

# HOSPITAL JOURNAL

Issue 2018



THE ART OF  
BUILDING HOSPITALS  
Starting with a concept - ending  
with real life experiences.  
*Page 6*

GUIDELINES  
FOR STEP-BY-STEP  
MEDICAL PLANNING  
Why a professional strategy in  
early stages is key to success.  
*Page 24*

ACENDIS CHINA  
New opportunities: A Total  
Healthcare Solution Provider  
for the People's Republic of China  
*Page 50*

**AGENDIS**

# TOGETHER. ALL THE WAY.

ACENDIS started as a project company in 1995 with the aim of being a reliable and competent partner for hospitals and health care facilities. Today, we can claim to have not only achieved this goal, but also to have far exceeded it.

Hospital operators and owners worldwide use the extensive services of ACENDIS. We are happy to share our know-how and experience from more than 250 projects in more than 15 countries, because they give us the opportunity to act reliably and in a goal-oriented manner on behalf of our customers. We are always there for you, before, during and even long after project completion. We offer comprehensive support over the entire project period, according to our motto "Together. All the way". Professional competence, trust and the will to achieve the best for you, our customers, make us stand out. With our branches and partners in Europe, the Near and Middle East, and North Africa, we are available for you directly on site and know the regional conditions and people.

We are pleased to present to you some of our latest projects and reliable partners in this issue.

HASAN SAHIN,  
CEO ACENDIS





**ACENDIS**  
Germany

**ACENDIS**  
Turkey

Azerbaijan

**ACENDIS**  
Malta

**ACENDIS**  
Jordan

Libya

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Saudi Arabia

**ACENDIS**  
Ghana

Nigeria

Uganda

Kenia

# OUR NETWORK

ACENDIS AND ITS PARTNERS

ACENDIS  
China

ACENDIS

INDEX	02	Introduction by Hasan Sahin	32	Africa: Challenge and chance
	04	Our Network	36	The journey has just begun - Ghana
	06	The art of bulding hospitals	38	Trustful partnerships as key to success - Macedonia
	16	From Malta to the world	42	Healthcare challenger: Iran
	22	Safwa Hospital in Libya	44	Kingdom of Saudi Arabia
	24	Guidlines for step-by-step medical planing	46	An outstanding project: Acibadem Taskim - Turkey
	28	A healthcare market with high potential - Jordan	50	ACENDIS China - A Total Healthcare Solution Provider
			58	Löwenstein Medical

# THE ART OF BUILDING HOSPITALS

Starting with a concept - ending with real life experiences





One of the most significant issues that needs to be taken into account in hospital projects is how to position the project. Where do you want to position your health service provision; what kind of a hospital do you desire to build? These are critical questions. You need to set your objective very well. Because, hospitals are more than simple investments.

In my opinion it is essential to bring patients together with a healing environment. Constructing buildings is not a very valuable job. You can build a great number of and different quality buildings. Constructing a building oriented towards patients and capturing people's attention in that structure are vital.

The moment people enter into the building, the specifics of your work demonstrate themselves. To design a space in a land as walking area, to support it with landscape and to impress people even if just visually, are simple but effective methods.

### **Buildings and foremost hospitals must be built for human nature**

Healing environment should start from outside the building and proceed inside. Imagine that a hospital is set up in an excellent environment surrounded by vineyards and gardens but when you enter into the hospital, you see four patients in only one room! Or you see patients waiting sitting or standing in

corridors with low lighting. This is why you have to incorporate art and nature into your work. Furthermore, if you design not only the parts of hospitals that are seen by everyone and public but also the workspace of doctors and nurses aesthetically and in a user-friendly way, for instance, if you formulate their workspace by considering all their needs without sending them five floors under the ground, you can ensure that the hospital provides services as a more livable, fitted for human nature, and balanced building. We realized many hospital projects and we are following other projects as well. I think that hospital staff must help investors and managers to construct better buildings.

### **Medical Planning calls for seriousness and foresight**

In the research that we made for the concept of Liv Hospital Ulus Istanbul, we took off from the knowledge that human body is the most valuable and safest place in the world. Moving further with this theme, we looked into guard cells and blood cells. We studied their magnified states in electron microscope. It was a good project that we were satisfied with.

In our first years in the sector, we would not receive work on medical planning. That is because there was already a planned building and medical planning would manifest itself as an effort to fit into this building. For sure, medical planning is not that. For





LIV HOSPITAL - ULUS, ISTANBUL / TURKEY

good planning, many factors should be considered. Among them are suitable architecture, effective use of natural data, employee happiness, and compatibility with design criteria. Medical planning calls for seriousness. It should not be considered as an effort to fit in or to place as it is the case with toy blocks. Finally, there is another gratifying element. It is hopeful to see that construction and medical teams, experienced about the field, knowledgeable and well-equipped are raised and increasing in number.

**ZOOM Architecture provide help to health groups in turkey and abroad**

We founded Zoom Architecture in 1995. Since 2003, we have been working in health sector. We began realizing hospital projects first with Acibadem Health Group and developed as we took part in the projects of other prominent health groups in Turkey. If you want to make the best of your job, you need to cover long distances. We only had the opportunity to understand very well and interpret our job in the last decade. In this process, we witnessed that although big companies from Europe and



**LEVENT CIRPICI**  
ZOOM ARCHITECTURE FOUNDER

“Healing environment should start from outside the building and proceed inside.”

“Today, we need evidence-based holistic solutions in healthcare sector.”

