

The ANGELS Journey

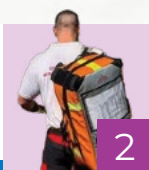


WSC 2023



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from around the world

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If not us, then who?



Welcome

In this, our first World Stroke Congress edition of the Angels Journey, we pay tribute to people who stand up and do something in the face of adversity.

“

They're not interested in a flame, they want a fire, and they're prepared to light it themselves.

”

Millions of lives are lost every year because stroke care is broken. Broken for reasons so numerous and so complex that at most hospitals it leads to decision paralysis and reverting to familiar routine. Devastatingly for stroke patients, the old routine too often denies them the standard of care they deserve.

Amid all this despair it is easy to point fingers elsewhere – blaming the failures of government, paramedics, even the patients themselves. But for me it brings to mind the lyrics of one of my favourite songs, “Do Something” by Matthew West, which was inspired by a college student who during a semester abroad happened upon an orphanage where children were abused and neglected. Letting her parents know that she wasn’t coming home, she devoted herself to creating a safe haven where over 100 children now learn and thrive.

I woke up this morning

*Saw a world full of trouble now,
thought*

How'd we ever get so far down, and

How's it ever gonna turn around

...

So, I shook my fist at Heaven

*Said, “God, why don't You do
something?”*

He said, “I did, I created you”

If not us, then who

If not me and you

*Right now, it's time for us to do
something,*

If not now, then when

Will we see an end

To all this pain...

This song contains an amazing message, one that inspires me every day to do whatever it takes to give life a chance.

I am however very optimistic about the future of stroke care. The reason for my optimism is knowing that the people whose stories are told in this edition have all stood up and decided to do something. They're not interested in a flame, they want a fire, and they're prepared to light it themselves.

Among them you will meet Dr Miguel Vences from Peru who epitomises the idea of being the change you want to see; Dr Adolfo Savia, an emergency doctor from Argentina who believes that when people get hurt, he must be there; Dr Ignacio Girolimini for whom treating stroke became an obligation from the moment his hospital received a CT scanner; and Dr Claudio Jiménez from Colombia whose empathetic mentorship reached across borders to help Ignacio reach his goal.

The Angels Initiative

The Angels Initiative is a healthcare intervention dedicated to improving stroke patients' chances of survival and a disability-free life. Since 2016, an estimated 10.8 million patients have been treated in over 7,300 Angels hospitals worldwide, including more than 1,400 new stroke-ready hospitals established across the world with the help of Angels.

Find out more by visiting angels-initiative.com

*Please note the Angels Initiative is not available in Canada and access to programme resources may be limited.

These stroke heroes are to be found in all corners of the world including in Saudi Arabia where Dr Shahid Ahmed moved mountains to build a stroke pathway in Al Qurayyat; in Pakistan where Dr Qasim Bashir wages a one-man campaign to change stroke care in Lahore; in Algeria where Prof Dounia Zede Badsı is an unstoppable force against the impossible; and in South Africa where Dr De Vries Basson didn't grasp the depth of his commitment to his at-risk community until a WSO Angels gold award brought him to tears.

We are proud to bring you stories from Malaysia, Vietnam, India and the Philippines, from Hungary, Spain and Brazil. And in case we have led you to believe that stroke heroes are only found in hospitals and ambulances, we urge you to read about Dr Hany Gemeah, a senior government official from Egypt's Beheira governorate whose profound commitment to stroke care transformation has its roots in personal tragedy.

On every page of this edition you will meet people who heeded the call to do something. We have no doubt that they will move and inspire you in the way they do us.



Jan van der Merwe
Co-Founder & Project Lead
– The Angels Initiative

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Standing in the Gap

Where there's a gap between what is and what ought to be, some people look for a leader. Some look away, and a small but significant number stand in the gap, actively and resolutely driving change. To demonstrate what this means, we introduce Dr Miguel Vences.

The first time Dr Miguel Vences treated a stroke patient with thrombolysis was in the second month of the second year of his residency at Lima's Edgardo Rebagliati Martins Hospital.

His patient had arrived four hours after symptom onset, and an NIHSS score of 25 indicated a severe stroke. The patient's eligibility for thrombolysis was determined within 30 minutes. At 4.5 hours they would be testing the outer limit of the standard of care for most ischaemic stroke patients, and there was something else – the patient was 93 years old.

For landing in this quandary Dr Vences only had himself to blame.

Very soon after commencing on his neurology residency at Rebagliati Hospital, he'd started to "knock on doors" looking for support for the treatment for acute stroke. A door had opened, and now the 25-year-old was learning the meaning of the phrase, "be careful what you wish for".

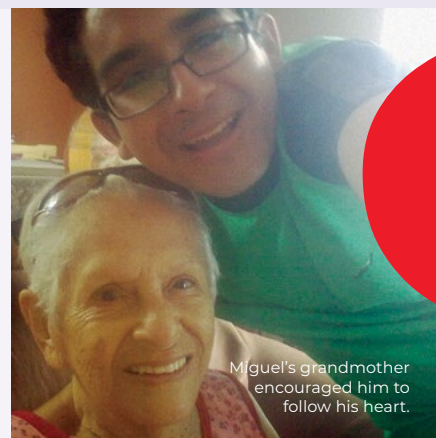
He'd made the decision to study medicine because of challenges in the Peruvian healthcare system. He'd made the decision to become a neurologist because there were changes to be made in stroke care and no-one else was making them. But as he weighed the decision whether to treat his elderly patient, he was "really scared," he tells us from Madrid on Tuesday 4 July 2023.

It's early evening in Spain and he has just completed his first day as a fellow of neurointerventionism at Madrid's rather famous Jiménez Díaz Foundation Hospital. Why embark on this new specialization barely a year after becoming a certified neurologist?

The answer tells you a lot about the world according to Dr Miguel Vences: Peru has only five certified interventional neuroradiologists to serve its 33 million population. When Dr Vences returns to Lima two years from now, there will be six.

We need not wait to see what others do

"Be the change you want to see in the world," is a phrase often misattributed



Miguel's grandmother encouraged him to follow his heart.

to Mahatma Gandhi. In fact he said that if we could change ourselves the world would also change. Diction aside, it adds up to the same thing – the imperative to stand in the gap between what is and what ought to be, summed up in words that Gandhi did say: "We need not wait to see what others do."

Dr Vences's drive for change found another gear in April 2022 when he attended a stroke meeting in Colombia along with delegates from other Latin American countries. He was still a resident, two months away from earning his spurs. The meeting stirred up some big emotions, he says. Hearing what was being accomplished in countries not that dissimilar to his own made him angry, at first, and then determined.



He also met and was captivated by Prof Sheila Martins, architect of stroke care transformation in Brazil, who in another six months would become president of the World Stroke Organization. He returned to Lima intent on replicating the Brazilian example in Peru.

“

I knew certification would procure a **better journey for the patient.**

”

His first goal was to obtain WSO certification for Rebagliati Hospital, a complex and sometimes arduous process that would occupy him for the next several months. He recalls “crazy weeks” of training, retraining and reviewing processes and pathways in order to meet stringent standards across the entire chain of care. But however attractive the distinction bestowed by WSO certification, this was not about having something to hang on the wall, Dr Vences says.

The implementation of evidence-based strategies at Rebagliati Hospital produced the intended results. Decision-making improved thanks to greater clarity about the criteria for inclusion; mortality went down, treatment rates went up.

“It wasn’t about recognition, but so all patients could have another chance,” Dr Vences says. “I knew certification would procure a better journey for the patient. All the points for which compliance was required were going to improve that journey.”

Another hard decision

Miguel already knew he would be going to Madrid when in December 2022 he joined San Borja Clinic, a private hospital in Lima that wanted to start treating stroke. Another intense period of training ensued, aided by Angels support and resources and the enthusiasm of the hospital’s head of critical care, Dr. José Portugal. Late in May when a stroke patient was admitted, they were ready.

As with Dr Vences’ first case at Rebagliati, the first patient at San Borja presented a quandary, but for contrasting reasons. This patient was a young female teacher, 35 years old, with aphasia and an NIHSS score

of 3 indicating a mild stroke, but in this patient’s case it was a disabling condition. While not an absolute contraindication, an NIHSS score of less than 5 is often used as a relative exclusion criteria for thrombolysis.

“It was a hard decision,” Dr Vences admits. “You start doubting yourself.” In the end, the probability that without treatment the patient would have trouble speaking, made up his mind. And as with his 93-year-old patient, a difficult decision led to a successful outcome.

One month later, Miguel Vences arrived in Madrid, a beneficiary of the SILAN-HUFJD Scholarship offered at Jiménez Díaz Foundation to medical specialists who want to continue their training in Interventional Neuroradiology. These neurologists and radiologists and neurosurgeons are there for many reasons; only one is there to become his country’s sixth neurointerventionist.

It’s his first time in Madrid, Dr Vences says. His first time in Spain. It’s his first time in Europe, come to think of it. He misses Peruvian cooking and his family, of course.

“

He knows it isn’t only the **patient’s life** that is changed by stroke.

”

A young voice of experience

From over 9,000 km and an ocean away, in a different time zone, Dr Vences continues to drive change in Peru. For Angels consultant Sol Plamenatz he is, even at 30, the “voice of experience” when it comes to advising other hospitals on the route to certification. With a master’s degree in clinical epidemiology and internships in stroke and neurosonology, he has published many articles in scientific journals, is a university teacher and an active member of the Peruvian Society of Neurology, the Peruvian Stroke Group and of ALATAC, a group of young physicians who make up the Young Stroke Latin American Task Force.

You don’t just need doctors to bring about change, he explains. “You

need societies and alliances to create change at a different level, to engage the ministry of health about national guidelines and tele-stroke networks, to motivate doctors to become neurologists and take an interest in stroke.”

There is finally also a personal reason why Miguel Vences decided to stand in the gap and be the change he wanted to see.

Three times stroke has delivered a blow to his family; he knows it isn’t only the patient’s life that is changed by stroke. Growing up with his grandmother and a paternal aunt, he was encouraged to follow his heart and to change what he didn’t like.

Among the things he didn’t like was stroke and the failure to treat it. And he did not wait to see what others did.



Dr Miguel Vences with Prof Sheila Martins



Finest hour

Karl Bremer Hospital turns to gold



Dr Basson and Karl Bremer Hospital medical director Dr Randall Ortel.

In South Africa's Western Cape province, a district hospital is first across the line in the WSO Angels Awards, bringing evidence-based stroke care to a community at risk.

WHEN the email arrived at 13h54 on Wednesday 3 May, Dr De Vries Basson was about to leave his office to attend a meeting. He didn't have to open it because the entire gist was contained in the subject line: Congratulations to Karl Bremer hospital – WSO ANGELS GOLD AWARD Q1.

Dr Basson is the Head of Internal Medicine at Karl Bremer, a district hospital about 23 km northeast of Cape Town. It's a state-funded hospital whose diverse patient population ranges from people who have dropped out of private healthcare after losing their insurance to the poorest of the poor. Its bed occupancy rate exceeds 120 percent on most days of the week, and until the hospital went off-grid at the start of 2023, South Africa's unstable electricity infrastructure added to its challenges as surgeries were canceled and the CT scanner out of bounds during several hours of planned power outages per day.

Stroke in South Africa claims on average 110 lives per day and leaves 90 survivors disabled. In the Western Cape where Dr Basson's hospital is located, 35 to 40 percent of these patients are younger than 40. What lies behind this staggering number is a perfect storm of obesity, inactivity, uncontrolled hypertension and diabetes, substance abuse, especially cocaine and amphetamines, and HIV.

The community has limited knowledge of stroke symptoms, often adopting a wait-and-see approach with disastrous consequences: the average onset-to-door time is 1,044 minutes, or more than 17 hours.

Once inside the door, however, they are welcomed into the safe hands of a cohesive stroke team including physiotherapist, occupational therapist, speech therapist, and social worker, who will fight for the best possible outcome every step of the way. This team will meet at noon every Tuesday to discuss every patient's progress and transition of care. Despite their dedication and creativity, a chronic shortage of rehabilitation and stepdown facilities makes it inevitable that some patients, especially those returning to informal settlements, will struggle to access adequate support in their communities. These patients will be back in a matter of weeks, sicker than before.

It's a tough job but someone's got to do it, Lou Rawls sang in 1981. Dr Basson has been in his current position since 2005, but when the email arrived on Wednesday 3 May it was the only time he cried.

GROWING up in a small town surrounded by wheat farms, Annelie Bruwer could never have predicted that a love for people and language would

lead to her becoming part of an award-winning stroke team at one of the oldest hospitals in the Western Cape.

A graduate of the University of Stellenbosch, she worked in the provincial health department in the drought-stricken Northern Cape province before joining the Child Speech and Hearing Project that introduced speech therapy to primary healthcare in 2014.

“

He'd had no idea **how important** speech therapists were **for stroke patient outcomes**.

”

When she was seconded to the Karl Bremer Hospital in 2018, there had not been a speech therapist at this hospital in two decades. Within a year of her becoming part of the team, aspiration in stroke patients had dropped by 158 percent.

A common complication during stroke recovery, aspiration occurs when food or fluid is breathed into the lungs



Dr De Vries Basson with his award-winning team and (opposite) with Angels' Renathe van der Merwe and Bernise Schubert, and with operational manager Mrs CC Phlander.



as a result of swallowing difficulties (dysphagia) caused by stroke.

Dysphagia affects up to 78 percent of all patients with stroke. Aspiration pneumonia occurs in 10 percent of stroke patients with dysphagia and is associated with a significant number of deaths and higher rates of dependency.

Keeping the patient safe while they're in hospital is her first goal, Annelie says. Speech and language interventions will follow, but the first step is a dysphagia assessment in the first 24 hours that may be followed by interventions to prevent aspiration, such as positioning, modified diet, and exercises to improve swallowing efficiency. The patient's feed delivery needs will ultimately shape their discharge plan, and the arc of recovery curves towards discharge almost from the moment of admission.

He'd had no idea how central the role of speech therapists was for stroke patient outcomes, says Dr Basson who has gone from sceptic to convert to advocate. Training for doctors doesn't expose them to the scope of speech-language pathology or how impactful it can be on, among other things, time in hospital, which preventing aspiration has reduced by over 50 percent.

Working with stroke patients can lift your heart or break it, Annelie says. It's creative and intense, and it can be inspiring to see the progress made by patients and their families. But it can be equally hard to let go when a patient returns to a life of unimaginable challenges that they and their families have yet to grasp.

The grace with which some families venture into this unfamiliar world is something she witnessed early in her career when a devastating stroke left a devoted school principal suffering from expressive aphasia – the ability to understand speech but not use it. Unable to return to the school to which she had dedicated her life, she continued to find other ways to contribute to her small-town community.

SOME patients you can't get out of your mind. The cocaine and amphetamine-addicted 31-year-old whose family got him to the hospital in time and who walked out of the hospital seven days later to become a drug-free stroke activist. Or the single mother with an NIHSS score of 18 who, having had to be transported to a private hospital for a CT scan, went home to her two young children one week after treatment with thrombolysis.

"When you see how one patient recovers after treatment, you want the next patient to receive it too," Dr Basson says.

Karl Bremer has only had a CT scanner since 2015 and patients arriving outside business hours still have to undergo scans at a tertiary hospital 5 kms away – a resource issue for which telemedicine may eventually offer a solution.

A student of stroke in his capacity as principal investigator at a private clinical trial centre that was located at the hospital until the end of 2022, Dr Basson initiated stroke training with the support of Angels in 2017. The first patient was treated with thrombolysis in 2018.

“

The goal: a generation less burdened by stroke.

”

Here, like elsewhere, the pandemic lead to a drop in patients presenting with stroke. Interviewed by local media during the third and most debilitating wave of Covid-19 infections in South Africa, Dr Basson revealed what sustained him through seemingly endless hours in intensive care: "There's a quote by [American football coach] Vince Lombardi that keeps me strong: 'I firmly believe that any man's finest hour, the greatest fulfillment of all that he holds dear, is that moment when he has worked his heart out in a good cause and lies exhausted on the field of battle – victorious.'"

Once the pandemic subsided, a surge in strokes testified to the neglect of chronic disease management during lockdown. Blood glucose levels were up, hypertension was poorly controlled. These and other modifiable or preventable risk factors for stroke are what drives a one-man campaign to educate the community about stroke. A regular guest on local radio stations, Dr Basson never declines an opportunity to talk to communities about stroke prevention, stroke symptoms and the importance of getting the patient to the hospital as quickly as possible.

He is also driven by concern about the burden of stroke and disability on an ailing economy, and, especially in the Western Cape, the disproportionate impact on young adults slated to become future leaders.

He is optimistic that the FAST Heroes campaign (a stroke awareness project

that channels stroke education via primary school children) will not only mobilise young people to teach their parents and grandparents about chronic lifestyle diseases but encourage them to adopt healthier lifestyles themselves.

The goal: a generation less burdened by stroke. The dividend: fewer families and lives disrupted by a largely preventable catastrophe.

KARL BREMER is among a small but growing number of hospitals in South Africa that are capturing data in the international stroke care quality improvement registry RES-Q and seeing the rewards. To date, twelve South African hospitals have qualified for WSO Angels Awards. Karl Bremer is only the second public hospital (after Steve Biko Academic Hospital in Gauteng province) to achieve this distinction, and the only hospital in the Western Cape.

