

MAGAZINE  
2013

# PERSPECTIVES





MAGAZINE  
2013

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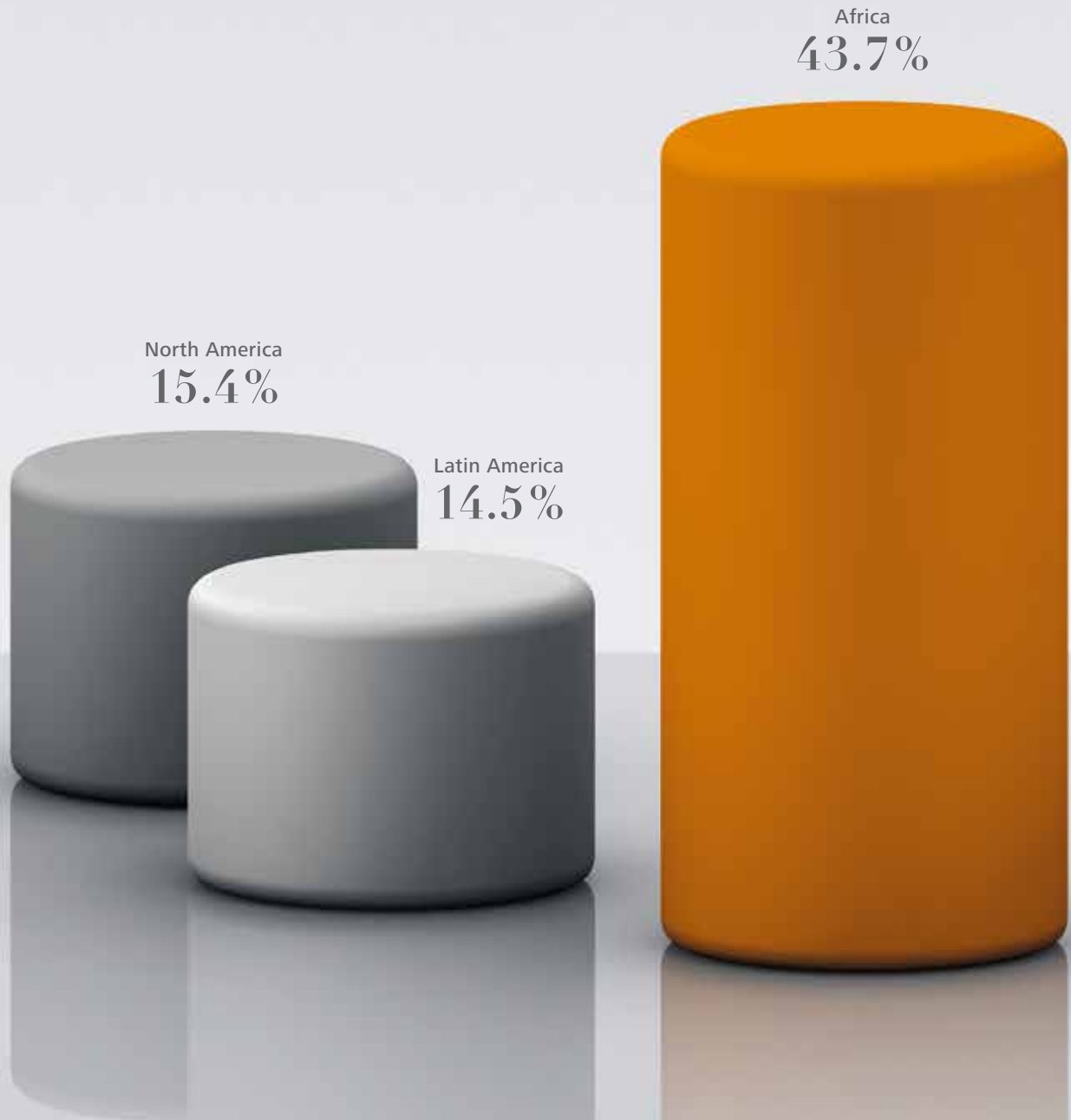
# THINKING ABOUT TOMORROW

People are getting older and our lifestyles and diets are changing radically – obesity is not uncommon. This leads to a growing risk of contracting lifestyle diseases like diabetes and chronic kidney failure later on. As a result, more and more people need dialysis treatment. At the same time, constant improvements in medical care mean that dialysis patients are living longer and therefore need treatment longer, too.

Fresenius Medical Care is facing up to these challenges and is already doing all it can to ensure that tomorrow's patients also receive reliable long-term care.



DEMOGRAPHIC DEVELOPMENT  
POPULATION GROWTH 2013 – 2030



The global population is expected to increase by 17% to 8.3 billion people by 2030. By now, more than half of all people live in the Asia-Pacific region. The population growth will be concentrated in today's developing and emerging countries. In these regions, the population is

likely to grow around seven times faster than in industrialized countries to a total of 7.0 billion people by 2030. A particularly high percentage increase in the global population is expected in Africa. Many developing and emerging countries are lagging behind in certain aspects

Worldwide

**17%**

Middle East

**25.6%**

Asia-Pacific

**12.9%**

Europe

**1.3%**

of healthcare. In some countries, many patients are only now gradually gaining access to adequate dialysis treatment thanks to the ongoing establishment and expansion of sustainable healthcare systems. This development is expected to continue. Fresenius Medical Care has been

present in regions such as North Africa or Eastern Europe and countries such as China and India for many years now. We intend to expand our activities in these markets in the future.

PERCENTAGE OF OVER-65s  
IN 2030



The percentage of older people in the population is increasing: Between 2013 and 2030, the average age is set to rise by 5.1 years, in developing countries by as much as 5.5 years. The number of people aged 65 and older is likely to almost double to approximately 990 million by 2030 and thus account for around 12% of the global

population. At present, the age of dialysis patients is on average 65. With age, kidney function deteriorates – a natural process. In combination with risk factors, such as longstanding diabetes or high blood pressure, it can lead to chronic kidney failure.



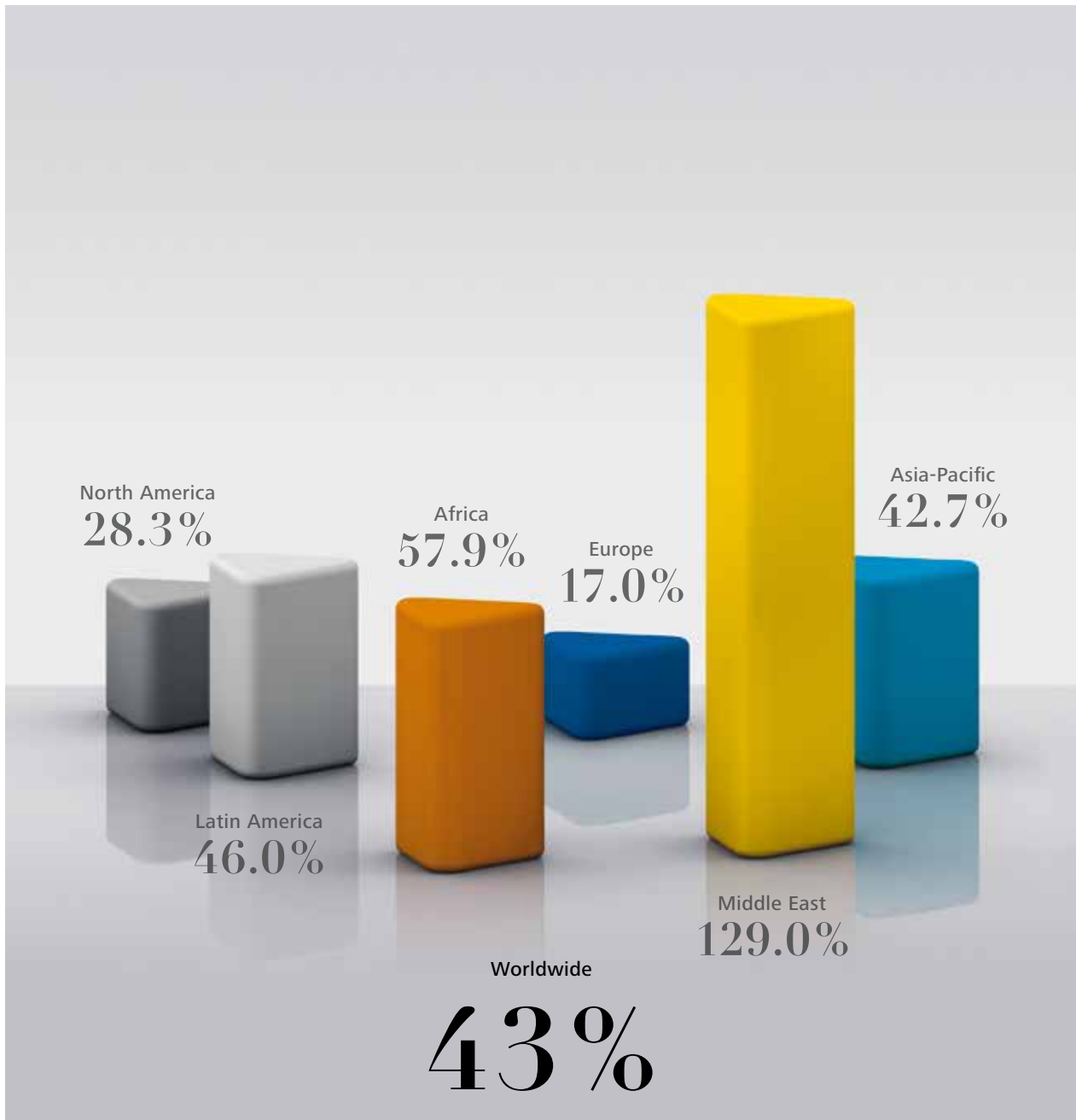
PERCENTAGE OF OBESE PEOPLE  
IN THE U.S.