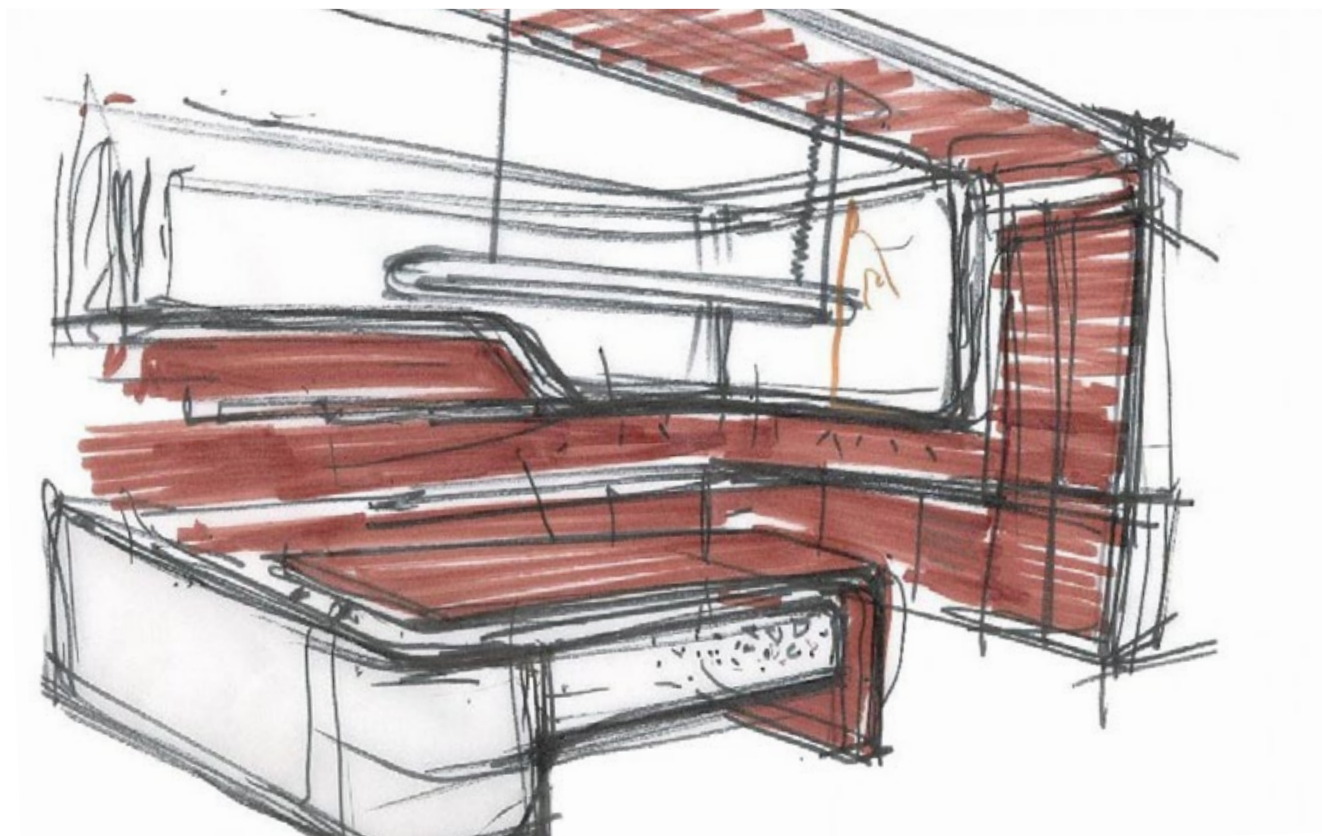


- + Area of 25.000 m<sup>2</sup>
- + „360 degree“ service
- + Multidisciplinary approach
- + Disease prevention
- + Cancer treatment
- + Orthopedics & physical medicine
- + Rehabilitation, neurosurgery
- + Latest technology

Total volume:  
10 Mio Euro (€)



LIV HOSPITAL - ANKARA / TURKEY



LIV HOSPITAL - ANKARA / TURKEY

America were realizing huge hospital projects, they were making serious mistakes. Therefore, the number and size of your projects are not decisive criteria on their own. I believe that it is right to be a part of a project that you can focus on and allocate time to. I think one of the most significant issues is moving forward by building consensus with people involved in the project. Big hospital groups often have their own interior architect teams which I find right and necessary that a hospital project actually means the management of revisions.

### **All factors of a project should be examined and studied meticulously**

We care about adding value to projects that we undertake. We wish to be present with full focus in the projects of health groups, that is to say actively work in all processes ranging from project planning to service provision. I can indeed express that this is an ideal work method.

In the beginning, all stages of a hospital project with its land determined in the first phase need to be studied. Among these stages are project architecture and medical planning. Ranging from the suitability of materials used to carbon footprint to the environmental compatibility of the land, all fac-

tors should be examined and studied meticulously. Then, a model of factors such as medical planning, biomedical choices, patient profile and the compatibility of the hospital with the population to be served should be created together with hospital staff. This model should then be turned into reality. We wish to be a part of such projects. We offer various consulting services. Currently, we are working in different projects and see how they move ahead.

### **Health conditions should be created in hospital environment**

For instance, simply, the use of daylight must be at a very high level in schools and hospitals. I do not find the existence of places deprived of daylight and located without daylight humanely right. I cannot accept this. Yet, that is not the reality. You can witness patients waiting and doctors working in dark corridors even in America. There is no way not to become ill in these conditions! You need to meticulously plan healthy conditions for everyone since we are talking about hospitals. First, you need to create an environment of daylight and fresh air.



MEDICANA  
KADIKÖY  
HOSPITAL,  
ISTANBUL /  
TURKEY

## Evidence-Based Projects Should Be Realized

I would like the designs and projects that we, as architects, make to be based on evidence. For example, we have an interest in organic forms and these make very positive contributions to hospitals. We do not use any sharp corners in hospital architecture. We try to prevent gathering of dust. We protect the architecture against breaking/bending. Yet, we cannot provide these as an evidence-based written form in that would call for the set-up of a research and development (R&D) department on these issues. On the other hand, health sector is not that interested in this subject and only wants to proceed with its own experiences. It is necessary to adopt a scientific approach.

To give an example, with a simple device that is attached to operating room staff, you can find out how many kilometers a surgeon or nurse walks in the hospital through the day. Examining this traffic affects your architectural design so much that moving a counter to another point might reduce the distance that a nurse walks to half. Indeed, these are evidence-based data and can radically change all our work life. Evidence-based data need to be quantitative. Unfortunately, there is yet no study on this.





MEDICANA  
KADIKÖY  
HOSPITAL,  
ISTANBUL /  
TURKEY

### You can certainly offer the comfort of a hotel in hospitals

Investors, come to us with an expectation of moving away from the image of hospital. They want hospitals to be more like hotels. I do not find it right. I love architecture that intrigues people upon their entrance. I believe that people need to meet scientific clues in health venues. Only then they can trust these places. It is not that right to meet luxurious hotel motives as in hotel lobbies. You can certainly offer the comfort of a hotel in hospitals. However, it is valuable to give people the message that they are in an innovation center and they a subject of this center. In this sense, I think we add value to projects that we work in.







# FROM MALTA TO THE WORLD

Cooperation with the best is essential to become  
and stay successful in healthcare sector







ST. JAMES HOSPITAL EYE CLINIC, MALTA

Jean Claude Muscat, CEO of Saint James Hospital Group, about their projects realized in cooperation with ACENDIS and their future activities.

In the few years we have known and worked with ACENDIS, we have built a relationship based on respect, trust and commitment to excellence. This provides companies such as us, who are dealing with challenging environments and complex projects, with the required peace of mind, which is so important when involved in major healthcare initiatives.

The aggressive yet smart approach by ACENDIS in continuing to grow and expand in existing territories as well as in new ones supports our business vision and culture. They are the ideal partner for hospital owners seeking to develop and complete projects without being faced with unnecessary hurdles and bureaucratic obstacles, but rather enjoy the benefits of having a shared goal, which is completing projects successfully and moving on to the next hand in

hand with a partner. This is a long term partnership. The healthcare industry is a complex and expensive one and partners such as ACENDIS play a crucial role in supporting the growth of development of companies such as ours.



**JEAN CLAUDE MUSCAT**  
CEO OF SAINT JAMES  
HOSPITAL GROUP



ST. JAMES HOSPITAL EYE CLINIC, MALTA



ST. JAMES HOSPITAL, LIBYA

### ACENDIS provides first class medical equipment that suits our needs best

ACENDIS has practically completed the turnkey supply and installation of all medical equipment for a new hospital currently nearing completion in Central Tripoli, Libya.

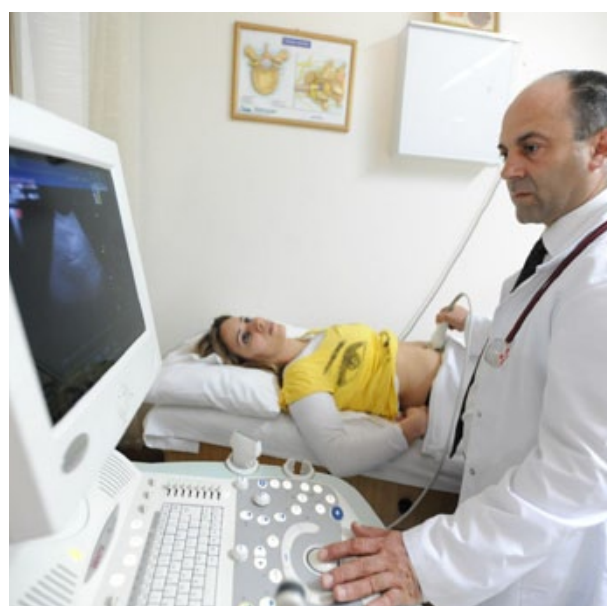
We have also partnered with them in two different projects which will lead to the development of a medical facility in Ghana and the establishment of a support services company that will be operational across the North African market.

We consider our German partner to be extremely responsive in providing required options and quotations and delivering first-class medical equipment that suits our requirements best, taking into consideration the market size and market environment we are operating in.