Dr Basson is a firm believer in data-driven change. He says, "RES-Q captures all the important indicators; the quarterly reports show in which direction you're moving and give you realistic targets. It gives you all the gold you can use to improve stroke care, motivate for better resources, and advocate for patients. And it's user-friendly so it doesn't take a PhD to capture data, report, and use it to benefit your patients."

What it does take is time, one of the most common reasons cited by hospitals that don't take part in quality monitoring. It's his team's enthusiasm and dedication that motivate him to put his spare hours into data capture, Dr Basson says.

The positive energy flows in both directions, says Annelie Bruwer who credits Dr Basson with the unity, drive and shared focus that characterise her working environment. "He is one of the humblest specialists many of us have encountered, a thoughtful, gentle leader who allows everyone to be heard."

His servant leadership influences hospital culture at Karl Bremer and checks the incipient arrogance of young doctors fresh out of medical school for whom the coexistence of humility and award-winning performance may be instructive. It may even convert them to Vincent Lombardi's belief that man's finest hour arrives when he has worked his heart out in a good cause.



Dr Basson and Karl Bremer Hospital CEO Mr Jonathan Lucas.



Good things in dark moments

Dr Adolfo Savia has the simplest reason for being an emergency physician: when people get hurt, he must be there – not only to prevent death and disaster, but to bring calm and kindness to people in their darkest hour.

THE first time he came back from Ukraine, he found it hard to get used to the silence. It was a relief, of course, being away from the sounds of war, but every time an ambulance siren pierced the air above Buenos Aires, Dr Adolfo Savia jumped out of his skin.

He had wanted to go to Ukraine from the moment the war began, and in September 2022 a Harvard Humanitarian Initiative finally made that possible. The constant bombing, including of hospitals and clinics, and profound empathy for those living on the frontline, made working in a war zone “a complicated experience” but it was one based on a simple premise. Dr Savia says: “I am an emergency doctor – when people get hurt, I must be there.”

This same premise guides his actions every day – as head of emergency, first at Sanatorio Anchorena Recoleta, for the past 18 months at San Juan de Dios, and now also at the Central Hospital of Pilar, inaugurated in May; as the former medical director for the private emergency medical service ACUDIR, as president of the Emergency Council of the Argentine Society of Medicine, as a teacher of emergency medicine at private and public universities, and as a doctor on a mission to Ukraine.

“I think about emergency medicine hundred percent of the time,” Adolfo Savia says. “I am an ER physician, it’s what I do, what defines me. My specialty is to treat patients with a time-dependent emergency. I am trained to be there in their worst

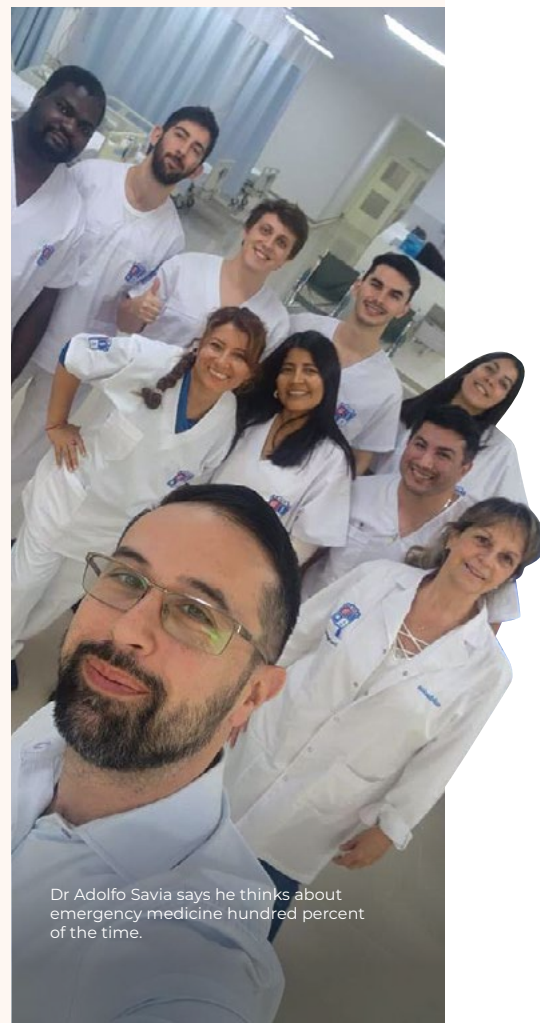
moment and make an important difference.”

Preventing disaster or death from time-dependent emergencies depends on doing the right thing in a narrowing window of opportunity. Treating acute ischaemic stroke is no different, except that a successful intervention may reward you with the rare sight of a patient recovering before your eyes.

“It is the most spectacular sensation,” Dr Savia says. “The impact is enormous, for the patient and for the healthcare system. The patient gets better and it’s all worth it, but to make the patient better you must also make the system better – or it would be no more than an accident. The work must be multiplied, so that the system changes the reality for all patients.”

This shared commitment to changing the quality of treatment for every stroke patient is the basis for a natural alliance between Dr Savia and the Angels Initiative – a partnership that to date spans five years and three hospitals.

“Angels has made a difference in my life,” he says. “It has given me the opportunity to make a difference in other lives.”



Dr Adolfo Savia says he thinks about emergency medicine hundred percent of the time.

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If the teams are close for stroke, then they are close for all trauma.

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FROM time to time, Dr Savia still shows students and new colleagues the video of the first stroke simulation workshop conducted at Sanatorio Anchorena Recoleta in 2018. In this simulation the dummy patient was “treated” at CT, so when the first real patient arrived, they were treated at CT too – a key priority action that most stroke-treating hospitals around the world have yet to adopt. The hospital’s first WSO Angels gold award came in early 2019 and although it was soon surpassed by five diamond awards, Dr Savia displayed the gold on his office wall for four years.

“It was the most important one,” he says. “It was a reminder of what we had achieved, it recognised the efforts of everyone who made it possible, and it stood for all the people we were able to help.”

When he joined San Juan de Dios Hospital at the start of 2022, Dr Savia brought his experience and the stroke protocol that had been developed in Recoleta with him, so change happened much faster. And at the new hospital in Pilar where he had the opportunity to design the emergency unit from scratch, he optimised it for stroke, including locating the CT scanner just metres away from the emergency entrance.

In each instance he found that pathway changes introduced for the benefit of stroke patients – such as prenotification and delivering the patient directly to CT – had advantages in all emergencies, because they entailed shrinking the gap between hospital and prehospital teams.

“It’s a very powerful way to tear down the barriers,” Dr Savia says. “If the teams are close for stroke, then they are close for all trauma.”

As medical director at ACUDIR he oversaw the development of an app that reinforced the most important actions in the prehospital phase – “no more, no less, only what is necessary”. Working in this capacity gave him unique insight into the prehospital perspective, but rather than describe two disparate vantage points he emphasises the continuity of care.

“It’s the same patient,” he says. “It’s a chain. From the minute someone dials 107, the stroke protocol begins. Recanalisation ‘starts’ in the ambulance when you recognise the symptoms and act with speed to get the patient to a hospital where they can receive treatment.

“It’s the same patient, only in different moments and situations, and if the chain breaks you won’t have a good outcome.”

This chain of survival (more commonly used to describe interventions after cardiac arrest) is a key concept in the Angels playbook for changing outcomes for stroke patients. So is the duty to leave one’s legacy, another phrase Dr Savia has made his own. “I believe in every sentence of Angels,” he declares. “I ‘buy’ all of them, they are my motto for what I do.”

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“I ‘buy’ all of them, they are my motto for what I do.”

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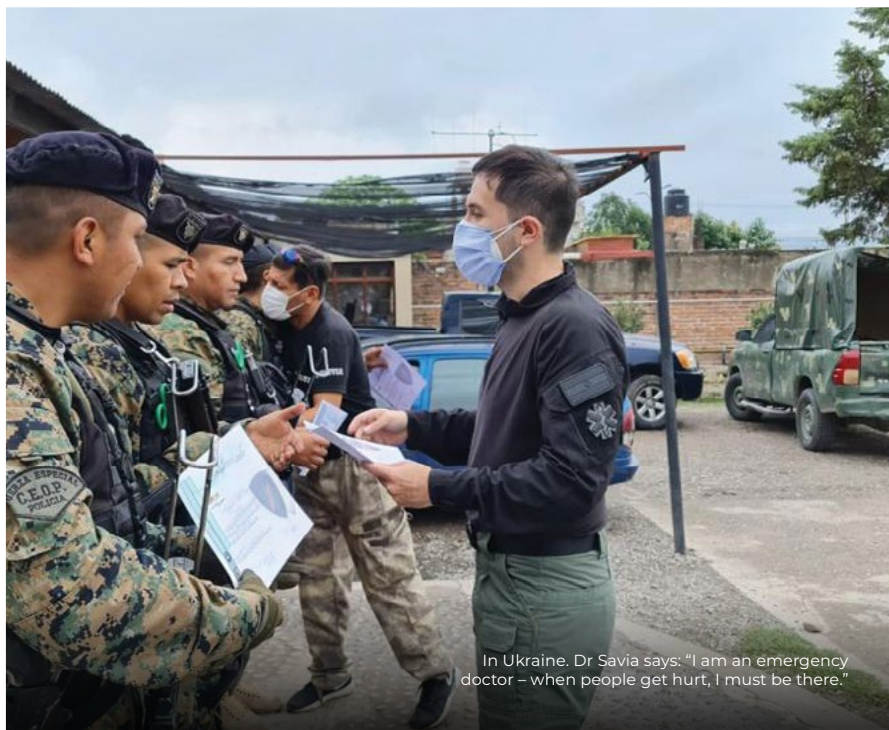
DR SAVIA’s explanation of what he does is equal parts clarity and compassion.

He says, “I studied medicine to become an emergency physician. I wanted to be in the exact spot where ‘things happen’, help people, solve problems and move on to next patient requiring help.

“I tell my students, this is the most asymmetrical doctor-patient relationship because in an emergency the patient didn’t choose us. They didn’t ask, where is Adolfo working? They don’t choose me but because I choose to do this work every day, I have to fulfil and exceed the patient’s expectations. I have to do better.

“In emergency medicine you have a very brief window of opportunity to prevent death, to diminish complications, but also to bring calm and kindness to patients and relatives or even bystanders who find themselves in the very worst moment, and are victims sometimes of terrible things.”

Dr Savia’s point of view is that of an emergency physician who has witnessed trauma both in a war zone and on the emergency ward. But let’s imagine a world in which everyone thought the same way about human suffering – as an “amazing opportunity to do good things in dark moments”.



In Ukraine, Dr Savia says: “I am an emergency doctor – when people get hurt, I must be there.”



Know the way, show the way

Leadership drives change in Beheira

A deep commitment, an ambitious plan, reaching out to Angels, and leading success – these are the drivers of stroke care transformation that is saving lives in Egypt's Beheira governorate.

ANGELS wear many disguises. But if an angel really wanted to keep out of sight, they might consider unclipping their wings and installing themselves behind one of those regular brown desks that instantly proclaim, "government office", perhaps with a small official flag near their right elbow for extra camouflage.

It is behind such a desk that we find Dr Hany Gemeah, who in March 2022 became Undersecretary of the Ministry of Health in Beheira governorate, one of Egypt's coastal governorates overlooking the Mediterranean Sea.

A popular destination for travelers interested in history, archaeology and lakeside scenery, Beheira is home to over six million people, most of whom live in the rural areas east of the Cairo-Alexandria desert road connecting Egypt's two largest cities.

While stroke services in Egypt have improved significantly since government support for acute

stroke management was obtained in 2016, and over 20 hospitals have subsequently won WSO Angels Awards, none of these were in Beheira governorate. In fact, the nearest stroke centres were in neighbouring governorates, and the time it took to reach hospitals in Alexandria or Tanta meant that many stroke patients from Beheira arrived too late for treatment.

But in March 2022, that began to change.

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Dr Hany has a **fight on his hands**, and it is **one that he started**.

”

DR HANY is not behind his desk, nor in his office – the natural habitat of government officials pretty much anywhere in the world. This is because Dr Hany has a fight on his hands, and it's one that he started. Even before arriving in his new position, he'd made up his mind that the people of Beheira should have access to stroke treatment within their own governorate.

He identified the cities where his campaign would start, and looked for an ally that could help him realise his vision.

To say that Mohamed El Rayes, Angels consultant in Egypt, was surprised to receive a call from the Undersecretary is an understatement.



The first Angels workshop at Kafr El Dawar General Hospital.

Dr Hany Gemeah transformed stroke management in Beheira governorate in less than a year of becoming Undersecretary of the Ministry of Health



Communication more typically flows in the opposite direction, sometimes with disappointing results.

The next surprise was learning that Dr Hany's vision included not one but four hospitals to become stroke-ready centres simultaneously.

"Usually," says Mohamed, "we will start with one key hospital and once it's successful, roll out the programme to surrounding hospitals. But Beheira is a large governorate and Dr Hany wanted people across the region to all have access to at least one hospital that provided thrombolysis for acute stroke, as soon as possible.

“

Dr Hany's zeal has its roots in **personal tragedy**.

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"It turned out to be the right decision."

IN MAY 2022, Kafr El Dawar General Hospital became the first stroke-treating hospital in Beheira governorate. It was the first success in a rigorous programme that included two major stroke workshops offering hands-on training to neurologists, emergency, intensive care and internal medicine physicians, and nurses. Professors from Alexandria, Tanta and Mansoura came to Beheira to share their experience and best practices, some at the invitation of Dr Hany himself.

Like a row of dominoes, the other

hospitals fell in place. Rashid General Hospital started treating stroke at the end of August, Itay al-Barud General Hospital in late September. In October, Damanhour Chest Hospital in the capital came on stream, so by the end of 2022 there were stroke-ready centers along the length of the Tanta-Alexandria agricultural road that cuts across the territory from north to southeast, as well as in the northeast where the Nile meets the sea.

At the start of 2023 all four hospitals started registering their patient data in RES-Q, and in May it was confirmed that Kafr El Dawar General Hospital had won Beheira governorate's first gold WSO Angels Award.

Although proud of his hospitals and grateful to the stroke teams who are giving substance to his vision and saving lives, Dr Hany isn't terribly interested in awards. What he does care about is how data pinpoints what his hospitals need in order to get even better.

A stroke network is the goal, so that stroke patients can benefit from a connected system of care, and a June workshop attended by over 100 physicians from hospitals throughout Beheira would be a significant step in that direction.

IF DR HANY is not behind his desk or in his office it's because he is out talking to the public about stroke, explaining in the simple language of the local dialect about the symptoms of stroke, the need to act fast, and the four stroke-ready hospitals where life is given a second chance.

Television appearances, posters and social media are also part of the public awareness drive, but Dr Hany understands the value of community platforms especially for reaching rural areas. Local radio shows, community newspapers and public health educators in small primary healthcare units carry the message into villages and homes; priests share the news during Sunday services and imams spread the word after Friday prayers.

The zeal with which Dr Hany pursues his stroke care goals for Beheira has its roots in personal tragedy.

When his own mother suffered a stroke in 2010, thrombolysis had been the standard therapy for ischaemic stroke for over a decade, but in Egypt less than one in 100 patients was receiving this life-saving treatment. With no acute treatment available at the hospital where his mother was

admitted, Dr Hany felt helpless, but when his mother passed away after 10 devastating months, his grief turned into passion.

Over the next decade, his ideas for developing stroke services in underserved communities would encounter several stumbling blocks including the disruption of healthcare as a result of the pandemic, but he never lost sight of the goal to make treatment available to every stroke patient, no matter how poor or how far. And when his influential position in Beheira finally brought that goal within reach, he set an agenda that stretched every resource, and engineered success that defied every expectation.

In the next round of WSO Angels Awards, Beheira fared even better, with every one of Dr Hany's hospitals reaching award status. And although he doesn't really care about awards, their achievement brought honour to a leader who (in the words of John C Maxwell), "knows the way, goes the way, and shows the way".



Dr Hany at the workshop at Kafr El Dawar General Hospital, now the winner of a WSO Angels gold award



The first Angels workshop at Kafr El Dawar General Hospital

So the world keeps saying I love you

Transforming stroke management at his public hospital in northern Bogotá, Colombia, has moulded this neurologist's vision of quality healthcare for all in a caring society. In a new interview, Dr Claudio Jiménez explains what love's got to do with it.

DR Claudio Jiménez is a neurologist and neurophysiologist at Bogotá's Simón Bolívar Hospital and director of the stroke centre for the city's northern subnetwork.



Dr Claudio Jiménez

Just over four years have passed since he first stepped inside the public hospital that lies sandwiched between a busy main road and one of Bogotá's largest favelas. Completed in 1982 and named in honour of the liberation hero whose statue dominates Bogotá's central square, Simón Bolívar Hospital has over several years undergone a process of renovation and expansion while in its neurology department a quiet revolution was underway.

The leader of this revolution was drawn to his profession by passion and by the "philosophical intrigue and physical mystery hidden inside the mind" – so Dr Jiménez wrote in a post on the Instagram page @neuro_filos where he shares developments in neurology with his nearly 50,000 followers.

