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"Then and now: we use progress for the benefit of our patients"





Ulrich Graf

Ernst Kohle

For Rega, standing still means going backwards, we are convinced of that. The rapid progress in medicine and technology must have a positive impact on patient care. That is why in recent years we have invested some 300 million Swiss francs in Rega's future. Besides major infrastructure and IT projects, fleet renewal and our vision of all-weather rescue have been the main focus of this investment. In line with Rega's long-term strategy and investment policy, we are ensuring through our ongoing projects that in the next 15 years, too, Rega can continue to provide reliable and professional assistance to its patients all over the world, and that by using cutting-edge technology we are advancing the field of air rescue as a whole.

We achieved a major breakthrough on the road to realising our vision of all-weather rescue at the end of last year: with effect from 23 December 2017, the Federal Office of Civil Aviation (FOCA) has granted us special authorisation to use key intersections of the so-called Low Flight Network (LFN) virtually around the clock. This new regulation means that an increasing number of patients will be able to benefit from urgently needed medical assistance by air. We also intend to extend the LFN further in the coming years and significantly broaden the scope of our operations even more from 2021 with the introduction of the AW169-FIPS all-weather rescue helicopter.

Two of the major projects mentioned above are due for completion this year. After a project phase lasting more than four years, we will finally be putting our three new Challenger 650 ambulance jets into operation. Less noise in the cabin, wider stretchers and a redesigned ramp for even more comfortable loading and unloading are just some of the improvements that our patients and crews can benefit from in future. Meanwhile, towards the end of 2018, the first of our new H145 rescue helicopters will be ready to hand over to the crews at the lowland bases. They feature state-of-the-art avionics and more powerful turbines.

Yet for all the technical progress, Rega's goal still remains the same: we put people at the centre of everything we do and deliver medical assistance by air to wherever it is needed. From the ongoing and very pleasing net growth of around 60,000 new patrons, it is clear that the public are fully behind Rega and endorse our commitment to professional, modern and innovative air rescue. This continuing popularity and support are valued by everyone at Rega and encourage us to continue to resolutely follow our current path.

In the following pages, you can read about how Rega's repatriation operations have changed over the past 60 years, where the Management Board sees the challenges for the future, and how broadly based Rega's activities are in the field of medicine.

Ulrich Graf

Chairman of the Foundation Board

Ernst Kohler

CEO/Chairman of the Management Board

The latest chapter in a success story: the evolution of the Rega jet

Rega's three Challenger 650 jets, which will be carrying out repatriation flights in all corners of the globe from 2018, represent not just cutting-edge technology, but also the culmination of almost six decades of experience in aeromedical operations. Much has changed since Rega repatriated its first patient on board a propeller plane back in the early 1960s. Step by step, the first international missions of those pioneering days evolved into the professional operations for which Rega is now renowned all over the world. Throughout the decades, Rega always put the patient's needs first - even if that sometimes meant less comfort for the crew.

Each new chapter of a story begins with a blank page. At this stage everything is open; the possibilities are endless. In November 2013, a blank page like that lay on a table in the Rega Centre at Zurich Airport. Gathered around it were pilots, medics, engineers and business economists. Their mission: to write the latest chapter in the history of Rega's ambulance jets.

The empty page quickly filled with the outcomes of their discussions, and many more pages followed. The interdisciplinary project team was drawing up the requirement specifications for the new Rega ambulance jet, which would serve as the basis for all evaluations of potential aircraft. Twelve months later – after extensive feasibility studies and the evaluation of a total of 64 aircraft types – the successor to the Rega jet was decided at the end of 2014: the Challenger 650, an updated version of the Challenger CL-604 that Rega has been operating for the last 16 years.

Patients benefit from experience

The decision in favour of the successor model is not down to a lack of imagination, but much rather an indication that our predecessors did a lot of things right when they originally chose the Rega jet. But it was a long journey from there to the ambulance jet fleet of today (see timeline below), one that over the years was characterised by rapid technological progress in the fields of aviation and medicine, as well as by quite different financial means on Rega's part. Irrelevant of the engine type, range or cabin size, all Rega ambulance jets have one thing in common: every new aircraft purchased must signify an improvement for the patient.

Missions in a private propeller plane

In the early days of Swiss Air-Rescue, which was founded in 1952, funds were extremely short and there was no question of it purchasing its own aircraft. So Fritz Bühler, who headed the organisation from 1960, used his contacts to perform the first repatria-

tions using private aircraft. Dr Armin Meyer, publisher and member of the Executive Board at Swiss Air-Rescue, personally carried out the first patient repatriation flight in the history of Swiss Air-Rescue with his own Piaggio 166 propeller plane: a sick patient had to be flown from Châlons-sur-Marne in France to Switzerland.

In 1966, it looked as if Swiss Air-Rescue had run out of funds. Pioneer Fritz Bühler made a successful appeal to the public for donations – and in doing so, laid the foundations for the Rega patronage system. That enabled Swiss Air-Rescue in 1970 to invest 400,000 Swiss francs in part-ownership of a Cessna 414, one of the first civil propeller aircraft to be equipped with a pressurised cabin.

The pressurised cabin opened up new medical possibilities: as patients were no longer exposed to the strong fluctuations in air pressure during the flight, it now became possible to transport more complex cases. Without a pressurised cabin, there was a risk that air trapped in any cavities in the body, for example after an operation, could expand and lead to complications.

The speed and range of the Cessna 414 were nevertheless limited, so the arrival of the jet engine opened up brand new operational possibilities. In the 1970s, Rega entered the new era of jet aircraft with a Learjet 24D and became the operator of the world's

Overview of Rega's ambulance jets

1961

Piaggio 166 | HB-LAY 1961-1968

The first patient is repatriated from Châlons-sur-Marne in France using the private plane belonging to Armin Meyer, member of the Executive Board at Swiss Air-Rescue.



: 1970

Cessna 414 | HB-LFM 1970-1974

Swiss Air-Rescue invests in part-ownership of a Cessna 414. It is equipped with a pressurised cabin, which enables patients with serious illnesses or injuries to be repatriated.



1973

Learjet 24D | HB-VCY 1973-1977

The first civil ambulance jet in the world is put into operation. With a range of 2,800 kilometres, the Learjet is able to fly patients back home from the Far East.







Optimising the tried and tested: Rega's first Challenger 650 leaves the hangar of its Canadian manufacturer, Bombardier.

first civil ambulance jet. This aircraft flew much faster and higher than its predecessors, and also had a greater range. Now Rega could also fly patients back to Switzerland from Asia and Australia. However, countless stops en route and all the formalities that this entailed made these operations a costly and time-consuming undertaking.

Despite the increased speed and range, the space on board the Learjet 24D was still very limited. The stretcher with the patient took up most of the cabin. The only space for the

flight physician and intensive care nurse was sideways to the flying direction, stooped over next to the patient. If a second patient was being transported at the same time, their feet reached right into the small luggage space in the tail of the aircraft.

Long-haul operations with no toilet on board

Already back in those days, the welfare of the patient took top priority. For instance, right at the beginning, the onboard toilet - one of the conveniences

offered by the Learjet - was removed to make space in the cabin for the medical equipment. For the patients, who spent most of the time asleep, this was of little consequence. For the crews, however, it became a test of endurance, as the jet only needed to stop every four or five hours to refuel. When the worst came to the worst, they had to make do with a plastic container on board.

The number of repatriations continued to rise, and in 1977 Rega began operating

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1977 / 1978

Learjet 35 | HB-VEM and HB-VFB 1977/1978-1988

The first ambulance jet HB-VCY, purchased in 1973, is replaced by two new Learjets. Rega is thus operating for the first time with two fixed-wing aircraft simultaneously. Compared to the first Learjet, the new models have a more spacious cabin and a greater range.







Bombardier Challenger CL-600 | HB-VFW 1982-1991

The fleet of two Learjet 35s is supplemented with a Challenger CL-600. Thanks to this long-distance jet – the first in Rega's history – patients can now be repatriated from all over the world with no or only few stops en route.







Improved design: the new ramp makes loading and unloading more comfortable for patients.

with two Learjet 35 aircraft. One of them was painted red. However, when another organisation's almost identicallooking red Learjet came under fire one day over Africa, the incident apparently prompted Rega's management to revert to the original white.

More space and hygiene on board

As the Swiss population began to travel more, the number of long-distance operations continued to increase. Rega therefore extended its fleet in the early 1980s to include the Bombardier CL-600, which has a considerably longer range of over 6,000 kilometres, as well as a more spacious cabin. This investment was only possible thanks to the increasing financial support of Rega's patrons. From then on, Rega

operated three ambulance jets. The new addition to the fleet meant that patients could now be repatriated over long distances with no or only few stops en route, which cut the flying time significantly. There was sufficient room for three or more patients on board the CL-600 – and its successor, the CL-601 – and the crew could now treat them standing up. What's more, much to the relief of the crew, it also had a toilet and running water.

When, in 1988, after ten years in Rega's service the two Learjets needed to be replaced, funds did not stretch to purchasing two new long-range jets. Instead, Rega acquired two British Aerospace BAe125-800 mid-range aircraft. The medical crew still had to sit sideways on board the BAe125-800, but the cabin was more spacious than

that of the Learjet, and smaller crew members could stand upright to attend to their patients.

Major operation for the Rega jets

Rega's current single-type fleet of aircraft originated in 2002, when the long-serving jets were simultaneously replaced by three new Bombardier Challenger CL-604 long-range ambulance jets. Besides the greater range and capacity, harmonisation of the fleet meant more flexibility in organising missions: now the Operations Centre could deploy all of the crews and jets worldwide. This proved to be invaluable - in particular after the horrific tsunami in Southeast Asia in December 2004, when within the space of a week more than 60 patients were flown back to Switzerland.



