

A New Era in the Public Healthcare Sector

At the new Centro de Especialidades Médicas Ambulatorias (CEMA), the Argentine city of Mar del Plata is linking its outpatient facilities and medical centers together. One major partner in the model project is Siemens – in both the in vitro and in vivo areas.

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Germán Giles, Healthcare Technology Director of the municipality of General Pueyrredón, Argentina (left); CEMA's modern organization is reflected in its modern design (opposite).

Beaches, fishing, and sweet pastries filled with dulce de leche have been the hallmarks of Mar del Plata in the past. But now, the city – located on the Atlantic coast, about 400 kilometers south of the Argentine megacity of Buenos Aires – has a new trademark: the Centro de Especialidades Médicas Ambulatorias (CEMA), which opened in November 2012, is a model project for the public healthcare sector in Argentina, a country of 40 million, and throughout the region. CEMA is an institution with a modern design and organization, equipped with high-performance, state-of-the-art medical technology. It is the new public healthcare center for the Municipality of General Pueyrredón, which encompasses the city of Mar del Plata and the surrounding area in a radius of more than 30 kilometers. It also marks a huge step forward in delivering healthcare to the uninsured. The location itself says it all: the new three-story building was constructed on open land near the soccer stadium, which was built for the 1978 World Cup. But what might seem like an outlying area of

the city is the geographic center of the municipality, excellently accessible thanks to the two main *avenidas*, and not far from the main public hospital.

Upgrading Healthcare Centers

“The choice of location was a strategic decision,” says Germán Giles, the Healthcare Technology Director of the municipality, which has been positioned between the two traditional levels of the Argentine public healthcare system. The system previously consisted of 33 healthcare centers scattered across the municipality, with some of them more than 30 kilometers away from the city center. There were also two hospitals: a general hospital and a mother and child center. “We were faced with the situation that our healthcare centers were very poorly equipped. That meant that many patients, even those suffering from less complex problems, went straight to the hospitals, which were unable to cope with the huge patient load. In light of our city’s steady growth, we realized that we had ▶

“As politicians, we have a duty to ensure first-class healthcare, including for poorer segments of the population.”

Gustavo Pulti, Mayor of Mar del Plata, Argentina



Mayor Gustavo Pulti (above); Dr. Alejandro Cristaldi, General Manager of the CEMA outpatient center in Mar del Plata, Argentina (right); Dr. Alejandro Ferro, the city Secretary of Health (far right).



to upgrade the healthcare centers to take some of the strain off the hospital facilities. But we also had to do it as efficiently and cost-consciously as possible.”

In 2008, the idea of building an outpatient center serving a dual function was born. The new center would act first as a coordination unit and central lab for all healthcare centers, and second, it would provide diagnostic and treatment options for patients who cannot receive adequate care at external facilities but do not need inpatient treatment.

CEMA as a Flagship

“The ground was broken on January 18, 2010, and by August 2013, CEMA had already helped more than 60,000 patients,” says CEMA General Director Dr. Alejandro Cristaldi proudly. Cristaldi, a clinician born in Mar del Plata, is among those who wished to modernize the established healthcare system – with CEMA as a flagship, both medically and aesthetically.

The first floor of the building’s façade is covered by perforated metal panels. As soon as they pass through the glass doors, patients and visitors reach the reception area, where employees record personal information and check referrals. This is an essential step, since CEMA only treats patients who have been referred there by one of the healthcare centers. Color-coded information signs throughout the 6,200-square-meter building point the way to the treatment departments. The lab area is coded orange, pediatrics is green, and dentistry takes place in treatment rooms painted a sunny yellow.

Glass, white pillars, and light-colored stone flooring create a friendly atmosphere that stands in stark contrast to the stuffy, poorly lit hospital corridors and foyers where patients used to

Investing in a Healthy City

The Centro de Especialidades Médicas Ambulatorias (CEMA) is the new hub of the public healthcare system in the Argentine city of Mar del Plata. Located in the geographic heart of the coastal city, it links together the 33 healthcare centers throughout the municipality and the two provincial public hospitals.

CEMA acts both as an outpatient facility and a diagnostic center. The facility treats patients – only by referral from healthcare centers – who need care beyond what the external facilities can offer, but do not need to be admitted to a hospital as inpatients. CEMA is also home to the central lab where samples from all outpatient facilities in the city are analyzed.