"When we save brain tissue, we save social fabric," the same page announced, offering a glimpse of something else that drives Dr Jiménez, namely the duty to build a

resource that belongs to and serves the interests of everyone.

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There were several small problems but one serious and urgent one.

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Moved by these twin passions, he joined Simón Bolívar Hospital in August 2019 and embarked on a series of interventions that began with building a team to manage stroke. "From that moment on my life changed radically," he told the Colombian Medical Association in an interview in 2021 by which time the hospital's stroke care programme had already earned the second of its three WSO Angels Diamond Awards.

What had begun as curiosity about how the brain creates our perception of reality, and a desire to alleviate suffering, had evolved into a vision of public healthcare reform in a caring society. It's Dr Jiménez's dream that everyone who makes Bogotá their home should, if they went to hospital, be cared for with quality and humanity.

Big problems and a hopeful future

"When I started working at the Simón Bolívar Hospital," Dr Jiménez says, "I discovered that there were several small problems, but one serious and urgent one, which was creating a stroke protocol and standardising care. This led us to create the first stroke network in the country and the first stroke centre in the Colombian public network that was certified by the WSO."

"We now attend 450 to 500 patients with ischaemic stroke per year, and treat more than 110 with thrombolysis,

but there is still a profound deficit in access to thrombectomy. We are working with our health secretary to create a district stroke network that seeks to eliminate access barriers to mechanical thrombectomy.

"It must be considered that in Bogotá's public network alone, there are more than 2,000 stroke cases per year and currently ours is the only public facility that can offer this procedure.

"But although the current outlook is still dark, I see a very hopeful future. The most important advance is that the population is increasingly aware of the symptoms of a stroke, they are learning to consult emergency units on time.

"Now we want to treat the stroke before the stroke. That is, we are working on a programme that allows us to identify and evaluate patients with risk factors and treat them to prevent stroke."

At Simón Bolívar the stroke programme now resides within a comprehensive neurology programme that includes a neurorehabilitation centre, and a neuroimmunology group lead by Johns Hopkins-trained Dr. María Isabel Reyes that attends to patients with neuroinfections including HIV. There are also clinics for headache and botulinum toxin to treat spasticity

and motor disorders and, in the offing, an emergency neurology service that will treat acute neurological conditions besides stroke.

Dr Jiménez says, "We increasingly understand that neurological diseases are a public health problem. There is still a lack of resources, financing and access to certain fundamental diagnostic aids, but I must say that we are improving."

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Stroke is like a predator that stalks us all, at any age, and as if it were an ambush it snatches our humanity, or something essential to it.

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Poetic justice

A campaigner for social justice in healthcare, Dr Jiménez's imaginative style of expression also marks him as something of a poet-philosopher.

He says, "I have learned to use medicine and my medical practice as a tool for reflection on life itself, on what should matter and what should not, on the search for the meaning if there is one, of being here in this place on this huge green and blue rock, experiencing something like consciousness.



"The earth is full of life, from plants to innumerable forms of animal life, and although there is a cognitive and emotional experience in everyone, we humans are the only ones who question ourselves, identify ourselves and also transform the environment so as to avoid adapting ourselves to it.

"So you see all this suffering, you see someone who loses their language. Minutes ago you could say 'I love you', minutes ago you could write a line turning ethereal thoughts into letters. Moments ago you had the freedom to hug, run, make an expression of joy or sadness, then suddenly it is lost. Suddenly you cannot hug, you cannot say 'I love you'.

"Stroke is like a predator that stalks us all, at any age, and as if it were an ambush it snatches our humanity, or something essential to it.

"I see hundreds of people per year suffer from the bite of that animal, and I must see what is left, and then we make every effort to take care of them, to repair the damage, as if we were treating a bite from an invisible animal.

"Well, the story is summed up in that I decided I would invest my lifetime in treating stroke, so that no-one stops saying 'I love you'. I summarize it in one sentence, 'When we save brain tissue, we save social fabric'. But we could also say, 'When we save brain tissue, the world keeps saying I love you'."



Dr Jiménez (centre) with Prof Carlos Molina and Prof Sheila Martins.



The win-win strategy of Dr Gabriela Orzuza

A hospital in Salta, Argentina, delivers a master class in how an Angels Award can become a lever to make better care available to stroke patients.

A gold award gets you appointed to the job you've been doing for a decade. When you reach platinum status, you get a stroke unit. WSO certification opens the door to thrombectomy. Win a research award? Now you can purchase the equipment you need to continue that research.

This is the recent history of stroke care at San Bernardo Hospital in the Argentine province of Salta where Dr Gabriela Orzuza's patience and determination are finally being rewarded with what she has desired all along – the opportunity to provide the best possible care for stroke patients.

The real story takes a little longer to tell. It circles back to the same city in northwest Argentina where three-year-old Gabriela gets to know Dr Federico Núñez Burgos, a cardiologist who keeps a kissing bug in a jar in his consultancy. Triatomine bugs, to give them their proper name, are vector insects responsible for the transmission of Chagas disease, a tropical parasitic disease that causes heart disease in almost half of those infected. The cardiologist, who is Gabi's stepfather, is also a student of Chagas, about which we will say more in a while.

With parents willing to make sacrifices for education, Gabi attends Salta's best schools before being admitted at famous Favaloro University in Buenos Aires. The tuition is expensive. Driven by a sense of urgency, Gabi is a medical doctor by the age of 23.

Determined to become a neurologist, she has her heart set on the Fleni Institute, a neuroscience research facility of international prestige. But fate takes a

detour to the corner of Belgrano Avenue and La Rioja where the first stone for the Spanish Hospital had been solemnly laid in 1872.

The road back to Salta

There is no stroke programme at the Spanish Hospital when Gabi arrives, but there is also no shortage of support for a trailblazing second-year vascular neurology resident able and willing to tackle the barriers to stroke protocol implementation. With a team of doctors and colleague Dr Brenda Borrego Gerrero in her corner, Spanish Hospital thrombolyses its first stroke patient two years later – but it is not yet time to return to Salta.

Gabi is accepted into a fellowship at the Italian Hospital of Buenos Aires, the clinical home of one of Argentina's most esteemed neurologists, Dr Maria Cristina Zurrú. Years of intense learning follow but Salta keeps calling, and in 2013 Dr Gabriela Orzuza returns home for the reason she went to study medicine in the first place – to care for the patients in San Bernardo Hospital as she had watched her stepfather do.

There is at this point no vacancy for a neurologist at San Bernardo. There is however also no stroke team, no stroke plan and no stroke treatment, so Dr Orzuza signs on anyway, and works



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Dr Orzuza signed on anyway and **worked for free.**

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for free. After one year she is allowed to succeed the departing instructor of neurology residents on a temporary contract for which she will have to reapply every four years.

Gabi met her husband Roque Gutiérrez in her first month back in Salta and is weeks away from giving birth to their first child when the first patient is thrombolysed at San Bernardo Hospital in 2015. The patient arrives on a Saturday. Gabi recalls there was a scramble to unlock the pharmacy where the thrombolytic was kept...



A "selfie" with her hero, Prof Sheila Martins.



Her husband is her "rock", Dr Orzuza says of Roque Gutiérrez whom she met during her first month back in Salta.

Row the boat

By 2018 Dr Orzuza knew the route to the pharmacy very well. San Bernardo falls in the category of self-managing hospitals that receive public funding but have autonomy over how the funds are used. Yet stroke remained a low priority; there was still no stroke unit, no beds exclusively for stroke patients, and she had just had to reapply to have her contract renewed.

"We have an expression in Argentina – 'like rowing in dulce de leche'," she says, referring to a popular dessert of thick caramel. Progress felt that slow, and Dr Orzuza was feeling "really alone".

Enter Alejandro Rossi, who after more than two decades with Boehringer Ingelheim was now an Angels consultant. Hearing about the Angels Initiative produced a sense of immense relief, Dr Orzuza says. "Alejandro said, 'Gabi, I have what you have been asking for.' It was the fuel I needed to continue."

Gabi and Alejandro kicked off their collaboration by enrolling 160 nurses in training. Because nurses in Argentina aren't trained to the same academic standards as those in Europe or the US, Gabi was concerned that they would struggle with the material in the Angels Academy. "I was afraid that they would be afraid," she says. To address these fears, a series of training workshops took place on Saturdays, and as skills grew, treatment times shrank.

The door-to-needle time dropped from 70 to 60 and then to 40. By the final class, stroke patients at San Bernardo were receiving thrombolysis within 20 minutes of arrival.

Dr Orzuza noted these numbers in her spreadsheets as she always had, but in 2021 when Alejandro suggested recording treatment data in RES-Q and putting her hospital in line for an Angels Award, she was hesitant. Her job was to care for patients, not win prizes, but Alejandro was persuasive, and her residents were willing to help with data entry. And when a few months later it was confirmed that San Bernardo Hospital had met the criteria for a gold award, Dr Orzuza saw an opportunity to use the award for the benefit of her patients.

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"You can do it," Prof Martins said, and she could.

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It was showtime

News of the award spread via TV, radio and local news outlets, and the minister of health Dr Juan José Esteban made a speech about the importance of stroke care. One month later, Dr Orzuza was formally appointed to the job she had been doing for close to a decade, and when in the next quarter San Bernardo won a platinum award she used the momentum to secure approval for a stroke unit.

"There was a tiny room that had been used for Covid and was now free. I put my two little beds in there, and my nurses. It was my little baby."

The baby had a growth spurt after Dr Orzuza attended an Angels Academy in Colombia and met her idol, WSO president-elect Sheila Martins. Prof Martins was leading a WSO certification campaign for stroke units in Latin America and wanted San Bernardo on board.

"I haven't got a lot of things," Dr Orzuza said. "You can do it," Prof Martins said, and she could.

Reorganisation of the hospital freed up the dedicated nursing staff needed for certification; cardiology gave her an electrocardiograph, the emergency department found they could spare a monitor, another department donated a bed.

In July 2022, Prof Martin celebrated San Bernardo's certification with a Facebook post that read: "Impressive what can be done with few resources but with great determination, resilience and love, crowned by the emotional tears of a mission accomplished! Parabéns, Gabriela Orzuza."

One month later, Gabi was invited to talk about her programme at the Global

Stroke Alliance in São Paulo.

"I don't have a programme," she told Prof Martins. "Of course you have," Prof Martins said. "You have worked hard, that is your programme." But certification has brought even greater rewards. San Bernardo Hospital now has a thrombectomy service, and Gabi is working with Alejandro to implement a telestroke network in hospitals outside Salta.

When several years ago she told a colleague of her vision for a stroke network for Salta province, so that patients from remote areas could be brought to the capital by helicopter for treatment, she was told, "Gabi, you were born in the wrong country."

"I took that as inspiration," she says. "I will do it here." For all her determination, getting smaller hospitals in the region to start treating stroke has been an uphill battle. "It's frustrating," she says. "The teams in those hospitals are very afraid to do something new, they do not want to work with thrombolytics."

As always, however, Dr Orzuza has found a way. The neurology residents under her wing inevitably share her dedication to stroke, and as they complete their specialisation and fill positions elsewhere in the province, they carry that knowledge and enthusiasm with them.

A third award

2021 was a big year for Dr Gabriela Orzuza, but two awards do not yet tell the complete story. As part of the hospital's 61st anniversary celebration, the first annual San Bernardo research award went to a study on Cognitive Impairment of Post-Stroke Chagasic Patients conducted by Dr Orzuza and four of her colleagues.

Although the topic needs further investigation, Dr Orzuza says that the question regarding poor cognitive outcomes observed in stroke patients with Chagas disease may not have a clinical answer but instead lie in a "difference of opportunity".

"Inequality," she clarifies.

Patients with Chagas are typically from extremely poor rural areas where they lack opportunities to build up a cognitive reserve through stimulating activities such as reading, learning new languages or playing an instrument.

Further investigation will require Holter monitors that can detect heart conditions a traditional ECG cannot provide enough information about. The publicity that attends the research award makes the acquisition of this equipment a certainty.

Something else you can be certain of is that, up in heaven, Salta's beloved Dr Federico Núñez Burgos is shining down with pride.



In the service of others

Dr Jeyaraj Pandian

The story of WSO President-Elect Dr Jeyaraj Pandian is also the story of Christian Medical College Ludhiana. This was where his life took a decisive turn when he discovered his passion for stroke, and from where he continues to serve others in the way the founders intended.



It is a story perhaps not uncommon in a country where stroke changes a life every 40 seconds, and 1.8 million new strokes occur every year. Here, as in other low- to middle-income countries (LMIC), a stroke can plunge a family into poverty or rob a young person of their future. What makes this story significant, however, is that the stroke victim was Dr Pandian's patient, and the implications for the woman's college student daughter struck him with great force. It was a watershed moment for the young neurologist whose work in epilepsy was already attracting worldwide notice.

Stroke care was not developed in India, and although someone died of stroke every four minutes, there was

There is a story Dr Jeyaraj Pandian likes to tell, about a woman in her forties whom a severe stroke had left partly paralysed. This woman had a 20-year-old daughter, a first-year college student with a promising future, who quit college to become her mother's caregiver.

no high-quality research. Realizing the impact of stroke and disability on families made Dr Pandian change his focus and set him on a path that would eventually see him elected President of the World Stroke Organization (WSO).

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As always the path lead to the Punjab city of Ludhiana and its Christian Medical College, which has become synonymous with his career.

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First that path would lead to Brisbane, Australia, and a stroke fellowship at the Royal Brisbane and Women's Hospital. Given the opportunity to remain in Australia, he nevertheless returned to India where he was by now determined to bring about

change in stroke care and stroke research.

And as always the path lead to the Punjab city of Ludhiana and its Christian Medical College, which has become synonymous with his career. Moving to Ludhiana from Tamil Nadu in September 1990 when he was a newly qualified doctor was like moving from one country to another, Dr Pandian says. Punjab state was a new country with a different culture and a different language. But he was drawn there by CMC Ludhiana's long history of Christian ethics and principled service dating back to its origins in 1894 as the first medical school for women in Asia.

Run by women for women until around 1953, it became a leading institution for medical education. A neurology department was added in 1988, two years before the young Dr Jeyaraj Pandian heeded its call – first as a trailblazer in epilepsy, eventually to grow the 129-year-old hospital into India's first WSO certified stroke centre.

CMC Ludhiana didn't treat acute stroke until 2001 when Dr Pandian, back from a visit to stroke centres in

the US, established its first three-bed stroke unit. Over the next three years, only five patients were treated with intravenous thrombolysis, but all that would change after Dr Pandian returned from Australia in 2007.

“Passionate, ambitious, tireless, engaging, pragmatic, generous, patient, and collaborative.” This is how a mentor and trial collaborator describes Dr Pandian in a research profile that appeared in The Lancet Neurology last February. Being profiled in the world’s leading clinical neurology journal is something he is very proud of, he says, naming it alongside the prestigious Global Stroke Services award the WSO conferred on him in 2020.

The research profile, as well as being an honour, carries a summary of more things to be proud of – such as models developed for stroke surveillance and care, and for physician-lead stroke units in rural areas, and leading the creation of a clinical trials network to grow research capacity and address India’s burden of stroke.

There is a great deal more. As President of the Indian Stroke Association from 2021, Dr Pandian pursued an ambitious programme of prevention, education and stroke-centre certification. As Vice-President of the WSO since 2018 his projects included working with the WHO to implement a stroke care improvement programme in Bhutan, Myanmar and other South-East Asian countries.

The WSO, of which he becomes the president in October 2024, is as much a part of Dr Pandian’s story as CMC Ludhiana. He joined its Board in 2008, the year after he returned from Australia. He has been a member of

WSO Policy and Research Committees and has chaired its World Stroke Campaign International Working Group.

In 2016 he was co-chair of the World Stroke Congress, held for the first time in Hyderabad, India. The event provided a showcase for the contribution India could make to the global stroke community. The impact of Dr Pandian’s work in the region was impossible to overlook. That, along with his long association with the organisation, held off stiff competition when it came to choosing Prof Sheila Martins’ successor to lead the WSO. He is the first WSO president to come out of Asia. It is, he says, “great for India and great for me”.

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He is the first WSO president to come out of Asia. It is, he says, “**great for India and great for me**”.

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Under his leadership, the emphasis will continue to be on mitigating inequity in stroke care, particularly as it impacts Africa and Asia. In the past four decades, stroke incidence in LMIC increased by more than 100 percent while decreasing by 42 percent in high income countries over the same period. It will be part of his strategy to secure funding from governments and philanthropists, to help address the unfair distribution



This picture and opposite: Dr Pandian’s team with WSO president Prof Sheila Martins whom he succeeds in October 2024.

of care and outcomes. “That’s my vision,” Dr Pandian says, “and I will try to do as much as possible.” When he assumes the office next October he will become busier than ever as he strives for a balance between his new role, his deanship of CMC Ludhiana where he is also professor and head of neurology, his work in research, and the demands and pleasures of family life.

It’s almost 25 years since the fate of a 20-year-old college student alerted Dr Pandian to the impact of stroke and disability on families and caused him to pivot to stroke. “It’s been a difficult journey, but I can see the rewards of hard work,” he says. “Looking back, it has been a very rewarding experience.”