British Aerospace BAe125-800 | HB-VIL and HB-VIK 1988-2002

Two British Aerospace mid-range aircraft replace the pair of Learjet 35s, and in 1992 this aircraft is used to transport Rega's 100,000th patient. One of these BAe125-800s touches a concrete pillar at Zurich Airport and has to be taken by road to England to be repaired. This parking damage is the only "accident" suffered by a Rega jet.







Bombardier Challenger CL-601 | HB-IKT 1992 – 2002

Rega's Challenger CL-601 jet is the newer version of the CL-600, which has impressed Rega crews due to its ideal combination of range and spacious cabin since 1982. In 1996, the ambulance jet embarks on a 43-hour operation all the way round the world, the first in Rega's history.





Parallel to the evolution of the ambulance jets, Rega also continued to develop the medical equipment on board. In the 1980s, transporting an artificially ventilated patient by Rega jet was among the most medically challenging operations; today it is a standard procedure. Nowadays, Rega can even safely transport intensive-care patients attached to a mobile heartlung machine in an ambulance jet.

In terms of size and weight in particular, the equipment Rega uses – and in some cases has helped to develop – has changed considerably: while 30 years ago, a device for measuring blood pressure weighed 11 kilograms, nowadays an equivalent instrument weighs just 140 grams. This is significant in that in the field of aviation, every additional kilogram increases fuel consumption and thus shortens the aircraft's range.

In addition to the general advances in the field of medical technology, Rega also developed various equipment of its own, such as the patient isolation unit in 2014. This allows Rega to safely transport patients with highly contagious diseases on board its own ambulance jets and rescue helicopters.

Progress for the benefit of the patient

Every purchase of a new ambulance jet in Rega's history both reflects the extent of Rega's financial means at the time and represents the experience gained with those before it. Over the decades, the specialists at Rega have taken every opportunity to further optimise the medical care of its patients: the introduction of the pressurised cabin, the extended range, or the development of its own ramp to load patients into the aircraft more gently. In addition, Rega continually invests in the professionalisation of its medical crews and pilots.

A bridge back home

The purchase of the Challenger 650, too, drew on experience gained with the predecessor model: a good four years have passed since the project team first defined the specifications for the new jet, painstakingly planned the redesigned interior outfit, and then last year closely oversaw the transformation of the "empty" aircraft into a highly-specialised ambulance jet. When the first of the three new Rega jets takes to the skies on operations all over the world in early summer 2018, it will represent almost 60 years of Rega's repatriation history. For anyone who becomes seriously ill or injured abroad, one thing is certain: with its state-of-the-art ambulance jets and decades of operational experience, Rega is a unique bridge back home.



Modern: the cabin's interior outfit is the outcome of decades of experience.



Advanced: the new cockpit is equipped with state-of-the-art avionics technology.



Bombardier Challenger CL-604 | HB-JRA, HB-JRB and HB-JRC 2002/2003–2019

From 2002, Rega opts for a single-type fleet of ambulance jets: three identical long-distance Bombardier Challenger CL-604 jets replace the two BAe125-800 and the Bombardier Challenger CL-601 aircraft. The three Rega jets fly to a good 400 airports and airfields every year.







Bombardier Challenger 650 HB-JWA | HB-JWB | HB-JWC from 2018

The three tried and tested Challenger CL-604s from Bombardier are replaced by the successor model, the Challenger 650. It features a specially designed, multifunctional stretcher and a lighter, better soundproofed cabin. State-of-the-art avionics in the cockpit allow the Rega pilots to select time- and fuel-saving flight routes.

"For all the progress: at its core, Rega must not change."

2018 will be a notable year for Rega. Ernst Kohler, CEO of Swiss Air-Rescue Rega, tells us why this year will be one for the history books, and explains what distinguishes innovations in air rescue today from the pioneering achievements of Rega's early days and what challenges he foresees for the future.

Ernst Kohler, where is Rega today?

Rega is in a good position and forms an integral part of the Swiss health system. Last year, we once again organised well over 15.000 missions, more than ever before. In recent years, we have invested over 300 million Swiss francs in ensuring that we can continue to provide our patients with swift, professional assistance in future. Most of the money has gone into modernising our fleet, which had become necessary, or into realising our vision of all-weather rescue so that we can help even more people in years to come. Many of these investments have only been visible on paper up to now. That is why I am so delighted that this year we can show the Swiss population that our hard work and investments have been worthwhile. After all, we are not investing for our own benefit, but for that of our

You are referring to the modernisation of the fleet?

Yes. This autumn, for example, the first two of the six new Airbus Helicopters H145 rescue helicopters will go into operation at the lowland bases. And just recently we presented the first of our three new Challenger 650 ambulance jets to the public. You cannot simply buy an ambulance jet "off-the-peg".

An interdisciplinary team from Rega worked on this project for over four years; a great amount of our own development work and experience gained over sixty years of repatriation operations have gone into it. I am proud of my team, and also proud that we will complete the project on time and within the 130 million Swiss franc budget.

Why did the three ambulance jets need to be replaced?

Fleet renewal is part of our long-term strategy. Our three ambulance jets have already been in service for 16 years, repatriating patients from all corners of the globe. They have more than proved their worth, but they have equally been worked very hard.

No other aircraft of this type has been in the air so often and for so long as our CL-604

fleet. And aircraft are like cars: the older they get and the more often they are used, the more costly they become to maintain. Major maintenance work would have been due in the near future, which would have restricted our operational readiness. As an air-rescue organisation, the availability of our highly specialised ambulance jets is vital: a jet that is grounded for maintenance cannot fly patients home.

What made you choose the successor model, the Challenger 650?

We analysed our worldwide operations and asked ourselves numerous questions: What is important to our patients and our crews? What range do the jets need to have – or to put it

another way: How many stops can we expect our patients to endure en route? We evaluated 64 different types of aircraft according to our requirement specifications before submitting our proposal to the Rega Foundation Board. We are now continuing our success story with the successor model, the Challenger 650 – and have also been able to channel almost sixty years of experience of repatriation operations into improving and optimising our new ambulance jet.

The new jet also has a new livery. Can you tell us more about that?

"After all, we are not investing

for our own benefit, but for

that of our patrons."

In addition to the new Rega jets, the six new H145 rescue helicopters will be

joining the Rega fleet by mid-2019, in replacement of the EC145 lowland fleet. In addition, the

three AW169-FIPS all-weather rescue helicopters are due for delivery in 2021. Painting aircraft is a demanding process and therefore also costly. Now is the ideal time to update the Rega logo, which is more than 20 years old, and make Rega visually fit for the future,

Another future project is realising your vision of all-weather rescue. How far is Rega from being able to fly missions even in the poorest visibility?

Last year, we took a huge step towards realising our vision: as of 23 December 2017, the Federal Office of Civil Aviation (FOCA) granted us special authorisation to also use key intersections of the Low Flight Network (LFN) at night and



at weekends. This applies, for example, to approaches under instrument flight rules (IFR) to Lucerne Cantonal Hospital via Emmen or the IFR flight route over the Gotthard Pass.

What does that mean for the expansion of the LFN?

Being granted this authorisation is a precedent for which we have fought long and hard. Just as an ambulance can drive through a red light when it is called out on an emergency, our helicopter pilots now also enjoy certain exemptions when they are out on missions. I am extremely pleased that together with FOCA we have found a solution to speed up the further expansion of the LFN. But it does not end there: we now need to link other regions and hospitals with the LFN so that we can improve medical assistance by air for the Swiss population even further. We would also like to have unrestricted use of all the IFR approach procedures outside air traffic control's normal operating hours.

What role does the AW169-FIPS all-weather rescue helicopter play in Rega's vision?

The AW169-FIPS will join the Rega fleet in three years' time and is the last missing piece of the puzzle.

Although we are now allowed to fly operations virtually around the clock within the LFN, icing still remains a problem in certain weather conditions. The de-icing system on the new helicopter will enable our pilots to also use the IFR routes in icing conditions — a milestone in the field of air rescue. The AW169-FIPS is the first helicopter of its weight class worldwide to be equipped with a de-icing system and is currently still under development.

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Rega is investing around 50 million Swiss francs in the all-weather helicopters and another six million in its own weather stations and cameras. On top of this there are pilot training and other accompanying projects. Will these investments ever pay off?

You can also put that question another way: How much is a human life worth? Our job is to continue improving airrescue services in Switzerland. Like our predecessors before us, we spare no effort or expense to become better. It is true that nowadays we are using different, more advanced resources than the Rega pioneers in the 1950s or 60s. But our goal is still the same: to help people who are in distress and need of assistance. That is what motivates us every day.

The current management is investing millions in a "Rega of the future". Are you restructuring Rega?

Every "generation" has restructured Rega to some extent – and that is how it should be. Over the years, Rega has also continued to evolve as an organisation: it started out as a sub-section of the Swiss rescue association, SLRG, then developed into an independent association, and was subsequently transformed into the privately-run, non-profit foundation it is today. In the very early days, it was an organisation of volunteers; today it employs more than 400 highly trained and specialised staff. Such adjustments have always been necessary in order to reflect changes in society and to

"Will it help people in an

emergency? That is the

employees. Everything

question that drives Rega

else is a means to an end."

achieve what we set out to do – namely to provide the very best for our patients. Standing still means going backwards, I'm convinced of that. And vet for all

the progress, for me one thing is absolutely vital: at its core, Rega must not change. Our patients must always be central to everything we do. In this way, we are carrying on the work started by our predecessors for the benefit of the Swiss people.

