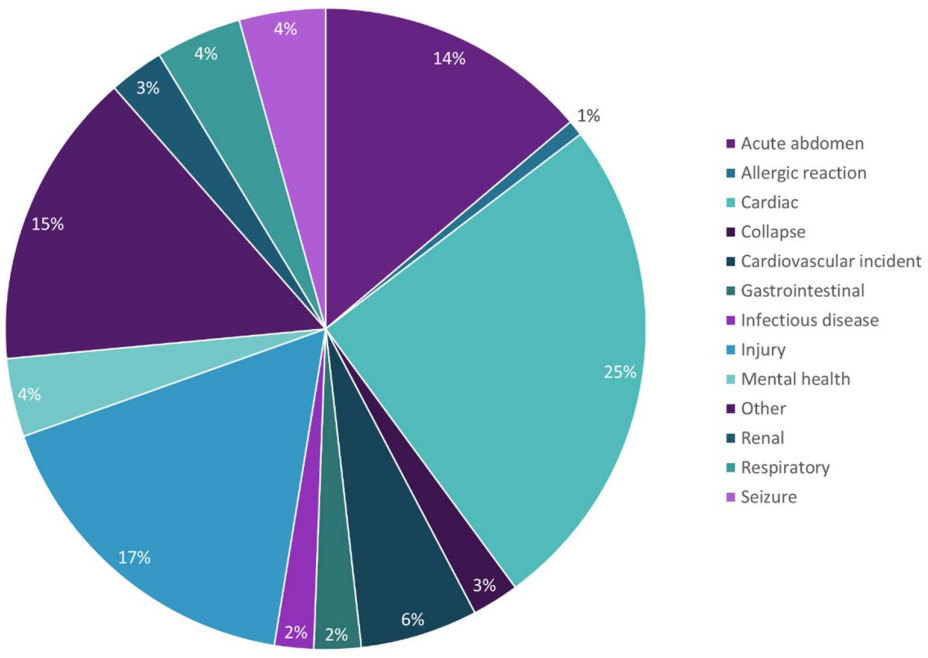
The proportion of those evacuated from offshore installations for medical reasons largely follows the profile of the general offshore population (*see Figure 15*). Cardiac conditions are the most significant reason, as shown in Figure 16, followed by injuries. This is consistent with previous years. Infectious diseases were just 2%. OEUK continues to work closely with the Scottish and UK governments' health agencies to monitor for infectious diseases.

Figure 15: Comparison of medevac population (outer circle) with general population (inner circle) by age group