The obligation to treat

When his small-town hospital got a CT scanner, Dr Ignacio Girolimini knew he was morally bound to start treating stroke. What had been his desire was now his duty.

Dr Ignacio Girolimini loves dogs.

On his Facebook page, pictures of strays waiting to be adopted are interspersed with posts about where to get your flu shot and shares on behalf of a group that raises funds for the local hospital.

But early in 2023, Dr Girolimini had something new to ask the 25,000 residents of San Miguel del Monte – he wanted them to take part in a survey about stroke awareness. The survey was part of a project to establish a stroke unit at Zenón Videla Dorna Hospital, he explained in a video shared on 17

February. Ten days later, this project would save a life and change the future of stroke care in this tranquil rural town.

Treating acute ischaemic stroke had always been on Dr Girolimini's radar. It was the reason he registered with the Angels Initiative in 2021 and completed nearly all the elearnings in the Angels Academy – from the ASLS course for EMS practitioners to Stroke Basics For Nurses. It was the reason he participated in the ROPU Mentoring Programme through which he connected with



Dr Claudio Jiménez, a neurologist at diamond winning Simón Bolívar Hospital in Bogotá, Colombia, and got to know the Angels team in Buenos Aires province.

The tipping point came in June 2022 with the acquisition of a CT scanner for San Miguel del Monte's 124-year-old hospital. For Dr Girolimini that was the moment when treating acute stroke ceased being an intention and became an obligation.



Taking part in a stroke awareness campaign, Dr Ignacio Girolimini ran to third place in the 11 km race at a respectable pace of 4:36 minutes per km. He was outshone by his wife, Lucia Rodríguez, who came first over 5 km.

IGNACIO GIROLIMINI was raised in San Miguel del Monte where life centres around a 720-hectare lagoon so beautiful that it has its own Instagram account. He is the first doctor in his family, and when he first went away to study at the University of Buenos Aires, and later to specialise in internal medicine, he only expected to be back for the occasional weekend. But although he liked working in the big, cosmopolitan capital city he didn't like the traffic jams and he missed the lagoon, his family and the tranquility of smalltown life.

He came home in 2020 to San Miguel del Monte's only hospital, with the goal to "take excellent care of the needs of our small town".

With the nearest stroke-ready hospital 45 minutes away, the residents of San Miguel del Monte were in the same boat as the majority of Argentines living far from major cities. Stroke patients including Dr Girolimini's grandmother, were effectively left to their fate, as vast distances and low awareness meant few reached acute treatment in time.

Spurred on by the brand-new CT scanner, and with the support of the hospital directors, Dr Girolimini started working on a stroke protocol for his hospital, a process that gathered

speed after Angels consultant Daiana Michel visited San Miguel del Monte on 1 February 2023. The pathway they devised centred around the new CT scanner – it was where the emergency services would deliver suspected stroke patients and where, if the patient was eligible, treatment would commence. But to ensure that patients arrived in time, the population had to be educated about stroke, and that was what Dr Girolimini's survey was all about.

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Get organised.
It's an obligation.
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"In a minute you can lose two million neurons," his video message began . . .

Shortly after 8 am on Tuesday 28 February, just four weeks after her first visit, Daiana received a WhatsApp message that she immediately shared with Angels consultants all over the world. "Buen día Daiana!" the message began. "Hoy cerca de la madrugada...

Primera trombólisis en el hospital."

Zenón Videla Dorna Hospital had thrombolysed its first stroke patient at dawn.

The patient was a 61-year-old visitor who was passing through San Miguel del Monte when he had a stroke. He was in many ways a lucky man because, just 30 minutes after symptom onset, he arrived at the only hospital for miles where he could receive treatment with thrombolysis. He was treated within 60 minutes of his arrival and made a remarkable recovery.

"It was important," Dr Girolimini says, "because he was a mechanic, someone who worked with his hands. It was important to him and to us to keep him working."

Dr Girolimini also keeps working. To reduce the door-to-needle time, steer a stroke awareness campaign, initiate research about location-specific causes of stroke, expand their service to nearby towns, start building a regional stroke network, and to convince other hospitals that it can be done.

It's not that hard, he says to those that do not treat stroke patients despite having the resources to do so. "Get organised. It's an obligation."



Dr Girolimini with Angels consultant, Daiana Michel.





Impossible meets unstoppable

Stroke care reform in Algeria

Her colleagues in stroke care call her “the engine of the locomotive in her region and in the whole of Algeria”. Meet the unstoppable Professor Dounia Zede Badsı, a devoted doctor and determined reformer for whom impossible is just a dare.

Oran is the second-largest city in the largest country on the African continent. It's where a small boy named Yves Saint Laurent played with his paper dolls back in the 1940s, and where Albert Camus's fictional Doctor Bernard Rieux fights a lonely battle against the plague. It is also where a passionate young neurology professor leads a fight against stroke that could save thousands of Algerian lives.

Stroke kills around 16 000 Algerians per year and leaves the lives of thousands more in tatters. Treatment is scarce and becomes scarcer as you travel southward. When the former president, Abdelaziz Bouteflika, had a minor stroke in 2013, he was flown to Paris, France, for treatment.

Around the same time Professor Dounia Zede Badsı was returning from her second six-year stint in Paris – the first as a child while her father did his specialisation in cardiology, next to further her own training at Pitié-Salpêtrière University Hospital,

Kremlin-Bicêtre and Hôpital Cochin following specialisation in neurology in Oran.

She came home with several advanced skills (diplomas in stroke emergency, MRI neuroimaging and non-invasive vascular imaging among them) acquired for a very specific purpose – to change the way stroke patients were treated in Algeria.

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Easily exceeding the criteria for the award, their second would follow the very next quarter.

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Her colleagues in Paris had cautioned that to achieve her aims she would have to convince hospital directors to work with her. Fortunately, as the director of Oran University Hospital would soon discover, Professor Dounia Zede Badsı is very, very convincing.

Let her convince you

The first to be convinced after the hospital administration, was the stroke team Prof Badsı would build over the next seven years – a team that, as soon as they became eligible for a WSO Angels Award, would skip gold and platinum to earn Algeria's first diamond award in mid 2021. Easily exceeding the criteria for the award, their second would follow the very next quarter.

First, however, they would have to recruit more patients.

Although the first thrombolysis therapy in Algeria was administered in 2004 in the city of Blida and stroke impacted 60 000 lives a year, low awareness meant few patients correctly identified symptoms or sought treatment for stroke. With the goal of convincing the public, Prof Badsı became a regular guest on television, radio and online channels, and a great ally of the Angels Initiative, always willing to take the podium at stroke-related events.

Patient numbers grew, but because Algeria has no emergency medical service, many found their way to the hospital too late for treatment.

There were rather a lot of people to



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Patient numbers grew, but because Algeria has no emergency medical service, many found their way to the hospital too late for treatment.

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convince after Prof Badsî next made up her mind to create Algeria's first prehospital network. But not long after ER physicians and specialists in other departments had come on board, the first ever ambulance siren could be heard in Oran.

Direct communication between the ambulance team and the neurology department was established via a telephone number that, once activated, meant that prenotification, the priority action that kickstarts an optimised stroke pathway, was in place.

Next, it turned out to be really hard to convince the administration of the need for a home hospitalisation unit (HAD) that could care for stroke patients in their own homes. There simply wasn't room in the hospital's budget for a special vehicle and a dedicated team.

It's fortunate, therefore, that Prof Badsî was able to convince a private donor to fund a service she had observed in Italy and France. The HAD unit is a win-win solution that lets patients access nursing care, physiotherapy and psychology services at home, and simultaneously frees up beds in the stroke unit at Oran University Hospital.

Ambition is devotion

Closing the gap between services available to stroke patients in Western Europe and those in her own country is Prof Badsî's explicit goal. She is ambitious, too. For example, Oran may only have one ambulance for now, but ultimately she aims to replicate Germany's so-called red ambulance – a specialised stroke ambulance equipped with a portable CT scanner and a point-of-care laboratory that drastically reduces time to treatment.

Her ambition is rooted in deep devotion to her homeland – a quality that runs throughout this family of doctors nearly all of whom return from France to provide care to their fellow Algerians.

It's her mother's love of country that

influences them, Prof Badsî says, just like it's her cardiologist father who stirred her interest in emergency medicine, and her maternal grandfather who set the example of reformer and mobiliser as the founder of the humanitarian organisation, the Algerian Red Crescent.

Ambition also drives her collaboration with the Angels Initiative to create a regional network of stroke-ready centres and offer immersion learning to doctors and nurses from other hospitals. Indeed, the first thing Prof Badsî did after her team won its first diamond award was to invite doctors from elsewhere in the country to a webinar to explain how they did it.

“Impossible is nothing”

Ask Prof Badsî about her goals, and the answer is “more” – more and more centres, more and more trained doctors, more and more awards. In a nutshell: “I plan to stay in the country and keep doing the impossible to make things better.”

The reference to impossible evokes a kindred spirit – that of a certain boxing heavyweight dubbed The Greatest who had more insights to offer about “impossible” than the three-word slogan adopted by Nike suggests:

“Impossible is just a big word thrown around by small men who find it easier to live in the world they've been given than to explore the power they have to change it. Impossible is not a fact. It's an opinion. Impossible is not a declaration. It's a dare. Impossible is potential. Impossible is temporary...”

In Oran, Algeria, the impossible is also something that you do.

*** Since this story was first published in January 2022, the Oran University Hospital has won three more diamond awards.**



Professor Dounia Zede Badsî (left) and Doctor Nassima Benahmed of the Angels Initiative with Algeria's first WSO Angels diamond award.

A quest of the heart in Al Qurayyat

On the road to creating a stroke pathway for this overburdened hospital, there were setbacks, stumbling blocks, tragedy and tears. Success, says Dr Shahid Ahmed, came as the result of angels walking beside him.

Al Qurayyat General Hospital is located in northern Saudi Arabia in a small city no more than 30 km from the border with Jordan. "A beautiful city right on the edge of our country," in the words of Dr Shahid Ahmed, the passionate physician who, as assistant director of emergency, is responsible for the day-to-day running of what must surely be among the busiest emergency departments in the Middle East.

The hospital admitted no fewer than 12,427 patients in June, Dr Ahmed says, including numerous referrals from hospitals in the surrounding area. But among these more than 12,000 patients, for Dr Ahmed one stands out. This patient arrived at the hospital on 26 June with slurred speech and left-side weakness – symptoms that had started an hour earlier. Ninety minutes later, still well within the therapeutic window, Al Qurayyat General Hospital treated its first ever stroke patient with thrombolysis.

"Within 15 minutes of starting the treatment, he was speaking normally," Dr Ahmed reports. "We were so happy to see these signs of recovery; it was a goosebumps moment."

The first thing Dr Ahmed did after congratulating his team, was to call his mentor Dr Amr Mouminah, a stroke specialist from Jeddah, and ask him to spread the word to his more than 20,000 Twitter followers. This Dr Mouminah did right away:

Today is considered history for @gurayathealth and its people. After hard work and concerted efforts of all relevant employees of the region and overcoming all difficulties, the stroke pathway was activated, and the solvent was given to the first patient in #Qurayyat_General Hospital. Under the direct supervision of the #Health_Virtual_Hospital stroke team in Riyadh. Accordingly, inform the people of #Qurayyat that there is

a stroke service in the hospital. And I advise everyone who has signs of stroke to quickly go to Quarayyat General Hospital (not Jordan) within the first four-and-a-half hours of the onset of symptoms so that we can help you. Time is the most important factor. If it passes, we will not be able to do anything. And the next is more beautiful, God willing.

“

They told me **this is new,** and **you will lead it.**

”

Dr Mouninah's Tweet said exactly what Dr Ahmed wanted it to – that the stroke team at Al Qurayyat General Hospital was ready to serve their city. And between the lines it told the story of a quest that began in March 2022 when Dr Ahmed was assigned the task of creating a stroke pathway at his hospital.



The stroke team at Al Qurayyat General Hospital



Dr Ahmed with nursing supervisor Mr Faleh, neurologist Dr Frank and Dr Nezar

"They told me this is new, and you will lead it," he recalls. "I had no idea what this project was about."

Initially under the impression that building a stroke pathway would involve just four people – the medical director, hospital director, a neurosurgeon and himself – Dr Ahmed got a rude awakening when he sought advice from Dr Mohamed Aljuhani from Madinah. Learning that the pathway would involve a multidisciplinary team that would include doctors, nurses, lab technicians, radiologists, and the pharmacy, was a shock, he says. He would need more than advice.

neurologist. Then, in what he describes as a tragedy, its two neurosurgeons both resigned at the same time.

"I took this very personally, very emotionally," Dr Ahmed says. "I was in tears for many days. I did not know what to do. But by the grace of God some angels come into your life."

Help with training and organisation came from Angels consultant Sherif Ali and his team who supported the project from beginning to end. The next angel that appeared to Dr Ahmed was Dr Majid Bakheet, stroke leader in the ministry of health, who helped him refine the stroke protocol and convince others, including referring hospitals, to join the project.

"He had some beautiful words for me," Dr Ahmed says. "He came and spoke to all the leaders and convinced and motivated them. He told them we would be starting this treatment at our hospital and that we needed their help to ensure the patients arrived in time."

Thus encouraged, Dr Ahmed faced the next hurdle – navigating regulatory complexity to obtain the thrombolytic drug for his hospital. "I cannot wait that long," Dr Ahmed said when the pharmacy predicted a delay of one month. Not for the first time, he appealed to the regional director who stepped in to help. Then, with the drug procured after an anxious 10-day wait, and a part-time neurologist in place, a third angel appeared in the form of Dr Amr Mouminah.

By now Al Qurayyat General Hospital had an organised pathway but the newly assembled stroke team lacked experience. Dr Mouminah suggested pathway simulations to test the pathway and build the team's confidence in themselves and each other.

"These mock stroke codes really helped orientate many of my doctors," Dr Ahmed says.

The final piece of the puzzle fell into place when, thanks to the Angels Initiative, Al Qurayyat General Hospital became part of a telestroke network that connected them with the Health Virtual Hospital stroke team in Riyadh. And when the stroke patient arrived on 26 June, this virtual connection to top stroke experts finally helped turn Dr Ahmed's dream into a success story.

It's the dawn of a new reality for stroke patients on the edge of the country. There's no longer a need for time-consuming border-crossings to reach the nearest stroke-ready hospital in Jordan, 100 km away. Al Qurayyat General Hospital is already seeing around five stroke patients a week, a number that is certain to rise as Dr Ahmed's enthusiastic public awareness intervention gathers speed.

“

We are going to help the people of this city.

”

Dr Ahmed has first-hand experience of how stroke impacts families. When his own mother had a stroke seven or eight years ago, she came to Saudi Arabia from India, but there was nothing he could do. Taking care of her was not just an emotional burden but a financial one too, he says, which was "shared between the government and me".

Now the quest that began last March and achieved its goal on 26 June means other mothers and other families will be spared the same burden.

"I am emotionally happy to be doing something good," Dr Ahmed says. "I feel very happy, and very proud of my team and all the people who supported me, helped me, encouraged me to get us to this stage."

"We are going to help the people of this city."



Dr Shahid Ahmed (left) and Dr Amr Mominah

"I told [Dr Aljuhani] my deficiency, my weakness. I said I needed his help, I needed everyone's help." That was how Dr Aljuhani became the first in a chain of benefactors who would walk beside Dr Ahmed over the course of the next year.

By now the idea of converting Al Qurayyat General Hospital into a stroke-ready hospital had gripped his imagination. It was already more than a project – changing the prospects for stroke patients in Al Qurayyat had become, he says, "my ambition, my aim, my dream".

Armed with a 100-day plan for implementing the stroke protocol used at the hospital in Madinah, Dr Ahmed started the hard work of winning over the leaders of departments he needed to support his pathway. A problem immediately presented itself – the hospital had no



The Angels team with Dr Majid al Bakhit, medical director Dr Waleed and assistant hospital director Dr Ibrahim



Leading change in Lahore

In a country with almost 250 million people, fewer than 300 CT scanners and just a handful of stroke-treating hospitals, what can one team do? Do not answer this question until you have met the stroke heroes of Services Hospital in Lahore, Pakistan.

At Services Hospital, Lahore the stroke team carry a knapsack with everything they need to treat a patient with acute ischaemic stroke – from IV cannulas, glucometer and syringes to test tubes, cotton swabs and tape. Also in the bag is a smartphone capable of transmitting high-resolution CT images via WhatsApp. The smartphone is a gift from a donor. It is the little things that count.

The knapsack, like the phone, is a workaround – a piece of ingenuity to overcome resource limitations. It solves at least some of the problems you encounter when treating stroke in an emergency department that receives over a thousand patients a day. The competition for beds is intense and, as is the case in much of Pakistan's public healthcare system, the hospital is understaffed. For this reason, residents remain in the ER to monitor and care for stroke patients receiving thrombolysis. And when they are done playing nurse, the same young doctors become porters, wheeling their patients to the neurology ward housed on the fourth floor of a different building.

This is a smart hack: the dedication of a new generation of neurology residents who model their conduct on the example set by a doctor whose one-man campaign to change stroke care in Lahore is finally bearing fruit.