Is this constant striving for improvement the reason why Rega is so highly regarded in Switzerland and worldwide?

The will to improve on its own is not enough. Ultimately, everything is always measured on results, and in our

case on the missions we perform for our patients. I believe that the high level of recognition is the result of all the hard work by various "Rega generations" before us – and naturally, every single Rega employee today makes their own contribution to this ongoing success story. Rega needs people who have the courage to break new ground

in order to pursue a vision. When in the mid-1980s, we were the first air-rescue organisation in the world to use night vision goggles, we were

looked upon with mild amusement. Nowadays, they are a standard piece of equipment – in fact, one in four of Rega's helicopter missions are flown at night. To realise a vision, a "good idea" on its own is not enough: it takes determination, endurance, expertise and hard work. I believe that this effort is rewarded in the end.

The "Rega myth" stems from impressive pioneering achievements in the past that attracted worldwide attention – like the first mission using a rescue hoist on the north face of the Eiger in 1971. Are such pioneering achievements still possible today?

Without a shadow of a doubt - only the pioneering achievements of yesteryear were more easily identifiable: the first direct rescue from the Eiger north face was a very tangible and visually dramatic event. Nowadays, our innovations are taking place in technology. It is not easy to convey what it takes for a rescue helicopter to approach a hospital on an IFR route in foggy conditions. But for air rescue in Switzerland, these are similarly ground-breaking achievements that will benefit many people in an emergency situation in future. But for all the fascination with aviation and the latest technologies, we should not forget that for Rega, everything revolves around one question: Will it help people in an emergency? That is the question that drives Rega employees. Everything else is a means to an end.





Where does Rega stand financially?

Rega has a sound financial basis and we are planning very far ahead. Progress does not come for free, and particularly in the fields of aviation and medicine, costs have been rising continually for years. We also have to contend with an increasing number of legal regulations in both spheres, which impacts doubly on Rega. That

all costs money, too. We have our expenditure under control, but we must not lose sight of the income. Rega funds itself

through two channels: over 60 percent of our budget is covered by our patrons, while the remainder of just under 40 percent comes from payments by cost bearers, such as insurance companies, for services rendered. At 30 Swiss francs a year, the patronage contribution has remained unchanged for the past 26 years, and the flying minute tariff - that is, the amount insurers pay us per minute of flying time for a mission – has stayed at the same low rate for over 20 years. The fact that we have been able to make such vast improvements to our emergency medical assistance by air during this time is not least thanks to the evergrowing support of our patrons.

Rega is now supported by 3.4 million patrons. This number has been growing constantly ever since the "patronage principle" was introduced in the mid-1960s. Are you expecting this trend to continue?

Despite the fact that the Swiss population has also registered a steady growth in the same period, it is by no means certain that the number of

patrons will carry on growing too. Rega patronage is voluntary. We are delighted with the support that our patrons have shown

us in past years – for it is an indication that we are moving in the right direction.

"Rega must not be taken for granted. The provision of medical assistance by air is only possible because our patrons support us year after year."

What do you foresee as the challenges for the future?

Our prime goal must be to ensure that Rega remains independent and autonomous, and has long-term funding. That is the only way future generations will also be able to benefit from medical assistance provided by Rega – not just in heavily populated areas in the lowlands, but also in the rural regions. I say it again and again at public events and in talks with politicians and decision-makers – Rega must not be taken for granted. We receive no subsidies from the

State. Rega is only able to provide countrywide medical assistance by air because our patrons support us year after year with their financial contributions as a token of their solidarity.

What are your hopes for the future?

Rega would not exist without our patrons. That is why I hope that the Swiss people will continue to support "their" Rega in future. For Rega, I hope that our employees continue to be one hundred percent committed to helping our patients, and that they have the courage to break new ground – in the same spirit as the Rega pioneers before them. That way, if one day my great-grandchildren ever find themselves in an emergency situation, Rega will still be there to rescue them – whatever the weather.





The mountain rescuers with specialist medical training by Rega

They are called out when no one else can provide the necessary emergency assistance: the medical specialists from Swiss Alpine Rescue (ARS). Rega is responsible for the medical missions performed by these highly qualified mountain rescuers, as well as for their training and equipment.

Rega aims to provide the best possible medical care to people in emergency situations. However, this is not just limited to assistance from the air, but - wherever it is sensible to do so - also on the ground, in the field of terrestrial rescue. A prime example of this is the so-called medical specialists from Swiss Alpine Rescue (ARS), Since 2016, the ARS – a foundation set up by Rega and the Swiss Alpine Club SAC (see box below) - has been able to call on the services of a good 60 of these mountain rescuers throughout the country who are specialised in treating seriously ill and injured patients.

On call day and night

The medical specialists are all experienced mountaineers, who know exactly how to behave in adverse terrain. In addition, they have a professional medical background as a paramedic or physician with experience in emergency medicine. As with all the other ARS mountain rescuers, they are on standby in their region day and night, a service they provide free of charge. The medical specialists are only called out when no other rescue service can help. For example, because the ambulance cannot get to the patient as there is no road or track and the helicopter cannot fly due to poor visibility. On average, between three and five such missions are performed every month, and numbers are rising. That may not seem like many, but for those in distress it can make all the difference. Generally, the medical specialists accompany their mountain rescue colleagues on

Standardised training and equipment: the ARS medical specialists are taught by Rega how to deal with medical emergencies. terrestrial search and rescue missions in rough terrain. They do not only provide casualties with professional medical care, but occasionally are called on to help when members of their own ranks become injured.

Achieving the best result together

The ARS already had a reliable network of medical experts at all the SAC stations before 2016, but they did not necessarily have a professional medical background nor was standard medical equipment available at all the rescue stations. In addition, there was a lack of standardised training and - due to the low number of missions - the team members were not able to draw on much practical experience. And so two years ago, the ARS, with the support of Rega, introduced the new function of "medical specialist". Both organisations provide their core competences to jointly train these highly qualified mountain rescuers: the ARS is responsible for the mountaineering training, while Rega takes care of the aspects relating to emergency medicine and medical equipment.

Under the aegis of Rega

Since adopting this new structure, all the medical activities and competences at the ARS have been the responsibility of Rega. Michael Lehmann, Deputy Medical Director at Rega and emergency flight physician at the Zweisimmen base, is in charge of the ARS's medical division: "We've now standardised the medical training, equipment and procedures, thus increasing the quality of medical care," he explains. If, during a mission, questions arise relating to the treatment of their patient, the medical specialists can contact the medics at Rega at any

time by telephone and thus directly benefit from their experience in emergency medicine. The equipment has been coordinated, too: now all medical specialists throughout Switzerland have at their disposal the same modern equipment, such as emergency medicaments and mobile reanimation devices.

In operation when there is no alternative

However, Rega's involvement is more than a simple transfer of know-how; it also provides part of the basic medical care to the Swiss population in rural areas. "The introduction of medical specialists at the ARS is not least in response to the fact that an increasingly smaller medical infrastructure is available to residents in some regions of Switzerland," says Michael Lehmann. For instance, more and more villages and regions in remote locations no longer have a local GP and are far away from the nearest ambulance service. In an emergency, the nearest medical specialist is called out if no other rescue service is available and the Rega helicopter is grounded due to adverse weather. Thus Rega, in collaboration with the ARS, helps to close any gaps in the provision of medical care in these regions.

Swiss Alpine Rescue (ARS) is a non-profit foundation supported by Rega and the Swiss Alpine Club SAC. The ARS functions as a link between the 86 rescue stations of the SAC and its 2,900 or so voluntary local rescuers. It takes care of their training and ensures standardised procedures in terrestrial rescue throughout Switzerland. Rega is responsible for MARS, the medical section of the ARS

In the case of complex rescue missions, Rega works closely together with ARS's over 300 specially trained experts. In addition to the medical specialists, these also include the helicopter rescue specialists, the avalanche and terrain search dog teams, and the specialists for canyoning and cave rescues.

Medical assistance by air

Swiss Air-Rescue Rega was founded in 1952 for the purpose of providing emergency medical assistance by air.

Thanks to wide-scale support from the Swiss people, it is able to meet the challenges posed by a country with extremely demanding topography. With its highly trained employees and state-of-the-art aircraft, Rega is on call around the clock, finances the building and renovation of its dense network of helicopter bases, and is constantly improving its air rescue services and procedures.

Rega provides assistance wherever a person's life or health can be preserved or protected through its intervention. It comes to the aid of people in distress and in need of help in accordance with the Fundamental Principles of the Red Cross, without discrimination as to person, financial circumstances, social status, nationality, race, religious beliefs or political opinions. It is the patient's medical condition that counts. Ambulance jets and rescue helicopters are swift, comfortable and efficient means of transport. Their targeted use helps reduce the subsequent costs arising from acute illnesses and accidents.

Rega is an autonomous, privately run, non-profit foundation. With its 3,436,000 patrons, it is firmly rooted within the Swiss population. Rega operates independently of political interests and is not subsidised by the State. Its activities also contribute towards improving the quality of life, the economy and tourism in Switzerland.

Key figures for 2017

Total number of missions organised	15,958
Helicopter	11,774
Fixed-wing aircraft	1,281
Other missions ¹	2,903
Patronage contributions (CHF million)	101.1
No. of patrons (in millions)	3.436
No. of employees ²	367
Operating revenue (CHF million)	159
Operating expenditure (CHF million)	158
Operating result (CHF million)	1.1
Balance sheet total (CHF million)	567

Other missions: transports by ambulance, missions on behalf of the Swiss Alpine Club SAC, Spéléo-Secours, Redog, etc.



