# Atrial Fibrillation Report 2023

## Early detection of atrial fibrillation

Riksförbundet HjärtLung

hjärt-lung.se

# Ensuring that everyone with cardiovascular and pulmonary diseases will receive good care and can enjoy their everyday life

The Swedish Heart and Lung Association is a patient organization that operates throughout the country. We work to improve the lives of people with cardiovascular and pulmonary diseases. We do this by enlightening and informing health policy makers, collaborating with healthcare providers, supporting research, and conducting activities for our members.

Founded in 1939, we are one of the oldest and largest patient associations in Sweden. Today we have over 35,000 members and we operate throughout the country through many local associations.

Today, more than 2 million people in Sweden live with cardiovascular and pulmonary disease. For almost 85 years, we have been working to ensure that these people have access to good care and can enjoy their everyday life. Help us do even more by becoming a member. Visit: **www.hjart-lung.se/blimedlem**

We need you!

The Atrial Fibrillation Report 2023 is produced by the Swedish Heart and Lung Association with the support of Pfizer and Bristol Myers Squibb.

# Contents

# Preface

*Hi,*

*Thank you for reading this report on atrial fibrillation, an important public health concern.*

*Atrial fibrillation is one of the most common causes of stroke. It is not uncommon for atrial fibrillation to be detected only after a stroke has been diagnosed. However, if atrial fibrillation is detected in time, there are good opportunities for preventive treatment.*

*The number of unreported cases is high. Today, an estimated 127,000 people have atrial fibrillation without knowing they have it. This is why the Swedish Heart and Lung Association is fighting for healthcare providers to have better prerequisites for detecting atrial fibrillation early. Reducing the real figure is key for a good outlook for the individual, and for us as a society to be able to treat atrial fibrillation cost-effectively.*

*Success requires well-structured and accessible care system that is available to patients. A care system that systematically works and invests in detecting atrial fibrillation as early as possible. We are convinced that if we work preventively, fewer people will suffer a stroke – but political decisions are needed.*

*I hope that this report can arouse the commitment needed and at the same time contribute to an increased understanding of the consequences of the disease for patients and their loved ones. And that we can jointly improve care for the hundreds of thousands of patients who need it most.*

*Let's highlight the real figure.*

*Anders Åkesson,*
*Federal Chairman*
*of the Swedish Heart and Lung Association*

*Photo: Anders Norderman*



# Summary

*This report is about the importance of detecting more cases of atrial fibrillation in order for fewer people to suffer a stroke. Atrial fibrillation is the most common form of heart rhythm disorder and can have a major impact on the life of those affected. Atrial fibrillation itself is not life-threatening, but untreated, the disease leads to a significantly increased risk of stroke.*

Stroke due to atrial fibrillation can be prevented. The first step is to discover the atrial fibrillation of the heart. Today, an estimated 526,000 people in Sweden live with atrial fibrillation. Out of the 399,000 who have been diagnosed, an estimated 127,000 cases remain undetected.

Atrial fibrillation is a disease in which new treatments and better care have saved many lives and given many people a better life. However, to reduce the number of strokes, more cases of atrial fibrillation need to be detected in time.

Recent studies have shown that screening for atrial fibrillation leads to fewer complications and is a cost-saving effort for the society. Due to new results, decision-makers at national level should decide to introduce a screening program for atrial fibrillation in Sweden. But there is also a lot that regions can do to reduce the number of undetected cases. All regions have a fundamental responsibility to provide the healthcare system with the right circumstances to detect more cases.

- In all regions, people with atrial fibrillation symptoms who visit healthcare providers should have access to easy-to-use and portable ECG equipment for long-term cardiac examination.

- In order to find more cases of hidden atrial fibrillation, all regions should, in connection with the targeted health-related discussions already being conducted, measure heart rates, inform about common symptoms, and provide the possibility of portable ECG equipment for people over the age of 65.

What is required is a focused effort with initiatives that lead to more cases being discovered and that those affected receive a diagnosis. This report shows that this is entirely possible. The solutions exist. What is required is a decision to apply them.

# Having the disease

*Atrial fibrillation is a serious but treatable disease. The risk of developing atrial fibrillation increases clearly with age, and men are affected to a greater extent than women. Atrial fibrillation itself is not life-threatening, but the risk of having a stroke is up to five times greater for a person with untreated atrial fibrillation compared to a person who does not have atrial fibrillation.*[1]

### What is atrial fibrillation?

Atrial fibrillation is disturbances in electrical signals of the heart. The heart races and beats hard and fast. The pulse is often irregular. A heart with atrial fibrillation has to deal with many more electrical signals compared to a healthy heart. The heart's atrium therefore does not have time to fill or empty effectively between the contractions, which leads to a reduced ability to pump the blood into the body.

*There are different types of atrial fibrillation:*[2]

1 **Paroxysmal atrial fibrillation** comes in shorter attacks. The fibrillation stops by itself or after treatment within seven days.

2 **Persistent atrial fibrillation** is a continuous disturbance of the heart rhythm that lasts longer than seven days. In persistent atrial fibrillation, treatment is often required to restore the sinus rhythm.

3 **Prolonged persistent atrial fibrillation** is a continuous disturbance of the heart's rhythm that lasts for a long time. Long-term persistent atrial fibrillation requires treatment to restore the sinus rhythm.

4 **Permanent atrial fibrillation** is an atrial fibrillation accepted by the patient and treating physician where no further attempts to restore rhythm will be made.

### Common symptoms

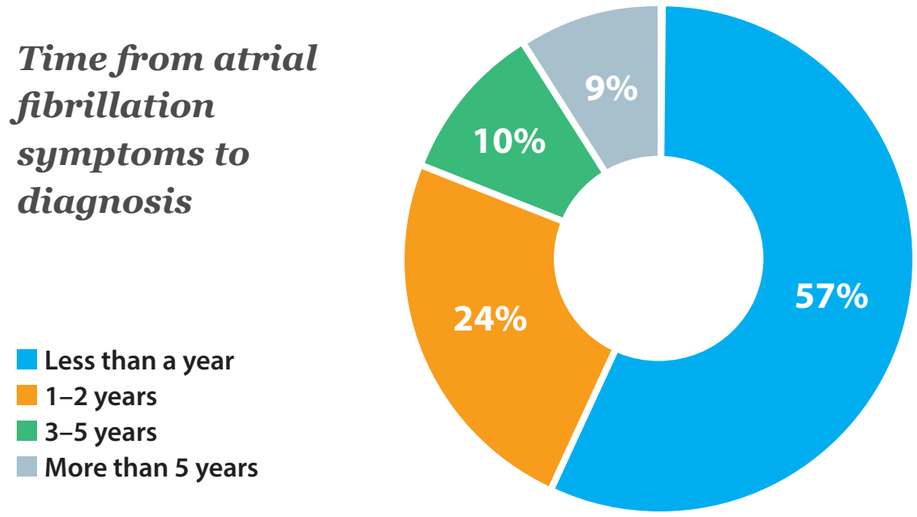
Atrial fibrillation can be symptom-free, lead to mild symptoms, or to severe and serious problems that limit health and quality of life. The most common symptoms are palpitations, decreased stamina, dizziness or a feeling of pain in the chest. Those affected often feel short of breath and weak even with minor effort. How the disease presents varies from person to person and can also change over time.