DR QASIM Bashir was raised on neurosurgery the way the children of sporting heroes grow up beside the

pitch. His late father, Professor Bashir Ahmed, was a pioneer in neurosurgery in Pakistan and in 1964 founded the neurosurgery department at Lahore General Hospital that later became the acclaimed Punjab Institute of Neurosciences (PINS).



Dr. Qasim describes his fellowship in neuroendovascular surgery at the University of Illinois as a turning point.



All the Bashir siblings followed their legendary father into medicine, attending Lahore's King Edward Medical College before continuing their studies abroad. Dr. Qasim describes his fellowship in



Miguel's grandmother encouraged him to follow his heart.

neuroendovascular surgery at the University of Illinois as "a turning point".

"Up until 1998 I had seen only neurosurgery; then I became aware of the potential of minimally invasive treatments for neurological diseases including stroke."

In 2012 Dr Qasim Bashir returned to Pakistan, which at the time was one of a handful of countries yet to approve rTPA for treating acute ischaemic stroke. Even before the drug was approved by the official Drug Regulatory Authority Pakistan [DRAP], he obtained a special institutional waiver from DRAP to start offering rTPA at the Services Institute of Medical Sciences affiliated hospital in 2021.

Aware that seeking funding from the government would be a long and tedious process, Dr Qasim reached out to an American philanthropist of Pakistani origin, Mr Asher Aziz, who gave a \$100,000 grant in honour of his late mother, Mrs Nisar Aziz, who had been a stroke victim. The grant facilitated a dedicated and standalone acute stroke programme in the public sector in Lahore city. In fact, says Dr Qasim, “this funding laid the very ground of acute stroke care within the public sector nationally.”

“
Philanthropy can get
you started, but it cannot
sustain you.
”

THE grant provided free access to thrombolysis for poor patients presenting with acute ischaemic stroke at the 1,650-bed tertiary care Services Hospital. Help came from multiple other sources, Dr Qasim says. “The Association of Physicians of Pakistani Descent of North America (APPNA), Punjab Health Department, DRAP, the Pakistan customs authority and Boehringer Ingelheim, as well as the administrations of both Services Hospital and the Services Institute of Medical Sciences, were among those who chipped in their services for the noble cause.”

Within 20 months the Services Hospital stroke team treated more than 60 acute stroke patients with



The dedicated stroke team at Services Hospital

thrombolysis, encountered no drug-related complications, and saw positive outcomes at three months. Their door-to-needle time isn't far off the international benchmark, and their department research work by neurology residents has been recognised with honours at the annual conferences of the Pakistan Society of Neurology and the Pakistan Stroke Society.

All of it matters, but especially this: Having the power to treat a poor patient for free and witness their recovery is “amazing”, Dr Qasim says. “It brings tears to your eyes.” It is also the driving force for expanding the stroke services available to Lahore's 13 million population.

Philanthropy can get you started, but it cannot sustain you, Dr Qasim says. Once you can show that your programme is successful, you must get the public sector involved for its long-term continuity.

Dr Qasim's expansion plan includes a hub and spoke model that revolves around Pakistan's biggest

neurosurgical centre – the one established by his father. He has been busy for several months overhauling the neuroendovascular programme at PINS and developing a neurovascular service so that patients with large vessel occlusion or those ineligible for thrombolysis can be referred for thrombectomy.

AT Services Hospital, too, there is progress. There is, finally, a dedicated stroke bay with four beds at the entrance of the newly renovated emergency department. There are dedicated doctors and nurses who have taken advantage of online training in the Angels Academy and use its online resources exclusively.

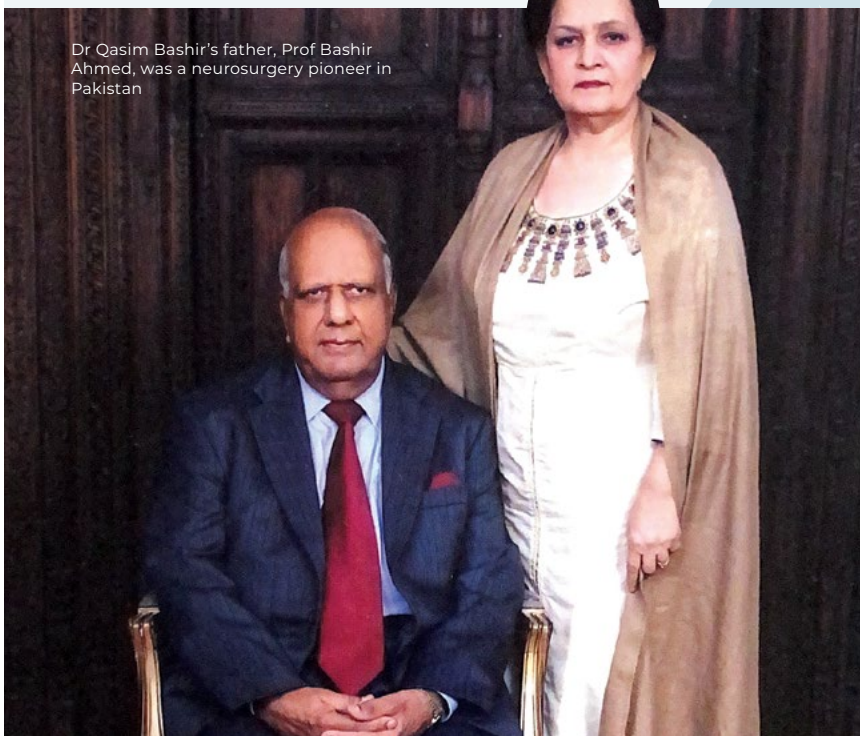
There is a burgeoning culture of quality monitoring; the team submit their cases to RES-Q and have reason to look forward to their first WSO Angels Award. They can also look ahead to reinforcements down the line thanks to a donor-funded fellowship programme in which one stroke neurologist, one neurosurgeon and one stroke nurse will be trained at PINS every year.

If anything is more urgent than training neurologists, it is teaching the public about stroke symptoms and stroke-ready hospitals, Dr Qasim believes. Not only for the obvious reason that more patients will access treatment in time, but because he trusts an educated public to put much-needed pressure on the healthcare system by demanding the best treatment. Much, much further down the list is joining the drive towards stroke centre certification currently underway in the region with the aim of standardising stroke treatment.

“Our priority is enforcing and implementing institutional protocols at our hospitals and turning them into role models in Lahore where we have a huge population to look after,” he says.

“If we dedicate ourselves to this goal, we will not fall short.”

Dr Qasim Bashir's father, Prof Bashir Ahmed, was a neurosurgery pioneer in Pakistan



Centre of excellence

Makati Medical Centre in Metro Manila finally has its diamond award. The next goal? To keep getting better, its stroke champions say.

MAKATI is one of 16 metropolitan cities that together make up the national capital region and heart and central nerve of the Philippines. It is also the country's financial centre – a thrilling maze of skyscrapers, upscale malls, luxury hotels, and urban parks located at the heart of the Metro Manila.

At its centre, and easily accessible through major roads and expressways, is Makati Medical Centre, a private tertiary hospital with a reputation as glittering as the Makati skyline at night.

Founded in the late sixties by a group of renowned Filipino doctors and businessmen just as Makati was beginning its ascent to becoming the country's foremost business district, this is a world-class medical facility and one of the premier hospitals in the Philippines.

Over the past 50 years, MakatiMed has garnered numerous laurels ranging from two international awards in recognition of its COVID-19 response to the Daisy Award For Extraordinary Nurses. But recently this bright spot in Philippine healthcare acquired some extra sparkle after receiving a WSO Angels diamond award for excellence in stroke care. MakatiMed is the first and only private hospital in the country to achieve this status and one of just five diamond hospitals throughout the Philippines.

On the already crowded awards wall in the neurology department, this latest accolade joins 10 others, namely the eight gold and two platinum awards the hospital has earned since 2019.



The proud MakatiMed team with their gold awards.

Meet the stroke champions

Like MakatiMed, which now has the second-largest number of WSO Angels Awards in the country, stroke care in the Philippines is enjoying a landmark moment, with much of the momentum brought by the certification programme the Stroke Society of the Philippines (SSP) rolled out at the start of 2023.

The Acute Stroke Ready Hospital (ASRH) Certification Programme recognises hospitals that can provide immediate and time-critical care to stroke patients. These ASRH-certified hospitals receive priority in training and guidance from the SSP committee, and recognition as institutions that deliver quality healthcare to stroke patients. They in turn commit to a programme of continuous improvement which includes implementing quality

monitoring as a tool to optimise care.

At a recent quality monitoring workshop in Manila, ASRH-certified hospitals received a crash course about data reporting in RES-Q, the international stroke care quality improvement registry that is endorsed

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Columbia Hospital had started treating **acute stroke with thrombolysis** just recently and they were **very generous** with sharing their experience

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Their first platinum award was a tipping point.

by the SSP. As well as helping hospitals analyse and troubleshoot underperformance and receive recognition via the WSO Angels Awards, this comprehensive push towards quality monitoring will enable the SSP to track stroke care progress throughout a country.

The fact that MakatiMed was among the country's first stroke-ready hospitals to share data on the RES-Q platform has some roots in Philippine medical history. The hospital's 2019 decision to adopt RES-Q was driven by Dr Cymbeline Perez-Santiago, a second-generation neurologist who is continuing the legacy of her father, Dr Martesio Perez. Recognised as a neuroscience pioneer in the Philippines, Dr Perez's use of thrombolytics to treat stroke predates the 1995 study published in the New England Journal of Medicine that led to thrombolysis becoming the gold standard treatment for ischaemic stroke.

At MakatiMed, Dr Santiago is chief of the neurology section and responsible for quality monitoring in the Acute Stroke Unit. The goal of turning Makati Medical Centre into a centre of excellence for stroke care is one she shares with two passionate stroke champions – Dr Raquel M. Alvarez, who is head of the Neuro ICU and Acute Stroke Unit, and neurologist and neurosonologist Dr Anna Marie S. Nolido.

Dr Nolido's interest in stroke was sparked during an ultrasound rotation at Columbia in 1999 where she was exposed to the use of ultrasound as a diagnostic tool in patients with ischaemic stroke. In 2002 she joined MakatiMed where she founded and heads up the Neurovascular Unit.

Due to its location and reputation MakatiMed does tend to draw patients from the upper and upper-middle classes of Manila society, but the majority work in the central business district and are covered by private health insurance or HMOs that cover services from in-network providers. This is significant given the high cost of acute treatment in the private healthcare sector. Dr Nolido says, "Given the nature of our centre many patients can afford the medication as long as it is explained well."

A promising beginning

If Dr Alvarez's name sounds familiar, it may be because she was, in 2021, a nominee along with current SSP president Dr Maria Socorro Sarfati in the inaugural WSO Spirit of Excellence Awards. This prestigious, peer-nominated award honours individuals for outstanding contributions to stroke care transformation.

Dr Alvarez has been a neurology consultant at the hospital for almost

three decades, two of which have been dedicated to providing better outcomes for stroke patients. It was a preceptorial on stroke at NYC's Columbia Presbyterian Hospital 22 years ago that marked a turning point for her and for stroke care at MakatiMed.

"Columbia Hospital had started treating acute stroke with thrombolysis just recently and they were very generous with sharing their experience," Dr Alvarez says.

After three months she returned to Makati intent on establish a stroke service and an organised stroke pathway.

Putting together a neuro response team took time. Dr Alvarez recalls that they were still getting organised when a patient was admitted to the ER with right-side weakness and eye deviation.

Like most of the patients admitted to MakatiMed, this patient worked in the central business district and had reached the hospital via ambulance from a short distance away. Unimpeded by Manila's notorious traffic jams, he'd arrived at the hospital within the therapy window and became MakatiMed's first thrombolysed patient. When he was eventually discharged he was fit to return to work.

Ready or not, MakatiMed's Acute Stroke Unit was off to an encouraging start.

A pathway built for speed

Partnering with the Angels Initiative in 2018 anticipated another turning point for stroke care at MakatiMed. The neuro response team took advantage of all the support Angels offered, attending stroke conferences, completing online courses in the Angels Academy, and taking part in simulation training to identify quality gaps. Their first gold award in 2019 confirmed they were on the right track. When Covid struck the following year, they were able to adapt to the crisis by swiftly revising their stroke pathway. They continued on their winning streak throughout the pandemic.

Maybe next time it will be a diamond, the hospital directors quipped as the stroke team reeled in one gold after another. Their first platinum award at the end of 2022 was a tipping point, a signal that the elusive diamond might finally be within their reach.

The stroke pathway that finally brought them diamond status is built for speed. Even the security guards who meet

patients at the entrance have been trained to recognise the signs of stroke and direct them along the fastest route to the emergency room.

When a suspected stroke patient arrives at emergency, the neuro response team is alerted via the hospital's public address system, setting in motion a well-rehearsed series of events that includes point-of-care testing in the ER and brisk transfer to the CT room close by. If large vessel occlusion is suspected, a MRI is done to rule out mistakes in diagnosis, and the thrombectomy team put on alert.

"MRI is the imaging modality we primarily use in the hospital," says Dr Christine Anne C. Chacon, stroke consultant and the hospital's first stroke fellow, adding that treatment in some cases commence in the CT scan or MRI area despite the proximity to the ER.

Dr Chacon explains that stroke patients have priority access to the MRI lab and they use an accelerated MRI protocol that "elevates the level of care but doesn't compromise the time".

Polish your diamond

Having reached the top, the only way is up for MakatiMed's stroke champions. Their strategy to ensure their patients continue to receive the highest level of care translates into treating more patients, faster, by reducing the door-to-needle time and raising the thrombectomy rate.

Gap analysis and simulation training will remain key, Dr Santiago says. "You have to continually look where the gaps are to find out what you need to improve."

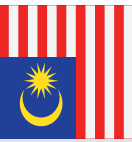
That is also the purpose of biweekly multidisciplinary meetings to evaluate every case and every patient's pathway – a tried-and-tested quality monitoring practice that forms the backbone of their continuous improvement approach.

To broaden access to acute stroke care, they will undertake awareness education both in and outside the hospital, and Dr Alvarez envisages an optimised medical transport service to enable a drip-and-ship model for receiving patients from frontline hospitals.

"A diamond award is an incentive," she says. "It doesn't mean you can stop trying to be better. It should energise you to keep doing your best."



The MakatiMed team is all smiles after a successful simulation.



One team, one dream

A single protocol for hospital and prehospital stroke care, and a spirit of collegiality between doctors and paramedics, are behind Malaysia's first EMS Angels Award.



Until three years ago, stroke calls to the ambulance service in Malaysia's Negeri Sembilan state were not considered time-critical emergencies. They were assigned level four priority, and protocol only required the patient to be taken to the nearest district hospital.

In 2020, however, stroke shot to level one priority. From then onwards a suspected stroke would place the dispatch centre on high alert. The nearest and most experienced ambulance would be activated to attend the scene, and they would bypass the nearest hospital if it wasn't stroke-ready, to bring the patient directly to Hospital Tuanku Ja'afar in the state capital, Seremban.

The precursor to this significant change occurred on 5 May 2019, the day Hospital Tuanku Jafa'ar treated an ischaemic stroke patient with thrombolysis for the first time. Its door-to-needle time of under 60 minutes was enough to win the hospital its first WSO Angels Award. Over the next two years it would double its treatment rate and halve its treatment time to become one of a handful of hospitals in Malaysia to meet the criteria for a diamond award.

To reach this milestone and achieve a world-class median door-to-needle time of 25 minutes, the hospital

streamlined its pathway to eliminate every unnecessary interaction. One key intervention was making its ambulance service unit part of its stroke team, in recognition of the fact that an optimised stroke pathway began the moment the patient or their relative dialed 999. The result of this collaboration was the development of the HASTE protocol, now used at hospitals throughout the state, and the HASTE kit for prehospital teams.

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Prenotification and preregistration ensure a **dedicated stroke team is ready to receive the patient** when they arrive.

”

HASTE stands for Hyperacute Stroke Smart Track in Emergency, and is essentially a model for doing the important things right. At Hospital Tuanku Ja'afar this includes ensuring its paramedic teams are properly trained in prehospital stroke care, and have recourse to the HASTE kit with checklists and stroke scales for assessing the patient, as well as remote supervision by an ER physician.



Prenotification and preregistration ensure a dedicated stroke team is ready to receive the patient when they arrive. After a brief pitstop in the emergency department the patient is wheeled to the CT scanner, which is located about 15 steps beyond the red zone.

Hospital Tuanku Ja'afar has one of the only two CT scans in the state, but stroke patients skip the inevitable queue. In another time-saving tactic,

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There is growing recognition in the stroke community that a **close working relationship** between hospital and EMS saves lives.

”

the patient remains on the EMS stretcher until after the treatment decision is made and they are transferred to a dedicated bed in the emergency department.

One result of this integrated strategy has been that Hospital Tuanku Ja'afar keeps adding to its slew of awards – each one a feather in the cap of emergency physicians Dr Emi Noorina Binti Mohd Nor, Dr Syed Hussein Barakbah and Dr Mohamad Azzlee Mustafa who drive the stroke programme with the assistance of Acute Internal Medicine (AIM) Physician, Dr Ng Yin Jie.