Studies indicate that the number of obese people is rising exponentially. In the U.S., it is particularly high. Obesity is not just a cosmetic problem – it can promote illnesses that

cause renal damage such as diabetes, cardiovascular disease and high blood pressure.

**DIABETES PATIENTS AGED BETWEEN 20 AND 79  
DEVELOPMENT 2013 – 2030**



Lifestyle diseases such as diabetes are on the rise. They are becoming increasingly common due to factors such as lack of exercise, an unhealthy diet and obesity. The increase in the number of diabetes patients is especially

high in developing and emerging countries. Longstanding diabetes is one of the most common contributory causes of kidney damage.

## NUMBER OF DIALYSIS PATIENTS 2013 AND 2030



In the years ahead, the number of dialysis patients is expected to rise by 6% per year. Are there currently 2.5 million patients worldwide, the number is expected to increase to around 6.5 million by 2030. We anticipate considerable regional differences: We expect growth

rates of around 2 to 4% per year in the U.S., Japan, Western and Central Europe, and up to 10% per year in economically weaker regions. Fresenius Medical Care currently treats more than 10% of all dialysis patients worldwide.

Company perspective  
Tapping into new markets

Patient perspective  
Quality of life

# AFRICA CHANGING TIMES

## إفريقيا في نهضة جديدة



In many countries in North and West Africa, the economy is performing strongly and public spending on education and health-care is rising. Fresenius Medical Care is orchestrating efforts to establish care for dialysis patients throughout this region. The work is coordinated in our Moroccan office. Having worked in North and West Africa for many years, employees like Redouane Belhaimeur are familiar with the challenges in the region. This is what a normal working day is like for Redouane Belhaimeur in Casablanca ...



01



11

02



03



04



- 01 – Morocco's largest city is the country's economic heart.
- 02 – Casablanca is a modern major city. Fresenius Medical Care runs its business in North and West Africa from here.
- 03 – The metropolis by the sea is also Morocco's most important port.
- 04 – Redouane Belhaimeur and his colleagues serve the whole of North and West Africa, a region the size of Western Europe.
- 05 – The cityscape of Casablanca is dominated by the Hassan II Mosque. It is the fifth-largest mosque in the world.

05





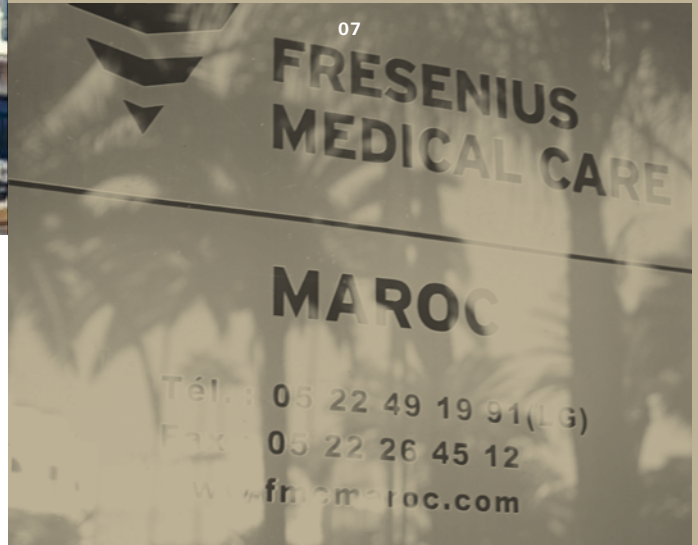


**06** – The morning traffic jam is part of everyday life in Casablanca.

**07** – Fresenius Medical Care bundled its activities in North and West Africa in 2012. The office is located in Casablanca.

**08** – A management team of German and Moroccan employees develops strategies to serve the growing African market.

**09** – A coffee and a quick look at the daily newspaper is often all there is time for at lunch.



MARIO GRASER

“We are the market leader in North and West Africa because we have been doing development work in this region for a long time.”

“نحن شركة رائدة في شمال وغرب إفريقيا لأننا قد باشرنا منذ سنوات طويلة تنفيذ مشاريع عمرانية تنموية في هذه المنطقة.”

## IN THE MORNING

### في ساعات الصباح

8:45 A.M.

Rush hour in Casablanca. Just getting to work is a test of patience for Redouane Belhaimeur. The 15-minute drive from his home through the morning traffic to the office can sometimes take up to an hour. Today, though, the congestion in the megacity by the sea is no worse than usual. "The traffic is really terrible", sighs the marketing and sales manager of Fresenius Medical Care Morocco, weaving casually through the string of cars and trucks, whose drivers pay very little heed to lanes and signs.

9:15 A.M.

The first meeting of the day. Application consultants have returned to report from Burkina Faso, one of the poorest parts of the sub-Sahara region, where they have been teaching nurses how to use dialyzers, among other jobs. A shortage of skilled staff is one of the biggest barriers to development in African healthcare systems.

Of the 85 Fresenius Medical Care employees in Casablanca, twelve are in Belhaimeur's team. Most of them are application consultants and sales specialists. They serve a market that covers around a quarter of the African continent in geographical terms, roughly equivalent to the size of Western Europe. It includes prospering nations like Gabon, Cameroon and Senegal, but also countries like Burkina Faso, Niger and Togo, which have not yet caught up with the generally positive trend in North and West Africa.

10:45 A.M.

Redouane Belhaimeur has closed his office door. "It's sometimes hard to concentrate here," the 47-year-old admits. As marketing and sales manager, his job involves coordinating lots of new projects as well as employees, and that can only be done in the office. He used to work from home occasionally if he had to develop important concepts, but since Fresenius Medical Care Morocco was merged with the Central and West Africa regional office – also located in Morocco – in 2012, his work routine has changed.

"This merger was very important to take into account the new situation", explains Belhaimeur. One factor

contributing to this "new situation" is the huge economic upturn in North and West Africa which is reflected in the development of the healthcare system. Between 2005 and 2010, Fresenius Medical Care's revenue in the region increased fivefold. Most nations are investing in their medical infrastructure, even during political crises. In Morocco itself, the healthcare system is currently being reformed. For Fresenius Medical Care's production site in Morocco, this means regularly expanding its production volume and even providing a wide range of export services. "We have been assigned more and more new tasks in recent years. Now we are able to use the resulting synergies of the merger and can organize our work more efficiently", says the marketing manager, explaining one of the advantages of the amalgamation of Fresenius Medical Care Morocco and the Central and West Africa regional office.