The center, which opened in November 2012 and occupies about 6,200 square meters, currently treats about 600 patients per day. Working at full capacity, it should be able to treat 1,500 people a day at no charge. About 38 percent of Mar del Plata's 636,000 inhabitants do not have health insurance, so they have to rely on the public healthcare system.

Building CEMA cost about US\$ 11 million, which was divided between the Argentine Federal Government, the Province of Buenos Aires, and the Municipality of General Pueyrredón, which encompasses Mar del Plata and the surrounding area. Ongoing maintenance is financed by the municipality, which has instituted a new healthcare contribution paid by wealthier real estate owners.

spend hours waiting. “We’re happy about the structural design of CEMA,” Cristaldi says, “but I’m even prouder of the IT solutions. The center has been digital right from day one.”

The Digital Shift

A new era is dawning in Argentina’s public healthcare sector. Before CEMA began operating, all medical records in the entire municipality were taken down and filed on paper. “Our stated goal must be to fully digitize all the healthcare centers as well, in order to keep records on all our patients and accelerate our processes. We also hope to do without any printed requisitions and X-ray images in the future. That will substantially cut costs,” Cristaldi explains.

Another step that should help boost efficiency in the future is digital record-

ing of information on lab samples at the healthcare centers. Today, when a blood sample is taken at one of the centers, the patient’s data still has to be recorded manually on paper. These documents then accompany the blood or urine specimen tubes, which travel by delivery vehicle to CEMA, where employees transfer the information and the tests that have been ordered into the digital laboratory information system (LIS). Once data entry is complete, the computer system generates an adhesive label with a barcode, which is then attached to the specimen tubes. From then on, the patient’s record is digitized.

What follows after that is a trip to the heart of Mar del Plata’s new healthcare network: the lab, which occupies 320 square meters. The lab began operating in late July 2012. “We ▶

CEMA is an example of successful healthcare consolidation, unifying the first and third level of public healthcare.



had 120 patients a day at the start," says technical director Giles. "Nowadays we examine samples from 300 patients a day, but we plan to grow much more." The system can be easily expanded with additional diagnostic machines to manage a higher throughput. CEMA is supposed to examine 1,500 samples per day, with about another 500 samples coming from the healthcare centers.

Efficient and Powerful

Siemens was awarded the contract for all of the lab equipment. The centerpiece is a laboratory automation system with a robotic arm that grasps the blood sample tubes and an optical lens that reads out the test requirements encoded in the bar code before the arm lifts the samples into one of the machines connected to the system. "The system is a huge help to us in managing the samples," Giles says. "It significantly reduces the amount of time spent on lab analysis," the CEMA technology head says.

"Thanks to the Siemens solution, we can perform many more different tests," says center director Cristaldi, adding, "and we can do it in much less time, too!" Cristaldi points out that where the former lab capacity was limited to 350 analyses per day, the Siemens system can now handle 800 samples per hour. Outstanding performance, speed, and ruggedness were also among the decisive factors in favor of installing further Siemens analysis equipment at the CEMA lab. The other equipment includes a hematology system, which CEMA says is the fastest in the whole city. "Siemens offered us technology with very high



A Model for the Future

Watch CEMA's experts explain how the center became a reference model for public health in Latin America.



To watch the video, scan the QR code using the reader app on your smartphone or enter the URL into your browser.

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The laboratory's centerpiece is an automation system, which reduces the time spent on lab analysis.



chose this unit because it meets the requirements of our RFP better than all the others," says Giles. The CEMA tomograph needed to be fast, while also emitting as little radiation as possible. "In fact, the SOMATOM® Emotion has one of the lowest levels of radiation in the entire city. That's eminently important because it means we can also use it in pediatrics. The scanner completes a full thorax/abdomen imaging scan in just a few minutes. Besides that, this tomograph also has another important asset: the table is suitable for people who weigh as much as 200 kilograms. This feature has already been a big help to us several times."

quality and performance at a very attractive price," Cristaldi says. Technology head Giles adds: "All of these units were launched on the market years ago and are known for their reliability."

