Saving more lives - together

500,000 every year by 2020

Impact Update January 2018

LAERDAL
I first met Tayeeba as a four-week-old survivor of birth asphyxia. She was with her mother, Rikta, and her birth attendant, Sakhina, who saved her shortly after participating in the Helping Babies Breathe (HBB) program. Tayeeba’s story inspired the many national trainers who gathered in 2012 for the rollout of the program in South East Asia.

Today, Tayeeba is a thriving five-year-old; over 500,000 birth attendants in 80 low-resource countries have participated in the program; and there are likely thousands of happy birthday stories like Tayeeba’s.

This booklet reports on progress towards the goal Laerdal established in 2013: Helping save 500,000 more lives. Every year. By 2020. The word Helping is key. Laerdal does not save lives. Bystanders, first responders and healthcare personnel do when providing essential help in life-threatening situations. Our aim is to help those who educate and equip these lifesavers to be more effective in their work.

The alliance programs described on the following pages make us believe our ambitious goal is well on the way to being achieved. Underpinning these are the values and cultural traditions of our heritage, our people, the way we interact with the environment, and how we address evolving needs and opportunities.

Tore Lærdal, Chief Executive Officer
Heritage

Åsmund S. Lærdal’s simple philosophy quoted above was from February 1940 when he established his business in Stavanger as a publisher of cards and books, and later toys. It remains Laerdal’s philosophy today. With an eye for innovation, Åsmund recognized the potential for using his expertise in producing plastic dolls for a new purpose - the development of a realistic training manikin to teach mouth-to-mouth resuscitation.

Over the subsequent decades, Laerdal has developed a broad range of products and programs to support healthcare education and emergency interventions. With a growing focus on patient safety, new ground was broken in the field of medical simulation with the introduction of a series of realistic patient simulators, allowing for risk-free interactive training.

Laerdal today

Today, Laerdal is a global company with about 1,500 employees in 24 countries, dedicated to Helping Save Lives. It has remained family-owned with a long-term dedication to its mission. In 2010, Laerdal Global Health was established as a separate not-for-profit company to develop high impact, affordable products to help save lives at birth in low-resource countries.

Measuring Success

The following “balanced scorecard” visualizes how the two parts of Laerdal, Laerdal Medical and Laerdal Global Health, contribute to a sustainable mission-oriented organization offering value by complementary means.

Financial Results
- Sales
- Operating Results

Mission Achievement
- Lives Saved
- Life-years Saved

Other Factors
- Employee Motivation
- Brand Equity

Measuring Success

Significant opportunities for helping save more lives remain to be addressed, especially in low- and middle-income countries. The graph below illustrates the relative death toll of leading categories of sudden death.*

* For references see www.laerdal.com/references

For more information, visit www.laerdal.com
Mobilizing the Community

Denmark has become a prime example of implementing best resuscitation practice in Europe, and has achieved a remarkable tripling of survival from pre-hospital cardiac arrest over the past ten years. A national cardiac arrest registry was introduced in 2003. Since 2006, a national school Cardiopulmonary Resuscitation (CPR) training program has been underway, sponsored by Trygfonden, a national Danish foundation. 17,000 Automated External Defibrillators (AEDs) have been placed in the community. A research program has helped measure and improve implementation. Key representatives of all five Emergency Medical Services (EMS) systems in the country participated in a national Resuscitation Academy in the Autumn of 2017, and committed to specific follow up actions – progress will be reviewed at a national meeting in May 2018.

The latest development is the introduction of the HeartRunner app to activate volunteer laypersons trained in CPR and AED use to respond to cardiac arrests in their neighborhood. 16,000 citizens joined the system within the first two months. When receiving a suspected cardiac arrest call, the dispatcher alerts immediately all HeartRunners that at that time find themselves within 300 m distance from the location of the caller. Any HeartRunner able to respond can then confirm this on the app and will receive exact address and directions on a map on their mobile phone. The dispatcher is also able to inform the responder of all AEDs available within the same 300 m radius with the push of a button.