² No. of full-time equivalent employees at the end of December



Locations

Rega's helicopter bases

Rega aims to reach any location in its operational area within 15 minutes' flying time. Twelve Rega helicopter bases distributed throughout the country make this possible. They are located in Dübendorf, Basel, Berne, Lausanne, Untervaz, Locarno, St. Gallen, Erstfeld, Samedan, Wilderswil, Mollis and Zweisimmen. In addition, there is a partner base in Geneva.

At each of the helicopter bases, a Rega crew comprising a pilot, paramedic and emergency flight physician are standing by at all times, ready to bring emergency assistance by air to people in distress as swiftly as possible.

The Rega Centre

Rega's headquarters is located at Zurich Airport, with direct access to the take-off and landing runways. While the three ambulance jets take off from here to destinations all over the globe, the rescue helicopters only come to the Rega Centre for major maintenance work or servicing. In addition to the hangar and the maintenance works for the Rega fleet, the Rega Centre is home to the Operations Centre, the administrative offices and the large, central materials store.

Operations Centre

The Operations Centre at the Rega Centre organises over 15,000 missions every year. It can be contacted around the clock – in Switzerland via emergency number **1414**, and from abroad by calling **+41 333 333 333**.

The Rega fleet

Helicopters, lowland bases



Airbus Helicopters EC 145/H145 (from the end of 2018)

Number of helicopters:

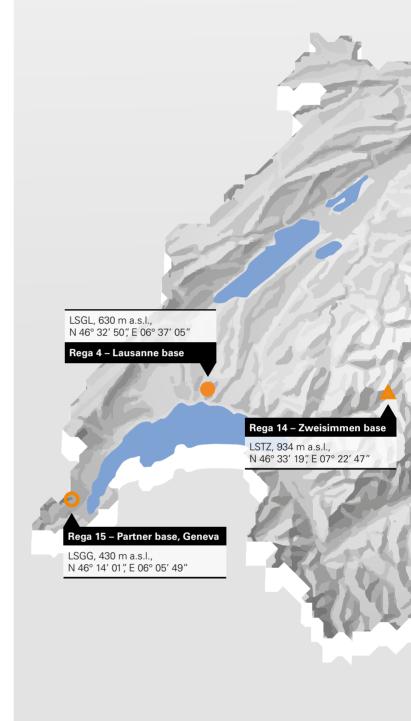
Patient capacity: 1 lying, 1 sitting

Rotor diameter: 11 m Length: 13.03 m Height: 3.95 m

2 engines, take-off power: Arriel 1E2, 2×720 HP

Maximum flying speed: 220 km/h

Rescue hoist: 90 m cable length, 270 kg



Helicopters, mountain bases



AgustaWestland Da Vinci

Number of helicopters: 1

Patient capacity: 1 lying, 1 sitting
Rotor diameter: 10.83 m
Length: 12.96 m
Height: 3.40 m

2 engines, take-off power: Pratt & Whitney, 2×778 HP

Maximum flying speed: 235 km/h

Rescue hoist: 90 m cable length, 270 kg



Helicopter, flight school



Airbus Helicopters H125

Number of helicopters:

Rotor diameter: 10.69 m Length: 12.94 m Height: 3.34 m

1 engine, take-off power: Turbomeca Arriel 2D, 860 HP

Maximum flying speed: 220 km/h

Ambulance jets



Challenger 650

Number of aircraft: 3 Patient capacity: 4 lying 19.61 m Wing span: Length: 20.86 m 6.40 m Height: Maximum take-off weight: 21,863 kg Maximum flying speed: 850 km/h Maximum range: 6,500 km

Rega in Switzerland



Rega's rescue helicopters are on call 24 hours a day, 365 days a year, in the service of the Swiss people. The 17 Agusta-Westland Da Vinci and Airbus Helicopters EC 145 helicopters transport state-of-the-art medical services directly to the casualty – not just in response to serious accidents or injuries, but also in cases of acute illness, such as cardiac problems.

The rescue helicopters are called out to deal with incidents in inaccessible mountainous terrain, as well as on motorways and in built-up areas. They are used to transport critical patients gently and reliably to the nearest suitable medical centre or to fly newborn babies to a paediatric hospital. A highly versatile and efficient means of rescue, the helicopter plays an indispensable role in the modern-day healthcare system.

Helicopter operations are divided into primary and secondary missions. Primary missions comprise rescue flights that transport emergency medical assistance directly to the scene of the incident. Secondary missions mostly involve inter-hospital transfers – for example, if a patient's condition has worsened and requires specialist attention. Almost a quarter of all Rega helicopter missions take place at night – a demanding task for the pilot, paramedic and emergency physician making up the crew.

Primary/secondary missions by helicopter in 2017 (9,539 patients in total)

1,659
Winter sports accidents
671 Alpine accidents
974 Occupational accidents
780 Road accidents
1,248
Other accidents

4,207 Illnesses



Rega international



For people who become seriously injured or ill abroad, Rega represents a bridge to their homeland. Its three own ambulance jets are used exclusively for transporting patients. The crew invariably comprises at least two pilots, a flight physician and a flight nurse. Rega is equipped to transport patients who are in a very critical physical condition. However, as each transport involves a certain degree of risk, operations of this kind need to be closely supervised by experienced medical coordinators.

The use of an ambulance jet is not always necessary.

Often patients are repatriated on board a scheduled aircraft – competently and professionally attended to by a member of Rega's medical staff.

If travellers suffer serious medical problems abroad, Rega can also assist by providing them with expert medical advice as part of its emergency medical management. Medical consultants are on duty around the clock and, together with the doctors on location and the patients themselves, seek the best possible solution – such as informing them of the nearest suitable hospital.

Providing that it has capacity available, Rega also puts its knowledge and fleet at the disposal of clients abroad for patient transports. These missions help Rega crews to maintain and improve their operational and medical expertise, and also contribute towards covering costs.

Medical emergencies abroad in 2017 (2,571 patients in total)

1,249

patients repatriated by ambulance jet or scheduled aircraft

1,322
Medical emergency
management



No patrons, no Rega

Thanks to their annual contributions, Rega's patrons enable the continued existence of the air rescue organisation. They keep Rega in the air, as a public service for the Swiss people.

Professional rescue by air around the clock, 365 days a year, with highly qualified staff, state-of-the-art rescue equipment and a dense network of helicopter bases – it would be impossible to provide all this in a cost-effective manner. When, back in the 1960s, the fledgling air rescue organisation ran into serious financial difficulties, instead of asking for State subsidies, it set up a privately operated patronage system. Since then, the patrons have paid Rega's "deficit" with their annual contributions, which at around 60 percent cover more than half of the total budget. The remaining costs are principally covered by cost bearers, such as health, accident and travel insurers, in the form of payments for missions carried out on their behalf.

In the meantime, this system has more than proved its worth. It gives Rega the freedom and independence to perform its duties as it deems best and allows it to fully focus on its patients' welfare. The annual patronage contributions have only ever been increased once since Rega was founded and have remained unchanged for a good 25 years.

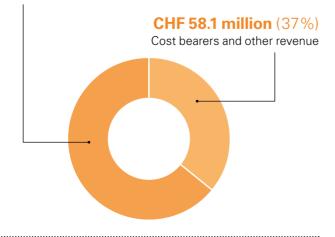
As a token of thanks for patrons' support, Rega can waive the cost of any of the services it performs on their behalf, provided that the person's insurance company is not liable to pay them.

You can find the Conditions of Patronage on page 38.

Cost coverage in 2017

CHF 101.1 million (63%)

Patrons' contributions and donations







Milestones

Swiss Air-Rescue Rega was founded in 1952 to provide emergency medical assistance by air. Since then, it has organised over 400,000 missions and rescued countless people in distress. Even back in the pioneering days, Rega's air rescuers succeeded in achieving the impossible. Rega has remained true to this credo to this day.



The organisation is founded

Swiss Air-Rescue is founded as a sub-section of the Swiss rescue association, Schweizerische Lebensrettungsgesellschaft (SLRG), in the Hotel Bären in Twann.



Swiss Air-Rescue is ready to start operations On 25 December,

Dr. Rudolf Bucher, the head of Swiss Air-Rescue, announces over Radio Beromünster that the parachutists and helicopters are ready for action.

1953



The first rescue parachutists

In winter 1953, Swiss Air-Rescue parachutists are used on a rescue mission for the first time



Large-scale live demonstration

During three days in March, over 300,000 spectators watch a live demonstration in the area around Zurich's lower lake basin, held to procure funds for air-rescue services.



Emergency assistance in the USA

After a plane accident, Swiss Air-Rescue pioneers recover the bodies of 128 persons from an inaccessible area in the Grand Canyon region.



The first helicopter of its own

A countrywide collection by the Association of Swiss Consumers' Cooperative Societies (now Coop) produces sufficient funds to purchase a Bell-47 J helicopter.



An autonomous organisation under

Fritz Bühler Swiss Air-Rescue breaks away from its parent organisation, the SLRG. Fritz Bühler is appointed Technical Director.

1960



First repatriation

For its first repatriation mission, the private Piaggio 166 aircraft owned by Dr. Armin Meyer flies a patient from France back home to Switzerland.

1966



Self-help by means of patronage

No funds from the Swiss government. However, a nationwide appeal for help proves successful. 25,000 patrons save Swiss Air-Rescue from financial



Bell 206A, the first turbine-powered helicopter The Jet Ranger HB-XCU has a turbine, but no rescue hoist.

In mountainous areas where the helicopter is unable to land, rescue is only possible using the fixed rope.



