

# LEADING THE WAY IN CANCER TREATMENT

ANNUAL REPORT 2012

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## **ABOUT THE ILLUSTRATIONS IN THE ANNUAL REPORT**

The style of the large images associates with RaySearch's unique proprietary product, RayStation. The illustrations represent segments from a number of the 200 icons that play an important role in maximizing the use of RayStation's technology. For hospital physicians worldwide, the icons mean that they can increase the efficiency and accelerate their work to combat cancer. For you as a reader of the Annual Report, they mainly constitute a decorative element designed to lighten up the presentation.

# RAYSEARCH IN BRIEF

Linear accelerators (radiation machines) are used to provide radiation therapy to cancer patients. RaySearch develops the advanced software that is used to create radiation treatments with the highest precision. This is carried out with an advanced treatment planning system. An efficient treatment planning system ensures efficient radiation therapy. RaySearch is a leader in this field and thus plays a key role in the fight against cancer.



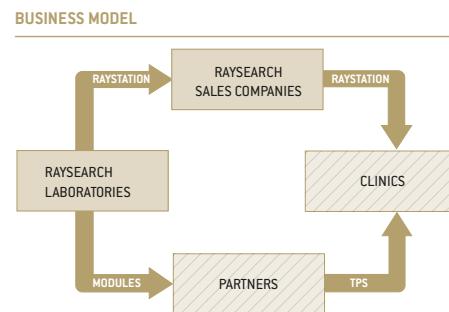
## A BETTER LIFE FOR PEOPLE

Nearly 13 million people are currently diagnosed with cancer each year. This figure is expected to rise sharply over the next few decades. At the same time, diagnostic methods and techniques for treating cancer are improving. Growing numbers of patients can thus overcome cancer. Nearly two of three patients survive today, and this positive trend continues. RaySearch's unique expertise in treatment planning plays a key role in this development.



## TREATMENT PLANNING IS CRITICAL

In radiation therapy, the physician proceeds from x-ray images of the area afflicted with cancer. The images are used to define the shape and extent of the tumor in three dimensions, as well as the bodily organs at risk. The physician then creates a radiation treatment plan that corresponds to the patient's specific needs. This is performed with a treatment planning system that optimizes and visualizes all parameters. RaySearch offers systems for various types of radiation therapy, from basic to the most advanced.



## TWO ROUTES TO MARKET

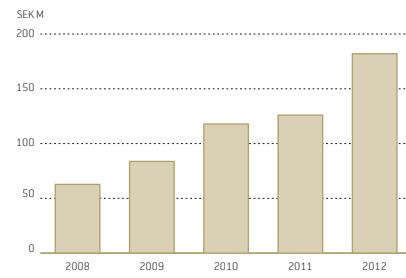
RaySearch's business model is based on two routes to the end customer. Some of the company's software products are sold through leading commercial partners. These products are included as integrated modules in the partners' various treatment planning systems. In addition, RaySearch sells its complete proprietary treatment planning system, RayStation, via the in-house sales organization directly to the customers. This direct sales channel currently accounts for approximately one third of total sales, a share that is rising fast.



#### AT 2,000 CLINICS IN 30 COUNTRIES

RaySearch's software products are primarily used in hospitals and clinics in the US and Europe. Installations in Asia are concentrated to Japan, but China and India are important emerging markets with growing potential since their economies are growing rapidly. In total, more than 2,000 clinics in over 30 countries are currently using RaySearch's solutions for their treatment planning. In all, hundreds of thousands of cancer treatments are carried out each year based on RaySearch's unique expertise.

#### NET SALES



#### WORLD-LEADING EXPERTISE

RaySearch was founded in 2000 as a spin-off from Karolinska Institutet in Stockholm, Sweden. The founders are still major shareholders in the company. In just over ten years, the company has established a world-leading position in the field and 15 products have been launched in the market in collaboration with partners. To date, RayStation, the new proprietary treatment planning system, has resulted in 40 orders to world-leading clinics.

#### FOCUS ON RESEARCH AND DEVELOPMENT

RaySearch's leading position is based on long-term collaboration with scientific institutes worldwide. Close contacts with clinical partners are also essential to secure RaySearch's expertise. Some examples are the development cooperation in proton therapy with the German clinic Westdeutsches Protonen-therapiezentrum Essen, the development of multi-criteria optimization together with Massachusetts General Hospital in the US and the collaboration in adaptive radiation therapy with Princess Margaret Hospital in Canada.

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# LEADING THE WAY IN CANCER TREATMENT

More than eight million people worldwide die from cancer each year. Of all deaths, 12 percent are related to this pandemic. Every year, nearly 13 million new cancer cases are diagnosed. The fight against cancer is one of the greatest challenges facing medical science.

But there is a positive trend. Since the 1970s, the number of patients who defeat cancer has risen by 50 percent. Nearly two of three cancer patients survive today. This is because resources for fighting cancer have increased and techniques for treatment have improved.

As part of this development, radiation therapy has emerged as the most widely used and cost-effective form of treatment. More than half of all cancer patients today are treated with radiation therapy. The key to success with this method is the ability to adjust the radiation dose with great accuracy to each individual patient. This creates both clinical benefits and cost efficiency.

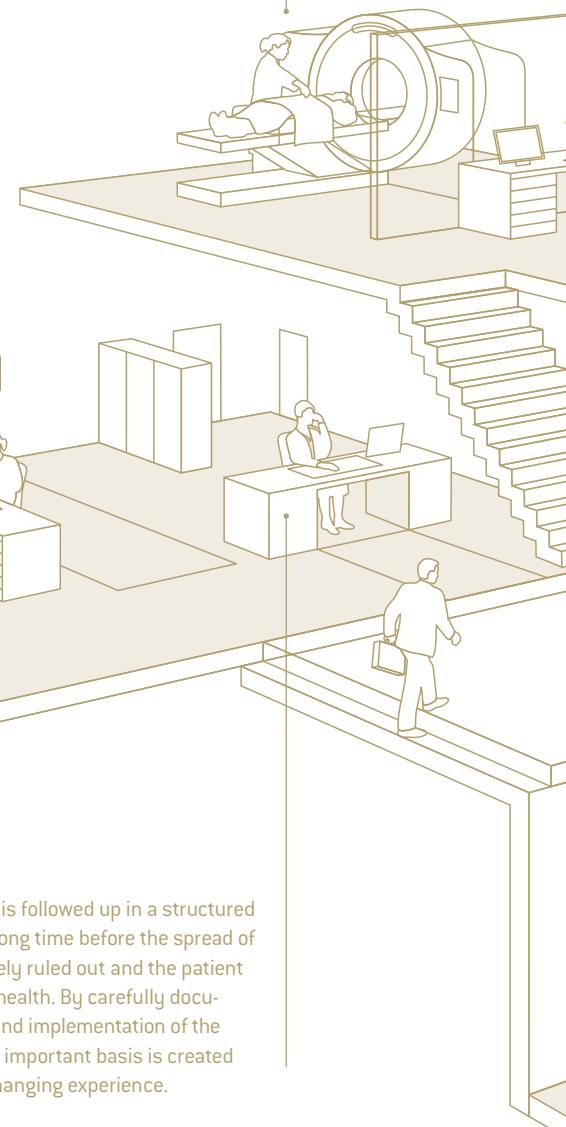
RaySearch is a world leader in the field of advanced software for radiation therapy. Our solutions are used successfully in just over 2,000 clinics in more than 30 countries. Our expertise is on the cutting edge in the fight against cancer.

# RAYSEARCH PLAYS A KEY ROLE IN RADIATION THERAPY

1

**DIAGNOSIS**

First, the cancer patient undergoes a comprehensive examination. The type, origin and extent of the tumor are carefully mapped. This is performed with methods including computed tomography, which provides a three-dimensional image of the tumor and surrounding organs. This image plays a crucial role in the upcoming radiation treatment.



2

**PRESCRIPTION**

The physician then formulates a radiation treatment prescription. This contains information about the areas that are to be treated, the total dose required, the number of treatment sessions needed and the healthy organs that must be given special consideration.

6

**FOLLOW-UP**

A concluded treatment is followed up in a structured manner. It may take a long time before the spread of cancer can be completely ruled out and the patient receives a clean bill of health. By carefully documenting the planning and implementation of the radiation treatment, an important basis is created for evaluating and exchanging experience.

*RaySearch's challenge is to support radiation therapy clinics so they can deliver better treatments to more patients with greater precision and high cost-efficiency. This figure describes the complex workflow in such a clinic, and where RaySearch's products are used.*

4

#### SIMULATION

When treatment planning and dose optimization are complete, the radiation treatment is simulated and controlled in a full-scale model of the linear accelerator. Using various devices, tests are used to work out the best way to position the patient so that each treatment can be performed with the patient in exactly the same position.

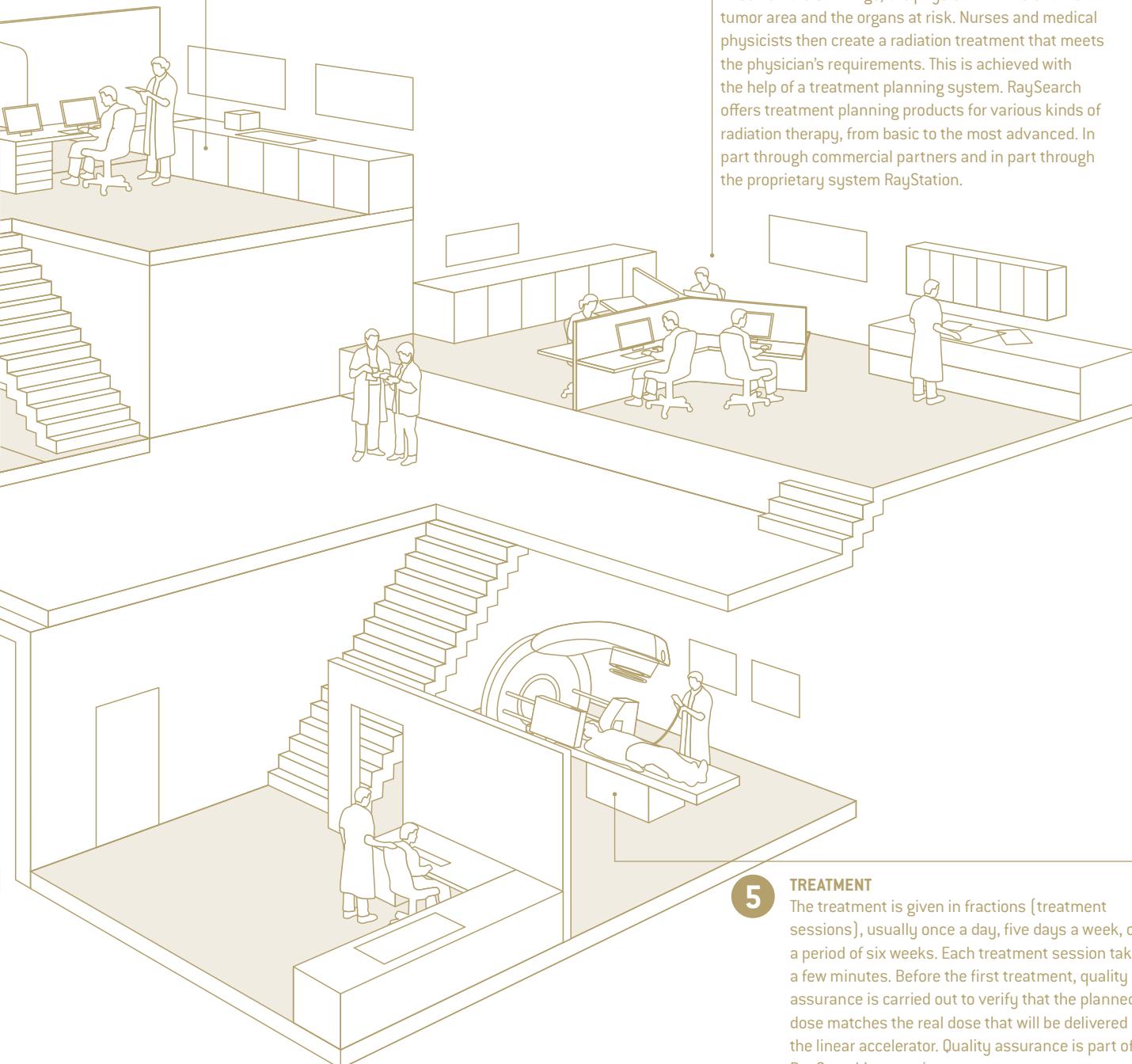
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#### RAYSEARCH IS INVOLVED HERE

3

#### TREATMENT PLANNING

Based on the 3D image, the physician marks out the tumor area and the organs at risk. Nurses and medical physicists then create a radiation treatment that meets the physician's requirements. This is achieved with the help of a treatment planning system. RaySearch offers treatment planning products for various kinds of radiation therapy, from basic to the most advanced. In part through commercial partners and in part through the proprietary system RayStation.



5

#### TREATMENT

The treatment is given in fractions (treatment sessions), usually once a day, five days a week, over a period of six weeks. Each treatment session takes a few minutes. Before the first treatment, quality assurance is carried out to verify that the planned dose matches the real dose that will be delivered by the linear accelerator. Quality assurance is part of RaySearch's expertise.

# RAYSTATION BOOSTED THE YEAR



ONE MAJOR SUCCESS was the order we received in October from the Austrian ion beam therapy center MedAustron. This is a highly advanced clinic that is under development and will treat patients using protons as well as carbon ions. The order is our largest to date, with an order value exceeding EUR 3.5 M plus support revenue for the duration of the system's clinical use.

## MOMENTUM FOR RAYSTATION

In 2013, we anticipate continued strong interest from the US, our largest market, and Europe and Asia, where we are involved in numerous sales activities both independently and together with our distributors. The positive trend continues and in January we were able to present our first orders from Spain and France. We are also continuing to build our sales and service organization. In Asia, we are working intensely with our distributors in South Korea, where sales are progressing at full speed, and in China, where we expect to receive regulatory approval shortly. We are also working on establishing sales offices in new markets and we are planning to recruit additional sales staff in Europe.

## HIGHER SALES OF PARTNER PRODUCTS

Sales of partner products rose in 2012, due to sales via Philips being higher than in 2011. Revenues via Nucletron, Accuray, IBA Dosimetry and Varian remained largely unchanged.

The cooperation with Siemens, which had been in the process of being phased out since Siemens decided to abandon the radiation therapy field late 2011, was terminated in December. As a result of the termination, RaySearch obtained a one-off payment of approximately EUR 1 M and certain intellectual property rights. In conjunction with the termination, a minor write-down of capitalized development expenditure was recorded concerning the software that was developed specifically for Siemens and is not reusable in any other product.

## STRONG REVENUE INCREASE

The sharply increasing sales of RayStation® combined with sales of partner products entailed a 44.4-percent rise in revenues to SEK 182.1 M (126.1). Profit for the period increased somewhat to SEK 19.9 M (17.0). It is also worth mentioning that cash flow rose to SEK 33.3 M (negative: 46.2).

*Throughout 2012, we noted rising interest in our treatment planning system RayStation, and the year ended on a very strong note with a number of major orders. Overall, orders for more than 100 RayStation systems were distributed among 23 customers in Australia, Belgium, Italy, Canada, New Zealand, Switzerland, South Korea, Germany, US, and Austria.*

The fact that profit increased proportionately less than revenue was due primarily to the build-up of infrastructure for selling and marketing RayStation, which led to higher costs than in 2011. RaySearch also paid high legal fees in the US resulting from the patent dispute with Prowess.

#### **PATENT PROCESS CONTINUES**

In May 2011 we were sued by the US company Prowess, which claims that we have infringed on a US patent that they license. We believe there is no infringement and in addition, that the patent should be invalidated since there is prior art in numerous older publications describing the same methods. We have a strong defense and hope to win the case.

The process continues and we are focusing a great deal of energy on the matter to defend ourselves in the best possible manner. It is still difficult to predict how long it will take to resolve the dispute and the total costs this will entail for RaySearch. However, it is clear that we will continue to incur substantial legal costs in 2013.

#### **CONTINUED FOCUS ON RAYSTATION**

The first version of RayStation for general use was released in January 2012; we released the next version in August, while an additional version was released in March 2013. This means that we maintain a considerably higher development pace than our competitors and this development work will continue. RayStation is already a fantastic product but there is still much we wish to add and we are incorporating many improvements suggested by our customers that use the system in a clinical setting.

In September, we also signed a license agreement with the world-leading clinic, the Princess Margaret Cancer Centre, which entitles us to incorporate very interesting technology for automatic treatment planning into RayStation. This technology has been developed and tested clinically at the Princess Margaret and has major potential to simplify work to develop treatment plans for breast-cancer patients.

We will continue to collaborate with our remaining partners parallel to these activities. For example, we are in the process of completing a new version of the quality-assurance system, COMPASS®, jointly with IBA Dosimetry.

#### **INITIAL PHASE PASSED**

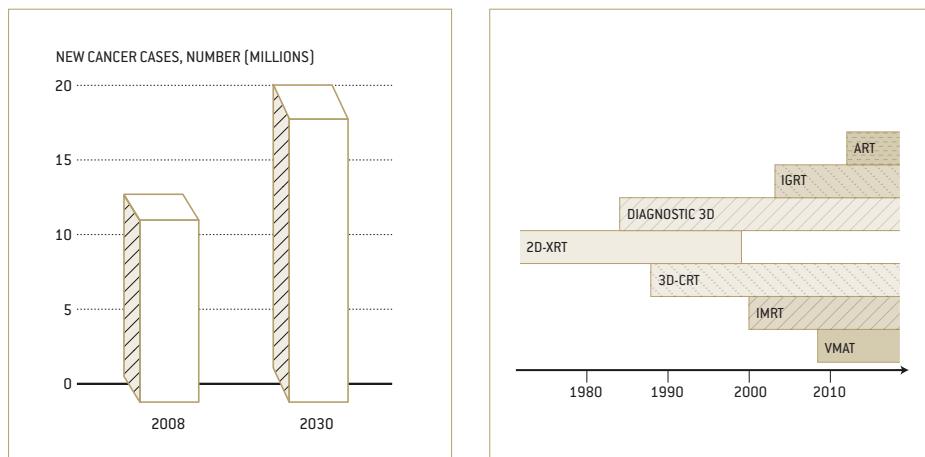
We are now past the crucial initial phase of establishing RayStation in many markets and have already secured customers in 13 countries. 2013 will be marked by the continuing establishment of a global sales, marketing and support organization for RayStation. However, we are proceeding cautiously and will build the infrastructure step by step with the goal of a positive profit contribution from the direct sales effort also in the short-term. Since there are major fluctuations in deliveries, earnings may also fluctuate from quarter to quarter.

We are noting how interest in our system is rising continuously and we are involved in an increasing number of ongoing business discussions throughout the world. It is difficult to predict how rapidly the interest will translate into orders and deliveries, but we are looking forward to 2013 with great confidence.



Johan Löf  
President, RaySearch Laboratories AB

# AT THE FOREFRONT OF RAPID DEVELOPMENT



## A GROWING NEED

Cancer is one of the major global public health problems. At present, nearly 13 million people develop cancer every year. According to estimates, this figure will rise to approximately 20 million by 2030. Radiation therapy is the most cost-efficient way of treating cancer. The key to successful radiation therapy is that treatment planning systems evolve to provide increasingly accurate treatments.

## NEW METHODS DRIVE DEVELOPMENT

The trend is moving increasingly towards more advanced methods of radiation therapy. The most common method is still traditional 3D-CRT. But new techniques that allow better adjustment to the shape of the tumor are emerging rapidly. The challenge lies in increasing the dose of radiation to the cancer-affected area while reducing damage to the surrounding healthy tissue. RaySearch conducts extremely fast product development and is a world leader when it comes to producing advanced software that supports these new techniques.

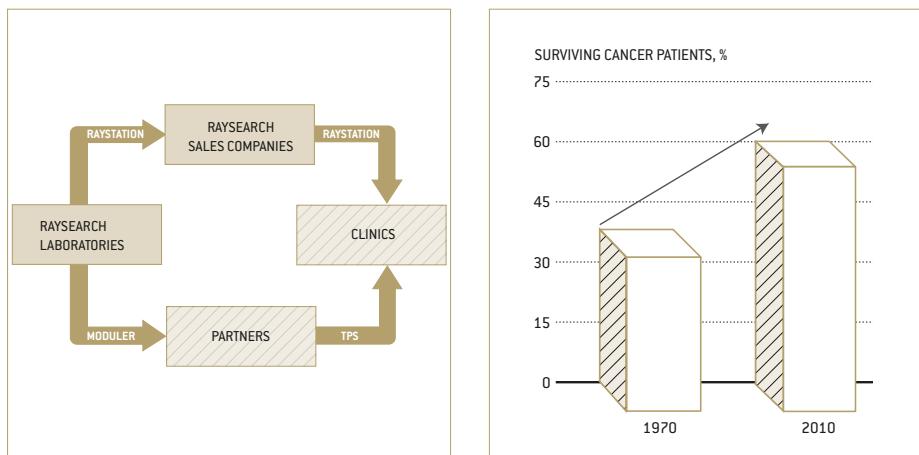
## CURRENT POSITION

RaySearch's treatment planning system is used by more than 2,000 cancer clinics in over 30 countries. This means that we are used in nearly every fourth clinic in the world.

## CURRENT POSITION

RaySearch currently has treatment planning systems for all radiation therapy areas. We pioneer development in the most advanced areas – proton therapy and adaptive radiation therapy.

*RaySearch's business concept is to develop and market innovative software for improved radiation therapy of cancer. Our driving force is to improve the lives and health of people by reducing the time it takes for new scientific advancements in radiation therapy to reach clinical application. RaySearch's role is to be the leading supplier of advanced software in radiation therapy. This is supported by our business model.*



#### DIRECT ACCESS TO CLINICS

RaySearch's business model is based on two routes to the end customer. Some of the company's software products are sold through leading commercial partners. These products are included as integrated modules in the partners' various treatment planning systems. In addition, RaySearch sells its complete proprietary treatment planning system, RayStation. The system contains all of RaySearch's advanced treatment planning solutions integrated into a flexible system. RayStation is sold directly to end customers through the company's own sales organization.

#### CURRENT POSITION

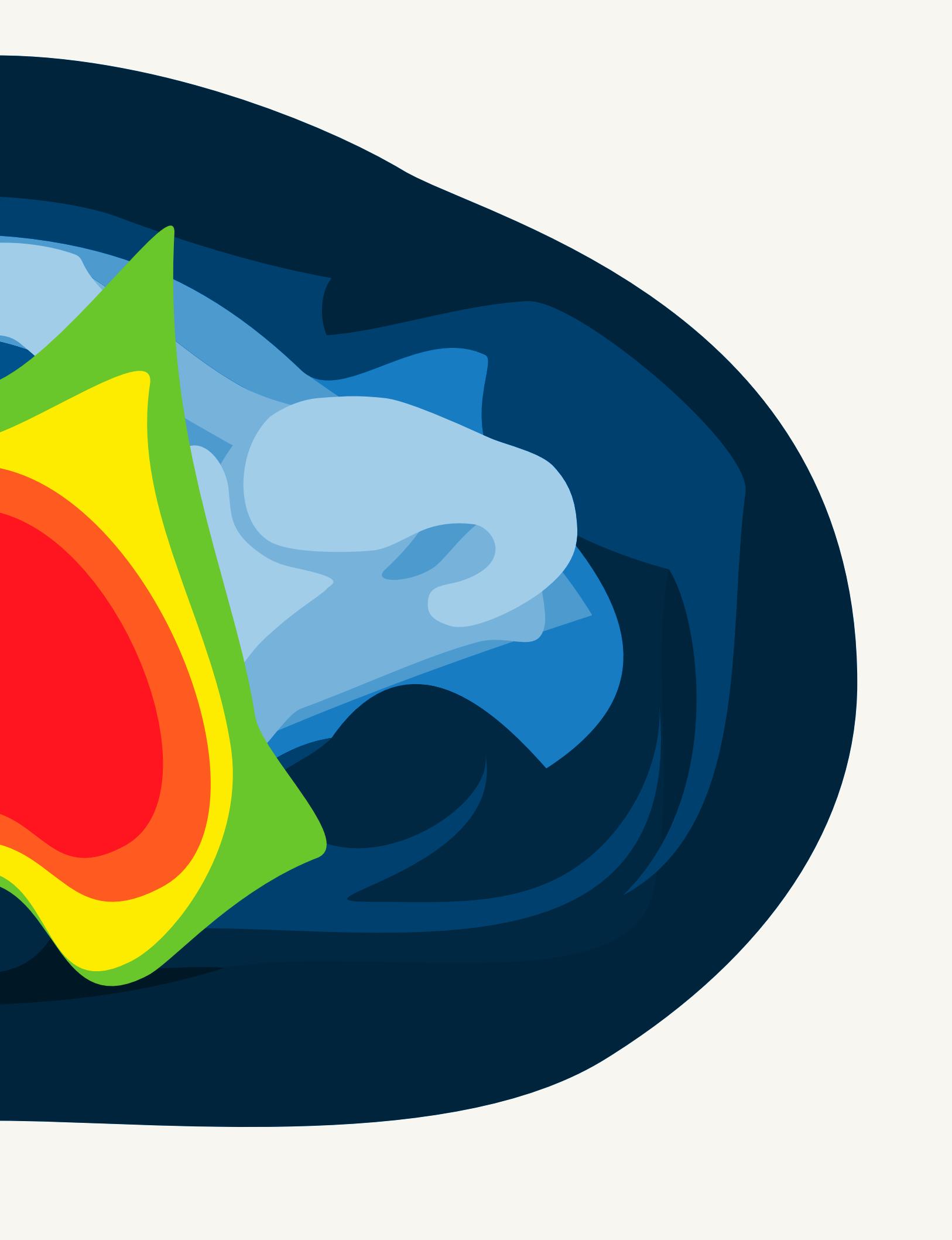
RaySearch currently has licensing agreements with five commercial partners. RayStation has resulted in 40 orders to date (March 2013) and accounts for some 30 percent of the company's sales.

#### A BETTER LIFE FOR PEOPLE

In the early 1970s, only about 40 percent of all cancer patients survived. Due to improved methods for diagnosis and treatment, the survival rate has now increased to about 60 percent. This positive trend is expected to continue. More people will develop cancer, but a larger proportion may be cured of their disease as techniques are further refined. With its unique expertise, RaySearch wants to be a driving force in this development.

#### CURRENT POSITION

RaySearch invests approximately 45 percent of its revenues in research and development. Our driving force is to improve the lives and health of people with our specialist knowledge.



# 13 MILLION PEOPLE DEVELOP CANCER EVERY YEAR

*At present, nearly 13 million people worldwide develop cancer every year. The trend is increasing. By 2030, the number is estimated to be about 20 million per year. At the same time, the advances in diagnosis and treatment are extremely positive. The increase in cancer patients who survive is due to greater resources and improved methods of care. In the early 1970s, 40 percent of cancer patients survived. The corresponding figure today is about 60 percent and expected to increase.*

THE NUMBER OF CANCER CASES has continuously increased since the 1950s when statistics were first available. The number of registered cancer cases in the West has doubled compared with 50 years ago.

At present, up to 13 million people worldwide are diagnosed with cancer every year. Various estimates also claim that the number of cancer cases around the world will continue to rise rapidly. In 40 years' time, according to calculations from WHO, the number of people developing cancer each year will have more than doubled.

The increase will move significantly faster in emerging economies, which start from a lower level compared with the US, Europe and Japan. In Brazil, Russia, India and China (the BRIC countries), an annual increase of 4.5 percent is predicted compared with the global increase of 3 percent. This higher level derives from longer life expectancies and from lifestyles in these countries moving increasingly towards more Western traditions.

## TWO OF THREE SURVIVE

At present, eight million cancer sufferers die annually. This accounts for slightly more than 12 percent of the registered deaths worldwide. The number of deaths caused by cancer is expected to continue rising and is estimated to exceed 13 million by 2030. This is an increase of slightly more than 60 percent, but is lower than the rate of increase for new cancer cases. The prediction is that the fight against cancer will become more successful.

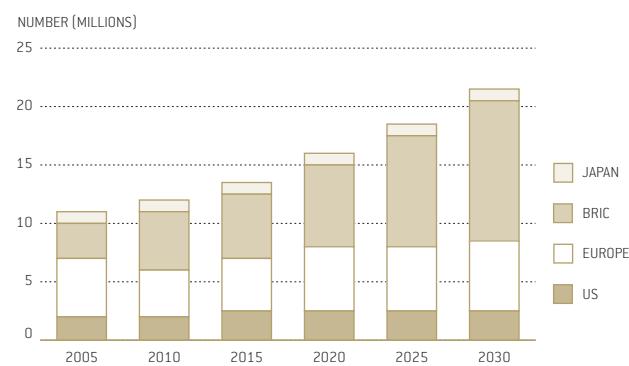
This is based on the growing number of resources being mobilized in this area. Methods for diagnosing cancer are becoming more effective and are better utilized. Treatment techniques are being developed and refined. Today, 60 percent of all cancer patients are expected to survive – a significant increase since the early 1970s, when the percentage was only about 40 percent. This positive trend is expected to continue.

## ECONOMIC GROWTH CREATES RESOURCES

Demand for resources to treat cancer will be particularly strong in China and India. There is no developed cancer care in these countries at present. The anticipated robust economic growth in this part of the world is creating opportunities for a substantial mobilization in cancer care.

Today, 52 percent of all cancer cases occur in low and middle-income countries, where opportunities for diagnosis and treatment are currently limited. These countries also account for a larger proportion of deaths, at 59 percent. This should be placed in relation to the significant increase in the number of cancer cases that are discovered, treated and cured in the wealthier part of the world in recent decades.

## NEW CASES OF CANCER, WORLDWIDE 2005–2030



SOURCE: WORLD HEALTH ORGANIZATION

# *"RayStation is the most innovative system available"*



Dr. Bernd Mößlacher is CEO of the cutting-edge MedAustron cancer treatment center.

MedAustron is currently in the construction phase. Approximately EUR 200 M is being invested in the facility to be completed in 2015. By then, up to 1,400 patients will be treated annually using protons and carbon ion radiation.



*In 2012, RaySearch received its largest RayStation order to date in terms of order value. It was also the first order in the field of carbon ions. The customer MedAustron in Wiener Neustadt, Austria, is one of the leading radiation therapy centers in the world. The company is currently in the build-up phase of a cutting-edge facility for cancer treatment with ions. RayStation will be used not only for treatments with protons and carbon ions but also for conventional treatments as back-up. In the following, Dr. Bernd Mößlacher, CEO of MedAustron, gives his views on the project and the collaboration with RaySearch.*

#### **What is the concept behind the MedAustron center now being built up?**

MedAustron regards itself as an interdisciplinary and nationwide Austrian center. It will specialize in cancer treatment with ions other than protons, the research and development of this new therapy and non-clinical research with ion and proton irradiation. After the center's completion in 2015, up to 1,400 patients can be treated annually using protons and carbon ion radiation. Currently only three centers worldwide offer these two radiation treatment options at the same location.