### Often a long time from symptoms to diagnosis

The most common way atrial fibrillation is detected today is that a person seeks medical advice because of their symptoms. Every other person who has responded to the Swedish Heart and Lung Association's membership survey states that the atrial fibrillation was discovered after they sought medical advice due to symptoms they experienced. But it is also not uncommon for atrial fibrillation to be detected by chance. In one in five people with a atrial fibrillation diagnosis, the atrial fibrillation was detected during a routine visit to the healthcare center.[3]

The majority of those who experience symptoms of atrial fibrillation are diagnosed within one year. But it can also take longer. As many as 43% have to wait more than a year from the first symptoms to diagnosis, and every tenth person affected has to wait more than five years before a diagnosis is established.

***Time from atrial fibrillation symptoms to diagnosis***




Source: The Swedish Heart and Lung Association's membership survey 2023. A total of 927 people have answered the question "In your assessment, how long did you have symptoms of atrial fibrillation before you were diagnosed?".

### Risk factors

There are several factors beyond age that lead to an increased risk of being affected. High blood pressure or being overweight increases the risk.[4] Other factors that lead to an increased risk of atrial fibrillation are smoking, diabetes and sleep apnea.[5] Also, long-term hard endurance training can be a contributing factor, but for the majority of people affected by atrial fibrillation benefit from increased physical activity and normal exercise. The risk of developing the disease also increases with high alcohol consumption; alcohol is also a common cause of an atrial fibrillation episode in the heart.[6]

### Living with atrial fibrillation

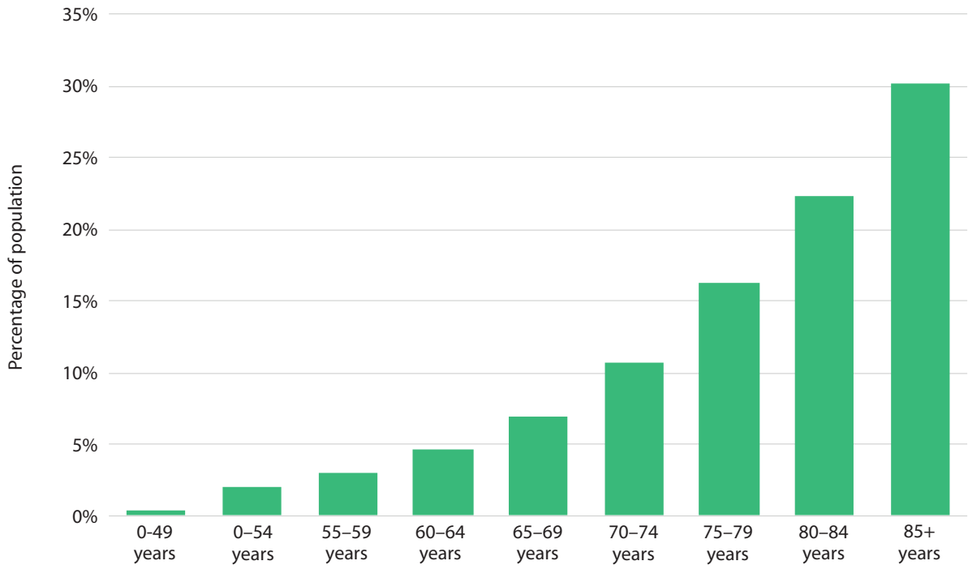
Atrial fibrillation can have a major impact on life and it's easy to feel powerless in one's condition. But there are things that patients can do to improve their situation.

Those affected by atrial fibrillation may often feel anxious about exerting themselves physically. But exercise is important for strengthening the heart and fighting fatigue. It is important to try to strive for a normal body weight; for those who are often sedentary it may be good to start with shorter walks and adjust the intensity according to ability. Changing lifestyles can have a big impact. It is therefore important that in connection with diagnosis, patients are provided with information and support for lifestyle-changes, as well as treatment options.

### A serious public health concern

Atrial fibrillation is one of our most common heart diseases; an estimated 399,000 people live with a fibrillation diagnosis in Sweden today. The risk of developing the disease increases greatly with age. Today, about 15% of the population over 65 years have a diagnosed atrial fibrillation, but many even at a younger age.

## *Diagnosed atrial fibrillation by age group*




Source: National Board of Health and Welfare and SCB (Statistikmyndighet [Statistics Sweden]) (2021).

In comparison, it is more common to develop atrial fibrillation than to develop one of the four most common cancers in total.[7] One study has also shown that approximately one in three people over the age of 55 experience atrial fibrillation at some point in their remaining lifetime.[8]

Atrial fibrillation is today one of the world's leading causes of stroke, sudden death and cardiovascular morbidity.[9] It is also a disease that is becoming increasingly common. The number of people over 55 years of age with the disease in Europe is forecast to more than double by 2060.[10]

In all age groups, men suffer from atrial fibrillation to a greater extent than women. But as women generally live longer, the number of women affected is higher in the older age groups. Also, women develop atrial fibrillation on average a few years later in life compared to men. Women who suffer from atrial fibrillation are even at a higher risk of stroke compared to men with atrial fibrillation. [11]

### High costs for healthcare and society

We can see huge cost-savings if more cases of atrial fibrillation are detected and treated. Costs arise as a result of hospitalizations and loss of productivity. Moreover, more serious sequelae such as stroke put a great strain on the healthcare system.