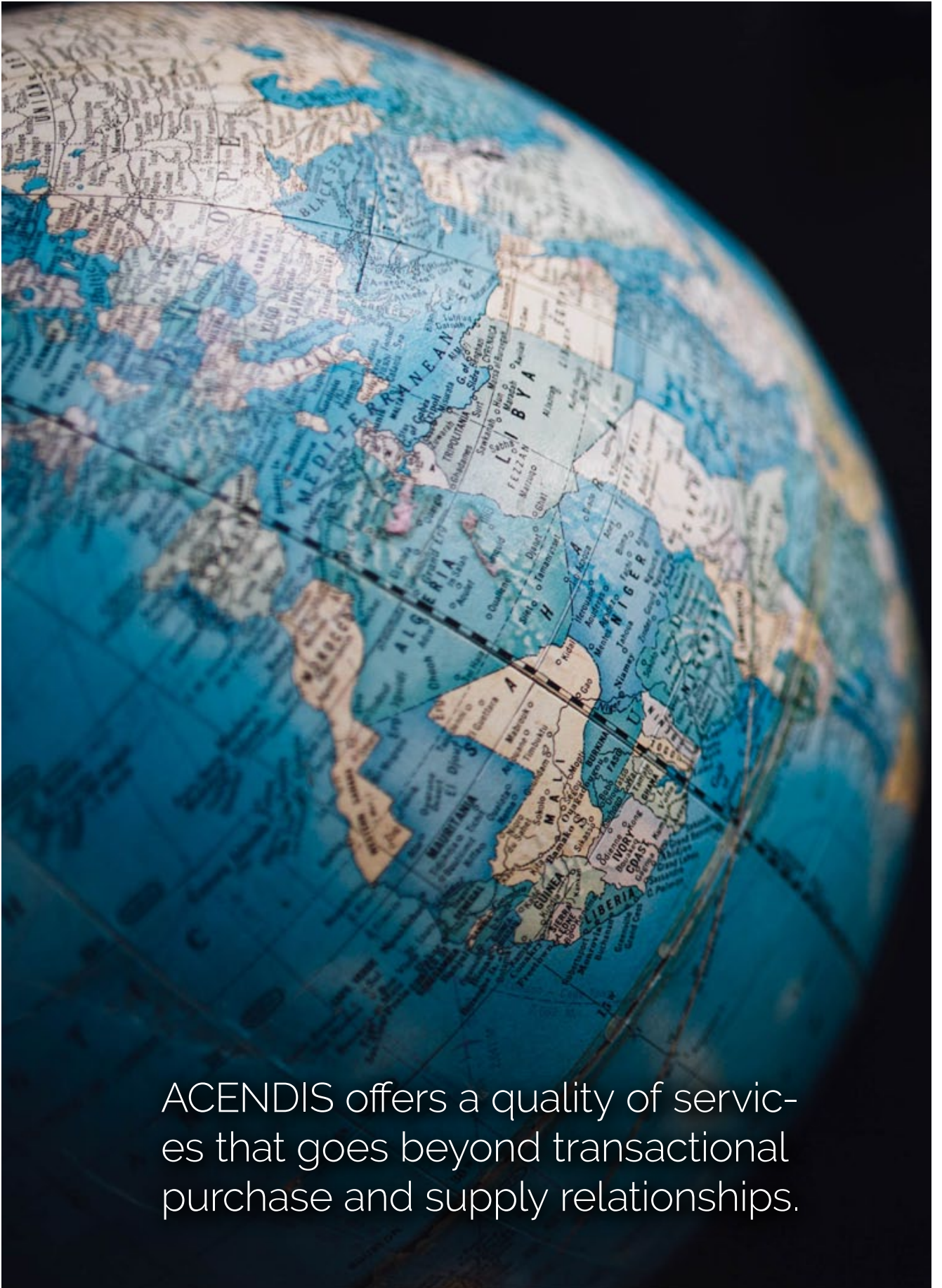
### Paying attention to details even in the smallest items is important

ACENDIS' flexibility in tailoring the offer and supply to our specific needs provided us with a critical advantage over other more 'standardized' options, which could reduce the flexibility and competitiveness of our operations.





ST. JAMES HOSPITAL, LIBYA



ACENDIS offers a quality of services that goes beyond transactional purchase and supply relationships.

# Safwa Hospital in Libya

## Proof of a successful way of cooperation

Bringing the most modern medical technology to North Africa, ACENDIS provided professional support for the medical planning and medical device procurement of Safwa Hospital operating in Libya.

ACENDIS professionally strives to ensure that the hospital projects in Libya are able to deliver services with the best medical devices. ACENDIS provided the medical equipment for Safwa Hospital, one of the most recent projects in Libya. The construction of the hospital that uses state-of-the-art medical technologies began in 2010 and it started to operate in 2015.

Operating in Tripoli, the capital city and the most populous city of Libya, Safwa Hospital is located in a 6,000 m<sup>2</sup> area. The 120-bed hospital is a 5-floor hospital and has six operating rooms and three intensive care stations. Safwa Hospital is a general hospital that is prominent for its departments of dental clinic, pediatrics, otolaryngology, orthopedics, neurology, neurosurgery, cardiology, and dermatology. ACENDIS is proud to make this project possible.



SAFA HOSPITAL, LIBYA



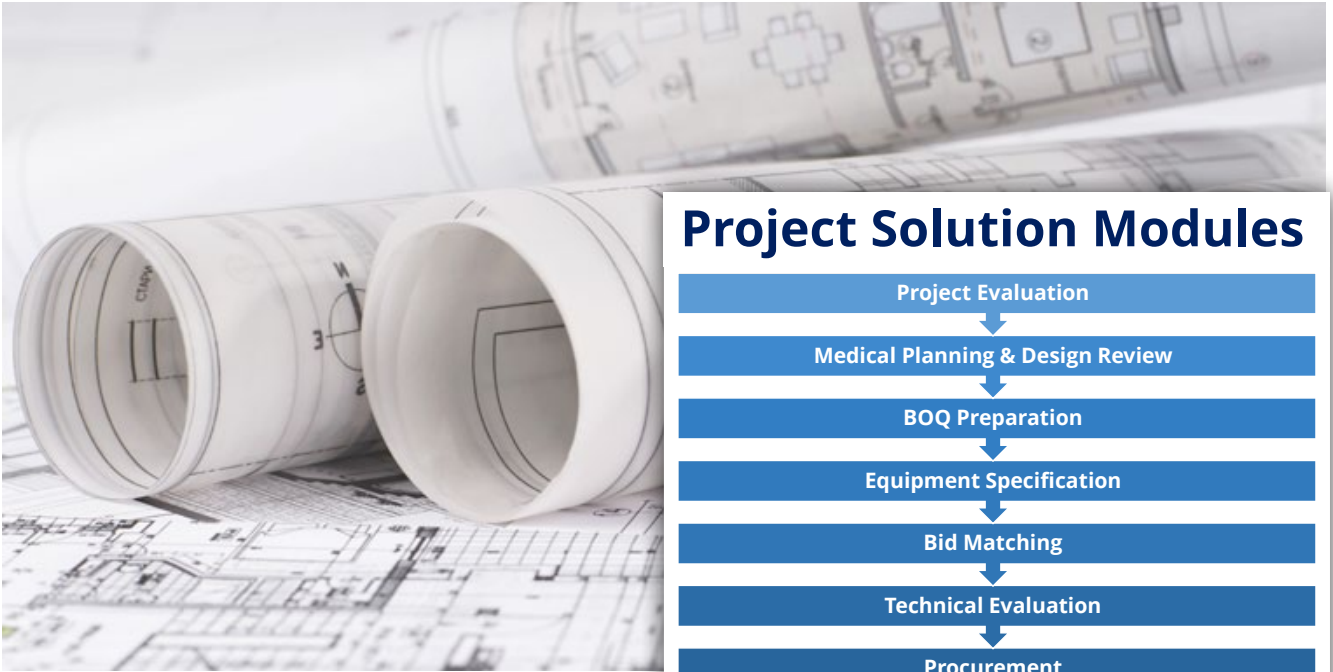
A person wearing blue scrubs, a red cap, and a face mask is standing in a medical facility, possibly a hospital or clinic. They are positioned next to a large, complex piece of medical equipment, likely a C-arm or similar imaging device. The room is brightly lit, and the equipment is white and metallic. The person appears to be working or adjusting the machine. The overall scene is professional and clinical.