First direct rescue from the Eiger north face What until now had been deemed impossible, suddenly becomes reality: using a rescue hoist, the crew from the Gsteigwiler base lift two climbers directly off the rock face.



First Alouette III The Alouette III SE 316 HB-XDF is Rega's first helicopter to be financed by patrons' contributions. The picture shows it in operation at the Engadin Ski Marathon in 1972.



Twin-engine helicopter The introduction of the Bölkow BO-105C depicted here on the roof of the University Children's Hospital in Zurich - marks the beginning of the era of twin-engine helicopters at Rega.



Operations abroad with its own aircraft Rega's Learjet 24D HB-VCY is the first civilian ambulance jet in the world. It is fully equipped with medical apparatus and is on stand-by around



Rega becomes a non-profit foundation

The Association sets up a Foundation. Fritz Bühler is appointed the first Chairman of the Foundation Board. In 1981, Rega also becomes a Corporate member of the Swiss Red Cross.



Fritz Bühler dies on 23 August: the great organiser and promoter of air rescue passes away totally unexpectedly at the age of 72 during a business event.

1980



The "Hitchcock" rescue A parachutist's canopy becomes entangled in the aircraft's tail wheel. The helicopter flies above the plane so that the rescuer suspended at the end of a rescue hoist can cut the parachutist free.



Long-haul ambulance jet

The Challenger CL-600 HB-VFW is equipped to perform long-haul operations with several patients on board. In Geneva, it is christened "Fritz Bühler".



Helicopters with night vision goggles Rega is the first non-military organisation in the world to equip all of its helicopters with night vision goggles, thus increasing the safety of night missions.



The Hawker 800 jets commence services Two new ambulance jets replace the pair of Lear-35 aircraft. The larger cabin and longer range improve the services for patients.



The new fleet is made up of Agustas On 14 August, the Untervaz base in Canton Graubünden puts the first of the 15 new twin-engine Agusta A 109 K2 helicopters into operation.



The first round the world flight In a mission lasting 43 hours, the Challenger CL-600 transports three patients in consecutive legs, a journey that takes it all the way round the world for the first time.



New Rega Centre at Zurich-Kloten For the first time, Rega's hangar, Operations Centre, maintenance works, logistics operations, Patronage Centre and Administration Department are all united under one roof.



Three new Challenger CL-604 jets
Three identical aircraft from the
Canadian manufacturer, Bombardier,
replace the 15-year-old air ambulance
fleet.



Five Eurocopter EC 145 helicopters Rega purchases five spacious rescue helicopters from helicopter manufacturer Eurocopter for use at its lowland bases. This is followed by a sixth.



Tsunami in Southeast AsiaRega is pushed to the limit. Over a period of ten days, 16 medical teams are in operation. Within the space of a week, more than 60 casualties are repatriated to Switzerland.



Rega's new mountain helicopter Rega purchases from helicopter manufacturer AgustaWestland 11 rescue helicopters for use at its mountain bases.

The AgustaWestland Da Vinci is



Mobile heart-lung machine on board For the first time, critically-ill patients can be hooked up to a heart-lung machine in the Rega helicopters and jets.



Flying "blind" to the Inselspital 27 July: thanks to satellite-based navigation, Rega flies to the Inselspital University Hospital in Berne despite poor visibility, using the GPS-assisted approach procedure.



State-of-the-art dispatch system
The new interlinked systems allow
alarm procedures to be largely
digitalised and rescues to be
coordinated more efficiently than ever.



The flight simulator for the AW
Da Vinci sets new standards in pilot
training. Instrument flight and emergency
scenarios can now be practised
realistically and efficiently – in safety
and without harming the environment.



Premiere for Rega's new transport incubator, which can be used in both the jets and the helicopters and provides premature or newborn babies with the best possible medical care.



Three Challenger 650s for Rega In 2018, the highly reliable CL-604 fleet will be replaced with the successor model from Bombardier, featuring modified engines and state-of-the-art avionics systems.



Rega orders three all-weather AW169-FIPS helicopters from Leonardo (formerly AgustaWestland), which are equipped with an anti-icing system and will go into operation in 2021.



Rescue despite poor visibility thanks to IFR flight route network In December, two routes of the Low Flight Network for helicopters, which is based on satellite navigation, are certified for daytime use.



Six H145 for the lowland bases
Rega purchases six H145 helicopters
from Airbus Helicopters to replace its
current lowland fleet. The more powerful successor model of the EC 145
will commence operations in 2018.



Precise flight weather data 60 new or enhanced measuring stations and weather cameras now continually supply Rega's helicopter pilots with up-to-date meteorological information – a key prerequisite for IFR flights.



Authorisation for Low Flight Network Rega receives special authorisation to use key intersections of the nationwide network of IFR flight routes on missions virtually around the clock.





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Activities in 2017

Rega can look back on a busy year: in 2017, the Operations Centre organised a total of 15,958 missions (+5.7 %) – that is equivalent to one mission every 33 minutes. Both the rescue helicopters and the ambulance jets were in the air more frequently than in the previous year, transporting 10,788 patients (+7.1 %) in all. On average, the Rega crews came to the aid of 29 people per day.

Helicopters

No. of missions

aircraft

Other missions 1

In 2017, figures for the helicopter missions were up on the previous year (11,774, +6.5%). While the number of secondary missions³ fell (2,659, -3.1%), the amount of primary missions² rose (6,781, +9.8%). An increase was also registered in the number of night missions (2,296, +4.6%): nowadays, every fourth mission performed by a Rega helicopter is

flown at night. The total of organised "Contadino" missions also rose (1,287, +5.4%). With these missions, Rega commissions commercial helicopter transport firms to recover injured or dead cattle on behalf of mountain farmers.

Fixed-wing aircraft

Missions by helicopter

Over the past year, Rega repatriated more patients from countries abroad than in 2016 (1,249, +2.1%). Its three ambulance jets took off on missions more frequently (886, +3.3%) and flew more patients back home to Switzerland (901, +3.7%). In comparison with the previous year, there were fewer long-haul flights in 2017, which, however, did not affect the number of flight hours: as overall more operations were flown, the Challenger CL-604 ambulance jets spent more hours in the air than in 2016 (4,306, +0.4%).

The number of patients repatriated on board scheduled aircraft dropped slightly (348, –1.7 %). This economically and environmentally sound alternative to the ambulance jet is employed provided that the patient's medical condition is sufficiently stable, that this form of transport is not expected to have a negative effect on the patient or other passengers, and that enough seats are available on board the plane.

The fall in the number of patients (130, –19.4 %) repatriated on a scheduled flight accompanied by a Rega flight physician or intensive care flight nurse is attributable to natural fluctuations. The amount of unaccompanied repatriations (218, +13.0 %), on the other hand, recorded an increase: in such cases, the Rega Operations Centre organises the return journey for patients who are able to travel without a medical escort

2017 2016 +/Total missions 15,958 15,093 5.7% Helicopters 11,774 11,055 6.5% Jets/Scheduled

1,281

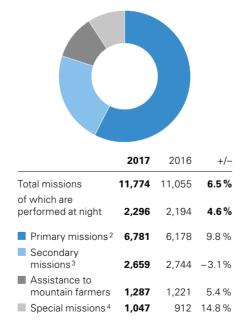
2.903

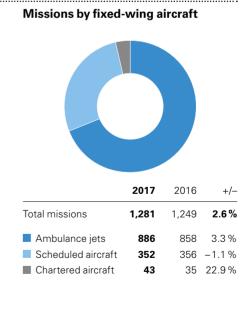
1,249

2.789

2.6 %

4.1 %





- ¹ Other missions: transports by ambulance, missions on behalf of the Swiss Alpine Club SAC, Spéléo-Secours, Redog, etc.
- ² Primary missions: emergency missions directly at the scene of the incident
- ³ Secondary missions: inter-hospital transfers, neonatology, organ transports
- ⁴ Special missions: non-medical Rega missions (search, route securing and reconnaissance flights on behalf of operation partners) and missions performed by other helicopters

Transported patients - primary/ Transported/accompanied patients -Medical emergencies secondary missions by helicopter abroad missions by fixed-wing aircraft 2017 2016 +/-Total patients 2,571 2,510 2.4% Medical advice 1.322 1.287 2.7 % Repatriation 1,249 1,223 2017 2016 2017 2016 +/-Repatriations Total patients 9.539 9.045 5.5% Total patients 1.031 1,030 0.1% ■ Winter sports Limb injuries 174 1,659 1.373 20.8% accidents ■ Craniocerebral trauma 69 Occupational Other injuries 163 accidents 974 931 46% 2017 2016 +/-Cardiovascular diseases 122 Road accidents 780 762 2.4 % Strokes 95 Total patients 1,249 1,223 2.1% Alpine accidents 671 648 35% ■ Gastrointestinal diseases 85 Sports accidents 392 441 -11.1% Rega ambulance jets 901 869 37% Malignant tumours 42 Aviation accidents 122 124 -16% ■ Scheduled airlines 281 Other illnesses Avalanche accidents 23 34 - 32 4 % accompanied 130 161 - 19.4 % Other causes 711 683 4.1% Scheduled airlines Illnesses 193 13.0 % 4.207 4.049 3.9 % unaccompanied 218

Medical advice and assistance by Rega doctors

Prior to each repatriation mission, thorough medical clarifications are carried out by one of Rega's 13 medical consultants. In liaison with the Operations Centre, the physician on duty decides whether repatriation is necessary, and if so, how and when it should take place. As with the flight coordinators, the medical consultants are available around the clock.

Last year, Rega's medical consultants provided a total of 2,571 patients (+2.4 %) suffering medical emergencies abroad with competent advice. In most cases, they dealt with the patients on the phone over a period of several days or even longer. On average, the medical consultants helped seven new patients per day. In 1,249 cases, the medical clarifications led to the patient being repatriated on board a Rega ambulance jet or a commercial airline.