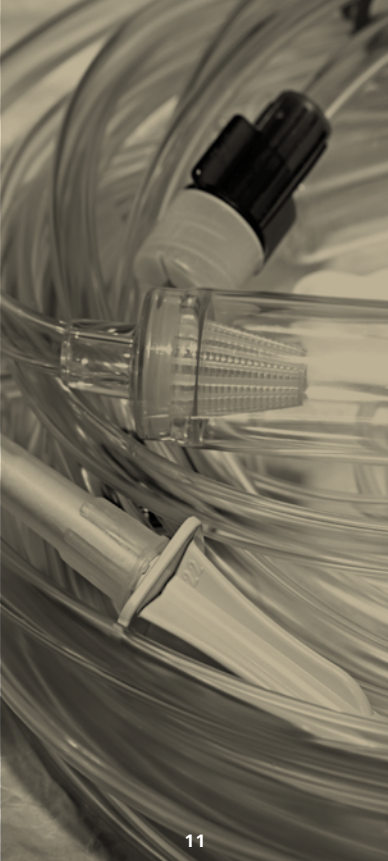
## AT NOON

### في ساعات الظهيرة









11



15

12

- 10 – Redouane Belhaimeur has been working for Fresenius Medical Care in various functions for over two decades. Having spent many years in North and West Africa, the marketing and sales manager knows the region well.
- 11 – Demand for dialysis products and services is growing throughout Africa.
- 12 – A visit to a dialysis clinic: Redouane Belhaimeur in conversation with a nephrologist.
- 13/14 – Changing times in the healthcare sector: More and more dialysis patients are benefiting from high-quality products made by Fresenius Medical Care.



13



14



#### REDOUANE BELHAIMEUR

"The huge economic upturn in North and West Africa is also reflected in the development of healthcare systems. Between 2005 and 2010 alone, Fresenius Medical Care's revenue in the region increased fivefold."

“إن الإزدهار الاقتصادي الهائل الذي تشهده منطقة شمال وغرب إفريقيا  
ينعكس أيضا في الأنظمة الصحية. إذ ارتفع حجم مبيعات فريزينيوس  
ميديكال كير بنسبة خمسة أضعاف ما بين عام 2005 و 2010 فقط.”



11:30 A.M.

Redouane Belhaimeur is on the telephone, discussing the current status of a project in Senegal with customers. "I know all of the most important customers personally", he states. "I used to spend at least three months a year out and about in North and West Africa. Although my employees do that now, I'm obviously still in touch with many contacts from that time." Redouane Belhaimeur has been supporting Fresenius Medical Care's activities in Africa since 1991. "Back then, I set up the first two dialysis machines for Fresenius Medical Care in Morocco", recalls the sales manager. "Later, I spent two years working on a project in Libya for Fresenius Medical Care." When Fresenius Medical Care's Morocco subsidiary was founded in 2002, he returned with his family to work in his home city of Casablanca. Over time, the trained technician also became a sales professional. "I actually learned the art of selling as a child, in my uncle's clothes shop", laughs Belhaimeur. To back up his natural talent, he studied at business schools in Morocco and France and earned a Master of Business Administration degree.

12:30 P.M.

On the way to an appointment, Redouane Belhaimeur uses his lunch break to visit the Hassan II Mosque. The city's largest mosque boasts the world's tallest minaret, soaring 210 meters high, and holds up to 25,000 people. The mosque's roof can be opened to enable uninterrupted contact between the water and the sky – a theme from the Koran. "For me, prayers are an important part of the day, a kind of short meditation", says Belhaimeur. In the Arab world, it is normal to break off meetings for a short while to pray. "This can be very practical", notes the marketing specialist, who has already completed the pilgrimage to Mecca twice: "I often come up with surprising solutions and good ideas after these breaks."

1:45 P.M.

Only nephrologists are allowed to operate dialysis centers in Morocco so far. "If the regulatory framework were to change, Fresenius Medical Care would also like to expand its activities in the region as an operator of dialysis centers," explains Belhaimeur. Private dialysis centers, such as the ones he is visiting this afternoon in Casablanca, often only have the technical equipment for very simple treatments. "We aim to significantly improve the quality of dialysis in the future", says Belhaimeur. The

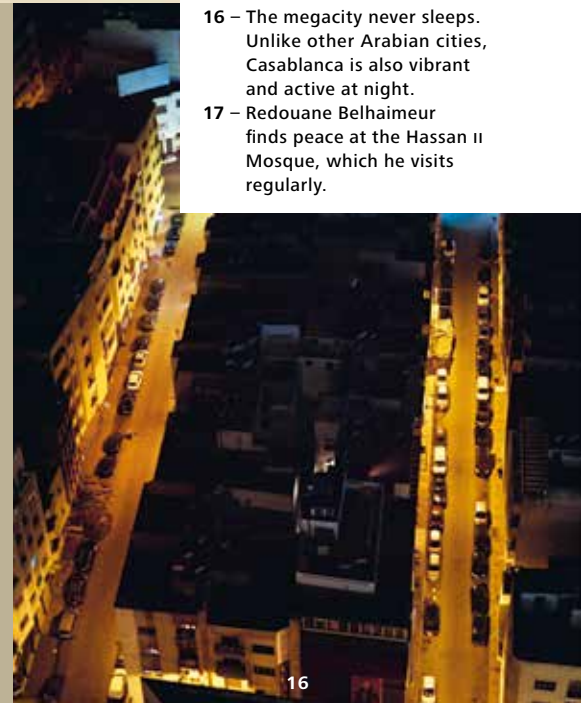


15

15 – Casablanca is a hub in the North and West Africa region: It is also home to a production site and a logistics center for regional distribution.

16 – The megacity never sleeps. Unlike other Arabian cities, Casablanca is also vibrant and active at night.

17 – Redouane Belhaimeur finds peace at the Hassan II Mosque, which he visits regularly.



16



REDOUANE BELHAIMEUR

“For me, prayers are an important part of the day, a kind of short meditation. I often come up with good ideas after prayer.”

“تشكل الصلاة بالنسبة لي جزءاً هاماً من اليوم، فهي بمثابة فترات تأمل و تفكير قصيرة، كثيراً ما تخطر ببالي بعدها فعلاً أفكار جيدة.”



latest generation of devices should contribute toward this. However, the main problem to date is preparing the water. Even so, the marketing and sales expert is confident that a solution can be found for this, too.

3:30 P.M.

Slowly but surely, North and West Africa is emerging from its slumber as a remote niche market. Consequently, Fresenius Medical Care is also stepping up its activities in the region. This is reflected in the new structure of the Moroccan office, bringing Casablanca closer to the Company's headquarters in Bad Homburg, Germany. The tasks at hand are dealt with by a management team of German and Moroccan employees. Mario Graser, regional manager for North and West Africa, who is based at Group headquarters in Bad Homburg, therefore travels to Casablanca regularly. “We are the market leader in the region because we have been doing development work there for a long time. But now that the market is opening up, other companies are obviously moving in, too”, he says, describing the strategic challenge in the years to come. At his meetings with Redouane Belhaimeur and the other managers at the office, he therefore deals with medium-term prospects as well as tackling immediate tasks. “We obviously want to remain the market leader, which is why we have formulated specific targets for each country”, says Graser. Key nations for the near future include Morocco and Algeria, as well as Senegal, where most nephrologists working in West Africa are trained.

IN THE EVENING

في ساعات المساء

5:30 P.M.

“I sometimes miss traveling,” Redouane Belhaimeur admits: “After all, I spent 20 years on the road, and got to know lots of people I would like to see again.” But the family man also loves spending time after work with his wife and four children or catching up with his friends over a game of pétanque – a variant of boules that is very popular in Morocco. He is happy to give up the taxing trips to far-flung places for this. And he even calmly accepts the evening traffic in Casablanca.



The core of every dialysis treatment is the dialyzer. Its interior consists of many thousands of hollow fibers through which the patient's blood flows, while the dialysis solution flows on the outside around the fibers. The dialysis solution absorbs the toxins from the patient's blood and flushes them out.

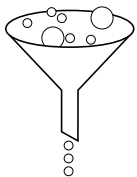
Company perspective  
Market leader

Patient perspective  
Product quality

Quality and quantity: Fresenius Medical Care has been developing and producing “artificial kidneys” for more than 35 years. In 2013, the Company celebrated a special milestone: the production of more than

# 1,000,000,000 DIALYZERS

The dialyzer – a thin tube, barely larger than a relay baton – has an inlet at the bottom and an outlet at the top for the patient’s blood, and an inlet and outlet arranged inversely for the dialysis fluid. So far, so clear. However, inside, things get more complicated: Micrometer-thin capillaries – the dialysis membrane – run through the cylinder. There are up to 20,000 of these hollow fibers each measuring approximately 25 centimeters with billions of small pores that “know” exactly which molecules are good for the body and which are toxins that need to be filtered out and carried away.



#### **FILTER FUNCTION**

The dialyzer clears the blood of the harmful products of metabolic processes and removes excess water, while the vital molecules remain in the blood. This is why dialyzers are also known as “artificial kidneys”.