#### **Can you in a simple way explain what ion beam therapy is?**

Ion beam therapy is an innovative form of radiation therapy using protons and carbon ions. The difference from conventional radiotherapy is that the ion beam can be controlled accurately by adjusting the energy within its range. Ions penetrate the healthy tissue with a low entrance dose, delivering the highest dose effectively in the tumor and showing an extremely low dose behind the tumor.

#### **What are the main advantages of ion beam therapy?**

This treatment is able to reduce radiation exposure to adjacent healthy tissue and to spare the tissue behind the tumor almost entirely. Therefore, ion beam therapy is an optimal treatment method for tumors close to radiosensitive organs, like the brain and the spinal cord, eyes, liver and lungs. Due to the significantly reduced side effects, this treatment is especially appropriate for children and young adolescents. Sparing healthy tissue and minimizing side effects are the main advantages of ion beam therapy. Further, certain cancer cells that are resistant to conventional radiation therapy can be successfully addressed with this method.

#### **This is an extremely advanced treatment method.**

#### **What challenges are you facing?**

Even among other similar centers, MedAustron is a unique project. There is almost no off-shelf equipment for our specific requirements, neither hardware nor software. One of the biggest challenges is therefore to find suppliers for all the requisite equipment who are able and willing to develop suitable devices according to our specific requirements.

#### **Why did you choose RayStation for treatment planning?**

Because it's the most innovative system available and it's able to fulfill the high demands we make on our treatment delivery system. From the very start, RaySearch showed both the flexibility and high competency necessary for such a demanding partnership.

#### **How is collaboration with RaySearch progressing?**

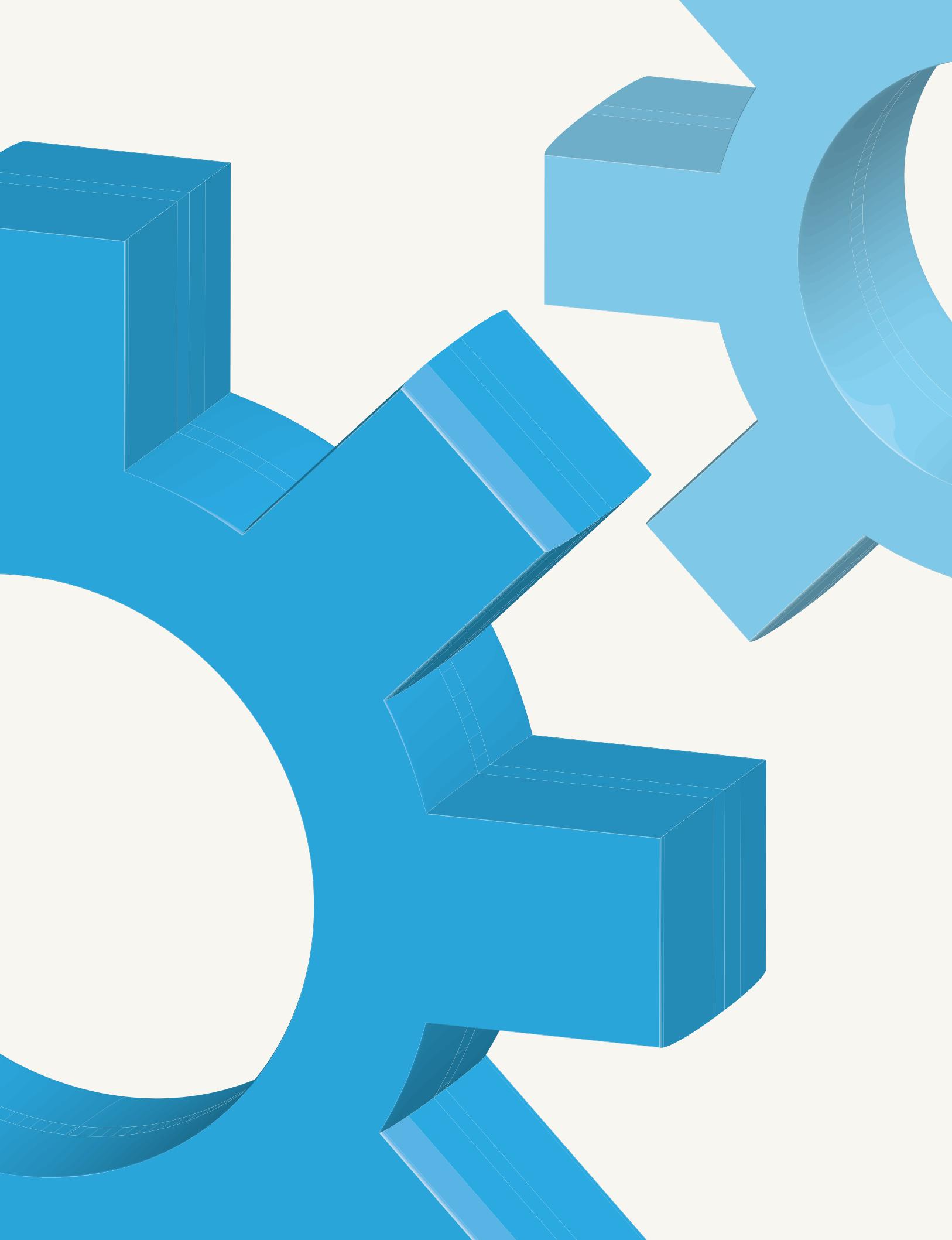
We are currently in the set-up process, where the specific requirements and their implementation are being discussed in regular meetings. We are very happy about our collaboration with RaySearch, as it is progressing excellently – we do have a very pleasant and highly productive working atmosphere.

#### **What is the time schedule for the project?**

In 2013, the installation of the accelerator will be completed, and will then be followed by a technical trial operation and the installation of the medical equipment. The trial operation of the complete plant is scheduled for 2015, and the first patients will be treated at the end of 2015.

#### **Your vision for the future?**

MedAustron aims to be one of the most advanced centers for ion beam therapy and research worldwide. Future patients will have access to cutting-edge medicine. Up-to-date scientific results, modern technology and an outstanding team of doctors and scientists will give cancer patients and their families' reason to hope.



The incentive for the companies to partner with RaySearch is that our expertise lies at the leading edge of the treatment planning area. This is based on ongoing research collaborations with scientific institutions around the world and close collaboration with selected clinics. RaySearch understands their current and future needs. The trend is accelerating, new treatment areas are being introduced and treatment planning techniques are becoming increasingly refined and advanced. RaySearch is at the center of these events, providing unique know-how in treatment planning, which also benefits our partners.

This collective expertise is now integrated in RayStation, a complete treatment planning system developed by RaySearch. It contains all of RaySearch's – and thus the market's – most advanced treatment planning solutions, integrated into a flexible system. RayStation represents a new generation in the world of treatment planning systems. A major benefit is that RayStation gives cancer clinics a unique opportunity to evaluate a wide range of treatment alternatives intuitively and efficiently. Without a doubt, RayStation adds a new dimension to treatment planning and cancer treatment.

RayStation presents new opportunities and challenges for the way that RaySearch acts in the market. RaySearch will continue working with its partners. They will sell RaySearch products integrated into their systems. In addition, RaySearch markets RayStation directly to its own customers. As a consequence of this, RaySearch has established its own sales and service organization. For example RaySearch has established a subsidiary in the US to cover the important North American market.

The market for the treatment planning systems was valued at over USD 400 M at user level in 2012. RaySearch generated SEK 182 M. With RayStation, the intention is to increase this market share.

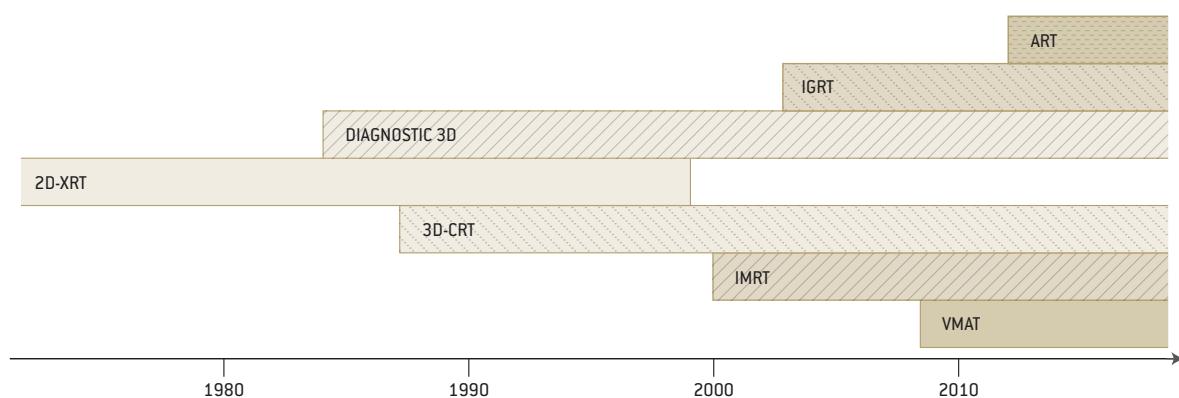
### RAPID DEVELOPMENT

Radiation therapy is becoming increasingly advanced. The most common method is still traditional 3D-CRT, which was introduced about 20 years ago. But in the US, the global leader in this field, newer techniques account for about 30 to 40 percent of all treatments. The purpose of these new treatment techniques is to avoid the compromise that 3D-CRT involves. The challenge is to increase the dose to the tumor while reducing radiation exposure to surrounding healthy tissue.

RayStation is, of course, compatible with all of these new techniques. The system contains algorithms for optimizing IMRT and VMAT, highly accurate dose calculation algorithms for both photons and protons and full support for four-dimensional adaptive radiation therapy. But RayStation also encompasses traditional 3D-CRT. A great deal of improvements can be made to this treatment method. 3D-CRT treatment planning is time-consuming because finding the right treatment settings involves significant manual work. The opportunities to simplify the process are radically improved with RayStation.

The table below provides an overview of various treatment methods and their principal properties and benefits. The methods are described in more detail in the section below the table.

### DEVELOPMENT OF RADIATION THERAPY TECHNIQUES



Until the mid-1980s, technology was driven by only having two-dimensional images.

When 3D systems were introduced, patients could be treated with multiple beams and customized angles and thus avoid damage to adjacent healthy organs. When multileaf collimators were introduced, it became easier to adapt the shape of the radiation beam to the tumor.

New and advanced software made IMRT treatment possible. By modulating the intensity of the beams, the treatment could be adjusted to the shape of the tumor. VMAT is a follow-on from

IMRT. The machine rotates while the beam is turned on, which shortens the treatment process.

IGRT is based on the integration of an imaging system (2D or 3D) with a linear accelerator. Adjustments can be made for the position of the tumor in each treatment. In adaptive radiation therapy, the dose distribution is adjusted for the position and shape of the tumor in each treatment. This requires more advanced software plus a 3D-imaging system that is integrated with the linear accelerator.

# Four customers, four perspectives



**THE JAMES E. CARY CANCER CENTER** is responsible for radiation therapy services at the Hannibal Regional Hospital, covering an area that includes northeast Missouri, west-central Illinois and southwest Iowa, USA.

Stephen Rose, Chief Physicist at the James E. Cary Cancer Center, has this to say about the decision to purchase RayStation: "We knew RaySearch had developed a number of computational algorithms and solutions for just about all of the currently available commercial treatment planning systems. After seeing a demonstration of RayStation for myself, I knew this was the treatment planning system for our facility."

RayStation was implemented into clinical use in June 2012, with version 3.0 software. "Since purchasing this system and implementing it as our primary treatment planning system, I have continued to be impressed by the product and the support we have received. As a small facility, time is of the essence in implementing any new system and I was pleased with the extensive hands-on service that was provided during commissioning of this system," states Stephen. "I am also impressed by RaySearch America's continued customer service and response to our input for product improvement."

**THE SAMSUNG MEDICAL CENTER**, in Seoul, South Korea, is a teaching hospital affiliated with Sungkyunkwan University's school of medicine. The hospital has a large state-of-the-art cancer center where up to 400 patients are treated with radiation therapy every day.

"Our first contact with RayStation was at an international scientific meeting. We then had an in-depth presentation at our premises followed by an evaluation period for a couple of months. This convinced us to sign a contract in February 2012", says Dr. Youngjih Han at the Samsung Medical Center. "RayStation will be used for the planning of all proton treatments at our center. Together with RaySearch, we are presently developing functions that are specially required by us. The system will incorporate all the latest advanced tools and algorithms to take full advantage of the potential of proton therapy.

"We believe that RayStation with its Multi-Criteria Optimization will offer us the most accurate dose prediction for proton therapy available in the market. The user interface is very convenient and we expect good and fast support as we develop our methods for cancer treatments."



# RADIATION THERAPY MOST COST-EFFICIENT

*Cancer can primarily be treated with three different methods: surgery, radiation therapy and chemotherapy. Radiation therapy is the method that has increased most over the past 10-15 years. Today, an estimated 50 percent of cancer patients in the industrialized world are treated with radiation therapy, often in combination with surgery or chemotherapy.*

THERE ARE CURRENTLY MORE THAN 8,000 clinics and hospitals in the world that administer radiation therapy. In North America, which is at the cutting edge of development in this area with about 3,000 clinics, 60 percent of cancer patients are treated with radiation therapy. The level in Europe is 30-50 percent, and to date only 25 percent in Japan.

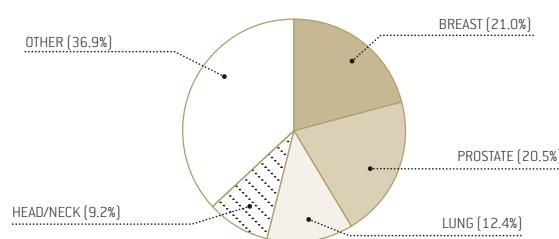
Radiation therapy is a cost-efficient method for treating cancer, compared with other methods. Compilations show that radiation therapy accounts for less than 10 percent of the costs in the fight against cancer. This should be placed in relation to the fact that nearly half of all cancer patients are treated with this method.

## SIX WEEKS' TREATMENT

Radiation therapy is delivered to patients with a linear accelerator (radiation therapy machine). The treatment is divided up into fractions (sessions). Treatment is normally given once per day, five days per week, for about six weeks. Radiation therapy can be used in nearly all types of cancer. The most common body sites are breast, prostate, lungs and head/neck. These account for about two-thirds of all radiation treatments.

Radiation therapy works by damaging the DNA of cancerous cells. This can be done with photons, electrons, protons, neutrons or ions. When the DNA in a cell is damaged, the cell attempts to repair itself. Cancerous cells have a reduced ability to do this. Therefore, their ability to survive and divide also decreases after radiation therapy. Although healthy cells have a greater chance of recovering and surviving from the radiation dose, the obvious objective is to focus the radiation on the cancerous cells as far as possible.

## TREATMENT SITES ON THE BODY



## A USD 4 BILLION MARKET

The largest manufacturers of radiation machines are the American company Varian and the Swedish company Elekta. The trend is moving towards increasingly advanced hardware. However, an equally important challenge for radiation therapy lies in the treatment planning area. The increasing precision and efficiency of the machines is only useful if the treatment technique is refined and becomes more precise. Delivering effective treatment requires increasingly advanced treatment planning systems. RaySearch is a global innovator and developer in this area.

In total, the market for radiation therapy equipment is estimated to generate revenues of about USD 4 billion each year. Approximately half comprises investments in radiation machines. The remainder is attributable to other hardware and software such as treatment planning and information systems. The addressable market for RaySearch is estimated at more than USD 400 million every year.

## WHAT IS A TREATMENT PLANNING SYSTEM?

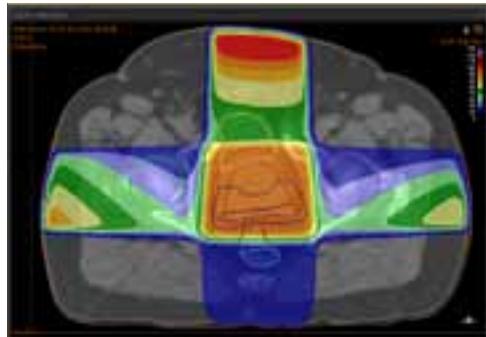
Put simply, a treatment planning system is a software program that is used to create radiation treatments in a precise and accurate manner. It is a combination of a CAD tool, a simulator and a database.

Planning starts from x-ray images of the cancer, usually generated through computed tomography. Using the images, the physician defines the extent and shape of the tumor in three dimensions and prescribes the radiation dose with which it will be treated. The treatment planning system is then used to visualize and simulate all treatment parameters and to optimize the treatment. This results in a control program for the radiation machine.

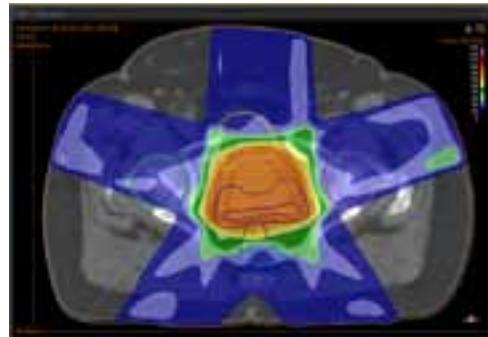
## A MORE PROMINENT ROLE FOR RAYSEARCH

Traditionally, four companies jointly account for the vast majority of sales of treatment planning systems worldwide: Philips, Varian, Elekta and Nucletron. The sector was consolidated in 2011 through Elekta's acquisition of Nucletron, which continues to exist as a brand. Since the start, RaySearch has progressively built commercial partnerships with all but Elekta and in addition with two other minor suppliers. RaySearch's software products are integrated components in these partners' offerings to the market.





Radiation beams with customized angles to protect organs at risk.



Intensity modulation of the rays enhances the opportunities to adapt them to the shape of the tumor.

## 3D-CRT

### STANDARD METHOD TODAY

Up until the 1980s, radiation therapy was delivered via the 2D-XRT principle [external beam radiotherapy]. The starting point was two-dimensional x-ray images. A customized template was used to shape the beam. This was a very time-consuming and costly process.

The breakthrough for three-dimensional conformal radiation therapy (3D-CRT) was based on two crucial advances. The first was computed tomography and the opportunities it provided for showing a three-dimensional image of the cancer. The second was the introduction of the multileaf collimator (MLC) in the mid-1990s, which replaced the customized templates and created new opportunities for more effective treatment. The collimator has an ingenious system of metal leaves that can be steered and changed using software to adapt the cross-section of the beam.

Three-dimensional conformal radiation therapy is the standard method of treatment today, and 80 to 90 percent of all radiation therapy is now delivered with 3D-CRT. Beams of radiation are directed homogeneously at the tumor from numerous angles and the shape of each beam is adapted to the cross-section of the tumor from that exact direction. While 3D-CRT is often effective, it also has limitations. Physicians are forced to compromise when treating tumors with complex shapes. The decision lies between lowering the dose to protect the surrounding healthy tissue and raising the dose to give better control of the tumor but at the risk of causing undesirable radiation damage.

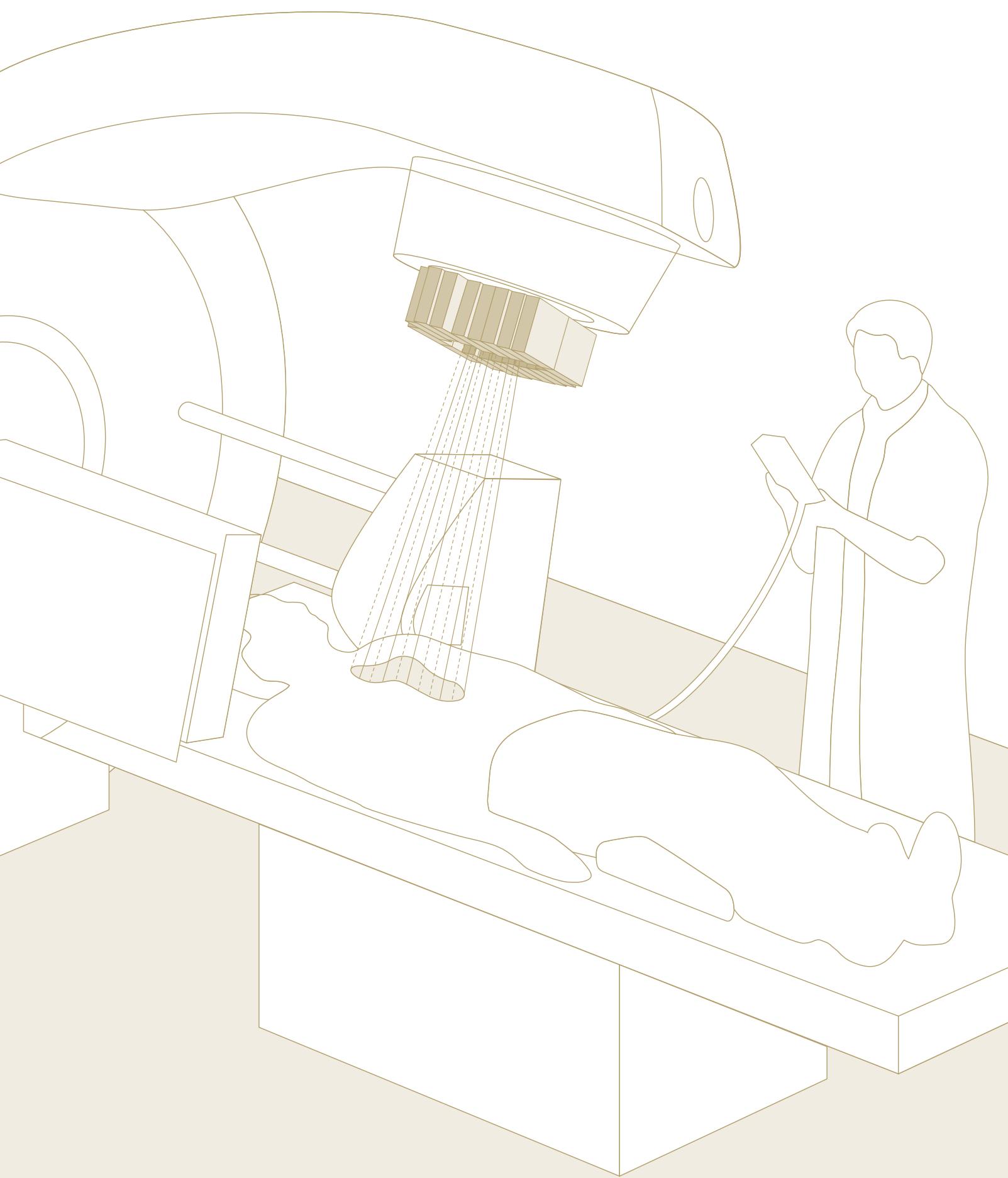
## IMRT

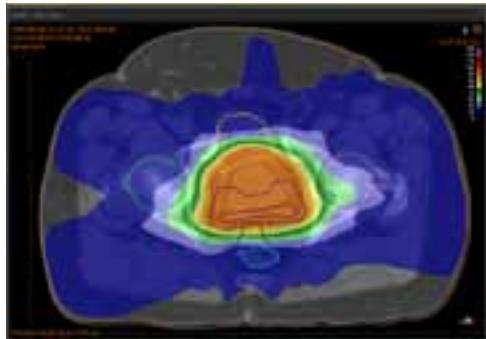
### A MAJOR STEP FORWARD

Intensity Modulated Radiation Therapy (IMRT) was introduced at the beginning of the millennium. This method is a direct follow-on from 3D-CRT and delivered with the same hardware. The radiation is still beamed from planned angles. The improvement lies in the ability to divide each beam in a treatment into segments with various shape and intensity. The intensity can thus be targeted and varied over the cross-section of the beam. Precision increases, since higher doses can be directed at the tumor despite the complexity of its shape. Healthy tissue is protected in a controlled manner.

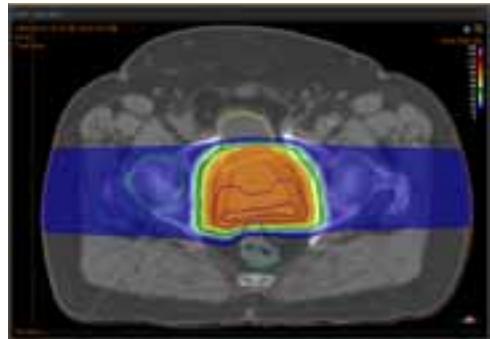
IMRT requires a more advanced treatment planning system. IMRT was, in fact, the starting point and springboard for the establishment of RaySearch. The company's first products were launched in this field. RaySearch's IMRT products are now installed in over 2,000 clinics in more than 30 countries. They are the most widespread IMRT products worldwide and have set a standard in this field.

Most products are used in the US, where IMRT has had the fastest breakthrough. This is largely due to favorable reimbursement rates from insurers who consider this method more effective than 3D-CRT. IMRT is used to deliver approximately 40 percent of all radiation treatments in the US. The proportion of IMRT treatment in Europe is still not higher than about 15 percent. The method is well-established, but there are major national variations in how well the technology has been received.





The beam is turned on while the machine rotates to enable faster treatment.



The physical properties of protons allow more precise dose distribution with greater protection for surrounding organs.

## VMAT

### INCREASES CAPACITY

Rapid advances are being made. Solutions that enable Volumetric Modulated Arc Therapy (VMAT) were launched in 2007. The hardware is the same as for IMRT. The difference is that the tumor is continuously irradiated while the radiation source rotates around the patient in single or multiple arcs. The major benefit compared with IMRT, where the radiation source stops and the beam is turned on at planned angles, is that treatment with VMAT can be delivered much faster. There is no difference between the quality of the two treatments, but the time gained with VMAT allows every radiation therapy machine to treat an additional six to eight patients per day, compared with IMRT. This is a capacity increase of 10 to 20 percent.

The market is showing great interest in VMAT. Several of RaySearch's commercial partners have launched products with our modules, which enable the planning of VMAT treatments, and RayStation offers complete support for VMAT.

## PROTON

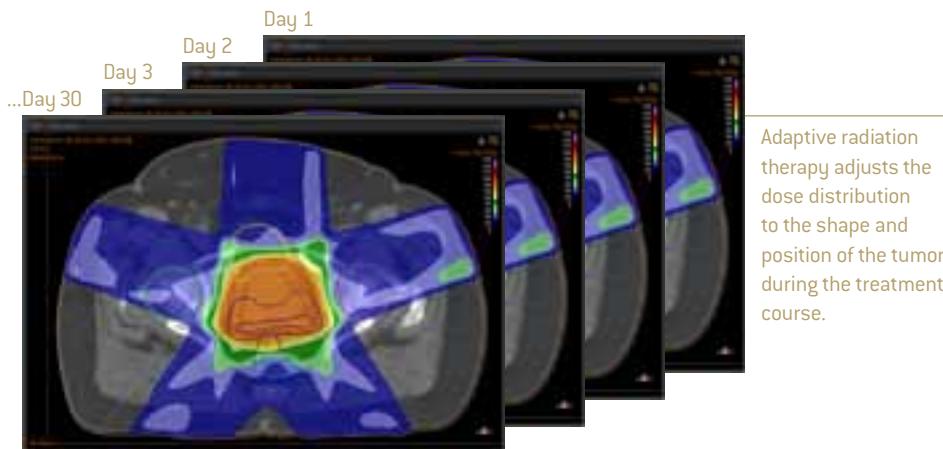
### HIGHEST PRECISION

Conventional radiation therapy is delivered in the form of photon beams. Using protons or carbon ions instead of photons is a very promising form of therapy that is gaining ground. The advantage of protons is that they can be targeted so that the dose is delivered with millimeter precision and without damaging posterior tissue. In other words, the treatment is even more exact and more effective than IMRT.

The disadvantage is cost. Particle acceleration requires very advanced equipment and considerable space. The total investment for establishing a proton therapy center is extensive, ranging from SEK 500 M to over SEK 1 billion. A carbon ion therapy center is even more expensive. There are currently about 30 proton therapy centers around the world. An additional 20 centers are either under construction or being planned. To date, approximately 100,000 patients have been treated with proton therapy. Future price pressure on accelerators and more evidence of clinical benefits will increase the number of centers, and thus the demand for treatment planning systems for them.

RaySearch sees several reasons to lead the development in this area. On the one hand, the order value for planning and optimization systems for these centers is on a very high level. On the other, it gives us the possibility of further flexing our innovative muscles and showing that we have true cutting-edge expertise in treatment planning.

RaySearch achieved a major breakthrough in 2009 when it entered into an agreement with WPE (Westdeutsches Protonentherapiezentrum Essen), to which it delivered the first full-scale RayStation planning system for proton treatment. During 2012, RaySearch received a ground-breaking order from MedAustron of Austria, a cutting-edge cancer-treatment center that specializes in carbon ion treatments. MedAustron has selected RayStation as its planning system for all types of treatments – both proton and carbon ion therapies. This is clear evidence that RaySearch provides the best tools and algorithms to fully utilize the potential of these advanced treatment methods.



# IGRT/ART

## THE NEXT STEP: ADAPTIVE THERAPY

A month-long treatment course is based on diagnostic images generated before the first treatment. However, over the course of treatment, changes can occur with regard to the shape and position of both the tumor and the surrounding healthy tissues, resulting in a risk that healthy tissue is damaged unnecessarily or that the tumor does not receive a sufficient dose of radiation.

Traditionally, these uncertainties have been handled by defining the treatment volume with a margin around the tumor. This ensures that the tumor receives a sufficiently high dose over the six weeks that the treatment normally takes. The disadvantage is that healthy tissue is irradiated. With adaptive radiation therapy, the changes in the patient's anatomy that occur during ongoing treatment can be taken into account and adjusted for. Corrections can also be made for any errors that may occur during the treatment process.

Many linear accelerators already have integrated systems for imaging the patient during treatment. This is essential for monitoring changes. A new image of the patient is generated prior to every treatment. This image is matched against the original diagnostic image. If there are any discrepancies, the position of the treatment couch is automatically adjusted so that the radiation can be delivered with greater precision. This is known as Image-Guided Radiation Therapy (IGRT).

IGRT involves no changes to the treatment plan but is an important first step in adaptive radiation therapy. The introduction of adaptive therapy ensures greater adjustment to the patient's movements, such as breathing patterns and changes to the size and shape of the tumor – both during and between treatments. Intensive development is expected in this area over the next five to ten years. The pace of this process will be determined by the proven clinical benefits and how the US insurance system allocates its resources. In the foreseeable future, this development will serve as a complement to IMRT and have no negative effect on RaySearch's revenue potential in this area. Adaptive radiation therapy will demand greater integration of planning and treatment which, in turn, will require more advanced software. Of all treatment planning systems on the market, RayStation offers the best support for adaptive radiation therapy, so the area is of great importance to RaySearch.

To further advance its positions, RaySearch has entered into close cooperation with the Princess Margaret Hospital (PMH) in Toronto, Canada, for the development of strategies and tools for improved adaptive cancer therapy. PMH is globally regarded as the institution that is at the very cutting edge of this area.

**THE HEALTH QUEST HOSPITAL** is made up of four different Radiation Oncology centers, located in New York's Hudson Valley – each currently working on commissioning RayStation systems for clinical use.