Source: OEUK, 2024

Figure 16: Reasons for emergency medical evacuations

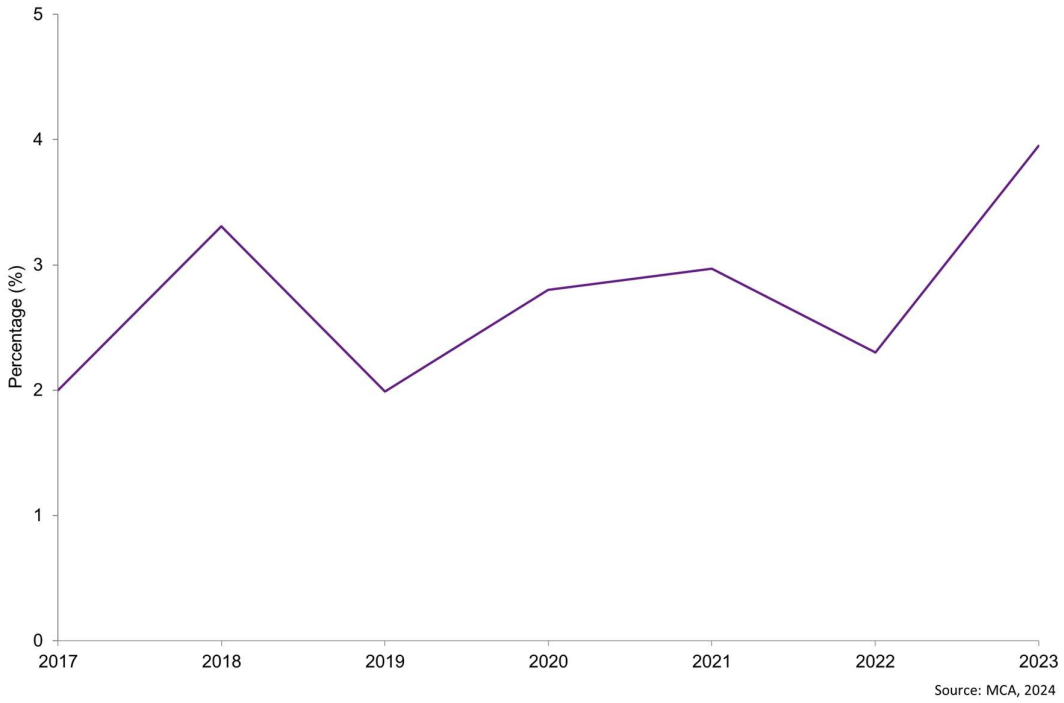


Source: MCA, 2024

4.2.1 Annual altered mental state evacuations

Figure 17 below shows the occasions where the Coastguard search-and-rescue helicopters have had to attend an emergency related to an altered mental state. It is not possible to link these definitively to mental health episodes, hence the phrase 'altered mental state'. It is believed that most cases of mental distress may be managed by non-emergency scheduled or ad-hoc commercial helicopter flights and as such the MCA figures highlight only the most serious occurrences.

Figure 17: Poor Mental Health category as a percentage of total medevacs 2017 – 2023



Source: MCA, 2024

4.2.2 Mental health

Working offshore, away from families and social support structures, places an additional mental strain on employees. Greater connectivity offshore in general is a significant benefit to the workforce, but it can also increase awareness of external stressors. The population is better informed and aware of mental health issues. Recent campaigns to encourage people to speak up and identify issues have been effective. The industry's focus on psychological safety further encourages greater openness about these traditionally private matters.

These factors may lead to more medevacs for mental distress although these incidents account for just 4% of the total.

Employers' duty to protect the health and safety of their workforce is clear. OEUK continues to work on this alongside other industry bodies leading on these issues. These include Step Change in Safety and the International Association of Drilling Contractors.

5 Aviation – Offshore Energy

Helicopters are the primary transport for workers to and from offshore installations and in emergencies. Up to 19 passengers and two pilots travel in a single airframe, which presents a major hazard risk. Offshore helicopter services continue to deliver safe operations in the UK, which should be regarded as exceptional performance. It is vital that aviation safety is maintained. This year OEUK has included wind operations to reflect the increased use of helicopters for both crew change and maintenance winching operations. The total reported flying hours for wind operations remains low at 1,046 compared with over 40,000 for oil and gas operations.

5.1 Helicopter types & utilisation

Heavy and medium twin-engine helicopters have been used for commercial air transport in the UKCS for more than 20 years, reflecting the necessarily high safety standards. Table 2 below shows that the overall fleet has shrunk by five aircraft but data from Uni-Fly adds three AW169 aircraft which predominantly fly to wind farms as well as perform *ad hoc* and specialist oil and gas work too. This fleet reduction shows the commercial disadvantage of operating in the North Sea rather than overseas.

The Sikorsky S92 accounts for 47% of the fleet and is best suited for long trips and heavy payloads. Introduced in 2005, it is still fit for purpose but its age is presenting new challenges for maintenance teams as more components reach the end of their life and require replacement. Alternative heavy rotary wing aircraft are available including the Leonardo AW189 the first of these aircraft is expected to join the fleet in 2025.

The overall number of flight hours declined by a fifth over the reporting period while the total man hours reported offshore dipped just 5.5%. This suggests that, despite much fewer flying hours, the offshore workload was maintained through more efficient use of existing airframes.