In the UK, there are about 30,000 out-of-hospital resuscitation attempts every year with less than 10% of victims surviving, equivalent to 50 survivors per million population. In 2014, the British Heart Foundation (BHF), the leading independent funder of cardiovascular research in the UK, established The Nation of Lifesavers program to improve outcomes, setting a target of training 5 million people in CPR by 2020. To achieve this, they partnered with the Resuscitation Council (UK), ambulance trusts, community groups, schools, and Laerdal and other companies. The BHF is well on track to achieve their target with over 3 million people trained to date including 1.2 million in 2017 alone. This is approximately 5% of the UK population, with an exceptional reach into more than 50% of UK secondary schools.

Sarah’s Story

Sarah was a pupil at Prendergast School in Lewisham, a suburb of London. On 29th May 2016, her dad collapsed with a cardiac arrest at home. Sarah, who had learnt CPR at school knew what to do, dialed 999 and began CPR. She cradled the phone between her ear and shoulder; her arms were aching; she was sweating; but she kept going, saying “I don’t want my dad to die!”. She told her mum to calm down and directed her to do rescue breaths.

She continued to do CPR for about ten minutes until the paramedics arrived and took over. Sarah’s dad is now fit and well after a heart operation.

Restart a Heart Day

Sarah’s story was featured by the BHF in their promotion of Restart a Heart Day, a European Resuscitation Council initiative held in October every year. On that day in 2017, a remarkable 193,000 young people were trained in CPR in the UK alone.
Around 70% of all cardiac arrests occur in the home where family and friends can become lifesavers. CPR training alone is not enough, since only one of three who are CPR trained will initiate CPR when facing cardiac arrest. The combination of CPR training in the community plus professional help over the phone, so-called Telephone CPR (T-CPR), is the best strategy. And, with the widespread use of mobile phones, T-CPR is practical almost everywhere. Bystander CPR rates in Seattle, Arizona, Sweden and Norway are now above 70%, and are increasing rapidly in Singapore, Korea, and Denmark. T-CPR is taking place in two-thirds of these cases.

This “first resuscitation team”, the caller and the dispatcher, is key to success in Korea. Survival is increasing, and CPR before ambulance arrival is now initiated by the dispatcher in 80% of cases. Laerdal helped with dispatcher training in 2013, and in 2014 partnered with Seoul National University Hospital and Seoul Metropolitan Government to develop a complementary community CPR Training program. Called HEROs, it prepares the bystander for interacting with the dispatcher. Singapore has a similar story: following dispatcher training in T-CPR, they implemented T-CPR linked training for lay people through the DARE program. Their recent annual report shows great progress in community CPR rates and the number of survivors has more than doubled over three years.

Asian countries have a burden of sudden cardiac arrest similar to countries in Europe and the USA, but most of them have just started to develop programs and initiatives for CPR before ambulance arrival. These are now accelerating with initiatives such as HeartRescue in India and China, and the formation of the Asian Association for EMS. Laerdal is supporting the Pan-Asian Resuscitation Outcomes Study (PAROS), the primary goal of which is to improve outcomes from out-of-hospital cardiac arrest across Asia.

These successes inspired a national campaign in Norway called “Sammen redder vi liv” (Saving lives together). The goal is to increase annual survival from out-of-hospital cardiac arrest by 200 lives per year from 50 to 90 per million population, and most of the potential comes from optimizing CPR quality by the first resuscitation team.

Unusual sounds from her husband, Stein, wakes Berit. She tries to wake him, but no response. A sensation of fear builds in Berit. Something must be wrong. She decides to call the emergency services for help.

“Is he conscious? Is he breathing normally?” These key questions define the help that Stein will receive. Berit is not confident enough to do CPR, and decides to waken Sondre, their 18-year-old son. Sondre had recently been CPR trained, and guided by the dispatcher he performs life-saving CPR until the ambulance arrives and takes over. Today, Stein is thriving and has resumed running marathons.

“Telecommunicators are the true first responders and a critical link in the cardiac arrest chain of survival.”

T-CPR recommendation by the American Heart Association

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Spreading Best EMS Practice

According to one study, survival from out-of-hospital cardiac arrest in the US ranges from 3% to 16%. Since the resuscitation guidelines based on the medical science are now essentially universal, this disparity in survival is attributed to differences in quality of education and implementation of what has been shown to work.