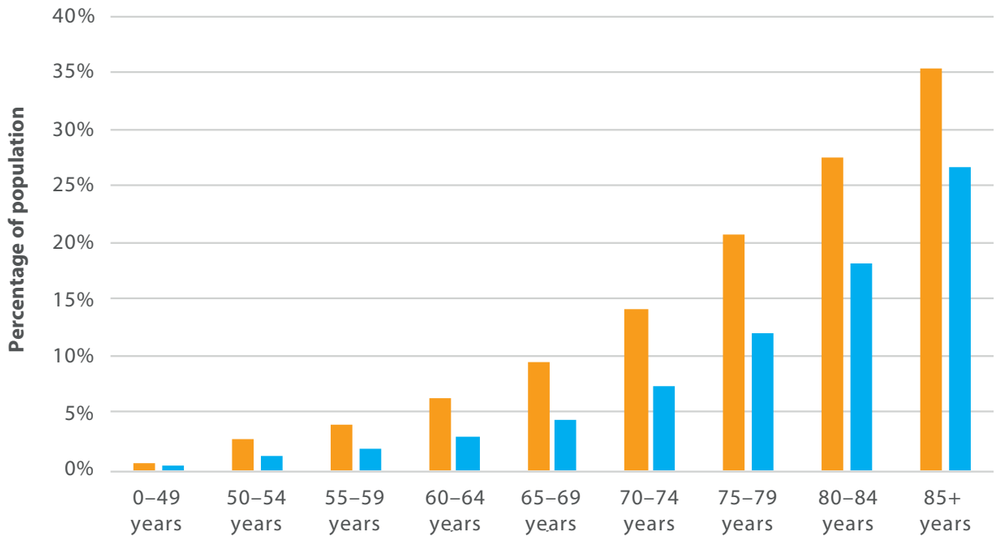
The annual cost to society of atrial fibrillation in Sweden has been estimated at SEK 7.9 billion, calculated in today's monetary value.[12] The single largest part of the cost arises as a result of the severe conditions that untreated atrial fibrillation leads to. In total, sequelae account for more than half of the total cost. In 2021, 19,500 people were admitted to hospital with atrial fibrillation as the main diagnosis. The total time of inpatient care for these patients was 58,400 days.[13] If atrial fibrillation leads to a stroke, even more resources from both society and family members are required. Stroke is the single largest disease in terms of number of inpatient days per patient in Swedish hospitals.[14]

The social cost of a single stroke case in a lifetime has been estimated at SEK 1.3 million.[15] The risk of stroke is drastically reduced for a person with atrial fibrillation with preventive treatment. If half of the undetected cases, 64,000 people, is detected and treated, it could potentially lead to 3,200 fewer stroke cases. If these stroke cases can be prevented, this would mean approximately SEK 3.6 billion in reduced costs for stroke care.*

Strokes that occur as a result of atrial fibrillation can be prevented. However, healthcare providers should be given the right circumstances and incentives to be able to detect more cases of atrial fibrillation in the population. Through increased detection of atrial fibrillation, large cost-savings can be made and human suffering reduced.

> *"If these stroke cases can be prevented, this would mean approximately SEK 3.6 billion in reduced costs for stroke care."*

## *Diagnosed atrial fibrillation by age group and gender*




Source: National Board of Health and Welfare and SCB (Statistikmyndighet [Statistics Sweden]) (2021).

**The calculation is based on the annual risk of stroke being 6.3% (Hart, 1999)[16] for untreated atrial fibrillation, and 1.27% (Granger, 2011)[17] for cases of atrial fibrillation receiving stroke prevention treatment (NOAC). Savings include the cost of anticoagulant therapy for the remaining lifetime.*


***Johan Engdahl,*** *Associate Professor of Cardiology, Chief Physician and Medical Director of Atrial Fibrillation Center at Danderyd Hospital. Photo: Ulf Sirborn, Karolinska Institute.*

# Increasing awareness of atrial fibrillation in healthcare

Today, atrial fibrillation is most commonly detected as a result of a person experiencing problems and seeking care for their symptoms. But it is becoming more common for atrial fibrillation to be discovered by a coincidence in connection with healthcare visits for another reason. In healthcare today, we have a different understanding of atrial fibrillation than we had a few years ago. Taking the opportunity to examine the heart rhythm during the patient's visit is much more common today than 10–15 years ago. Patients nowadays also arrive with their own diagnosis of their heart rhythm, usually recorded with the help of smart watches.

### It is not always easy to detect shorter episodes of fibrillation with traditional ECGs

Atrial fibrillation that occurs in shorter episodes may be difficult to detect with a classic 12-lead ECG or during an investigation utilizing long-term ECG for 24 or 48 hours. When suspecting shorter and less frequent episodes of atrial fibrillation, it is recommended to make a longer recording of the heart rhythm. In this regard, the healthcare system has not really kept up to speed, and does not use newer examination methods and techniques to the extent required.

According to the latest annual national summary from the Swedish Association for Clinical Physiology, a total of around 49,500 long-term registrations were performed **with Holter ECG in contrast to only around** 4,000 **registrations with patient-activated arrhythmia detection systems.**[18]

In many of the investigation cases where an irregular heartbeat comes and goes, a long-term investigation is needed. Unfortunately, the effect may be that patients are told that they do not have atrial fibrillation, even though there are episodes of atrial fibrillation.

### New opportunities to detect atrial fibrillation in the future

New studies give hope that we can, with better precision, find people who are at high risk. A study has shown that it is possible with relatively good precision to identify people who will develop fibrillation by allowing machine learning to investigate a large number of healthy ECG recordings.[19]

### In a Swedish study, screening takes place based on risk

This fall, a Swedish screening study based on health data from Halland will start. The study examines the possibility of identifying and diagnosing patients with multiple risk factors associated with atrial fibrillation. Individuals for which existing health data indicate a sufficiently high risk of atrial fibrillation will be asked to participate in a screening where the examination of the heart's rhythm will take place without the participant having to visit a healthcare provider.

Individuals identified as belonging to the higher risk group will receive an ECG patch sent home by mail. The patch sticks to the chest and is worn for a couple of weeks. After completion of the measurement, the ECG patch will then be sent back in a prepaid envelope for interpretation.

If an investigation of atrial fibrillation can take place without a healthcare visit, it could contribute to an increased availability of diagnostics for those affected. An effective way to identify atrial fibrillation in time, before a stroke occurs.

The development to more effectively detect and diagnose atrial fibrillation is ongoing on several fronts. We are already seeing that awareness of atrial fibrillation in healthcare is increasing, and with the help of new technology it is possible to make longer and better adapted recordings of the heart rhythm.

# Detection

An abnormality in the heart rhythm can be detected in many different ways. In many cases, the affected person notices that something is not right. Atrial fibrillation can also be detected during a routine physical examination in an asymptomatic patient.

