



varian

EXTENDING CARE, SAVING
LIVES, PROTECTING RESOURCES

VARIAN SUSTAINABILITY REPORT 2017

HALCYON

WELCOME TO VARIAN'S ANNUAL SUSTAINABILITY REPORT

Varian produces annual sustainability reports as part of our commitment to social responsibility performance and transparency.

Our comprehensive, company-wide sustainability program involves the close participation of senior leaders from each of our divisions, locations, and core functions. We identify and prioritize our most significant sustainability issues, and reference the GRI (Global Reporting Initiative) guideline in our reporting. This is the most used, credible, and trusted global framework for sustainability reporting.

As a result of this focus on corporate social responsibility, Varian is increasingly recognized as a leading company in this field. Earlier this year, Varian was honored for its commitment to sustainability with inclusion on a prestigious list of the world's most sustainable companies for the third year running. Varian is one of only two U.S. healthcare equipment companies on the *Corporate Knights* Global 100 Most Sustainable Corporations list.

Varian's employees all contribute toward helping to save lives around the world. In this report, you will find some examples of how Varian is making a positive contribution to the communities where we operate, as well as programs to optimize possibilities for continued improvement.

We hope you find it of interest and thank you for your attention.

The data in this report is from fiscal year 2016 (October 2015 to September 2016).

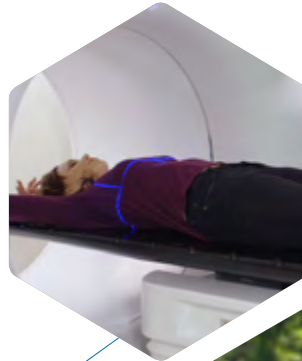
If you have any comments about this report, please contact us at sustainability@varian.com

Go online: In addition to this report, Varian will publish future sustainability reports, performance, and activities at this site:

WWW.VARIAN.COM/ABOUT-VARIAN/CITIZENSHIP

CONTENTS

- 03 The New Varian
- 04 Halcyon – The Lean, Green, Cancer-Fighting Machine
- 06 Varian Announces Access to Care Foundation
- 07 Fast-Tracking to Modern Treatments in Nepal/ Defying Pressure in Tibet
- 08 Modern Care for Senegal and the DRC
- 09 Improved Plan Quality Through Sharing
- 10 Focusing on Cybersecurity
- 11 From Melbourne to Maryland – Phoebe's ProBeam Story
- 12 Progress on Protons
- 13 2016 Environmental Highlights
- 14 Progress Against Key Environmental Goals
- 15 Corporate Social Responsibility in China
- 16 Health and Safety
- 17 Transforming Human Resources
- 18 Varian Volunteers
- 19 Governance and Risk Management



Vladislav Shatalov, an applications physics support specialist for Varian in Germany, has found a novel use for unwanted packaging by rebuilding wooden shipping crates to house bees. Five years ago, after learning that the crates would be disposed of, he asked if he could use them for beekeeping purposes. Today, he tends 20 bee colonies – all housed in recycled shipping crates. The bee colonies produce 400–500 kg of ecologically pure natural honey every year and they benefit Vladi's village, as they pollinate plants that help his neighbors' gardens bear more fruit.

Beekeeping runs in his family – his father was a beekeeper. "During my childhood, my father taught me about bees and I became fascinated with them," he says. Vladi decided to pick up his childhood hobby five years ago but found that the standard housing made for bees was inadequate. "Since I live in Germany, I see how well-developed recycling of secondary raw materials is, and I wanted to support this trend," he says. "That's where I decided to find material for bee housing from another source, and to help more trees from being sacrificed." His coworkers in Varian's Darmstadt office certainly appreciate his pursuit: "His honey tastes delicious," says colleague Robert Windecker.

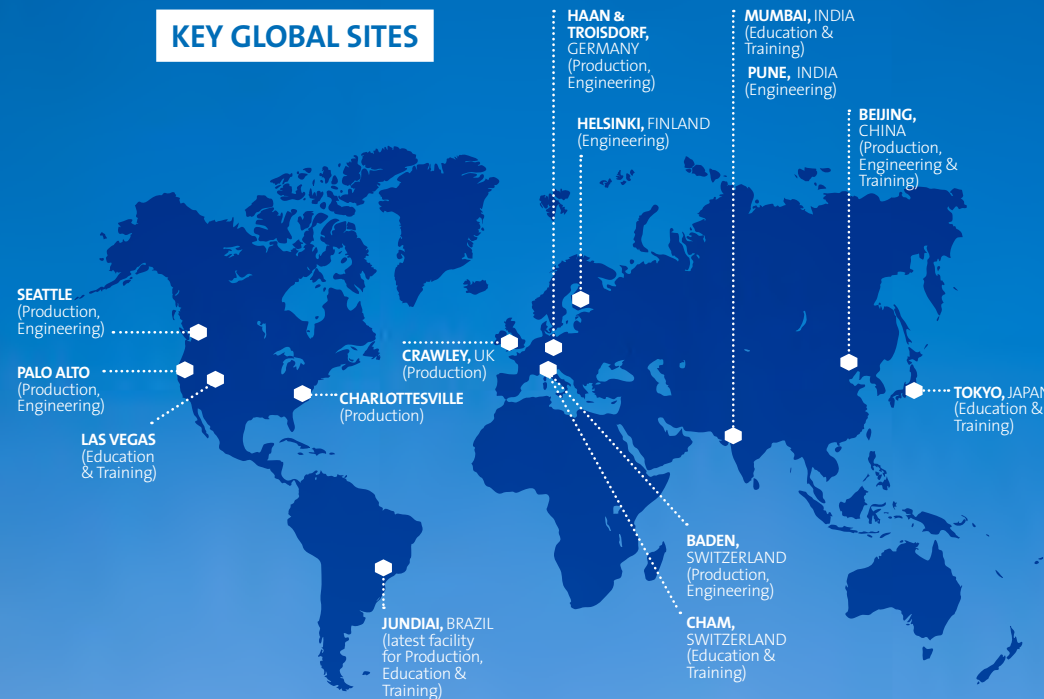
THE NEW VARIAN

In January this year, Varian became a dedicated cancer management company. The X-ray imaging business that had represented 20% of the business was spun off as the stand-alone Varex Imaging Corporation. What remains is a pure play cancer management company, focused on saving lives through advances in radiotherapy, radiosurgery, proton therapy, and brachytherapy. Varian after this spin remains the world's leading manufacturer of medical devices and software for treating and managing cancer.

"We are very pleased that we were able to complete this successful separation and create two strong independent companies," says Dow Wilson, Varian's CEO. "Varian is now focused exclusively on expanding its position as the leader in systems and software for the treatment of cancer. As a cancer-fighting company, we are increasing our efforts to make the treatment of cancer more effective, affordable, and accessible for patients around the world."

The Halcyon system, featured on the cover and detailed on the following pages, is an example of this greater focus. Varian, the Silicon Valley pioneer, remains committed to harnessing that pioneering spirit to help save lives and help achieve the dream of living in a world without fear of cancer. Varian's Oncology Systems and Particle Therapy businesses will continue to invest more than \$200m a year in research and development between them to help achieve and make the dream a reality.

KEY GLOBAL SITES



6,600
employees

\$2.5BN
FY16 revenues
(excluding Varex)

≈650
medical linear
accelerators supplied
globally in FY16

13
production facilities
in North America,
Europe, and China

▶70
sales and
support offices
around world

OUR VALUES

Customers First

We put customers first. Our customers trust us to deliver solutions, products, service, and performance that enable them to do vital work for people around the world.

Partner for Life

We are united by purpose to help save lives. We collaborate with one another and our customers to make patient care more effective, affordable, and accessible everywhere. We serve all parts of the world with equal care.

Inspired Innovation

We turn great ideas into practical realities. We have always been inspired and energized by the challenge of finding new and better ways to do things. Innovation drives our success.

Doing Well by Doing the Right Thing

We grow our business while acting with integrity. Each of us is responsible for meeting the highest standards of ethics, quality, and safety. We care for our customers, our colleagues, and our communities.

