



Controlling hypertension at sea

Hypertension, or high blood pressure, can lead to stroke, heart and kidney disease and other serious medical conditions. A healthy diet, exercise and appropriate medication can reduce high blood pressure. Detection of elevated blood pressure is an essential first step in treatment of a condition that is a recurring cause of crew illness.

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Hypertension rates are not decreasing

Hypertension, or high blood pressure, is a serious medical condition that can increase the risk of developing disease of the heart, brain, kidney and other conditions. Despite being straightforward to diagnose and relatively easy to treat with low-cost medicines, hypertension now affects more than one billion adults aged 30-79 globally, according to a [WHO funded study](#), and is one of the top causes of death and disease throughout the world. The study identified that nearly half of the people with hypertension were unaware of their condition, and close to 60% with the condition were not receiving the treatment that they needed. The study also saw that the percentage of people who have hypertension in the world has changed very little over the past 30 years. There has been a change, however, in that the hypertension burden has shifted from wealthy nations to low and middle-income countries.

Hypertension is also a recurring cause of crew illness claims in Gard and accounts for approximately 3% of all crew illness claims reported to us each year. However, and as shown in the figure below, if we take into account that hypertension can also be an underlying cause of other illnesses, such as heart disease and stroke, the condition is likely to be responsible for a considerably larger share of our illness claims. The below data have been adjusted for the extraordinary increase in crew illness claims experienced during the COVID-19 pandemic, this to make a fair comparison over time.

Hypertension – fast facts

The following information has been sourced from the [WHO's hypertension webpage](#):

- Hypertension is a condition in which the blood vessels have persistently raised pressure, putting them under increased stress.
- Many people with hypertension do not notice symptoms and may be unaware there is a problem. When symptoms do occur, they can include headache, nosebleeds, shortness of breath, dizziness, chest pain, irregular heartbeat, and general fatigue.
- Detecting hypertension is done with a quick and painless measurement of blood pressure, usually with a cuff on the upper arm.
- Hypertension is diagnosed if, when it is measured on two different days, the systolic blood pressure readings on both days is ≥ 140 mmHg and/or the diastolic blood pressure readings on both days is ≥ 90 mmHg.
- If left untreated, hypertension can cause persistent chest pain (also called angina), heart attacks, heart failure, and an irregular heartbeat, which can lead to a sudden death. Hypertension can also cause strokes by blocking or bursting arteries that supply blood and oxygen to the brain, as well as kidney damage, which can lead to kidney failure.

Hypertension prevalence among seafarers

While our claims data are not sufficiently detailed to make any firm conclusions about the prevalence of hypertension among seafarers, a [study of Danish seafarers](#) published in 2016 found that the prevalence of hypertension among the 629 seafarers studied was more than three times the prevalence in the general Danish population at the time. The study further observed that:

- In all age-groups, the prevalence of hypertension was higher in seafarers than in the applied control group of Danes, including among younger seafarers.
- The prevalence of hypertension increased with rising Body Mass Index ([BMI](#)).

- There was slightly less hypertension in non-smokers than in former and current smokers, and seafarers with the highest alcohol consumption also had the highest prevalence of hypertension.
- Seafarers working in the engine room, the noisiest area of a ship, had the highest prevalence of hypertension across all workplaces onboard.
- The majority of the hypertensive seafarers in the study did not receive antihypertensive medication. In fact, compared to hypertensive seafarers, seven times as many hypertensive persons in the control group of Danes were in treatment.

The Danish study population was predominantly male with a high number of overweight seafarers among those studied. However, the study concluded that its findings can be generalised and a high rate of hypertension is also likely to exist among seafarers in a global context who share similar maritime exposures and lifestyles as the Danish seafarers.

Risk factors onboard ships

Hypertension has many risk factors. While some cannot be easily changed, e.g. age and genes, others depend solely on a person's lifestyle choices. It is the same factors that determine the risks both in the general population and among seafarers. However, it is also a fact that that seafaring is characterised by a unique set of features which sets it apart from other occupations - and which may make seafarers particularly prone to hypertension. These include:

- demanding working conditions and high levels of stress, particularly when vessels are in port,
- shiftwork, as well as occasional long hours of work,
- limited opportunities for leisure activities, and
- restricted food choices.

In addition, the social isolation and loneliness associated with being away from family and friends for very long periods can be linked to higher risks for a variety of physical and mental conditions, which may be associated with subsequent onset of hypertension. Furthermore, the Danish study referred to above also suggests a potential causal relationship between noise levels and hypertension. The evidence to support this may be somewhat uncertain but many research studies on chronic exposure to road traffic and/or railway or aircraft noise do indicate an increased risk of hypertension related to long-term noise exposure.