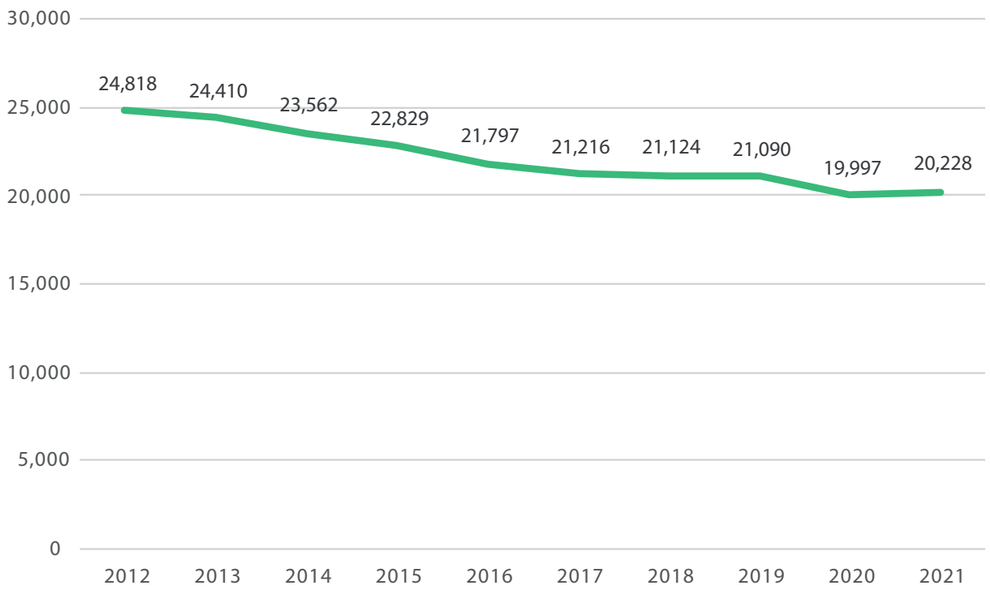
### Early detection of atrial fibrillation

When the heart beats irregularly, the blood is not pumped out into the body in an even flow. This can cause blood flow to pause and blood clots to form. If a blood clot travels with the blood to the brain, blood flow may be blocked and cause a stroke. Stroke is a serious medical condition in which symptoms come suddenly. A stroke can be life-threatening and requires immediate hospital care.

According to the National Stroke Registry, around 20,000 people suffer a stroke each year. In almost a third of cases, atrial fibrillation is the underlying cause, and in a quarter of cases, the atrial fibrillation is detected only after a stroke has occurred.[20]

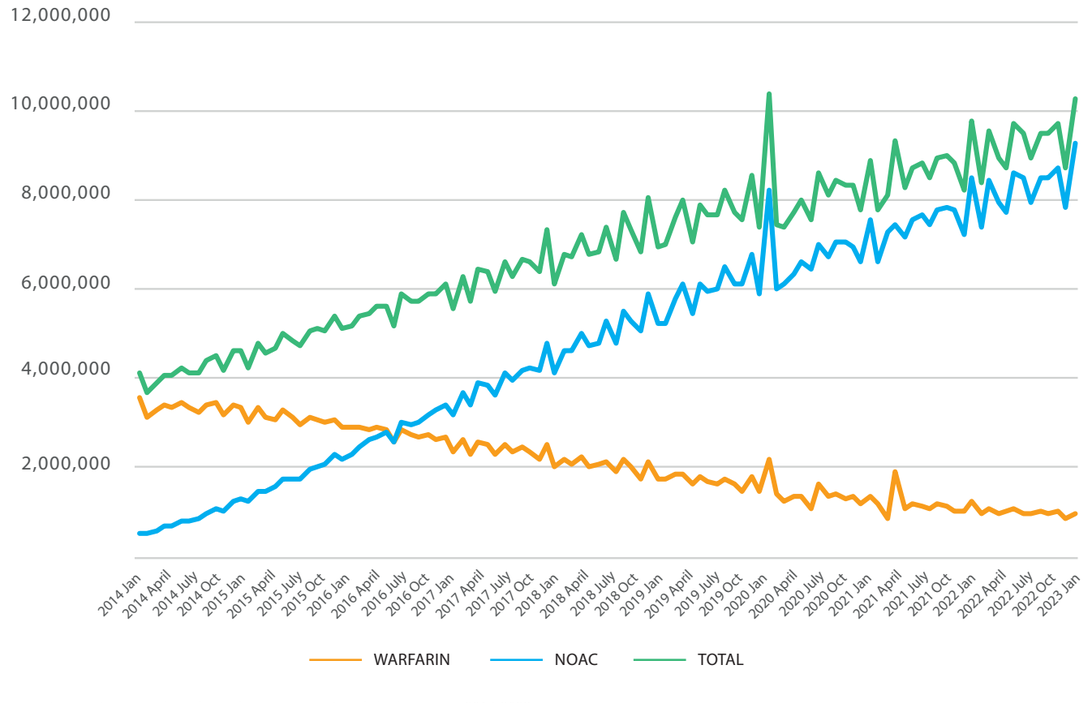
People who suffer a stroke as a result of atrial fibrillation also have increased mortality and morbidity and often require longer hospitalizations compared to those stroke patients who do not have atrial fibrillation.[21]

*Number of registrations for acute stroke*




Source: Riksstroke [National stroke] (2023), number of registrations of care events for acute stroke per year.

*Daily doses of stroke prevention treatment, 2014–2023*




Source: Summary based on sales statistics to Swedish pharmacies 2014-2023.

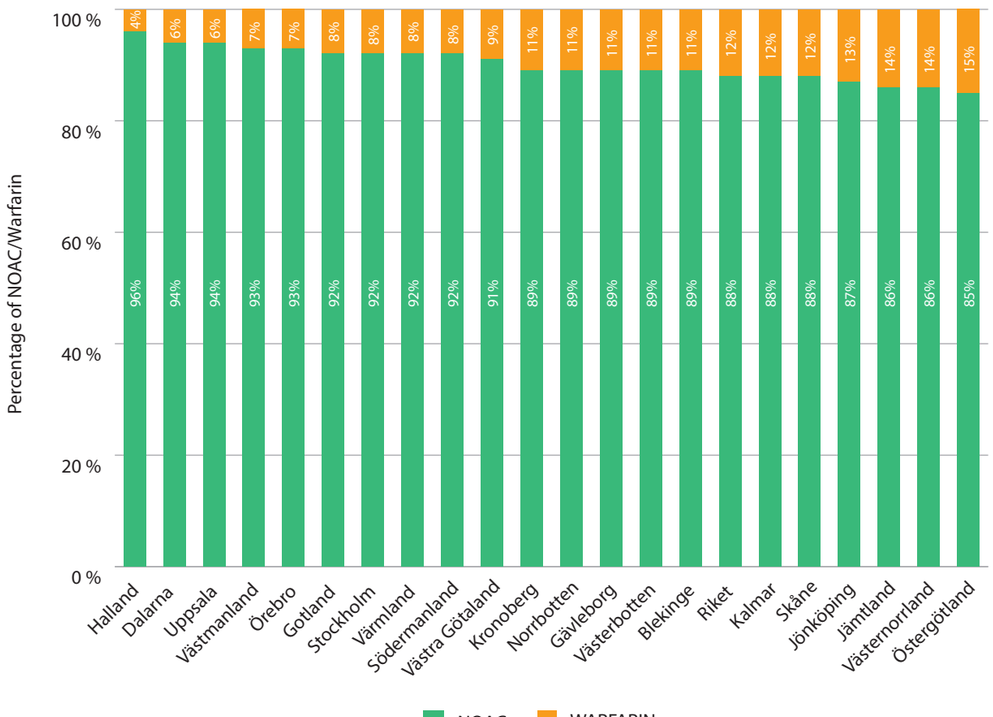
### Treatment prevents stroke

In atrial fibrillation, it is crucial to prevent the risk of having a stroke. Treatment with blood thinning drugs reduces the risk of stroke, and today there is access to treatments that have a very good stroke prevention effect.[22] Better preventive treatment of people with atrial fibrillation is an important reason why the number of people affected by stroke has steadily decreased over time.