Individual insurance companies ask Rega's physicians to clarify the medical condition of their Swiss policy holders who have become seriously injured or ill abroad, even if they are not Rega patrons. In such cases, Rega makes a recommendation as to whether from a medical point of view the patient needs or is fit enough to be transported, and the insurance company then decides if and how repatriation should take place.

Fluctuation in mission and patient numbers

The number of patients and missions do not always concur, as either several patients are transported at the same time or flights are performed without any patients at all – for example, if a search flight proves unsuccessful. Generally speaking, the helicopter mission statistics reflect the meteorological conditions, as well as the leisure activities and travel patterns of both the Swiss population and the foreign tourists in Switzerland. They are therefore subject to natural fluctuation.

This was particularly apparent in the holiday months of February and October last year, which proved to be exceptionally sunny. Accordingly, in February 2017 the rescue helicopters were frequently called out to help injured winter sports enthusiasts, which was reflected in the 25.7 percent rise in the number of missions compared to the same month the previous year. In October 2017, too - according to the MeteoSchweiz weather service, the sunniest since records began - the fine weather during the school holidays led to 25.7 percent more missions compared to 2016.

Financial development and investments

In the 2017 business year, Rega's operating income totalled CHF 158.8 million, while the operating expenses came to CHF 157.7 million. This resulted in a positive annual result of CHF 1.1 million. Rega basically funds itself through two channels: 63 percent of the budget

is covered by Rega patrons through their annual contributions and donations, while the remaining 37 percent comprises payments by cost bearers for services rendered.

In the past year, the majority of investments were made in modernising the Rega fleet and in large-scale IT projects. In line with its strategic goals, Rega is almost 100 percent self-financed and does not need outside capital to finance its investments.

Gratifying development in the number of patrons

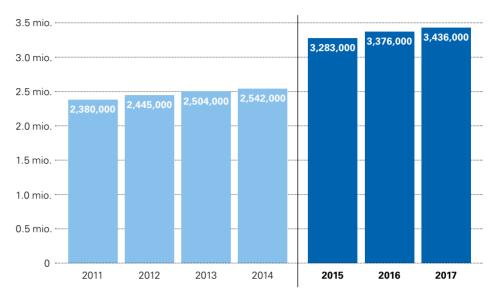
Thanks to the support of its patrons, Rega is able to provide nationwide medical assistance by air - without receiving any subsidies from the State. In 2017, patrons supported Rega with annual contributions and donations totalling CHF 101.1 million (+4.7%), over 63 percent of the overall costs. Once again, Rega was able to register a growth in this support: on 31 December 2017, a total of 3,436,000 patrons were recorded on the computer system. This represents an increase of around 60,000 new patronages or 1.8 percent compared to the previous year. According to its Conditions of Patronage, Rega can waive the cost of part or all of its mission costs if these are not covered by the patrons' own insurance policies, as a token of thanks for their invaluable support.

Renewal of the lowland fleet

During the past year, preparations for the new Airbus Helicopters H145 helicopter were in full swing: the last details of the outfitting of the cabin were defined, and the re-training of Rega's own flight instructors and pilots was planned and scheduled. The H145 also brings with it changes for Rega's helicopter mechanics: last year they attended a several-week course at the manufacturer, Airbus Helicopters, in order to acquire the necessary expertise and appropriate licences to be able to perform maintenance work on the new helicopters.

In autumn 2018, the first two of the total of six new H145 aircraft will commence operations at the lowland

Development in the number of patrons up to 2017



No. of patronages (before the changes in the patronage administration system in 2015)
 No. of patrons (including all persons listed under a single patronage)

bases, and the remaining four in 2019. The powerful H145 is equipped with state-of-the-art avionics and will replace the EC 145s purchased in 2003.

The AW169-FIPS all-weather helicopter

The procurement of the three AW169-FIPS all-weather helicopters, which are scheduled to join Rega's fleet in 2021, is fully on track. Rega signed a contract with helicopter manufacturer Leonardo for the purchase of three AW169-FIPS at the end of 2015. Thanks to their anti-icing system, they will also be able to fly rescue missions in icing conditions – a key factor for all-weather air rescue. The AW169-FIPS is currently still under development: it is the first helicopter in its weight class with a maximum take-off weight of five tonnes to be equipped with a Full Ice Protection System (FIPS), which will broaden Rega's scope of operations in future.

Interior outfitting of the new Challenger 650 ambulance jet

Last year, the outfitting of the interior of the first new jet in Peterborough, Canada was completed – closely overseen by the Rega project team. During the second half of the year, the two other new jets were flown completely "empty" - that is without the cabin interior or livery - from Montreal to Peterborough, where the time-consuming task of outfitting the cabin interior will be carried out in stages. The first of the three new Challenger 650 ambulance jets manufactured by Bombardier is scheduled to join the Rega fleet in April 2018 (see also from page 6). The remaining two aircraft are due to arrive in the middle and at the end of 2018 - thus bringing the project to replace the ambulance jet fleet to an end on time and on budget.

Special authorisation for Rega

A breakthrough for Rega on the road to realising its vision of all-weather rescue: the Federal Office of Civil Aviation (FOCA) granted Rega special authorisation to use key intersections of the so-called Low Flight Network (LFN) around the clock with effect from 23 December 2017. Rega had already been able to successfully use various sections of the LFN routes, such as the

approaches according to instrument flight rules (IFR) to the military airfields in Emmen and Meiringen, as well as to the helipad at the Inselspital University Hospital in Berne – but only in the daytime during the official operating times of the facility in question. This special authorisation allows these approach flight paths to be used around the clock. Rega is now also permitted to use the North-South route over the Gotthard Pass despite the ban on night-time flying.

Own network of meteorological stations for up-to-date flight weather data

Continually updated meteorological data is a prerequisite for all-weather rescue flights. However, such flight weather data was available for only very few of the locations of significance to Rega – such as hospitals, for example. Consequently, in 2014, Rega decided to do something about it: within the framework of a major project entitled "Thor", it built up a network of weather stations and cameras and equipped existing stations with additional sensors, which, for example, record visibility, type of precipitation or altitude of the lowest part of the cloud cover. In autumn 2017, this large-scale project was concluded within the foreseen timeframe and budget. Today, Rega helicopter pilots have at their disposal up-to-date flight weather data delivered by a total of 60 new or enhanced meteorological stations and cameras throughout Switzerland.

New hospital helipads go into operation

In order to increase safety of both patients and crews, Rega is actively promoting the modernisation of hospital helipads. It advises and supports hospitals with corresponding projects, and also contributes towards part of the costs. In the past year, five hospital helipads, for which Rega had been closely involved in implementing the project, were put into operation: the hospitals in Interlaken, Frutigen, Winterthur, Nyon and Thusis now all have modern helipads that meet

present-day demands in terms of size, maximum weight, lighting and other safety factors.

New medical equipment

Rega strives to constantly improve the medical care it provides to its patients. In 2017, all Rega helicopters and ambulance jets were equipped with so-called video laryngoscopes. This device for image-guided intubation to secure a patient's airway has been employed in Swiss hospitals for some time. However, it was not suitable for use outside the hospital, where it is exposed to the elements; among other things, the display was very difficult to read in bright sunlight. Now Rega crews have at their disposal a mobile, robust and technically more advanced video laryngoscope, which facilitates the intubation procedure and increases patient safety even further.

In collaboration with an external partner, Rega also developed a stretcher capable of carrying particularly heavy loads. Until now, it has been impossible to transport obese patients by helicopter because standard stretchers are too narrow and only suitable for patients weighing up to 150 kilograms. The new heavy-duty stretcher – a lightweight aluminium construction is significantly wider and longer than a normal structure and is certified to transport patients with a body weight of up to 400 kilograms. Rega has two of these heavy-duty stretchers, which are kept at the helicopter bases in Zurich and Berne. The majority of missions for obese patients are transfer flights from a regional to a central hospital.

November 2017 marked the premiere of this new piece of equipment: the crew from the Rega base in Zurich carried out what is probably the world's first intensive care flight with an extremely overweight patient using the heavy-duty stretcher in combination with a mobile heart-lung machine (ECMO).

Participation in research studies

Besides developing new operational equipment, Rega is an important partner in the field of preclinical research. In 2017, for example, two studies submitted in collaboration with the University Hospital Zurich, Protection & Rescue Zurich and the Cantonal Hospitals in Lucerne and St. Gallen were examined and accepted by the renowned international scientific journals, "Anesthesia & Analgesia" and "Anaesthesia", and published in February 2018. The two studies showed that administering the medication, tranexamic acid. to a severely injured patient as soon as possible after the accident has a stabilising effect on their blood coagulation. Together with its research partners. Rega has thus made a valuable contribution towards scientifically proving the effectiveness of this new therapy approach.

Mission Statement



Our purpose

We provide an around-the-clock service offering swift, expert assistance by air. In particular, we transport medical care to the casualty and help in emergency situations.

This assistance also takes the form of medical advice and the use of our infrastructure.

Our operations are characterised by our highly qualified, professional members of staff and the very best equipment available in the fields of rescue, medical and flight technology.



Our fundamental concept

We are a non-profit organisation that is funded by its patrons. Our services are primarily geared towards the needs of the Swiss population.

We are financed by means of private funding. This enables us to operate independently in the service of our patients.

In the interest of the patient, we take an active stand against the commercialisation of air rescue.

Emergency missions and other operations carried out on behalf of the general public are not conditional upon whether or not the ensuing costs are covered.