Table 2: Offshore Energy Fleet

Type	Weight Class	Introduced	In Fleet 2023
Leonardo AW139	Medium	2005	11
Leonardo AW169	Medium	2020	5
Airbus H175	Medium	2016	17
Sikorsky S92	Heavy	2005	29

Source: OEUK

Figure 18: Total UK flying hours across fleet

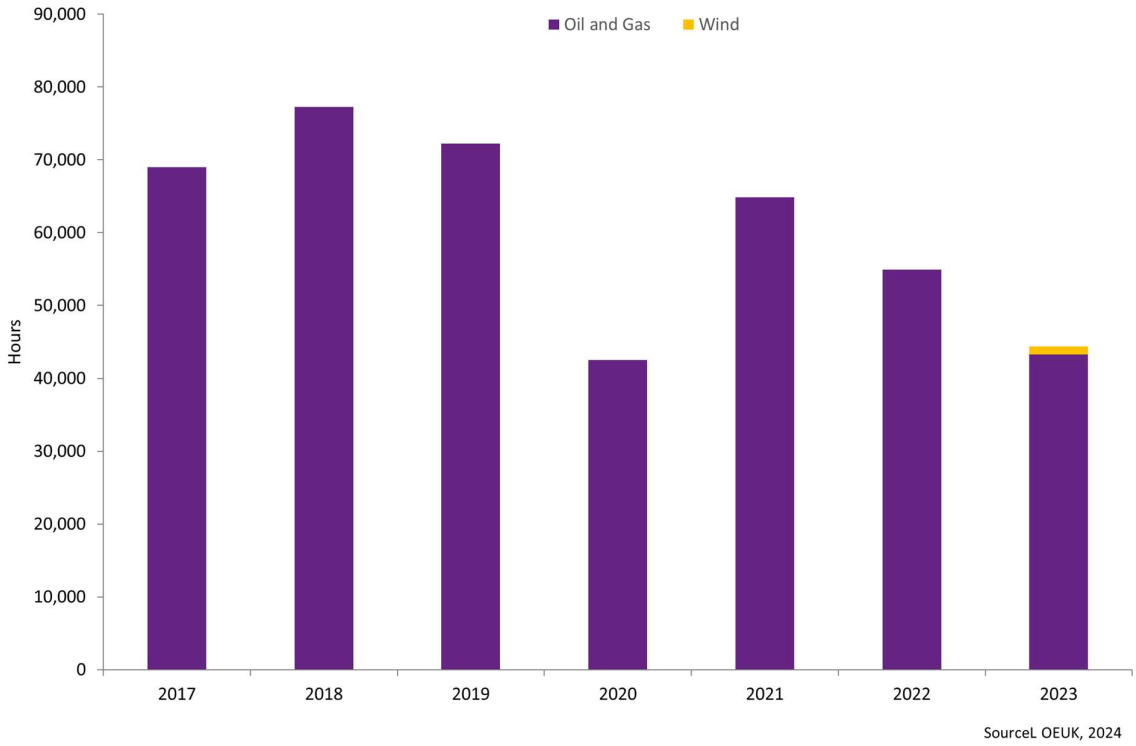
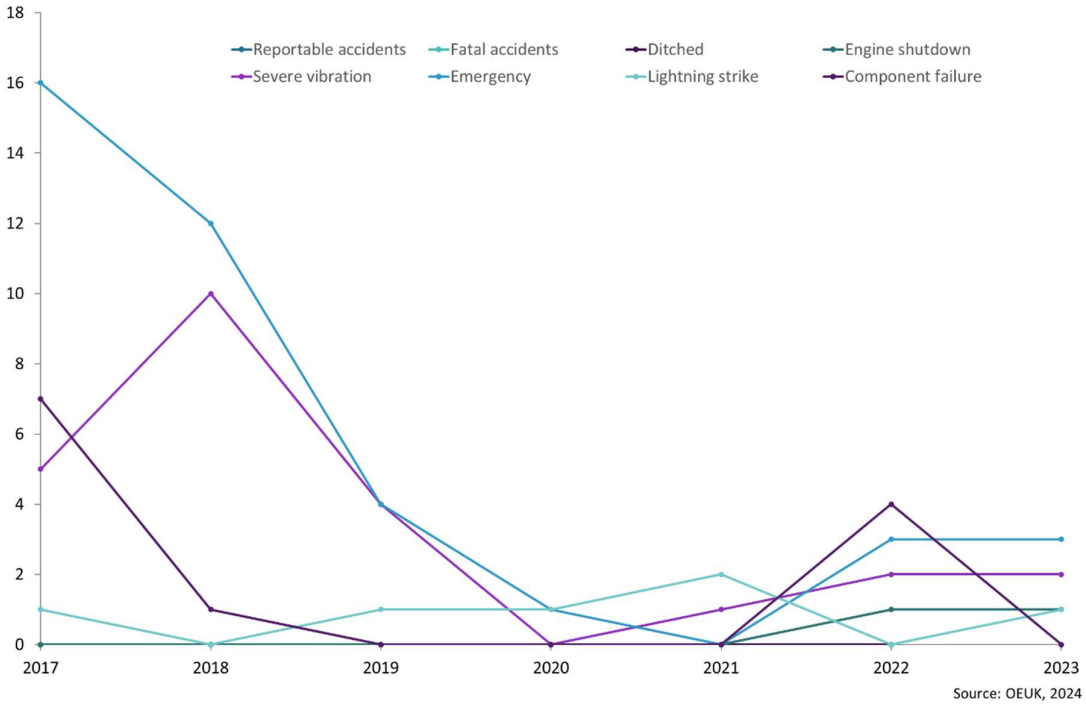