The dialysis membrane is the heart of every dialyzer. Milliliter by milliliter, the blood flows through the inside of the hollow fibers in the dialyzer, while the dialysis fluid flows on the outside of the hollow fibers in the

opposite direction. Each liter of blood passes through the capillaries around ten to twelve times during a treatment session. The toxins in the blood are carried away together with the excess water in the dialysis fluid. The artificial kidney removes the harmful waste products of metabolism in the human body quickly and efficiently. Vital proteins remain in the patient’s blood.

#### **QUALITY AND HISTORY**

The cleansing processes performed by Fresenius Medical Care dialyzers are more effective than ever before. There are many reasons for this, but two are particularly important: longstanding experience in research and development, and the Company’s absolute commitment to quality. For example, the quality of each individual step of the manufacturing process can be monitored precisely – from membrane production to the specially developed sterilization process, the final step before delivery. As the market leader, Fresenius Medical Care has many decades of experience in manufacturing dialyzers.

Let’s take a look back: In the 1940s, scientists laid the foundations for this treatment form, which is now firmly established. For the first time, the blood of a patient

with acute kidney disease was successfully cleansed outside the body using a “rotating drum kidney”, which was the size of a cupboard at the time. In the 1960s, in addition to acute cases, the first patients with chronic kidney failure were offered long-term treatment. Following these technological breakthroughs, the successful principle was continuously refined: Hemodialysis – cleansing outside the body – went on to become the standard for the treatment of chronic kidney failure, and is now used for 89% of all dialysis patients worldwide. Work also continued to research and further develop the membrane materials and physical automatisms of the dialyzers. In the mid-1960s, small hollow fibers replaced the large membranous tubes, and are still the basic technological principle of powerful modern dialyzers today. Within a few years, dialyzers went into series production.



#### DIALYSIS SOLUTION

The hollow fibers are flushed out by a “cleansing fluid” – the rinsing solution consists of water and electrolytes. Around 0.5 liters of dialysate flow through a dialyzer every minute.

#### THE FIRST BILLION

Fresenius Medical Care has been researching and producing dialyzers for some 35 years. At an early stage, the Company set itself the goal of manufacturing “artificial kidneys” industrially in order to meet the ever-growing medical demand. Now as the world’s leading provider of dialyzers, the Company passed a major milestone in 2013: The 1,000,000,000<sup>th</sup> dialyzer rolled off the production lines in March. Twelve years ago, the production volume to date stood at just 100 million dialyzers. That means that in the last twelve years alone, the figure has swelled by 900 million to one billion, and is still growing fast. It is forecast to reach the two billion mark by 2020 – double its present level. This is good news. After all, the number of dialysis patients is also rising continuously and is expected to increase from 2.5 million patients in 2013 to 3.8 million by 2020.





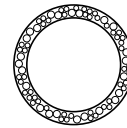


A Fresenius Medical Care spinning line produces up to 20 million kilometers of hollow fibers per year. These very fine hollow fibers are the most important material for the dialyzer.  
A single dialyzer contains up to 20,000 fibers.



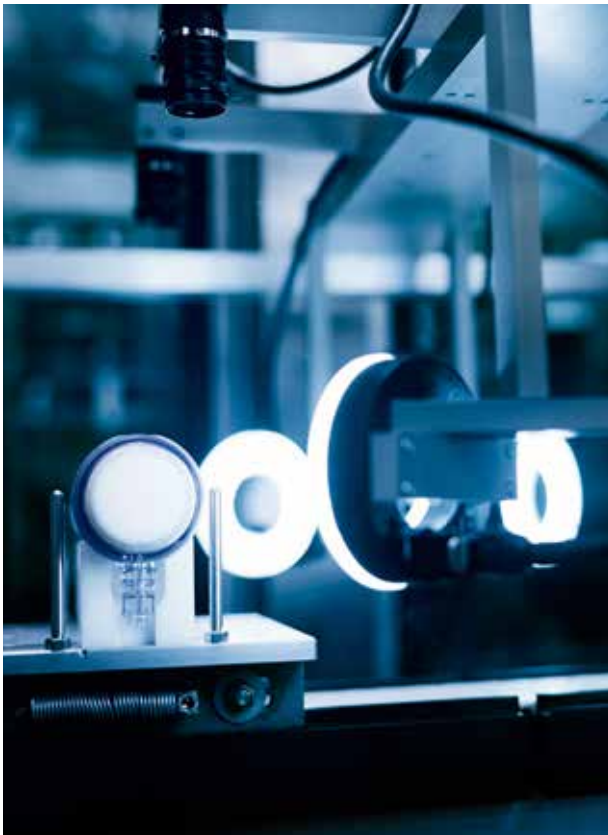
Improving quality of life is the most inspiring aim of all.  
Our dialyzer production is subject to the highest quality standards and clearly formulated quality targets.  
Along with the keen quality awareness of all employees at Fresenius Medical Care, they form the basis for development and production of innovative, safe, high-quality dialyzers.

Last year alone, Fresenius Medical Care produced more than 100 million dialyzers to meet growing demand. They use hollow fibers with a total length of about 236 million miles. That is long enough to wrap around the earth 9,500 times or to cover the distance from the earth to the moon 1,000 times. The surface area of the hollow fibers corresponds to around 58 square miles and is comparable to that of a four-lane highway running straight across the U.S. from the Atlantic to the Pacific coast.



#### HOLLOW FIBERS

The ultra-thin hollow fibers inside the dialyzer are made of the plastic polysulfone, which is characterized by exceptional cleansing capacity and blood compatibility.



In-house production: From fiber manufacture to sterilization, all dialyzers are produced from a single source at Fresenius Medical Care. This enables us to guarantee the highest quality standards.

Almost half of all dialyzers in use worldwide come from Fresenius Medical Care's production sites. We make dialyzers in St. Wendel (Germany), Ogden (U.S.), L'Arbresle (France) and Buzen (Japan), among others. In St. Wendel alone, more than 40,000 dialyzers leave the factory every day. Production in this small town in the Saarland region started in 1974. Not only dialyzers, but also dialysis solutions and dialysis membranes are made here in a converted former textiles factory that has been enlarged several times. Nowadays, however, mile-long panels of hollow fiber are "woven" here on special fiber spinning lines. Production of the hollow fibers is a combination of mass production and precision work. A spinning line has a capacity of up to 12.5 million miles per year. The length of all hollow fibers manufactured by Fresenius Medical Care so far is astronomic: To date, almost 2.5 billion miles of hollow fibers have been produced from synthetic polysulfone for use in dialyzers. That is roughly 25 times the distance between the sun and the earth.



A dialyzer contains  
up to 20,000 hollow  
fibers

The walls of the  
hollow fibers are just  
0.035 millimeters thick

Cross-section of a dialyzer: Many thousands of hollow fibers mean many billions of pores.  
One square millimeter of the hollows fibers' membrane surface contains  
more than a hundred million pores – in each individual one, the toxins are carried away  
from the blood, while the vital molecules are retained.

### PRECISION WORK

Essentially, a dialyzer is a product with microscopically fine parts that are invisible to the naked eye. A membrane surface measuring one square millimeter contains more than a hundred million pores. These can only be seen by the human eye if this square millimeter of dialysis membrane is magnified to ten square meters – i.e. by a factor of ten thousand.