The Resuscitation Academy was started in King County, Seattle in 2008 to provide a forum for US Emergency Medical Services (EMS) systems to learn from best practice. It is now an independent educational foundation. Nearly 1,000 EMS leaders have attended Resuscitation Academy programs. Building on this groundbreaking work, three initiatives have been launched to both deepen and broaden its impact:

- **Global Resuscitation Alliance**  
  In June 2015 at the Utstein Abbey near Stavanger, Norway, 36 EMS leaders from around the world convened to address the challenge of how to implement best EMS practice. This resulted in a call for the establishment of a global consortium, the “Global Resuscitation Alliance”, which has since conducted workshops in Korea, Japan, Singapore, China, Australia, Norway, Sweden, Denmark, Switzerland, and the UK.

- **Resuscitation Academy Foundation, American Heart Association (AHA) and Laerdal Alliance**  
  This Alliance is committed to creating turnkey EMS programs to help improve implementation efforts. These cover System Assessment, Dispatcher CPR training, Resuscitation Quality Improvement for individual resuscitation skills, and High-Performance CPR for Teams. Piloting begins in five communities in Q1 2018, three in the US and two internationally.

- **Global Resuscitation Alliance**  
  Spreading to Low- and Middle-Income Countries  
  For many years, Sudden Cardiac Death (SCD) was considered a consequence of lifestyle that related to high-income countries. There may be around one million SCDs in these countries. Today we know that SCD is also a big and growing issue in low- and middle-income countries, where the World Health Organisation (WHO) estimates the death toll from SCD may be at least 2.5 million per year. In response to this, an expert meeting to discuss steps to improve survival in these countries through improved EMS systems was held in Singapore in August 2017. These are now being followed up in South East Asia, China, and India.

The Frame of Survival

The “Chain of Survival” is a concept that for 30 years has focused communities on the key activities which need to be linked together to improve survival from cardiac arrest. It is now evident that to maximize the impact of such links they need to be embedded in a framework of strong leadership, systematic refresher training and a quality improvement system, all bound together by a culture of excellence. This is now being referred to as the “Frame of Survival”. Effective implementation of this Frame has resulted in impressive increases in survival rates as documented in cardiac arrest registries in King County in Seattle, Denmark, and Korea.

Impressive Increases in Survival

The graph* shows survival from out-of-hospital cardiac arrest in Seattle, Denmark, and Seoul leading EMS systems in their respective world regions, for the periods from 2006 through to 2014-16. The three systems are all founding members of the Global Resuscitation Alliance (GRA) and focus on adopting best EMS practice for improving survival.

Their results are impressive, showing almost doubling of survival in Seoul and tripling of survival in Denmark over ten years. The dotted lines indicate a further 50% increase of these survival numbers by 2020 by continuing the trend.

Several studies indicate that the average survival from cardiac arrest among EMS systems in high-income countries may be at a similar level as in Seoul i.e., around 50 per million population (/m). Assuming these EMS systems adapt the GRA ten best practice steps, survival could increase 50%, i.e., to around 75/m in 2020. This is the goal set by the GRA, and would amount to 35,000 additional survivors per year.

In low- and middle-income countries, where 82% of the global population live, the situation is dramatically different. Very few witnesses of a cardiac arrest are trained to recognize and respond to such an emergency; the dispatch systems are not well established, and the ambulances (if at all available) typically arrive too late and with poorly-trained and poorly-equipped personnel. As a result, current survival may be as low as 1.5/m. By modest implementation of best practice, an increase in survival from 1 to 6/m by 2020 should be achievable, saving another 35,000 lives per year.

* For references see www.laerdal.com/references

**Global Resuscitation Alliance**  
http://www.globalresuscitationalliance.org/ten-programs/
Low-dose, High-Frequency Refresher Training*

This method of training has the major advantage of more value and increased competence for less money. Instead of incurring the cost of sending healthcare providers away from the workplace for courses, learning occurs as a part of normal, daily activities with the added advantage of being fully in context. Thus, both improved patient care and good return on investment result.

Laerdal has been a strategic alliance partner of the AHA for development of CPR and Emergency Cardiac Care education since 2006.

The goal of the RQI project is to have 90% of US hospitals enrolled in the Program by 2025.