The other is that the Tuanku Ja'afar ambulance service unit is also attracting international recognition as the first EMS team outside Europe to receive an EMS Angels Award. (They have since been joined by an EMS team from Vietnam.)

Like the WSO Angels Awards, EMS Awards not only serve to recognise performance but also to raise the standard of care by identifying areas where improvement is needed. Performance is measured against criteria that include on-scene time, prenotification, delivery to stroke-ready hospitals, and reporting of patient medication and time last known normal.

A single percentage point in the prenotification rate kept the Tuanku Ja'afar EMS team from achieving diamond status in Q1 of 2023. But

though they've had to be satisfied with a second platinum for now, all eyes are on their median on-scene time of 10 minutes, which according to awards coordinator Katarzyna Putylo is the best they have seen so far.

There is growing recognition in the stroke community that a close working relationship between hospital and EMS saves lives, and Tuanku Ja'afar's single protocol for prehospital and in-hospital stroke care is a case in point. A 2020 US study of the role of EMS in stroke systems of care found that integration of EMS was critical to improve rates of thrombolysis among acute ischaemic stroke patients.

An earlier study of hospital-EMS collaboration in cases of acute myocardial infarction (AMI) found that active collaboration was associated with lower AMI mortality rates. The measures recommended by the

authors of that study apply equally to stroke pathway collaborations such as the one at Tuanku Ja'afar: strong communication and coordination, engagement of EMS in quality improvement activities, and respect for EMS providers as professionals.

At Tuanku Ja'afar respect is expressed in several ways. Ambulance teams not only receive regular feedback on patient outcomes; they are also invited to provide feedback on how the protocol might be improved, and are included as presenters at joint workshops where they can share their knowledge with doctors and paramedics.

“It is important to acknowledge them,” Dr Mohamad Azzlee Mustafa says. “They are part of our team. If we dedicate ourselves to this goal, we will not fall short.”



Planning delivers progress in Vietnam

Team Vietnam has a plan for improving stroke care in their country. Here they explain how they intend to build on their more-and-better strategy by focusing on networks, awareness and partnerships.

“Our goals can only be reached through the vehicle of a plan. There is no other route to success.”



These are not, as one might expect, the words of an expert strategist or a self-help hack. This defense of strategy comes, surprisingly, from the Spanish artist Pablo Picasso, whose own success brought him universal renown and an immense fortune.

It is certainly a principle that leaps to mind when Angels Vietnam team leader Trang Nguyen and her team outline the more-and-better strategy they implement to improve stroke care in her country.

More

When Angels started working in Vietnam in 2017, there were only 18 stroke units dotted along the long, narrow S that lies between its northern border with China and the Cà Mau Peninsula in the south.

This being woefully insufficient in a country with almost 100 million population where stroke was the leading cause of death, the Angels Vietnam team made increasing the

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We encourage hospitals to see the awards not just as a prize, but as a **highly effective instrument for enhancing the quality of stroke treatment.**

”

number of stroke-ready hospitals their first goal.

It was a painstaking process of building trust, growing confidence by providing training and support, brokering cooperative relationships between hospital departments, and replacing outdated thinking with evidence-based care. But by the end of 2022, there were 98 stroke-ready hospitals that had treated a total of 44,000 stroke patients according to international, evidence-based guidelines.



This picture and above right: WSO president-elect Prof Jeyaraj Pandian joined the Angels Vietnam team at the National Quality Monitoring Conference to honour all the WSO Angels Award winners since 2019.

Better

In 2018, 115 People's Hospital in Ho Chi Minh City became the first Vietnamese hospital to qualify for the WSO Angels Awards programme, which recognises stroke care excellence and incentivises data collection for quality monitoring.

By 2020 the number of WSO Angels Awards had grown to 49. For the first time it included two diamond awards including one for Bach Mai Hospital in Hanoi that would go on to win it 10 more times.

Vietnam added 77 awards in 2022, the second-highest number of WSO Angels Awards won by any country last year.

Trang explains the connection between awards and stroke care improvement: "We encourage hospitals to see the awards not just as a prize, but as a highly effective instrument for enhancing the quality of stroke treatment. Quality monitoring means hospitals receive valuable feedback that helps them target opportunities for improvement.

"Participating in continuous quality monitoring leads to improved treatment outcomes by shortening treatment times and increasing the number of patients treated in each unit."

Experience-sharing is one of the tactics Trang and her team rely on. On 18 August this year, for example, Assoc Prof Ton Mai Duy of Bach Mai Hospital (now with 11 diamond awards) spoke about the importance of data-lead performance at a National Quality Monitoring Congress where WSO president-elect Prof Jeyaraj Pandian handed out awards to winning Vietnamese hospitals.

If the numbers are anything to go by (and yes, that is the entire point), the charge towards "better" is well advanced: Vietnam currently has a national average door-to-needle time of 48 minutes.

Networks & EMS

After foregrounding more and better stroke-ready hospitals for the first five years, the strategy has shifted to building a stroke network for Vietnam. There are 1,000 hospitals in the country of which 120 are registered with Angels. The challenge now is to

create a hub and spoke model that not only connects primary care centres and comprehensive care centres but also integrates hundreds of frontline hospitals as well as the country's fledgling emergency medical services to ensure stroke patients reach appropriate care faster.

EMS in Vietnam is not yet developed throughout the country. According to a study conducted in Vietnam, approximately 14% of stroke victims use EMS to get to hospitals across the country; fortunately, this percentage is higher in major cities.

The challenge is twofold: to teach the community to call an ambulance when they suspect a stroke, and to develop the EMS.

Trang and her team hope that the EMS Angels Awards will have the same impact on prehospital stroke care as the WSO Angels Awards on hospitals. It's early days but a pilot involving a single region has yielded immediate success, with EMS centre 115 Da Nang collecting a gold award in Q2 of 2023.

Awareness

Educating the community about stroke has been on the Angels Vietnam agenda from the outset. Community activities tend to reach a peak around World Stroke Day in October, but are certainly no one-day wonder.

Last year, the Angels team rolled out an innovative programme of activities that included a design competition with the School of Medicine & Pharmacy at Duy Tan University in Da Nang, and a cycle parade with Viet-Tiep Friendship Hospital in the northern city of Hai Phong. The idea is to tailor events to suit the characteristics of each region and ensure the message resonates with the audience and achieves maximum impact.

Their creativity and lateral thinking are bearing fruit. Following an event with Military Hospital 175 in Ho Chi Minh City, which drew wide coverage on social and mainstream media, the number of patients receiving recanalisation treatment at this hospital increased by more than 25%. And after a joint campaign with Bach Mai Hospital to target coach stations in Hanoi, a survey conducted one month later showed that the coach drivers'

knowledge of the signs of stroke had increased by 100 percent.

Partnerships

Another strategic priority that is already gathering momentum is working more closely with Vietnam's ministry of health. In June 2023 the signing of an agreement between Boehringer Ingelheim (sponsors of the Angels Initiative) and Vietnam's Department of Medical Service Administration drew widespread media coverage. This memorandum of understanding between a leading biopharmaceutical research-oriented corporation and Vietnam's ministry of health is expected to lead to better diagnosis, treatment and management of cardiovascular, renal, metabolic, pulmonary, and other noncommunicable diseases.

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They trust us, and we walk beside them.

”

The route to success

Pablo Picasso didn't take his own advice about planning and as a result much of his fortune was lost after his death because he failed to leave a will. But he did have the wisdom to point out that a plan that brings us closer to our goals must be one "in which we fervently believe, and upon which we vigorously act".

It is true that planning is nothing without execution. And it is equally true that relationships can't thrive without trust.

Trang and her team say that although it took time to get there, "the hospitals now think of us as their friends, their partners. We don't just come to tell them, do this, and then go away. We listen, and we sit with them to find a solution.

"Then, when they succeed with their first case, or their first award, we are there to celebrate with them. They trust us, and we walk beside them."



Professor Nguyen Huy Thang, head of the HCM Stroke Association and National Coordinator of the WSO in Vietnam, with WSO president-elect Prof Jeyaraj Pandian.



A signing ceremony to mark an agreement between Boehringer Ingelheim and Vietnam's Department of Medical Service Administration in June 2023.

Seven diamonds for Hungary

The stories of two rescue volunteers, 100 years apart, provide clues to the beginning and the future of prehospital care in Hungary, whose national ambulance service has swept the board in the 2023 EMS Angels Awards.

IN the early hours of 15 April 1912, the passenger steamship RMS Carpathia, en route from New York to Europe, picked up a distress call from 58 nautical miles away. A British passenger liner on her maiden voyage had struck an iceberg and was starting to sink. The Carpathia reached the scene four hours later, finding only lifeboats carrying 706 frozen, injured and traumatised survivors.

The man put in charge of the rescue was 26-year-old Árpád Lengyel who, having volunteered with the Budapest Volunteer Ambulance Association (BÖME) in his native Hungary from the age of 18, was the only doctor on board with experience as a paramedic.

Árpád Lengyel would become revered as the Hungarian doctor who saved the survivors of the Titanic, and the Budapest Volunteer Ambulance Association as the first Hungarian organised ambulance system, a predecessor of the Hungarian National Ambulance Service, the OMSZ.

An amazing adrenaline bomb

Rescue work today is a far cry from when 18-year-old Árpád Lengyel joined the Budapest Volunteer Ambulance Association in 1904. It is also markedly different from when a second-year medical student started volunteering as an emergency nurse in the OMSZ in the early 2000s. Back then a far more rudimentary system was in place, Dr Gábor Csató told the website civillek.hu in June 2023. Ambulances were dispatched via radio knowing neither the exact coordinates nor any details. "At most we could guess what

task awaited us," he said. "When we arrived, everyone looked at us as the embodiment of hope. While this was an overwhelming responsibility, it was also an uplifting feeling and an amazing adrenaline bomb."

Stories told by his great-grandfather, a county nurse, had sparked his interest in medicine. Throughout his studies at the Medical University of Debrecen he continued to devote his nights and weekends to rescue work, little knowing he'd be heading up the OMSZ by his mid-thirties.

The OMSZ is a central ambulance service with seven regional

“

When we arrived, everyone looked at us as the embodiment of hope.

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organisations. As director-general since 2017, Dr Gábor Csató is responsible for managing the largest healthcare employer in Hungary, with 8,500 employees and 256 ambulance stations. Its close to 800 ambulances cover 40 million kilometres per year in response to 1,2 million emergencies, the aim being that any emergency be reached within 15 minutes.

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Innovation is embedded in the **DNA of the organisation.**

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His innovative leadership and use of technology to drive game-changing results is recognised as a major factor in OMSZ's recent success in the EMS Angels Awards. The service claimed seven out of the 15 diamond awards awarded across Europe for the first quarter of 2023, with each its seven regions meeting the highest standard in prehospital stroke care.

Continuous performance auditing

Angels consultant in Hungary Zsolt Lakatos has given thought to why the 2023 results were so much better than the previous year when only one out of seven regions qualified for diamond status, the rest having to settle for gold. His analysis points to a highly effective combination of central oversight and regional participation, along with education, feedback and data-lead change.

The improvement project is driven from HQ where Dr Csató has prioritised internal data collection within a culture of quality monitoring,

and introduced the technology to support it. His enthusiasm for new solutions and quality improvement is shared by the medical director, Dr György Pápai who is in charge of a continuous performance auditing process that is aided by digital data collection.

“Innovation is embedded in the DNA of the organisation,” Dr Csató told tech magazine The Medical Futurist in a 2020 interview. “An immense level of innovation is experienced in smart healthcare solutions nowadays.”

The operation of OMSZ generates huge amounts of data that, by using smart algorithms, can be used to predict for example the statistical possibility of accidents in specific locations, or help with capacity planning.

Unlike the radio technology from his student days, under Dr Csató's leadership every OMSZ ambulance is equipped with a tablet where every case is recorded in a centrally standardised form. Measuring performance against EMS awards criteria has led to amendments with specific relevance for stroke patients, such as “patient medication” and “last seen normal” being added as mandatory fields.

On-scene-time delays are routinely analysed with feedback provided to regional directors and station chiefs, and performance failures are filtered by the central unit where they trigger analysis, feedback, discussion and corrective actions that include training.

The elearnings that form part of the mandatory EMS training programme have been updated to include stroke, and regional managers receive support from Angels to provide stroke-specific training for dispatch, nurses and paramedics. Angels-facilitated monthly quality meetings where both hospitals and EMS are present have created another important feedback channel, with improved communication ultimately paying dividends in all emergencies, not only stroke.



Stories that inspire

That the EMS Angels Awards have helped identify systemic and local deficiencies, is also the view of Ferenc Toldi, an ambulance officer with the OMSZ for 30 years. It may even have introduced a spirit of friendly competition.

Ferenc says, “Last year's awards, or in some cases the lack of any award, boosted regions to take action and to correct the issues revealed during the Angels quality monitoring programme. One region, the Southern Great Plain Region, proved to be an example as they won a diamond award last year, and others took inspiration from their story.”

Data collection was ultimately what turned gold into diamonds, Ferenc says. “Ongoing data collection from the whole system and close monitoring of all performance indicators have been key. Also,



involving regional directors and coordinators as champions in their region was crucial, as they were determined to resolve any issue based on our own and Angels' performance indicators.

“The more data we have, and the more thoroughly and precisely we analyse this data, the more valuable the feedback. We can find the gaps in the system, and we apply these findings when we create the next protocol set.

“As in other fields of life, analysis and synthesis of data lead to spectacular improvement.”

All the mothers you can save

Pâmela Godoy is an Angels consultant in Brazil. In January 2023, a surprise phone call showed her what it really means to leave your legacy. Now she wants others to know.

ON Saturday 14 January I received a video call from my friend Igor Sampietri. Igor and I were at nursing school together. We graduated from the Federal University of São Paulo in 2010 and have kept in touch ever since.

After nursing school I spent four years working in ICU, then moved to Los Angeles. When I came back to São Paulo in 2017 it was Igor who encouraged me to join the Angels Initiative.

São Paulo is located in southeastern Brazil. I work with hospitals here as well as in the state of Bahia in the northeast and in the Distrito Federal in the centre-west region. Every hospital presents its own set of challenges, and change is constant, but I couldn't love this project more.

When Igor called he was with Lais Gasparotto, another friend from nursing school. Lais had something to tell me.

Igor explained that Lais's mother-in-law, Ligia Nunes Costa, had a stroke on 15 December and was taken to Aliança Hospital located in Salvador, Bahia. The treatment she received was impeccable, and the outcome couldn't be better. She was discharged five days before Christmas and was recovering more every day. Now Lais and her husband wanted to thank the Angels consultant who had worked with this hospital.

From their description it was clear that the hospital treated Mrs Costa exactly the way I had trained them to do. Of course the only thing I could do was burst into tears from the gratitude I felt for being part of the Angels Initiative.

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They were already very good but they wanted to be better.

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“ALIANÇA HOSPITAL was one of the first hospitals I consulted in the year I joined Angels. It's a private hospital, and one of only a few comprehensive centres in Salvador. They were already very good when I started working with them, but they wanted to be even better.



Stroke survivor Mrs Ligia Nunes Costa with her family.

The chief neurologist at this hospital, Dr Jamary Oliviera, is a leading figure in stroke care in Brazil. He's an amazing professional and a wonderful, humble human being. Despite all his knowledge, he was open to hearing everything I said, always taking notes, and he encouraged his team to work with me.

He told them, “Listen to her, Angels consultants know what they're talking about.”

I helped them organise their system and training, but it was their enthusiasm and engagement that made the difference.

“THE universe was watching over the Costa family the day Mrs Costa had her stroke.

Firstly, her husband came home from work earlier than usual. When he

found his wife drowsy and struggling to speak, he called their daughter who is a gynaecologist. She told them to go to the hospital right away.

The second intervention by the universe was when Mr Costa decided to drive his wife to Aliança Hospital himself, rather than wait for an ambulance. An ambulance would have taken the patient to a public hospital as a matter of course, and thrombectomy is not available at these hospitals.

When the Costas arrived at the hospital, the patient was taken directly to CT, and once it was established that she was outside the treatment window for thrombolysis and had suffered a large vessel occlusion, she was immediately transferred to the angio suite for mechanical thrombectomy.

"AT this point in the story Ian Costa took the phone from Igor. What he said made me realise what it really means to be an Angels consultant: "I know you weren't there in that moment, but I know the work that you do. My mother is alive and her old self because of you and this amazing initiative.

"I cannot thank you enough, and everyone else in your team. You helped save my mother. All of you, you are saving so many mothers."

Well, I cried of course.

A few weeks later I received a voice note from Mrs Costa herself. She said: 'I have always used the services of the Hospital Aliança but I was surprised by the agility and promptness of the emergency care when I got there. It even surprised my sister who, as a doctor, had not seen such an efficient set of coordinated measures.