Our rescue activities are based on the Fundamental Principles of the Red Cross.



Our patrons

Thanks to their annual contributions, our patrons enable us to build up and operate a suitable infrastructure to perform air-rescue operations on behalf of the Swiss population.

The services rendered by Rega to its patrons are not of a contractual nature and are therefore not deemed to be insurance benefits.



Our partners

We are fully aware of the importance of working in close collaboration with our partner organisations, and actively foster a successful working relationship with them.

We act as a fair and reliable partner.

We focus our activities on the fields of air rescue, air-ambulance repatriation services and medical advice.

In order to maintain and further improve the top level of expertise of our medical staff, we also perform medically indicated flights on behalf of international clients.



Our staff

Our members of staff play a decisive role in fulfilling our purpose. The following factors are of particular importance in this respect:

- personal identification with the organisation and its purpose;
- independence and responsibility;
- willingness to perform, flexibility and motivation.

We aim to achieve this by means of:

- on-going training appropriate to the various hierarchical levels;
- progressive working conditions;
- appropriate salaries and attractive social benefits.

We foster a style of behaviour among our staff that is open, cooperative and characterised by mutual respect.



Our values

We strive to provide around-the-clock services of first-class quality and safety, as well as to cultivate a conscious, structured manner of dealing with risks.

Our organisational structures are characterised by a clear-cut delineation of tasks, competences and responsibilities. These are implemented and respected at all hierarchical levels, from ordinary employees right up to the members of the Foundation Board.

We act and communicate in an open and transparent way, both within our organisation and towards the outside.

We are conscious of a potential conflict between performing our work and protecting the environment, and take this into account in everything we do.

Foundation Board

Foundation Board of Swiss Air-Rescue Rega

Ulrich Graf, Bäch, since 2001, Chairman and Member of the Executive Committee

Christian Kern, Prof. Dr. med., Geneva, since 2009, Vice-Chairman and Member of the Executive Committee

Michael Hobmeier, Bäch, since 2007, Member of the Executive Committee

Patrizia Pesenti, Zollikon, since 2009, Member of the Executive Committee

Gabi Huber, Dr. iur., Altdorf, since 2015, Member of the Executive Committee

Adrian Frutiger, PD Dr. med., Trimmis, since 1998

Andreas Berger, Dr. med., Greppen, since 2007

Heidi Hanselmann, Walenstadt, since 2010

Thomas P. Emmerich, Riehen, since 2011

Marco Maggiorini, Prof. Dr. med., Schindellegi, since 2011

Adrian Amstutz, Sigriswil, since 2013

Josef Meier, Wettingen, since 2013

Gerold Biner, Zermatt, since 2015

Thomas Holderegger, Waldstatt, since 2015

Franz Stämpfli, Innertkirchen, since 2015

Markus Mader, Berne (Swiss Red Cross representative), until 2017

Medical Commission

Christian Kern, Prof. Dr. med., Chairman

Adrian Frutiger, PD Dr. med.

Andreas Berger, Dr. med.

Marco Maggiorini, Prof. Dr. med.

Finance Commission

Michael Hobmeier, Chairman

Ulrich Graf

Josef Meier

Advisory Committee Partner Organisations

Franz Stämpfli, Member of the Rega Foundation Board, Chairman Thomas P. Emmerich, Member of the Rega Foundation Board

Françoise Jaquet, Dr. sc. nat., Swiss Alpine Rescue representative

Philipp Perren, Dr. iur., Canton Valais representative

Andy Scheurer, Spéléo-Secours representative

Markus Denzler, police commanders representative

Marc Ziegler, Swiss Cable Cars Association representative

Stefan Eng, Swiss Air Force representative

Günter Bildstein, Medical Emergency Call Centres 144 representative

Renato Belloli, helicopter firms representative

Auditors

KPMG AG, Zurich

as of 1 January 2018

From left: Thomas Holderegger, Gerold Biner, Marco Maggiorini, Franz Stämpfli, Gabi Huber, Thomas P. Emmerich, Michael Hobmeier, Josef Meier, Ulrich Graf, Andreas Berger, Patrizia Pesenti, Adrian Frutiger, Christian Kern Missing from the picture: Adrian Amstutz, Heidi Hanselmann



Governance and Compliance

The purpose of the Swiss Air-Rescue Rega Foundation is above all to help people in distress and in need of assistance, in accordance with the Fundamental Principles of the Red Cross. It provides its services without discrimination as to person, financial circumstances, social status, nationality, race, religious beliefs or political opinions.

Rega is fully committed to conducting its business according to the principles of good corporate governance. It upholds the guiding principles of non-profit governance: checks and balances, responsibility and efficiency, transparency, safeguarding the interests of patrons, and safeguarding the interests of donors. Rega's guiding principles relating to corporate governance are embedded in its Foundation Deed and Regulations, its organisation and management regulations, its Mission Statement and its Code of Conduct. The Foundation Board monitors these principles on a regular basis.

Foundation Board

The Foundation Board is Rega's supreme body. It lays down the guiding principles of the organisation in accordance with the Foundation Deed. It draws up the Mission Statement and pertinent regulations, and adopts the strategy and the budget. It approves the Annual Report and the annual financial statements. It defines the supervision and monitoring of the business activities. It also authorises the principles relating to the remuneration of the members of the Foundation Board and the Management Board.

The Foundation Board comprises a maximum of 15 members. The term of office is four years. Members are eligible for re-election up to their 70th birthday. There is no limitation on the length of service of the members of the Foundation Board. The Foundation Board elects from among its members a Chairman, as well as the five members of the Executive Committee, and also defines the Committee's tasks and competences.

Executive Committeeof the Foundation Board

The Executive Committee comprises five members of the Foundation Board: the Chairman, the Vice-Chairman, the Chairman of the Medical Commission, the Chairman of the Finance Commission, and one other member of the Foundation Board.

The Executive Committee of the Foundation Board is responsible for carrying out the tasks delegated to it. It coordinates the permanent commissions of the Foundation Board. Furthermore, on behalf of the Foundation Board, it supervises and monitors the Management Board and issues it with the necessary instructions

The members of the Executive Committee also serve on the Board of Directors of the subsidiaries, Swiss Air Ambulance Ltd. and Airmed AG.

Management Board

The Chairman of the Management Board is charged with managing the operative business, implementing the resolutions adopted by the Foundation Board and the Executive Committee, and delegating the various tasks and competences within the organisation.

Tasks and procedures of the permanent commissions and the Advisory Committee

Each specialist body is governed by a set of regulations specifying its various tasks and competences, and is headed by a chairperson elected by the Foundation Board. The commissions meet on a regular basis to discuss specialist matters, which are specified by the relevant chairperson.

Prior to the meeting, the commission members receive the relevant documents so that they can prepare for the various items on the agenda.

Medical Commission

The Medical Commission comprises the Chairman, Prof. Dr. med. Christian Kern, and three physicians, all of whom are members of the Foundation Board. The meetings are also attended by the Chairman of the Management Board, the Medical Director and, where necessary, other specialists, who are present in an advisory capacity and have the right to propose motions.

The Medical Commission is an advisory body to the Foundation Board and the Medical Director. It deals with and considers specialist matters relating to emergency and rescue medicine that fall within the competence of the Foundation Board, prior to the latter taking any decisions. When drawing up medical guidelines and quality controls, the Commission is assisted by Rega's Medical Service.

Finance Commission

The Finance Commission comprises its Chairman, Michael Hobmeier, and other members of the Foundation Board. The meetings are also attended by the Chairman of the Management Board, the Chief Financial Officer and, where necessary, other specialists, who are present in an advisory capacity and have the right to propose motions.

The Finance Commission is an advisory body to the Foundation Board. It deals with matters relating to financial planning, budgeting, investment policy and the internal control system, and periodically examines the form and scope of financial reporting.

Advisory Committee Partner Organisations

Under the chairmanship of Franz Stämpfli, the Advisory Committee comprises members of Rega's Foundation Board, together with representatives from the partner organisations, namely Swiss Alpine Rescue, commercial helicopter firms, the Canton of Valais Air-Rescue Service, the Swiss Air Force, the Swiss Cable Cars Association, police commanders, Spéléo-Secours Switzerland and the Medical Emergency Call Centres 144.

The Advisory Committee is concerned with tasks relating to the collaboration between the partner organisations and promotes the exchange of information between the various network members.

Accounting and auditing

The financial statements of the Swiss Air-Rescue Rega Foundation and its subsidiaries are prepared in accordance with the principles of Swiss GAAP FER accounting and reporting recommendations (in particular, GAAP FER 21), and give a true and fair view of its net assets, financial position and earnings performance.

At Rega, the "four eyes" principle is applied. This means that fundamentally two joint signatures are required at all levels. The Foundation Board has drawn up a set of regulations governing competences and signatory rights. Both internal and external control bodies periodically check that these regulations are being complied with.

Risk Management – Internal Control System, IKS

The highly complex nature of emergency medical rescue, coupled with the strict requirements of aviation law and the demands of the Code of Obligations, make it necessary to take a structured approach to risks. Rega has combined demands from the Internal Control System and Safety and Quality Management to create integrated risk management in order to identify and view risks holistically and make use of available synergies.

As Rega's supreme body, the Foundation Board is responsible for risk management at Rega and all its subsidiaries. The key risks are systematically identified and evaluated every year, and appropriate risk control measures are taken. The identified risks are additionally monitored on an ongoing basis.

Rega's interests

Rega has interests in various companies domiciled in Switzerland. Strategic interests in companies and foundations in which Swiss Air-Rescue Rega directly or indirectly holds over 50 percent of the voting rights or which are controlled by the Foundation Board are consolidated in the annual financial statements. An overview of these interests is provided in Rega's consolidated annual financial statements.