Over the past decade, several new stroke prevention treatments (NOAC) have been introduced in healthcare. After the introduction of new drugs, the treatment rate has increased, and over time there has been a transition from the previously established treatment to new stroke prevention treatments.

Although the National Board of Health and Welfare recommends the new treatments in connection with the introduction, there are still regional differences in the types of treatments patients have access to.[23]

## *Daily doses of stroke prevention treatment by region*




Source: Summary based on sales statistics to Swedish pharmacies in March 2023.

### Other treatments for atrial fibrillation

There are also treatments that can relieve the symptoms of atrial fibrillation itself. Some treatments can slow down the disorder of the heart's electrical signals, others regulate the heart's rhythm. Different treatment strategies may be appropriate depending on the patient's circumstances. In addition, patients who suffer from atrial fibrillation are often already treated with other medicines. It is therefore important that the doctor always makes an individual assessment before starting treatment.

The treatment recommended to a patient depends on the severity of the symptoms, or if the person also has other illnesses that the doctor needs to consider. The vast majority of people with atrial fibrillation need treatment that prevents the risk of stroke.

### Number of unreported cases is high

No one should have to find out that they have atrial fibrillation only after they have suffered a stroke. Due to severe under-diagnostics, the number of people with undiagnosed atrial fibrillation in Sweden is estimated to be 127,000.[1*]

To reduce the serious health risks that untreated atrial fibrillation leads to, efforts to reduce the number of undiagnosed cases are required. Undetected atrial fibrillation is one of the most important factors that can reduce the number of stroke cases.

Regions with lower number of undetected cases have more diagnosed atrial fibrillation than they should have, given the demographic composition. This indicates that the region is better than the average at detecting atrial fibrillation. The figures are model-based estimates but indicate that there are large differences between the regions.

**The number of undetected cases is the difference between diagnosed cases and the number of cases of atrial fibrillation estimated to be in the population based on the proportion of new cases detected in the STROKESTOP study.*



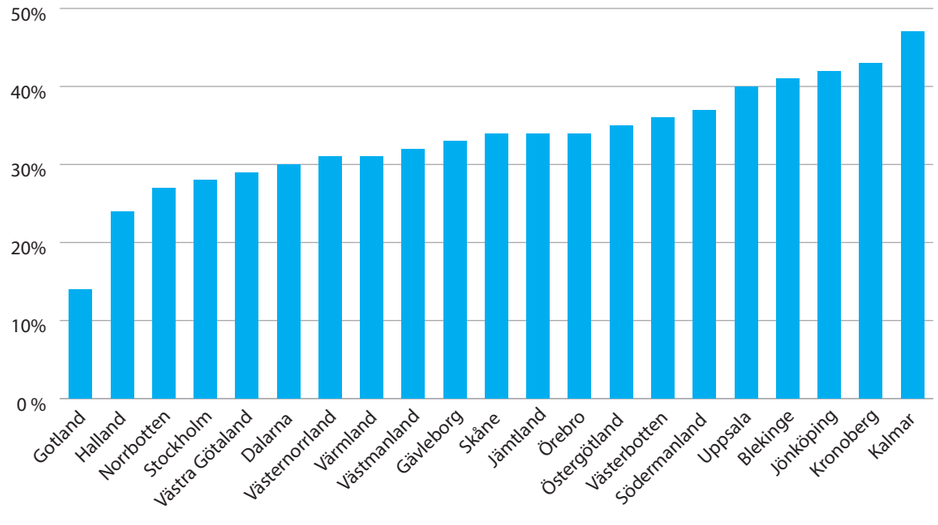
### Screening for atrial fibrillation

A national screening program for atrial fibrillation has been a topical issue in recent years. Atrial fibrillation is a disease that meets many of WHO's criteria for evidence-based screening programs.[22] The European Cardiologist Society (ESC) has also recommended screening for people at increased risk of stroke for many years, such as the elderly, patients with high blood pressure, heart failure and diabetics who visit healthcare providers.[25]

In 2017, the National Board of Health and Welfare investigated screening for atrial fibrillation in Sweden. For the time being, the Board has recommended not to introduce a screening program because lack of sufficient scientific evidence to demonstrate a stroke prevention effect of screening.[26]

Recent studies have shown that screening is beneficial in older age groups, and that screening and preventive treatment can reduce morbidity and mortality.[27] Studies have also shown that screening atrial fibrillation is health-economically effective, and that broad screening of atrial fibrillation is a cost-saving effort for society.[28] In view of the new results, there is a basis for the National Board of Health and Welfare to re-investigate the introduction of a screening program for atrial fibrillation in Sweden in the future.

## *Estimated proportion of undetected atrial fibrillation by region*




Source: National Board of Health and Welfare and SCB (2021).

# Investing in flexible ECG technology saves lives

*Atrial fibrillation is determined by an ECG that measures the electrical activity of the heart. Today, there are many ways to perform an ECG.*

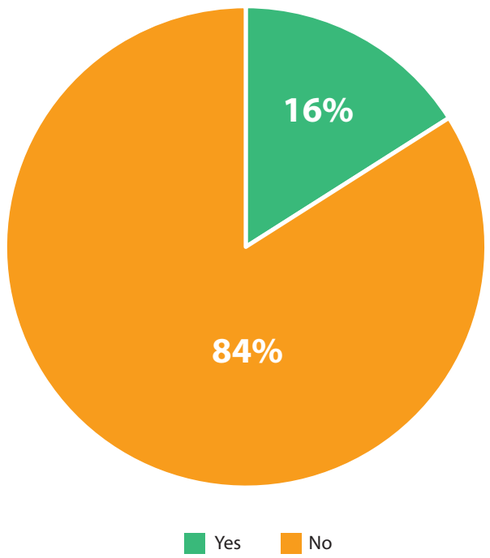
All hospitals use traditional 12-lead ECGs. Electrodes that are attached to the chest record the heart during the time the patient is examined at the healthcare visit. To find hidden atrial fibrillation, it is also common to examine the heart with a long-term ECG. With long-term ECG, the activity of the heart is measured for one or more days. Electrodes are attached to the chest during a visit to the hospital. A small portable recording device reads the activity of the heart during everyday activities. The equipment is then returned, and a doctor can analyze the activity of the heart for the period of recording. Long-term ECGs are also sometimes referred to as Holter ECG or recorder ECG.