HALCYON – THE LEAN, GREEN, CANCER-FIGHTING MACHINE

Five years ago, a team was formed in Varian with a “startup” mentality and a defined mission. Ed Vertatschitsch, the former head of recently acquired Calypso Inc., was tapped to lead the team.

The mission was to create a breakthrough system that would revolutionize clinical workflow and enhance every aspect of image-guided intensity-modulated radiotherapy (IMRT). The goal was to make it easier and more cost effective for clinics around the world to implement advanced treatment modalities that improve outcomes for cancer patients. This system would be designed to provide highly efficient, high throughput treatments for hospitals and clinics anywhere in the world. And it needed to emphasize sustainability at its very core.

The result is the Halcyon™ system, which simplifies advanced treatment delivery. Halcyon enables the delivery of high-quality treatment plans at an accelerated speed for greater patient comfort and throughput. One of Ed’s first appointments to the Halcyon development team was Mu Young Lee as director of new product solutions. Ed led the team for the first two years, then Mu took over.

“When they founded this great company, the Varian brothers believed in protecting the future,” says Mu Young Lee. “They felt technology should serve humanity and not just develop for its own sake. There is a richness to this system that is very much in keeping with their original vision.”

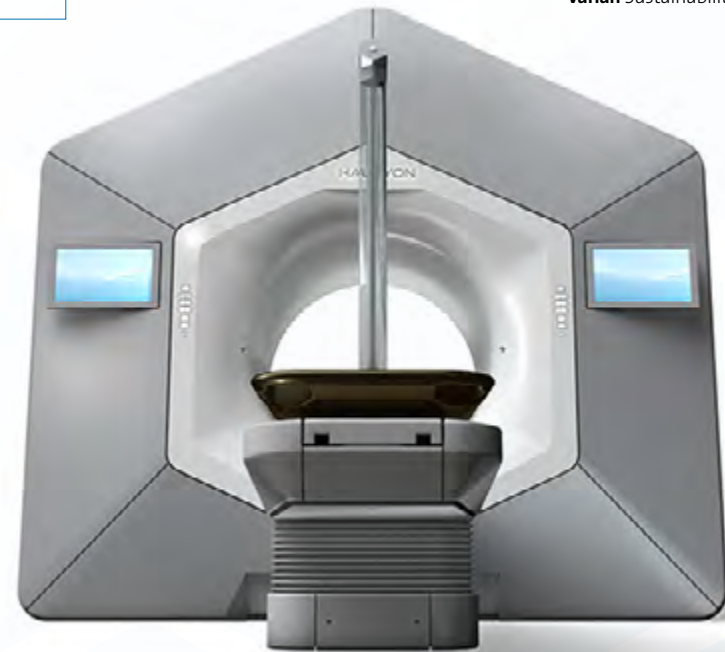
Engineer Ross Hannibal, another member of the development team, adds, “There is a commonality of need around the world, it doesn’t matter whether you are in Billings, Montana, or Chennai, India. A world machine should be designed for this commonality, not for differences. Our goal was to make high-quality radiotherapy accessible globally and I believe we can achieve this goal with Halcyon.”

After extensive market research involving 100 customer sites in 20 different countries, Halcyon was designed to meet three key challenges: facilitate access to high-quality care, streamline clinical operations, and enhance patient comfort.

The Halcyon team succeeded in their mission. “We delivered this great product ahead of schedule and we beat our system performance goals,” says Ed Vertatschitsch, now Varian’s VP of global portfolio solutions. “It was a gamble but it has paid off beautifully and I think we’ve delivered something that can make a meaningful difference in spreading quality care globally.”

“With the innovations in this new technology platform, the system will deliver high-quality Halcyon treatments that empower clinicians to care for many more patients,” says Kolleen Kennedy, president of Varian’s Oncology Systems business. “We are very excited with the introduction of Halcyon to be taking another big step toward advancing cost-effective cancer care worldwide.”

- Halcyon’s gantry can rotate four times faster than conventional “C-arm” accelerators
- High-quality volumetric images can be taken in as little as 15 seconds
- A new dual-layered collimator speeds up beam modulation and reduces leakage
- Complex image-guided IMRT plans are clinically accelerated compared to those delivered on traditional devices
- Halcyon only requires nine steps from the start to the end of treatment compared to up to more than 30 steps with older technologies
- Offers hospitals a much lower cost of ownership – it can be installed in under two weeks, fits in existing small vaults, comes pre-commissioned with Eclipse treatment planning



As part of its human-centered, user-friendly design, large touchscreens are installed on both sides of the machine to assist in easy patient setup. For increased patient comfort, Halcyon is much quieter than other systems, has a low couch height for easy patient access, and soft indirect ambient lighting in the gantry opening. To create a closer connection between patient and therapist during Halcyon treatment, the system includes an integrated couch-mounted camera for the therapist to watch over the patient during treatment, and an integrated sound system that makes it easy for patients to converse with the therapists.



“We’ve delivered something that can make a meaningful difference in spreading quality care globally. We delivered Halcyon ahead of schedule and we beat our system performance goals.”

ED VERTATSCHITSCH,
VP GLOBAL PORTFOLIO SOLUTIONS

6 SUSTAINABILITY WAYS IN WHICH HALCYON MAKES A DIFFERENCE

1. Halcyon will improve access to quality care for millions of patients around the world
2. Halcyon is half the weight of a traditional machine
3. Halcyon uses less than half the energy of a traditional machine
4. Halcyon requires two-thirds less concrete in the bunker and is self-shielding
5. Halcyon uses less SF₆ – a greenhouse gas – than traditional “C-arm” linear accelerators
6. Halcyon is a safe replacement for the cobalt currently used in many cancer clinics in low- and middle-income countries

60%

of all cancer patients worldwide will need radiotherapy at some point in their treatment

Halcyon – Addressing the Global Need

In its 2015 report, the Lancet Oncology Commission found that up to 60% of all cancer patients worldwide will need radiotherapy at some point in their treatment, but a lack of investment in radiotherapy services has severely limited access to radiotherapy treatments worldwide, especially in low-income and middle-income countries (LMIC).

These countries have 80% of the global cancer burden but only 5% of the resources for cancer control, and in low-income countries, 90% of the population lack access to radiotherapy. Even in high-income countries the numbers of radiotherapy facilities, equipment, and trained staff are inadequate.

Radiotherapy is important for managing most cancers, such as breast, lung, prostate, head and neck, and cervical cancers, which account for more than two-fifths of cases worldwide. In its report, the Commission details how a persistent underinvestment in radiotherapy globally has diminished access, and describes the substantial health and economic benefits of investing in radiotherapy.

With the number of new cancer cases expected to rise to 24.6 million by 2035, the Commission claims that increasing access to radiotherapy services in LMIC by scaling up radiotherapy capacity from current levels could lead to a saving of 27 million life years by 2035, over the lifetime of patients who receive this treatment.



“The reception Halcyon received at the unveiling, and from attendees coming to the ESTRO booth, was tremendous.”

KOLLEEN KENNEDY, PRESIDENT OF VARIAN'S ONCOLOGY SYSTEMS BUSINESS



Halcyon Draws a Crowd

In front of a large crowd at the annual meeting of the European Society for Radiotherapy and Oncology (ESTRO) in May, Varian unveiled the Halcyon system. This audience was among the first in the world to see this new treatment platform which simplifies and enhances virtually every aspect of image-guided volumetric intensity modulated radiotherapy.

“The reception Halcyon received at the unveiling, and from attendees coming to the ESTRO booth, was tremendous,” said Kolleen Kennedy, president of Varian’s Oncology Systems business. “People have been impressed with the simplicity of the design and how we have automated the system to make it easy for therapists, physicists, and physicians to deliver high-quality treatments around the world.”