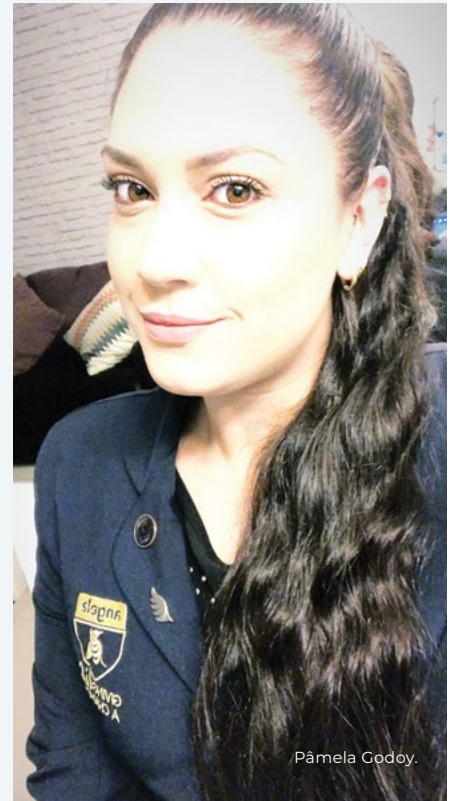
"These actions, so well-coordinated by the emergency team, is the reason I am here, telling you what happened. Right after the emergency team's intervention, I got my speech back and was able to thank those professionals who had saved my life and prevented me from becoming disabled.

"Gratitude to God for a hospital service of excellence like the one I found at Aliança."

“

Someone I know got
another chance at life
because of something I did
five years ago.

”



Pâmela Godoy.

Hearing these words made me emotional all over again.

"GROWING up I always wanted to be a doctor. I didn't really know what doctors did, just that they saved lives. But once I discovered what nurses did, I changed my mind.

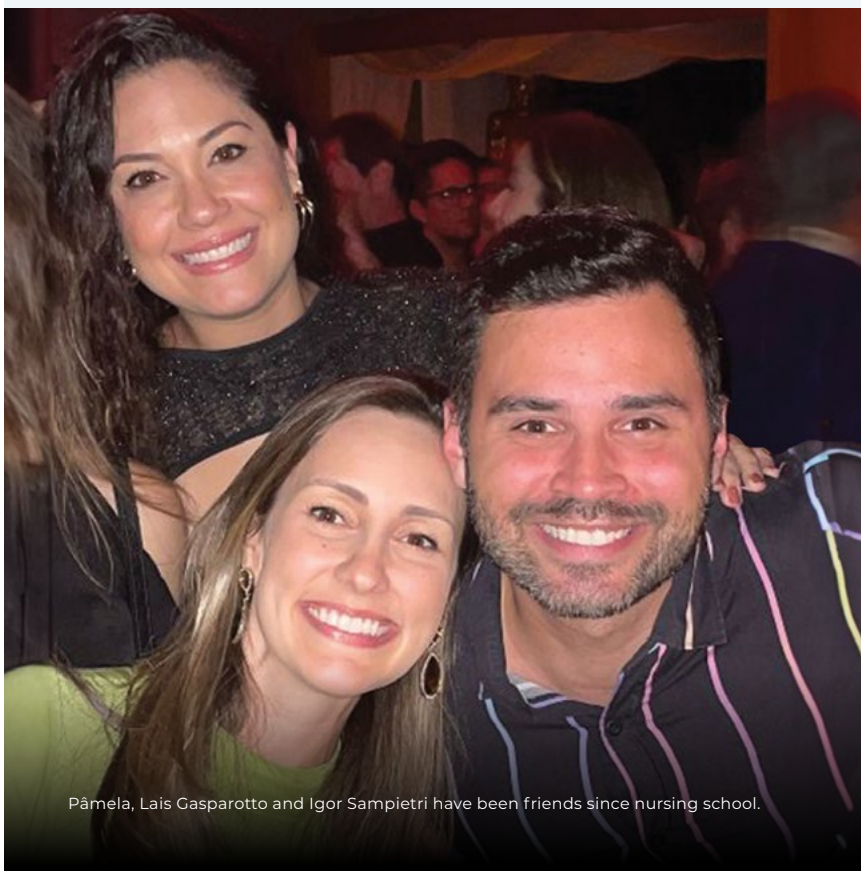
Nurses take care of the patient, not the disease, and at some level I have always taken care of people.

As an Angels consultant I know our work is important and that we have an impact on many people's lives, but 99 percent of the time we don't know the patients. I had never met Mrs Costa but I knew her son and his wife.

It hits you differently when the patient has a face and a name. Someone I know got another chance at life because of something I did five years ago. This, I have realised, is what it means to leave a legacy.

We often talk about legacy at Angels, and about giving life a chance, but after that phone call these familiar phrases seem to have a different meaning.

Since receiving that phone call I feel stronger and more inspired to do what I do. It has made me want to do more and do it better, every day and in every hospital."



Pâmela, Lais Gasparotto and Igor Sampietri have been friends since nursing school.

Hope, will & desire

Dr Ignacio Girolimini wanted to improve stroke care in his small town in Argentina. Dr Claudio Jiménez, who had transformed stroke care at his own hospital in Colombia, became his mentor. This is their story.

A MENTOR, says Oprah Winfrey, is “someone who allows you to see the hope inside yourself”. Hope was among the first things that struck Dr Claudio Jiménez, neurologist at Simón Bolívar Hospital in Bogotá, Colombia, when he met the young Argentinian doctor, Dr Ignacio Girolimini. Right after he noticed a strong resemblance to Lionel Messi.

“Ignacio had a will, and his hope was evident,” he says.

The two doctors met under auspices of the ROPU South America Mentoring Programme which is managed by Deborah Ferreras, Angels team leader for South America, and Cardiovascular Medical Manager Alejandro Lakowsky.

Dr Girolimini wanted to improve stroke care in his small town. Dr Jiménez, who has transformed stroke care at his own hospital in Bogotá, was appointed as his mentor. Elsewhere in this issue you can read more about both these doctors. Here is how this mentorship unfolded, in their own words.

Dr Claudio Jiménez:

I believe that all the work we've have been able to do in our institution and the experience we have gained achieves its real value when it is shared. So, why do I think it is worth getting involved in a mentoring programme to help build stroke centres and networks in Latin America? The reason is not only that these are needed, or that medicine is a common good for humanity, but that it is an obligation to share successful experiences beyond the narrow borders of “us” and “we”.

When I met Ignacio, the first thing



Dr Claudio Jiménez

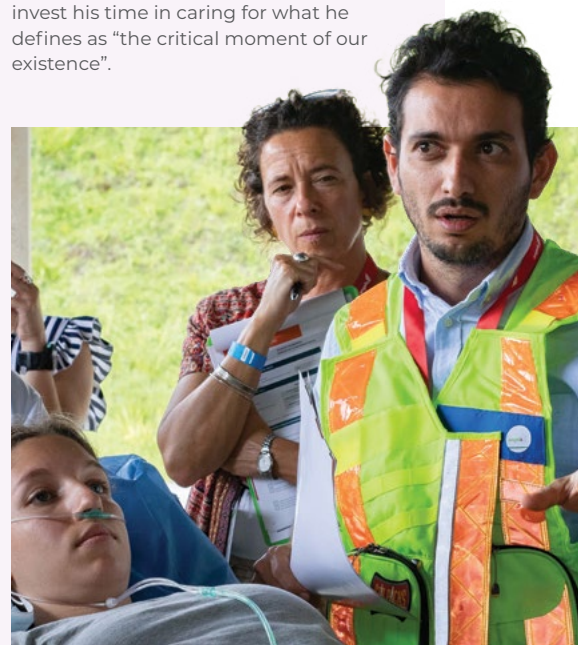
I thought was, “But he looks like Messi!!!” My next thought was that it is the same for all of us who have to start from nothing and want to change the care processes for people who suffer a stroke. I had all the same doubts at the beginning of building our team and finally our stroke centre. So we began a dialogue that started from

what for me is a premise in this type of venture:

“Ignacio, they will tell you a thousand times that the plan is not viable. You must keep believing that you can, until you achieve it, because you will achieve it.”

And with this expression of panic mixed with enormous hope he told me: “Let's go to work, we already have a tomograph!”

I saw a human being willing to invest his time in caring for what he defines as “the critical moment of our existence”.



Dr Sheila Martins always says that “will and a tomograph” are all that is required to treat a stroke. Ignacio had a will, and his hope was evident. I firmly believe that these are the two things that move us. Where there is will and hope we have the fundamental tools for success. Then we learn to tolerate failure and overcome resistance. Ignacio possessed these basic and necessary attributes.

Something else that is very important, and that Ignacio does with absolute naturalness, is that the work of the leader is key, but the trick is to be an example. They say when you're a good leader people don't follow orders, they follow suit. Ignacio is always the first to take a case, always willing to answer the call for a stroke code, and this permeates the whole group – the desire to do the same and work tirelessly to help the patient.

The challenges of stroke are universal. It always starts with one or two people who want to implement a care protocol. Then there are technological limitations, which fortunately in Ignacio's case was resolved with the donation of a CT scanner to his hospital.

Administering drugs to reperfuse patients with acute ischaemic stroke is one thing. It's another thing to collect data, manage it, analyse it and use it so the team grows. For a single doctor to carry out the clinical work and then having to load data into Excel tables on his nights or free weekends, that is a barrier. Once

again Ignacio has taken on that job, but as the population learns how to recognise stroke system and the patient volume grows, that can become untenable.

Then there all the limitations of the healthcare systems in our regions – whether or not a patient has social security or arrives at a hospital that cannot treat them and then has to be transferred to a centre that has tomography. This is why we spend time talking about stroke networks.

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The Angels mentoring programme is more than a beautiful initiative, it is a global need.

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Networks are the only way to end the terrible access barrier to reperfusion therapies in acute stroke.

The Angels mentoring programme is more than a beautiful initiative, it is a global need. It is very important that the experience of doctors be shared beyond studies in medical journals, which are of course key to the development of our science. However, we must invest in transferring our experience directly to people and groups of people who need it, especially in communities with difficult access to resources.

I have had mentors throughout my professional life, from my undergraduate studies to my training as a neurologist and neurophysiologist. But if I have to name someone who helped me develop the skills I have today and find the tools I possess, it is undoubtedly Dr Liselotte Menke Barea, a neurologist in Porto Alegre, Brazil. She was the head of the service when I was training there and her personality, her discipline and her delicacy in dealing with patients totally transformed my way of practicing medicine.

Dr Ignacio Girolimini

What motivated you to apply for this mentorship programme; what did you hope to achieve?

In the first instance, we found ourselves without a clear guideline on



Dr Ignacio Girolimini

how to proceed, how to unite efforts and give order to the multiplicity of tasks that we had to carry out. An EMS doctor, Dr Carlos Ruffini, suggested that I present our project for the mentoring programme.

We hoped to have a guide and receive help with organising and consolidating the project of establishing a stroke unit in our hospital.

What did you know about Dr Jiménez before your association began?

Prior to our work together I did not know Dr. Jiménez or his impressive work in Bogotá.

Please describe your first meeting with Dr Jiménez and your initial impressions of him.

Meeting Claudio was a great experience. He is a person with a lot of commitment, knowledge, passion and above all empathy for his colleagues in situations similar to his.

What qualities did you observe in him that make him a successful mentor?

His dedication and commitment, always with the conviction that our reality in Latin America can and should be changed, and that we can aspire to offer comprehensive and quality care to our stroke patients.

How did his mentorship impact the breakthrough in stroke care at your hospital?

I am very grateful for the support of Dr. Jiménez in backing us in the formation of the stroke unit. It has been very helpful when it comes to consolidating ourselves as a work team and not just a temporary one-man initiative.

How do you see the value of this kind of programme, and do you see yourself as a future mentor to younger doctors?

Programmes like this are essential, above all to support those of us who are far from large cities or centres of high complexity. I am completely available to give back everything they have given us, and I would be delighted to share our experience.



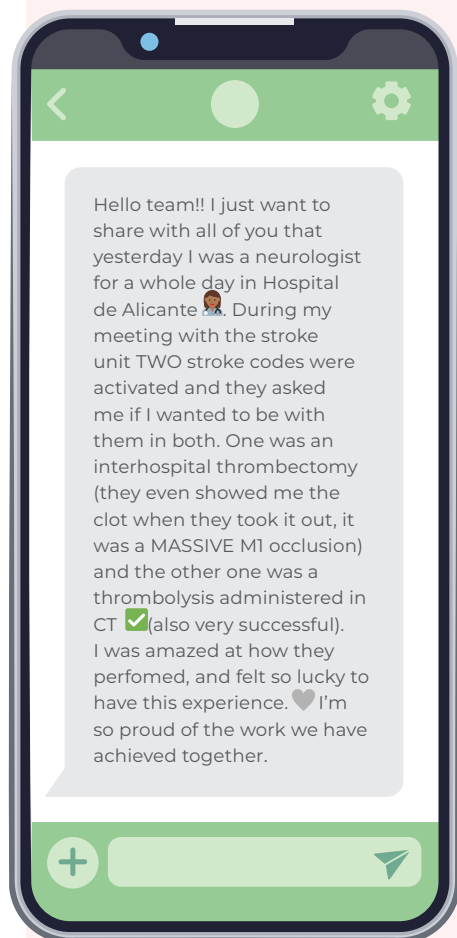


Walking in their shoes



When two stroke codes interrupted a meeting at a hospital in Spain, an Angels consultant was allowed to become part of the stroke team. The experience almost made her apply to med school but turned out to be transformative in several other ways.

SHORTLY after 7pm on Wednesday 5 July 2023, Maria Atienza posted the following message in a WhatsApp group of Angels consultants:



Hello team!! I just want to share with all of you that yesterday I was a neurologist for a whole day in Hospital de Alicante 🇪🇸. During my meeting with the stroke unit TWO stroke codes were activated and they asked me if I wanted to be with them in both. One was an interhospital thrombectomy (they even showed me the clot when they took it out, it was a MASSIVE M1 occlusion) and the other one was a thrombolysis administered in CT ✅ (also very successful). I was amazed at how they performed, and felt so lucky to have this experience. ❤️ I'm so proud of the work we have achieved together.

In a picture she shared, Maria wore pale blue scrubs instead of her navy blue Angels blazer. Here she tells the story.

We have a stroke code

"I am the Angels consultant for Comunidad Valenciana, which consists of the provinces Valencia, Alicante and Castellón. It is a difficult region because a shortage of resources generates a degree of resistance to change. There are however bright spots like Dr Nicolás López at the General University Hospital of Alicante who has developed an app used by five hospitals in the region to register their stroke codes.

Coming from Barcelona, I'd spent the previous night in Valencia where I had an appointment at Doctor Peset University Hospital at 9 am on Tuesday morning. From there it's about 90 minutes to Alicante, where Nico and I were going to discuss how the app data could automatically be transferred to the stroke registry, RES-Q. Then I would grab something to eat and head back to Barcelona.

Nico was on duty that morning and during our meeting his cellphone

rang. "We have stroke code," he said.

This hospital is the main one in Alicante and the only one that does thrombectomy. The patient for whom the code was activated was coming from another hospital. He was 87 and had survived a previous stroke.

Another call came in at the same time. This patient, a 55-year-old previously healthy male, had had a stroke while hiking with a friend. With only one thrombectomy room, there was a decision to be made.

I'd never observed a big hospital having to make a decision as difficult as this. It made sense that the hospital has to optimise its resources, but if the 87-year-old had been my grandfather I would have found it very hard.

We were losing time

When Nico asked if I wanted to change my clothes and see a stroke code, of course I said yes! I changed into the scrubs they gave me and joined them in the emergency department to wait for the ambulance.

The patient when he arrived was frustrated and crying. A visitor from the Netherlands, not only did he

not understand Spanish, but he had massive aphasia and couldn't speak at all. Nico performed the NIHSS in English and gently explained that they would be taking him to the CT room to confirm his diagnosis and treat him.

The patient's symptoms had started at 10 am. It was now around 11.45 am, so he was still within the treatment window. The pharmacy had already been notified to prepare the thrombolytic drug. However, the diagnosis wasn't clear. Although his clinicals suggested a massive stroke, they couldn't see the occlusion. And we were losing time.

The patient had high blood pressure, which is a contraindication for thrombolysis. Once they'd lowered the pressure, they commenced treatment at CT, then removed him to the stroke unit.

It was now about 12.30.

Twenty minutes later the patient was asking for his phone. He was still aphasic but able to speak a bit, and he was typing with both hands. It had turned out to be a small occlusion and he wouldn't need thrombectomy after all.

over, but I stayed with the others as they waited in the street outside the hospital for the patient to arrive.

This patient's condition seemed less severe than that of the earlier one. She could speak a bit but was confused. She was a visitor from Germany and knew no Spanish, but one of the neurologists, who had spent a year in Germany, spoke to her in German.

It is one of the challenges in Alicante, that resources are allocated based on the resident population. The region is very popular with tourists some of whom engage in risky behaviour while on holiday. During summer they see as many as five strokes per day and there are people on the staff who speak German, Russian and of course English.

I joined the neurologists watching on a big screen as the catheter went in from the groin to the brain. The CT had shown a massive M1 occlusion, but full recanalisation was achieved after a single pass. It took maybe 30 minutes. I was so excited!

I'd arrived in Alicante around 11 am and it was now 5 pm. In all the excitement I'd forgotten to eat, but I wasn't hungry. With Barcelona five hours away, I wouldn't get home until 10 pm. I didn't care, I was so happy.