Dan Pavord, Chief Medical Physicist of the Health Quest hospital system, states: "The opportunity to purchase a new treatment planning system came up when we got to the point with our existing system where a six-figure hardware upgrade would be required to support future versions of the software. At that point, we began looking at all options. RayStation immediately impressed us with features like MCO and adaptive planning. These are features that will allow us to greatly reduce our initial planning time and allow our staff to spend time ensuring that the planned dose is ultimately delivered to the patient."

"Given the history of RaySearch with the successful development of innovative software, we felt comfortable with entering a long-term relationship with the company. We also saw this as an opportunity that would allow us to contribute to the direction of the software development. RaySearch has lived up to that promise and we look forward to a continuing partnership."



**THE RADIATION ONCOLOGY INSTITUTE** in New South Wales, Australia, runs two radiation therapy centers in Wahroonga and Gosford. The Wahroonga site is located in Sydney and the Gosford unit north of Sydney.

"We are excited to be the first in Australia to introduce the RayStation planning system as we take the next step to providing advanced radiation oncology solutions," says John Simpson, Director of Medical Physics at the Gosford unit. "RayStation will form the basis for our adaptive treatment program. Images from Linac CBCT and Tomotherapy MVCT will be used by RayStation's advanced dose tracking software to gauge the effect of anatomical changes and where advantageous, adaptive replanning will be performed."

"Additionally, Multi-Criteria Optimization will enhance the quality and efficiency of treatment planning. The ability of MCO to compute a number of 'optimal' plans from which the oncologist can select the most suitable balance between target cover and irradiation of adjacent normal tissue will ensure that the best possible plan is developed for the patient in the fastest possible time."





# AT 2,000 CLINICS IN MORE THAN 30 COUNTRIES

*RaySearch's treatment planning system can be found in radiotherapy clinics and hospitals worldwide. The systems are used by physicians, nurses and medical physicists who endeavor to give their cancer patients the best treatment possible. RaySearch's solutions raise the effectiveness of radiation therapy and the entire treatment process.*

IN TOTAL, RAYSEARCH's solutions are used by more than 2,000 clinics in over 30 countries. The distribution of these clinics is shown on the world map on pages 26 and 27. Radiation therapy is most common in the US, Europe and Japan. China and India are considered major growth markets. Altogether, hundreds of thousands of radiation treatments are delivered each year based on RaySearch's products.

## MARKET FORCES

Physicians, physicists and nurses at these clinics aim to optimize the radiation treatment, enhance the therapy flow and limit the side effects. The task for RaySearch is to help the clinical staff, in both the long and the short term, to improve the safety, effectiveness and results of radiation therapy. By introducing new, efficiency-enhancing solutions – primarily in the software area – the staff can treat more patients yet devote more time to each individual patient. Better care, quite simply.

The ability to offer the latest technology for radiation therapy is a competitive advantage for clinics. It creates a sense of security for patients, but more importantly newer technology increases precision and the potential for controlling the tumor. The risk of relapse and side effects is reduced. The pace at which new and more effective treatment methods are introduced is a strong driving force for the development of clinics.

## MANY DECISION INFLUENCERS

In the clinics, several different groups of people influence the decision-making concerning the treatment tools that are purchased. Physicians are often the primary decision makers in regard to both the treatment provided, and the devices and techniques that the hospital uses. The physician also presents the treatment alternatives and discusses the plans with the patient, and is ultimately responsible for the treatment.

Medical physicists play a key role in the treatment chain. They develop the treatment plan and ensure that the dose delivered matches the planned dose. Therefore, medical physicists often



**Modern technology creates opportunities for better and more effective cancer care. 60 percent of cancer patients survive today thanks to modern treatment.**

play a leading role when choosing treatment planning and quality assurance systems.

Medical therapists and dosimetrists are the people who actually deliver the radiation treatment to patients. They also plan the treatments once they have become routine procedures. Their primary role is to take care of the patient and ensure that the treatment progresses fast and efficiently, according to plan. For dosimetrists, the reliability and efficiency of the system is vital.

Another important target group is the technical support department at clinics, whose specifications subject RaySearch's products to indirect requirements.

In addition to the operational personnel groups, hospital management – with responsibility for results and finances – also plays a key role in decision-making, by evaluating the financial and practical implications of investments in new techniques.

### EXPANSION INTO RELATED AREAS

RaySearch's unique expertise in optimizing treatment plans presents major opportunities for natural expansion into related and complementary areas. These areas include radiobiology, automatic treatment planning, clinical dose calculation, quality-assurance and segmentation. RaySearch conducts extensive development work in all of these areas. This has already led to a number of products that have now been integrated into our proprietary RayStation system, or become integrated modules in our partners' treatment planning systems.

With RaySearch's tools for radiobiological models, the physician can determine the probability of controlling a tumor and the risk of damaging healthy tissue in a specific treatment plan.

Automatic treatment planning entails that the actual development of a treatment plan becomes automated. The clinics save time, which can then be devoted to evaluating and comparing treatment alternatives.

To ensure that the correct dose of radiation is delivered to the patient, the clinic conducts a large number of control measurements to quality-assure the treatment before it is delivered. This is time-consuming and costly. RaySearch has developed a system that provides opportunities for assuring quality, simply by implementing the control measures in real time. This increases patient safety.

Segmentation is the process whereby a three-dimensional model of the tumor and surrounding organs is created before the actual treatment is planned. This process is manual and time consuming. RaySearch has developed a product that radically streamlines this process and ensures that it is carried out consistently from case to case.

### FIVE COMMERCIAL PARTNERS

RaySearch's commercial partners are leading medical equipment companies that develop and sell systems for treatment planning or quality assurance to hospitals and clinics that treat cancer with radiation therapy. RaySearch's software products are included as an integrated part of each partner's system. RaySearch currently has five partners who jointly account for an estimated market share exceeding three quarters of the global market for treatment planning. In all, these agreements have led to RaySearch selling about 8,000 product licenses to its partners. In 2012 alone, 1,100 such licenses were sold. On average, a product license generates revenues of about SEK 100,000 for RaySearch.

Through RaySearch's collaboration with so many leading partners, the company reaches a large proportion of clinics worldwide. The collaboration is well-defined: Using its technology platform, RaySearch focuses on developing products that improve functionality and are adapted to today's and tomorrow's techniques for radiation therapy. The commercial partners are responsible for sales and service to end customers.

### 15 PARTNER PRODUCTS DEVELOPED AND LAUNCHED

Of the 15 partner products that have been launched commercially, 13 are designed for various treatment planning methods – 3D-CRT, IMRT and VMAT. RaySearch is an innovative market leader in all of these fields. IMRT treatment planning was actually the starting point for RaySearch's establishment and the company has gradually strengthened its position through advanced research and product development. RaySearch's treatment planning products for IMRT are now the most widespread products worldwide.

### SUMMARY OF RAYSEARCH'S PARTNER PRODUCTS

	Philips	Nucletron	IBA Dosimetry	Varian	Accuray
3D-CRT					■
IMRT	■■	■■■			
VMAT	■	■			
Radiobiology	■			■■	
Automated treatment planning					■
Dose calculation				■	
Quality-assurance				■	
Segmentation	■				

■ Launched products

Based on its leading position in IMRT, RaySearch has both taken a step down the development chain, by developing a 3D-CRT solution, and adapted the IMRT solution to VMAT. RaySearch's current development projects include products in the adaptive area.

In the field of treatment planning for radiation therapy with protons, RaySearch's in-depth development work for WPE of Germany and other proton clinics has resulted in an extremely advanced solution. This work will also benefit other forms of therapy, in both the long and the short term.

#### PARTNER DESCRIPTION

##### Philips: world leader with a broad portfolio

The Dutch company, Philips Medical Systems, is a leading supplier of medical diagnostic equipment. The product portfolio comprises equipment for a range of applications. The business unit, Philips Radiation Oncology Systems, which focuses on advanced treatment planning systems, collaborates with RaySearch.

Philips was RaySearch's first commercial partner. The initial agreement concerned an IMRT product that was launched in 2001. Over time, additional products in this therapy area have been added and one product for VMAT treatments has been introduced.

##### Nucletron: a strong offering in radiation therapy

Nucletron, like Philips, also has its head office in the Netherlands. The company specializes in products for cancer treatment. Its core competence lies in brachytherapy and treatment planning.

Nucletron was acquired by Elekta during 2011. RaySearch signed an agreement with Nucletron in 2004 concerning a suite of products in the IMRT area. In 2009, the agreement was expanded with products for VMAT treatment planning and model-based segmentation.

##### IBA Dosimetry: leader in dosimetry

German-Belgian IBA Dosimetry is a leading player in advanced dosimetry and quality-assurance solutions for clinical and industrial applications of radiation physics. The company supplies effective and reliable solutions for diagnosing and treating cancer.

In 2006, RaySearch signed a long-term development and licensing agreement with IBA Dosimetry concerning three products for IMRT quality assurance and one for adaptive therapy. The agreement represented an important expansion of RaySearch's business area and the first products reached the market at the end of 2007.

##### Varian: market leader in cancer treatment

Varian Medical Systems, based in California, is the world's leading manufacturer of medical equipment and software for treating cancer with radiation therapy.

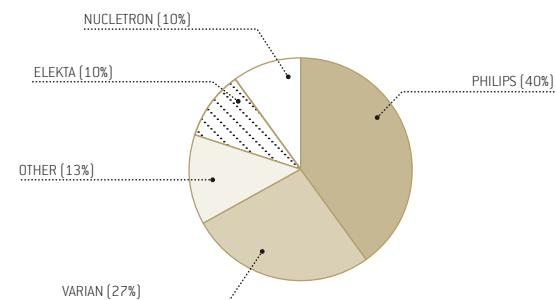
In 2007, Varian and RaySearch signed a long-term strategic licensing agreement. In 2009, two IMRT products for radiobiological evaluation and optimization and one product for the optimization of conventional 3D-CRT plans were launched.

##### Accuray: partner with growth ambitions

The US company Accuray (formerly TomoTherapy) creates, manufactures and sells unique, advanced radiation therapy solutions for cancer care.

RaySearch signed a licensing agreement with Accuray in 2007. The agreement comprises the development of an IMRT product that facilitates the transfer of treatment plans between Accuray's systems and conventional linear accelerators. This results in a better balance in terms of the workload at clinics with various types of accelerators. The capacity of the clinics increases and more patients can be treated. The product was launched in 2009.

#### SHARE OF MARKET FOR TREATMENT PLANNING SYSTEMS



#### ASIA & THE MIDDLE EAST

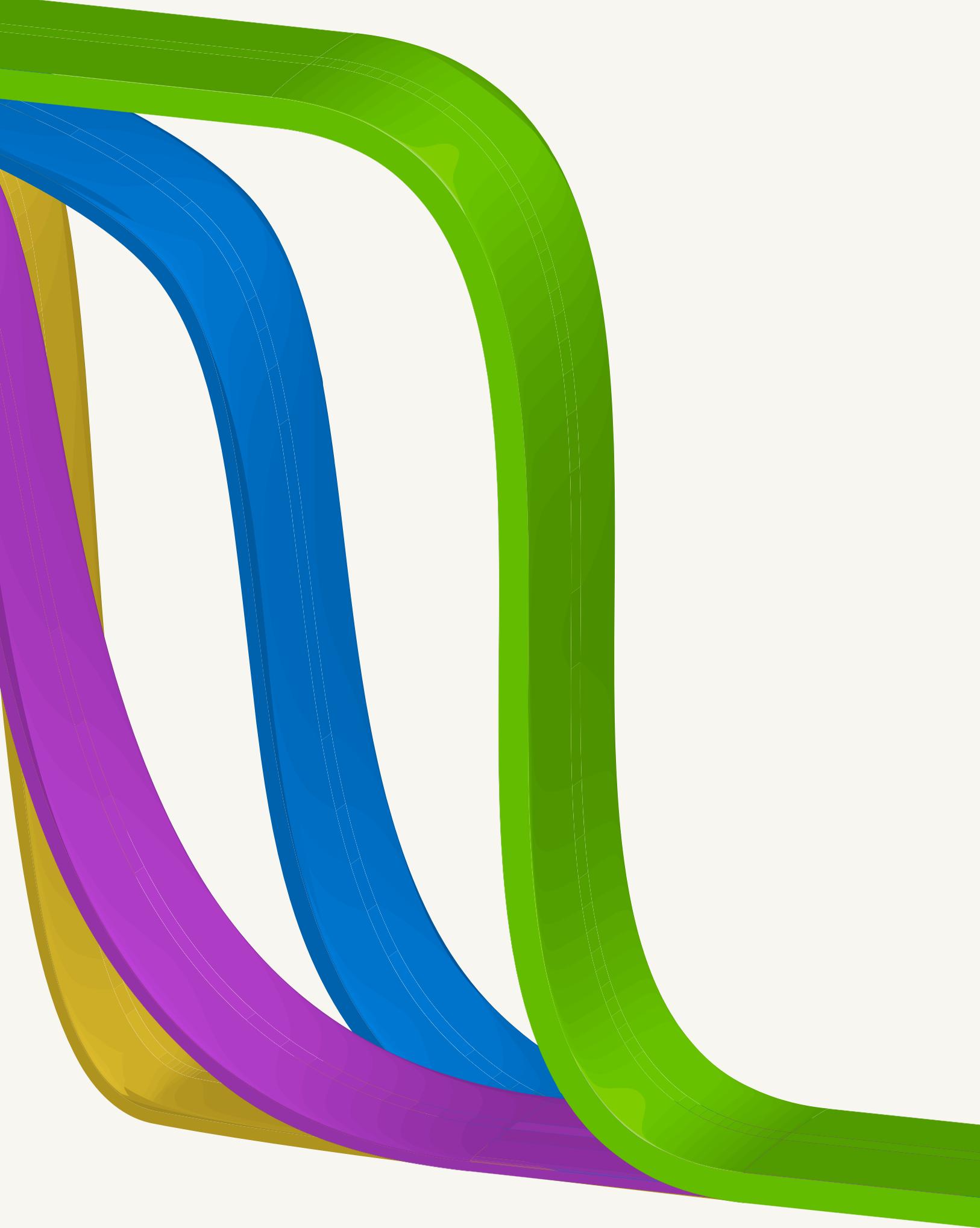
Radiation therapy is rapidly gaining ground in Asia and the Middle East, which will undoubtedly lead to a growing demand for advanced software over the next few years. Japan has long been an advanced market with more than 900 accelerators. In China, there are currently about 1,300 cancer clinics, a figure that is expected to rise to 3,300 by 2020.

#### **NORTH AMERICA**

The development of radiation therapy is spearheaded by North America, since the US and Canada have reached an advanced stage in their implementation of IMRT. In the US alone, the installed base exceeds 3,600 linear accelerators.

#### **EUROPE**

In Europe, the rate of development in radiation therapy techniques varies greatly between clinics. A number of clinics have been delivering IMRT treatments for some time, while others still need to improve their work practices before this form of treatment can be introduced. In Europe, there are currently about 2,500 accelerators.



# RAYSTATION: TREATMENT PLANNING ON A NEW LEVEL

*The first complete version of RaySearch's proprietary treatment planning system RayStation was launched in January 2012. The system is based on all the know-how that the company has accumulated during its decade-long development and collaborations with leading clinics and institutions in the cancer area. RayStation is pushing the boundaries for faster and more effective treatment planning and setting a new standard in the area in a completely unique way.*

WHEN RAYSEARCH WAS ESTABLISHED IN 2000, the company was heavily research oriented. The business concept was initially to focus on development of advanced software to enhance treatment planning. RaySearch had no sales resources. The initial business model – which is still a core component of the current business model – was thus to cooperate with commercial partners that sell treatment planning systems in the market.

RaySearch's role in this cooperation is clear: to act as a technology supplier and develop advanced module-based solutions. These features are included as an integral component in the partner company's treatment planning solutions. RaySearch's strength lies in being able to offer solutions that these companies do not have the complete competence to develop or are areas in which they do not focus. RaySearch's partners sell products under their own name and proprietary brands and have complete responsibility for market contacts.

## FROM SILENT DEVELOPMENT PARTNER...

In these collaborations, RaySearch has limited contact with the customers since this is the responsibility of the partners. Consequently, in addition to commercial partnerships, it is important to conduct advanced research projects with leading scientific institutions and clinical users worldwide. These projects have given RaySearch deep insight into the challenges in cancer therapy. This know-how has proved vital in the development of the partner products.

However, the expansion of the technology platform has changed the rationale for RaySearch's business model. While it is quite clear that the company has expertise that is at the cutting edge in treatment planning, cooperation with partners does not offer the possibility to fully leverage the technology platform. This created a commercial need to develop a proprietary system that RaySearch sells directly to customers.

## ...TO A STRONG BRAND

The first complete version of RaySearch's proprietary treatment planning system, RayStation, was completed in January 2012. The system is a synthesis of the combined unique know-how that the company had built up over ten years as the market's only dedicated specialist in this area. RayStation represents a completely new generation of treatment planning systems and is undoubtedly the market's technologically most advanced product. Based on algorithms that have been tested and refined over a decade, the system has been developed from the ground up in an effort to manage not only

current but also future requirements, thereby making the system unique in the market. As a result, RaySearch has brought treatment planning to a new level and is advancing the frontiers in cancer therapy.

Already from its inception, RayStation contained everything from basic tools for conventional radiation therapy to advanced tools for multi-criteria optimization and adaptive radiation therapy. New tools were added as new versions of RayStation were introduced. Version 2.5 was released in early 2012, version 3.0 in the autumn and version 3.5 recently in the spring 2013. New versions are released twice annually which ensures that RayStation always stays in the forefront both in terms of technology and usability.

## NEW GENERATION OF TREATMENT PLANNING SYSTEMS

The fundamental principle underlying RayStation is to offer new dimensions for optimizing the complex process involved in radiation therapy. This is based on safer, faster, better and more easily deployed software. RayStation is based on state-of-the-art software architecture and has a graphical user interface reflecting the latest findings in this area. The extremely user-friendly tools make it faster and considerably easier to create radiation treatments of the highest quality. The system also offers large potential to automate parts of the time-consuming treatment planning process, thus saving time and ensuring that all patients are treated consistently.

RayStation may be used with all types of radiation equipment and for all types of radiation therapy. The system has also been adapted to 4D adaptive radiation therapy, which is expected to be the next major advance in the field.

## RAYSTATION ENABLES NEW TREATMENT METHODS

RayStation is the first treatment planning system that enables physicians to monitor the effects of changes in the patient's anatomy during the treatment course and adjust the therapy accordingly. It is also easy to compare treatment plans and balance the various treatment objectives. The system's revolutionary tool for multi-criteria optimization offers the possibility to promptly create an entire family of possible treatments and, in an intuitive way, select the absolute optimal solution for each patient.

For hospital management, RayStation's modular structure and open design enable users to avoid time-consuming and troublesome transfers between various systems. RayStation is also highly flexible in terms of hardware requirements, thus permitting the hospital to use existing equipment without unnecessary investments.

# Technology + design = user friendliness

*As a product, RayStation is underpinned by dual foundations. Firstly, it is based on RaySearch's technological cutting-edge expertise in physics, algorithms and treatment planning and, secondly, on the company's focus on design and intuitive tools that facilitate its use. RayStation has broken new ground in each of these areas. Combined, these represent a revolution in cancer therapy.*

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**MARTHA HULTQVIST** is a good representative of the technological leading-edge expertise at RaySearch. She works as a physicist and has a solid background in her specialist area. First she completed the medical physics program at Stockholm University and then gained a PhD in medical radiation physics. At RaySearch, she primarily focuses on the areas of protons and carbon ion radiation, the most advanced technologies for treating cancer.

*"The number of clinics using protons and/or carbon ions for radiation treatment is currently increasing worldwide. This is due to the fact that this type of radiation offers a number of advantages compared with conventional radiation treatment. Using protons and carbon ions, it is possible to achieve a dose distribution through which a high dose is concentrated on the tumor while the dose to healthy tissue is low. Using carbon ions, you can also achieve a higher biological effect in the tumor. Ions are especially suitable for the treatment of tumors located near sensitive organs and for tumors that do not respond to conventional radiation treatment. The differences compared with conventional radiation treatment are based on the fact that for protons and carbon ions the physical interacting processes affecting tissue are not the same as for photons. Capitalizing on the properties of protons and carbon ions requires that the treatment be undertaken with the highest precision, thus imposing major demands on treatment planning.*

*The progress being made in these areas is currently rapid and RaySearch is definitely leading the field. A module for proton radiation has been included in RayStation and a project is also under way for a method involving carbon ion. This is being driven by the large-scale order that RaySearch secured from MedAustron in Austria, which is constructing a world-leading center for ion-based treatment – a major and attractive challenge for us. The fact that RaySearch secured the order confirms that we are at the cutting edge of development.*

*With my research background from the university, it is particularly interesting to now work on a more practical basis and close to the end user. It permits me to link up my theoretical expertise with the human aspect. In the final analysis, it involves translating my theoretical calculations into improved care for cancer patients. That feels good."*

**EMIL EKSTRÖM** is a Usability Designer at RaySearch and thus represents the “softer” side of the concept underlying RayStation. He has a degree in people-computer interaction and long-standing experience of working with usability issues in medical-technical systems. Emil has been part of the entire RayStation journey essentially from the conceptual stage to the final product.

*“What use is it if you have the world’s best product in purely technological terms if it is not adapted to user needs? As regards RayStation, with its unique technology platform, my task is to maximize the use of the technology. And that must be done on the user’s conditions. I think Apple is a good example in this respect. Apple has changed the view of usability and user-friendliness. What we are striving for is that the handling of RayStation will be as direct and self-evident as the use of an iPhone.*

*You could say that we at RaySearch have enjoyed a major advantage compared with our competitors, and their older systems, when we developed RayStation. We have been able to proceed from the most modern technology and build on the conditions that this offers. All of the functions are also integrated into a single system. It is no patchwork quilt but instead a homogeneous design. What is important is that those of us at RaySearch who focus on usability continuously work in harmony with our developers and physicists when creating RayStation. It has been a mutual exchange – give and take. To be successful, the usability perspective must be an obvious feature of the development process, not something that is added at the end. For us, it is ultimately a matter of patient safety. Excellent design must ensure that the patient receives the correct dose.*

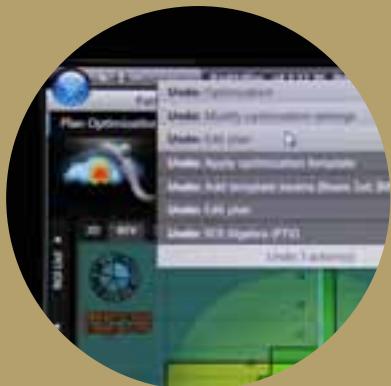
*But nothing in this development process is done in a secluded manner. We continuously test our concepts with the user, receive feedback, make alterations and test again. We never feel the development of RayStation is ‘complete’. There is always something that can be improved. And new, more advanced methods, such as proton and carbon ion radiation, are driving development. We deliver new product versions twice a year, which is undoubtedly an ambitious target. That puts pressure on us in-house. Each step we take may not appear so great, but if you look back a little longer in time and compare with where we were then, well then you will see the difference!”*



*With RayStation the user  
is always in full control*

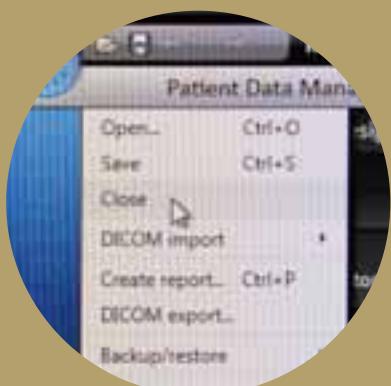
## SMART UNDO REDO

There's always an easy way back.  
It works on any action and any  
number of actions.



## NO CONFUSION

RayStation follows platform conventions. The user feels “right at home”.



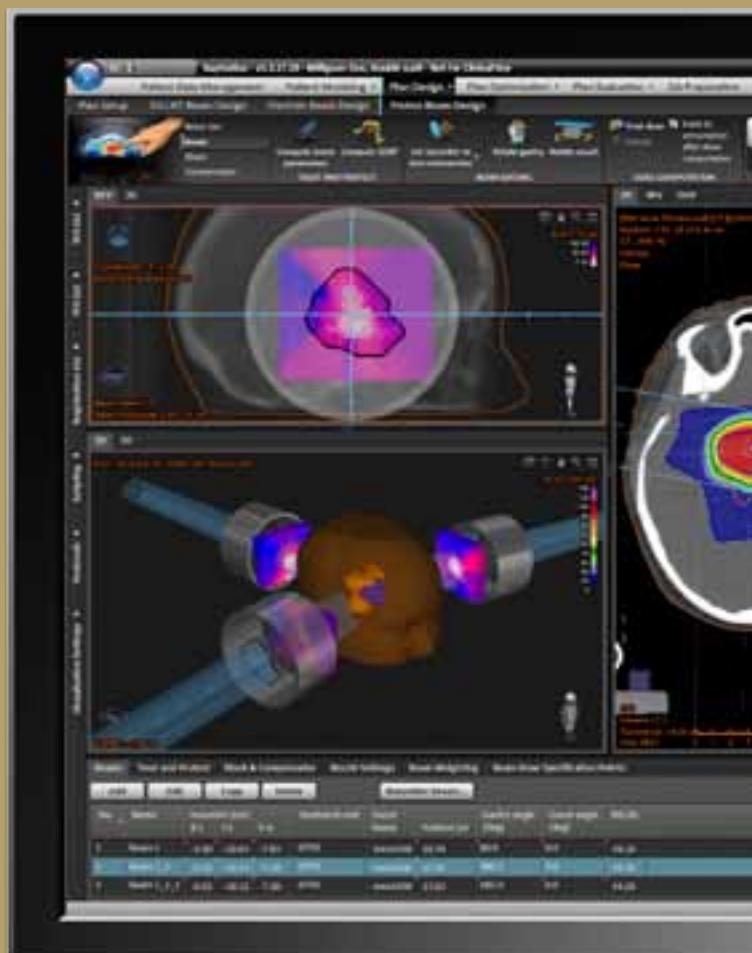
## EXIBIT F AND EFFICIENT

Automated and customized workflow. Less repetitive work. More time for refining treatments.



HELP WHEN NEEDED

The RayStation user manual tells it all. RayStation's tool tips are a good complement.



**RAYSTATION RAISES TREATMENT PLANNING** up to a completely new level. The fast and user-friendly software allows for planning in a more intuitive and efficient way. While older planning systems call for the user to adapt to the system, RayStation is completely designed the other way around. It is tailored to the user's needs to help improve efficiency. See for yourself.



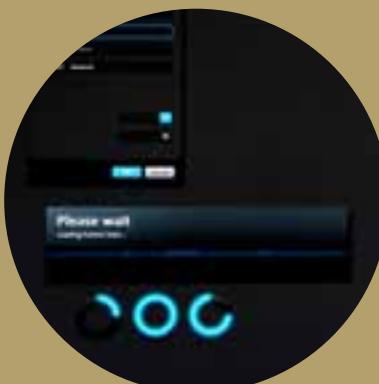
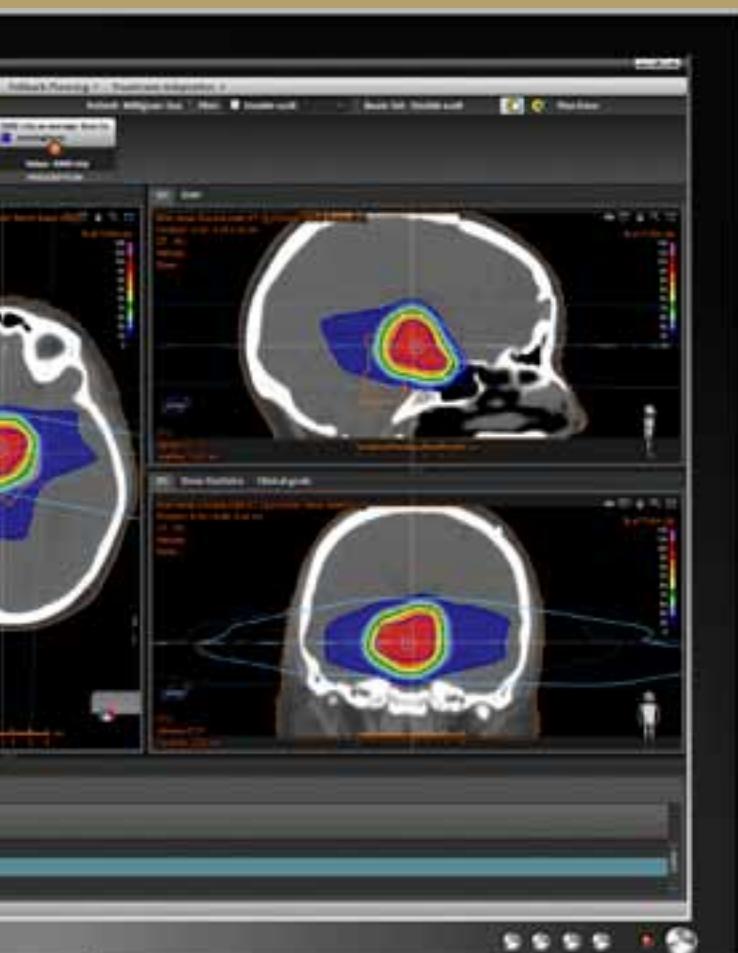
#### MAKING THE COMPLEX SIMPLE

Relevant and intelligent options are cleverly organized. Minimizes effort for the user.



#### EASY-TO-UNDERSTAND ICONS

No unnecessary memory load for the user as objects, actions and options are on display as intuitive icons in carefully organized toolbars.