5 WAYS THE HALCYON SYSTEM REDUCES PACKAGING COMPARED WITH CONVENTIONAL LINEAR ACCELERATORS:

1. Reduces system deliveries from ten crates to six
2. Uses smaller, lightweight corrugated board crates rather than heavy plywood
3. Replaces heavy “red iron” shipping bases with well-engineered wooden ones
4. Use of returnable rack system to transport Halcyon covers to Beijing for assembly
5. Use of corrugated boxes rather than wooden boxes wherever possible

DEFINITIONS OF HALCYON:

1. Calm, peaceful – a *halcyon* atmosphere
2. Happy, golden – the *halcyon* days of youth
3. Prosperous, affluent
4. Mythical bird identified with the kingfisher



▲ **HALCYON IN SOUTHERN CALIFORNIA WAS ALSO THE HOME TOWN OF THE VARIAN BROTHERS**



“Russell Varian walked 220 miles from his hometown of Halcyon to Palo Alto to begin his studies at Stanford University. We can trace the lineage of our company directly back to his journey from Halcyon. Selection of the product name Halcyon was an acknowledgment of the storied history of our firm and the hope for a prosperous future for the product line.”

MU YOUNG LEE, DIRECTOR OF NEW PRODUCT SOLUTIONS, VARIAN

VARIAN ANNOUNCES ACCESS TO CARE FOUNDATION

As radiation oncology becomes increasingly precise and cancer centers worldwide can offer ever more advanced treatments for their patients, many parts of the world are still grossly underequipped with too few machines to treat their growing cancer populations.

“But even when these developing regions are able to invest in installing new equipment to address this issue, they are often hindered by a lack of qualified staff to plan treatments and run the equipment,” says Michael Sandhu, Varian’s vice president of market access and integration.

One of the ways in which Varian seeks to bridge the gap between skills levels and knowledge in well-equipped developed countries and those in developing nations is to provide a broad range of education services. One of the most ambitious of these is Access to Care, with successful projects underway in Vietnam and South Africa and plans to introduce services in Myanmar this year.

Now, in order to accelerate this educational program, Varian is announcing the Access to Care Foundation. This non-profit body will be responsible for implementing Varian’s Access to Care programs around the world and will focus on countries with two linear accelerators or fewer per million people. It will be funded by donations from Varian and other bodies.

The overarching aims of the Foundation are to enable the training of thousands of radiotherapy professionals over time and establish multiple new training centers in developing countries. Involving fast-tracked, formalized training which leverages e-learning tools, the program aims to enable countries with enormous human capacity deficits to take advantage of the cost-effectiveness of radiotherapy as a cancer treatment option.



“Adding machines is just one part of the solution – building human capital is also crucial.”

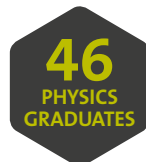
MICHAEL SANDHU, VICE PRESIDENT OF MARKET ACCESS AND INTEGRATION



Attendees at a recent Varian Access to Care event in Vietnam

“We hope that by formalizing our Access to Care program with foundation status we can mobilize partners and stimulate training in countries where there are too few trained practitioners to operate the treatment equipment they desperately need,” adds Sandhu.

Varian’s latest Access to Care project in Myanmar involves collaborations with many of the country’s hospitals, including Mandalay General Hospital and Yangon General Hospital as reference training centers. The program has the following training goals:



to become competent and qualified medical physicists



to become competent and qualified radiation oncologists in new radiation therapy technology



to become competent and qualified radiographers

In its 2015 report, the independent Lancet Oncology Commission called for a long-term commitment to cancer care and treatment through the following actions:

1. 80% of countries should have cancer plans that include radiotherapy by 2020
2. By 2025, radiotherapy treatment capacity should be increased by 25% from 2015 capacity
3. Each low- and middle-income country (LMIC) should have at least once cancer center by 2020
4. LMICs should train 7,500 radiation oncologists; 20,000 radiation technologists; and 6,000 medical physicists by 2025
5. LMICs should invest \$46 billion by 2025 to establish radiotherapy infrastructure and training
6. 80% of LMICs should include radiotherapy services as part of their universal health coverage by 2020

LARGEST-EVER RESEARCH SYMPOSIUM

More than 215 people, including 150 customers, attended Varian’s largest-ever research symposium in Chicago earlier this year. The three-day scientific program included over 90 oral presentations organized into 12 sessions, 63 posters and 16 demos. These sessions included big data analytics, adaptive radiotherapy, knowledge-based planning, imaging, treatment planning, quality and safety, and high-definition radiotherapy (HyperArc™). For the first time, there were also sessions on protons, immunotherapy, clinical collaborations, and radiomics.



expected to be spent in FY17 on investigator-initiated research. This involves more than 160 projects at more than 70 institutions, about half of which are outside the U.S.



“Varian holds this research symposium roughly every two years, and the caliber of the presentations is extremely impressive. It’s a great opportunity for investigators to talk with each other, test out their ideas, and obtain useful input from colleagues. These researchers are doing very exciting work and the potential to improve cancer care with radiotherapy is tremendous.”

SCOTT JOHNSON, PH.D., DIRECTOR OF RESEARCH COLLABORATIONS AT VARIAN



FAST-TRACKING TO MODERN TREATMENTS IN NEPAL

Doctors in Nepal have introduced advanced RapidArc® volumetric radiotherapy treatments on one of the country's first modern linear accelerators. Nepal Cancer Hospital in Kathmandu is offering the most modern radiotherapy treatments in a country with 30,000 new cancer patients each year and hardly any modern equipment to treat them.

Around 50 patients a day are now being treated on a Varian TrueBeam™ and many of them are being treated using RapidArc, which means many cancer patients no longer have to go overseas for modern treatments. In addition to installing the country's modern linear accelerator, Nepal Cancer Hospital offers advanced brachytherapy treatments.

"Before we established this center, very few of the Nepal's cancer patients had access to treatment," said Dr. Sudip Shrestha, the hospital's medical director. "From the start we invested in the best equipment and hired experienced staff. We were able to commence clinical treatments by carrying out the country's first RapidArc treatments for a pelvic patient."

As well as a valued collaboration with Rajiv Gandhi Cancer Hospital in New Delhi, India, the team in Nepal has also benefited from the involvement of a clinician from a leading radiotherapy center in the

Netherlands. Dr. Wilko Verbakel from VU University Medical Center in Amsterdam visited Kathmandu to help the team get up and running with the new equipment.

"I went there for eight days to help them with their first patient treatments," said Dr. Verbakel. "In their first week they introduced advanced RapidArc treatments for a wide range of indications and all patients have daily online setup. The hospital has continued to make great strides forward in bringing these advanced treatment capabilities to a country previously served by just a few old-fashioned cobalt systems and one old linear accelerator."

"This is a great example of what can be achieved," added Dr. Verbakel. "A new center can be established in a country with very little IMRT experience, and they can start immediately with full RapidArc treatments. This can make a huge difference to cancer patients."

"This is an amazing accomplishment by Nepal Cancer Hospital that shows not every country in the world needs to follow the long route from cobalt, through 3D conformal to maybe one day arrive at IMRT treatments," said Corey Zankowski, senior VP, chief technology innovation officer at Varian. "Today's technology allows them to get there much quicker."

DEFYING PRESSURE IN TIBET

In last year's Sustainability Report we featured one of the most challenging installations Varian had ever faced. Here's an update on the pioneering project at Lhasa in the mountains of Tibet.

Lhasa Hospital is 12,000 feet above sea level. In order for a linear accelerator to work at such altitude, the bunker has a pressurized capsule to compensate for the lower atmospheric pressure. This was the challenge facing Varian's engineers when the company won a major deal to supply modern linear accelerators to hospitals run by the People's Liberation Army in China, and Lhasa Hospital was the first of these to be equipped. It is the first radiotherapy machine in Lhasa, home to nearly a quarter of a million people.

"This was our highest ever installation and presented a whole host of challenges," says Ahmad Khatib, Varian APAC's senior director of site solutions and professional services. "At that altitude you have 30% less air and air flow is very important for a linear accelerator to work reliably. If the components don't cool as specified they can overheat and fail. With less airflow, the high-voltage regulators such as those used in beam generation can start to arc, which can lead to component damage and failure."