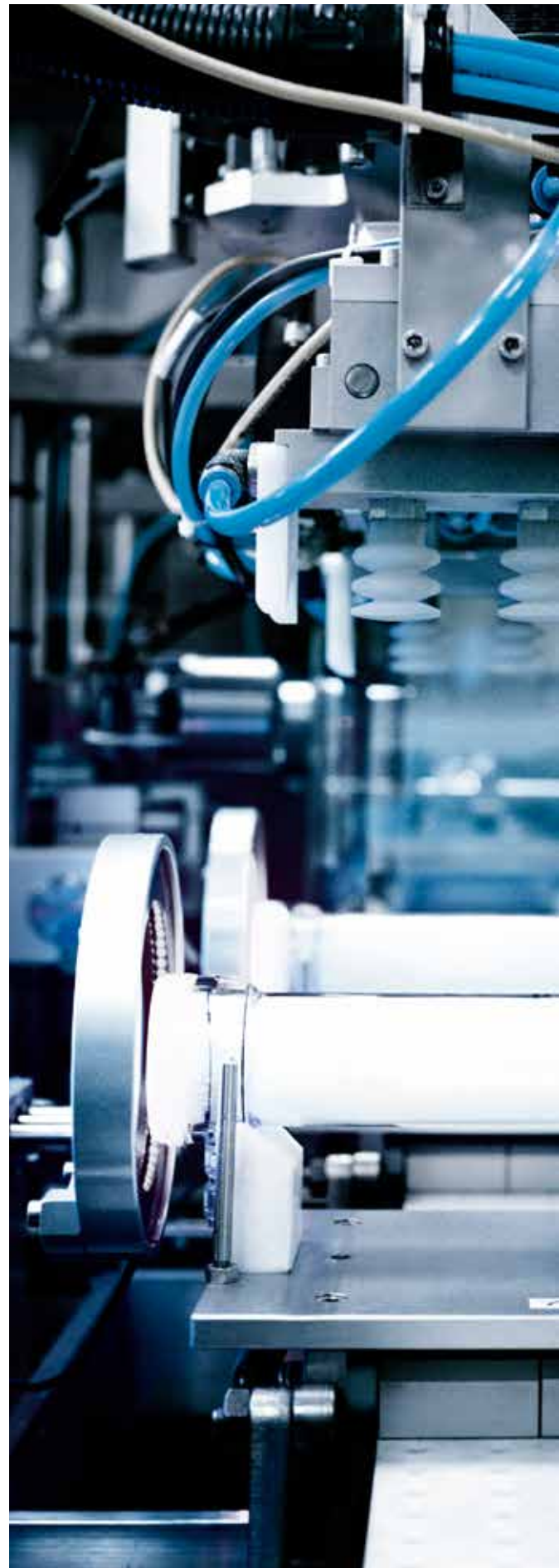
The continuous optimization of the membrane surface has benefited patients in many ways: Dialysis treatment – three times a week, usually lasting three to five hours – has become increasingly gentle, while removal of the harmful metabolism molecules is more and more efficient. For dialysis patients, this means a big improvement in their quality of life.



### DIALYZER

Barely larger than a relay baton in track and field: The latest generation of dialyzers is much smaller and lighter than its predecessors, yet cleanses metabolic waste molecules more effectively.

The first Fresenius Medical Care dialyzer was developed in St. Wendel in the late 1970s, and instantly became the top-selling dialyzer in Europe. Since the 1980s, the membranes in Fresenius Medical Care dialyzers have been made of synthetic polysulfone, a plastic that has outstanding cleansing properties and is well tolerated by patients. In the following years, the polysulfone membrane was continuously enhanced. With its improved filter function for a range of metabolic waste molecules, the latest generation of Fresenius Medical Care dialyzers is more effective than ever. That means even more efficient cleansing combined with increasingly gentler treatment overall. And that remains the yardstick for progress: Improving dialyzer performance and patients' quality of life continues to be the ultimate goal for Fresenius Medical Care.





In March 2013, Fresenius Medical Care produced its 1,000,000,000<sup>th</sup> dialyzer – for patients in more than 120 countries worldwide.



# MOVING PROSPECTS

## WILLIAM COSTELLO



### STAYING FIT BY FISHING AND WORKING OUT

When William Costello (81) underwent heart surgery, his kidneys started to fail and he was diagnosed with kidney failure. He decided to try home-based peritoneal dialysis treatment, as this helps him enjoy a flexible lifestyle and stay active. William regularly plays a round of golf with his friends, enjoys fishing, working out at his health club, walking his dog and going to the local coffee shop with friends. He also loves spending time with his big family: his wife, two children, six grandchildren and four great-grandchildren.



Dialyzing at home was the best decision William could have made. "Home dialysis lets me live life like I did before, and if I can stay energetic, I won't slow down," he says. "Even if you're just walking short distances, daily exercise is so important."

## LOUIS SLAUGHTER



Louis Slaughter (53) received dialysis treatment for nearly 20 years, stopped for several years after receiving a kidney transplant, then resumed dialysis when his body rejected the transplanted organ. He had previously worked as a contractor, but had to stop working after his initial diagnosis. Louis eventually returned to full-time work as a pastor. He stays physically active by hunting, fishing and playing golf, participating in two or three tournaments every year.

Louis gives much of the credit to his wife, who cooks and helps him stick to a dialysis-friendly diet, as well to his four children, the members of his church, and the staff at his dialysis clinic. His advice is simple: Stay active and you will feel better. Exercise not only improves your overall health, it helps you maintain a normal lifestyle.



### STAYING ACTIVE AND FEELING BETTER BY PLAYING GOLF

## DIANE WRIGHT



### FINDING ADVENTURE IN THE MOUNTAINS

Five years ago, Diane Wright's (50) high blood pressure led to kidney failure. She went to a dialysis clinic for training so that she could perform her peritoneal dialysis treatments at home. Despite her disease, Diane makes it a priority to stay fit. Aged 50, she leads a lifestyle that seems more appropriate for someone half her age. Her favorite activities include hiking, horseback riding, hunting, fishing, camping or cruising around the mountains. During the winter, she goes tubing down the snow-covered mountains of West Virginia.

Growing up on a farm, Diane and her twelve sisters and brothers were all accustomed to hard work. Today, she maintains her four-acre property, mows and trims the lawn, cultivates thriving vegetable gardens and flowerbeds, and has lots of animals, including two horses, four dogs and 25 chickens. Diane has not let dialysis slow her down much.



Getting the diagnosis “kidney disease” changes everything. Living with its symptoms and being on dialysis can impact many aspects of life. But by staying fit and healthy, patients can enjoy their lives even with the limitations placed on them by kidney failure. Meet some of our “Champions in Motion,” people on dialysis who have made a commitment to staying fit. Read their stories and see how they manage to live life to the fullest.

#### MARGIE ELLIS



#### EXERCISING A GROUP OF SENIORS AT 83 YEARS OF AGE

Margie Ellis (83) suffered kidney failure due to hypertension. She has been on hemodialysis for two years. Margie makes an effort to educate herself about her condition. She recently attended the National Kidney Foundation’s “People Like Us” patient conference, and participated in Fresenius Medical Care North America’s RightStart program for patients new to dialysis to learn about their treatment plan, their medications and getting more physically active.



Although Margie did no exercising until she began dialysis, she is now more active than many younger people. She started an exercise group for seniors at her church with a focus on cardio and strength-training exercises. “Exercise is great for your physical and emotional balance, and for your outlook on life,” says Margie. “It also helps keep me independent and stimulates my brain activity.”

#### MARSHIA MILLER



Marshia Miller (47) has faced a series of life-threatening diseases: Lupus, an autoimmune disease, at the age of 14, kidney failure at 34, and lymphoma at 44. Marshia has been on hemodialysis for more than 13 years. Through it all, she has kept a positive outlook on life; struggling with these conditions has made her a stronger person.

To stay in shape, Marshia goes to a fitness center and participates in water aerobics classes. She has lost more than 200 pounds, which has also helped improve her dialysis results. One of Marshia’s career goals is to open a shelter for homeless families. At the clinic, she supports other patients with her positive nature, and always tries to make new patients feel welcome. “If you’re on dialysis, you can’t just sit around and mope,” she says. “Exercise makes me feel better about myself, and it will keep me living longer and healthier.”



#### GROWING STRONGER IN THE FACE OF LIFE-THREATENING DISEASES

#### FREDERICK WILLIAMS



#### MOTIVATED AND SLIMMER THANKS TO TAEKWONDO

Frederick Williams (49) experienced kidney failure due to high blood pressure, and receives in-center hemodialysis treatment. He is an accomplished Taekwondo instructor, who holds a second-degree black belt and is working to earn his third-degree belt.

As family is an important part of Frederick’s life, he practices his sport with his wife and two of his three children. By dedicating himself to the sport, Frederick has reduced his weight from 350 pounds to a remarkable 196 pounds over the last ten years. Dialysis has not changed his exercise routine, which also includes weightlifting. He also enjoys spending time with his two grandchildren, his nieces and nephews. “Being active is a very big part of my life, because it motivates me and helps me feel good about myself,” says Frederick.





Company perspective  
Efficiency

Patient perspective  
Holistic care

# THE HIGH-PERFORMANCE NETWORK

Building a high-performance renal network allows Fresenius Medical Care to break down barriers between healthcare providers to allow for greater efficiency in care. For patients, that means something far more profound: improved care and better outcomes. In the U.S., we have built a renal network that addresses nearly all aspects of care for this unique population.

There is perhaps no greater measure of a company's worth than the impact it has on the communities in which it operates. In the past ten years, Fresenius Medical Care has delivered about 300 million dialysis treatments to patients all over the world for whom the diagnosis with kidney failure would have once constituted a death sentence. Developing life-saving therapies for kidney patients is our singular focus, and it is a mission that our 90,690 employees in more than 50 countries hold dear.