Figure 19: Average flying hours per airframe across all helicopter operators

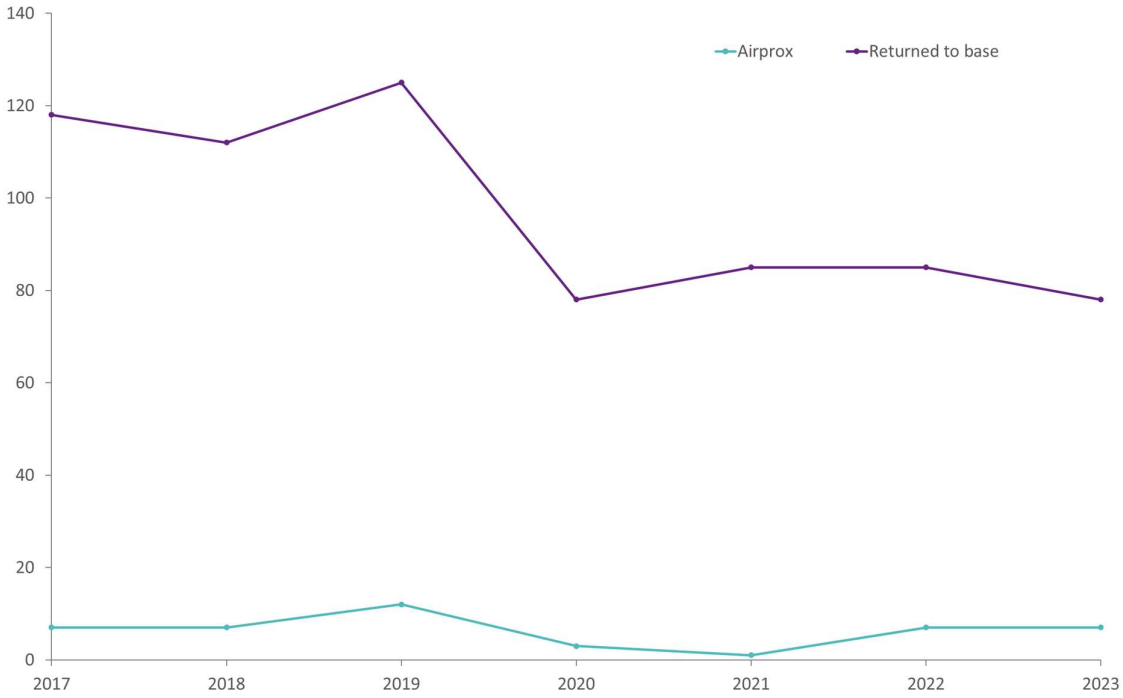
Figure 20a: Aviation performance indicator trends (all fleets)