Khatib's team set out to develop their own technique for overcoming this problem. Pressurizing the room using special centrifugal fans and "root pump compressors" along with smart controlling logic presented no problems but the entire environment has to be sealed to prevent leakage.

"It must remain airtight so we developed a double-door entry system – like a holding bay in a submarine – to prevent massive loss of pressure each time staff enters the room," says Khatib. "Pressurizing the vault makes little difference to the patient's experience because the pressurization is still less than you would experience on a passenger airplane."

After awaiting a permit for the design and the construction and installation, Khatib and his team made the project a reality. After a setback when the original doors did not prove to be strong enough to withstand the pressure, sturdier doors were installed and the system worked perfectly.

This innovative approach to a challenging installation could prove to be useful elsewhere in the world. Khatib reports: "We are already talking to our colleagues in Peru about adopting the same approach at a hospital in the mountains there, where the hospital has an even higher altitude than Lhasa."



MODERN CARE FOR SENEGAL AND THE DRC

Cancer patients in Senegal and the Democratic Republic of the Congo (DRC) will gain access to modern radiotherapy treatments for the first time with the installation of modern Varian linear accelerators. Both countries are installing Varian Unique™ devices which offer advanced RapidArc treatments for fast and precise image-guided IMRT.

At the Centre Hospitalier Nganda, not far from the DRC capital Kinshasa, Dr. Sulu Maseb Stanislas and his team believe the new system represents a huge improvement to the country's cancer treatment landscape. "The waiting times in this country are far too long and people generally cannot afford to travel overseas for the treatment," says Dr. Stanislas. "This machine offers hope for local patients as well as those from neighboring countries such as Congo, Uganda, and Angola. The use of a fast and precise technique such as RapidArc means we will be able to treat more patients more quickly."

He said the new machine is expected to be installed in October this year and it is hoped patient treatments can commence by December.

Dr. Mamadou Moustapha Dieng and his team at Hôpital Aristide Le Dantec in Dakar, Senegal, are also installing a Varian Unique system and hope to be treating by October this year. "We've been using a cobalt machine since 1989 but it broke down last December and there has been no radiotherapy provision in the country since then," said Dr. Dieng.



"The new machine will allow us to treat many more patients and our colleagues from the urology, neurosurgery, and thoracic departments will have more confidence in sending patients for radiotherapy treatment here rather than sending them overseas."

**DR. MAMADOU MOUSTAPHA DIENG, HÔPITAL
ARISTIDE LE DANTEC IN DAKAR, SENEGAL**

CANCER IN AFRICA

According to a study published in *The Lancet Oncology*, only around half of the 52 African countries have radiotherapy available for patients. The World Health Organization reports that by 2030 there will be some 1.6 million new cancer cases in Africa each year, resulting in 1.2 million deaths. The most common cancers in Africa are cancers of the cervix, breast, lung, liver, and prostate. Varian has installed more than 120 radiotherapy treatment systems in Africa over the last 25 years.

IMPROVED PLAN QUALITY THROUGH SHARING

Introduced in 2014 and already with more than 450 installations globally, Varian's RapidPlan™ knowledge-based planning software is helping clinicians at centers around the world achieve greater consistency, efficiency, and quality in radiotherapy treatment planning.

RapidPlan streamlines the planning process by using shared clinical knowledge and “best-in-class” plans that can be used as a guideline and starting point.

Planners can use shared models or create their own to reflect preferred treatment methodologies and protocols. This can reduce or even eliminate the need for multiple, time-consuming iterations when producing treatment plans.

This is the experience of Yibao Zhang, Ph.D., associate professor at Beijing Cancer Hospital in China, and his colleagues. They have worked together to develop RapidPlan models for rectal, cervical, and lung SABR treatments.

“We started with planning for VMAT plus simultaneous infield boost for pre-surgical rectal patients,” said Zhang, citing several reasons for this choice. “We have a large patient population with this disease, there were not yet other reports in the



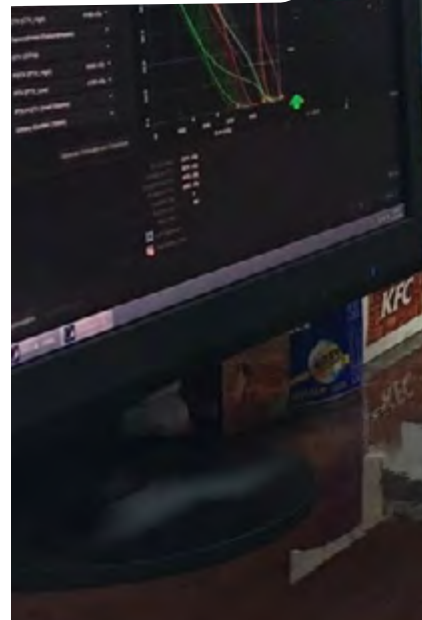
“With RapidPlan, we’ve developed a software tool that creates consistent, efficient, high-quality plans across disease sites and treatment methods. We look forward to continuing to advance treatment planning and to enhancing access to quality cancer treatment around the world.”

COREY ZANKOWSKI, PH.D.,
SENIOR VP, CHIEF TECHNOLOGY
INNOVATION OFFICER

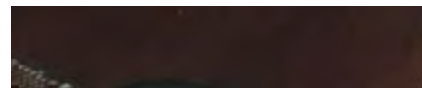
literature about RapidPlan applied to rectal cancer so it was an opportunity to publish, and this type of cancer generally involves relatively few organs at risk. Successful models have been reported for similar anatomical sites such as the prostate. We thought we would start by mastering this one and then move on to develop more models for other disease sites.”

Zhang worked with Hao Wu, M.Sc., chief physicist, deputy chair, and associate professor, and Fan Jiang, B.S., assistant professor, to create the rectal cancer model. The process involved taking plans that had been fine-tuned by a senior physicist, and choosing only the most optimal plans to make sure excellence was incorporated into the model.

“Our rectal model is now very mature after much validation and fine-tuning,” Zhang said. “It produces better-than-manual plans in terms of quality, consistency, and efficiency.”



Hao Wu, M.Sc., chief physicist, Beijing Cancer Hospital, works with RapidPlan knowledge-based treatment planning



FOCUSING ON CYBERSECURITY

Within a day of the massive ransomware attack on May 15th this year, more than 230,000 computers in over 150 countries were reportedly affected. Britain's National Health Service (NHS) was among the many global bodies impacted by the notorious "WannaCry" attack, which targeted computers running the Windows operating system by encrypting data and demanding ransom payments in the Bitcoin cryptocurrency.

The scale of this attack reinforced the need for healthcare systems to be protected by cybersecurity tools, due to the value of patient data for cyber criminals. Vast amounts of sensitive patient information reside today in the modern healthcare provider network, and these are increasingly targeted by "bad actors" such as hackers and other criminals who exploit vulnerabilities in these networks. Healthcare data is believed to have a higher value for cyber criminals than banking data. Consequently, cybersecurity has become a top priority for Varian and others in healthcare.

Varian's software products have historically been developed with a focus on quality and patient safety. The assumption was that these products functioned inside a secure IT perimeter set up at the institutional level, and that people accessing the information would be authorized users. "Today, that's an assumption we can no longer make," says Ken Khouri, Varian's director of software support and managed services.

To address this issue, Varian has launched an initiative to develop a long-term cybersecurity plan. An office of information security has been established, staffed by employees from Varian's product engineering and information technology departments. "They are collaborating with cybersecurity experts and IT

stakeholders from customer sites to identify risks and plan security enhancements," says Khouri.

Today, Varian's cybersecurity program is monitored at the highest levels within the company. A hallmark of the program is tight collaboration across all of Varian, customers, and outside security experts.

The latest version of Varian's ARIA® oncology information system (Version 15) has a strong focus on cybersecurity and the company has also created a cybersecurity interest group within the OncoPeer™ community, a new cloud-based resource for knowledge sharing among oncology professionals.

"Cybersecurity – like patient safety – is going to come down to an effective collaboration between vendors and healthcare providers," concludes Khouri. "Varian takes this issue very seriously and we look forward to working with others to minimize the danger of data security breaches."