Still, it is very important to the responsible parties at CEMA for there to be local technical support, with phone support where it is needed. "The fact that all of the equipment in the lab is from the same manufacturer is a big advantage," says Cristaldi, "since it means we always have the same dependable contact people." The commodity contract between CEMA and Siemens stipulates that the Siemens

group of companies will handle the service, maintenance, and updating of the equipment. "That's extremely important to us, since technological change is extremely fast paced. Beyond that, here in relatively remote Argentina, there are traditionally issues with replacement parts getting held up in customs," Cristaldi says.

Alongside its lab equipment, CEMA also decided on medical imaging equipment from Siemens. The equipment includes a 16-slice computed tomography (CT) scanner plus post-processing workstation with special software for two-dimensional and three-dimensional visualization. "We

The CEMA director says that there are two advantages in the fact that both the in vitro technology used in the lab and the center's in vivo technology, in the form of the CT scanner and connected workstation, are from Siemens: "First, all of the equipment is top-of-the-line technology, and second, the fact that Siemens technology is used in two areas results in ongoing, highly engaged communication with the company's representatives." Technology head Giles thinks that the combination of the in vitro and in vivo equipment is outstanding. He adds, "Receiving the first VersaCell® solution in the entire country as part of our laboratory automation was a big challenge for our employees. Our close cooperation with Siemens has allowed us to learn about many test options that weren't possible before, and the software for the tomograph workstation gives us analysis options we never had before." ▶

The CT scanner is a good example of the financing that the system made possible for CEMA, financing that is unusual for Argentina: construction of the building was financed by the Argentine Federal Government, the unit itself was purchased by the Government of the Province of Buenos Aires, and the costs of the workstation, service and maintenance, and operation are borne by the municipality.

Building and equipping CEMA cost the equivalent of US\$ 11 million, and annual maintenance will cost about half that. To finance that amount, the Municipality of General Pueyrredón introduced an earmarked contribution for healthcare that is collected together with the fees for lighting and street cleaning. The amount of the contribution depends on the size of the property; 35 percent of the 350,000 homeowners in the area pay nothing, while 45 percent pay the equivalent of between one and five US-dollars monthly. Owners of larger houses have to pay around 12 US-dollars a month.

Increased Share of Budget

“In fact, there have been no protests against the charges,” says Mayor Gustavo Pulti, pleased. This additional income has allowed him to increase the share of the municipal budget that goes toward healthcare expenditures from just one percent to eleven. “Argentina has a great tradition in public healthcare,” Pulti says, referring to the 1940s and 1950s, when most of the public clinics still in operation today were built under the Juan Domingo Perón government. “But unfortunately, the present day is very dismal. As politicians, we have a duty to ensure first-class healthcare, including for poorer segments of the population. Here in Argentina, health is a basic right enshrined in the constitution.”

About 39 percent of the 636,000 people living in the Municipality of General Pueyrredón do not have health insurance, so they have to rely on the free public healthcare system. The prospect of work in agriculture and in the major tourist destination, which draws three million people in the summer, have brought a steady



The multislice SOMATOM Emotion 16 CT reduces patient radiation exposure and saves time.

The Healthcare System in Argentina

From the Argentine viewpoint, health is a human right, and it is protected as such by the country's constitution. This means that the government has to provide free medical care to all patients, including foreign nationals. During the country's economic boom in the mid-20th century, this kind of general healthcare was still possible, albeit with the forms of treatment available at the time. But recurring economic crisis and sharp increases in the costs of both personnel and technology have severely curtailed the government-run options. Economically liberal governments pushed private healthcare in the last third of the 20th century. The social crisis that followed the Argentine government's 2001 bankruptcy, however, meant that the neglected public outpatient facilities and hospitals were faced with an increasing number of patients needing treatment.

Since then, the Argentine economy has seen strong growth, but 36 percent of the population still lacks health insurance, as the national statistics bureau, INDEC, reported in 2011. Fifty-seven percent of Argentinians receive services from one of the country's more than 300 *obras sociales*. These social organizations, financed through contributions from insured beneficiaries and their employers, are open primarily to workers (white or blue collar). About five percent are members of one of the more than 500 private insurance plans, and two percent receive government-sponsored care¹.