But Fresenius Medical Care is much more than just a dialysis company. Day in and day out, we strive to improve the lives of our patients wherever they are – in their home, the physician's office, the clinic or the hospital. To do that, we have built a comprehensive network of clinics, care-givers, physicians and therapies. Long known as the world's premier vertically integrated renal company, we are becoming horizontally integrated as well. By providing best-in-class care for the full spectrum of renal patients' unique health needs in addition to dialysis, we can improve their lives and reduce costs for the healthcare system as a whole.

## PROVIDING HOLISTIC CARE

The rationale for a high-performance renal network is simple: By addressing the full continuum of care, we can break down barriers and overcome the traditional segmentation of healthcare delivery. Forcing patients to navigate from specialist to specialist depending on their ailments leads to poorer health outcomes for patients and increased costs for the healthcare system.



For renal patients, the issue is particularly dire. Typical end-stage renal disease (ESRD) patients suffer from several comorbidities, meaning multiple trips to multiple specialists: to a nephrologist for kidney disease, an endocrinologist for diabetes, a cardiologist for hypertension and a vascular surgeon to deal with peripheral vascular disease. Too often, these physicians don't talk to each other, meaning patients are left to find their way through the system without help.

#### **BREAKING DOWN BARRIERS**

Building a high-performance renal network allows us to break down barriers between healthcare providers to allow for greater efficiency and consistency in care. For patients, that means improved care and better outcomes. In the U.S., for example, we have built such a comprehensive network:

**Dialysis and vascular care** – Our network of more than 2,100 dialysis centers across the U.S. delivers high-quality dialysis care to kidney patients in virtually every state in the nation. But these patients need more than just dialysis; they need comprehensive care. For example, every dialysis patient must have a functioning vascular access point through which blood is removed and returned during dialysis. With Fresenius Vascular Care, we now have around 50 vascular centers across the U.S. to meet these needs.

**Laboratory services** – We have long been leaders in providing renal-specific laboratory services to complement our core dialysis services. In recent years, however, we have begun to expand our laboratory services beyond this, enabling us to address more than just our patients' renal needs.

**Technology and innovation** – Our machines are universally regarded as the standard for high-quality hemodialysis. But thanks to recent investments in devices and information technology, we have improved our ability to capture real-time data during dialysis treatment. As a result, we can now not only dialyze our patients more effectively, but also better manage their anemia and improve fluid-related events.

**Care management** – We take great pride in the quality of care that our nurses, patient care technicians, social workers and nutritionists provide to patients in our dialysis clinics. But we know that high-quality care does not end at the clinic door. This is why our integrated care management programs have been designed to reach patients wherever they are.

**Pharmacy** – Our North American pharmacy, Fresenius Rx, enables patients to order and receive medications and supplies directly from renal pharmacists who are specially trained in treating and counseling patients with kidney disease.



## EXPERTS WITHIN OUR NETWORK



DR. RICHARD MERKIN  
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## INCREASING ACCOUNTABILITY FOR THE PATIENT

A renal network is particularly important given the rapidly changing healthcare landscape. As healthcare systems throughout the world re-evaluate their own delivery models, it is essential that we continue to be on the leading edge of renal therapy. In the U.S., for example, policymakers are in the process of comprehensively overhauling the American healthcare system. In the past, the government paid healthcare providers based on the performance of a specific treatment or episode – a so-called “fee for service” approach. Now, however, the federal government is moving towards a value-based model, where providers are increasingly responsible for both the quality and the cost of such services.

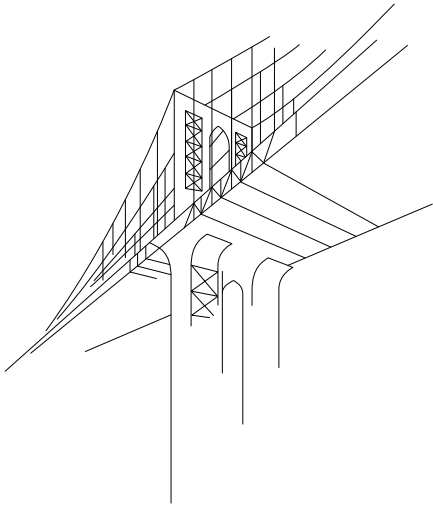
The answer, at least in part, is to make payors and providers alike more accountable for the patient’s full spectrum of care. In short, it means treating the patient as a whole person, rather than as a subset of varying ailments. In the U.S., these two drivers – value-based purchasing and increased accountability for the patient as a whole – have led to the emergence of so-called Accountable Care Organizations, or ACOs. These are set up by a group of providers who are responsible for the overall care of thousands of patients and share the savings from improving quality outcomes while reducing the total cost of care for these patients.

In reality, ACOs are nothing more than integrated networks for the general population. But while the concept seems simple, delivering on the promise of the concept of integrated care is anything but, especially for patients with such complex needs as those with renal disease. ACOs across the country are realizing that they lack many resources and much of the expertise necessary to address these unique needs, which is why they are turning to Fresenius Medical Care.

## LEADING THE WAY TOWARDS A BRIGHTER FUTURE

The innovations we have developed – and continue to develop – lead the way towards a brighter future for people living with kidney disease. At a time when the ground beneath the healthcare system continues to shift seemingly with each passing day, one constant has been the improvements in care that Fresenius Medical Care has delivered for this population. The market has taken notice of our comprehensive approach, which is why it is no accident that physicians, hospitals, ACOs and payors are increasingly turning to Fresenius Medical Care for answers.

But don’t take our word for it. Listen instead to the experts across the country we work with every day. Find out why there is only one place they turn to for help in managing their renal population: Fresenius Medical Care.



**DR. RICHARD MERKIN**

President and Chief Executive Officer/Heritage Provider Network

Located in Southern California, Heritage Provider Network (HPN) delivers high-quality, patient-centered healthcare to over 700,000 individuals through its network of 2,300 primary care physicians, 30,000 specialist physicians and over 100 hospitals. Through its Heritage California ACO (HCACO affiliate), HPN has been selected to participate in the U.S. government's Pioneer Accountable Care Organization model.

In 2013, HCACO partnered with Fresenius Medical Care to manage the overall health and coordinate the care of HCACO's patients with end stage renal disease (ESRD) with the goal of improving their health outcomes and reducing the total cost of care.

Dr. Richard Merkin, President and CEO of Heritage Provider Network spoke with us on how ACOs can help change the healthcare paradigm and why Heritage believes that Fresenius Medical Care is the ideal partner to help drive innovation in the care model.

“Medicine in the 21<sup>st</sup> century will be radically different compared to what it was in the 20<sup>th</sup> century. There will be a convergence of technology. The world will be different, the science will be different, the payors will be different.

Fresenius Medical Care is a global company. It is forward-looking. I think that companies that refuse to get out of their comfort zones, that refuse to take responsibility for their outcomes, that don't have change agents in a leadership role will become irrelevant. We feel that Fresenius Medical Care is not shackled with antiquated ways of thinking and that is very exciting for us.



Fresenius Medical Care has in-depth knowledge and experience in managing dialysis patients; they respect and appreciate the value of predictive modeling. HPN is deeply committed to predictive modeling. I think using that approach to predict what will happen rather than responding after the fact is going to be the future of healthcare. We know Fresenius Medical Care is committed to that. I believe this will improve the healthcare and outcomes of all of Heritage's patients. It is part of a culture, and I think that Heritage's culture and Fresenius Medical Care's culture are aligned.

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**DR. SAVAS PETRIDES**  
Nephrologist/Arizona Kidney Disease and Hypertension Center



Arizona Kidney Disease and Hypertension Center (AKDHC) is the nation's largest group of private practice physicians specializing in nephrology. With more than 400 employees, including nearly 80 nephrologists, AKDHC works closely with Fresenius Medical Care to treat nearly 4,000 patients at more than 50 clinics in Arizona.

Dr. Petrides, one of AKDHC's leading physicians, spoke to us on the importance of removing barriers to provide a seamless patient experience from early chronic kidney disease (CKD) to end stage renal disease (ESRD).

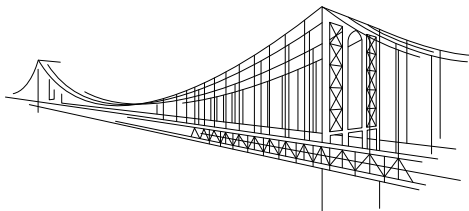
“ Over the years, the integration of CKD patients and CKD practice with ESRD practice in the dialysis unit has become increasingly seamless. The improvements we have made in the course of this process over the past five or six years are really a product of a much more collaborative relationship between the nephrology practice and the dialysis provider.