“Poor-quality CPR should be considered a preventable harm”

2013 AHA Consensus Statement on Quality CPR.

* For references see www.laerdal.com/references
Improving Nurse Education

In 2015, the US National Council of State Boards of Nursing (NCSBN) published a recommendation that high-quality simulation could substitute up to 50% of clinical practice across the nursing curriculum. A recent study showed that 96% of all accredited nursing schools in the USA use simulation in some form, but also that many have challenges meeting the best practice guidelines.

To address this gap, the US National League for Nursing (NLN) and Laerdal developed the Simulation Education Solutions for Nursing (SESN) program. To date, SESN is implemented in over 100 schools across the US, with highly encouraging results.

Preparing nurses for clinical practice

Many hospitals do not have an efficient and effective program to onboard new nurses. This can impact patient safety. 75% of new nurses in a US study were observed to commit medication errors. Nurses not feeling prepared and confident are more likely to leave their job. 34% of new nurses do so in the USA by the end of their second year. The cost of replacing nurses is high, and patient safety is also affected by this high attrition.

The NLN and Laerdal have also partnered to develop the Accelerating to Practice program. This is a blended learning program, using peer-to-peer training, e-simulation and hands-on team simulation training. Performance data is captured and aggregated in an analytics platform. This helps hospitals assess and quality assure that new nurses are competent and confident before starting to care for patients.

Helping Strengthen Nurse Education in China and India

In 2017, in collaboration with the NLN, the Ministry of Education in China developed a multi-year plan to introduce simulation-based education in several hundred nursing schools. A similar initiative is under discussion with the Nursing Council and the Ministry of Health in India. Expert panel presentations on the opportunity for simulation education were held at the 2017 world congresses of both the International Confederation of Nurses and the International Confederation of Midwives.

Ashley’s Story

Newly out of residency, Ashley van der Zee Ormsby RN, BSN, had no idea late one evening that she would be relying on her simulation training to ensure a patient’s very survival. The patient, just from emergency surgery, suffered a pulmonary embolism that sent him into cardiac arrest.

Crediting an identical case in her simulation training at Children’s Hospital Washington State University, Ashley called a code, took the lead, and directed the delivery of CPR for 30 minutes. The patient survived.
Patient Safety
Since the landmark 1999 “To Err is Human” report by the US Institute of Medicine, there has been increased attention on patient safety, i.e. the treatment of patients in a safe environment and protected from avoidable harm. Both initial training and continuing medical education are prerequisites for establishing a safe environment for patient care.

Johns Hopkins University researchers in Baltimore, USA, have estimated recently that as many as 250,000 may die annually in USA hospitals due to medical errors. Globally, this figure may be two to four million. However, medical errors occur not only by doing something incorrectly, but also by failing to act promptly.

Simulation-based training and refresher practice were identified in the “To Err is Human” report among the key measures to enhance patient safety. Continuing medical education and maintenance of competence of healthcare providers are essential, particularly in promoting better team interaction and communication making a “team of experts into an expert team”.

The Patient Safety Movement (PSM) was established in 2012 with a mission to Reduce Preventable Deaths from Medical Errors to Zero by 2020.

The PSM has established fifteen Actionable Patient Safety Solutions (APSS) including Neonatal Safety, Optimal Resuscitation, Airway Safety, and Obstetric Safety.

Over 3,500 hospitals, 40% outside the US, have now committed to these APSS, with a total goal of preventing 150,000 deaths from medical errors in 2018. These include commitments by Laerdal of helping save 25,000 more lives in 2018 by simulation-based educational programs including - with its partner the American Heart Association - 5,000 more lives by the Resuscitation Quality Improvement Program.

Safe Surgery and Anaesthesia
According to the Lancet Commission on Global Surgery, five billion people, i.e. two thirds of the global population, are without access to safe and affordable surgery and anaesthesia.

In 2016, Laerdal became a Global Impact Partner of the World Federation of Societies of Anaesthesiologists (WFSA). And in September that year, the Laerdal Foundation awarded the WFSA a grant to introduce the Safer Anaesthesia from Education (SAFE) programme over a two-year period in four more countries: Tanzania, Bangladesh, Nepal and Zambia.