There are 18,000 healthcare facilities in Argentina. Half of them are private and half are public. Of the government-run institutions, 1,373 are hospitals that admit patients for inpatient treatment. Most of the public healthcare facilities are financed by the country's 24 provinces, and municipalities are also in charge of a number of hospitals and outpatient facilities².



CEMA's staff examines samples from 300 patients a day, but the numbers are intended to grow.

flow of newcomers, including from the neighboring countries of Paraguay and Bolivia. But many of the new arrivals are penniless when they get there, and they have to deal with the harsh seaside climate and its abrupt temperature changes. "We can't leave these people defenseless," says Dr. Alejandro Ferro, the city's Secretary of Health, who practiced medicine in Canada for many years. From there, he brought many of the principles that are now being implemented at CEMA and the healthcare centers associated with it: top-of-the-line technology, cost consciousness, efficiency, and networking.

The good relationship between the city's leading officials and both the provincial and national governments helped to ensure that, in an arrangement seldom seen before, three public financing bodies worked together to bring about the pioneering project. For those responsible in the city government and the CEMA management, there's no question about it: the new center and the modernized external facilities will bring significant gains not only in terms of treatment options, but also, and above all, in terms of prevention.

City officials Pulti and Ferro know that their healthcare system can serve as an example to many other municipalities – in Argentina, throughout the region, and even in other areas around the globe. "We would be happy to share our experiences", says Mayor Pulti. ■

Andreas Fink, 48, is a freelance correspondent living in Buenos Aires. He reports for various publications, including the German magazine *Focus* and the Austrian daily newspaper *Die Presse*.

Distribution formulas vary by province. About 83 percent of funds in the public sector come from taxes, and the rest comes from the obras sociales. But most of these organizations have their patients treated at private hospitals; only a few of them maintain facilities of their own. Those who wish to take out private insurance can choose between a private health insurance plan and membership in a private hospital.

According to data supplied by the World Bank, Argentina – the government and private individuals – spent about 8.1 percent of GDP on healthcare in 2011³. Private studies put the figure even higher, some at nearly ten percent of GDP. These figures are about on par with what European countries spend. But when it comes to indicators such as child mortality, Argentina does worse than comparable countries with lower healthcare expenditures, such as Chile and Uruguay⁴. Most experts agree that the system's inefficiency is rooted in two factors: the complex tangle of responsibilities spread across the federal government, provinces, and municipalities, and a serious lack of transparency among the *obras sociales*, most of which are dependent on unions or provincial governments⁵.

¹ Federico Tobar, Sofía Olaviaga, Romina Solano: Complejidad y fragmentación: las mayores enfermedades del sistema sanitario argentino. Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento CIPPEC, Buenos Aires 2012, S. 2 [http://www.fmed.uba.ar/depto/saludpublica/108_DPP_Salud_Complejidad_y_fragmentacion_Tobar_Olaviaga_y_Solano_2012_\[1\].pdf](http://www.fmed.uba.ar/depto/saludpublica/108_DPP_Salud_Complejidad_y_fragmentacion_Tobar_Olaviaga_y_Solano_2012_[1].pdf), last consulted 10-24-2013

² Pan-American Health Organisation: Health in the Americas: Argentina. Retrieved on: http://www.paho.org/saludenlasamericas/index.php?id=18&option=com_content&Itemid=&lang=en, last consulted 10-24-2013

³ <http://data.worldbank.org/indicador/SH.XPD.TOTL.ZS>, last consulted 10-24-2013

⁴ <http://www.indexmundi.com/g/g.aspx?v=29&c=uy&l=es>, last consulted 10-24-2013

⁵ Federico Tobar, Sofía Olaviaga, Romina Solano: Complejidad y fragmentación: las mayores enfermedades del sistema sanitario argentino. Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento CIPPEC, Buenos Aires 2012, S. 2 [http://www.fmed.uba.ar/depto/saludpublica/108_DPP_Salud_Complejidad_y_fragmentacion_Tobar_Olaviaga_y_Solano_2012_\[1\].pdf](http://www.fmed.uba.ar/depto/saludpublica/108_DPP_Salud_Complejidad_y_fragmentacion_Tobar_Olaviaga_y_Solano_2012_[1].pdf), last consulted 10-24-2013

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