# Guidelines for Step-by-Step Medical Planning

Why a professional strategy in early stages is key to success







## Project Solution Modules



If it is considered from the beginning, a typical medical planning process always needs to start with a very simple question: What does your client, the doctor or hospital owner want to achieve with this hospital? What services will be offered? Based on this question and assuming that a facility space is provided, the first step is to create a functional design of the hospital floor layouts.

### Planning Room By Room is the Way

A due consideration of proper workflows is essential here as this will ultimately govern the proper operating procedures of your staff. For instance, if you make it easy for your staff to segregate the dirty, clean, and sterile areas within a central sterile services department (CSSD), you can rest assured that your likeliness of cross contamination is kept to a minimum.

Once you have the floor and room layouts prepared according to standards and operational workflows, the next stage is to prepare room by room bills of quantities for medical equipment. This needs to be as detailed as possible, giving due attention to the specifications and accessories of each piece of equipment. Very often, this stage is eventually developed into a tender document which is issued to a number of turnkey suppliers to quote. With the quotes in hand, the client can be guided accordingly to choose the best medical equipment package from the right turnkey supplier.

### Facility Schedules are essential

Once the brands of medical devices are chosen, the next two stages will entail preparing a document called a facility schedule, and drawing the equipment placement drawings in your plans. A facility schedule entails examining each piece of equipment, and listing down what electrical requirements, space/weight requirements, and building service requirements will exist. This crucial information will often be needed by structural engineers, building services engineers and architects to plan their work. The equipment placement drawings also help ensure that your interior floor layout works and that the proper spatial arrangements are in place for the equipment to function properly.

The primary differences in projects are normally about the size of the hospital and the services it intends to offer. There is also an influence which comes about from the stage at which a client wants to include your services.



## Medical Planning is an inevitable process

Medical planning is already an essential process which needs to take place in any properly conceived hospital project. The future certainly seems to indicate that more and more hospital groups will see the need for this, and as a consequence, more and more firms will start to specialize and offer this service. We are already seeing a number of medical equipment manufacturers that are starting to offer the service for the departments which is related to their products. We are also seeing a trend whereby a provider may not simply stop at offering you the 'design' service of the hospital, but also the option to 'operate' it for you for a number of years. This certainly indicates a busy future for the healthcare industry!



**CARL AZZOPARDI**  
HEAD OF MEDICAL PLANNING  
DEPARTMENT OF ACENDIS

“Medical Planning is one of the essential processes in a good hospital project. Nowadays, more and more hospital groups have begun to pay attention to this fundamental need.”

# A HEALTHCARE MARKET WITH HIGH POTENTIAL

ACENDIS will provide Al-Kindi Hospital in Amman, Jordan  
with state-of-the-art medical devices





AL KINDI HOSPITAL  
AMMAN / JORDAN



SIGNED A CONTRACT FOR PARTNERSHIP: AL-KINDI HOSPITAL AND ACENDIS GERMANY (FROM LEFT: J. AWAD, DR. M. KHRAIS, H. SAHIN, M. AL-BTOUSH)

**A**l-Kindi Hospital cooperates with ACENDIS from Hanover, Germany as a consulting partner for their new hospital project in Jordan's capital city Amman.

Over 100 hospitals serve Jordan's population and 250,000 patients from neighboring countries annually. 80 % of imports for Jordan's demand for medical equipment and the most significant key suppliers include the United States, the European Union, Germany, Switzerland, and Japan. According to the report by the government of Jordan, the government aims to raise the health expenditure and the number of beds from 4,612 to 6,164 by increasing the efficiency of financial resources in order to meet the growing demand for modern and excellent healthcare services. Jordan is an Arab country in the Middle East with an annual gross national income per capita of nearly 11,000 USD. The total expenditure on health per capita is 761 dollars. The total expenditure on health corresponds to 7.2 % of the GDP.

Al-Kindi Hospital, based in Amman-Jordan is a general hospital complex with around 33,000 m<sup>2</sup> to deliver services in all healthcare units. The hospital is especially prominent due to its expertise in bariatric laparoscopic surgical procedures. The founder and developer of the medical center is Dr. Mohammad Khrais, FRCS-Consultant Laparoscopic & G.I & Bariatric surgeon.

Al-Kindi Hospital is a modern and efficient medical facility to accommodate 124 patient beds. The facility includes; an Accident & Emergency Department, Diagnostic Radiology Department, Pharmacy, Laboratory, Operations & Anesthesia Department, Intensive Care Department, Cardiology Department and an Endoscopy Department. Furthermore, the facility will accommodate outpatient clinics; Digestive & Obesity Clinic, Obstetrician & Gynecology Clinic, Plastic & Laser Surgery Clinic, Treatment of Vascular Clinic and a Nutrition Clinic.

Al-Kindi Hospital President & CEO Dr. Mohammad Khrais expresses his vision as follows: "We are continuously examining our performance and monitoring how well we are doing compared to the highest standards of the healthcare industry. We are always striving to provide the very best patient experience."

Growing along with the community is a major goal at Al-Kindi Hospital management. Towards the end of 2018, major infrastructure enhancements are underway, as well as a renewed commitment to providing excellent customer service – all building on the hospital's reputation for providing quality healthcare.

Improving healthcare is an ongoing mission. It requires always knowing how to be better and



CONSTRUCTION PHASE  
AL-KINDI HOSPITAL, AMMAN – JORDAN

for this purpose Al-Kindi Management agreed to engage and sign a consultancy and supply of medical equipment agreement with ACENDIS.

As turnkey hospital solutions provider, ACENDIS allow a single point of reference for design and planning of the hospital project, procurement and supply of medical equipment, followed by project management and installation of the equipment within the healthcare facility. They allow Al-Kindi management to have one partner who can assist with the realisation of the project. This solution provides the investor with the required advice and consultation to help him clarify their intended services and therefore plan for the exact equipment and building services.