"The world has changed and so has the magnitude of the threats. There is close to one reported breach of healthcare data every day somewhere in the world."

KEN KHOURI,
VARIAN'S DIRECTOR OF SOFTWARE SUPPORT
AND MANAGED SERVICES



FROM MELBOURNE TO MARYLAND – PHOEBE'S PROBEAM STORY

At first, Phoebe Melling's parents believed their young daughter had a cold. But as the symptoms worsened, they discovered she had a rare form of cancer in her sinuses.

Her mother Ros, a nurse, discussed options with an oncologist and, concerned that traditional radiation therapy could have side effects on Phoebe's brain and spinal cord, the Melling family decided that proton therapy would be the right treatment for Phoebe.

They researched their options and decided to travel from their home in Melbourne, Australia, to the Maryland Proton Treatment Center (MPTC), which is equipped with Varian's ProBeam® proton therapy treatment system. The Australian government provided reimbursement for treatment and travel for the whole family.

After traveling more than 10,000 miles from home, the Mellings were greeted by staff from the MPTC concierge team. This team helped the family with lodging, transportation, groceries, and ideas for exploring Baltimore. When the staff found out that Phoebe had her sixth birthday coming up during treatment, they held a "Hello Kitty" birthday party for her.

On the day that Phoebe completed her treatment, a princess came to grant her a wish. This is a special tradition that all pediatric patients experience at MPTC through the help of the Children's Cancer Foundation.

Within one week of finishing treatment, Phoebe was back in school in Australia. A follow-up scan in March came back clean and she is currently considered cancer-free.

"We are very pleased and excited to be able to make this form of radiation therapy available to cancer patients," said Robert Malyapa, M.D., Ph.D., professor of radiation oncology. "Proton therapy enables us to deliver a targeted dose of radiation therapy directly to the tumor while minimizing radiation to healthy tissue. It can result in a very effective treatment for patients with potentially reduced side effects when compared to conventional radiation therapy."

"We are proud to collaborate with the MPTC to bring this advanced cancer-fighting technology to patients in the Baltimore area as well as around the world," said Dr. Moataz Karmalawy, general manager of Varian's Particle Therapy division. "Stories like Phoebe's make it all the more worthwhile."



"Pencil beam scanning was Phoebe's best option. Everyone at the hospital was wonderful to Phoebe, I think that the fact that the center is here in the first place is amazing."

ROS MELLING,
PHOEBE'S MOTHER

PROGRESS ON PROTONS

The delivery of 90-ton cyclotrons to two new multi-room proton centers in Europe this summer demonstrated ongoing progress in Varian's proton therapy business. The company has invested heavily in making this more precise therapy available to more cancer patients globally and the cyclotron installations are major milestones for proton therapy in Denmark and the UK.

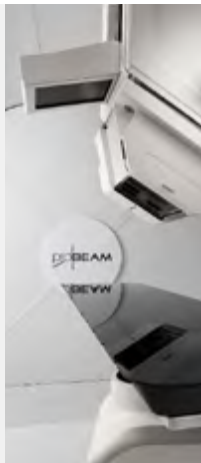
The cyclotron is a particle accelerator which accelerates protons to two-thirds of the speed of light for clinical use. The installation of the cyclotron is a key milestone for every new proton therapy center.

Denmark

Varian's ProBeam system is equipping the four-room National Centre for Particle Therapy that will be situated alongside Aarhus University Hospital in Denmark's second largest city. Patient treatments are expected to start at the new facility in the second half of next year.

"The installation of the cyclotron is a major milestone in this project and gets us closer to making this advanced cancer-fighting technology available to patients in Denmark," said Ole Nørrevang, chief physicist, Danish Centre for Particle Therapy. "This new center will be big step forward in cancer care in Denmark."

Proton therapy makes it possible to treat certain types of cancer more precisely and with potentially fewer side effects than is possible with conventional radiation therapy. With proton therapy, the risk of damage to healthy tissues and potential side effects is reduced because the beam stops and deposits the dose within the tumor site rather than passing all the way through the patient.



UK

The four-room Christie Proton Therapy Centre in Manchester will be the country's first NHS (National Health Service) proton facility and means patients needing proton treatments will no longer have to go abroad. Up to 750 patients a year will use the new unit when it opens in August 2018. Varian is also equipping a second NHS proton therapy center being constructed at University College Hospital in London, where treatments are expected to start in 2020.

"To be able to offer the world's most advanced form of radiotherapy through the NHS in the UK is a real step change for patients, ensuring they benefit from local access to proton treatments with potentially better outcomes and reduced chance of long-term side effects," said Roger Spencer, chief executive of the Christie. "The arrival of the cyclotron is a huge milestone for the proton beam therapy project and brings us closer to our goal of being able to offer this treatment to patients next year."

Varian's ProBeam system is the first to offer fully integrated intensity modulated proton therapy (IMPT) to enable more efficient adaptive proton therapy. Varian's pencil beam scanning technology gives clinicians the ability to deliver the dose precisely in the tumor to minimize the dose to healthy tissue. When combined with cone beam computed tomography (CBCT), the ProBeam system enables advanced adaptive therapy during the course of treatment, helping to make it a more precise form of proton therapy.

Emmeline: Staff at the Christie were able to name their cyclotron and they plumped for "Emmeline," after the suffragette leader Emmeline Pankhurst, who was born in Manchester.



"We are very proud to be partnering with these wonderful new facilities in Denmark and the UK. These cyclotron installations are another exciting step forward for proton therapy and the growing accessibility of this cancer-fighting technology."

DR. MOATAZ KARMALAWY,
GENERAL MANAGER, VARIAN
PARTICLE THERAPY



2016 ENVIRONMENTAL HIGHLIGHTS

Varian began tracking energy and water use, air emissions, and hazardous waste generation at a corporate level and reporting the information to its Board in 1992. The company has been producing sustainability reports since 2011.

Last May, Varian announced plans to separate its Imaging Components business into Varex Imaging Corporation (Varex), a new independent public company. The two companies began operating as separate entities in late 2016, and in January of 2017, the financial transaction was completed.

“Due to the timing of the operational transaction, fiscal year 2016 data was not available for Varex, and as a result, per GHG Protocol guidance, we have excluded Varex from our 2016 inventory,” explains John Buchanan, Varian’s environmental manager. “Historical inventories have been adjusted to reflect related changes to facilities and operations.”

From 2015 to 2016, Varian’s total Scope 1 and 2 GHG emissions remained relatively flat while our total reported Scope 3 emissions increased significantly. This increase was primarily due to an improvement in our methodology for collecting purchasing data which is used to estimate emissions from Category 1 (Purchased Goods & Services) and Category 2 (Capital Goods).

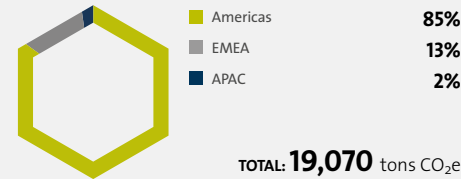
In 2016, we were also able to calculate emissions from two new Scope 3 categories which we had previously not reported: Category 4 (Upstream Transportation & Distribution) and Category 7 (Employee Commuting). Scope 3 emissions from Category 11 (Use of Sold Products) decreased by approximately 25% due to a reduction in products sold in 2016 and improved management of sulfur hexafluoride (SF₆).