When I got home, I called my mom and told her, I have to go study medicine now! I had always wanted to be a doctor, but life happens. I only just missed being admitted to medical school and studied pharmacy instead. For a moment I wondered if I should've repeated the test.

This is what we fight for

As a consultant, this experience affected me in so many ways. I was able to see the real impact of our work. I had grown used to seeing the Angels stroke bag in simulations and thinking maybe it is only because we're here. When I saw them grab the bag and say, come on, let's run, it was almost a shock.

While we were waiting in the street for the ambulance, the neurologist asked every ambulance that arrived, is this my stroke code? This mindset is what we fight for. It was so rewarding to see.

The stroke team at this hospital does more with less. Despite limited resources, they implement an almost perfect pathway. They treat at CT, do point-of-care testing and they're always prenotified by the ambulance or referring hospital. The patient is preadmitted and the nurses in triage also know the code is coming. Once they open their new ER, the patient will go directly to CT.



The doctors in Alicante made me feel part of the team. They didn't leave me standing in the back, they asked questions and involved me in the conversation. Afterwards one of the neurologists said, I have only ever worked in Alicante, I do not have a vision of different hospitals like you do. Tell us how do you see us, give us feedback, how can we improve? It made me feel valuable.

My relationship with the team has changed completely. I feel that I can count on them, that they will do what they can to help. I'm already thinking of using them as an example for the region.

Go with the flow

So far, the hard part of my job has been dealing with people. That may still be true but this experience has empowered me.

The first time I visited this hospital last December I had been a consultant for little over a month. I thought, what can I say that they don't already know? But I kept reading and learning, and on this occasion I discovered that I knew what to ask, I knew what to answer.

I've also learnt that it's sometimes okay to just let go. As consultants we work hard to organise our entire days – when to travel, when to meet, when to sleep. Usually I am very structured, I write everything down, I struggle with improvisation. But this time I didn't care about what I'd been planning to do that afternoon.

Spending time with doctors is important because otherwise an experience like this couldn't happen. And when the opportunity comes, you should take it. Don't even think about it because a chance like this may only come along once."



It took a single pass

On the same afternoon the team was notified of 73-year-old stroke patient being transferred from Hospital de Torrevieja an hour away. The woman was on anticoagulants and therefore ineligible for fibrinolysis. She would go to thrombectomy as soon as she arrived.

It was now 3 pm and Nico's shift was



In conversation

Ecuador & Jordan

They live in different cultures, and in different time zones, but they have both felt the impact of stroke in their families, and are dedicated to giving stroke patients a second chance at life. We asked SOL PLAMENATZ, Angels team leader for Ecuador and Peru, to nominate a fellow consultant and ask her 10 questions. Sol nominated BAYAN ALFOQHA, Angels consultant in Jordan, who responded with questions of her own. Here is their conversation:

Sol to Bayan

Sol: How long have you been an "angel"?

Bayan: In May 2023 it will be four years.

Sol: What motivates you the most about your work?

Bayan: It's hearing about a patient's life saved, and about the quality treatment they received at the hospital, and witnessing how excited stroke teams are about the difference they have made for every patient.

My maternal grandfather had a stroke and suffered for a long time. His name was Nemer, which is "tiger" in English, but it means he was a very brave, very tough, smart man. Unfortunately he suffered from diabetes which was managed with insulin but poorly controlled. Frequent exposure to hypoglycemia increased his risk of stroke. He had several minor strokes and due to lack of stroke awareness wasn't treated in time.

The strokes affected his memory and compromised his motor skills. Eventually he could no longer recognise my mother – his own daughter – and he was angry that my grandma, who had been the love of his life, never visited him in hospital. He forgot that she had passed away and believed his love no longer cared about him.

Stroke doesn't only kill brain tissue, it can also break your heart. That is why this work is my passion – so that other

grandfathers will have a chance to remember all the good old memories and create new ones. Everybody deserves that.

Sol: How do you think you go the extra mile in Angels? Do you think you'd do the same in another job?

Bayan: Prioritising the patient is what makes me push my hospitals to provide the best quality care to their stroke patients. I do think I would have the same level of dedication in any other job, I will always go the extra mile, but in Angels, it's the emotional part that drives you to do more.

Sol: Tell me about a rewarding experience in your time in Angels.

Bayan: The moment I realised that I was one of the reasons why a 23-year-old stroke patient and new mom would get to raise her baby with her mental and physical abilities intact. Especially because I am a new mom and I know how hard it is to take care of your baby.

Sol: Do you remember the first hospital where you worked as a consultant? What's different now?

Bayan: At the first hospital I worked with, the neurologist had had a bad experience with thrombolysis and the hospital was very resistant. Now it has a diamond award and is considering expanding its stroke unit capacity.

Sol: What do you think is the most difficult part of your job?

Bayan: In Jordan, state hospitals provide



Sol Plamenatz

treatment to 70% of the population which means an enormous workload for staff. As a result they're not very open to new protocols and pathways. The resistance, and convincing them of the difference they could make in stroke patients' lives, is the most difficult part.

Sol: How do you manage to prioritise when more than one hospital asks for your help?

Bayan: I am the only Angels consultant in Jordan and I cannot manage a large number of hospitals at the same time. My strategy is to be honest about when I will be able to start the consultancy, and to highlight that it's not because their centre is less important than other

centres, on the contrary – it's a matter of timing and capacity.

Sol: What do you think your country should work on to make the burden of stroke visible?

Bayan: Awareness, mostly, as patients unfortunately still arrive outside the therapy window, which severely impacts the thrombolysis rate.

Sol: Do you think the Angels model is unique? Why?

Bayan: Of course it is. I have worked in three therapeutic areas before and Angels has the highest impact on patients' lives and on doctors. The help we offer and the way we communicate must meet high standards, and the respect they show us in return shows how unique the initiative is.

Sol: How do you see the initiative in five years' time?

Bayan: Let me put forward two views. One is expanding to new countries, especially in the Middle East, as there are still gaps in stroke management in many surrounding countries. In Jordan itself, because we have limited numbers of neurologists, official sanction from the ministry of health for emergency doctors to handle decision-making in hospitals where there are no neurologists. This will help achieve my vision for saving 5,000 patients yearly in Jordan.

Bayan to Sol

Bayan: How would you describe the current stroke management in your country?

Sol: With many opportunities for improvement. Although we have done a lot in these past four years, we still need important authorities (such as the ministry of health) to be more involved in creating awareness, especially in the community, so that people can recognise stroke symptoms and understand the importance of acting fast.

Bayan: What is your daily motivation?

Sol: Without a doubt, it's knowing that every grain of sand that we put into our work will be reflected in the treatment of patients and in lives saved. When I go to a hospital and doctors mention that they know about Angels and I see that they are using our materials when treating patients, it fills me with pride and gives me the strength to continue.

Bayan: What was the moment you felt you had the most influence on stroke care?

Sol: Every time a doctor contacts me because they are interested in Angels courses, or they ask for materials, or because they want to replicate what we did at another institution. In those moments I feel that we are making a difference.

Bayan: What was the stroke patient

story that inspired you the most?

Sol: It's the story of a centre in Ecuador that went from a non-treating to a treating hospital in three months. We did multidisciplinary training in April, had a successful simulation in May, and in June their first patient was thrombolysed in record time. When the treating doctor told us the story, he was so excited that we were overjoyed. Not only did it save one life, but it opened the doors for that institution to start saving many more.

Bayan: Which of your hospitals are serving stroke patients with the highest quality? And why?

Sol: In Ecuador it would be the Eugenio Espejo Specialty Hospital, one of the biggest in the country. They're lucky to have a medical director who is very involved with Angels and wanting to improve the treatment of stroke patients. They are trying very hard to win an Angels Award.

I also think of the IESS Hospital in Ambato, the first hospital in Ecuador to receive an Angels Award. During 2022 two doctors from this hospital reached 15 other institutions to tell them how they did it and to help improve processes in hospitals that needed it.

In the case of Peru, the National Institute of Neurological Sciences is led by a neurologist who has dedicated years to improving the processes and treatment of patients with stroke. It is one of two public hospitals in Peru that has WSO certification. They have the most patient data in RES-Q and constant analysis has helped them improve their door-to-needle times. They also conduct annual courses for the entire medical community, and launch a community-based awareness campaign every year in October.

Finally, there is Ricardo Palma Clinic, a private centre that achieved WSO certification in 2022 thanks to a stroke team that spends hours and hours finding the best way to treat stroke patients.

Bayan: What has been your toughest challenge in your Angels journey so far?

Sol: On the one hand, it's reaching government authorities to ensure that stroke really occupies the space it deserves on the health agenda. We have been successful in Ecuador but in Peru we are still trying.

The other big challenge is time. We are only two people covering two countries, and sometimes we cannot respond to institutions as fast as we would like.

Bayan: What makes Angels different from other healthcare initiatives?

Sol: I have not yet found, at least in Peru and Ecuador, an initiative that does what we do. We are allies of healthcare personnel, all pursuing the same objective, to improve the ratio of



Bayan Alfoqha

patients treated so that more stroke patients have another chance at life.

Bayan: How has working for Angels affected you personally?

Sol: When doctors tell us that their hospital started treating thanks to Angels, and our simulations and training, this gives me enormous excitement and satisfaction for the work I do.

I had a case of stroke in my family, and every time a doctor tells me about a successful thrombolysis I think of that family member who was waiting for their favourite person to walk out of the hospital, and their joy at seeing them healthy and being able to share new adventures together. Knowing that we are doing everything possible to generate new opportunities for millions of families is truly priceless.

Bayan: What has changed in your country since you joined?

Sol: Undoubtedly the greatest achievement has been in Ecuador, where we managed to give stroke the visibility it needed. A few months after I joined Angels, an agreement was signed with the vice president of Ecuador in terms of which 30 hospitals would become stroke-ready centres within two years. We have also generated an awareness campaign with three different ministries to continue promoting awareness among the population.

Bayan: What is your best advice for fellow Angels?

Sol: That this is completely different from what they may have experienced in the past. I would also mention the satisfaction to be gained from seeing changes impact patients' lives. I would tell them that the Angels team is awesome and that we all have a collaborative and empathetic spirit that I have not seen in other places.

We are happy when we see stories from countries we've never been to, we're interested in replicating good practices from people we don't know, and we celebrate the successes of hospitals we've never heard of before. It's not just with the doctors and hospitals, we are a motivation to each other.



Stepping out for stroke



To commemorate World Stroke Day on 29 October 2022, FAST Heroes ambassadors from the Angels Initiative participated in Singapore's annual stroke awareness walkathon, Stepping Out For Stroke.



STEPPING Out For Stroke is an annual event organised by the Singapore National Stroke Association to raise awareness of stroke and support stroke survivors and their caregivers. The 2022 walkathon took place on the final day of the World Stroke Congress in Singapore when about 700 participants gathered at the Bayfront Event Square in Marina Bay.

The walkers were given their marching orders by guest of honour Ms. Sun Xueling, Minister of State in the Ministry of Home Affairs and the Ministry of Social and Family Development, who officiated at the event.

To increase public awareness of stroke, Jan van der Merwe, Project Lead for the Angels Initiative, shared more about the FAST Heroes 995 programme at the event.

FAST Heroes is a programme designed for children between the ages of 5 to

9 years old. It encourages children to become superheroes who transfer essential knowledge about stroke to their parents and grandparents.

Children enrolled in FAST Heroes at their schools learn about the most common symptoms of stroke and the



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The project has received the endorsement of the **World Stroke Organisation, Stroke Alliance for Europe, and the Schools for Health in Europe Network Foundation.**

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importance of calling an ambulance immediately if these symptoms appear. Each child nominates two grandparents whom they will educate about stroke, a strategy that leverages the emotional connection between children and their grandparents to reach the audience most vulnerable to stroke.

The children's parents gain knowledge through incidental learning – the accidental or unplanned learning that takes place as a result of everyday life and occurs through observation, social interaction and problem-solving, rather than formal instruction.

The project has received the endorsement of the World Stroke

Organisation, Stroke Alliance for Europe, and the Schools for Health in Europe Network Foundation. It was developed by the Department of Education and Social Policy at the University of Macedonia in Thessaloniki, Greece, and incorporates the local emergency number in countries for which it has been adapted.

The Angels Initiative team in Singapore partnered with the Singapore National Stroke Association (SNSA) to launch the FAST Heroes programme in schools. Children are taught to recognize the three main

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At the 2022 walkathon, FAST Heroes ambassadors, stroke survivors and their caregivers donned a special mask to enter the Singapore Book of Records for **“Largest Mass Walk Wearing Superhero Masks”**.

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stroke symptoms – facial droop, arm weakness and speech difficulty – and to call the Singapore emergency medical number 995 immediately when a stroke is suspected.

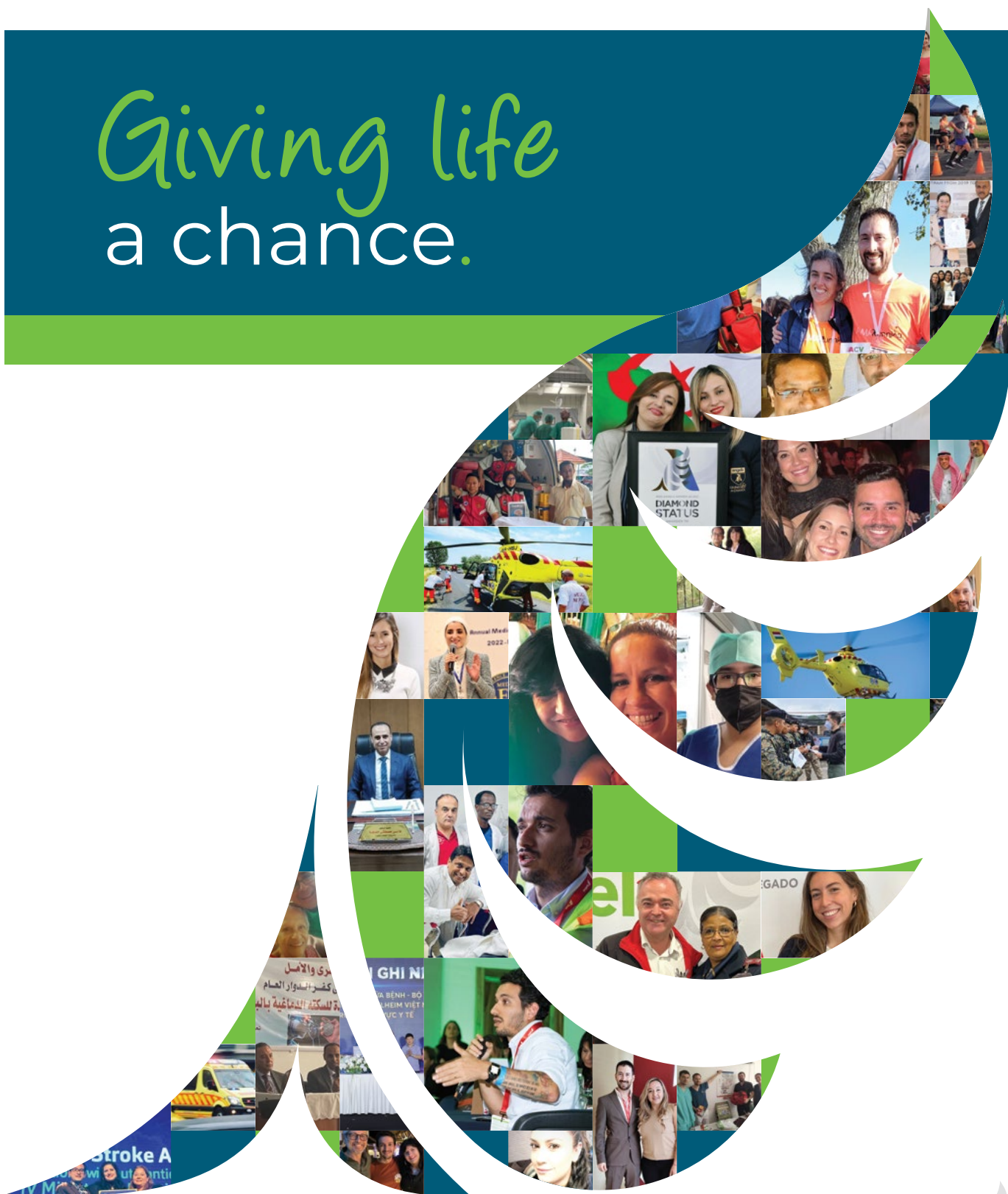
FAST Heroes 995 initially reached out to 63 kindergartens and more than 2,800 children and was extended to primary schools in 2023 in collaboration with the Ministry of Education.

Teachers have commended the programme for its emphasis on maintaining and strengthening the relationship between children and their grandparents, which is aligned with the value of filial piety that schools strive to teach in the classroom.

At the 2022 walkathon, FAST Heroes ambassadors, stroke survivors and their caregivers donned a special mask to enter the Singapore Book of Records for “Largest Mass Walk Wearing Superhero Masks”. The organisers hoped that the event would empower more members of the public to become “superheroes” themselves, able to recognise stroke symptoms and save lives.



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