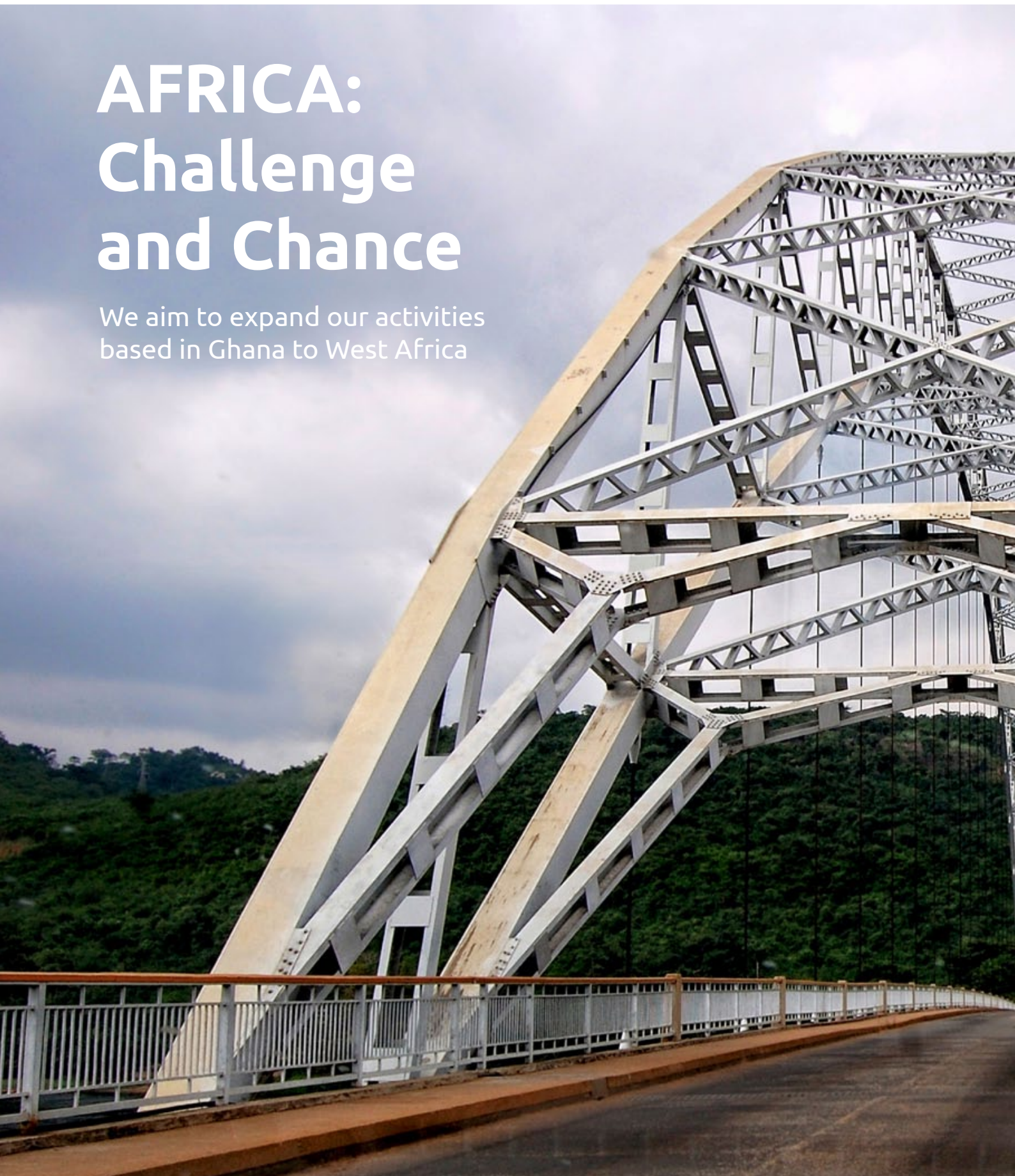
Both parties, Al-Kindi Hospital and ACENDIS Germany, are focused on success and growth and are internationally orientated. Thanks to Dr. Mohammad Khrais, President and CEO of Al-Kindi Hospital and recognised international expert on the field of General, Laparoscopic G.I and Bariatric Surgery, we have the chance to leave a mark in Jordan's healthcare infrastructure.



**DR. MOHAMMAD KHRAIS**  
PRESIDENT & CEO OF  
AL-KINDI HOSPITAL

# AFRICA: Challenge and Chance

We aim to expand our activities  
based in Ghana to West Africa







Striving to offer modern and quality healthcare in Africa, ACENDIS continues to increase the number of its hospital projects in the region every year. The most important goal is to eradicate poverty and ensure the provision of healthcare in the best conditions. To that end, ACENDIS cooperates with other health institutions and targets providing excellence in the field of medical healthcare.

The hospital projects realized in the southern part of Ghana – Accra and in the mid-belt region of Ghana – Kumasi give significant support to meeting the healthcare need of the people in the region. ACENDIS equipped the Acacia Medical Center in Accra and the new Asbury Hospital in Kumasi with medical equipment. As turnkey service provider ACENDIS offers turnkey solutions as well as technical support. Followed by maintenance and repair schedules and protocols as well as offering clinical applications training for doctors, critical care nurses, biomedical engineers, technicians and other relevant healthcare staff in these hospitals, we offer an holistic solution from the beginning.

### ACENDIS West Africa Office has been opened

ACENDIS has been working with local partners for two years in the medical healthcare industry in Ghana. Currently, we founded ACENDIS West Africa with a regional office operating from Accra.



**JALAL AWAD**

ACENDIS PROJECTS DIRECTOR MEA



This will seek to translate the beauty of outstanding project achievements by ACENDIS into the current regions of business in West Africa and generally into Africa. With a regional office, these activities will extend to Nigeria, Gabon, Sierra Leone, Cameroon, and Liberia, among others, within the next years.

### Africa is a rapidly growing market

We suggest that many medical consulting companies predict, stipulate and sometimes affirm that medical healthcare in Africa is growing and will continue to grow. The number of private hospital facilities growing significantly in the last ten years coupled with an increasing number of healthcare practitioners who have international experience and are relocating to start medical practices in many countries. For instance, a number of government, quasi-government and private hospitals are undergoing a major infrastructure upgrade and receiving capital investment with new regional and district government hospitals coming up in a majority of regions in Ghana.

### Great opportunities for Investment

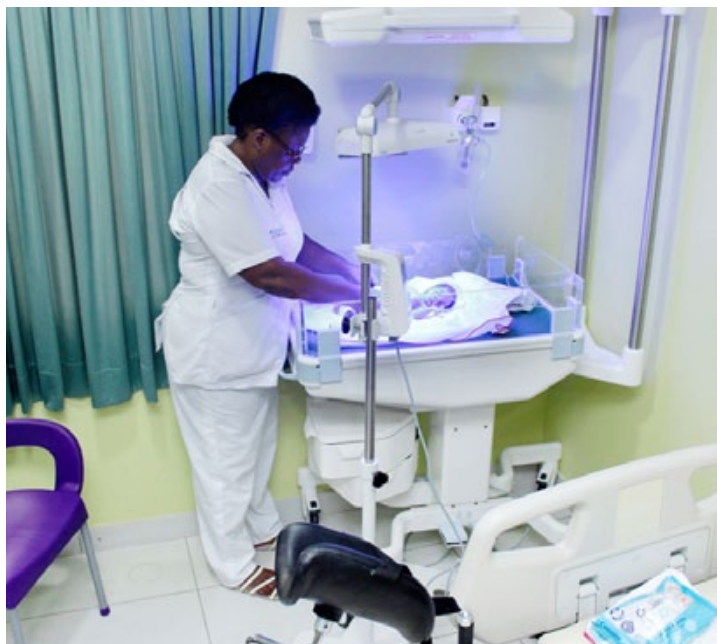
The education of middle class citizens is being specialized. There is an exponential economic growth in many countries. Rural – urban migration is rapidly increasing with many villages being re-demarcated for infrastructure development. There are serious growth patterns in the number of young Africans

who realize that poverty is evil and thus are seeking better living standards. Many people with good jobs and higher levels of disposable income can afford private health insurance. Companies have and are developing and running executive and retirement packages for business executives to cover medical care and holidays. There are great opportunities and many possibilities for investment.

### Investment predicted for Africa: 30 Billion Dollars

The African market has been driving the founding and expansion of private hospitals and private healthcare will continue to grow over the next few years and it represents an attractive investment opportunity. The World Bank's International Finance Corporation (IFC) estimates that \$25 bn to \$30 bn will be invested in Africa's healthcare infrastructure between now and 2017. Up to \$20 bn of this figure will come directly from the private sector. The hospital sector is also undergoing an undisputed growth throughout the entire Africa, stimulated by increased active government involvement in healthcare expansion. By 2019, it is predicted that there will be 700,000 to 900,000 beds built for the Sub-Saharan healthcare market and investments made up to 65 billion USD in healthcare. (Source: Healthscape Summit Africa)

The total cost of medical equipment procurement is presumed to cover about 30-40% of the total cost of a hospital set-up. Therefore, hospitals without



a strategic purchase plan and adequate know-how on equipment use and with redundant or aging staff, those with high staff turnover and those without the right equipment partner such as ACENDIS can have their revenues negatively influenced. Medical device breakdowns, misapplications or misuse of software and protocols, and not understanding the interpretation of readings among others can also influence hospital performance rating and affect the overall revenue.