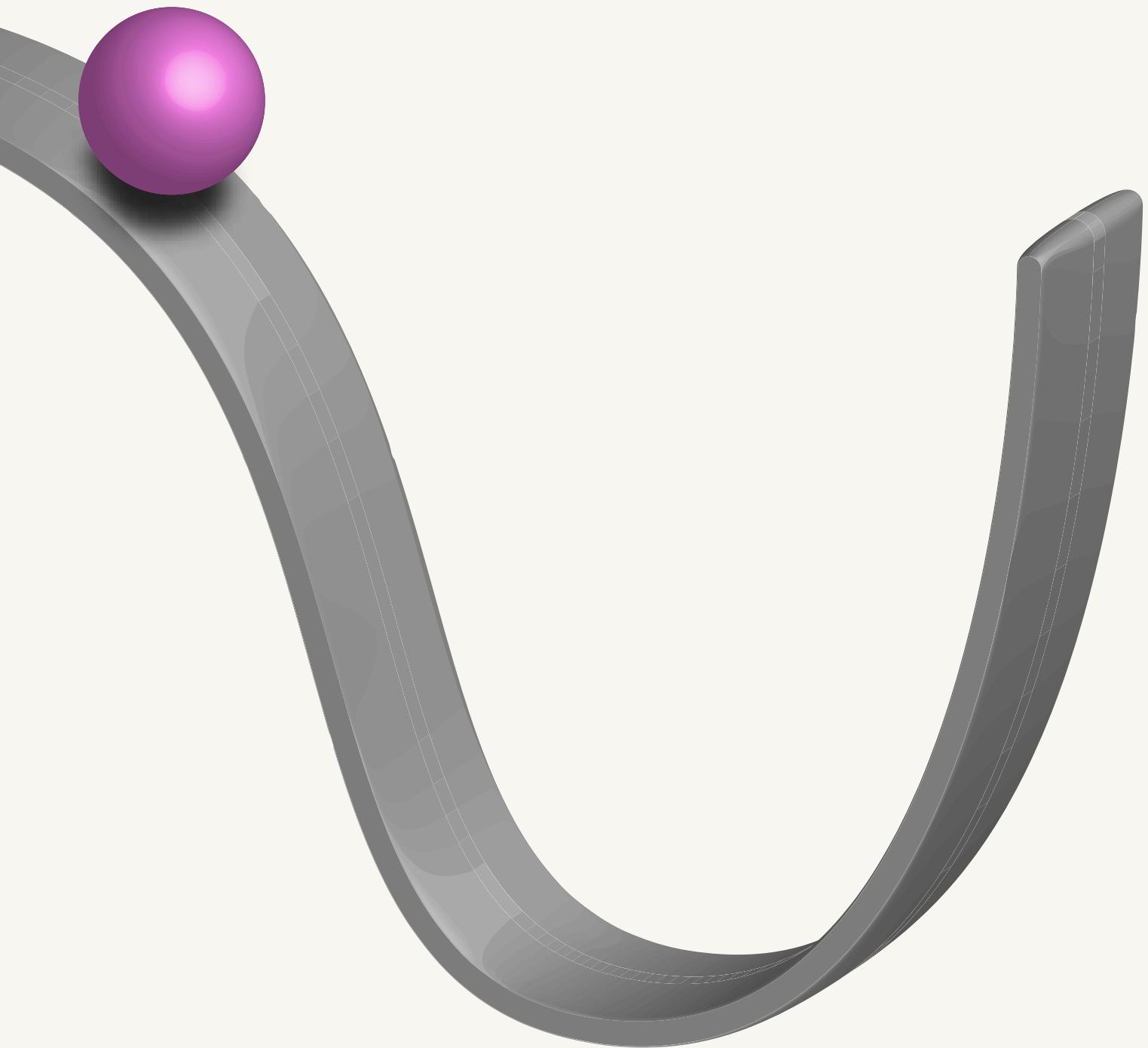
#### AESTHETIC AND MINIMALISTIC

Intuitive organization of content. Uses familiar words, phrases and concepts.



#### IT IS ALL THERE. ONLY CLICKS AWAY

Easy access between modules. No risk of getting stuck.



# INCREASING STRATEGIC FREEDOM OF ACTION

*The launch of RayStation constitutes a new, exciting phase for RaySearch. By selling directly to end customers without intermediaries, the foundation has been laid to build a powerful market position, independent of other market players. By year-end 2012, the company had sold RayStation to 34 clinics in the US, Europe, Asia and Australia.*

**THE FOCUS ON THE PROPRIETARY PRODUCT**, RayStation, entails an entirely new internal agenda for RaySearch. The company will, of course, retain its focus on research and development. Staying at the cutting edge of technology is the very soul of operations. Historically, RaySearch has invested about 45 percent of sales in R&D. The figure will remain high but the percentage share will decline in pace with rising sales.

RayStation has added a new operational dimension to the company. This requires completely different resources compared with solely selling via partners. In the case of partner sales, RaySearch only has development and product responsibility, while marketing is handled by our partners. With RayStation, RaySearch assumes responsibility all the way to the end customer.

#### LARGER AVAILABLE MARKET

RayStation is a complete product with a proprietary brand. This means that RaySearch gains access to a much larger market in money terms. The addressable global market for RayStation is estimated to USD 400 M. With the partner-based model, the partner retains most of the revenues. With direct sales, RaySearch gains a considerably larger share of revenue per customer. Direct sales also offer a substantially closer relationship with clinics. In other words, RayStation gives RaySearch greater strategic freedom of action.

Partnership collaborations will remain to generate continuous license revenues according to existing contracts. Partners may be lost for various reasons. One example is Siemens, which decided to leave the radiation therapy field. But as long as RaySearch can deliver state-of-the-art solutions that are competitive, the company's partners will have an incentive to continue the collaborations. This means that RaySearch will continue to generate significant license revenues.

Sales of RayStation will initially follow another pattern. It is based on substantially fewer orders, although the value of each order is

much higher. To begin with, this creates volatility in RaySearch's cash flow. The investments the company must undertake in the internal organization to service new end-customers will be a step ahead of revenues from the RayStation system.

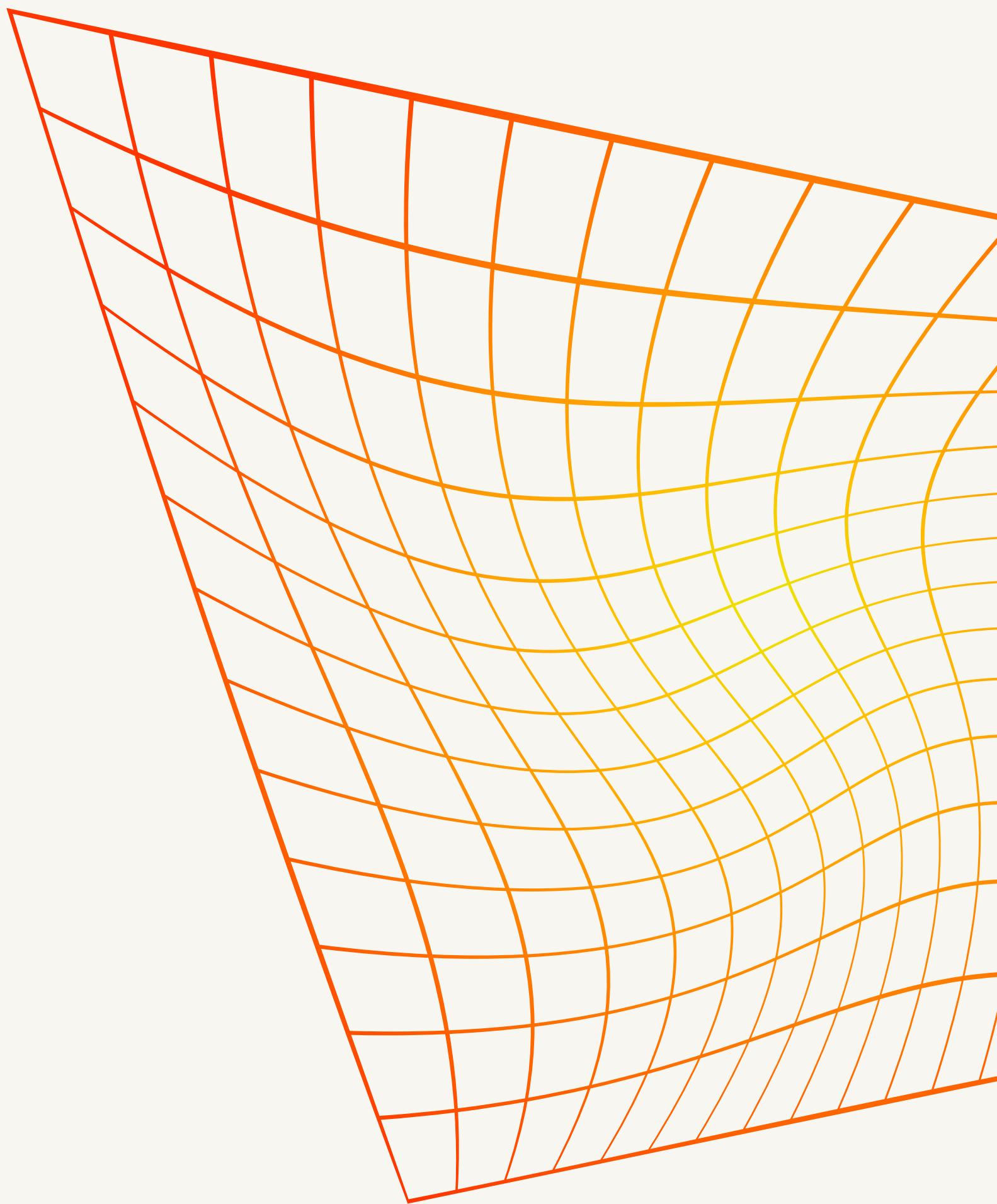
#### A NEW MARKET PRESENCE

Dealing directly with end customers imposes completely different demands on RaySearch compared with sales through partners. Consequently, the company is now adapting its organization.

The US is the world's largest market in our field which means that presence in this country is a necessity for RaySearch. Here you find more than 50 percent of all installed linear accelerators worldwide, making it by far the largest single market for cancer therapy. Our US subsidiary was established in 2011 and currently, some ten qualified specialists with solid industry experience are employed.

In Europe, RaySearch has its own sales organization that mainly covers the northern part of the region. In this market, RaySearch intends to expand its local presence locally in some of the key individual markets. In southern Europe, RaySearch already works with a distributor in Italy, and in 2012 a distribution agreement was entered in Spain.

RaySearch also focuses on Asia. An agreement signed in 2011 with a local distributor in South Korea resulted in two orders for RayStation during the past year. Longer term, China is a particularly attractive market. The number of Chinese cancer clinics is expected to grow from the current 1,300 to 3,300 by 2020. At the same time, the number of linear accelerators will increase fivefold. China is thus a priority market for RaySearch. Since 2011, the company has had an agreement with one of the country's leading national distributors. This cooperation has to date focused on receiving the necessary regulatory approval for selling RayStation in the Chinese market. RaySearch believes that this cooperation will be extremely important in the long run.



# WORLD-CLASS EXPERTISE

*Specialists with world-class expertise in various radiation therapy technologies work at RaySearch. The company invests a large portion of its revenues annually in various research and development projects. These projects are conducted as pure in-house projects or in partnership with leading hospitals and universities. RaySearch's strength lies in its ability to quickly convert these projects to commercially successful products.*

RAYSEARCH'S UNIQUE EXPERTISE makes the company an attractive partner for hospitals and universities active in the forefront of development in radiation therapy. A key strength in this context is the fact that RaySearch is originally a spin-off from Karolinska Institutet. This gives a deep understanding of the academic community and its methods.

As shown by the list, RaySearch currently has research collaborations with a number of universities and clinics that are leading players in the radiation therapy field. This takes the form of sponsored research collaborations, financial support for industrial PhD candidates and participation in larger and more comprehensive research projects. The aim of these partnerships is to apply research findings in a clinical environment more rapidly by subjecting them to clinical testing at an early stage.

## FROM RESEARCH TO PRODUCT DEVELOPMENT

RaySearch's research department is organizationally separate from the development department. A genuinely dedicated creative environment is thus created that is more conducive to long-term thinking and assignments. Together with the experiences gained from various research collaborations, the findings of the research department are transferred to RaySearch's product development in the form of reports, ideas for new product concepts and improvement proposals for existing products. At the same time, the development department can utilize the research department's resources in day-to-day work. Feasibility studies can be initiated, prototypes produced and ongoing projects validated.

RaySearch's research projects often focus on conceptual studies of algorithms or the development of prototype software to develop new treatment techniques. A key task is to monitor the scientific research so as to minimize the time from scientific publication to finished clinical product. The research department's findings are presented externally at scientific conferences and in scientific journals. These are important marketing channels for RaySearch, through which the market can be prepared for new treatment techniques.

## RESEARCH COLLABORATIONS

### Massachusetts General Hospital

Massachusetts General Hospital in Boston is one of the foremost cancer clinics in the US. MGH and RaySearch collaborate in the field of multicriteria optimization. MGH has also purchased RayStation and started using the system clinically in 2011.

### Princess Margaret Hospital

Princess Margaret Hospital in Toronto, Canada, is considered one of the world's foremost cancer clinics and collaborates with RaySearch in the field of adaptive radiation therapy. The clinic has access to considerable resources for measuring the changes in patient geometry, which form the basis for adaptive radiation therapy. Princess Margaret Hospital has also purchased RayStation and plans to use the system clinically for adaptive radiation therapy.

### Karolinska Institute

The Department of Medical Radiation Physics at Karolinska Institute in Stockholm is RaySearch's oldest research partner. The collaboration focuses on biological models and is pursued in the form of an industrial PhD project and within Artforce.

### Royal Institute of Technology

Together with the Department of Optimization Science and Systems Theory at the Royal Institute of Technology in Stockholm, research is focused on advanced optimization of radiation therapy and is carried out in the form of two industrial PhD projects.

### Artforce

Artforce is an EU-funded project involving about ten clinics and companies. Research is conducted in adaptive radiation therapy, biological models and functional imaging using PET (positron emission tomography), and combinations with chemotherapy. The project was launched in March 2012 and will continue for at least five years.

### Clatterbridge Centre for Oncology

Collaboration on the evaluation of RaySearch's IMRT solutions for biological optimization.

## A PLATFORM FOR RAPID COMMERCIALIZATION

RaySearch's research is strongly goal oriented. It is conducted in the target areas that company management has identified as most interesting from a technological and commercial perspective. When the research findings are to be translated into commercial product development, specialists are temporarily transferred from the research department to the development department, thus streamlining the process of transforming research into finished products.

RaySearch's development projects are often conducted in collaboration with a few selected leading research clinics. The objective is to be at the cutting edge when it comes to developing new methods and tools for radiation therapy. The partners contribute their clinical expertise while RaySearch contributes its software knowledge and its tools. New methods can thereby be tested directly in a clinical setting. In these partnerships, RaySearch is able to supply a complete treatment-planning system in the form of RayStation. The solutions that are developed complement the existing systems of our clinical partners and can subsequently be made available to more clinics. RaySearch's collaboration projects thus contribute to shortening the time from concept to finished product, for the benefit of all, not least the cancer patients.

## EVER-EXPANDING DEVELOPMENT PORTFOLIO

For historical reasons, the core of much of the development work that was carried out during RaySearch's formative stages comprised IMRT. Today, IMRT is just one of many areas in which the company works. The IMRT development process evolves continuously with improvements and efficiency enhancements to the basic and peripheral technology. Examples include radiobiological optimization, VMAT and automatic plan generation.

One key area of development that poses major challenges is multicriteria optimization. This involves creating precise algorithms, enhancing efficiency so that optimization can take place more or less instantaneously and, in particular, developing a graphic user interface that can also be used by physicians and not just by medical physicists.

RaySearch also focuses on the fields of dose tracking and adaptive therapy. Virtually all aspects of treatment-planning technology must be applied when developing software in this field, which places great demands on multidisciplinary expertise.

## WELL-ESTABLISHED PROCESS FOR DEVELOPING RAYSTATION

Most development projects have a duration of one to three years, followed by further enhancement of the functionality. Like its research counterpart, the development department also has a

well-defined role and its own management. The commercial partnerships require RaySearch to provide support and updates of the released modules. The development department also works hard to continuously enhance RayStation. The goal is to release a new version of RayStation twice annually, thus ensuring that the product is always at the absolute cutting edge and representing a new approach in the industry.

Development work on RayStation is divided into sub-projects that are then allocated to specific development teams with expertise suited for the assignment. The functionality produced by each sub-project is subsequently evaluated and refined in an iterative process. One of the principal factors for successful product development is strong group dynamics, created by a good mix of skills combined with a structured development methodology, all based on a common platform.

## AN INCUBATOR FOR EXCELLENCE

RaySearch is a knowledge enterprise in the true sense of the word. Some of the world's leading theorists and practitioners in various branches of technology in the radiation therapy field are found under the same roof. These specialists can flex their intellectual muscles together with their peers. Their tasks and challenges are extremely advanced, which is all about realizing their visions.

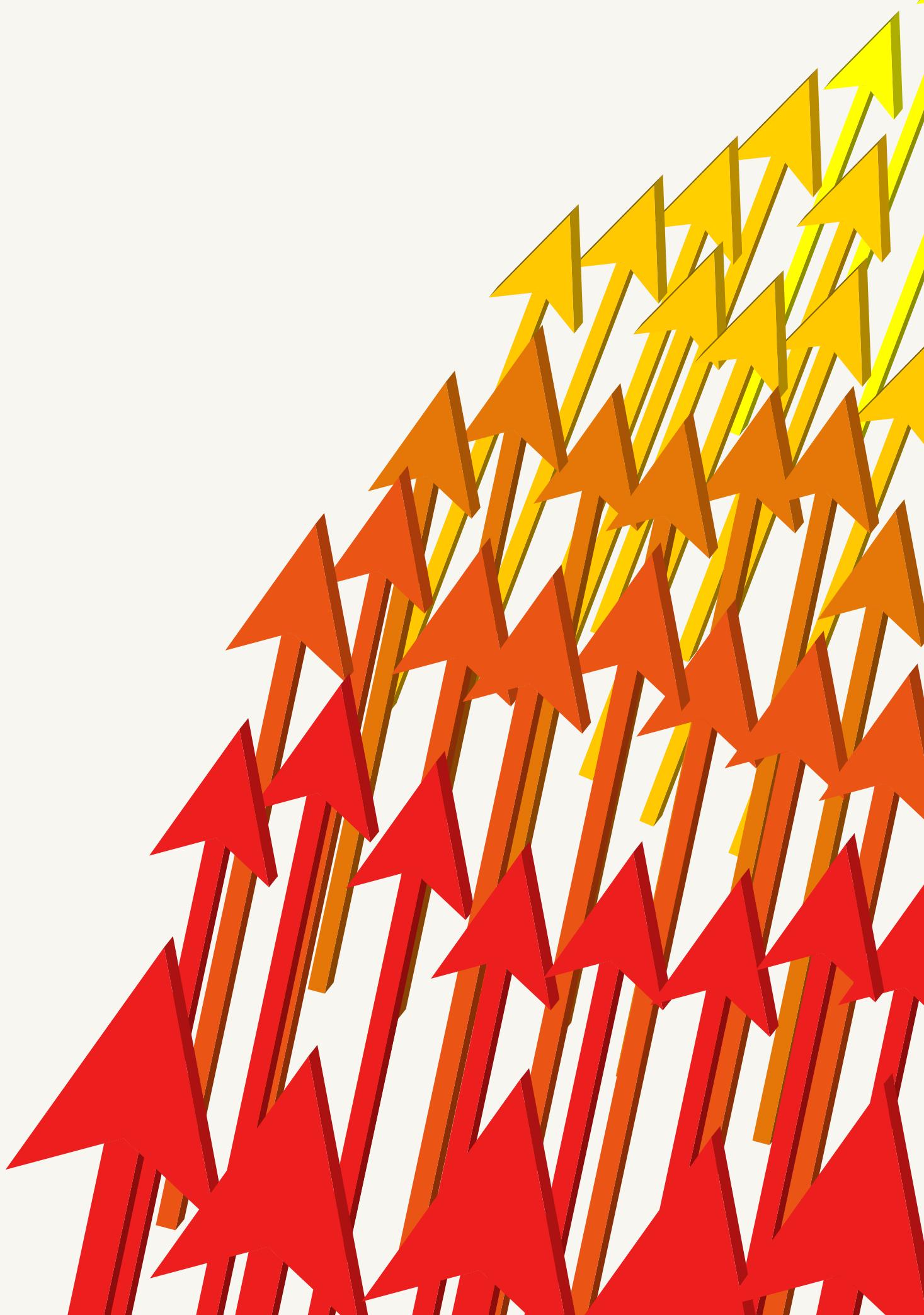
Due to investments in our proprietary product RayStation, demands on us are even higher in this respect. We must keep our ear to the market and identify our customers' challenges and help them in the best possible way in their day-to-day activities. This has added a dimension to our operations, and we are therefore gradually building up in-house competencies in the areas of sales and service. The specialists that we have employed to date have longstanding experience from relevant areas in our industry and have got us off to a flying start. All in all, we now have collective competencies that enable us to create our own visions for how future cancer treatment can take place in the best way.

One of the main reasons behind RaySearch's success is our creative environment. This is also a prerequisite for the company to continue attracting leading expertise. Almost all our employees today have at least university or college education. About one third of our employees also have a PhD. The average age is low (37 years). Sickness absence is just over 1 percent.

The employees' expertise is primarily developed by experience sharing. As a result of the company's extensive collaboration with leading clinics, institutions and customers, our employees are surrounded by innovation and creativity. This is the very soul of RaySearch's business.



**ALMOST ALL** RaySearch employees have at least a college education. One of five also has a PhD. Their average age is 37. Sickness absence is low, averaging slightly more than one percent.



# A STABLE FINANCIAL BASE FOR CONTINUING VENTURES

*Since the continuous development of new, improved products has proved a success factor for RaySearch since its inception, the company has always invested a large portion of sales in research and development. The launch of the proprietary RayStation product also requires investments in commercial structures. A prerequisite for success is the company's strong financial base.*

RAYSEARCH'S FINANCIAL STRENGTH makes it possible to persistently and consistently pursue initially uncertain innovative and commercial projects for as long as needed. Healthy finances create integrity in relations with the company's stakeholders and are a precondition for recruiting employees with the right expertise for building future success. A stable and resourceful company creates security for employees, permitting them to devote themselves to developing RaySearch's products. This also provides means for new and exciting projects, which are important in a knowledge enterprise.

#### GROWTH FINANCED INTERNALLY

Over the years, RaySearch has been able to finance its rapid expansion via a strong cash flow from operating activities. The objective is to maintain this principle, although the RayStation venture will involve investments on new levels.

Naturally, RayStation offers major long-term potential in terms of higher sales and the creation of a strong proprietary brand. However, it means that the financial conditions for the company have changed. The expansion initially requires investments in the development of the company's structures and resources for marketing, sales and service. All of this in addition to our long-term development work.

#### GREATER VOLATILITY IN CASH FLOW

RaySearch's goal is to consistently prioritize investments that rapidly generate a profit. Effective cost control is part of the company's genetic make-up. The aim is that expansion through RayStation will make a positive contribution to earnings also in the short term.

In 2012, RaySearch's sales increased 44 percent to SEK 182 M. License revenues from partner sales remained at about the same level as the preceding year, while revenues from RayStation rose sharply. During 2012, RayStation accounted for about 30 percent of RaySearch's total sales. License revenues provide a relatively stable flow of revenues in the form several smaller revenue streams. Revenues from RayStation have a different character. Firstly, they derive from relatively few orders to date and secondly each order is

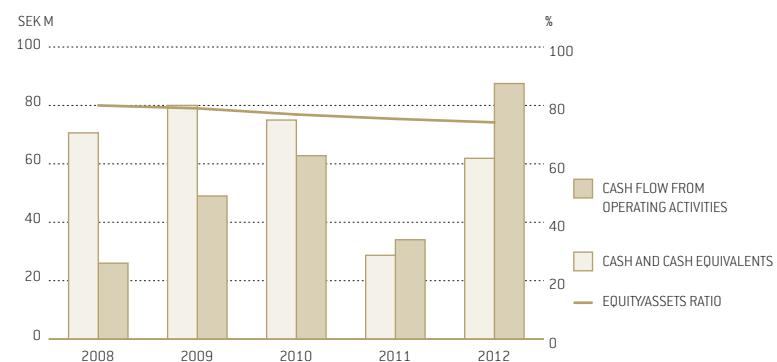
financially much more significant. The result is major fluctuations in cash flow from quarter to quarter.

#### CONTINUING HIGH EQUITY/ASSETS RATIO

Due to its strong financial position, RaySearch currently has no interest-bearing liabilities. At the end of 2012, cash and cash equivalents amounted to about SEK 62 M, corresponding to slightly more than four months' revenues.

The company's equity/assets ratio has remained consistently high, at more than 75 percent. This, combined with favorable liquidity, gives RaySearch significant sustainability and considerable scope for retaining employees and continuing to pursue pressing research projects. And this remains the case even though the continuing introduction programs for RayStation require temporarily increased resources over a number of years. The sound financial position represents an important base for RaySearch's future successes.

#### EQUITY/ASSETS RATIO, CASH AND CASH EQUIVALENTS, CASH FLOW FROM OPERATING ACTIVITIES



# CORPORATE GOVERNANCE REPORT

## GENERAL

Companies listed on NASDAQ OMX Stockholm are obligated to apply the Swedish Code of Corporate Governance (referred to below as "the Code"). The aim of the Code is to improve the governance of Swedish companies, and in particular to ensure that companies are managed in the best interests of their shareholders. In turn, a high level of corporate governance enhances confidence in listed companies among capital market players and the public at large.

The term "apply the Code" entails that companies must actively make a decision regarding their approach to the various regulations of the Code. If a company chooses to deviate from the Code's rules, it must explain why in accordance with the principle of "comply or explain."

Since the Code's rules are primarily designed for larger companies with diversified ownership, they may be unnecessarily burdensome and difficult to apply for smaller companies with a more concentrated ownership structure. RaySearch is a small company with a majority shareholder who is also actively involved in the company in his role as President. In most cases, this is why RaySearch has opted not to observe certain Code regulations.

## ANNUAL GENERAL MEETING

Following motions by the shareholders, the Board of Directors and the audit firm (with an auditor-in-charge and a deputy auditor) are elected at the Annual General Meeting (AGM) for a term of office until the close of the following AGM. The date of the AGM is announced no later than in conjunction with the third-quarter interim report and is simultaneously published on the company's website. Shareholders representing 32.5 percent of the total number of shares and 66.8 percent of the total number of votes in the company participated in RaySearch's AGM held on May 30, 2012 in Stockholm. RaySearch's President, Board and auditors attended the Meeting.

## FUNCTION OF THE AGM

RaySearch is permitted to issue shares in two series, referred to as Class A and Class B. In voting at the AGM, each Class A share carries ten votes and a Class B share carries one vote. The total number of shares in RaySearch is currently 34,282,773, of which 12,385,968 are Class A and 21,896,805 are Class B shares. There are no special provisions regarding the function of the AGM in the Articles of Association or, to the knowledge of RaySearch, in shareholder agreements.

## AUTHORIZATION PROVIDED BY THE AGM

The AGM has not authorized the Board to decide on the issuance of new shares or acquisition of its own shares.

## NOMINATION COMMITTEE

The company diverges from the Code's rules by not appointing a Nomination Committee. In view of the ownership structure, the Board believes that such a committee would not fulfill any function, but would simply give rise to additional costs.

## BOARD OF DIRECTORS

RaySearch's Board of Directors makes decisions on matters regarding the company's strategic direction, structure, organization, and research and development. The Board also discusses partnership agreements, interim reports, the annual accounts, internal control, auditing issues, budget and key policies. Moreover, it is the Board's duty to ensure that correct information is provided to the stock market. The Board's work is regulated in such documents as the Companies Act, the Articles of Association and the formal work plan adopted by the Board. Under the Articles of Association, the Board shall comprise no fewer than three and no more than eight members, with no more than three deputies.

After the AGM held on May 30, 2012, the RaySearch Board comprises four members elected by the AGM, and no deputies. The AGM of May 30, 2012 elected Erik Hedlund as the Chairman of the Board until the next AGM.

The Board fulfills the requirement for independent Board members pursuant to the Code. The Board evaluates its work once each fiscal year, which forms the basis for the Board's future working methods. Although the Board also evaluates the work of the President, the company deviates from the Code in this respect in that the President may participate in this evaluation. The reason is that the President is a Board member and the Board believes that the presence of the President does not adversely affect the evaluation.

## WORK OF THE BOARD IN 2012

The Board's work is governed by a formal work plan that is adopted annually and regulates such issues as the decision-making structure in the company, the Board meeting schedule and the duties of the Chairman. The Board as a whole addresses internal control issues that are its responsibility. In addition, the company's auditors personally report their observations from their audit and their assessment of the internal control to the Board each year. The Board held five meetings during the year, each attended by all of the Board members. Considering the size of the Board, it was not deemed necessary to introduce a separate delegation of duties among Board members. For the same reason, no committees were established.

## REMUNERATION COMMITTEE

RaySearch deviates from the Code by not establishing a remuneration committee. This is because the size of the Board (and the company) does not warrant

## OWNERSHIP STRUCTURE – SHAREHOLDERS WITH AT LEAST 10% OF TOTAL VOTES

Name	Class A	Class B	Total shareholding	Share capital %	Votes %
Johan Löf	6,243,084	843,393	7,086,477	20.7	46.5
Erik Hedlund	1,567,089	228,699	1,795,788	5.2	11.7
Anders Brahme	1,390,161	200,400	1,590,561	4.6	10.4
Others	2,124,057	21,685,890	23,809,947	69.5	31.5
<b>Total</b>	<b>11,324,391</b>	<b>22,958,382</b>	<b>34,282,773</b>	<b>100.0</b>	<b>100.0</b>

any such committee. The remuneration of the President is determined by the Board, without the participation of the President, following negotiations between the President and the Chairman of the Board, while remuneration of other senior executives is determined following negotiations between the President and the individual members of executive management.

#### MAJOR DIRECT OR INDIRECT SHAREHOLDINGS

Shareholders who have a direct or indirect shareholding in RaySearch representing at least one tenth of the votes in the company are listed in the table on the preceding page.

#### PROVISIONS OF THE ARTICLES OF ASSOCIATION

RaySearch's Articles of Association do not contain any restrictions as to how many votes each shareholder may cast at the Annual General Meeting. Nor do RaySearch's Articles of Association do include any special provisions governing the appointment and dismissal of Board members or amendments to the Articles of Association.

#### AUDIT COMMITTEE

RaySearch also deviates from the Code by not establishing an audit committee. This is because the size of the Board (and the company) does not warrant any such committee. The Board as a whole performs the work of an audit committee.

#### INTERNAL CONTROL

According to Swedish legal rules of corporate governance, the Board shall ensure that RaySearch has ample internal control and shall remain continuously informed of and evaluate the functioning of the company's internal control system. A key feature of the control environment is that the organization, decision-making procedures, responsibility and authority are clearly defined and communicated in governance documentation. Given the focus and scope of the operations, a special internal audit function is deemed unnecessary.

#### CONTROL ENVIRONMENT

As part of the effort to create and maintain a functioning control environment, the Board has established a number of significant, fundamental documents for financial reporting, including special work procedures for the Board and instructions for the President. The Board has delegated to the President to maintain the control environment as directed by the Board. The Board also approves the attestation instructions that delegate the President's attestation responsibility to other executives at RaySearch. The President and executive management report regularly to the RaySearch Board via a report with comments in respect of business conditions and financial results vis-à-vis the budget and forecasts. The internal control builds upon a management system based on RaySearch's organization and manner of conducting operations with definite roles, areas of responsibility and delegation of authority. Governance documentation, such as policies and guidelines, has a significant function in the control structure.

#### RISK ASSESSMENT

RaySearch's executive management conducts ongoing risk management assessment to identify significant risks relating to financial reporting. As regards

financial reporting, the primary risk is deemed to be incorrect accrual accounting of revenues and valuation of assets. Fraud and losses through embezzlement are other risks. Risk management is incorporated in each process and various methods are used to evaluate and curtail risks in order to ensure that the risks to which RaySearch is exposed are managed in line with the set regulations, instructions and monitoring procedures. The purpose of this is to reduce the risk level and promote accurate accounting, reporting and provision of information.