The WFSA has been working closely with national societies as well as other institutions, in particular the UK Royal College of Anaesthetists, to support delivery of the programme.

Every Life Campaign
In 2017, Laerdal launched its Every Life campaign to collect stories from healthcare institutions on how simulation-based training may be used to improve patient safety.

To date, over 200 institutions have joined this initiative, and their stories will be shared to inspire others. For every story submitted, Laerdal is making a donation to the National Patient Safety Foundation.

SAFER Simulation Center
SAFER was established in 2006 as a collaboration between Stavanger University Hospital, University of Stavanger and Laerdal to improve patient safety and strengthen competence among employees of these partners. Over 250 facilitators are active in running more than 50 educational programs for nursing and medical students, personnel from all departments of the hospital and others. In 2017 SAFER logged over 14,000 participant days, with 1/3 of these being in-situ simulation at the hospital. SAFER is one of more than one thousand patient simulation centers in operation today worldwide.

Nurse training
Maternal & Newborn
Emergency Care & Trauma

Optimizing in-hospital stroke treatment
For stroke patients, door-to-needle time is critical. Every 15-minute decrease equals one month additional disability-free life. To minimize this time, Stavanger University Hospital, Norway, started weekly multidisciplinary team training focusing on communication, diagnostics, handover and management. They simulate the whole patient pathway from ambulance to cath lab. After only a few months, they have managed to reduce the door-to-needle time from 29 to 14 minutes – a result that is among the best in the world.
Helping Babies Survive

Since the establishment of Laerdal Global Health in 2010, Laerdal has been a dedicated member of the Helping Babies Breathe (HBB) alliance. Studies from Tanzania, Nepal, Uganda, and Ghana show this program may help reduce early newborn mortality by 50% and fresh stillborn by 25%. When well implemented throughout low- and middle-income countries, the alliance believes HBB has the potential to save about half a million babies’ lives per year.

The success of the HBB program has catalyzed the development of three more educational programs for saving newborns by the American Academy of Pediatrics (AAP), and four additional programs for saving mothers by Jhpiego, an affiliate of Johns Hopkins University. Together these programs address over three quarters of the about 300,000 mothers and at least three million newborns who die unexpectedly every year. Even when policies are in place, practices may be far behind evidence-based guidelines. There is a real need to improve the quality of services, especially in health facilities as institutional deliveries and antenatal corticosteroids.

Helping Babies Survive (HBS) is a hands-on suite of training modules developed by AAP and based on the latest WHO guidelines. These modules address the main causes of neonatal mortality and morbidity and include: Helping Babies Breathe, Essential Care for Every Baby, and Essential Care for Small Babies.

Helping Mothers Survive (HMS) is a suite of simulation-based training modules developed by Jhpiego and endorsed by global professional organizations such as the respective world federations for midwives, obstetricians and gynecologists, and nurses, as well as the United Nations Population Fund. The modules include Bleeding After Birth on prevention and management of post-partum hemorrhage, Pre-eclampsia and Eclampsia on clinical decision making and rapid treatment, and Threatened Pre-term Birth on preparing for and preventing preterm birth using antenatal corticosteroids.

25 Million Safer Births

The Helping Babies Survive and Helping Mothers Survive Programs have now reached over 500,000 birth attendants in low- and middle-income countries, primarily in healthcare centres. Assuming these birth attendants attend on average 50 deliveries per year, this will have contributed to 25 million safer births annually. Laerdal has provided simulators which can be used not only for the initial training, but are so affordable that they can also be acquired by rural health care institutions to enable frequent refresher training.

Survive & Thrive is a public-private partnership including US pediatri, obstetrics and gynecology and midwifery organizations, the private sector, Save the Children, Jhpiego, USAID and others. The partnership collaborates with international and national professional associations and global health scholars to strengthen maternal, newborn and child health (MNCH) programs through training, quality improvement approaches, effective technologies, and evaluation. The partnership has also mobilized and equipped members of professional associations to improve the quality of high-impact MNCH interventions in health facilities.