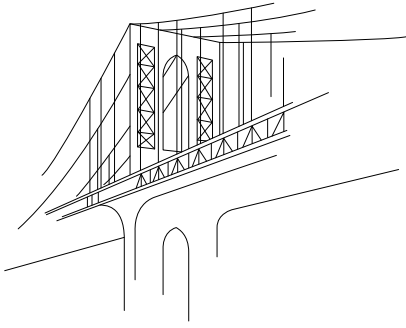
Our organization's relationship with Fresenius Medical Care is currently very collegial and collaborative. It allows us to place our CKD patient, who is now an ESRD patient, in a dialysis facility of his or her choice that is in a good location and well-staffed, and delivers known outcomes and process improvements that we as physicians are accountable for because we share responsibility. The result, statistically, is patients with a much longer and higher quality of life on dialysis and complication rates that are significantly lower.

The main way to measure that complication rate is to look at hospitalization rates. At dialysis practices run jointly by AKDHC and Fresenius Medical Care, hospitalization rates for ESRD patients are half the national average.

And this collaborative model with the patient outcome at its center is what drives quality improvements in the dialysis facility, decreased hospitalization rates, a more profitable business, and at the same time lower costs for the payor.

”





**DR. GASTONE CREA**  
**Medical Director/American Access Care of the Bronx**

American Access Care is part of Fresenius Vascular Care, a national network of around 50 vascular centers.

Dr. Gastone Crea is Medical Director at American Access Care of the Bronx. The vascular and interventional radiology specialist spoke to us on the role played by timely vascular care and maintenance in keeping ESRD patients healthy and out of hospital.

“ Placing a central venous catheter is the simplest and quickest way to get a patient onto dialysis. However, dialysis catheters are notorious for developing early and frequent complications. This includes infections, resulting in higher morbidity and mortality rates.

After inserting a catheter for immediate dialysis, we have to start planning what kind of long-term access the patient will get. Typically, this is a fistula, which uses the patient's own vein and artery, or a graft, which is a synthetic tube placed under the skin that supports high blood flow rates.

Often, the access needs help to mature before it is ready for use. For example, it can require angioplasty to treat narrowings or blockages, or thrombectomy to remove blood clots and restore the flow. These are just some of the patients we see. Others have an established access that requires maintenance because of recurring blockages or clots, making it impossible to carry out dialysis adequately. Dialysis clinics refer the problem to us for evaluation and treatment. This is usually handled the same day or in a timely manner so there is no interruption in the dialysis schedule.

It is more cost effective to society and more convenient for the patient to be treated at our center than to go to the hospital. At the hospital, patients may be admitted for several days and can miss their scheduled dialysis session.



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**DR. PETER KOTANKO**  
Research Director/Renal Research Institute



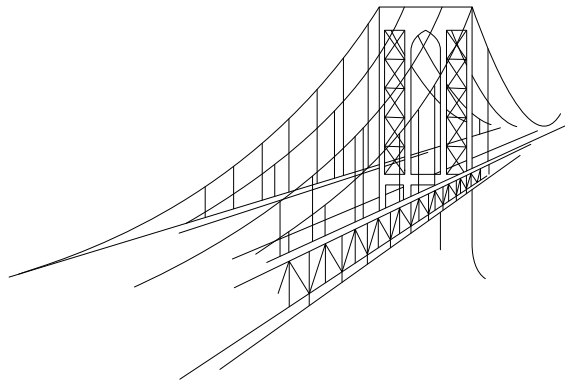
The Renal Research Institute (RRI) is an organization sponsored by Fresenius Medical Care that is dedicated to advancing therapy options for dialysis patients to provide the highest level of care based on advanced clinical technology. The RRI is committed to research and innovation to achieve improved patient outcomes and quality of life. The RRI strives for a compassionate approach to our patients to fulfill the needs and expectations of our customers.

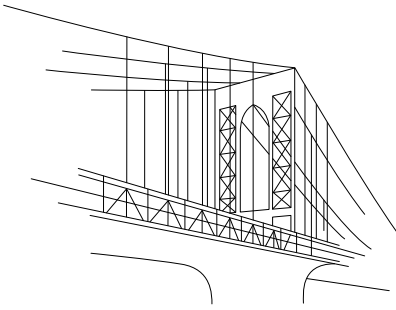
Dr. Peter Kotanko, the Institute's Research Director, spoke to us about how renal patients' lab data can keep patients out of the hospital and living longer.

“Dialysis patients experience frequent hospitalizations. With predictive modeling, we can identify those patients who have an increased risk of hospitalization or mortality, and then intervene well in advance to prevent this. We combine laboratory data as well as demographic data, clinical data and treatment data to create mathematical models that can predict the probability of a patient being hospitalized frequently in the following months. The results of these prediction models are then communicated to the dialysis facility staff, who can intervene by providing specific care for the patient. And there are, of course, a wide range of possible interventions.

The fact that we as a company provide high-quality lab services certainly gives us an advantage. We have real-time data at our fingertips that we can feed into cutting-edge predictive technologies to identify predictive patterns and deploy the right intervention to the patient.

”





**KRISTIN BROWN**  
Nurse/Lenoir, North Carolina

Through our leading network of more than 2,100 dialysis facilities in the U.S., Fresenius Medical Care provides renal services to hundreds of thousands of people throughout the country.

Kristin Brown is one of more than 14,000 nurses who provide care – and caring – to Fresenius Medical Care’s dialysis patients in the U.S. As the most frequent and direct point of contact for patients, our nurses perform a wide variety of roles to ensure that our patients’ overall healthcare needs are met, both within and outside the walls of our clinics.

“ Whenever we admit new patients, we automatically welcome them as our family members. Between the staff and the other patients, the new patients are taken under our wing. They have to learn so many important things to help them manage their illness and their disease, and thrive in the world of dialysis. So it’s not only a staffing network that ensures a positive experience, but a patient network as well.

Beyond dialysis itself, we help them to learn about their diet. But we also take it a step further. Each patient is introduced to our social worker. And that helps connect them with services such as information on food pantries or “Meals on Wheels”. And if there’s a transportation issue for the patient, then we connect them with public transportation. We often link patients with community resources to ensure that the patients’ needs are met.

You have to take a holistic approach to care, covering every avenue. It’s so important to use a team approach to care that accounts for everything that impacts a patient, from their blood pressure to pain management to diet. One thing can affect everything else. They are a very dynamic group of patients and holistic care is what I think works best for them. ”







Company perspective  
Saving resources

Patient perspective  
Responsibility

# SUSTAINABLE PERSPECTIVES



Less is more: That is our guiding principle as far as emissions, waste and the use of natural resources are concerned. Environmental protection is a fundamental part of our commitment to sustainable corporate development.

That is why we have set ourselves the goal of continuously improving the eco-efficiency of our production sites worldwide. Take a look at the world of sustainable production at Fresenius Medical Care.



## OUTSTANDING ENERGY EFFICIENCY

Ogden, U.S.

Our largest production site in North America won the "Energy Efficiency Award 2013" for its activities to improve energy efficiency. What particularly impressed the judges about our plant in Ogden, Utah, was how we keep our products refrigerated without using additional energy by channeling cold air from outside into the building at night. By contrast, in the winter months, we use heat from the compressors to keep the building warm. Measures such as these help us to achieve our yearly target of reducing energy consumption at the Ogden site by 5% per production unit. In addition to our energy-saving measures, we recycle all kinds of materials such as plastics and cardboard in Ogden. On top of this, we reuse almost 1,000 liters of water every minute thanks to a special process for separating water and solvents.

## MORE THAN HOT AIR

Buzen, Japan

High temperatures are required at our production site in Buzen (Japan): The dialyzers here are sterilized with steam made by heating up air to almost 130°Celsius. Our new recovery system enables us to reuse the waste heat generated in the sterilization process. With this "recycled" energy, we heat the ambient air by as much as 30°Celsius, allowing us to save around a quarter of the energy previously needed for sterilization.

## CLEAN FUTURE IN CALIFORNIA

Walnut Creek/Concord, U.S.