Rega further holds operative and functional minority interests of up to 25 percent in helicopter companies, airfield companies and associations and assistance companies in Switzerland. This portfolio is maintained in order to fulfil the purpose of the Foundation.

Rega also has interests/investments which are managed by external asset managers according to a portfolio management agreement.

Foundation Board compensation

Compensation of the Foundation Board is based on the set of regulations approved by the Swiss Federal Supervisory Board for Foundations. Compensation (fixed sums, attendance fees and expenses) covers part of the expenses of Foundation Board members for preparing meetings, reviewing documents and attending meetings of the Foundation Board, Foundation Board Committee, specialist and ad hoc committees, Advisory Committee, partner organisations, pension foundations and other companies in which Rega has an interest. All compensation made to the Foundation Board and its Chairman is reported in detail in Rega's consolidated annual financial statements.

Federal Supervisory Board for Foundations

As a non-profit foundation, Rega and its Foundation bodies are subject to the supervision of the Swiss Federal Supervisory Board for Foundations in Berne, to which it is required to submit a management report each year. The last assessment and review by the Federal Supervisory Board was conducted on 19 February 2018, and no objections of any kind were raised.

Rega in 2017

9 February: Since its launch in 2011, Rega's free emergency app has been downloaded more than 1.3 million times – and since then has proved its worth thousands of times over. On raising the alarm, the app transmits the caller's coordinates directly to Rega, saving valuable time in an emergency. Besides the iOS and Android operating systems, Rega is now also offering its app for Windows smartphones.

7 March: Rega CEO Ernst Kohler officially opens the new hospital helipad in Interlaken. In order to further increase the safety of patients and crews, Rega is involved in measures to modernise hospital helipads in Switzerland – not only with advice and expertise, but also with funding. In addition to Interlaken, the hospitals in Frutigen (BE), Nyon (VD) and Thusis (GR) were able to put their new helicopter helipads – which were realised with the support of Rega – into operation in 2017.

1 June: Medical advances in a small format: Rega equips its rescue helicopters and ambulance jets with a newly designed video laryngoscope, which provides images to help secure a patient's airway. Already in use in hospitals, Rega crews now have at their disposal a technically more advanced device that can also be employed outside the hospital in adverse weather. For example, even on rescue missions in bright sunlight or on glaciers, the image on the display is still clearly visible.

23 August: Rega's helicopters are called out not just to deal with medical emergencies, but also to fight fires or assist with natural disasters. Such as in the Bregaglia region: when the mountainside above Bondo (GR) gives way and huge mudslides bury parts of the village under the debris, some of the residents are evacuated by Rega's Engadin crew and experts are flown close to the danger zones during the night.

30 August: At the Lago di Lucendro on the Gotthard Pass, Rega puts its last weather camera into operation, thus bringing its several-year major project, "Thor", to a close on schedule. A good 60 measuring stations and weather cameras all over Switzerland now deliver constantly updated information directly into the rescue helicopter cockpit. This precise meteorological data is a prerequisite for flights performed under instrument flight rules (IFR) – and indispensable for all-weather air rescue.

2 September: The interest and sheer numbers of visitors flocking to Rega's Zurich helicopter base is simply overwhelming: more than 12,000 fans of all ages respond to Rega's invitation to attend its Open Day in Dübendorf. Among other things, they have the opportunity to take a close-up look at the EC 145 rescue helicopter and the medical equipment of "Rega 1" – the radio code for Rega's oldest helicopter base.

18 September: Rega launches an appeal to the Swiss population to report the whereabouts of low-lying aerial obstacles. Cables or wires that are located less than 25 metres above ground level do not have to be registered at FOCA as aerial obstacles – and are therefore not marked on any maps or charts. These objects pose a significant risk for helicopter pilots: they can cause damage and in the worst case even result in the helicopter crashing. Rega is now recording these low-lying aerial obstacles in its own database.

23 December: FOCA grants Rega special authorisation to use key intersections of the Low Flight Network – a network of IFR flight routes based on satellite navigation – around the clock. These include the military airfields in Emmen and Meiringen, as well as the IFR approaches to the hospital helipad at the Inselspital in Berne. For Rega, this marks a further breakthrough towards realising its vision of all-weather rescue.



9 February



March



30 August



2 September

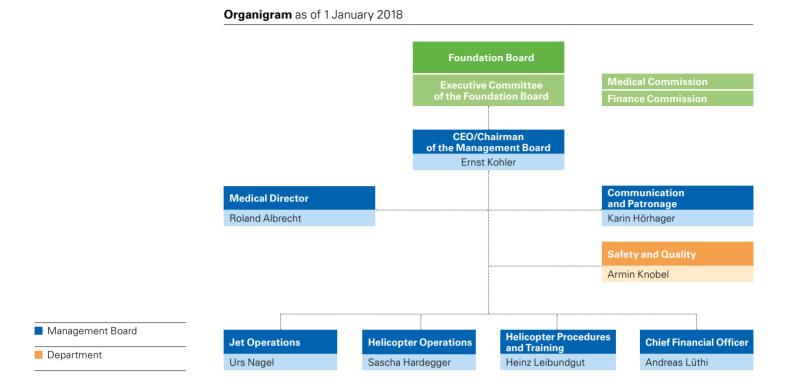


18 September



23 December

Management Board



From left: Karin Hörhager, Andreas Lüthi, Urs Nagel, Ernst Kohler, Sascha Hardegger, Heinz Leibundgut, Roland Albrecht



Conditions of Rega Patronage

In order to be able to provide a professional, round-the-clock and suitably equipped air rescue service in accordance with its purpose as a non-profit foundation, Rega is dependent on the financial support of its patrons.

You can become a Rega patron by paying the following minimum contributions:

- CHF 30.- for individuals
- CHF 60.– for couples (married/cohabiting couples or registered partners)
- CHF 70.– for families (parents with children who are under 18 years of age on the date of payment)
- CHF 40.– for one-parent families (single parents with children who are under 18 years of age on the date of payment)

Patronage is valid for the current calendar year and takes effect on the date of payment. If patronage is not renewed, it expires on 15 May of the following year.

In grateful acknowledgement of patrons' support, Rega can, at its own discretion and within the bounds of its resources, waive or reduce the costs of any emergency services listed below that it has provided or organised on their behalf, in the event that insurance companies or any other third party are not liable to pay and thus not required to reimburse the costs of the rescue operation, whether wholly or in part. In all cases, Rega provides its rescue services and also, where appropriate, waives or reduces the costs thereof without any legal obligation. Rega may be hindered or prevented from carrying out rescue missions in particular due to operational, medical or meteorological reasons.



1. Switzerland and the Principality of Liechtenstein

- Rescue flights and medically indicated transports by helicopter to the nearest suitable hospital
- Rescue operations conducted by rescue teams from the Swiss Alpine Club SAC
- Search operations in collaboration with the police and other competent organisations, provided that there is reasonable hope of being able to help missing persons
- Evacuations and preventive missions where a threat to life and limb exists
- Flights to recover dead persons, after consultation with the authorities responsible
- Flights to recover injured, sick or dead livestock and transport them to the nearest location accessible by another means of transport, provided that the owner of the livestock is a natural person and a Family patron

2. Worldwide

- Medical advice by Rega's Operations Centre in the event of medical problems arising abroad
- Medically indicated repatriation flights to Switzerland for patrons domiciled in Switzerland or the Principality of Liechtenstein, as well as for Swiss nationals living abroad

Rega decides whether emergency assistance should be provided based on medical, social and operational considerations, and is responsible for determining how and when the mission should be carried out. Rega may commission other organisations to perform missions on its behalf. In order to have the required leeway in providing this assistance, the patron concerned authorises Rega wherever necessary to pass on personal and medical data to other parties directly involved (operation partners, physicians, insurance companies, etc.), both in Switzerland and abroad.

Rega's Operation Centre (emergency number from within Switzerland 1414, from abroad +41 333 333 333) is available around the clock to anyone in distress and in need of assistance due to a serious accident or acute illness.

Rega Centre Postfach 1414 8058 Zürich-Flughafen

Tel. 044 654 33 11

Rega 1, Dübendorf Überlandstrasse 299

8600 Dübendorf Tel. 044 802 20 20

Rega 2, Basel

Postfach 4030 Basel-Flughafen Tel. 061 325 29 66

Rega 3, Bern

Flugplatzstrasse 1 3123 Belp Tel. 031 819 65 11

Rega 4, Lausanne

Route de Romanel 33 1018 Lausanne Tel. 021 644 22 66

Rega 5, Untervaz

Postfach 7204 Untervaz Tel. 081 300 09 99

Rega 6, Locarno

Via Aeroporto 15 6596 Gordola Tel. 091 820 50 00

Rega 7, St. Gallen

Postfach 320 9015 St. Gallen Tel. 071 313 99 33

Rega 8, Erstfeld

Reussstrasse 40 6472 Erstfeld Tel. 041 882 03 33

Rega 9, Samedan

Plazza Aviatica 6 7503 Samedan Tel. 081 851 04 04

Rega 10, Wilderswil

Bönigstrasse 17 3812 Wilderswil Tel. 033 828 90 30

Rega 12, Mollis

Flugplatz 8753 Mollis Tel. 055 614 55 55

Rega 14, Zweisimmen

Postfach 210 3770 Zweisimmen Tel. 033 729 10 30

Partner helicopter base

Rega 15, Genève

Hôpitaux Universitaires de Genève Base hélicoptère 1217 Meyrin Tel. 022 798 00 00

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