**Proceeding in close cooperation with its clients in hospital projects is important**

Our collective expansion goals are very clear. We want to help advance medical healthcare in Africa by consulting on device specifications and financial solutions and building and equipping hospitals, clinics, diagnostic centers, laboratories and research centers at extensive cost schedules.

We seek to cooperate with private and public sector institutions and government agencies to realize visions set for the betterment of the healthcare for humanity in local and regional areas. With successful operations and a history of equipping private and public hospitals in many countries with technologically advanced medical equipment and with our elite know-how for installation, service and warranty, we have the ability and opportunities to translate projects into realities in other jurisdictions.



ASBURY HOSPITAL & FERTILITY CENTER,  
KUMASI - GHANA



# The journey has just begun

## ACENDIS has its signature under the most modern hospitals in Kumasi, Ghana

Putting into service Asbury Hospital & Fertility Center, which operates as one of the newest hospitals in West Africa, ACENDIS provided the hospital with the purchase, delivery and installation of the medical devices as well as financial consulting and the training of the hospital staff

As the hospital project put into service by ACENDIS in Kumasi, the second most crowded city of Ghana, Asbury Hospital & Fertility Center is a general private hospital. It provides the possibilities of two operating rooms, 35 patient beds, six intensive care beds and three NICUs (Neonatal Intensive Care Unit) to its patients. The hospital also offers comprehensive services in radiology, laboratory, neonatology, gynecology and cardiology. According to Dr. Thomas Dennis, the founder and CEO of Asbury Hospital & Fertility Center in Kumasi, Ghana, the hospital plans to incorporate a new operating room into its structure and to offer services in CT, radiology, MRI, IVF, and ophthalmology.

"We Will Work with ACENDIS for the new branches to be opened"

Stating that they worked with ACENDIS in the realization of Asbury Hospital & Fertility Center in Kumasi, Ghana, Dr. Thomas Dennis said: "ACENDIS supported us in the purchase, delivery and installation of the medical devices that we needed as well as in financial planning and the training of the hospital staff. Since we called for state-of-the-art equipment, we chose to work with ACENDIS, because they provide the

most modern medical devices independent of the producer and according to our needs and preferences. Thanks to these, Asbury Hospital & Fertility Center became one of the most modern hospitals in Ghana.


We are convinced of ACENDIS and planning to work together in the purchase of equipment for our new operating room and new branches to be put into service."

"We called for state-of-the-art equipment and chose to work with ACENDIS, because they provide the most modern medical devices independent of the producer, according to our needs and preferences"

Dr. Thomas Dennis



ASBURY HOSPITAL & FERTILITY CENTER, KUMASI - GHANA

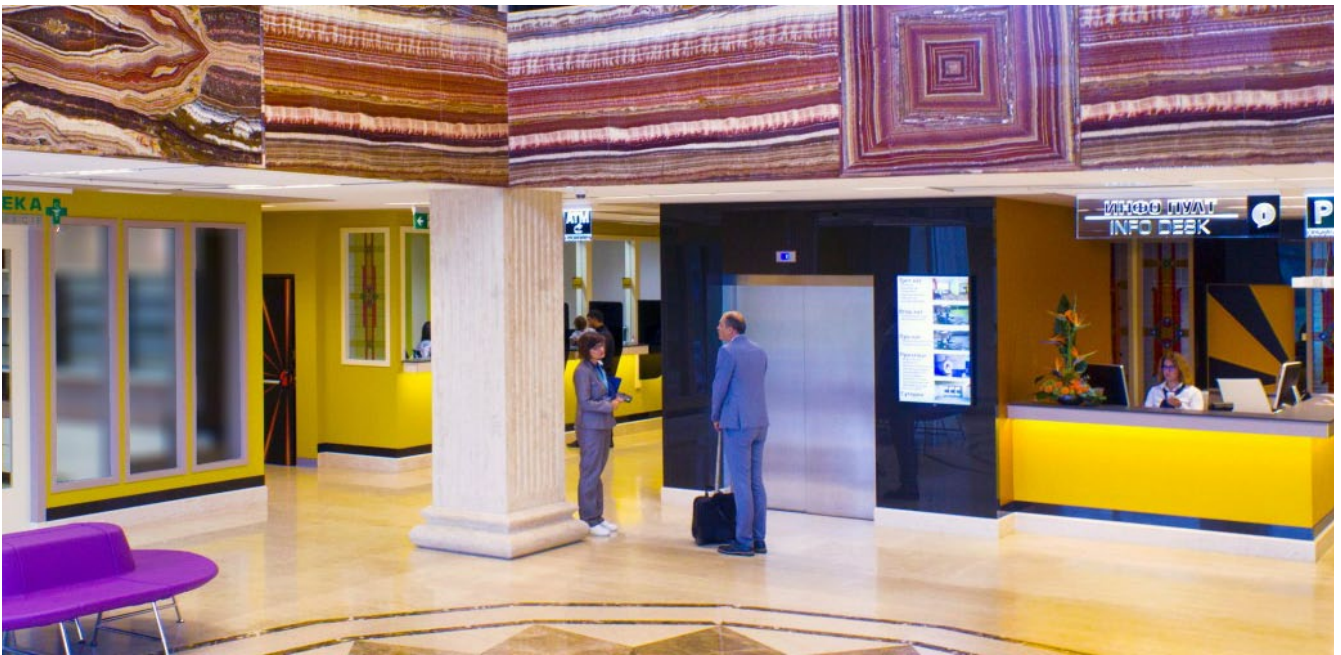


# **Trustful partnership as key to success**

About the challenge to Invest in undeveloped countries



FILIP VTORI SPECIA HOSPITAL  
SKOPJE / MACEDONIA



**A**CENDIS realized the medical planning of the Special Hospital for Surgical Diseases “Filip Vtori”, which was put into service in Skopje, Macedonia. Medical devices with state-of-the-art technology were used during the medical planning of the hospital.

Considering ACENDIS as a medical partner from the beginning, the CEO of the Special Hospital for Surgical Diseases “Filip Vtori” and an academician Dr. Zan Mitrev stated: “We are very happy to have a partner who is always available for any kind of support that is needed. The medical staff has been educated about the right handling, cleaning and using of the equipment, which is sometimes essential. It is our pleasure to maintain our relationship with ACENDIS because everyone is happy and confident with the positive outcome of projects. This is why we strongly recommend ACENDIS to everyone who is interested in having patient and staff satisfaction as their driving force.

Investing in medical development, especially in undeveloped countries, is a challenge and we are planning to organize a new modern hospital in Pristina, Kosovo, using our medical know-how together with our medical partners from Kosovo.

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Investing in medical development, especially in undeveloped countries, is a challenge and we are planning to organize a new modern hospital in Pristina, Kosovo, using our medical know-how together with our medical partners from Kosovo. I have been working as a cardiovascular surgeon for more than 20 years. As the CEO of the Special Hospital for Surgical Diseases “Filip Vtori” in Skopje, Macedonia, I have gained my experience through working at the most popular centers for cardiovascular surgery in Europe, University Clinic in Frankfurt and University Clinic in Zurich.

The Special Hospital for Surgical Diseases “Filip Vtori” opened on the 1st of March 2000 as a cardiac surgical department within the Military Hospital in Skopje. In 2002, the department grew into a private hospital for surgical diseases.





Since the 1st of March 2016, the Special Hospital for Surgical Diseases "Filip Vtori" has been operating in a new state-of-the-art facility. Built according to the highest constructional and environmental standards and equipped with cutting edge technology, the new hospital hosts the most qualified staff of the country, who lead up-to-date diagnostic, surgical and interventional programs.

The new hospital has 5 operating theaters, a modern intensive care unit with 60 beds, a total of 128 hospital beds, an outdoor patient clinic, modern radiology diagnostics with MRI, CT and X-ray and an angiographic room. Cardiovascular and thoracic surgeries are the focus of our hospital; however, a wide spectrum of specialties such as orthopedics, urology and abdominal surgery are also available."