#### CONTROL ACTIVITIES

Control activities are designed to manage activities that the Board and the company's executive management deem to be significant for operations, internal control and financial reporting. The control structure includes distinct roles that permit effective allocation of responsibility of specific control functions aimed at the timely identification and prevention of the risk of reporting errors. Such control functions include clear decision-making procedures for major decisions such as acquisitions, other types of major investments, divestments, agreements and analytical monitoring. Another significant task for RaySearch's management is to implement, further develop and maintain the company's control procedures as well as conducting internal checks aimed at critical business issues. Process managers at various levels are responsible for the implementation of controls in respect of financial reporting. The closing accounts and reporting processes include checks in respect of valuations, reporting principles and estimates. The regular analyses made of financial reporting are highly important in ensuring that the financial reports do not include any material errors. RaySearch's CFO performs a key function in the internal control process by checking that financial reports are complete, correct and presented on time.

#### INFORMATION AND COMMUNICATION

RaySearch cooperates with the communications consultant Cision, in order to promote comprehensiveness and accuracy in financial reports for the market. The employees concerned are informed about, among other items, the prevailing accounting policies and changes in reporting requirements. The Board regularly receives financial reports. External information and communication is controlled by, among other things, RaySearch's information policy, which describes the company's general principles underlying information disclosure.

#### MONITORING

The Board and executive management monitor RaySearch's compliance with adopted policies and guidelines. RaySearch's financial situation is dealt with at each Board meeting. The Board and executive management scrutinize financial reports ahead of the publication of quarterly interim reports and the annual report. The Board meets RaySearch's auditor at least annually.

#### FURTHER INFORMATION

For more details concerning the Board and President, see page 45 and Note 4 in the Annual Report. For more details regarding the auditors, refer to page 45 and Note 5 in the annual report.

Stockholm March 18, 2013  
Board of Directors

# BOARD AND AUDITORS



**1. ERIK HEDLUND**

Chairman and member of the Board of RaySearch since 2000. President and member of the Board of C-RAD AB, as well as chairman of the three subsidiaries C-RAD Positioning AB, C-Imaging AB and C-RAD Innovation AB.

**Other directorships:** Chairman of the Boards of Scandiflash AB, hhDesign AB, RayIncentive AB and Envirologic AB.

**Born:** 1948.

**Educational background:** M.Sc. in Electrical Engineering from the Royal Institute of Technology (KTH) and MBA from Stockholm University.

**Professional experience:** During his career, Erik Hedlund has held a number of senior positions in major international groups, including Siemens and Saab, as well as in small and mid-sized companies. He has concentrated on high-tech companies with the focus on medical technology. Since 1994, his main focus has been on radiation therapy and radiation physics. He is an independent Board member in relation to RaySearch but not in relation to major shareholders in the company.

**Shareholding:** 1,567,089 Class A and 228,699 Class B shares.

**2. JOHAN LÖF**

President and CEO. Member of the RaySearch Board since 2000. Other directorships: RayIncentive AB and RaySearch Americas Inc.

**Born:** 1969.

**Educational background:** M.Sc. in Engineering Physics from the Royal Institute of Technology and Ph.D. from the Department of Medical Radiation Physics at the Department of Oncology-Pathology, Karolinska Institute. As a doctoral student, he worked with mathematical models for optimization of radiation therapy and also developed the prototype for ORBIT.

**Professional experience:** President and CEO of RaySearch since 2000. He is not an independent Board member in relation to RaySearch or in relation to major shareholders in the company.

**Shareholding:** 6,243,084 Class A and 843,393 Class B shares.

**AUDITOR**

Anders Malmeby (Auditor-in-Charge)

Auditor at RaySearch Laboratories.

Authorized Public Accountant, KPMG AB. Born: 1955

Auditor of companies including Boule Diagnostics, Concentric, Micronic Mydata and Bankgirocentralen.

**3. CARL FILIP BERGENDAL**

Member of the RaySearch Board since 2000.

**Other directorships:** RayIncentive AB and Cafebe AB.

**Born:** 1945.

**Educational background:** M.Sc. in Engineering Physics from the Royal Institute of Technology and MBA from the Stockholm School of Economics.

**Professional experience:** A number of senior positions in subsidiaries of the Modo Group (1972–1980) and in the medical technology company Stille-Werner (1980–1987), with the two final years as President and CEO. He has worked since 1988 as a certified process manager in Lots® and in this role has also provided support for managers in large and mid-size companies undergoing restructuring processes. Independent Board member in relation to RaySearch and in relation to major shareholders in the company.

**Shareholding:** 1,061,577 Class A and 154,920 Class B shares.

**4. HANS WIGZELL**

Member of the RaySearch Board since 2004. Professor at Karolinska Institute in Solna.

**Other directorships:** Chairman of Karolinska Development AB, Exthera AB and Rheman & Partners Asset Management AB. Board member of Swedish Orphan Biovitrum AB (SOBI), Intercell AG, Sarepta Pharmaceuticals and AB Wigzellproduktion.

**Other assignments:** Chairman of the Stockholm School of Entrepreneurship. Member of the Royal Swedish Academy of Science and the Academy of Engineering Science.

**Born:** 1938.

**Educational background:** Doctor of Medicine.

**Professional experience:** Dean of Karolinska Institute in Solna, 1995–2003.

Independent Board member in relation to RaySearch and in relation to major shareholders in the company.

**Shareholding:** 0. Options: 0.

**DEPUTY AUDITOR**

Lena Krause

Deputy auditor at RaySearch Laboratories since 2003.

Authorized Public Accountant, KPMG AB. Born: 1961

# SENIOR MANAGEMENT

From left:

## ANDERS LIANDER, CHIEF TECHNOLOGY OFFICER

**Born:** 1971.

**Educational background:** M.Sc. in Electrical Engineering from the Royal Institute of Technology, Stockholm, with a focus on medical technology.  
**Professional experience:** He began at the Division of Medical Radiation Physics at the Department of Oncology-Pathology, Karolinska Institute, in 1996 and was employed for two years as a doctoral student with the main task of developing ORBIT together with Johan Löf. Since the foundation of RaySearch, he has held a number of different positions and roles in software development, such as developer, architect, project manager and development manager. He has been employed by RaySearch since the company was founded in 2000.

**Shareholding:** 1,061,577 Class A and 185,157 Class B shares.

## THOMAS POUSETTE, GENERAL COUNSEL

General Counsel at RaySearch since January 2012. Secretary of the Board since 2000.

**Other directorships:** Spectrogon AB.

**Born:** 1964.

**Educational background:** LLM [Stockholm University], LLM [King's College London].

**Professional experience:** County Administrative Court, Jämtland County 1991–1993, Administrative Court of Appeal in Sundsvall 1993–1994, Advokatfirman DLA Nordic 1994–2011 and General Counsel of RaySearch 2012–.

**Shareholding:** 12,000 Class B shares.

## BJÖRN HÄRDEMARK, DIRECTOR OF RESEARCH

**Born:** 1977.

**Educational background:** M.Sc. in Engineering Physics from the Royal Institute of Technology in Stockholm. Received an award for academic excellence in 2003.

**Professional experience:** Björn Hårdemark wrote his thesis at RaySearch in 2002 and has since held positions as a Research Engineer, Developer, Project Manager and Head of Physics. Prior to joining RaySearch, he worked at the Swedish National Defense Radio Establishment, where he also served his military service.

**Shareholding:** 18,000 Class B shares.

## JOHAN LÖF, PRESIDENT AND CEO

Member of the RaySearch Board since 2000.

**Other directorships:** RayIncentive AB and RaySearch Americas Inc.

**Born:** 1969.

**Educational background:** M.Sc. in Engineering Physics from the Royal Institute of Technology and Ph.D. from the Department of Medical Radiation Physics at the Department of Oncology-Pathology, Karolinska Institute. As a doctoral student, he worked with mathematical models for optimization of radiation therapy and also developed the prototype for ORBIT.

**Professional experience:** President and CEO of RaySearch since 2000.

**Shareholding:** 6,243,084 Class A and 843,393 Class B shares.

## ANDERS MARTIN-LÖF, CHIEF FINANCIAL OFFICER

**Born:** 1971.

**Educational background:** M.Sc. in Engineering Physics from the Royal Institute of Technology and ENSIMAG in Grenoble, France. B.Sc. in Business Administration and Economics from Stockholm University.

**Professional experience:** Before joining RaySearch, Anders Martin-Löf served as Director of Investor Relations and held various business development positions for the biotech company Biovitrum. Prior to that, he was a management consultant with the Boston Consulting Group, Cell Network and co-founder and CEO of ScienceCap, a consulting firm focused on small-cap companies in the biotech and medtech sectors. He has also attended the Swedish Army Language School and worked at the Swedish Consulate General in St. Petersburg, Russia. Joined RaySearch in 2007.

**Shareholding:** 0. Options: 0.

## PETER KEMLIN, DIRECTOR SALES AND MARKETING

**Born in:** 1974

**Educational background:** M.Sc. in Engineering, Industrial Business at Chalmers University of Technology.

**Professional experience:** For the greater part of his career, Peter has worked in the medical technology sector as a consultant working for Swedish hospitals in order to implement cost-effective procurements as well as with sales and marketing, primarily in the radiation therapy business. He also established several Swedish companies in new markets as part of his position as Trade Commissioner at the Swedish Trade Council.

**Shareholding:** 0

## ANDERS MURMAN, DIRECTOR OF DEVELOPMENT

**Born:** 1967.

**Educational background:** M.Sc. in Engineering Physics from the School of Engineering at Uppsala University, majoring in systems development and radiation science.

**Professional experience:** Anders Murman has worked in radiation therapy throughout his professional career. He worked for twelve years at Helax, MDS Nordin and Nucletron in a number of positions, including research, development, service, support, sales, marketing, and business development in both Uppsala and California. He has been employed at RaySearch since 2004.

**Shareholding:** 4,000 Class B shares. Options: 0.



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# ADMINISTRATION REPORT

## OPERATIONS

RaySearch Laboratories is a medical technology company that develops advanced software solutions for improved radiation therapy of cancer. RaySearch's products are mainly sold through license agreements with leading partners such as Philips, Nucletron, IBA Dosimetry, Varian and Accuray. To date, 15 products have been launched through partners and RaySearch's software is used at over 2,000 clinics in more than 30 countries. In addition, RaySearch offers the proprietary treatment planning system RayStation® directly to clinics. RaySearch was founded in 2000 as a spin-off from Karolinska Institutet in Stockholm and the company is listed in the Small Cap segment on NASDAQ OMX Stockholm.

During 2012, RaySearch continued its strategic shift, whereby the company is transitioning from being dependent on partners to also selling directly to clinics, in parallel with the partner-based business model. Accordingly, RaySearch devoted a great deal of energy to developing its proprietary treatment planning system, RayStation, and the organization's sales and service capacity was expanded. However, a majority of the staff is still focused research and development.

The development work is focused on transforming market demands, customer preferences and research findings into products. This involves the creation of new products as well as enhancements and maintenance of existing products. The development activities in 2012 focused on RaySearch's treatment planning system, RayStation, as well as new versions of existing products for other partners. The development work thus covered a broad range of product applications that included treatment planning for rotational therapy and conventional radiation therapy, radiation therapy with protons, adaptive radiation therapy and quality assurance of radiation treatment procedures.

Research is more future-oriented and forms the basis of the next generation of products. The research work is concentrated primarily in the following areas: adaptive radiation therapy, multi-criteria optimization and tools for robust optimization with regard to disturbances and errors arising during the course of treatment. Research operations are conducted in close cooperation with such organizations as the Royal Institute of Technology in Stockholm, Princess Margaret Hospital in Canada and Massachusetts General Hospital in the US.

## HIGHLIGHTS OF THE YEAR

### The first complete version of RayStation was released in January and an additional new version in August

In January, RaySearch announced that Version 2.5 of the treatment planning system, RayStation, had been released for clinical use. RayStation 2.5 contained all of RaySearch's market-leading optimizing algorithms for VMAT, IMRT and 3D-CRT, as well as a broad palette of tools for traditional manual planning of 3D-CRT. This entailed that the system could be used clinically for treatment planning of all forms of radiation treatments with photons.

In August, Version 3.0 of RayStation was released for clinical use. RayStation already included RaySearch's market-leading optimizing algorithms for VMAT, IMRT and 3D-CRT. With version 3.0, additional tools for traditional manual plan-

ning of 3D-CRT were added. This means that the system is now regarded by the Board of Directors as being the leading treatment planning system for all types of radiation treatments with photons, from conventional standard treatments to the most advanced treatments.

**A total of 23 orders for RayStation were received from Australia, Austria, Belgium, Canada, Germany, Italy, New Zealand, South Korea, Switzerland and the US**  
In March, an order was received from the Princess Margaret Hospital (PMH) in Toronto, Canada.

The PMH is internationally renowned as one of the leading institutions in the battle against cancer and is ranked as one of the best hospitals in the world for both care of and research into cancer. The PMH is widely recognized as a pioneer in image guided and adaptive radiation therapy and the agreement entails that RaySearch will deliver its RayStation treatment planning system to PMH, where it will be used as the principal treatment planning tool for adaptive radiation therapy.

In October, RaySearch received an order for RayStation from MedAustron in Wiener Neustadt, Austria. MedAustron is an Austrian national interdisciplinary center focused on the treatment of cancer using ion beam therapy. RayStation will be used at MedAustron for treatment planning of all radiation treatments, including treatments with protons or carbon ions and also standard radiation treatments. The order was the first for RayStation in Austria and the first in radiation therapy with carbon ions. The order value exceeded EUR 3.5 M, of which about half was invoiced and recognized as revenue during the fourth quarter. This is the largest order secured by RaySearch to date.

In addition, RaySearch also received a number of other important orders in several markets. During 2012, a total of 23 new orders for RayStation were received from Australia, Austria, Belgium, Canada, Germany, Italy, New Zealand, South Korea, Switzerland and the US.

### Distribution agreement signed in Spain

In May, RaySearch entered into an exclusive distribution agreement with the Spanish distributor Bioterra, which is based in Madrid. Under the agreement, Bioterra will be responsible for marketing, sales and service of RayStation in the Spanish market. Spain is one of the largest markets for radiation therapy equipment in Europe, with more than 120 clinics. Bioterra is a leading distributor of radiation therapy equipment in Spain and represents a spectrum of international radiation therapy companies in various areas.

**RaySearch licensed pioneering technology from Princess Margaret Cancer Centre**  
In September, RaySearch signed an exclusive license agreement with University Health Network's Princess Margaret Cancer Centre in Toronto, Canada, pertaining to technology for automatic treatment planning of breast-cancer treatments. Princess Margaret has long been involved in developing and refining a technology for automatic IMRT treatment planning for breast-cancer patients. Using this technology, the otherwise time-consuming manual creation of treatment plans is automated.

This means that hospital personnel will be able to create a complete clinical treatment plan and quality assurance report in a few minutes, instead of spending up to several hours on each plan. The new agreement gives RaySearch the right to integrate algorithms and know-how from Princess Margaret's technology for automated planning of breast treatments into RayStation, where it will be built into the system's extensive module for automated treatment planning.

#### Cooperation with Siemens terminated

In May 2009 RaySearch entered into a long-term development and licensing agreement with Siemens Healthcare. Under the agreement RaySearch provided a number of treatment planning modules for integration in Siemens' syngo® Suite for Oncology, which is Siemens' integrated workflow solution for radiation therapy. In December 2012, RaySearch and Siemens agreed to terminate the development and licensing agreement and end the partnership.

Under the termination agreement, Siemens paid RaySearch a onetime fee of approximately one million Euros and provided certain IP rights to RaySearch.

#### IMPORTANT EVENTS AFTER FISCAL YEAR-END

##### First RayStation orders from Spain and France received in January

In January, RaySearch received the first Spanish order for RayStation from Consorcio Hospitalario Provincial de Castellón (CHPC) in Castellón, Spain. CHPC is a hospital responsible for cancer treatments in the province of Castellón, with 540,000 inhabitants. Also in January, the first French order for RayStation was received from Institut de Cancérologie Lucien Neuwirth (ICLN) in Saint Priest en Jarez, France.

##### RayStation 3.5 released in March

In March, Version 3.5 of RaySearch's treatment planning system, RayStation, was released for clinical use. RayStation 3.5 includes advanced tools for treatment planning of radiation treatments with electrons and protons, thus complementing RayStation's extensive tools for radiation therapy based on photons. RayStation 3.5 also added new features to the existing IMRT and VMAT modules offering the possibility to perform all delivery modes available with all relevant machines from the leading hardware suppliers. On top of support for all treatment modalities, RayStation 3.5 also offers a wide range of new tools for improving the planning workflow and automating tedious treatment planning tasks as well as a large number of upgrades and performance improvements of existing functions.

#### SALES AND EARNINGS

Total sales for 2012 increased 44.4 percent year-on-year and amounted to SEK 182.1 M [126.1]. Sales consist largely of license revenues via partners and direct sales, as well as support revenues. The total number of licenses sold via partners and direct sales was 1,435 [1,014] and license revenues during 2012 totaled SEK 159.2 M [105.1]. The increase in license revenues resulted from a substantial rise in revenues from direct sales of RayStation, as well as higher sales of

products from partnerships with Philips and the settlement with Siemens. Support revenues in 2012 rose to SEK 22.9 M [21.0]. Operating profit amounted to SEK 22.5 M [27.6], corresponding to an operating margin of 12.4 percent [21.9].

Profit after tax was SEK 19.9 M [17.0], corresponding to earnings per share of SEK 0.58 [0.50]. A change in the corporate tax rate to 22 percent had a positive impact of SEK 8.0 M on profit after tax.

#### OPERATING EXPENSES AND CAPITALIZATION OF DEVELOPMENT EXPENDITURES

Operating expenses, excluding exchange-rate gains and losses, increased SEK 56.0 M compared with the preceding year to SEK 154.2 M. Other operating revenues and other operating expenses refer to exchange-rate gains and losses, with the net of these for 2012 amounting to an expense of SEK 2.3 M [income: 0.1]. The increase in operating expenses derived mainly from higher marketing and personnel costs for sales and service due to activities related to direct sales of RayStation, higher amortization of capitalized development expenditure pertaining to RayStation, and to higher legal costs resulting from the patent dispute with Prowess.

At December 31, 2012, 70 [68] employees were engaged in research and development. Research and development costs include payroll costs, consulting fees, computer equipment and premises. Before capitalization and amortization of development expenditures, research and development costs totaled SEK 83.6 M [84.9]. During 2012, capitalized development expenditure amounted to SEK 53.4 M [61.5]. Amortization of and impairment losses on capitalized development expenditure in 2012 totaled SEK 48.5 M [34.2], of which SEK 3.3 M pertained to an impairment loss resulting from the termination of the Siemens partnership. After capitalization and amortization of development expenditures, research and development costs totaled SEK 78.7 M [57.6]. See Note 16.

#### LIQUIDITY AND FINANCIAL POSITION

At December 31, 2012, cash and cash equivalents amounted to SEK 61.9 M, compared with SEK 28.7 M on December 31, 2011. Cash and cash equivalents of SEK 17.5 M are blocked. At December 31, 2012, current receivables totaled SEK 61.5 M, compared with SEK 68.0 M on December 31, 2011. The receivables primarily comprised accounts receivables. RaySearch has no interest-bearing liabilities. In September, available credit facilities were increased from SEK 5 M to SEK 20 M.

#### CASH FLOW

Cash flow from operating activities during 2012 rose to SEK 87.5 M [33.9], due to improved profit before amortization and to a reduction in working capital. Cash flow for the year amounted to SEK 33.3 M [negative: 46.2]. Cash flow from investing activities improved to a negative SEK 54.2 M [neg: 63.1].

## CURRENCY EXPOSURE

The company is dependent on exchange-rate trends in the USD and EUR against the SEK, since invoicing is denominated in USD and EUR, while most of the costs are in SEK. During 2012, revenues in USD were recognized at an average exchange rate of SEK 6.69, compared with SEK 6.55 in 2011. During 2012, revenues in USD were recognized at an average exchange rate of SEK 8.60, compared with SEK 9.05 in 2011. Accordingly, currency effects had a negative impact on sales. At unchanged exchange rates, sales would have increased 45.1 percent compared with 2011. A sensitivity analysis of currency exposure indicates that the impact of a +/- 10 percent change in the average USD exchange rate on operating profit in 2012 was +/- SEK 8.9 M and that the corresponding effect of a +/- 10 percent change in the average EUR exchange rate was +/- SEK 6.4 M. The company pursues the currency policy established by the Board of Directors. Refer to the sensitivity analysis in Note 27.

## INVESTMENTS

Fixed assets primarily comprised capitalized development expenditure. Investments in intangible fixed assets in 2012 amounted to SEK 53.4 M (60.5) and investments in tangible fixed assets to SEK 1.7 M (2.5).

## EMPLOYEES

At year-end 2012, the number of employees in RaySearch was 98 (87). The average number of employees was 92 (78).

The workforce has a high level of academic education, with 19.8 holding PhDs and 78.2 percent holding other degrees from universities/technical institutes. Of the company's workforce, 30.6 percent are women and 69.4 percent are men. RaySearch has an equal opportunities plan.

## ENVIRONMENT

RaySearch products consist of software that has no environmental impact. The company does not have an environmental policy.

## OPTIONS AND OPTION EXERCISE

The company has issued options program to ensure that RaySearch can more easily attract, motivate and retain its staff. The company, RayIncentive, owns shares in RaySearch Laboratories for established and future options programs. At December 31, 2012, the 2008:1 options program expired. The options program encompassed 103,128 shares, but no options were exercised because the share price exceeded the exercise price. As a result, there are no options programs outstanding. At December 31, 2012, RayIncentive's holding in RaySearch Laboratories amounted to 299,628 shares.

## BONUS AND PROFIT-SHARING FOUNDATION

The President of RaySearch Laboratories is the only employee of the Swedish parent company covered by a bonus program, although other employees in Sweden participate in a profit-sharing foundation. The profit-sharing foundation covers all

employees, including senior executives, except the President. An allocation to the profit-sharing foundation is made in a given year if consolidated operating profit for the preceding year reached a level in excess of an operating margin of 20 percent. In such a case, the amount reserved is 10 percent of that part of the operating profit above the limit. The allocation has a maximum outcome of 30 percent of the dividend paid. No allocation is made if a dividend is not paid, or if the operating margin does not reach 20 percent. Since no dividend was proposed for 2012, no allocation was made for the year.

Employees of the RaySearch foreign-based sales companies RaySearch Americas and RaySearch Belgium are covered by a bonus program based on sales-related goals set for each of the companies.

## WORK OF THE BOARD

The Board of Directors of RaySearch Laboratories consists of four members elected by the Annual General Meeting on May 25, 2012. The company's President is a member of the Board.

The Board held five meetings during 2012. The Board conducts its work in accordance with special rules of procedure and instructions that regulate the division of work between the Board and the President. At each scheduled meeting, the Board reviews specific reports and decision points. The Board considers strategic, structural and organizational issues, as well as research and development issues. The Board also addresses cooperation agreements, interim reports and the annual financial statements, as well as audit and budget-related issues. In addition to the President, who is the reporting party during Board meetings, other company employees also participate as required.

The Board of Directors approved the President's remuneration and benefits for the 2012 fiscal year. The President, in consultation with the Chairman of the Board, approved remuneration of other senior executives. The Board does not have a remuneration or nomination committee. A separate Corporate Governance Report has been formulated. The company's auditor attends at least one Board meeting each year.

## PARENT COMPANY

RaySearch Laboratories AB (publ) is the Parent Company of the Group. Since in all material respects the financial reporting of the Parent Company matches the financial reporting of the Group, the comments for the Group are also largely relevant for the Parent Company. Capitalization of development expenditure is recognized in the Group, but not in the Parent Company. In addition, the Parent Company invoices the subsidiary, RaySearch Americas, for licenses sold to American customers, which impacts the Parent Company but not the Group. Profit before tax amounted to SEK 23.2 M (25.5).

At December 31, 2012, the Parent Company had cash and cash equivalents amounting to SEK 56.7 M (25.4). During 2012, an impairment loss was posted against the carrying amount of the subsidiary RaySearch Americas, which had an adverse impact of SEK 9.2 M on the Parent Company's earnings.

### HOLDINGS OF OWN SHARES (TREASURY STOCK)

The holdings of treasury stock at December 31, 2012 totaled 299,628 shares, which were held by RayIncentive AB. The shares have a quotient value of SEK 0.50 and they correspond to 0.9 percent of the share capital. The payment made for the treasury stock totals SEK 184,000.

### SHARES AND OWNERSHIP

RaySearch's share capital amounts to SEK 17,141,386.50. The total number of registered shares in the company as of December 31, 2012 was 34,282,733, of which 11,324,391 shares were Class A and 22,958,382 Class B. The quotient value per share is SEK 0.50. All shares carry equal rights to the company's assets and earnings. Each Class A share carries 10 votes and each Class B share carries one vote. At December 31, 2012, the total number of votes in the company was 136,202,292. All shareholders entitled to vote at the Annual General Meeting may vote for the full number of shares owned or represented by them, with no restrictions on voting rights.

The largest shareholders in RaySearch at year-end 2012 were Johan Löf, who owned 20.7 percent of the capital and 46.5 percent of the votes, Erik Hedlund, who owned 5.2 percent of the capital and 11.7 percent of the votes, State Street Bank, which owned 5.1 percent of the capital and 1.3 percent of the votes, and Home Capital AS, which owned 5.1 percent of the capital and 1.3 percent of the votes.

To the knowledge of the Board of Directors of RaySearch, there are no shareholder agreements governing Class B shares. However, there is a shareholder agreement among the Founders – Johan Löf, Erik Hedlund, Anders Brahme, Carl Filip Bergendal and Anders Liander – concerning their Class A shares. This agreement includes the obligation to offer shares to existing shareholders before selling shares to outsiders and the right for Founders in certain cases to acquire the shares of another Founder in the event, for example, of the latter's bankruptcy. Anders Liander, however, has the right to sell his shares to outsiders without any restrictions. The percentage of total voting rights in RaySearch formally covered by this agreement is 75.3 percent (29.9 percent of the capital). The shareholder agreement does not include any stipulations concerning the exercise of voting rights. When a Founder no longer holds any Class A shares, said Founder ceases to be a party to the agreement.

The shareholder agreement also includes an undertaking from the Founders in relation to Philips to the effect that, in the event of a public bid for RaySearch from another party, the Founders are obliged to offer their Class A shares to Philips if Founders with a majority of Class A shares believe that the bid is reasonable and they intend to accept it.

RaySearch's agreement with Accuray gives each party the right to cancel the agreement if a competitor gains significant control over the other party through the acquisition of shares.

There are no special rules in the Articles of Association regarding appointment and removal of Board members or amendments to the Articles of Association. The Annual General Meeting of shareholders has not authorized the Board to

decide on the issuance of new company shares or acquisitions of treasury stock. Should a public offer be tendered to acquire shares in the company, there is no agreement between the company and Board members or employees prescribing any payments should these persons resign, be given notice without reasonable grounds or should their employment cease.

### GUIDELINES FOR REMUNERATION OF SENIOR EXECUTIVES

The starting point for the Board is that remuneration and other conditions of employment for members of company management shall be on market terms. The principles for remuneration and other employment conditions for senior executives of the Swedish company RaySearch Laboratories AB during 2012 are described below.

#### Salary and other remuneration

The President has a fixed basic salary and variable remuneration. The variable remuneration amounts to 2.0 percent of the Group's profit before tax, subject to a maximum payment equivalent to six months' salary. The bonus for 2012 was SEK 471,000. In addition, the President has a company car as a benefit.

The President's salary is reviewed annually. This is performed through negotiations between the President and the Chairman of the Board, after which the Chairman presents a proposal to the other Board members. The President is not present when the Board decides on this matter.

Other senior executives in 2012 comprised the CFO, Director of Sales and Marketing, Director of Research, Director of Development, Chief Technology Officer and General Counsel. Each of these executives has a fixed basic salary. They are also covered by a profit sharing foundation that encompasses all employees except the President. The conditions underlying allocations to the profit-sharing foundation are described above in the section entitled "Bonus and profit-sharing foundation." The salaries of other senior executives are reviewed annually in negotiations between the President and each employee.

#### Incentive program

There is no incentive program aimed at the company's senior executives. However, senior executive officers, with the exception of the President, together with other employees are entitled to participate in the options and profit-sharing programs applied by the company.

#### Pension

All pension undertakings are defined-contribution plans. Retirement age for the President and other senior executives is 65, and the pension premium is equivalent to the Swedish ITP plan.

#### Termination of employment

If the President chooses to terminate his employment, his term of notice is six months; if the company terminates the employment, the term of notice is 12 months. In both cases, the President is entitled to pay during the term of notice.

The company and the other senior executives have a mutual three-month term of notice during which the senior executives are entitled to receive salary.

#### Severance pay

Neither the President nor other senior executives are entitled to any severance pay, in the formal sense, if their employment ceases. However, as stated above, the President and other senior executives are entitled to salary during the notice period.

#### Proposal for guidelines in 2013

The Board of Directors proposes that the guidelines presented above remain in effect for the period following the 2013 Annual General Meeting. The Board also proposes that it should be permitted to deviate from the guidelines if there are special reasons for such deviation.

#### RISKS AND UNCERTAINTIES

##### Financial risk management

The Group's financial policy governing the management of financial risks was established by the Board of Directors and represents a framework of guidelines and rules in the form of risk mandates and limits for financial activities. The Group is affected primarily by exchange-rate risk. Virtually all of the Group's net sales are denominated in USD and EUR. In accordance with the established financial policy, no currency hedging is employed.

##### Operating risks

As a result of its activities, RaySearch is exposed to various operational risks, including the following: dependence on key persons, competition and strategic partnerships. RaySearch currently has partnerships with Philips, Nucletron, IBA Dosimetry, Varian, and Accuray. RaySearch also has several research partnerships. If RaySearch were to lose one or more of these partners, this could have a major impact on the company's sales, profit and financial position. This risk decreases as the percentage of direct sales increases.

For more information about RaySearch's risks and risk management, refer to Note 27 on page 75.

#### FUTURE PROSPECTS

RaySearch cooperates with five business partners. In parallel with the partner model, RaySearch also sells its proprietary RayStation product directly to clinics, an initiative that is expected to continue. Working directly with clinics provides RaySearch with increased strategic freedom of action and better opportunities to develop important new products thus creating the potential for significantly higher values.

Accordingly, RaySearch's future prospects remain highly favorable.

#### PROPOSAL FOR THE ALLOCATION OF THE COMPANY'S PROFIT

The Board of Directors proposes that the available earnings of SEK 34,629,000 be allocated as follows:

SEK 000s	
To be carried forward	34,629

#### DIVIDEND POLICY

In accordance with the Board's dividend policy, RaySearch is to distribute about 20 percent of the Group's profit after tax to shareholders, provided that a healthy capital structure can be maintained. However, since RaySearch has entered an expansive and capital-intensive development phase, the Board of Directors proposes that no dividend be paid for the 2012 fiscal year.

The Group's earnings and financial position are presented in the following income statements, balance sheets and financial position and cash flow statements, with accompanying notes to the financial statements.