Helping Babies Survive & Thrive is a public-private partnership including US pediatri, obstetrics and gynecology and midwifery organizations, the private sector, Save the Children, Jhpiego, USAID and others. The partnership collaborates with international and national professional associations and global health scholars to strengthen maternal, newborn and child health (MNCH) programs through training, quality improvement approaches, effective technologies, and evaluation. The partnership has also mobilized and equipped members of professional associations to improve the quality of high-impact MNCH interventions in health facilities.

Since 2005, Laerdal has been an alliance partner of the American Academy of Pediatrics (AAP) in developing training solutions for their Newborn Resuscitation and Pediatric Basic and Advanced Life Support Programs. These programs have reached over 4 million healthcare providers in 130 countries.

Laerdal has been a founding member of the American Academy of Pediatrics since 2005, and has also developed culturally-adapted and highly-affordable birthing simulators to enable these programs to be scaled up in over 60 countries.
Bundling Programs and Products

Laerdal has developed a series of highly affordable simulators in support of the Helping Babies Survive and Helping Mothers Survive Programs. These solutions are also relevant for high-income countries for use in low-dose, high-frequency training.

The training programs, bundled with hands-on training products help healthcare workers gain knowledge, experience and confidence in handling a wide range of complications occurring before, during and after birth.
From Training to Survival
Transition from training to clinical outcome is particularly
dependent on local ownership and follow-up of the initial
training with low-dose-high-frequency refresher training.

In the Safer Births research program at the Haydom Lutheran
Hospital in rural Tanzania, more than 30,000 deliveries have
been closely monitored and evaluated over a six-year period.
This has engaged 10 PhD students and resulted in four
innovations adapted to local needs to make regular refresher
training more accessible while improving care at birth.
The number of infant deaths dropped from 181 in 2014
to 90 in 2015.

The combination at Haydom of Helping Babies Breathe (HBB)
and Safer Births has resulted in 120 additional newborn lives
being saved between 2011 and 2016: corresponding to one more
life per midwife per year.*

A recent study of the effect of these programs implemented in
Uganda by Jhpiego and AAP shows a highly positive impact on
reduction of newborn mortality and postpartum hemorrhage.

In 2017, based on the positive results of the pilot programs,
ICM announced a Call for Proposals for additional countries
to take part in the program, with the aim to report on 50,000
Happy Birthdays at the ICM world congress in Bali in 2020.
Ethiopia, Tanzania and Rwanda have been selected to join
Malawi and Zambia in the next phase of the program.

Scale-up of Essential Life-Saving Commodities
Helping Babies Breathe was listed as one of ten breakthrough
innovations for recommended further scale-up in a report from
PATH, an international non-profit organization. This was
presented in September, 2013 by the then Secretary General,
Ban Ki-moon, to the United Nations General Assembly.
By early 2018, over 500,000 Penguin Suctions, 250,000
Bag-Mask Resuscitators and 125,000 NeoNatalie Newborn
Simulators have been distributed.

Family Planning 2020
More active family planning is essential for ensuring healthy
lives by reducing maternal and newborn mortality and providing
access to sexual and reproductive healthcare services.
A two-year spacing between births may also help reduce
maternal deaths by a third and child deaths by 10%.

India will contribute to its “Family Planning 2020” program by
providing contraceptive services to 48 million new users and in
turn prevent 1 million infant deaths and over 42,000 maternal
deaths by 2020. At the request of, and in close collaboration
with, the Indian Ministry of Health and Family Welfare, Laerdal
has designed an affordable, portable, modular training solution
for wide-scale intra-uterine contraceptive device insertion.
The product was launched in June 2017.

* For references see www.laerdal.com/references
Supporting Research

In addition to Laerdal’s own research, the company contributes to research through donations to the Laerdal Foundation for Acute Medicine, which was established in 1980 in collaboration with the University of Oslo.

To date, the Foundation has supported 1,800 research projects. Among these were 25 expert meetings held at the Utstein Abbey outside Stavanger, Norway, on recommendations for evaluation and reporting on various aspects of emergency medicine and education. The latest meetings have focused on best practice implementation of pre-hospital resuscitation programs and on the Helping Babies Survive and Helping Mothers Survive programs.

The Foundation has also provided significant support to eight centers of excellence in the USA and Europe for better validation of simulation-based education, and to the development of the Norwegian Medical Index for dispatcher assistance to the caller in emergencies.