As more flexible ECG technology becomes available, more possibilities for detecting and diagnosing atrial fibrillation also emerge. Nowadays there are many technical aids that make it easy to examine your heart. Some are already in use in healthcare and some aids can be purchased and used by patients themselves. Examples of methods for ECG-testing at home are mobile health apps that measures the pulse in the index finger tip through the phone's camera, or heart rate monitors with LEDs that record the heart rhythm in the wrist.

A great advantage of many of these technical aids is that they can regularly measure the activity of the heart in everyday life, even during times when the user is not in contact with a healthcare provider.

Only one in six people with an atrial fibrillation diagnosis who responded to the Swedish Heart and Lung Association's member survey has been given the opportunity to examine their heart through healthcare with flexible and portable ECG equipment (thumb ECG, ECG patches or similar).

***Has your healthcare provider offered you an opportunity to use a technical aid to measure your atrial fibrillation?***




Source: The Swedish Heart and Lung Association's membership survey 2023. A total of 927 people answered the question.
Technical aid means, for example, a thumb ECG, ECG patch or similar.



### ECG patch monitor

With an ECG patch, a monitor is attached using a sticker to the skin. One advantage of ECG patch monitors is that heart rhythm activity can be measured over a longer period of time compared to a traditional long-term ECG, and continuously compared to handheld ECGs.

Philips ePatch


ECG247

### Handheld ECG

Handheld ECGs are easy to carry. The test takes only a few minutes and the user can choose when to examine their heart, for example in the event of symptoms. Some handheld ECG monitors also have the ability to directly send the result digitally to the healthcare provider.


Coala Heart Monitor

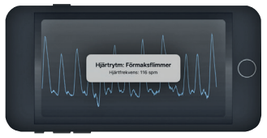

Zenicor


MyDiagnostick

### Smart watches

Many of today's smart watches have features that make it possible to read heart activity through ECG. Some watches also have the option to save the measurement as a PDF file that the user can share with their doctor.

Apple Watch



Cellphone

### Make the most of flexible technical aids

Flexible technical aids make it possible to measure the activity of the heart on a regular basis even when the patient is not in contact with their healthcare provider. If more people have access to an easy way to examine their heart, the chance of detecting more cases of atrial fibrillation increases. It prevents stroke, saves lives and increases quality of life for many.

It is important that healthcare providers take advantage of the opportunities that are opened up when flexible technical aids become available. It is an investment in the patients' health and in the healthcare system as a whole. Investing in ECG technology is an important step to save lives and increase the quality of life for those affected by atrial fibrillation.

# With a new approach, more than twice as many cases of atrial fibrillation have been detected

In 2019, a new approach was introduced to find more suspected cases of atrial fibrillation at healthcare centers in Region Värmland. In cases of suspected atrial fibrillation, patients are given the opportunity to borrow a handheld ECG from the healthcare center to monitor the heart remotely. The test takes place over two weeks. The patient measures their heart rhythm three times a day, or if they experience symptoms.

### A collaboration between healthcare centers and Clinical Physiology

The heart measurement is sent directly from the digital aid to Clinical Physiology where the recordings going on in the region are reviewed and interpreted on business days. If atrial fibrillation is detected, the healthcare center is alerted, so the doctor will be able to make an assessment of the right treatment.

### More people get the opportunity to examine their heart

The initiative to work in a new way to detect atrial fibrillation was taken after a doctoral thesis showed that many cases of atrial fibrillation can be detected through ECG technology loaned for home use to capture short and regular ECG recordings over a longer period.[29]

### Short, repeat ECG recordings are an effective method for detecting atrial fibrillation

In a doctoral thesis from Umeå University, participants were given the opportunity to examine their heart at home with an ECG twice a day for 2–4 weeks. Around 4% of the participants, who consisted of elderly patients with an increased risk of stroke, had a hidden, previously unknown atrial fibrillation and could thus be diagnosed and receive preventive treatment to reduce the risk of stroke.[30]

Today, virtually all healthcare centers in Region Värmland are able to offer a handheld ECG for monitoring the heart remotely.

> *“This is a good example of good and accessible care. The fact that the testing takes place directly, on site, makes it easier for patients.”*

***Fredrik Carlstedt,*** *Specialist in General Medicine and Assistant Unit Manager at the Healthcare Center in Storfors and Filipstad. Photo: Private.*

***Anders Eriksson*** *Head of Unit at Clinical Physiology, Karlstad Central Hospital.*
*Photo: Private.*

***Johanna Star-Tenn*** *Biomedical Analyst, Karlstad Central Hospital.*
*Photo: Private.*

# Experts in detecting atrial fibrillation

In Region Värmland, a thumb ECG is used in the investigation of suspected atrial fibrillation and the results of the measurements are sent digitally to Karlstad Central Hospital. Patients are given the opportunity to borrow a monitor at the healthcare center for examination of the heart at home. When a monitor is sent home with a patient, it can be seen in the hospital system, and registrations from patients around the region are analyzed every business day to detect atrial fibrillation or other arrhythmias.

### Analyzes several hundred measurements each week

Today, they analyze around 50–60 patients a day (about 150 measurements per day from patients throughout Värmland). Prior to the availability of thumb ECGs at the healthcare centers in the region, around 20 patients were analyzed a day. Every year around 1,000 patients are investigated, approximately 300 loans are made from the hospital, and around 700 loans are made from the stroke unit at the hospital and healthcare centers in Värmland.

### Education and cooperation with primary care is key

In order to maintain a good quality of the tests that come in for analysis, the dialogue between the hospital and the healthcare centers that allocate the equipment is important. Today, regular training is conducted on how best to measure heart rhythm during the time the patient has their thumbs placed against the monitor.

*"The queues to examination are shorter, patients avoid long travels, and the diagnosis is made by specialists in detecting arrhythmia in the heart"*

> *"This is an approach that works well, we can recommend the method to other regions when investigating suspected atrial fibrillation."*

# New decisions are needed

Atrial fibrillation is both a common and serious disease. It is also a disease with great options to reduce the risk of serious health problems with simple means. What is needed is focused work with initiatives that lead to more cases being discovered.

## Finding more cases of suspected atrial fibrillation

Much can be done to find and diagnose undetected cases. Today, most patients who visit healthcare providers with symptoms are referred from a healthcare center to a hospital for testing, a process that often requires several hospital visits. This not only leads to large healthcare costs, it also makes it particularly difficult for patients who do not live near a healthcare facility where the examination of their heart takes place.