CDP INFORMATION REQUEST

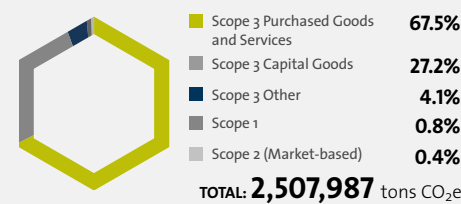
This is Varian’s seventh year submitting information to CDP, an international not-for-profit organization that provides a global system for companies to measure, disclose, manage, and share environmental information on greenhouse gas emissions, energy and water use, and climate change. CDP scores and ranks companies based on information disclosed, assessing them on the quality of their disclosure and their achievements in improving performance relative to climate change and water stewardship. Varian’s CDP scores for the past six years are shown here: www.varian.com/about-varian/citizenship

2016 GHG EMISSIONS DATA

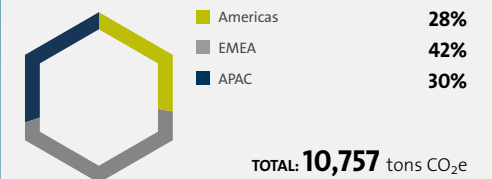
SCOPE 1 Emissions by Region in 2016



Total GHG Emissions by Scope in 2016



SCOPE 2 (Market-based) Emissions by Region in 2016¹









¹ As defined by the Greenhouse Gas Protocol, Scope 2 (market-based) emissions include any contractual arrangements under which Varian procures power. In 2016, we include a supplier specific factor for the city of Palo Alto, and residual mix factors for applicable sites in Europe to quantify Scope 2 (market-based) emissions.



PROGRESS AGAINST KEY ENVIRONMENTAL GOALS

In our inaugural 2011 Sustainability Report we committed to a number of long-term goals in support of our efforts to reduce our environmental impact. The table below highlights the progress we made against these goals in 2016.

Due to the Varex divestiture, we have begun a process to establish a new baseline and set new goals based on science. We look forward to reporting on our new goals in 2018.

	 GREENHOUSE GAS EMISSIONS	 ELECTRICITY AND NATURAL GAS	 WATER USE	 SOLID WASTE	 HAZARDOUS WASTE	 LANDFILL
2020 GOALS	Reduce carbon footprint/ greenhouse gases a minimum of 25% from 2010 baseline by 2020.	Reduce electricity and natural gas use a minimum of 20% per dollar sales from 2010 baseline by 2020.	Reduce water use a minimum of 20% from 2010 baseline by 2020.	Reduce solid waste disposal to landfill and achieve a minimum 80% overall diversion rate by 2020.	Reduce hazardous waste generation by 25% from 2010 baseline by 2020.	Achieve zero landfill of hazardous waste. 100% recycling, reclamation, and re-use.
2016 PROGRESS	Achieved a 35% reduction (emissions per dollar sales) from 2010 baseline. 2016: 122,662 tons of CO₂e¹	Achieved a 9% reduction (kWh per dollar sales) in electricity use and 44% reduction (MMbtu per dollar sales) in natural gas use from 2010 baseline. 2016 electricity: 34,947 MWh 2016 natural gas: 11,537 MWh	Reported a 20% increase in water use (gallons per dollar sales) from 2010 baseline. 2016: 24,490,058 gallons	Diverted 57% of solid waste from landfill disposal.	Achieved 33% decrease in hazardous waste generated (tons per dollar sales) from 2010 baseline.	62% of hazardous waste generated was sent off site for recycling/reclamation/ treatment or secondary re-use/recovery. 26% of hazardous waste – mainly construction waste that cannot be recycled or reused – was sent to landfill.

¹ Scope 1, 2 (market-based), and 3 (business travel and use of sold products) emissions are included in the goal.

CORPORATE SOCIAL RESPONSIBILITY IN CHINA

Varian's Beijing facility welcomed more than 45 vendors for a "suppliers' day" in June, and environmental and compliance issues were top of the agenda.

"We have worked hard to reinforce our message about ethical compliance," says Xiao Zhang, head of Varian's business in China. "As well as a factory tour and a demonstration of our newest product Halcyon, the visitors heard presentations from experts in international compliance issues and we presented our 'vendor of the year' awards."

As Beijing last year became only the second facility in Varian to achieve ISO 14001 environmental

accreditation, the team there were keen to weave 14001 into the awards this year. "As well as quality and delivery metrics, vendors were measured against 14001 issues," adds Xiao Zhang. "In this way, we are driving an environmental policy through our supply chain."

The suppliers also heard a keynote speech from Zhu Haoliang of Staufen, an international LEAN management consultancy focusing on the Made in China 2025 and Industry 4.0 initiatives. "In manufacturing, LEAN is the same as green, because it's all about removing waste," said Andy Partridge, APAC and EMEA manufacturing director for Varian.



Over the past year, all the lighting at Varian's Beijing facility has been converted to LED to further reduce energy consumption.



Varian's CEO Dow Wilson joined employees at Varian's Beijing facility this summer for a party to celebrate the success of the launch of the Halcyon system, which is being manufactured at the plant. More than 200 people work at the Beijing facility, and they joined senior executives for the celebration, which took place in baking temperatures of up to 35°C. "It was wonderful to be there and celebrate the hard work all our people have put into making Halcyon such a success," said Wilson, who got the celebration in full swing by welcoming some traditional Chinese lion dancers to the stage.

HEALTH AND SAFETY

Injury and Illness Rates Among Lowest in Company's History

Varian's ongoing commitment to employee health and safety yielded some of the lowest injury and illness rates in the company's history for the third year running. In calendar year 2016, the company achieved an OSHA (Occupational Safety and Health Administration) recordable rate of 0.68 and a DART (Days Away, Restricted, or Transferred) rate of 0.38, marginally up on the prior year but still at historic lows.

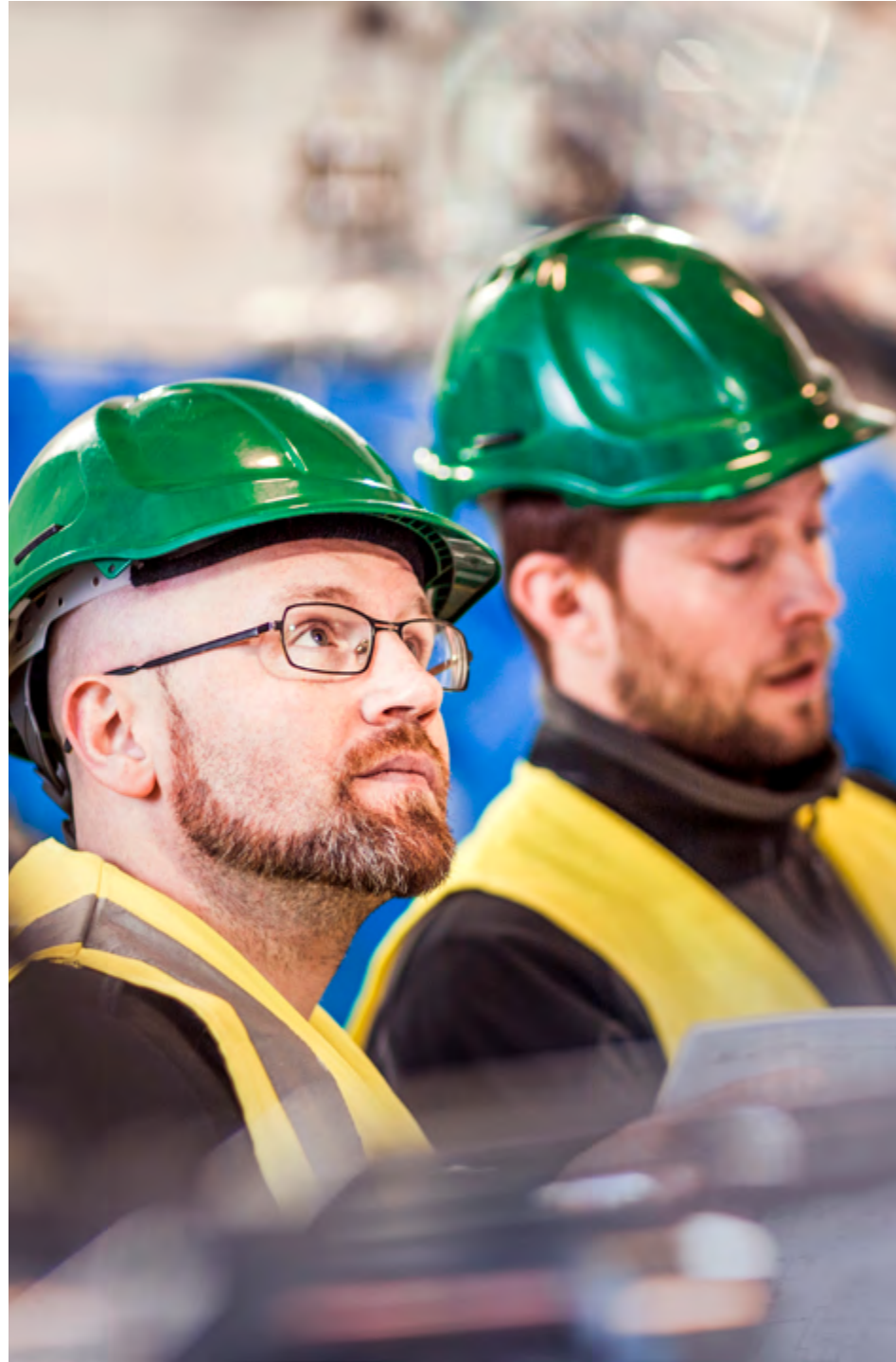
"These results are some of the best in our history," says Jim Weber, Varian's health and safety manager. "We are still well below the industry benchmark but are committed to continuously improving our performance."