**DR. ZAN MITREV**  
SPECIAL HOSPITAL FILIP VTORI,  
CEO & ACADEMICIAN



# IRAN: Healthcare challenger

The Niyayesh Erfan Hospital will bring high-level medical care to the people



**N**iyayesh Erfan Hospital, which will begin to deliver services with state-of-the-art medical devices in Tehran – the capital of Iran, believes in the expert team of ACENDIS. ACENDIS adds one more to its hospital projects in the Middle East. The planning of medical devices for Niyayesh Erfan Hospital that is to be opened to service delivery in Tehran is entrusted to the professional team of ACENDIS. Niyayesh Erfan Hospital that is to provide services with latest-technology medical devices will be a role model for healthcare providers in Iran.

Providing services since 2006 as one of the best hospitals in Iran, Erfan Private Hospital is preparing to crown its achievements in service delivery with Niyayesh Erfan Hospital.

Niyayesh Erfan Hospital project began in 2014 and is still under construction. It covers 5,000 m<sup>2</sup> in addition to the 30,542 m<sup>2</sup> construction site. Niyayesh Erfan Hospital, which will deliver services

in the most modern conditions in Tehran, becomes prominent with its state-of-the-art medical devices and professional team.

Designed ideally to maintain patient satisfaction at the highest level, Niyayesh Erfan Hospital is planned to offer services as a complete health complex.

## SETTING UP HIGH STANDARDS FOR SUCCESSORS



### Facts about Erfan Private Hospital:

- Awarded the excellent class award of the Ministry of Health
- Pioneer in using new medical technologies
- Providing modern medical services at international level
- Equipped with the most advanced laboratories and medical imaging centers with precise performance

A nighttime aerial view of a city in Saudi Arabia, featuring a prominent skyscraper with a distinctive triangular structure and a glowing blue light. The city is illuminated with warm yellow and orange lights, and a major highway with light trails is visible in the foreground.

# KINGDOM of SAUDI ARABIA

The upcoming star on healthcare market in Middle East



Saudi Arabia is one of the countries that grow at the highest rate in the Middle East thanks to its healthcare services and the country also has a huge potential for more growth in all areas.

“Saudi Arabia aims to maintain a growth momentum in the healthcare sector and is inclined towards privatization and private-public partnerships (PPP) in healthcare.” said Hatim Najjar, the Founder and General Manager of iDeal iDea. His company providing Medical Equipment Technology and embracing the “Globally Inspired, Locally Driven” motto. He is also the Executive Manager and member of the board of directors in the Saudi Scientific Society of Biomedical Engineering (SSSBE) in Saudi Arabia.

Operating in Saudi Arabia, one of the strongest healthcare markets in the Middle East, ACENDIS can support local hospital companies with its know-how and over 20 year experience. Because of this, we established a strong partnership with iDeal iDea, that will add a great value to the healthcare sector in Saudi Arabia.

In addition to supplying medical equipment and consumables to anesthesiology, critical care, cardiology and biomedical departments in hospitals, iDeal iDea focuses on turnkey hospital projects as well as the interior design of healthcare facilities. The company is planning to expand its services to GCC (Gulf Cooperation Council) countries. Together, we can reach our goals much faster and on higher levels.

According to Eng. Najjar, especially in the healthcare sector Saudi Vision 2030, the National Transformation Program 2020, and the stability of the country make Saudi Arabia a country of opportunities.



**HATIM NAJJAR**  
 IDEAL IDEA  
 FOUNDER &  
 GENERAL MANAGER

# An Outstanding Hospital Project: Acıbadem Taksim

The biggest hospital chain of Turkey achieved a new milestone for hospital excellence

Acıbadem Health Group, the largest hospital chain of Turkey, relied on ACENDIS' solutions for all critical processes from project finance to the planning of medical devices in the Taksim Hospital project, the latest one incorporated into the Group.

Contributing to the growth of private hospital sector in Turkey, ACENDIS is also the closest solution partner for Acıbadem Health Group, the biggest hospital chain of the country.

We carried out the Taksim Hospital project, one of the latest project that began to operate in Istanbul by Acıbadem. The expert team of ACENDIS realized the consulting for project finance, the procurement, logistics, installation, and staff training of medical devices and equipment of Acıbadem Taksim Hospital.



**BAŞAK GÜNEŞ ÇİMLİ**  
ACENDIS PROJECT MANAGER



- + Area of 24.000 m<sup>2</sup>
- + 100 beds
- + 6 operating rooms
- + 10 intensive care units
- + 7 neonatal care units

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Total volume:  
20 Mio Euro (€)



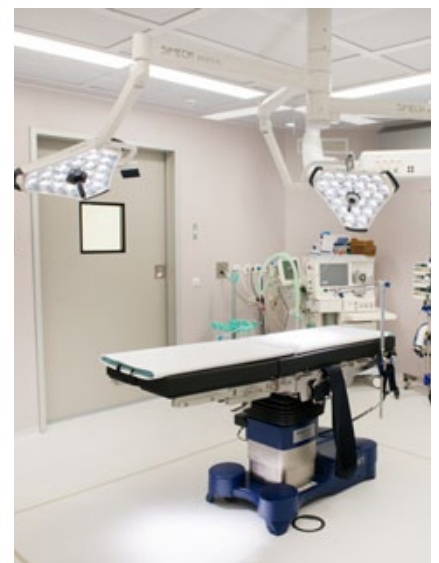
ACIBADEM TAKSIM HOSPITAL,  
ISTANBUL / TURKEY



ACIBADEM ALTUNIZADE HOSPITAL,  
ISTANBUL / TURKEY

"We are proud to have a share in the growth and development of hospitals in Turkey and to move forward to install outstanding equipment, that move the health sector of Turkey to upper segments, and make patients from all over the world prefer Turkey for their treatment", said ACENDIS Project Manager Başak Güneş Çimili who has worked in all processes of the hospital project."





ACIBADEM INTERNATIONAL MEDICAL CENTER,  
AMSTERDAM / NETHERLANDS

# **ACENDIS CHINA**

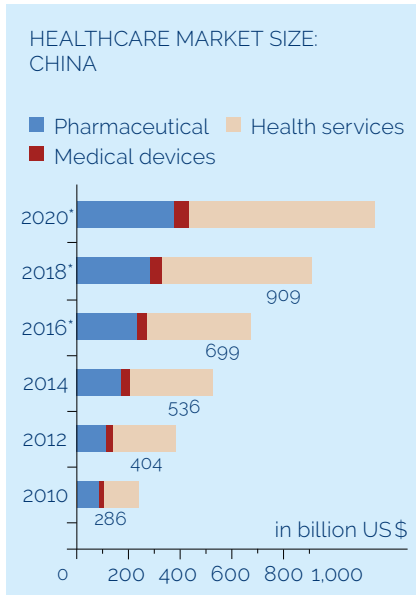
## **A Total Healthcare Solution Provider for P.R. China**