Region Värmland's method of investigating atrial fibrillation in primary care through the possibility of home testing with flexible ECG technology is a good example of how it is possible, with simple means, to increase the number of people being tested. Through the method, it is also possible for patients to examine their heart for a longer period of time, and during those moments when they notice their atrial fibrillation symptoms. The experiences from the new approach in Region Värmland are positive. More people have been given the opportunity to carry out tests and the number of cases of atrial fibrillation detected has increased.

More regions should be inspired by Region Värmland and make it easy for people with symptoms to carry out tests. A good approach that uses flexible technical solutions and increases the possibility to prevent stroke.

## Finding more symptom-free cases of atrial fibrillation

In order to reduce the number of atrial fibrillation-related stroke cases, efforts leading to more hidden cases of atrial fibrillation being detected in the population are needed. One possible way is to make use of the targeted health-related discussions already being carried out by many regions in the country. Today, 11 of the country's 21 regions offer targeted health-related discussions for specific age groups, and additional regions have already decided to introduce targeted health-related discussions in the next coming years.[31]

As atrial fibrillation is particularly common in certain age groups, the health-related discussions already being conducted with people over 65 should also cover the topic of atrial fibrillation. In connection with this discussion, healthcare providers should inform about common symptoms, measure the pulse, and provide the opportunity to loan a flexible ECG equipment home.

The targeted health-related discussions are a natural opportunity to capture many of the undiscovered cases found in the population. The regions should design the targeted health-related discussions to also include a part that highlights and examines atrial fibrillation in the groups that are most at risk of being affected. It gives healthcare providers the possibility to effectively identify an abnormal heart rhythm and act quickly to prevent a future stroke.

### Investments reduce the number of undetected cases

Increased availability of flexible ECG technology, local initiatives to detect more cases and increased awareness of the disease in healthcare give hope that it is fully possible to detect more cases of atrial fibrillation before a stroke occurs. But today, an estimated 127,000 people in Sweden still live with an undiagnosed atrial fibrillation.

To reduce the number of undetected cases, investments that lead to more hidden cases being discovered in the population as well as investments that lead to increased diagnosis of atrial fibrillation in people who seek care with symptoms are needed. All of Sweden's regions have a responsibility to develop ECG diagnostics and give healthcare providers the right tools to detect more cases. This report shows that this is entirely possible. No one should have to find out that they have atrial fibrillation only after they have suffered a stroke.

### Summary

- Atrial fibrillation is a common and serious disease with a huge number of undetected cases.
- The undetected cases lead to serious complications such as stroke.
- Today, many patients have to wait months or years for their diagnosis.
- Screening in risk groups reduces the number of complications and is a cost-effective effort.
- Efforts are needed to detect more suspected as well as more symptom-free cases of atrial fibrillation.



# The work of the Swedish Heart and Lung Association

*This report focuses on the importance of detecting more cases of atrial fibrillation and suggests two possible ways for Sweden's regions to reduce the number of undetected cases based on how the healthcare system is structured today. But there is much that can be done for better care and everyday life once atrial fibrillation is detected and a diagnosis is established.*

- All patients should have access to specialized atrial fibrillation clinics.
- Patient education should be offered to everyone who is diagnosed with atrial fibrillation.
- Waiting times for ablation treatment need to be shortened.
- More research is needed in this area.

It is still often a coincidence that determines what the care process looks like for the person affected. Many regions need to ensure that there is a clear structure for care and follow-up for patients diagnosed with atrial fibrillation. Sweden needs more specialized atrial fibrillation clinics and patient education should be offered to everyone who is diagnosed with atrial fibrillation.

The Swedish Heart and Lung Association has developed useful material about atrial fibrillation that can be used in healthcare. *Active with Atrial Fibrillation* is patient education material that all healthcare centers, clinics and hospitals can use free of charge to educate patients with atrial fibrillation. The training material combines knowledge with practical tasks, videos and fact sheets so that the participants can absorb the material and translate the knowledge into practical actions in everyday life.

We are also developing training materials and programs that are tailored for people with atrial fibrillation. Through our local associations, we provide knowledge, motivation and activities for better self-care and lifestyle for those affected.

Help us do even more by becoming a member today.