The OSHA recordable rate details the number of employees per 100 who had a work-related injury or illness that required medical treatment beyond simple first aid, while the DART rate is the number of employees per 100 who had a work-related injury or illness that resulted in the employee missing time at work, being restricted from doing their normal work, or being transferred to a job with lower physical requirements.

In 2016, injury and illness rate goals were assigned to each business unit and major geographical region and progress against goals was monitored and fed back to senior management on a regular basis.

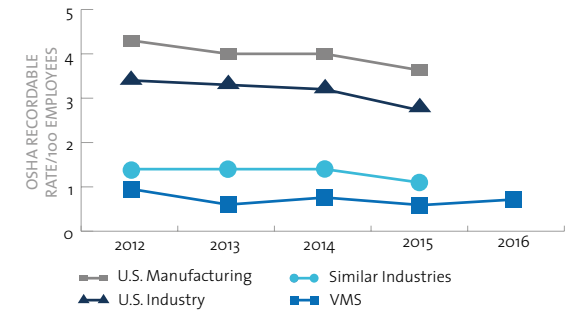
"We have increased the reporting of results to Varian's senior leadership so they are more aware of results and activities, which has resulted in more communication to all employees and greater attention on potential problem areas," says Weber.

Specific health and safety initiatives undertaken in 2016 were the updating of all the company's health and safety policies and procedures to make them more relevant to a global business, and the implementation of labeling requirements in the U.S. to meet Globally Harmonized System (GHS) standards. "Our chemical containers comply with the U.S. OSHA labeling requirements, and all training has been updated to comply with the GHS," added Weber.

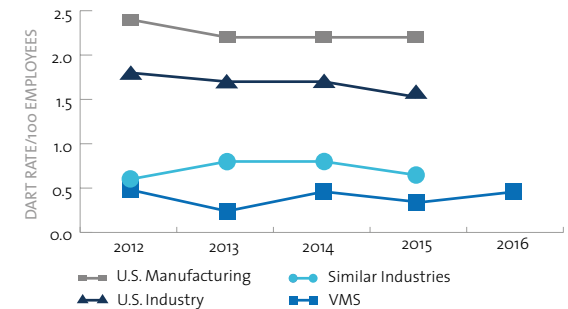


2016 INJURY AND ILLNESS RATES

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RECORDABLE RATE



DAYS AWAY, RESTRICTED, OR TRANSFERRED (DART) RATE



TRANSFORMING HUMAN RESOURCES

Throughout this year, Varian has been transforming its human resources (HR) function to better support its strategy as a stand-alone cancer management company.

Wendy Scott, Varian's senior VP of human resources, says redistributing our HR resources is important to align more effectively with the business needs of the streamlined company. "It's an example of how Varian is taking some dramatic steps and investing in efficiency improvements that will support the company's new strategy and direction, ultimately helping to achieve the goal of making cancer a chronically managed disease and eliminating the fear of that diagnosis," she says.

While this work continues, a number of HR initiatives continue to be implemented and we take a look at a couple of them here.

Interns

Varian's intern program brings newcomers to the organization and provides a rewarding work experience. In the last year, the program has been greatly enhanced by:

- Expanding intern population by 10%
- Providing five scholarships through the Society of Women Engineers at Cal Poly and a donation to the Society of Latino Engineers at Stanford
- Enriching the intern program through social, educational, and volunteer events
- Expanding outreach in several areas (for VMS University Day, attendance of recruitment campus fairs, for executive MBA candidates, added networking at Berkeley, etc.)

Alexis Engdahl, who runs Varian's intern program, says: "This continues to be a great source of age, gender, and ethnic diversity for the company. Our program is designed to give people early in their careers real and substantive work experiences, which should help them whether they choose to join Varian as regular employees or not."

"We've enhanced our summer intern program, particularly in the U.S., with various outreach efforts on local college campuses and have set goals to

increase diversity in this population as well as to increase conversions from interns to full-time employees upon college graduations."

Diversity

Varian continues to make strides forward in its diversity program, which was featured in last year's Sustainability Report. In the past year, the company has become a Corporate Sponsor for the Watermark Conference for Women, Silicon Valley, and a Corporate Member of the Clayman Institute's Center for the Advancement of Women's Leadership at Stanford University.

"We are in our third year of running a leadership development program aimed at high-performing, high-potential women," says Scott. "By the end of this

fiscal year, 30 women in the Americas, Europe and Asia will have completed this hands-on six-month program."

Other initiatives include the sponsorship of employee attendance at conferences, programs that encourage young women to go into STEM (Science, Technology, Engineering, and Mathematics) careers, training managers to recognize and eliminate unconscious bias, and working with managers and recruiters on outreach, interviewing, and selection techniques to improve diverse hiring.

To expand the program this year, Woman in Leadership graduates will arrange follow-on sessions with other women in the organization to cascade the learning more widely and deeply within Varian. "We expect this will increase the impact of this program at least fourfold," says Scott.



"As a company whose mission is to help save lives around the world, here at Varian we focus strongly on the lives of our own employees. Part of that is ensuring everyone has the same opportunity, regardless of gender, race, age, or sexual orientation."

WENDY SCOTT, SENIOR VP
OF HUMAN RESOURCES



Varian interns volunteering at Santa Clara's JW House

VARIAN VOLUNTEERS

Climbing for Hope

Varian employee Lauren Wells made it to the summit of Mount Kilimanjaro and raised thousands of dollars for radiotherapy equipment in Africa in the process.

Lauren, who handles marketing for Varian's clinical solutions business, set off for Tanzania in June with Thomas Skidmore, a radiation oncologist at Gamma West in Salt Lake City, and Tom Ladd from the non-profit organization Radiating Hope. Through hard work and determination, she overcame the steep ascent,

altitude sickness, and -20°C temperatures to make it to the 19,000-foot summit of Africa's tallest mountain. She raised \$5,000 for Radiating Hope through her efforts – mostly from colleagues at Varian through the Partners in Giving program – and the company matched this amount to boost the total to \$10,000. When she reached the top she placed named flags at the summit, including that of her Varian colleague Melanie Eckhardt, who is currently undergoing treatment for cancer.



Employee Helps to Bring Clean Water to School in Peru

Harold Rucker, a Varian field service engineer, spent 10 days helping to bring clean water to school children in Peru. Harold volunteered with Living Waters for the World, a charity that trains volunteers to implement water purification and health education to communities in need.

Although Harold's main job was to be a translator, he also coordinated project scheduling with building contractors and facilities management, worked on electrical portions of the system, and trained the faculty and staff on system operation.

10
DAYS

spent helping to bring clean water to children in Peru

"The school where we installed this water purification system is largely populated with kids from single-parent homes living in a level of poverty that we just don't see in the U.S.," said Harold. "The entire experience was quite rewarding, but without doubt the most rewarding thing was the genuine appreciation and humble spirit of the kids; the adults too, but especially the kids!"