Several years ago, our production site in Walnut Creek, approximately 50 kilometers from San Francisco, launched the "Go Green" campaign to improve its ecological performance. Recycling is a key pillar of this campaign: Each year, 180 metric tons of cardboard and 90 metric tons of plastic are recycled at Walnut Creek. These and other measures have helped us to reduce waste at this site by 75%. We also save almost 19 million liters of water each year through measures such as water treatment. We successfully continued our "Go Green" campaign after relocating our production facility to nearby Concord at the end of 2013. For example, we have already managed to reduce energy consumption considerably since moving to the new site by using a new lighting system with motion sensors.

## USING ENERGY TWICE

St. Wendel, Germany

Fresenius Medical Care will soon be generating its own power. At our largest production site worldwide in St. Wendel (Germany), a power plant with gas turbines based on combined heat and power will provide 90% of the electricity required by the site in the future. The major advantage of combined heat and power is that the energy is used to generate both power and heat simultaneously. This new plant will enable us to reduce our CO<sub>2</sub> emissions at the site by 23,000 metric tons per year.

## SELF-GENERATED HEATING

Schweinfurt, Germany

Our Schweinfurt site heats parts of the plant with self-generated energy. This is made possible by a heat recovery system that uses the waste heat from compressors and feeds it into the heating system. To allow even more heat to be fed into the system, nearly all our compressors are now housed in one room, the compressor center. Since then, the recovery system has been producing around 450 kWh per day. By way of comparison, the heat captured could keep a detached house with 120 square meters warm for five years.

## GREEN FACTORY

Palazzo Pignano, Italy

In the new 900 square meters extension of our plant in Palazzo Pignano, some 30 kilometers from Milan, we think green. Thanks to new packaging lines, we are able to reduce the amount of foam packaging material used by 90%. We also save on material, especially plastic, by further reducing scrap. In addition, a bigger steam sterilization autoclave has been installed that requires less steam to sterilize the same amount of products.

**SUSTAINABLE PRODUCTION – AT OUR  
SITES WORLDWIDE.**

Schweinfurt, Germany

**450**  
**kWh**

of heat captured  
per day

Ogden, U.S.

**5%**

energy saving per  
production unit

Walnut Creek/Concord, U.S.

**75%**

less waste

St. Wendel, Germany

We produce

**90%**

of the energy  
ourselves

Palazzo Pignano, Italy

**90%**

less packaging  
material

Buzen, Japan

**25%**

energy saving through  
process optimization

# REVIEW 2013

## WOK IT! THE COOKING COMPETITION

February 2013

Lim Siow Sheong, Managing Director  
of Fresenius Medical Care Malaysia

In 2013, I once again experienced how important it is for patients' motivation and quality of life that they have a good relationship with their clinic staff. This was recently demonstrated at our cooking competition, which we held in Kuala Lumpur at the beginning of the year. At this event, the finalists comprising 15 nurses and dialysis patients from four dialysis clinics showed off their culinary skills. Their task was to prepare healthy, tasty meals that are suitable for dialysis patients. Vouchers were awarded to the best meals. The aim of the competition was to introduce our patients to the joy of cooking and a healthy diet. Many patients who took part in the competition told me that it was great fun and took their minds off their illness for a while. We have compiled the recipes in a cookbook for patients.

15  
participants



## RAPID AID RESPONSE AFTER THE TYPHOON

December 2013

Frank Wagner, Executive Vice President  
Central Asia-Pacific region

€200,000  
donation

The tireless dedication of my team after the devastating Typhoon Haiyan in the Philippines was my personal highlight in 2013. On the island of Leyte, in the worst affected area, Fresenius Medical Care runs a clinic that treats around 70 dialysis patients. Although the island was almost inaccessible, two employees from my team managed to make their way there. Since then, a technical employee has been on site to help restore the defective water system as well as a nurse to provide medical aid. In addition, Fresenius Medical Care and Fresenius Kabi immediately made a joint donation of €200,000 to the Philippine Red Cross to help provide primary care in devastated areas. It was very moving to see how we were able to help so many people with our rapid and unbureaucratic aid.

## FIRST DIALYSIS CLINIC IN PERU

July 2013

Gustavo Ambrosini, General Manager  
of Fresenius Medical Care Peru

In 2013, I was delighted that we bought our first dialysis clinic in Peru. This means that Fresenius Medical Care is finally able to offer dialysis services in this country. The clinic is situated approximately 1,000 kilometers south of Lima in the center of Arequipa, Peru's second-largest city and a key trading center for the country. The clinic can treat up to 120 patients. We will gradually be adapting the clinic to our Nephrocare standards; it is equipped with our 4008S series machines. This first clinic is a springboard to establishing our own clinic network in Peru.



## FIGHT AGAINST DENGUE FEVER



October 2013

Helmut Winkler, Product Manager  
for Acute therapies and hemodialysis,  
Asia-Pacific region

One special event this year for me was the successful deployment of our dialysis machine multiFiltrate in the fight against dengue fever. Dengue fever is transmitted by mosquito bites, and is widespread in Asian and Western Pacific regions. According to WHO estimates, up to 100 million people contract the virus every



## Our employees reveal their personal highlights at Fresenius Medical Care in 2013.

year; 500,000 cases are severe, and around 22,000 are fatal. For several years now, our multiFiltrate has been used to support the renal function of patients until they have fully recovered from dengue fever. This can prevent kidney damage and uremic intoxication. The multiFiltrate is also used in pediatrics, and saved the lives of three particularly severely ill children last year.

### FIRST GREEN INNOVATION AWARD

September 2013

Guido Giordana, Director of Business  
Operation Management Nephrocare



I was particularly pleased that we were able to present the "Green Innovation Award" for environmental projects in dialysis for the first time in 2013. For many years now, we have been working on environmentally friendly dialysis concepts together with the European Dialysis and Transplant Nurses Association, EDTNA/ERCA. We have developed the environmental guideline for dialysis which is meanwhile available in eight languages and widely distributed. The Green Innovation Award is a new project aimed at raising environmental awareness in dialysis. The first prize went to a project in Saudi Arabia that managed to reduce water consumption in a dialysis center by more than half, using our technology. A Spanish project to reduce consumption of dialysate and water came second. It was a great honor for me to present this first award for environmental protection.



### OUTSTANDING COMMITMENT

October 2013

Ricardo Arias-Duval, Senior Vice President  
Fresenius Medical Care Spain,  
Country Manager

The high point of 2013 for me was when Fresenius Medical Care was voted the best healthcare company by readers of the Spanish journal Medical Redacción. I see the award as an appreciation not only of the Company, but also of all our employees. I consider it to be recognition of our commitment to advancing new developments for the treatment of kidney disease in Spain. The award is a very special honor, especially taking into account the importance of companies we outrivalled: General Electric, Dräger, Philips, Boston Scientific, Siemens Healthcare, Abbot and Roche Diagnostics, to name only a few.

### AWARD FOR INDIA

October 2013

Dhruv Chaturvedi, Managing Director  
Fresenius Medical Care India

"A business model that has proved its versatility in a challenging environment" – that is the reason given for awarding the Frost & Sullivan Healthcare Excellence Award 2013 to Fresenius Medical Care India in September as the "dialysis solutions company of the year 2013". This award is my personal highlight this year. We

won it because of the high quality of our services, combining outstanding products with excellent all-round service and based on values such as commitment and customer focus. This quality is also the reason why we are the market leader in India. 2013 was a very challenging year for Fresenius Medical Care India, which is also why I am absolutely delighted that our services have been recognized.



### GROUNDBREAKING CEREMONY FOR PLANT IN SERBIA

September 2013

Rajko Hrvačević, General Manager  
Fresenius Medical Care Serbia

# €16M

investment

In September 2013, we began construction on a new production site for dialysis products in Vršac, Serbia. Therewith we will double our capacity for certain disposable products in this growing market. As well as supplying dialysis patients in Serbia, the new plant will cover demand in Europe and Latin America, which is expected to increase in the years to come. At full capacity, the plant will produce bloodline systems for more than 150,000 dialysis patients. We are investing more than €16 million in this plant in total. I am particularly pleased that we are creating some 420 jobs in Vršac. We have served the Serbian market for more than 30 years and have steadily grown our business here in the recent past. The opening of the new plant at the end of 2014 will be a further milestone in the expansion of our business operations in Eastern Europe.

THANK YOU

**WE WOULD LIKE TO THANK  
OUR PATIENTS, PARTNERS AND  
SHAREHOLDERS FOR THEIR  
CONFIDENCE IN OUR COMPANY  
AND OUR EMPLOYEES  
FOR THEIR DEDICATION AND  
COMMITMENT IN THE  
PAST YEAR.**

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