# MULTI-YEAR OVERVIEW

CONSOLIDATED INCOME STATEMENTS					
SEK 000s	2012	2011	2010	2009	2008
Net sales	182,087	126,103	117,728	83,687	62,690
Cost of goods sold	-3,029	-442	-92	-1,013	-661
<b>Gross profit</b>	<b>179,058</b>	<b>125,661</b>	<b>117,636</b>	<b>82,674</b>	<b>62,029</b>
Research and development costs	-78,657	-57,575	-53,500	-24,718	-29,183
Other operating expenses	-77,855	-40,462	-24,263	-17,094	-11,788
<b>Operating profit</b>	<b>22,546</b>	<b>27,624</b>	<b>39,873</b>	<b>40,862</b>	<b>21,058</b>
Result from financial items	1,018	1,078	249	421	3,048
<b>Profit before tax</b>	<b>23,564</b>	<b>28,702</b>	<b>40,122</b>	<b>41,283</b>	<b>24,106</b>
Tax	-3,701	-11,695	-11,227	-11,137	-5,883
<b>Profit for the year</b>	<b>19,863</b>	<b>17,007</b>	<b>28,895</b>	<b>30,146</b>	<b>18,223</b>
Earnings per share before full dilution	0.58	0.50	0.84	0.88	0.53
Earnings per share after full dilution	0.58	0.50	0.84	0.88	0.53

CONSOLIDATED STATEMENT OF FINANCIAL POSITION					
SEK 000s	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2010	Dec. 31, 2009	Dec. 31, 2008
<b>ASSETS</b>					
Intangible fixed assets	165,926	161,096	133,981	112,323	81,705
Other fixed assets	3,711	3,978	6,999	10,284	12,495
<b>Total fixed assets</b>	<b>169,637</b>	<b>165,074</b>	<b>140,980</b>	<b>122,607</b>	<b>94,200</b>
<b>Total current assets</b>	<b>123,390</b>	<b>96,710</b>	<b>114,946</b>	<b>110,491</b>	<b>93,891</b>
<b>TOTAL ASSETS</b>	<b>293,027</b>	<b>261,784</b>	<b>255,926</b>	<b>233,098</b>	<b>188,091</b>
<b>SHAREHOLDERS' EQUITY AND LIABILITIES</b>					
Shareholders' equity attributable to the Parent Company's shareholders	217,553	196,697	196,762	184,858	150,435
Liabilities	75,474	65,087	59,164	48,240	37,656
<b>TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES</b>	<b>293,027</b>	<b>261,784</b>	<b>255,926</b>	<b>233,098</b>	<b>188,091</b>

CONSOLIDATED CASH-FLOW STATEMENTS					
SEK 000s	2012	2011	2010	2009	2008
Cash flow from operating activities	87,451	33,852	62,785	49,207	26,045
Cash flow from investing activities	-54,165	-63,092	-50,791	-43,148	-29,540
Cash flow from financing activities	-	-16,991	-16,991	3,310	-4,996
<b>Cash flow for the year</b>	<b>33,286</b>	<b>-46,231</b>	<b>-4,997</b>	<b>9,369</b>	<b>-8,491</b>

# STATEMENT OF COMPREHENSIVE INCOME

<b>STATEMENT OF COMPREHENSIVE INCOME</b>			
SEK 000s	NOTE	<b>2012</b>	<b>2011</b>
Net sales	2,3	182 087	126 103
Cost of goods sold		-3 029	-442
<b>Gross profit</b>	<b>27</b>	<b>179 058</b>	<b>125 661</b>
Other operating income	8	1 032	1 067
Selling expenses		-36 267	-19 215
Administrative expenses	10	-39 279	-21 369
Research and development expenditure	10	-78 657	-57 575
Other operating expenses	9	-3 341	-945
<b>Operating profit</b>	<b>4, 5, 7, 11</b>	<b>22 546</b>	<b>27 624</b>
Financial income		1 054	1 107
Financial expenses		-36	-29
<b>Net financial income</b>	<b>12</b>	<b>1 018</b>	<b>1 078</b>
<b>Profit before tax</b>		<b>23 564</b>	<b>28 702</b>
Tax	14	-3 701	-11 695
<b>Profit for the year<sup>1</sup></b>		<b>19 863</b>	<b>17 007</b>
<b>Other comprehensive income</b>			
Translation difference for the year		993	-81
<b>Comprehensive income for the year<sup>1</sup></b>		<b>20 856</b>	<b>16 926</b>
Earnings per share before dilution	15	0.58	0.50
Earnings per share after dilution	15	0.58	0.50

<sup>1</sup> 100 percent attributable to the Parent Company's shareholders.

# STATEMENT OF FINANCIAL POSITION

SEK 000s	NOTE	Dec. 31, 2012	Dec. 31, 2011
<b>ASSETS</b>			
<b>FIXED ASSETS</b>			
<b>Intangible fixed assets</b>			
Capitalized development expenditure	16	165,882	160,979
Software	17	44	117
		165,926	161,096
Tangible fixed assets	18	3,711	3,978
Equipment, tools, fixtures and fittings		3,711	3,978
Total fixed assets			
		<b>169,637</b>	<b>165,074</b>
<b>CURRENT ASSETS</b>			
Accounts receivable	20	53,001	56,935
Tax receivable		10	–
Other receivables		2,512	5,000
Prepaid expenses and accrued income	21	5,992	6,071
Cash and cash equivalents	22	61,875	28,704
<b>Total current assets</b>	<b>28</b>	<b>123,390</b>	<b>96,710</b>
<b>TOTAL ASSETS</b>		<b>293,027</b>	<b>261,784</b>

SEK 000s	NOTE	Dec. 31, 2012	Dec. 31, 2011
<b>SHAREHOLDERS' EQUITY</b>			
Share capital		17,141	17,141
Other contributed capital		1,975	1,975
Retained earnings including net profit for the year		198,437	177,581
<b>Shareholders' equity attributable to the Parent Company's shareholders</b>		<b>217,553</b>	<b>196,697</b>
<b>Total equity</b>		<b>217,553</b>	<b>196,697</b>
<b>LIABILITIES</b>			
Deferred tax liabilities	23	40,966	46,372
Other long-term liabilities	25	–	642
<b>Total long-term liabilities</b>		<b>40,966</b>	<b>47,014</b>
Accounts payable		11,717	6,582
Tax liabilities		7,162	748
Other liabilities		1,405	1,807
Accrued expenses and deferred income	26	14,224	8,936
<b>Total current liabilities</b>	28	<b>34,508</b>	<b>18,073</b>
<b>Total liabilities</b>		<b>75,474</b>	<b>65,087</b>
<b>TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES</b>		<b>293,027</b>	<b>261,784</b>
<b>Pledged assets</b>			
Chattel mortgages	29	20,000	5,000
Restricted bank accounts		17,500	–
<b>Contingent liabilities</b>	29	<b>See note</b>	<b>None</b>

# STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY

SEK 000s	Share capital	Other contributed capital	Translation reserve	Retained earnings, including net profit for the year	Total
<b>Opening equity January 1, 2011</b>	<b>17,141</b>	<b>1,975</b>		<b>177,646</b>	<b>196,762</b>
Net profit for the year				17,007	17,007
Other comprehensive income for the year			-81		-81
<b>Comprehensive income for the year</b>			<b>-81</b>	<b>17,007</b>	<b>16,926</b>
Dividend paid				-16,991	-16,991
<b>Closing equity Dec. 31, 2011</b>	<b>17,141</b>	<b>1,975</b>	<b>-81</b>	<b>177,662</b>	<b>196,697</b>
Net profit for the year				19,863	19,863
Other comprehensive income for the year			993		993
<b>Comprehensive income for the year</b>			<b>993</b>	<b>19,863</b>	<b>20,856</b>
<b>Closing equity Dec. 31, 2012</b>	<b>17,141</b>	<b>1,975</b>	<b>912</b>	<b>197,525</b>	<b>217,553</b>

## CAPITAL MANAGEMENT

RaySearch has the following dividend policy. The Board of Directors' intention is to distribute to the shareholders dividends of approximately 20 percent of the Group's profit after tax on condition that a healthy capital structure is retained. RaySearch has no external loans.

A number of employees own RaySearch shares. The Board has no authorization from the Annual General Meeting to repurchase shares. The Group has not repurchased shares. During the year, there was no change in the Group's capital management.

Shareholders' equity is defined as share capital, other contributed capital and non-restricted shareholders' equity. The Group is not subject to any external capital requirements. The quotient value is SEK 0.50 per share.

RayIncentive's holding of shares in RaySearch Laboratories amounted to 299,628 shares at December 31, 2012. The consolidated carrying amount of these 299,628 shares in RaySearch Laboratories AB is SEK 0.

## TRANSLATION RESERVE

Translation reserve includes all exchange-rate differences arising in conversion of financial statements from foreign operations that prepare their financial statements in a currency other than the currency used in the consolidated financial statements. The Parent Company and the Group presents their financial statements in SEK.

# STATEMENT OF CASH FLOWS

SEK 000s	NOTE	2012	2011
<b>Operating activities</b>			
Profit before tax		23,564	28,702
Adjustments for non-cash items <sup>1</sup>		50,551	35,153
Taxes paid		-3,010	-3,639
<b>Cash flow from operating activities before changes in working capital</b>		<b>71,105</b>	<b>60,216</b>
<b>Cash flow from changes in working capital</b>			
Increase (-)/Decrease (+) in operating receivables		6,256	-26,932
Increase (-)/Decrease (+) in operating liabilities		10,090	568
<b>Cash flow from operating activities</b>		<b>87,451</b>	<b>33,852</b>
<b>Investing activities</b>			
Capitalized development expenditure		-52,446	-60,572
Acquisition of tangible fixed assets		-1,719	-2,520
<b>Cash flow from investing activities</b>		<b>-54,165</b>	<b>-63,092</b>
<b>Financing activities</b>			
Dividend paid		—	-16,991
<b>Cash flow from financing activities</b>		<b>—</b>	<b>-16,991</b>
<b>Cash flow for the year</b>	31	<b>33,286</b>	<b>-46,231</b>
Cash and cash equivalents at the beginning of the year		28,704	75,016
Exchange-rate differences		-115	-81
<b>Cash and cash equivalents at year-end</b>		<b>61,875</b>	<b>28,704</b>

<sup>1</sup> These amounts include amortization of capitalized development expenditure totaling SEK 48,501,000 (34,236,000).

# PARENT COMPANY

<b>INCOME STATEMENT</b>			
SEK 000s	NOTE	<b>2012</b>	<b>2011</b>
Net sales	2, 3	181,289	131,827
Cost of goods sold		-265	-442
<b>Gross profit</b>	<b>27</b>	<b>181,024</b>	<b>131,385</b>
Other operating income		1,032	1,067
Selling expenses		-19,366	-10,564
Administrative expenses	10	-38,673	-21,346
Research and development expenditure	10	-83,559	-84,886
Other operating expenses	9	-3,341	-945
<b>Operating profit</b>	<b>4, 5, 7, 11</b>	<b>37,117</b>	<b>14,711</b>
Profit from participation in Group companies		-9,249	-
Interest income and similar items		396	969
Interest expense and similar items		-36	-29
<b>Profit after financial items</b>	<b>12</b>	<b>28,228</b>	<b>15,651</b>
Appropriations	13	-4,985	9,800
<b>Profit before tax</b>		<b>23,243</b>	<b>25,451</b>
Tax	14	-9,035	-7,077
<b>Profit for the year</b>		<b>14,208</b>	<b>18,374</b>
<b>COMPREHENSIVE INCOME</b>			
SEK 000s		<b>2012</b>	<b>2011</b>
Profit for the year		14,208	18,374
Other comprehensive income		-	-
<b>Comprehensive income for the year</b>		<b>14,208</b>	<b>18,374</b>

<b>CASH FLOW STATEMENT</b>			
SEK 000s	NOTE	<b>2012</b>	<b>2011</b>
<b>Operating activities</b>			
Profit after financial items		28,228	15,651
Adjustments for non-cash items		11,233	1,892
Taxes paid		-3,016	-3,914
<b>Cash flow from operating activities before changes in working capital</b>		<b>36,445</b>	<b>13,629</b>
<b>Cash flow from changes in working capital</b>			
Increase (-)/Decrease (+) in operating receivables		-10,603	-32,147
Increase (-)/Decrease (+) in operating liabilities		6,497	428
<b>Cash flow from operating activities</b>		<b>32,339</b>	<b>-18,090</b>
<b>Investing activities</b>			
Acquisition of tangible fixed assets		-1,056	-2,520
Acquisition of financial assets		-	-9,260
<b>Cash flow from investing activities</b>		<b>-1,056</b>	<b>-11,780</b>
<b>Financing activities</b>			
Dividend received		-	4,800
Dividend paid		-	-17,141
<b>Cash flow from financing activities</b>		<b>-</b>	<b>-12,341</b>
<b>Cash flow for the year</b>	<b>31</b>	<b>31,283</b>	<b>-42,211</b>
Cash and cash equivalents at the beginning of the year		25,399	67,610
Cash and cash equivalents at year-end		56,682	25,399

BALANCE SHEET				SHAREHOLDERS' EQUITY AND LIABILITIES			
SEK 000s	NOTE	Dec. 31, 2012	Dec. 31, 2011	SEK 000s	NOTE	Dec. 31, 2012	Dec. 31, 2011
<b>ASSETS</b>							
<b>FIXED ASSETS</b>							
<b>Intangible fixed assets</b>				<b>SHAREHOLDERS' EQUITY</b>			
Software	17	44	117	<b>Restricted equity</b>			
<b>Tangible fixed assets</b>				Share capital [11,324,391 Class A shares, 22,958,382 Class B shares]		17,141	17,141
Equipment, tools, fixtures and fittings	18	3 124	3 978	Statutory reserve		43,630	43,630
<b>Financial fixed assets</b>				<b>Total restricted equity</b>		<b>60,771</b>	<b>60,771</b>
Participations in Group companies	19	2,171	11,420	<b>Non-restricted equity</b>			
Deferred tax assets	23	–	–	Retained earnings		20,421	2,048
<b>Total fixed assets</b>		<b>5,339</b>	<b>15,515</b>	Profit for the year		14,208	18,374
<b>CURRENT ASSETS</b>				<b>Total unrestricted equity</b>		<b>34,629</b>	<b>20,422</b>
<b>Current receivables</b>				<b>Total equity</b>		<b>95,400</b>	<b>81,193</b>
Accounts receivable	20	43,224	47,456	<b>Untaxed reserves</b>	24	<b>20,326</b>	<b>15,341</b>
Receivables from Group companies		32,592	14,928	<b>Current liabilities</b>			
Other receivables		2,505	5,323	Accounts payable		9,741	6,497
Prepaid expenses and accrued income	21	5,819	5,832	Liabilities to Group companies		306	–
<b>Total current receivables</b>		<b>84,140</b>	<b>73,539</b>	Tax liabilities		6,767	748
Cash and bank balances	22	56,682	25,399	Other liabilities		1,405	1,738
<b>Total current assets</b>	28	<b>140,822</b>	<b>98,938</b>	Accrued expenses and deferred income	26	12,216	8,936
<b>TOTAL ASSETS</b>		<b>146,161</b>	<b>114,453</b>	<b>Total current liabilities</b>	28	<b>30,435</b>	<b>17,919</b>
<b>STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY</b>							
SEK 000s				Share capital	Statutory reserve	Retained earnings, including net profit for the year	Total
<b>Opening equity Jan. 1, 2011</b>				17,141	43,630	<b>19,189</b>	<b>79,960</b>
Dividend paid						-17,141	-17,141
Total comprehensive income for the year						18,374	18,374
<b>Closing equity Dec. 31, 2011</b>				17,141	43,630	<b>20,422</b>	<b>81,193</b>
Total comprehensive income for the year						14,208	14,208
<b>Closing equity Dec. 31, 2012</b>				17,141	43,630	<b>34,630</b>	<b>95,400</b>

# NOTES

## NOTE 1 ACCOUNTING POLICIES

### COMPLIANCE WITH STANDARDS AND LAWS

The consolidated financial statements have been prepared in accordance with the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) as adopted by the EU. In addition, the Swedish Financial Reporting Board's recommendation RFR 1:2 Supplementary Accounting Rules for Groups has been applied.

The Parent Company implements the same accounting policies as the Group except in those instances specified below under the section "Parent Company's accounting policies."

### ASSUMPTIONS WHEN PREPARING THE PARENT COMPANY'S AND THE CONSOLIDATED FINANCIAL STATEMENTS

The Parent Company's functional currency is the Swedish krona (SEK), which also constitutes the reporting currency for the Parent Company and Group. This means that financial statements are presented in SEK. All amounts, unless otherwise specified, are rounded off to the nearest thousand.

Assets and liabilities are recognized at their historical cost.

Preparing financial statements in accordance with IFRS requires that company management make assessments and estimates as well as assumptions that impact the application of the accounting policies and the recognized amounts of assets, liabilities, revenues and expenses. Actual results may vary from these estimates and assumptions.

The estimates and assumptions are reviewed regularly. Changes to estimates are recognized in the period the change is made if the changes affect only that period and in the current period and future periods if the changes affect both the current period and future periods.

In implementing IFRS, estimates made by company management that have a significant impact on the financial statements and estimates made that could involve significant adjustments to subsequent years' financial statements are described in greater detail on page 76.

The accounting policies specified below for the Group have been applied consistently during all periods presented in the Group's financial statements, unless otherwise stated below. The Group's accounting policies have been applied consistently in regards to the recognition and consolidation of the Parent Company and the subsidiaries.

### REVISED ACCOUNTING POLICIES

The amendments of IFRSs applied as of January 1, 2012 had no impact on the consolidated financial statements.

### NEW IFRS AND INTERPRETATIONS NOT YET APPLIED

A number of new standards or changes in standards and interpretations will not become effective until coming fiscal years and have not been applied in advance when preparing these financial statements. New standards or amendments are

not planned to be applied in advance. In cases where expected effects on the financial statements of the application of the following new or amended standards and interpretations are not described below, RaySearch Laboratories has yet to make an assessment of their effects.

IFRS 9, which is intended to replace IAS 39 Financial Instruments, amendments of IAS 1 Presentation of Financial Statements, amendments of IAS 32 Financial Instruments, amendments of IFRS 7 Financial Instruments, Disclosures pertaining to new disclosure requirements for transferred financial assets and liabilities, IFRS 10 Consolidated Financial Statements, IFRS 11 Joint Arrangements, IFRS 12 Disclosure of Interests in Other Entities, amendment of IAS 27 Separate Financial Statements, IFRS 13 Fair Value Measurement, Annual Improvements to IFRSs.

### SEGMENT REPORTING

An operating segment is a part of the Group that conducts business activities from which it generates income and incurs costs and for which independent financial information is available. The results of an operating segment are also monitored by the company's chief operating decision maker. In accordance with IFRS 8, segment information is provided for the Group only. The Group's internal reporting system is based on the follow-up of returns from the Group's products and since these products have similar economic properties, they are recognized in a single segment.

### CLASSIFICATION, ETC.

Fixed (non-current) assets and long-term liabilities in the Parent Company and Group essentially comprise amounts that are expected to be recovered or paid more than twelve months after the balance sheet date. Current assets and current liabilities in the Parent Company and Group essentially only comprise amounts that the company expects to recover or receive payment for within twelve months of the balance sheet date.

### CONSOLIDATION PRINCIPLES

#### Subsidiaries

Subsidiaries are companies that are under the controlling influence of RaySearch Laboratories. Controlling influence means, directly or indirectly, a right to formulate a company's financial and operational strategies for the purpose of achieving economic benefits. Shares carrying potential voting rights that can be used or converted without delay are taken into consideration when determining whether a controlling influence exists.

The Group includes the Parent Company RaySearch Laboratories AB (publ), Corporate Registration Number 556322-6157, which owns 90.8 percent of the capital and 49.7 percent of the voting rights in RayIncentive AB, whose only function is to own the shares set aside to cover outstanding and future employee option programs and two wholly owned subsidiaries: a sales company in the US, named RaySearch Americas Inc, and a sales company in Belgium, named RaySearch Belgium Sprl.

### Consolidation of special-purpose entities

Special-purpose entities (SPE) are included in the consolidated financial statements when the economic consequences of business connections between a Group company and an SPE indicate that the Group company exerts a controlling influence over an SPE. When determining whether an SPE exerts a controlling influence, consideration is given to whether operations in the SPE are conducted in a predetermined manner. RaySearch Laboratories owns 90.8 percent of the capital and 49.7 percent of the votes in RayIncentive. RaySearch Laboratories has control over the company and no non-controlling interests are recognized. The equity share amounts to SEK 9,200. Any potential dividend from RayIncentive shall, in its entirety, go to RaySearch Laboratories. These circumstances mean that RayIncentive is considered to be an SPE.

### Consolidation principles

Subsidiaries are recognized in accordance with the purchase method. According to this method, the acquisition of a subsidiary is viewed as a transaction through which the Group indirectly acquires the subsidiary's assets and liabilities. The consolidated cost is determined through an acquisition analysis conducted in conjunction with the acquisition of the operation. In the analysis, the cost is determined for the shares or operations and for the fair value of the acquired identifiable assets and assumed liabilities. Transaction costs, with the exception of transaction costs arising from the issue of equity or debt instruments, are recognized directly in profit or loss. The difference between the cost of subsidiary shares and the fair value of acquired assets and liabilities constitutes consolidated goodwill. When the difference is negative, it is recognized directly in profit or loss. Conditional purchase considerations are recognized in the consolidated financial statements at fair value, with changes in value recognized in profit or loss.

### Transactions to be eliminated on consolidation

Receivables and liabilities, and revenues or costs and unrealized gains and losses arising from intra-Group transactions are eliminated in the consolidated financial statements. Unrealized losses are eliminated in the same manner as unrealized gains but only insofar as no impairment requirement exists.

### FOREIGN CURRENCY

#### Transactions in foreign currency

Transactions in foreign currency are translated to the functional currency at the exchange rate prevailing on the transaction date. The functional currency is the currency in the primary economic environments in which the companies conduct their business operations. Monetary assets and liabilities in foreign currency are recalculated to the functional currency at the exchange rate prevailing on the closing day. Exchange rate differences arising in translation are recognized in profit for the year. Non-monetary assets and liabilities that are recognized at historic cost are translated at the exchange rate prevailing on the transaction date.

### REVENUE

#### Licenses and support sales

Revenue is recognized in profit and loss when it is likely that future economic benefits will accrue to the company and that these benefits can be reliably calculated. Revenues are recognized at the fair value of what was received or will be received with deduction for discounts granted.

In cases where licenses are sold via partners, the Group reports its license revenue when software is installed at the customer and the rights to use the software are transferred to the customer. Certain agreements contain minimum guarantees concerning sold licenses. In cases where customers acquire licenses in order to meet minimum commitments, revenues are recognized at the reconciliation date for the agreements. In cases where software is sold directly to end customers, the Group reports its revenue after partial or final installation at the customer's premises has been completed, as well as after product acceptance. Support revenues deriving from sales via partners are based on accumulated license sales and are recognized during the various settlement periods. Support revenues deriving from sales directly to customers are accrued straight line over the contractual period for each support agreement.

### OPERATING EXPENSES AND FINANCIAL INCOME AND EXPENSES

#### Operating lease agreements

Expenses relating to operating lease agreements are recognized in profit for the year straight-line over the leasing period. Benefits received in conjunction with signing a contract are recognized in profit for the year as a decrease in leasing fees straight-line over the term of the lease agreement. Variable fees are expensed in the periods in which they arise.

#### Government assistance

The company has received a grant from the EU for a research project and from the Swedish Research Council regarding two industrial doctorates. The contributions are recognized net against research and development expenditure. The contributions received do not add up to any significant amount.

#### Financial income and expenses

Financial income and expenses comprise interest income on bank balances and receivables and interest-bearing securities, and dividend income and exchange rate differences.

### FINANCIAL INSTRUMENTS

Financial instruments are measured and recognized in the Group in accordance with the regulations in IAS 39.

Financial assets are recognized initially at the cost corresponding to the instrument's fair value plus transaction costs for all financial instruments. Subsequent recognition is based on how they are classified as below.

A financial asset or financial liability is recognized in the statement of financial position when the company becomes a party in accordance with the contractual

terms and conditions of the instrument. Accounts receivable are recognized in the statement of financial position when the invoice is sent. Liabilities are recognized when the counterparty has performed and there is a contractual obligation to pay, even though the invoice has not yet been received. Accounts payable are recognized when the invoice is received.

A financial asset is derecognized from the statement of financial position when the rights of the contract are realized, expire or the company loses control over them. The same applies for components of a financial asset. A financial liability is derecognized from the statement of financial position when the obligation in the contract is fulfilled or extinguished in some other manner. The same applies for components of a financial liability.

The fair value of listed financial assets corresponds to the listed bid price on the balance sheet date. At each reporting date, the company performs tests to determine if there is any objective indication that a financial asset or a group of financial assets requires impairment.

IAS 39 classifies financial instruments in categories. The classification depends on the intention behind the acquisition of the financial instrument. Company management determines the classification at the original time of acquisition. The following categories are held by the company:

#### Loan receivables and accounts receivable

“Loan receivables and accounts receivable” are financial assets that have determined or determinable payments that are not listed on an active market. These items are measured at cost. Accounts receivable are recognized at the amount expected to flow in, meaning less a deduction for doubtful receivables.

#### Other financial liabilities

Comprises financial liabilities not held for trading. The Group's accounts payable are included in this category. These items are measured at cost.

#### Cash and cash equivalents

Cash and cash equivalents comprise cash funds and balances at banks and comparable institutions that are immediately available as well as short-term liquid investments with a duration from the date of acquisition of less than three months, which are subject to only a negligible risk of value fluctuations. Changes in value are recognized in net financial items. Current investments are recognized in the category “Financial assets measured at fair value in profit and loss.”

### TANGIBLE FIXED ASSETS

#### Assets owned

Tangible fixed assets are recognized in the consolidated financial statements at cost less accumulated depreciation and any impairment. The cost includes the purchase price and costs directly attributable to the asset to deliver it in place and in condition to be used in the manner intended by the acquisition. The accounting policies for impairment are presented below.

The carrying amount of a tangible fixed asset is derecognized from the

statement of financial position upon disposal or divestment or when no future economic benefit is expected from use or disposal/divestment of the asset. The gain or loss arising from the disposal or divestment of an asset is the difference between the selling price and the asset's carrying amount less direct selling expenses. Gains and losses are recognized as “Other operating income/expenses.”

#### Leased assets

IAS 17 applies to leased assets. Lease agreements are classified in the consolidated financial statements as a finance or operating lease. A finance lease is a lease that essentially transfers all the risks and rewards associated with ownership of an asset to the lessee. If this is not the case, it is an operating lease.

Under an operating lease, the leasing fee is expensed over the term based on use, which can differ from what is paid de facto as leasing fees during the year.

In accordance with these rules, all leases in the Group are recognized as operating leases.

#### Depreciation principles

Depreciation is based on the original cost less any residual value. Depreciation is straight-line over the estimated useful life of the asset. Estimated useful lives:

- computers 3–5 years
- equipment, tools, fixtures and fittings 5 years

The residual value and useful life are assessed annually.

### INTANGIBLE FIXED ASSETS

#### Research and development

Expenditure for research activities that relate to obtaining new scientific or technical knowledge is recognized as an expense as incurred.

Expenditure for development activities, whereby the research results or other knowledge is applied to achieve new or improved products or processes, is recognized as an intangible asset in the statement of financial position, provided the product or process is technically and commercially feasible and the company has sufficient resources to complete development, and is subsequently able to use or sell the intangible asset. The carrying amount includes all directly attributable expenses, such as personnel costs and cost of premises. Other expenses for development are expensed in profit for the year as they arise. In the statement of financial position, capitalized development expenditure is recognized at cost less accumulated amortization and any impairment losses. Deferred taxes are taken into account.

#### Other intangible assets

Other intangible assets acquired by the company are recognized at cost less accumulated amortization and any impairment losses.

#### Amortization principles

Amortization is recognized in profit for the year on a straight-line basis over the estimated useful lives of intangible assets. The useful lives are reviewed at least

once annually. Capitalized development expenditure on which amortization has not commenced is tested for impairment annually or as soon as there is an indication that the asset may require impairment. Intangible assets with determinable useful lives are amortized from the date the asset is available for use. The following amortization periods are used:

- Capitalized development expenditure 5 years
- Software 3–5 years

#### IMPAIRMENT LOSSES

The carrying amount of the Group's assets is tested on each balance sheet date to determine whether there is any indication that an impairment loss has arisen. If any such indication is found, the recoverable amount of the asset is calculated as the higher of the value in use and the fair value less selling costs. An impairment loss is recognized if the recoverable amount is less than the carrying amount. The recoverable amount is determined by discounting the estimated future cash flow from the cash-generating units.

#### SHARE CAPITAL

##### Treasury stock

Holdings of own shares (treasury stock) and other equity instruments are recognized as a reduction of shareholders' equity. Acquisitions of such instruments are recognized as deductions from retained earnings. Proceeds from the divestment of equity instruments are recognized as an increase in retained earnings. Any transaction costs are charged directly against shareholders' equity.

##### Dividends

Dividends are recognized as a liability after approval of the dividend by the Annual General Meeting.

##### Earnings per share

Earnings per share are calculated on the basis of consolidated earnings attributable to the Parent Company's shareholders and on the weighted average number of shares outstanding during the year. When calculating earnings per share after dilution, profit and the average number of shares are adjusted to take into account the impact of dilutive potential common shares, which during the reported periods originated from options issued to employees. Dilution resulting from options affects the number of shares and arises only when the exercise price is lower than the share price. Dilution increases as the difference between the exercise price and the share price rises.

#### EMPLOYEE BENEFITS

##### Short-term remuneration

Short-term remuneration of employees is estimated without discounting and is expensed when the related services have been received.

A provision is recognized for the expected cost of the profit-sharing and bonus payments when the Group becomes subject to a legal or informal obligation to

make such payments because the services performed by the employees and the obligation can be measured reliably.

##### Defined-contribution plans

Plans in which the company's commitment is limited to the fees the company has undertaken to pay are classified as defined-contribution plans. In such cases, the size of the employee's pension depends on the fees the company pays into the plan or to an insurance company and the capital return the fees generate. Accordingly, it is the employee who carries the actuarial risks (that the remuneration will be lower than expected) and the investment risk (that the invested assets will be adequate to provide the expected remuneration). The company's commitments to the plans are expensed against profit for the year as they are vested by the employees performing the services for the company over a period of time. The Group only has defined-contribution pensions. The Group's obligation for each period is the amount that the Group shall contribute for the specific period.

##### Severance pay

A cost for severance pay for employees is recognized only when the company is committed to terminating employment before the normal date.

##### Option programs

The company's option programs are such that on each occasion employees have paid a market price for the options. The market price was determined in accordance with the Black & Scholes model.

##### Profit-sharing foundation

The profit-sharing foundation covers all employees of the Parent Company including senior executives, except the President. An allocation to the profit-sharing foundation is made in a given year if operating profit reached a level exceeding an operating margin of 20 percent. In such a case, the amount reserved is 10 percent of the part of the operating profit above the limit. The allocation has a maximum outcome of 30 percent of the dividend paid. If a dividend is not paid or if the operating margin does not reach 20 percent, no allocation is made. The allocation is recognized as a pension cost. For further information, refer to Note 4.