Since 2010, the Foundation has provided annual grants totaling NOK 40 mill (USD 6.7 mill), and has earmarked 50% of future grants for projects related to saving lives at birth in low-resource settings.
Evolving Needs & Opportunities

The United Nations (UN) Sustainable Development Goals (SDGs), illustrated by the color wheel, present a common roadmap to a healthier, greener, fairer and more inclusive society by 2030.

Laerdal supports the SDGs: its mission is particularly relevant to SDG 3, Good Health and Well-being, with a focus on solutions to improve the quality of education of healthcare professional, first responders and the general public. SDG 4 (Quality Education), SDG 9 (Innovation) and SDG 17 (Partnerships) are also relevant for mission implementation.

Laerdal is working closely with a number of alliance partners and user groups to make sure that new solutions are thoroughly addressing real needs and are implemented globally.

Laerdal is also a member of the UN Global Compact which encourages businesses worldwide to adopt sustainable and socially responsible policies, and to report on their implementation. The Global Compact covers ten principles in the areas of human rights, labor, environment and anti-corruption. These principles will be addressed on the following pages.

The figure above identifies the healthcare and education trends that are presenting significant lifesaving opportunities. Laerdal is proactively exploring and adapting evolving technologies to meet these needs. For users, this includes augmented/virtual reality; cloud-based data capture for feedback and learning management systems; and machine learning to predict individual maintenance of competence needs and give advice to emergency healthcare personnel.

For development and manufacturing processes, it includes automation, digitalization, 3D printing, and new cloud-based customer resource management and business systems.

In 2016, Laerdal adopted a new development process with multidisciplinary and customer-focused teams working together with partners and users to secure design and implementation of optimal needs-based solutions.

Selected SDG 3 Targets
3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.
3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.
3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents.
3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.
3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.

Laerdal is also a member of the UN Global Compact which encourages businesses worldwide to adopt sustainable and socially responsible policies, and to report on their implementation. The Global Compact covers ten principles in the areas of human rights, labor, environment and anti-corruption. These principles will be addressed on the following pages.
Recruiting with Mission in Mind

Laerdal employees’ understanding of the company’s mission, knowledge of its strategy and their engagement for their work are key for delivering impact to customers and partners.

The study described on the left, underlines the need for recruiting people with a strong commitment to the mission as well as a strong professional knowledge for the job they are doing.

It is known from this study that the company’s mission is particularly important as a source of motivation that impacts employee well-being and performance. This creates a true “win-win” for both achievement of the mission and the employees’ job satisfaction. However, the results also highlight the responsibility of Laerdal’s leadership to cultivate the mission in a sincere and honest fashion.

Performance Management

The Performance Management Process in Laerdal is a regular dialogue between the manager and employee about work tasks, areas of responsibility, priorities, goals and competence development. In 2017, performance, competence development and learning were integrated into one system to simplify the process for managers and employees.

The goal is to increase individual accountability for personal development; and to meet more effectively strategic needs and increase the number of internal talents.

Employee Motivation

Laerdal conducts annual surveys to understand the perspective of employees on questions of importance for the organization, including values, leadership, strategic understanding, and business alignment. In 2017, 84% of employees took part in the survey. It is encouraging that the respondents report that they understand the corporate strategy and are very confident on how they can contribute to achieving the company’s goals.

Gender Balance in Workforce

Attention on gender workforce balance has been increased in recent years to broaden Laerdal’s talent pool and better reflect its users and their needs. At present, 46% of the 1,500 employees are women. In leadership roles, 36% are women, so we have room for improvement in certain areas of the business.

Diversity in Workforce

An important area of attention is ensuring equal opportunities. Operating in 24 countries underlines the ethnic and cultural diversity within the Laerdal workforce. In Norway, 40 nationalities are represented amongst 400 employees. For Laerdal, this diversity helps to build more cultural awareness, better sensitivity for differences and a broader competence base.

Supplier diversity

The Laerdal manufacturing plant in Suzhou, China, partners with a local Chinese company, Ruolin, where all of the manufacturing workers have some kind of disability, ranging from hearing or visual impairment to other physical and, mental disabilities. Ruolin stresses that this type of employment is not done for charity but because they believe it helps to deliver good business results.