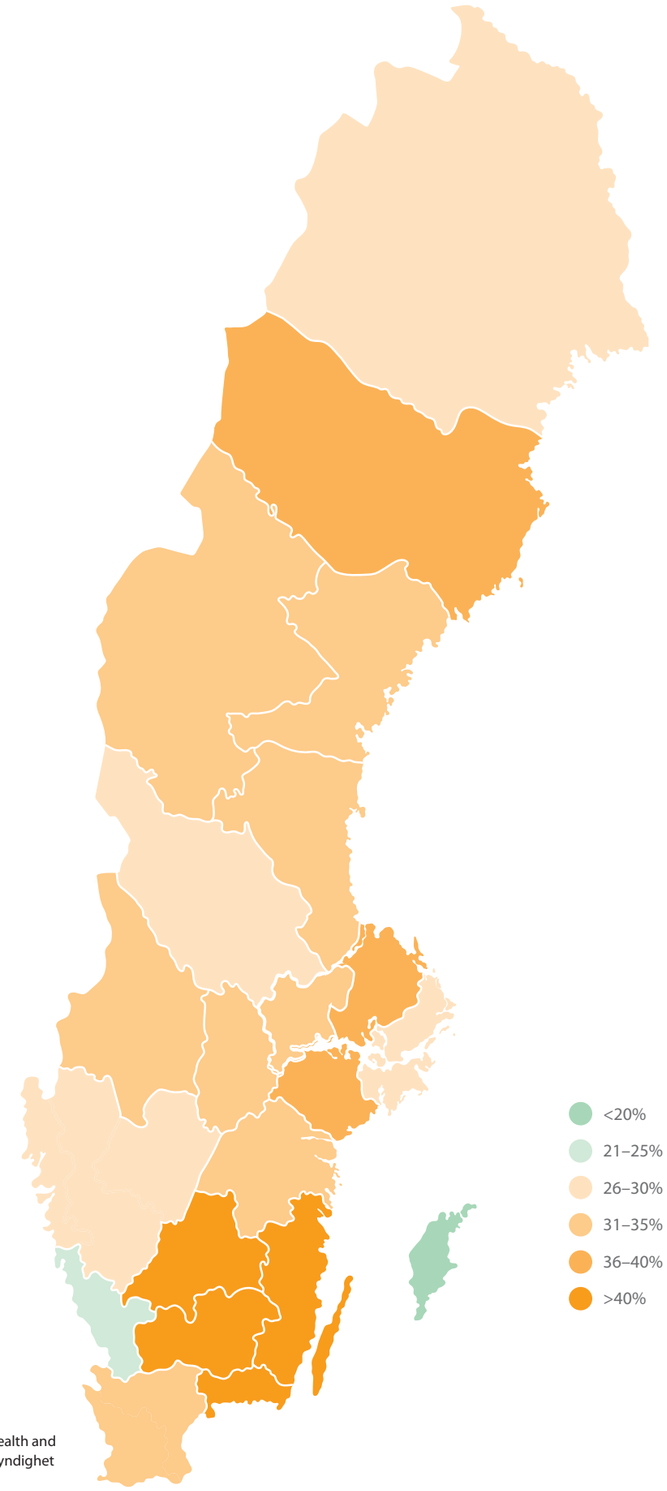
# Regional statistics

| Region | Cases detected | Number of undetected | Total number of cases | Real figure in % |
|---|---|---|---|---|
| Blekinge | 6,710 | 2,770 | 9,480 | 41% |
| Dalarna | 13,321 | 4,062 | 17,383 | 30% |
| Gotland | 3,347 | 480 | 3,827 | 14% |
| Gävleborg | 12,771 | 4,224 | 16,995 | 33% |
| Halland | 15,090 | 3,605 | 18,695 | 24% |
| Jämtland | 5,614 | 1,924 | 7,538 | 34% |
| Jönköping | 13,562 | 5,733 | 19,295 | 42% |
| Kalmar | 10,369 | 4,876 | 15,245 | 47% |
| Kronoberg | 7,584 | 3,227 | 10,811 | 43% |
| Norrbotten | 11,760 | 3,144 | 14,904 | 27% |
| Skåne | 51,797 | 17,377 | 69,174 | 34% |
| Stockholm | 78,803 | 22,374 | 101,177 | 28% |
| Södermanland | 12,210 | 4,549 | 16,759 | 37% |
| Uppsala | 13,063 | 5,280 | 18,343 | 40% |
| Värmland | 12,875 | 4,005 | 16,880 | 31% |
| Västerbotten | 10,632 | 3,811 | 14,443 | 36% |
| Västernorrland | 11,138 | 3,415 | 14,553 | 31% |
| Västmanland | 11,501 | 3,679 | 15,180 | 32% |
| Västra Götaland | 66,625 | 19,645 | 86,270 | 29% |
| Örebro | 12,117 | 4,174 | 16,291 | 34% |
| Östergötland | 17,957 | 6,333 | 24,290 | 35% |
| **Nationwide** | **398,846** | **127,631** | **526,477** | |

**Source:** Patient and drug registries from the National Board of Health and Welfare and statistics on the population of the regions from SCB (2021).

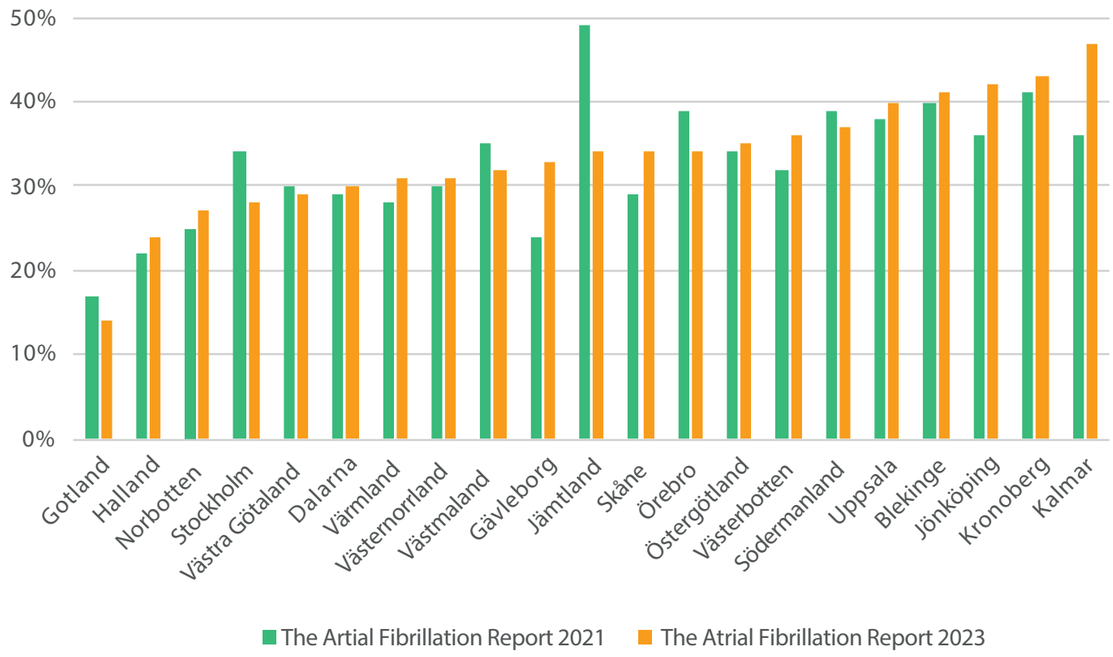
**About calculation of the number of undetected cases**
The calculation of the number of undetected cases of atrial fibrillation in the population is based on the proportion of newly discovered cases of atrial fibrillation detected in the STROKESTOP study. [32]
At a regional level, the results are based on national prevalence by age group, which has then been applied to the demographic structure of each region. This gives an estimated value of how many cases should have been detected, and this is then multiplied by the proportion of newly discovered cases in the STROKESTOP study. The sum is a model-based value of the total number of cases that should exist in each region. The real figure is thus the difference between the calculated value and the number of diagnosed cases of atrial fibrillation in each region.

## *Proportion of undetected cases of atrial fibrillation in the regions*




Source: National Board of Health and Welfare and SCB (Statistikmyndighet [Statistics Sweden]) (2021).

## *Change in the number of undetected cases between the Atrial Fibrillation Report 2021 and the Atrial Fibrillation Report 2023*




**Note:** The change in the number of undetected cases between the reports is largely due to an updated model to take into account the cases of atrial fibrillation diagnosed in primary care. In this edition of the Atrial Fibrillation Report, prescribing anticoagulants is used as a proxy for cases of atrial fibrillation diagnosed in primary care. In regions such as Jämtland, the number of cases diagnosed in primary care was underestimated in the previous model.



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**More information**

The Swedish Heart and Lung Association
Wollmar Yxkullsgatan 14
118 50 Stockholm
Telephone +46 8 556 06 200
www.hjart-lung.se

Pfizer
Solnavägen 3H
113 63 Stockholm
Telephone +46 8 550 520 00
www.pfizer.se

Bristol Myers Squibb
Box 1172
171 23 Solna
Telephone +46 8 704 71 00
www.bms.com/se

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