Being fit for duty – a shared responsibility

Fitness to undertake the full range of tasks on board ship and to cope with living conditions at sea has long been a requirement. As every seafarer must hold a valid certificate of medical fitness in order to join a ship, regulations place a duty on seafarers to look after their own health. But - the assessment of medical aspects of fitness is only one part of the arrangements for seafarers' health. Regulations also place a duty on ship operators, not only to ensure living and working conditions onboard are safe, but also to promote a healthy way of living.

While ships can never duplicate home life, ship operators should do their utmost to facilitate a healthy lifestyle onboard their ships. A healthy lifestyle is considered the first line of defence against hypertension and the common recommendations provided by the WHO, health authorities, and health care providers focus on:

- reducing salt intake (to less than 5g daily),
- eating more fruit and vegetables,

- being physically active on a regular basis,
- avoiding the use of tobacco,
- reducing alcohol consumption,
- limiting the intake of foods high in saturated fats, and
- eliminating/reducing trans fats in the diet.

To make lifestyle changes that will last is not easy. For those working at sea for weeks and months at a time, where the jobs are often physically and mentally demanding, involve watches and shifts and broken sleep patterns, it may seem like a virtually impossible task. Effectively dealing with chronic diseases such as hypertension in the maritime environment therefore requires a comprehensive and holistic approach to crew health and wellbeing. Implementation of lifestyle measures, for example, requires knowledge, enthusiasm, patience, considerable time spent with seafarers, and reinforcement. Moreover, controlling hypertension and reducing the risk of its associated complications, such as heart failure and stroke, is also about:

- lowering and managing stress levels,
- regularly checking blood pressure,
- correctly treating high blood pressure with prescribed medication, and
- managing other medical conditions.

Identifying danger signs can lead to life saving changes

Regularly checking blood pressure is the best way to know if it is within a healthy range.

A pre-employment medical examination program can be a good opportunity to identify and counsel seafarers that have, or are at risk of developing, hypertension. If blood pressure is normal, checking it during the regular seafarers' medical examination, i.e., at least every two years, may be sufficient. However, if blood pressure is elevated, more frequent readings are normally recommended and providing "home blood pressure monitors" onboard ships could be a useful means to look after seafarers' health.

If diagnosed with hypertension, medication can be taken to lower it. It is important that seafarers remember to bring medication onboard and take the medication regularly as prescribed. We also recommend that seafarers bring extra medication in case there are delays in port calls and/or crew changes.

Ship operators, as part of their crew welfare programs, may also consider the possibility for arranging regular onboard "doctor house-calls" via video conferencing. Such sessions could be good opportunities to discuss issues related to chronic diseases such as hypertension, both on a group and individual basis. This could include a review of blood pressure measurements taken onboard, identification of potential reasons for the lack of blood pressure control, and a plan for intervention or adjustment of medication accordingly.

There are, however, times when hypertension is considered an emergency and requires urgent medical attention. This can occur if blood pressure rises quickly and severely. A blood pressure reading of 180/120 or greater in combination with other associated symptoms of target organ damage, such as chest pain, shortness of breath, severe headache, numbness/weakness, change in vision, or difficulty speaking, would be considered a hypertensive emergency and require immediate medical attention.

It is the responsibility of the ship operator to provide a safe and healthy work environment and while the ultimate responsibility for seafarer's health rest with the individual, encouraging and

catering for a healthy, active lifestyle onboard is a cost-effective way to assist in preventing many chronic diseases including those related to hypertension.

Additional resources

- *Mariners Medico Guide*: The [Mariners Medico Guide app](#) includes up to date medical information and support. This international guide is designed by doctors specialised in maritime medicine as an assessment tool specifically for seafarers while at sea. It is possible to search by symptoms as well as condition, and it is written in easy-to-follow language and steps. It can be downloaded for free for desktop as well as Apple and android mobile devices. Once downloaded, the medical guide is available without internet access. The Mariners Medico Guide includes contact details and links to shore based telemedical assistance and is accessible to all seafarers.
- *Gard*: [Signing on with a pre joining medical condition? Carry and take prescribed medication on time](#)
- *International Labour Organization (ILO) / International Maritime Organization (IMO)*:
 - [Guidelines on the Medical Examinations of Seafarers](#)
 - [Maritime Labour Convention \(MLC\)](#)
- *World Health Organization (WHO)*: [Hypertension Website](#)
- *US Centers for Disease Control and Prevention (CDC)*: [High Blood Pressure Website](#)
- *Other*:
 - The US National Heart, Lung, and Blood Institute's [DASH Eating Plan](#) is a flexible and balanced eating plan that has been scientifically proven to lower blood pressure and can help create a heart-healthy eating style for life.
 - ISWAN's guidelines for "[Healthy Food](#)" and "[Fit Onboard](#)" provide lots of good tips on how to stay healthy while working onboard merchant ships.