#### TAXES

Income tax comprises current and deferred tax and is recognized in profit for the year except when the underlying transactions are recognized in other comprehensive income or in shareholders' equity, whereby the associated tax effect is recognized in other comprehensive income or in shareholders' equity.

Current tax is the expected tax payable on taxable income for the year, using tax rates enacted or substantially enacted on the balance sheet date. Current tax also includes any adjustment to tax payable in respect of previous years.

Deferred tax is calculated using the balance sheet method, providing for temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes.

Temporary differences in subsidiaries and associated companies are not taken into account when they will probably not be reversed in the foreseeable future. The amount of deferred tax is based on the expected manner of realization or settlement of the underlying assets and liabilities. Deferred tax is computed using tax rates enacted or substantially enacted on the balance sheet date.

A deferred tax asset relating to deductible temporary differences and loss carry-forwards is recognized only to the extent that it is probable that future taxable profits will be available against which the asset can be utilized. The value of deferred tax assets is reduced when it is no longer probable that the related tax benefit will be realized.

#### CONTINGENT LIABILITIES

A contingent liability is recognized when there is a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events or when there is a present obligation that cannot be recognized as a liability or provision because it is not probable that an outflow of resources will be required.

#### PARENT COMPANY'S ACCOUNTING POLICIES

The Parent Company prepared its Annual Report in accordance with the Annual Accounts Act (1995:1554) and the Swedish Financial Reporting Board's recommendation RFR 2:2 Accounting for Legal Entities. The Swedish Financial Reporting Board's statements pertaining to listed companies were also applied. Under RFR 2, the Parent Company in its annual report for the legal entity shall apply all the IFRS and interpretations adopted by the EU to the extent possible within the framework of the Annual Accounts Act and the Pension Obligations Vesting Act, also considering the relationship between financial reporting and taxation. The recommendation states the exceptions from and additions to IFRS that should be made. The differences between the accounting policies applied in the consolidated financial statements and those applied by the Parent Company are presented below. The accounting policies presented below for the Parent Company have been applied consistently in all periods presented in the Parent Company's financial statements.

#### Operating segment reporting

The Parent Company does not recognize segments in line with the same distribution and to the same extent as the Group; instead, disclosures are provided about the distribution of net sales among the Parent Company's operating segments.

#### Amended accounting policies

Unless otherwise specified below, the Parent Company's accounting policies during 2012 changed in the same manner as for the Group.

#### Information regarding the Parent Company

RaySearch Laboratories AB [publ] is a Swedish registered limited liability company headquartered in Stockholm. The Parent Company's shares are listed in the Small Cap segment of the NASDAQ OMX Nordic Exchange in Stockholm. The address to the head office is Sveavägen 25, SE-111 34 Stockholm.

#### Classification and presentation

For the Parent Company, the terms balance sheet and cash-flow statement are used for the statements that the Group calls statement of financial position and respective of cash flows, respectively. The income statement and balance sheet for the Parent Company are presented in the manner specified in the Annual Accounts Act, while the statement of comprehensive income, the statement of changes in equity and the cash-flow statement are based on IAS 1 Presentation of Financial Statements and IAS 7 Statement of Cash Flows, respectively. The differences in relation to the consolidated statements that become apparent in the Parent Company's balance sheet and cash-flow statement pertain primarily to recognition of fixed assets and the existence of provisions as a separate heading in the balance sheet.

#### Anticipated dividends

Anticipated dividends from subsidiaries are recognized in cases where the Parent Company alone is entitled to decide on the size of the dividend and the Parent Company has taken a decision concerning the size of the dividend prior to publishing it in its financial statements.

#### Research and development

All expenditure for research and development is recognized in the Parent Company's income statement. Such reporting is permitted in accordance with RFR 2. In the consolidated financial statements, these development expenditures are recognized as assets in accordance with IAS 38.

#### Taxes

In contrast to the Group, untaxed reserves in the Parent Company are recognized without being divided into shareholders' equity and deferred tax liabilities. Similarly in the income statement, the Parent Company does not report part of appropriations as deferred tax assets.

#### Subsidiaries

Participations in subsidiaries are recognized in the Parent Company financial statements in accordance with the cost method. This entails that transaction expenses are included in the carrying amount.

Conditional purchase considerations are measured on the basis of the probability of the purchase consideration being paid. Any changes in the provision/receivable are to be added to/reduced from cost.

Bargain acquisitions that match future anticipated losses and costs are reversed during the estimated periods during which the losses and the costs arise.

#### Shareholders' contributions

Shareholders' contributions are recognized directly in the recipient's equity whereas the contributor capitalizes the contribution with shares and participations, to the extent that the recognition of an impairment loss is not required.

**NOTE 2** SEGMENT REPORTING

**OPERATING SEGMENTS**

The Group's operations comprise a single segment since the Group's products have similar economic properties. The company's sources of income are heavily interdependent and share the same customer base. Accordingly, the company has deemed that the operations comprise a single operating segment. Total fixed assets amounted to SEK 169,637,000.

**GEOGRAPHIC AREAS**

RaySearch's products are sold through partners and directly to end customers. The information presented regarding the segment's revenues pertain to the geographic areas grouped on the basis of the location of the end customers.

PERCENT	North America		Asia		Europe and the rest of the world	
	2012	2011	2012	2011	2012	2011
Sales	32	36	28	27	40	37

The division of sales is based solely on license revenues and not on support revenues since no regional information is available for support revenues.

Of the company's five commercial partners, Philips and Nucletron accounted for the largest share of sales. In 2012, sales through Philips totaled SEK 62,340,000 (56,911,000) and through Nucletron SEK 24,093,000 (23,755,000). Sales of RayStation to end customers amounted to SEK 60,180,000 (18,829,000).

**NOTE 4** EMPLOYEES, PERSONNEL COSTS AND REMUNERATION TO SENIOR EXECUTIVES

The Group company RayIncentive has no employees or personnel costs.

**COSTS FOR REMUNERATION OF PARENT COMPANY AND GROUP EMPLOYEES**

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
Salaries and remuneration, etc.	57,923	44,722	47,029	39,587
Pension costs, defined-contribution plans	9,569	8,446	9,569	8,446
Social security expenses	15,776	12,898	14,954	12,566
	<b>83,268</b>	<b>66,066</b>	<b>71,552</b>	<b>60,599</b>

**AVERAGE NUMBER OF EMPLOYEES**

The Parent Company had an average of 83 (74) employees, of whom 60 were men (56) and 23 women (18). The average number of employees in the Group was 92 (78), of whom 66 were men (59) and 26 women (19). The average number of employees per country in the Group was 83 (74) in Sweden, 8 (4) in the US and 1 (0) in Belgium.

**GENDER DISTRIBUTION IN MANAGEMENT**

There are no women on the Board or any female senior executives who are active in the Group or Parent Company.

**NOTE 3** INCOME DISTRIBUTION

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
License revenues	159,223	105,128	132,243	96,180
Support revenues	22,864	20,975	22,451	20,975
Intra-Group revenue	—	—	26,595	14,672
	<b>182,087</b>	<b>126,103</b>	<b>181,289</b>	<b>131,827</b>

**SALARIES, OTHER REMUNERATION AND SOCIAL SECURITY EXPENSES DISTRIBUTED BETWEEN SENIOR EXECUTIVES AND OTHER EMPLOYEES**

GROUP	2012		2011	
	Board, President and other executives [7]	Other employees	Board, President and other executives [6]	Other employees
Salaries and other remuneration	11,622	46,301	10,693	34,030
(of which, bonus)	1,198	2,248	1,159	634
Social security expenses	5,398	19,948	4,949	16,394
(of which, pension costs)	2,151	7,419	1,915	6,531
<b>Group total</b>	<b>17,020</b>	<b>66,249</b>	<b>15,642</b>	<b>50,424</b>

PARENT COMPANY	2012		2011	
	Board, President and other executives [6]	Other employees	Board, President and other executives [5]	Other employees
Salaries and other remuneration	9,777	37,252	9,060	30,528
(of which, bonus)	520	165	565	40
Social security expenses	5,322	19,201	4,903	16,108
(of which, pension costs)	2,151	7,419	1,915	6,531
<b>Parent Company total</b>	<b>15,099</b>	<b>56,453</b>	<b>13,963</b>	<b>46,636</b>

**SALARIES AND OTHER REMUNERATION OF BOARD MEMBERS AND GROUP MANAGEMENT**

2012	Basic salary, Board fees	Variable remuneration	Other benefits	Pension costs	Total
Chairman of the Board Erik Hedlund	375	—	—	—	375
Board member Carl Filip Bergendal	128	—	—	—	128
Board member Hans Wigzell	128	—	—	—	128
President Johan Löf	3,416	471	336	484	4,707
Other senior executives [5]	5,211	49	154	1,667	7,081
<b>Total</b>	<b>9,258</b>	<b>520</b>	<b>490</b>	<b>2,151</b>	<b>12,419</b>

2011	Basic salary, Board fees	Variable remuneration	Other benefits	Pension costs	Total
Chairman of the Board Erik Hedlund	360	—	—	—	360
Board member Carl Filip Bergendal	120	—	—	—	120
Board member Hans Wigzell	120	—	—	—	120
President Johan Löf	3,160	565	348	464	4,537
Other senior executives [5]	4,734	—	105	1,451	6,290
<b>Total</b>	<b>8,494</b>	<b>565</b>	<b>453</b>	<b>1,915</b>	<b>11,427</b>

No financial instruments or other share-based remuneration were distributed.

## VARIABLE REMUNERATION

Variable remuneration paid to the President is based on the Group's earnings and amounts to 2 percent of consolidated profit before tax but may not exceed six months' pay. In 2008, the bonus was removed for all employees in the Swedish company except the President and replaced by a profit-sharing foundation. The profit-sharing foundation covers all employees including senior executives except the President. A provision to the profit-sharing foundation is made in a given year if the operating profit for the preceding year reached a level in excess of an operating margin of 20 percent. In such a case, the amount reserved is 10 percent of the part of the operating profit above the limit. The provision has a maximum outcome of 30 percent of the dividend paid. If a dividend is not paid or if the operating margin does not reach 20 percent, no provision is made. For the employees of foreign subsidiaries, variable remuneration related to sales and achievement of established targets is payable.

## PENSIONS

All pension undertakings are defined-contribution plans. The age of retirement for the President is 65 and the pension premium is equivalent to the Swedish ITP plan. The pension commitments for other senior executives are to be equivalent to the Swedish ITP plan. The age of retirement is 65 for all other senior executives. No other pension commitments exist.

## SEVERANCE PAY

If the President chooses to terminate his employment, his term of notice is six months; if the employer terminates employment, the term of notice is 12 months. In either case, the President is not entitled to any special severance pay, but in both cases the President receives salary during the term of notice. The company and other senior executives have a mutual term of notice of three months during which salary is paid. Members of the Board do not receive any severance pay.

## DECISION-MAKING PROCESS

The decision-making process regarding remuneration and benefits is described in greater detail in the Administration Report. See Note 6 for information regarding the option program outstanding.

## NOTE 5 AUDITORS' FEES AND COMPENSATION FOR EXPENSES

SEK 000s	2012	2011
<b>GROUP</b>		
KPMG		
Auditing assignments	414	449
Auditing assignments in addition to the audit assignment	109	211
Tax consultancy services	37	51
Other assignments	68	77
<b>PARENT COMPANY</b>		
KPMG		
Auditing assignments	295	438
Auditing assignments in addition to the audit assignment	109	211
Tax consultancy services	37	51
Other assignments	68	77

Auditing assignments refer to the examination of the Annual Report and consolidated financial statements and accounting records, the administration by the Board and President, other duties incumbent on the company's auditors or other matters arising from observations during such examination or implementation of such other duties.

## NOTE 6 OPTION PROGRAM

### OPTIONS

RaySearch offers option programs to enhance its ability to attract, motivate, and retain personnel. The subsidiary RayIncentive AB owns shares in RaySearch Laboratories to cover options issued and future option programs. RayIncentive held 299,628 shares in RaySearch Laboratories at December 31, 2012. Of this figure, 103,128 shares pertained to the 2008:1 option program. In respect of the company's option program, market prices have been paid for the options by employees on every occasion. The market price is calculated using the Black & Scholes method. The options expired on December 31, 2012, following which no new options have been issued.

### OPTION PROGRAM, RAYSEARCH LABORATORIES

	EXERCISE PERIOD	SHARES	EXERCISE	2011	2012
		INCLUDED	PRICE (SEK)		
2008:1	Dec. 31, 2011– Dec. 31, 2012	103,128	46.5		

## NOTE 7 OPERATING EXPENSES SPECIFIED BY TYPE OF COSTS

	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
SEK 000s				
Cost of goods sold	-3,029	-442	-265	-442
Personnel costs	-54,183	-37,911	-83,659	-82,268
Depreciation/amortization	-49,536	-34,993	-1,984	-1,892
Exchange-rate losses	-3,341	-945	-3,341	-945
Other operating expenses	-50,484	-25,255	-55,955	-32,636
	<b>160,573</b>	<b>-99,546</b>	<b>-145,204</b>	<b>-118,183</b>

## NOTE 8 OTHER OPERATING INCOME

	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
SEK 000s				
Exchange-rate gains on operating receivables/liabilities	1,032	1,067	1,032	1,067
	<b>1,032</b>	<b>1,067</b>	<b>1,032</b>	<b>1,067</b>

## NOTE 9 OTHER OPERATING EXPENSES

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
Exchange-rate losses on operating receivables/liabilities	-3,341	-945	-3,341	-945
	<b>-3,341</b>	<b>-945</b>	<b>-3,341</b>	<b>-945</b>

## NOTE 10 DEPRECIATION AND AMORTIZATION OF TANGIBLE AND INTANGIBLE FIXED ASSETS

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
<b>Intangible fixed assets</b>				
Amortization and impairment losses according to plan by function				
Administrative expenses	-10	-33	-10	-33
Research and development	-48,500	-34,236	-63	-162
	<b>-48,510</b>	<b>-34,269</b>	<b>-73</b>	<b>-195</b>
<b>Tangible fixed assets</b>				
Depreciation according to plan by function				
Administrative expenses	-1,026	-724	-953	-724
Research and development	–	–	-958	-974
	<b>-1,026</b>	<b>-724</b>	<b>-1,911</b>	<b>-1,698</b>
<b>Total amortization and depreciation</b>	<b>-49,536</b>	<b>-34,993</b>	<b>-1,984</b>	<b>-1,892</b>

## NOTE 11 OPERATING LEASES

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
<b>Leasing agreements in which the company is the lessee</b>				
Rent of premises				
Rent of premises	7,474	6,942	6,965	6,827
Other leasing	1,087	711	942	683
Total lease costs	8,561	7,653	7,907	7,510
<b>Contractual future lease fees for leases that mature:</b>				
Within one year				
Within one year	10,577	8,494	9,814	7,657
Later than one but within five years	57,791	9,408	54,851	4,510
Later than five years	28,963	–	28,963	–
	<b>97,331</b>	<b>17,902</b>	<b>93,628</b>	<b>12,167</b>

**NOTE 12** INTEREST INCOME AND INTEREST EXPENSE

SEK 000s	GROUP		PARENT COMPANY	
	2012	2011	2012	2011
Interest income on cash and cash equivalents	406	531	390	393
Interest income on accounts receivable and loan receivables	–	547	–	547
Other interest income	6	29	6	29
Other financial income	642	–	–	–
	<b>1,054</b>	<b>1,107</b>	<b>396</b>	<b>969</b>
Interest expense on other liabilities	-36	-29	-36	-29
Impairment losses on participations in Group companies	–	–	-9,249	–
	<b>-36</b>	<b>-29</b>	<b>-9,285</b>	<b>-29</b>
<b>Net</b>	<b>1,018</b>	<b>1,078</b>	<b>-8,889</b>	<b>940</b>

**NOTE 14** TAX ON PROFIT FOR THE YEAR

SEK 000s	GROUP	
	2012	2011
<b>Current tax expense</b>		
Tax expense for the period	-9,108	-3,248
Adjustment of tax attributable to prior years	<b>-9,108</b>	<b>-3,248</b>
<b>Deferred tax expense/income</b>		
Deferred tax resulting from changes in tax rates	8,007	–
Deferred tax for temporary differences regarding capitalized development expenditure	-1,289	-7,182
Untaxed reserves	-1,311	2,577
Deferred tax expenses resulting from utilization of prior capitalized tax value in loss carryforwards	–	-3,842
	<b>5,407</b>	<b>-8,447</b>
<b>Total tax expense/income recognized in the Group</b>	<b>-3,701</b>	<b>-11,695</b>

**NOTE 13** APPROPRIATIONS

SEK 000s	2012		2011	
Tax allocation reserve, provision for the year	-11,452	-4,100		
Tax allocation reserve, reversals for the year	6,167	14,100		
Accelerated depreciation for tax purposes, equipment	299	-200		
	<b>-4,986</b>	<b>9,800</b>		

## RECONCILIATION OF EFFECTIVE TAX

SEK 000s	GROUP			
	2012	2011		
SEK 000s	Percent	Amount	Percent	Amount
Profit before tax		23,564		28,702
Swedish tax rate	26.3	-6,197	26.3	-7,549
Effect of US tax rate	-3.4	792	5.6	-1,611
Effect of Belgian tax rate	0.0	-7	0	1
Non-taxable income	-0.7	170	-0.2	49
Effect of changed tax rates	-34.0	8,007	–	–
Other non-deductible costs	1.9	-443	1.2	-350
Standard interest on tax allocation reserve	0.2	-48	0.3	-92
Increase in loss carryforwards not capitalized	25.0	-5,901	8	-2,143
Other	0.4	-74	–	–
<b>Recognized effective tax</b>	<b>15.7</b>	<b>-3,701</b>	<b>40.7</b>	<b>-11,695</b>

SEK 000s	PARENT COMPANY	
	2012	2011
<b>Current tax expense</b>		
Tax expense for the year	-9,035	-3,235
Deferred tax expense resulting from prior capitalized tax value in loss carryforwards	0	-3,842
<b>Total tax expense recognized in the Parent Company</b>	<b>-9,035</b>	<b>-7,077</b>

## RECONCILIATION OF EFFECTIVE TAX

SEK 000s	PARENT COMPANY			
	2012		2011	
Percent	Amount	Percent	Amount	
Profit before tax	23,243		25,451	
Swedish tax rate	26.3	-6,113	26.3	-6,694
Non-taxable income	0.0	2	0	8
Other non-deductible costs	12.4	-2,876	1.4	-350
Standard interest on tax allocation reserve	0.2	-48	0.4	-92
Other	0.0	0	-0.2	51
<b>Recognized effective tax</b>	<b>38.9</b>	<b>-9,035</b>	<b>27.9</b>	<b>-7,077</b>

## NOTE 15 DIVIDEND PER SHARE, EARNINGS PER SHARE AND NUMBER OF SHARES

	2012	2011
Dividend per share	—	—
Number of shares used in calculating earnings per share		
Weighted average number of shares before dilution <sup>1</sup>	34,282,773	34,282,773
Effect of options outstanding	—	—
Weighted average number of shares after dilution <sup>1</sup>	34,282,773	34,282,773
Earnings per share after dilution	0.58	0.50
<b>Profit for the year attributable to Parent Company shareholders (before and after dilution)</b>	<b>19,863</b>	<b>17,007</b>

<sup>1</sup> 299,628 treasury shares are held by the subsidiary RayIncentive to be used for the option program. Refer to Note 6.

## NOTE 16 CAPITALIZED DEVELOPMENT EXPENDITURE

SEK 000s	GROUP	
	Dec. 31, 2012	Dec. 31, 2012
<b>Accumulated cost</b>		
Opening balance	266,622	205,076
Internally developed assets	53,403	61,546
<b>Closing balance</b>	<b>320,025</b>	<b>266,622</b>
<b>Accumulated amortization according to plan and impairment losses</b>		
Opening balance	-105,643	-71,407
Amortization according to plan for the year	-45,211	-34,236
Impairment losses for the year	-3,289	—
<b>Closing balance</b>	<b>-154,143</b>	<b>-105,643</b>
<b>Closing carrying amount</b>	<b>165,882</b>	<b>160,979</b>

## NOTE 17 COMPUTER PROGRAMS

SEK 000s	GROUP AND PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2012
<b>Accumulated cost</b>		
Opening balance	3,658	3,658
New acquisitions	—	—
<b>Closing balance</b>	<b>3,658</b>	<b>3,658</b>
<b>Accumulated amortization according to plan</b>		
Opening balance	-3,541	-3,346
Amortization according to plan for the year <sup>1</sup>	-73	-195
<b>Closing balance</b>	<b>-3,614</b>	<b>-3,541</b>
<b>Closing carrying amount</b>	<b>44</b>	<b>117</b>

<sup>1</sup> Of the Group's amortization, SEK 63,000 (162,000) was capitalized.

## NOTE 18 TANGIBLE FIXED ASSETS

SEK 000s	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
<b>Equipment, tools, fixtures and fitting</b>				
<b>Accumulated cost</b>				
Opening balance	13,008	10,508	13,008	10,508
New acquisitions	1,716	2,519	1,056	2,519
Divestments and disposal	–	-21	–	-21
<b>Closing balance</b>	<b>14,724</b>	<b>13,006</b>	<b>14,064</b>	<b>13,006</b>
<b>Accumulated depreciation according to plan</b>				
Opening balance	-9,029	-7,351	-9,029	-7,351
Divestments and disposal	–	21	–	21
Depreciation according to plan for the year <sup>1</sup>	-1,984	-1,698	-1,911	-1,698
<b>Closing balance</b>	<b>-11,013</b>	<b>-9,028</b>	<b>-10,940</b>	<b>-9,028</b>
<b>Closing carrying amount</b>	<b>3,711</b>	<b>3,978</b>	<b>3,124</b>	<b>3,978</b>

<sup>1</sup> Of the Group's depreciation for the year, SEK 958,000 (974,000) was capitalized.

## NOTE 19 PARTICIPATIONS IN GROUP COMPANIES

SEK 000s	PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011
<b>Accumulated cost</b>		
Opening balance	11,420	2,160
Acquisition	–	9,420
Repayment of shareholders' contribution	–	-160
Impairment loss on subsidiaries	-9,249	
<b>Closing balance</b>	<b>2,171</b>	<b>11,420</b>

Specification of Parent Company's and Group's holdings of participations in Group companies.

GROUP COMPANY/CORP. REG. NO./REG. OFFICE	Number/ participations in percent <sup>1</sup>	Adjusted equity/ Profit for the year <sup>2</sup>	Carrying amount
RayIncentive AB, 556635-8247, Stockholm, Sweden	90.81	2,538 / 545	2,000
RayIncentive Americas Inc Delaware, USA	100.0	-23,717 / -19,581	0
RaySearch Belgium Sprl Brussels, Belgium	100.0	187 / 93	171

<sup>1</sup> Pertains to ownership share of capital; voting rights total 49.7 percent.

<sup>2</sup> Adjusted equity refers to the share of the company's equity, including the equity share of untaxed reserves. Profit for the year refers to the ownership share of the company's profit after tax, including the equity share in the change for the year in untaxed reserves.

## NOTE 20 ACCOUNTS RECEIVABLE

No bad debt losses and no impairments related to accounts receivable were recognized during the year.

The company's credit risk consists of credit risk for receivables from Philips, Nucletron, IBA Dosimetry, Varian and Accuray, which were the company's five commercial partners with which products have been launched, and clinics to which the company directly sold systems. The company estimates that the credit risk will remain very low and that the credit quality is high.

AGE ANALYSIS OF CARRYING AMOUNT	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
Not past due	40,747	33,769	47,170	32,158
Past due 0–30 days	4,023	8,363	4,707	1,546
Past due more than 30 days	8,231	14,803	23,939	13,752
<b>Total</b>	<b>53,001</b>	<b>56,935</b>	<b>75,816</b>	<b>47,456</b>

## NOTE 21 PREPAID EXPENSES AND ACCRUED INCOME

SEK 000s	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
Prepaid rent	2,146	1,953	2,024	1,826
Prepaid insurance	195	720	195	720
Accrued interest income	33	–	33	–
Other items	3,618	3,398	3,567	3,286
<b>Total</b>	<b>5,992</b>	<b>6,071</b>	<b>5,819</b>	<b>5,832</b>

## NOTE 22 CASH AND CASH EQUIVALENTS

SEK 000s	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
<b>The following components are included in cash and cash equivalents:</b>				
Cash and bank balances	61,875	28,704	56,682	25,399
	<b>61,875</b>	<b>28,704</b>	<b>56,682</b>	<b>25,399</b>

The above items have been classified as cash and cash equivalents on the basis that:

- They represent insignificant risk of changes in value.
- They are easily converted into cash.
- They have a maturity of a maximum three months from the acquisition date.

## NOTE 23 DEFERRED TAX ASSETS AND TAX LIABILITIES

SEK 000s	GROUP	
	Dec. 31, 2012	Dec. 31, 2011
<b>Deferred tax liabilities for:</b>		
<b>Intangible assets</b>		
Opening balance	42,337	35,155
Change during the year	1,289	7,182
Adjustment due to changed tax rate	-7,132	–
<b>Closing balance</b>	<b>36,494</b>	<b>42,337</b>
<b>Untaxed reserves</b>		
Opening balance	4,035	6,612
Change during the year	1,311	-2,577
Adjustment due to changed tax rate	-874	–
<b>Closing balance</b>	<b>4,472</b>	<b>4,035</b>
<b>Carrying amount</b>	<b>40,966</b>	<b>46,372</b>

SEK 000s	GROUP AND PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011
<b>Deferred tax assets in respect of loss carry-forwards</b>		
Opening balance	0	3,842
Change during the year	0	-3,842
<b>Closing balance</b>	<b>0</b>	<b>0</b>

Valuation is based on the nominal tax rate.

## NOTE 24 UNTAXED RESERVES

SEK 000s	PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011
<b>Accumulated depreciation/amortization in excess of plan:</b>		
Opening balance, January 1	-133	-334
Reversals/depreciation/amortization in excess of plan for the year	-300	201
<b>Closing balance, December 31</b>	<b>-433</b>	<b>-133</b>
<b>Tax allocation reserves</b>		
Allocated at taxation in 2007	–	6,167
Allocated at taxation in 2008	3,288	3,288
Allocated at taxation in 2009	1,919	1,919
Allocated at taxation in 2012	4,100	4,100
Allocated at taxation in 2013	11,452	–
	<b>20,326</b>	<b>15,341</b>

## NOTE 25 OTHER LONG-TERM LIABILITIES

SEK 000s	GROUP	
	Dec. 31, 2012	Dec. 31, 2011
Opening balance	642	642
Change during the year	-642	–
<b>Closing balance</b>	<b>0</b>	<b>642</b>

The amount pertains to expensed premiums for the options. The options expired on December 31, 2012.

## NOTE 26 ACCRUED EXPENSES AND PREPAID INCOME

SEK 000s	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
Social security expenses and vacation costs	5,437	4,415	5,437	4,415
Other personnel-related costs	2,729	1,266	1,438	1,266
Auditing expenses	412	293	400	293
Annual report	1,261	1,320	1,261	1,320
Prepaid income	1,041	117	1,041	117
Legal expenses	2,225	1,294	2,225	1,294
Other items	1,120	231	414	231
	<b>14,225</b>	<b>8,936</b>	<b>12,216</b>	<b>8,936</b>

## NOTE 27 RISKS AND RISK MANAGEMENT

### Financial risk management

The Group is exposed to various types of financial risks through its operations. The term "financial risks" refers to fluctuations in the company's earnings and cash flow due to changes in exchange rates, interest rates, financing and credit risks. The Board has formulated the Group's financial risk management policy, which constitutes a framework of guidelines and regulations in the form of risk mandates and limits for financial activities.

### Foreign-exchange risk

Foreign-exchange risk refers to the risk of fluctuations in the value of a financial instrument because of changes in exchange rates. Foreign-exchange risk results from changes in expected and contractual payment flows (transaction exposure), receivables and liabilities in foreign currency (translation exposure) and financial exposure in the form of currency risk associated with payment flows and investments. To date, the Group has mainly had payments in USD and EUR entailing a foreign-exchange risk. No hedging has been performed.

### Transaction exposure

Translated to SEK, the Group's transaction exposure is distributed among the following currencies:

	Dec. 31, 2012	Dec. 31, 2011
	Amount	Amount
EUR	64,075	39,981
USD	89,350	77,024
Other currencies	4,425	—
	<b>153,425</b>	<b>117,005</b>

The Group's income statement includes exchange-rate gains and losses amounting to a loss of SEK 2,309,000 (gain: 122,000) in operating profit and SEK 0 (0) in net financial items.

### Translation exposure

	Dec. 31, 2012	Dec. 31, 2011
	Amount	Amount
USD	30,993	40,083
Accounts receivable	-4,851	-431
	<b>26,142</b>	<b>39,652</b>

	Dec. 31, 2012	Dec. 31, 2011
	Amount	Amount
EUR	20,357	16,852
Accounts receivable	-5	-14
	<b>20,352</b>	<b>16,838</b>

	Dec. 31, 2012	Dec. 31, 2011
	Amount	Amount
OTHER CURRENCIES		
Accounts receivable	1,651	0
Accounts payable	-44	0
	<b>1,607</b>	<b>0</b>

### Sensitivity analysis

The company is dependent on trends in the USD and EUR exchange rates against the SEK, since invoicing is in USD and in EUR, while most costs are incurred in SEK. In 2012, revenues in USD were recognized at an average exchange rate of SEK 6.69, compared with SEK 6.55 in 2011. Revenues in EUR were recognized at an average exchange rate of SEK 8.60, compared with SEK 9.05 in 2011. A sensitivity analysis of currency exposure indicates that the impact on operating profit in 2012 of a change in the average USD exchange rate of +/- 10 percent is +/- SEK 8.9 M. The sensitivity analysis shows that the corresponding effect of a change in the average EUR exchange rate of +/- 10 percent amounts to SEK +/- 6.4 M.

**Interest-rate risk**

Interest-rate risk corresponds to the effect on earnings that a change in interest rates would cause. Since RaySearch does not have any interest-bearing loans, the interest risk is limited to short-term investments with short fixed-interest periods. At December 31, 2012, a change in interest rates of +/- 1 percent would affect Group profit before tax by approximately +/- SEK 0.5 M [0.3].

**Effective rate of interest and loan-maturity structure**

RaySearch's cash and cash equivalents are liquid funds in bank accounts carrying an effective rate of interest of 0.62 percent [1.36]. The financial liabilities mature within one year.

**Financing risk**

Financing risk refers to the risk that the company will need to borrow funds in a strained credit market. Since the Group's operations are financed with equity, the financing risk is low.

**Credit risk**

The Group's credit risk consists of credit risk for receivables from Philips, Nucletron, IBA Dosimetry, Varian and Accuray, the company's five commercial partners with which products have been launched to date, and from clinics to which the company has sold systems directly. No loan losses have occurred to date, and the Group considers that its credit risk will continue to be very low.