Fruitful Volunteering for Varian Employees

Varian workers from the Milpitas and Palo Alto offices in California have given back to the community by contributing to the Second Harvest Food Bank. Two groups of employees spent two afternoons during the holiday season sorting fruit that was distributed among local agencies in the area.

One group sorted and packed 14,000 pounds of Bosc pears that were grown and harvested from farms in the central valley of California. The other group sorted and packed 8,000 pounds of kiwis grown in California's San Joaquin Valley.

14,000
POUNDS

of Bosc pears that were grown and harvested from farms in the central valley of California

"Volunteering for two hours out of our work day was a rewarding team-building activity," said Evelyn Aguon, recall coordinator in Oncology Systems, who helped coordinate the activity.

The Second Harvest Food Bank of Santa Clara and San Mateo Counties, one of largest food banks in the nation that provides food to more than one quarter of a million people every month, has been a longtime partner of Varian.

GOVERNANCE AND RISK MANAGEMENT

At Varian, we believe leadership and ethics start at the top, and our commitment to corporate governance and accountability to stockholders is embodied in all our corporate governance policies.

Leadership and Governance

The Board is the highest governance body within Varian. It has overall responsibility for setting purpose, values, and strategy, for risk management and for economic, environmental, and social performance. The graphic opposite summarizes the governance structure and highlights key accountabilities with regard to sustainability and corporate citizenship.

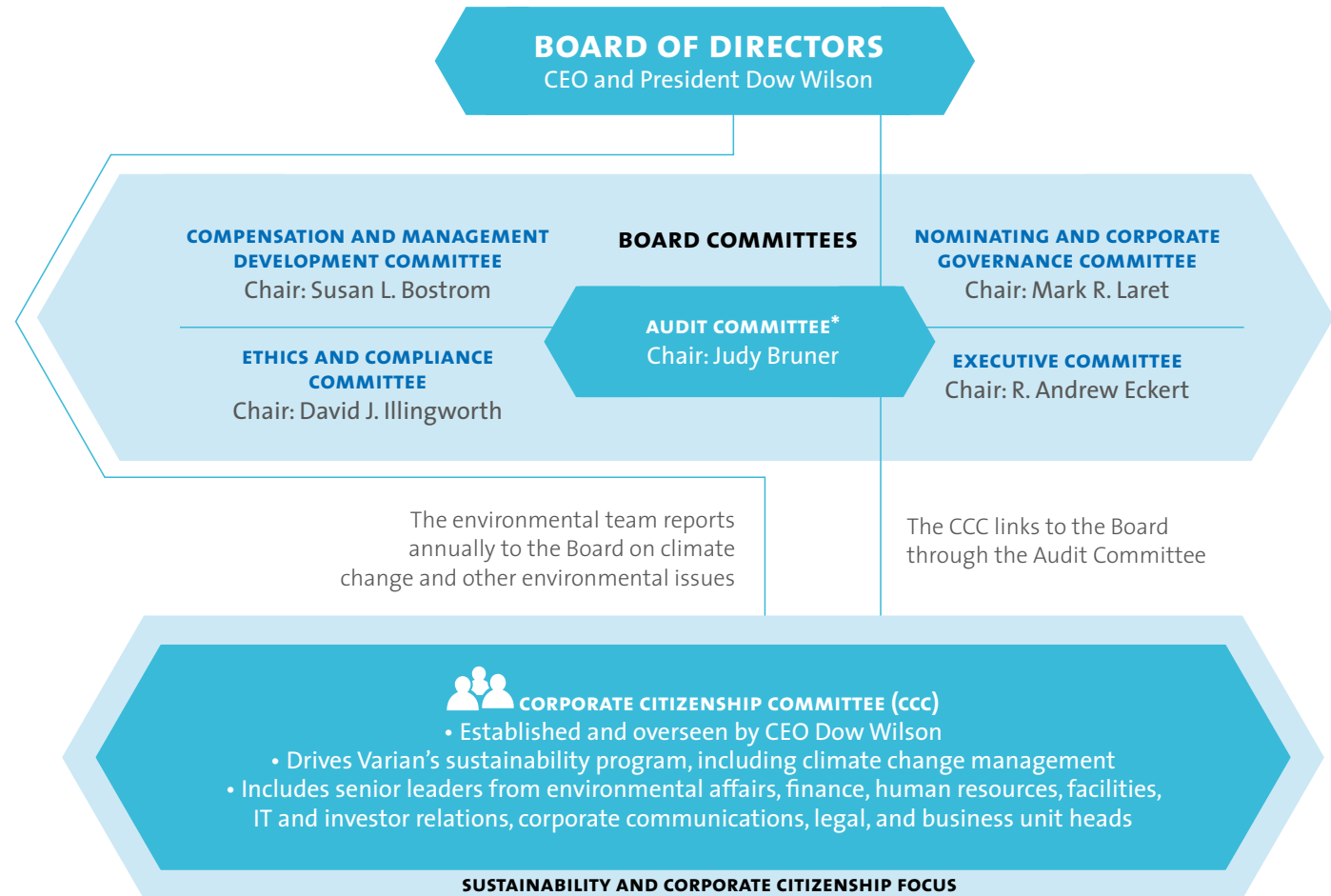
Corporate Citizenship Committee Charter

The Corporate Citizenship Committee manages Varian’s sustainability efforts and has established the company’s sustainability strategy and targets. The committee is also responsible for communicating our sustainability priorities, including our position on climate change, to our stakeholders in order to continually integrate sustainability and climate change management into our business model. In addition, it is responsible for gathering performance data, setting priorities, and assessing emerging sustainability trends and their relevance to Varian.

Risk Management

Like all companies, Varian is subject to various business risks and uncertainties. We are also subject to economic, political, and other factors inherent in doing business globally. All key risks are detailed in our annual report together with mitigation and controls that form part of our risk management program.

Further details, including Board composition and competencies, Board and committee structure, management stock holdings, Corporate Governance Guidelines, and Code of Conduct can be found within the Investor Relations Room at [WWW.VARIAN.COM/INVESTOR](http://www.varian.com/investor)



* CFO Gary Bischooping staffs the Audit Committee and sits on the CCC, offering consistency and accountability for the sustainability program.



Attendees at Varian's second Stereotactic Radiotherapy (SRT) training school, which has been established at the Gemelli radiotherapy center in Rome, Italy. Sixteen Varian customers from hospitals in Portugal, Spain, Georgia, Turkey, and Switzerland attended the three-day course in June. Like the first SRT school established by Varian at the Champalimaud Foundation in Lisbon, Portugal, this new school enables students to experience hands-on treatment planning sessions on a virtualized system connected to a cloud solution located in Zurich. Both Champalimaud and Gemelli have Varian Edge™ Radosurgery machines installed, enabling attendees to experience using Varian's most advanced stereotactic treatment system.



ABOUT OUR REPORTING

The GRI Standards are the first global standards for sustainability reporting. They feature a modular, interrelated structure, and represent the global best practice for reporting on a range of economic, environmental, and social impacts.

This report contains content that references the GRI Standards, reporting against self-selected indicators based on material aspects.

The Varian GRI Standards Content Index can be downloaded from our website at www.varian.com

This Sustainability Report is intended for anyone interested in learning about Varian operations.

Varian as a medical device manufacturer cannot and does not recommend specific treatment approaches. Individual treatment results may vary. Healthcare professionals must always rely on their professional clinical judgment when deciding whether a patient is a candidate for radiation therapy and how to use radiation therapy. Varian does not dispense medical advice and recommends that healthcare professionals using radiation therapy be adequately trained before using any Varian product.

Safety Information. Radiation treatments may cause side effects that can vary depending on the part of the body being treated. The most frequent ones are typically temporary and may include, but are not limited to, irritation to the respiratory, digestive, urinary or reproductive systems, fatigue, nausea, skin irritation, and hair loss. In some patients, they can be severe. Treatment sessions may vary in complexity and time. Radiation treatment is not appropriate for all cancers.

For comprehensive "Intended Use" and important safety information regarding Varian technologies highlighted in this report, please visit varian.com/safety.