Ethical Standards

Laerdal believes in only doing business with those who embrace and demonstrate high standards in accordance with its Code of Conduct. Internal processes provide a good platform to ensure all employees understand and live up to the standard defined in the Code of Conduct.

Fighting Corruption

In the Sustainability report in 2016, corruption problems in China were described. To avoid a repetition of such problems, Laerdal has introduced improved contracts and better training of employees and leaders.

Whistleblowing

Transparency is important to secure an environment free of harassment and corruption. On the Laerdal internal website, a whistleblower line provides an important channel for reporting if the working environment falls short of the Laerdal values.
Environment

Laerdal has established a process to ensure compliance with global environmental regulations both internally and at suppliers’ locations. The Laerdal Code of Conduct on the Environment defines the company’s position on minimizing adverse effects.

We have mapped the CO₂ emissions from operations in areas such as distribution, manufacturing and business travel since 2010. The data show an increase in overall emissions of 10% from the baseline year of 2010. In the same period net sales have increased by 25%, meaning the ratio of emissions to activities has been reduced. Over the years, energy consumption at manufacturing sites has been reduced, as has reliance on air freight in the supply chain except to the Asia Pacific region. However, the desired improvements have not been achieved over the last two years. After considering opportunities and alternatives for reduction, a target has been set of reducing emissions by 30% by 2020. Projects and initiatives in 2017 give confidence that this ambition can be achieved.

Emissions From Traveling

One area of concern is the emissions from business travel. Laerdal has invested in communication equipment to encourage effective cross-border collaboration. However, there is a need to maintain customer intimacy and cultural sensitivity towards external partners and colleagues in 24 countries, which requires some face-to-face contact.

Overall Corporate Emissions 2014 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Emissions (gCO₂)</th>
<th>Energy indirect (Electricity)</th>
<th>Other indirect: Distribution</th>
<th>Other indirect: Business travels</th>
<th>Projected emissions 2018-2020</th>
<th>CO₂ emissions relate to Net Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
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<td>2020</td>
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</table>

Target: 30% reduction in emissions by 2020

Asia Pacific Distribution Hub

With Laerdal’s growing sales in emerging markets in the Asia Pacific region, there has been an increase in the emissions from high use of air freight into the region. To reduce this use of air freight, in 2017 a new regional Distribution Center was established in Shanghai to serve the whole of the region. We expect a 20% reduction in our CO₂ emissions as a result of this initiative.

Environmental Waste

Over the years, for environmental reasons, Laerdal has resisted the temptation to develop single-patient-use products except where unavoidable. Instead, we have developed reusable and durable solutions, and actively explored opportunities and invested in creating digital solutions. In 2017, we established Laerdal Bangalore to scale up the efforts in Copenhagen and Stavanger to grow our portfolio of digital solutions.

There has been a 20% reduction in manufacturing waste from 2016 to 2017. One of the drivers has been product design changes to reduce scrap.

Laerdal and GRI Standards

The table contains page references to Global Compact Principles and relevant performance indicators from the GRI Standard. Both indicators and scope of indicators are chosen based on the degree of materiality to Laerdal’s sustainability performance. The reporting is related to 2016/17.

<table>
<thead>
<tr>
<th>Global Compact</th>
<th>GRI Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle 1 and 2, Human Rights</td>
<td>412-2, page 28, 412-1, page 28 and 29</td>
</tr>
<tr>
<td>Principles 3-6, Labor</td>
<td>102-8, page 28 and 29, 102-2, page 29, 404-1, page 28</td>
</tr>
<tr>
<td>Principles 7-9, Environment</td>
<td>305-1, page 30, 305-2, page 30, 305-3, page 30</td>
</tr>
<tr>
<td>Principle 10, Anticorruption</td>
<td>102-16, page 29, 102-17, page 29, 205-2, page 28 and 29</td>
</tr>
</tbody>
</table>
At Laerdal, we work towards a future where no one should die or be disabled unnecessarily during birth or from sudden illness, trauma or medical errors. Our solutions are used for quality education and therapy in emergency and critical care.