5.2 Helicopter performance indicator trends

The overall number of occurrences requiring precautionary returns to base (RTB) has fallen over the last five years and made a marginal improvement in 2023. Airprox is the term used to describe a situation where the speed and course of two or more aircraft make an accident likely, in the pilot's opinion, had action not been taken to avoid it. These events are assessed by the Airprox Board.

Figure 20b: Aviation performance indicator trends

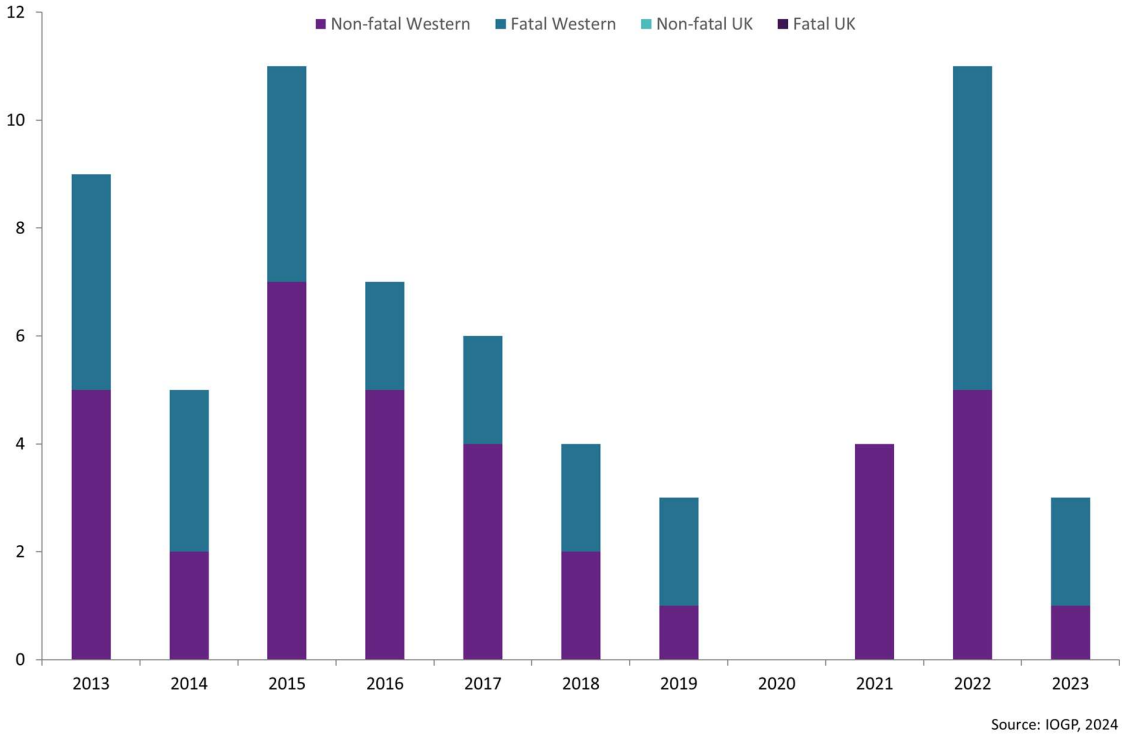


Source: OEUK, 2024

5.3 Incidents in the UK compared with overseas

Globally there has been a significant reduction in incidents compared with 2022 but there were still two fatal accidents in the offshore energy sector. Both fatal accidents occurred in helicopter types not used in the UK and flying to rules that fall below UK standards. This shows how important it is that aviation services return to a sustainable business footing. In 2023 there were limited improvements in the approach to contracting. Anecdotally 2024 has been a little better.