**Operational risks**

As a result of its operations, the Group is exposed to various operational risks, including the following:

**Dependence on key personnel**

RaySearch's future progress is partly dependent on the continuation in the organization of a number of key personnel with specific skills. The loss of one or more of these key people could have an adverse impact on the Group's operations. Some employees have been participating in incentive programs and many employees currently hold shares or options in RaySearch.

**Competition**

RaySearch mainly competes with the in-house development departments of potential commercial partners. These large medical technology companies have always elected to develop software within their own organization or to outsource development work. The more advanced the solutions achieved by RaySearch, the greater the probability that major companies will refrain from proprietary development and instead outsource the task to RaySearch.

**Strategic partnerships**

RaySearch currently has partnerships with Philips, Varian, Nucletron, IBA Dosimetry and Accuray. RaySearch has also sold a system directly to WPE, which is a clinical partner, and has several research partnerships. If RaySearch was to lose one or more of these business partners, this could have a significant impact on the company's sales, profit and financial position. RaySearch is continuously engaged in discussions with several partners concerning additional cooperation.

**Alternative treatment methods**

Of the three primary forms of cancer treatment – surgery, radiation therapy and chemotherapy – radiation therapy is the form that has grown most for curative groups over the past 20 years. RaySearch believes that radiation therapy will continue to be a key treatment form in the future.

**US insurance system**

Any decision by the US insurance system not to compensate clinics for treatment in adaptive radiation therapy would adversely affect RaySearch.

**Official approval**

Medical technology products require official approval. RaySearch would be adversely affected if any product scheduled to be sold by its business partners failed to receive official approval.

**Product development**

RaySearch develops highly advanced products, in which RaySearch assumes the risk in the development effort through to launch, which could result in higher costs than estimated. This is offset through continuous project follow-up and quality assurance.

**Critical estimates and assessments**

Executive management and the Board have discussed developments, selection and information regarding the Group's critical accounting policies and estimates, as well as the applications of these policies and estimates.

**Critical assessments in the application of the Group's accounting policies**

Certain critical estimates for accounting purposes made in the application of the Group's accounting policies are described below.

**Significant sources of uncertainty in estimates****Capitalized development expenditure**

In calculating the cash-generating units' value for the assessment of any impairment requirements for capitalized development expenditure, certain assumptions regarding future circumstances and parameter estimates have been made.

**NOTE 28** MEASUREMENT OF FINANCIAL ASSETS AND LIABILITIES AT FAIR VALUE

SEK 000s	Accounts and loan receivables	Other financial liabilities	Carrying amount	Fair value
<b>Group</b>				
<b>Dec. 31, 2012</b>				
Accounts receivable	53,001		53,001	53,001
Cash and cash equivalents	61,875		61,875	61,875
<b>Total</b>	<b>114,876</b>		<b>114,876</b>	<b>114,876</b>
Accounts payable		11,717	11,717	11,717
<b>Total</b>		<b>11,717</b>	<b>11,717</b>	<b>11,717</b>
<b>Dec. 31, 2011</b>				
Accounts receivable	56,935		56,935	56,935
Cash and cash equivalents	28,704		28,704	28,704
<b>Total</b>	<b>85,639</b>		<b>85,639</b>	<b>85,639</b>
Accounts payable		6,582	6,582	6,582
<b>Total</b>		<b>6,582</b>	<b>6,582</b>	<b>6,582</b>
<b>Parent Company</b>				
<b>Dec. 31, 2012</b>				
Accounts receivable	43,224		43,224	43,224
Cash and bank balances	56,682		56,682	56,682
Receivables from Group companies	32,592		32,592	32,592
<b>Total</b>	<b>132,498</b>		<b>132,498</b>	<b>132,498</b>
Accounts payable		9,741	9,741	9,741
Liabilities to Group companies		306	306	306
<b>Total</b>		<b>10,047</b>	<b>10,047</b>	<b>10,047</b>
<b>Dec. 31, 2011</b>				
Accounts receivable	47,456		47,456	47,456
Cash and bank balances	25,399		25,399	25,399
Receivables from Group companies	14,928		14,928	14,928
<b>Total</b>	<b>87,783</b>		<b>87,783</b>	<b>87,783</b>
Accounts payable		6,497	6,497	6,497
<b>Total</b>		<b>6,497</b>	<b>6,497</b>	<b>6,497</b>

The carrying amount matches the fair value because of the short maturities of the financial assets and liabilities.

## NOTE 29 PLEDGED ASSETS AND CONTINGENT LIABILITIES

SEK 000s	Dec. 31, 2012	Dec. 31, 2011
Pledged assets		
Chattel mortgages	20,000	5,000
Restricted bank funds	17,500	–
<b>Total</b>	<b>37,500</b>	<b>5,000</b>

The company has a credit limit on its overdraft facilities, which was raised from SEK 5 M to SEK 20 M in 2012 and was not utilized in 2012 or 2011. In November, a bank guarantee of EUR 1.8 M was issued to MedAustron, a company in Austria, as a result of which an equivalent amount of cash has been blocked.

### Contingent liabilities

In May 2011, the American company Prowess initiated legal proceedings against RaySearch through a district court in Baltimore, Maryland, in the US. The lawsuit claims that RaySearch has infringed on a US patent held by Prowess. RaySearch denies the infringement claims and argues that the patent should be invalidated on the grounds that, in the past, many publications have described the same concept covered by the patent. The legal process is proceeding and it is difficult to project how much time will be required to resolve the dispute and the total costs that will be incurred by RaySearch. It is clear, however, that RaySearch will continue to have to bear substantial legal costs during 2013 in order to present a viable defense.

## NOTE 30 RELATED-PARTY TRANSACTIONS

For a description of transactions with senior executives, refer to Note 4. The Parent Company has a related-party relationship with its subsidiaries, see Note 19. All transactions proceeded on the basis of normal market terms.

SUMMARY PARENT COMPANY	SEK 000s	Sales of goods/ services to related parties	Purchase of goods/ services from related parties	Dividends	Receivables from related parties	Liabilities to related parties
					Dec. 31, 2012	Dec. 31, 2012
2012		26,595	-1,955	–	32,592	307
2011		14,672	-447	–	14,928	–

## NOTE 31 INTEREST PAYMENTS

	GROUP		PARENT COMPANY	
	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2011
Interest received	412	1,107	396	969
Interest paid	-36	-29	-36	-29

The Board of Directors hereby provides assurance that the Annual Report was prepared in accordance with generally accepted accounting policies in Sweden and that the consolidated financial statements were prepared in accordance with the international accounting standards referred to in the European Parliament and Council regulation (EC) no. 1606/2002 dated July 19, 2002 on the application of international accounting standards. The Annual Report and the consolidated financial statements provide a true and fair view of the Group's and Parent Company's financial position and earnings. The Administration Report for the Parent Company and the Group provides a fair summary of the Parent Company's and Group's operations, financial position and earnings, and describes the significant risks and uncertainties faced by the Parent Company and the companies in the Group.

As stated above, the Annual Report and the consolidated financial statements were approved for publication by the Board of Directors on March 29, 2013. The statement of comprehensive income and statement of financial position, and the Parent Company's income statement and balance sheet will be submitted for adoption at the Annual General Meeting on May 22, 2013.

Erik Hedlund  
Chairman of the Board

Johan Löf  
President/CEO and  
Board member

Carl Filip Bergendal  
Board member

Hans Wigzell  
Board member

Our audit report was submitted on March 18, 2013

KPMG AB

Anders Malmeby  
Authorized Public Accountant

# AUDITOR'S REPORT

**TO THE ANNUAL GENERAL MEETING OF THE SHAREHOLDERS OF RAY SEARCH LABORATORIES AB (PUBL)**  
**CORPORATE REGISTRATION NUMBER 556322-6157**

## REPORT ON THE ANNUAL ACCOUNTS AND CONSOLIDATED ACCOUNTS

We have audited the annual accounts and consolidated financial statements for RaySearch Laboratories (publ) for 2012, with the exception of the Corporate Governance Report on pages 42–49. The annual accounts and consolidated accounts of the company are included in the printed version of this document on pages 49–79.

### Responsibilities of the Board of Directors and the President for the annual accounts and consolidated financial statements

The Board of Directors and the President are responsible for the preparation and fair presentation of these annual accounts and consolidated financial statements in accordance with International Financial Reporting Standards, as adopted by the EU and the Annual Accounts Act, and for the internal control deemed necessary by the Board of Directors and the President for the preparation of annual accounts and consolidated financial statements that are free from material misstatement, whether such misstatements is due to fraud or error.

### Auditor's responsibility

Our responsibility is to express an opinion on the annual accounts and consolidated financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing and generally accepted auditing standards in Sweden. These standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance that the annual accounts and consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the annual accounts and consolidated financial statements. The auditor chooses such procedures based on such assessments as the risk of material misstatement in the annual accounts and consolidated financial statements, whether such misstatement is due to fraud or error. In making these risk assessments, the auditor considers internal control measures relevant to the company's preparation and fair presentation of the annual accounts and consolidated financial statements in order to design audit procedures that are appropriate taking the circumstances into account, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Board of Directors and the President, as well as evaluating the overall presentation of the annual accounts and consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinions

In our opinion, the annual accounts have been prepared in accordance with the Annual Accounts Act and present fairly, in all material respects, the financial position of the Parent Company as of 31 December 2012 and its financial performance and cash flows for the year in accordance with the Annual Accounts Act, and the consolidated financial statements have been prepared in accordance with the Annual Accounts Act and present fairly, in all material respects, the financial position of the group as of 31 December 2012 and its financial performance and cash flows for the year in accordance with International Financial Reporting Standards, as adopted by the EU, and the Annual Accounts Act. Our opinions do not encompass the Corporate Governance Report on pages 42–47. The statutory administration report is compatible with the other parts of the Annual Report and consolidated financial statements.

We therefore recommend that the annual general meeting of shareholders adopt the income statement and balance sheet for the Parent Company and statement of comprehensive income and the statement of financial position for the Group.

## REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

In addition to our audit of the annual accounts and consolidated financial statements, we have examined the proposed appropriations of the company's profit or loss and the administration of the Board of Directors and the President of RaySearch Laboratories (publ) for the year 2012. We have also performed a statutory review of the Corporate Governance Report.

### Responsibilities of the Board of Directors and the President

The Board of Directors is responsible for the proposal for appropriations of the company's profit or loss, and the Board of Directors and the President are responsible for administration under the Companies Act and for ensuring that the Corporate Governance Report on pages 42–47 has been prepared in accordance with the Annual Accounts Act.

### Auditor's responsibility

Our responsibility is to express an opinion with reasonable assurance on the proposed appropriations of the company's profit or loss and on the administration based on our audit. We conducted the audit in accordance with generally accepted auditing standards in Sweden.

As a basis for our opinion on the Board of Directors' proposed appropriations of the company's profit or loss, we examined whether the proposal complies with the Companies Act.

As a basis for our opinion concerning discharge from liability, in addition to our audit of the annual accounts and consolidated financial statements, we examined significant decisions, actions taken and circumstances of the company in order to determine whether any member of the Board of Directors or the President is liable to the company. We also examined whether any member of the Board of Directors or the President has, in any other way, acted in contravention of the Companies Act, the Annual Accounts Act or the Articles of Association.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

In addition, we have read the Corporate Governance Report and based on this and our knowledge about the company and the Group, we believe that we have sufficient basis for our opinions. This means that our statutory review of the Corporate Governance Report has another direction and is of a considerably smaller scope compared with an audit in accordance with International Standards on Auditing and generally accepted standards in Sweden.

### Opinions

We recommend to the annual meeting of shareholders that the profit be appropriated in accordance with the proposal in the statutory administration report and that the members of the Board of Directors and the President be discharged from liability for the financial year.

A Corporate Governance Report has been prepared, and its statutory content is consistent with the other parts of the annual accounts and the consolidated accounts.

Stockholm, March 18, 2013

KPMG AB

Anders Malmeby  
 Authorized Public Accountant

# SHARES AND OWNERSHIP

## SHARE CAPITAL

RaySearch's share capital amounts to SEK 17,141,386.50. The total number of registered shares in the company as of December 31, 2012 was 34,282,773, of which 11,324,391 shares were Class A and 22,958,382 Class B shares. The quotient value per share is SEK 0.50. All shares carry equal rights to the company's assets and earnings. Each Class A share carries ten votes and each Class B share carries one vote at the Annual General Meeting. At December 31, 2012, the total number of votes in the company was 136,202,292. All shareholders entitled to vote at the Annual General Meeting may vote for the full number of shares owned or represented by them, with no restrictions on voting rights.

There has been a shift in ownership from non-Swedish to Swedish shareholders. Foreign owners' shareholdings in RaySearch decreased from 22.4 percent at December 31, 2011 to 21.6 percent at December 31, 2012. The number of shareholders decreased in 2012. At December 31, 2012, there were 4,810 [4,896] shareholders.

## OWNERSHIP STRUCTURE –

### SHAREHOLDER CATEGORIES, %

	Capital	Votes
Foreign shareholders	21.6	5.5
Swedish shareholders	78.4	94.5
of which, institutions	27.9	7.0
individuals	50.5	87.5

## STATEMENT FROM CERTAIN OF THE PRINCIPAL SHAREHOLDERS

Principal shareholders Johan Löf, Erik Hedlund and Anders Brahma intend to remain significant long-term shareholders of RaySearch.

## SHAREHOLDER AGREEMENTS

To the knowledge of the Board of Directors of RaySearch, there are no shareholder agreements for Class B shares. However, there is a shareholder agreement among the Founders (Johan Löf, Erik Hedlund, Anders Brahma, Carl Philip Bergendahl and Anders Liander) regarding their Class A shares. Among other points, this agreement stipulates the obligation to offer shares to existing shareholders prior to sales of shares to an outsider and the right for Founders in certain cases to acquire the shares of another Founder, for example if the latter should declare bankruptcy. However, Anders Liander is completely free to transfer their shares to an outsider without any restrictions. The percentage of total voting rights in RaySearch formally covered by this agreement is about 75.3 percent (about 29.9 percent of capital). The shareholder agreement does not contain any provisions about the exercise of voting rights. When a Founder no longer holds Class A shares, the Founder is no longer a party to the agreement.

The shareholder agreement also includes an undertaking from the Founders in relation to Philips to the effect that, in the event of a public takeover offer for RaySearch from another party, the Founders shall offer their Class A shares to Philips if Founders with a majority of Class A shares believe that the offer is reasonable and intend to accept it.

## OWNERSHIP STRUCTURE – 20 LARGEST SHAREHOLDERS

Name	Class A shares	Class B shares	Total shares	Capital, %	Votes, %
Johan Löf	6,243,084	843,393	7,086,477	20.7	46.5
Erik Hedlund	1,567,089	228,699	1,795,788	5.2	11.7
State street bank	0	1,755,021	1,755,021	5.1	1.3
Home Capital AS	0	1,731,051	1,731,051	5.1	1.3
JPMorgan Chase	0	1,708,481	1,708,481	5.0	1.2
Anders Brahma	1,390,161	200,400	1,590,561	4.6	10.4
Lannebo fonder	0	1,502,000	1,502,000	4.4	1.1
Anders Liander	1,061,577	185,157	1,246,734	3.6	7.9
Carl Filip Bergendal	1,061,577	154,920	1,216,497	3.6	7.9
Second AP Fund	0	1,050,547	1,050,547	3.1	0.8
Aktie-ansvar Sverige	0	1,050,000	1,050,000	3.1	0.8
Bengt Lind	0	600,000	600,000	1.8	0.4
Avanza Pension	0	540,862	540,862	1.6	0.4
Third AP Fund	0	533,227	533,227	1.6	0.4
Morgan Stanley	0	500,000	500,000	1.5	0.4
Fourth AP Fund	0	469,954	469,954	1.4	0.4
Swedbank Robur funds	0	465,000	465,000	1.4	0.3
RayIncentive AB	0	299,628	299,628	0.9	0.2
Kalmar County	0	281,237	281,237	0.8	0.2
FIM Bank	0	213,827	213,827	0.6	0.2
Other	903	8,644,978	8,645,881	25.2	6.4
<b>Total</b>	<b>11,324,391</b>	<b>22,958,382</b>	<b>34,282,773</b>	<b>100</b>	<b>100</b>

RaySearch's agreement with Accuray gives each party the right to cancel the agreement if a competitor gains significant influence over the other party through the acquisition of shares.

#### LISTING ON THE OMX NORDIC EXCHANGE LIST

RaySearch is listed for trading on the NASDAQ OMX Nordic Exchange in Stockholm in the Small Cap segment.

#### SHARE TRADING AND SHARE PRICE TREND

During 2012, a total of 10,605,564 [16,202,223] RaySearch shares were traded at a value of SEK 208.6 M [376.0]. This corresponds to an average price of SEK 19.67 [23.21]. The highest price paid during 2012 was SEK 29.60 on March 20. The lowest paid price during 2012 was SEK 14.45 on January 2. On the last trading day of the year, December 30, the final price per share was SEK 20.80 [14.45]. During 2012, the price of the RaySearch share rose 44 percent (decline: 62), while OMXS increased 12 percent (decline: 17). On December 31, 2012,

RaySearch's market capitalization was SEK 713 M [495]. In these calculations, Class A shares, which are not listed on the stock exchange, were assigned the same value as the listed Class B shares.

#### SHARE PRICE TREND

The diagram on page 83 shows the share price for RaySearch from January 2008 to December 2012, as well as the number of shares traded per month.

#### LIQUIDITY PROVIDER

To increase the liquidity of its share, RaySearch has an agreement with Erik Penser Bankaktiebolag. The implication is that the liquidity provider undertakes to quote buy and sell prices on the NASDAQ OMX Stockholm Exchange for RaySearch's Class B shares on a daily basis. The liquidity provider shall endeavor to ensure that the difference between the buy and sell prices for RaySearch shares does not exceed 2 percent.

OWNERSHIP STRUCTURE – SIZE OF HOLDING	Number of shareholders	Number of Class A shares	Number of Class B shares	Capital, %	Votes, %
1–500	3,045	153	432,516	1.26	0.32
501–1,000	612	750	516,828	1.51	0.38
1,001–2,000	411	0	669,820	1.95	0.49
2,001–5,000	398	0	1,376,822	4.02	1.01
5,001–10,000	167	0	1,213,418	3.54	0.89
10,001–20,000	88	0	1,235,448	3.60	0.91
20,001–50,000	48	0	1,526,818	4.45	1.12
50,001–100,000	10	0	688,894	2.01	0.51
100,001–500,000	17	0	5,473,638	13.81	3.48
500,001–1,000,000	5	0	4,242,582	9.92	2.50
1,000,001–5,000,000	8	5,080,404	5,581,598	33.26	41.94
5,000,001–10,000,000	1	6,243,084	0	20.67	46.46

#### CHANGES IN SHARE CAPITAL OF RAYSEARCH

Year	Transaction	Quotient value, SEK	Change in number of shares	Increase in share capital	Number of Class A shares	Number of Class B shares	Total number of shares	Total share capital, SEK
2005	Opening balance	1.5			4,237,604	6,275,457	10,513,061	15,769,591,50
	Non-cash issue [B]		914,530	1,371,795	4,237,604	7,189,987	11,427,591	17,141,386,50
	Reclassification 2005				-24,596	24,596		
	Closing balance	1.5			4,213,008	7,214,583	11,427,591	17,141,386,50
2006	2006 Reclassification 2006				-100	100		
	Closing balance	1.5			4,212,908	7,214,683	11,427,591	17,141,386,50
2008	3:1 share split, 2008		22,855,182		8,425,816	14,429,366		
	Closing balance	0.5			12,638,724	21,644,049	34,282,773	17,141,386,50
2009	Reclassification 2009				-252,756	252,756		
	Closing balance	0.5			12,385,968	21,896,805	34,282,773	17,141,386,50
2011	Reclassification 2012				-1,061,577	1,061,577		
	Closing balance	0.5			11,324,391	22,958,382	34,282,773	17,141,386,50
2012	Closing balance	0.5			11,324,391	22,958,382	34,282,773	17,141,386,50

KEY RATIOS <sup>1</sup>	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2010	Dec. 31, 2009	Dec. 31, 2008
Number of shares before full dilution	34,282,773	34,282,773	34,282,773	34,282,773	34,282,773
Equity per share, SEK	6.35	5.74	5.74	5.39	4.39
Earnings per share, SEK	0.58	0.50	0.84	0.88	0.53
Earnings per share after full dilution, SEK	0.58	0.50	0.84	0.88	0.53
Share price, SEK	20.80	14.45	38.0	29.5	11.5
P/E-ratio before dilution	35.9	28.9	45	34	22
P/E-ratio after dilution	35.9	28.9	45	34	22
Dividend, SEK	0 <sup>2</sup>	0	0.50	0.50	0
Price/Adjusted equity per share, multiple	3.3	2.5	6.6	5.5	2.6

<sup>1</sup> Definitions of key ratios, page 85.

<sup>2</sup> According to the Board's proposal.

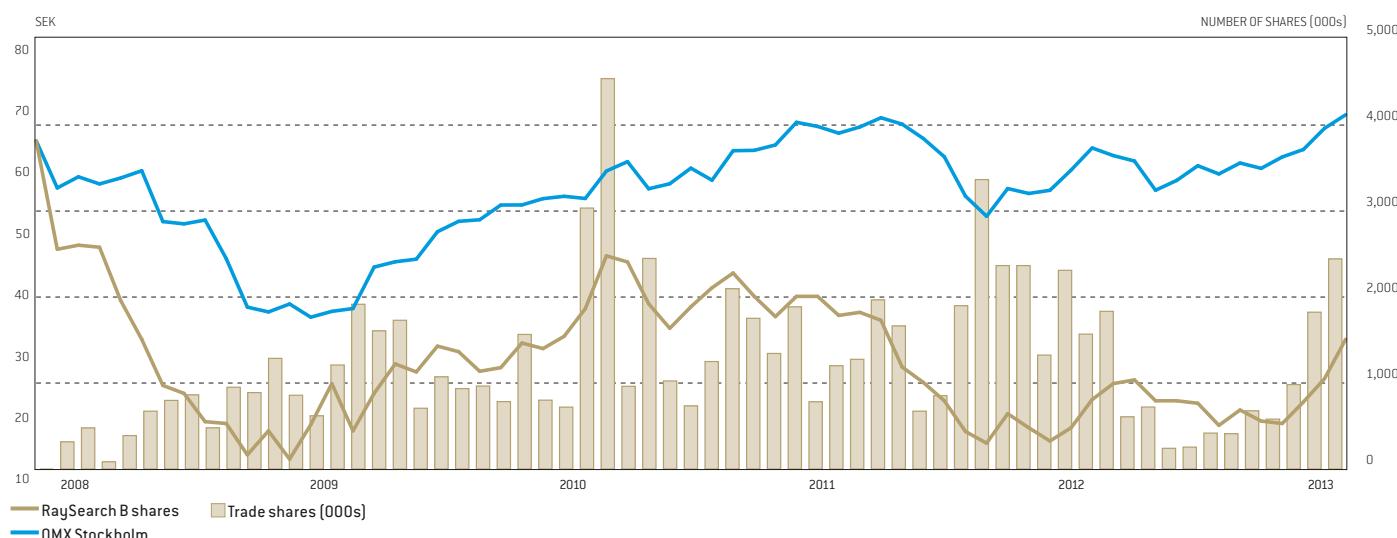
### OPTION PROGRAMS

RaySearch has issued an option program to more easily attract, motivate and retain personnel. The existing option program expired on December 31, 2012. See Note 6.

### DIVIDEND POLICY

The Board of Directors' intention is to pay as dividends approximately 20 percent of the Group's profit after tax on condition that a healthy capital structure is retained.

### SHARE PRICE TREND



# KEY FIGURES

## KEY FIGURES AND CONDENSED FINANCIAL DATA

The summary shows how the core business developed between 2003 and 2012. The years 2004–2012 have been prepared in accordance with IFRS. Figures in the income statement, the statement of financial position and statement of cash

flows for the full-year 2003 refer to the previously prepared pro forma accounts, since this comparison provides a more accurate impression of how operations have progressed. Additional information regarding the pro forma accounts is available in the Annual Report for 2003.

GROUP	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003 <sup>1</sup>
Net sales, SEK M	182.1	126.1	117.7	83.7	62.7	64.7	69	69.9	39.5	34
Growth in sales, %	44.4	7.1	40.7	33.5	-3	-6.2	-1.3	77	16	9.7
Operating profit, SEK M	22.5	27.6	39.9	40.9	21.1	25.8	33.5	39.6	12.5	12.9
Operating margin, %	12.4	21.9	33.9	48.8	33.6	39.8	48.6	56.7	31.6	37.8
Profit margin, %	12.9	22.8	34.1	49.3	38.5	43.3	50.5	57.3	32	38.5
Net profit, SEK M	19.9	17.0	28.9	30.1	18.2	19.8	36.2	29.1	11.2	8.7
Earnings per share, SEK <sup>4</sup>	0.58	0.50	0.84	0.88	0.53	0.58	1.06 <sup>2</sup>	0.85	0.36	0.28
Cash flow per share <sup>4</sup>	2.55	0.99	1.83	1.44	0.76	1.1	0.88	1.21	0.41	0.38
Dividend per share, SEK <sup>4</sup>	— <sup>3</sup>	—	0.50	0.50	—	0.17	—	—	—	—
Capital employed, SEK M	217.5	196.7	196.8	184.9	150.4	137.9	118.1	81.9	39.4	28.3
Interest-bearing liabilities, SEK M	—	—	—	—	—	—	—	—	—	—
Total assets, SEK M	293.0	261.8	255.9	233.1	188.1	173.2	146.2	107.2	54.8	42.5
Equity per share, SEK <sup>4</sup>	6.35	5.74	5.74	5.39	4.39	4	3.44	2.39	1.25	0.9
Equity/assets ratio, %	74.2	75.4	76.9	79.3	80	79.6	80.7	76.4	72	66.5
Share of risk-bearing capital, %	88.2	93.1	93.2	94.3	93.9	92.8	92.9	89.3	88.6	81.9
Return on capital employed, %	11.4	14.6	21.0	24.6	16.8	22.2	34.9	66.1	37.5	50.7
Return on total capital, %	8.5	11.1	16.4	19.6	13.4	17.8	27.5	49.5	26.1	35.5
Return on equity, %	9.6	8.6	15.1	18	12.6	15.5	36.2	48	33.1	33.7
Share price at year-end, SEK <sup>4</sup>	20.80	14.45	38.0	29.5	11.5	63.3	50	59	16.2	8.33
Average number of employees	92	78	64	52	48	37	28	27	23	19

<sup>1</sup> Pro forma in accordance with Swedish Financial Accounting Standards Council Recommendations, see Annual Report for 2003.

<sup>2</sup> SEK 0.73, excl. capitalization of tax loss carry-forwards in 2006.

<sup>3</sup> According to Board's proposal.

<sup>4</sup> Adjusted for 3:1 share split in 2008.

# DEFINITIONS

## CAPITAL EMPLOYED

Total assets less non-interest-bearing liabilities including deferred tax liability.

## CASH FLOW PER SHARE

Cash flow from current operations divided by average number of shares during the year.

## DIVIDEND PER SHARE, SEK

Dividend divided by number of shares at year-end.

## EARNINGS PER SHARE

Net earnings divided by average number of shares during year.

## EQUITY/ASSETS RATIO

Equity as a percentage of total assets.

## EQUITY PER SHARE

Equity divided by number of shares at end of year.

## OPERATING MARGIN

Operating profit, expressed as a percentage of net sales.

## P/E-RATIO

Share price divided by earnings per share, before and after dilution.

## SHARE PRICE/ADJUSTED EQUITY PER SHARE

Share price divided by adjusted equity per share at year-end.

## PROFIT MARGIN

Income after financial items expressed as a percentage of net sales.

## RETURN ON CAPITAL EMPLOYED

Operating profit plus financial income expressed as a percentage of average capital employed.

## RETURN ON EQUITY, %

Net income after taxes expressed as a percentage of average shareholders' equity.

## RETURN ON TOTAL CAPITAL, %

Operating profit plus financial income expressed as a percentage of total assets.

## SHARE OF RISK-BEARING CAPITAL

Equity plus deferred tax liabilities expressed as a percentage of total assets.

There are no minority interests within the Group for accounting purposes.

# GLOSSARY

## Accelerator

Also sometimes referred to as linear accelerator or linac. The accelerator is used to create and shape the radiation beams used in radiation therapy. Usually there are one to ten accelerators per cancer clinic. Major manufacturers are Elekta and Varian.

## Adaptive Radiation Therapy (ART)

Radiation therapy in which information extracted from image studies (CT, MRI or PET scans) acquired during the course of treatment is used to correct the treatment. This method reduces the effects of uncertainties and erroneous information during planning and improves treatment outcome. Refer also to IGRT.

## Algorithms

A method for solving a problem in a number of steps, for example, a calculation procedure.

## ART

Refer to Adaptive Radiation Therapy.

## Brachytherapy

Local radiation treatment using radioactive isotopes, usually radium, iridium or cobalt, placed directly on or in the patient.

## Carbon ions

By accelerating carbon atoms to speeds approaching half the speed of light, the carbon atom is ionized and can be used for radiation therapy that has a unique biological effect, in addition to the favorable properties that the type of radiation shares with protons.

## Conventional three-dimensional conformal radiation therapy (3D-CRT)

The treatment method used today when IMRT is not used. Involves shaping the beams to conform to the contour of a tumor using an MLC, while the intensity of the beam remains constant.

## Fraction

Radiation therapy is usually divided into 30–40 sessions known as fractions.

## IGRT – Image-Guided Radiation Therapy

Radiation therapy in which information extracted from images of patients in the treatment position is used for basic geometric corrections such as the patient positioning. Typical imaging modalities are portal imaging and CT scanners integrated with the treatment machine (see Cone-beam CT). By means

of this procedure, positioning errors can be reduced and a better treatment gained. Refer also to Adaptive radiation therapy.

## IMRT

[Intensity Modulated Radiation Therapy] is a technique in which the intensity of the beam is varied spatially using a multi-leaf collimator. Traditional radiation therapy uses only homogeneous intensity.

## Modularity

A property of software entailing that parts of the software can be reused in contexts and products other than the purpose for which they were initially developed.

## Multi-criteria optimization

Technology for intuitively and efficiently creating and evaluating a number of different treatment/therapy options.

## ORBIT Optimization of Radiation therapy Beams by Iterative Techniques

The core of RaySearch's software, which works as a framework and a toolbox for the software products that RaySearch develops.

## Protons

A type of particle with a substantially larger static mass than electrons and which, accelerated to half the speed of light, has superior radiation therapy properties than traditional photon or electron radiation.

## Radiobiological optimization

Optimization of radiation therapy in which mathematical models of how tissue reacts to radiation are used to help the user to assess quality of treatment.

## Treatment planning

Using a computer to find one or more recommendations for radiation therapy of the tumor. Usually includes work with CT images, tumor and organs at risk delineation, application of radiation type and beam angle, optimization (manual or automatic) of dose results, as well as evaluation and approval of best recommendation (plan).

## VMAT (Volumetric modulated arc therapy)

Advanced form of IMRT where the treatment machine rotates around the patient once or several times while the treatment beam is activated. Enables quicker treatment.



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