Figure 21: Fatal and non-fatal incidents in the UK versus Western Regions



Source: IOGP, 2024

5.4 Aviation summary

UK aviation safety performance in 2023 has continued to set a benchmark globally and the industry should be very proud of that. However the global and regional headwinds continue to put pressure on the helicopter operators into 2024. The S-92 fleet is aging and new component failures are being identified. Global supply chain adjustements caused by geopolitical issues coupled with a loss of expertise during the Covid-19 pandemic have created parts shortages, resulting in logistical bottlenecks and placed pressure on maintenance teams. The same issues persist this year and are likely to continue to put pressure on operations next year as well.

6 Conclusion and look ahead

Maintaining health and safety performance and striving for continuous improvement is the primarily focus for the industry. Investors are facing significant commercial pressures owing to the maturity of the industry, but the UK remains a world leader in offshore safety standards, so any negative trends need to be scrutinised closely.

OEUK's strategic approach to health and safety aims to ensure that its members are best placed to react to these trends and deliver strong performance. The OEUK Maintenance Backlog Strategy is an example of how industry coordination can deliver measurable performance improvements and hopefully will be emulated by our Process Safety Strategy in 2025.

We remain grateful for the efforts of our members, in contributing to our workgroups and guidance writing teams who keep good practice current, these represent powerful contributions to keeping our workforce healthy and safe on and offshore.

7 Updated Glossary

A&E	Accident & Emergency
Anaerobic digesters	Micro-organisms that break down biodegradable material in the absence of oxygen
BEIS	Department for Business, Energy & Industrial Strategy (now DESNZ and Department for Business & Trade)
Bq	Becquerel, a measurement of radioactivity
Bunding	A retaining wall for safety or environmental purposes
CAA	Civil Aviation Authority
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
Dangerous occurrences	Certain specified events as defined in RIDDOR 2013, including dropped objects, HCR, fires or explosions
Discharge	A permitted disposal of substances offshore
Duty holder	In relation to a production installation, this means the operator,and in relation to a non-production installation, the owner
EEMS	Environmental Emissions Monitoring System
Flaring	The controlled burning of natural gas in the course of oil and gas production operations
GHG	Greenhouse gas(es)
HCR	Hydrocarbon release(s)
HMCS	Harmonised Mandatory Control Scheme
HSE	Health and Safety Executive

IOGP	International Association of Oil & Gas Producers
KPI	Key Performance Indicator
Lagging indicator	Output oriented measurement of past performance
Leading indicator	Input oriented prediction of future performance
Mn boe	Million barrels of oil equivalent
N_2O	Nitrous oxide
NORM	Naturally occurring radioactive materials
NO_x	Nitrogen oxides
NSTA, NSTD	North Sea Transition Authority, North Sea Transition Deal
OCNS	Offshore Chemical Notification Scheme
OMAR	Offshore Major Hazard Regulator
OPEP	Oil Pollution Emergency Plan
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSD	Offshore Safety Directive
OSPAR	The Oslo/Paris Convention for the protection of the marine environment of the North East Atlantic
Over-seven-day injuries	Accidents that cause an employee to be away from work or unable to perform their normal work activities for more than seven consecutive days
Personal safety	Protecting an individual from harm
PLONOR	Pose Little Or No Risk – used by OSPAR to classify substances used and discharged offshore
PON1	Petroleum Operations Notice 1
Process safety	Managing major hazards that could lead to multiple casualties, such as fires, explosions or structural collapse

Produced water	Water that comes to the surface with hydrocarbons during production, either naturally from the reservoir or after injection into the reservoir to displace oil and lift it to the surface.
Production efficiency	The total annual production divided by the maximum production potential of all fields on the UKCS
Release	An unintentional discharge of oil or chemicals
SO_x	Sulphur Oxides
SUB	SUB chemicals are those classified under OCNS as harmful and should be phased out and substituted with a less harmful substance.
UKCS	UK Continental Shelf

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