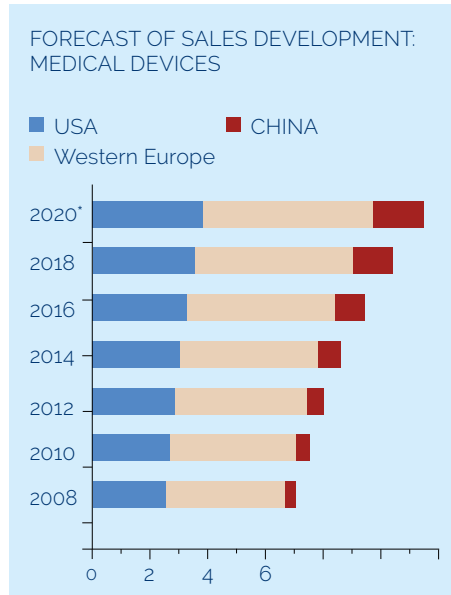


## “China’s healthcare system is facing new opportunities with ACENDIS CHINA”

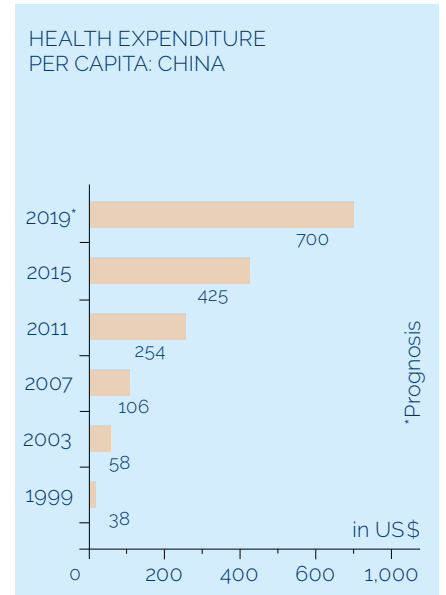
Following rapid economic growth and social development, China's healthcare system is facing new challenges, such as increased healthcare demands and expenditure, inefficient use of healthcare resources, unsatisfying implementation of disease management guidelines and so on. PRC leaders have made significant progress in a relatively short period to improve the healthcare system in China. The pace of China's healthcare reform has matched the government's goals so far, indicating that China will likely reach its targets. The quality of medical services remains to be seen, however, efforts to develop a social healthcare plan are still in progress. The government has emphasized attracting private capital to healthcare investment. The changing regulatory system will open more investment opportunities to china's local private company and also the foreign medical companies.



Source: China National Pharmaceutical Industry Information Center



Source: Calculations of HWWI



Source: World Bank

Three themes will shape China's healthcare market: the continuation of economic and demographic trends, further healthcare reform, and the policies articulated in the government's 12th five-year plan. Some of these forces - such as improvements in infrastructure, the broadening of insurance coverage, and significant support for innovation - will have positive implications for private or global investors.

## Opportunities

Strong growth in the healthcare sector is fueled by favorable demographic trends, continuing urbanization means more and more people will move to cities, and lifestyles change. Elderly in the population are predicted to go on increasing. Another basis for growth in the demand for care is increasing incomes and more extensive insurance coverage income growth (which encourages greater awareness of and access to treatments). It also reflects the government's focus on healthcare as both a social priority (as seen in a 2009 health-care reform) and a strategic one (in the 12th five-year plan's impact on the biomedical industry).

## China's reforms have a significant effect on the system

The latest healthcare reforms are starting to gradually remove constraints on the private investment on health sector. The most important change was included in both the central government's overall reform guidelines and the implementation policies put in place in a number of cities: doctors may now practice at multiple facilities, including private hospitals, making the best doctors more mobile and easier to recruit. As a result, private providers could begin building hospitals (or leveraging existing facilities) that combine high clinical quality and high service levels to address the needs of the fast-growing affluent-patient segment. There are also an increasing number of signs — a recent announcement in Shandong Province, for example — that private hospitals are now being considered for inclusion in public health insurance networks on the same terms as public hospitals.

Once all these reforms are in place, the role of private hospitals should expand. Private providers



KANGHUA  
HOSPITAL,  
DONGGUAN

will play an important role in China by creating healthy competition with public hospitals and addressing unmet needs. Besides the local companies are putting more and more investment in the healthcare sector, Multinationals are also flocking to take advantage of the opportunities. A few international providers, such as Singapore-based Parkway Health, have established a presence in China and have plans to expand gradually. Several others are looking to tap into the opportunities in China within the next few years.

### Establishment of ACENDIS (China)

In recent years, the domestic healthcare industry, long dominated by the government-owned institutions, has attracted more and more private companies eager to help address the country's burgeoning demand for health care services.

A big change is china's property developers are increasingly getting involved in the sec-

### Healthcare Industry Overview in China

China's healthcare market is projected to grow at an unprecedented CAGR of about 12% to reach \$1 trillion by 2020, up from \$357 billion in 2011, as estimated in a recent report from McKinsey & Co. The government in China has decided to take major steps to improve the local healthcare infrastructure. According to a report by the Health Industry Summit, the Chinese government approved a blueprint called "Healthy China 2030", pledging to build a healthy China in the next 15 years. By 2030, the size of the healthcare market is expected to reach \$2.3 trillion. From pharmaceuticals to medical products to consumer health, China is one of the most attractive markets in the health industry and is fastest-growing of all the large emerging markets.



FROM LEFT:

**VICTOR CHEN**  
GENERAL MANAGER  
OF ACENDIS CHINA

**TÜRKER KÖKSAL**  
DIPL. ING. ARCHITECT  
HEAD OF ARCHITECTURE  
DEPARTMENT OF  
ACENDIS CHINA

**HASAN SAHIN**  
GENERAL MANAGER & FOUNDER  
OF ACENDIS GERMANY

**PHIL ZENG**  
ARCHITECTURAL DESIGN TEAM

**QING FENG HUANG**  
CO-FOUNDER  
OF ACENDIS CHINA, INVESTOR,  
REAL ESTATE DEVELOPMENT

**ANDRÉ HILDEBRANDT**  
PROJECT MANAGER  
ACENDIS GERMANY

tor, seeing it as an opportunity to diversify from their traditional focus on the housing market, which may be reaching its peak. At the same time, some property developers need to build hospitals and schools as part of their residential projects. The problem is that the large property developers are rich in capital and experience in residential construction but they lack experience in hospital construction and hospital operation and management.

ACENDIS (Germany), well aware of the business opportunity, and as a hospital turnkey services provider, they can fulfill the demand of those unexperienced private investors or companies in China; Thus in 2017, ACENDIS (China) announced its establishment in Guangzhou. Meanwhile, Victor Chen, previously working in the healthcare industry in China for more than 20 years, joined ACENDIS (China) as managing director. He has also gathered a team of experts who have accumulated an extensive experience by working together with the leading companies in the different fields: specification, design, finance, construction, installation, testing and operating medical facilities. With benefit from his powerful and professional network of well established, recognized and respected partners from both China and abroad, ACENDIS (China) is capable of providing optimized one stop

hospital total solution to maximize the value of each investment and also the quality of hospital system and services. It intervenes in a wide range of projects such as construction, renovation, expansion of hospitals, clinics, operating theaters, health centers or laboratories, covering all medical specialties and customize their services in the area of feasibility study, architecture design, medical planning and procurement financial solution and hospital operation and management based on the demand of clients.

2018 is a flowering and prosperous year for ACENDIS (China), they have strategically teamed up with Edinburgh International Investment, the healthcare services provider affiliated with the University of Edinburgh. They will strategically unite and work together on the project basis to bring all the services as a package to healthcare investors and help them to realize their hospital projects from the beginning of the project study to the end of hospital operation and management. Through the cooperation, they can achieve one stop hospital total solution in real sense.

ACENDIS (China) is honored to serve as cooperation partner for the highly influential Mazu International Healthcare City. The cooperation framework has been



HEALTHCITY  
FOSHAN - CHINA

signed in May 2018. Putian city has its unique resources and policies to breed the development of Mazu international Health City and Strengthen its influence in the healthcare industry. It is foreseeable that the construction of this project will contribute a milestone significance to push the innovative development of China's big Health Industry. It integrates the world's high quality and advanced medical and health resources. It creates a new module of healthcare platform called as medical tourism. It also creates a comprehensive innovation platform to integrate the whole healthcare industry chain. The concept of Mazu international healthcare city plays a position of pioneer internationally.

It is expected that this super medical city will be activated around end of the year. ACENDIS (China) is working out contract condition with the Putian Government. This will be also the milestone moment for the development history of ACENDIS (China) too.

### How design concept changes

As a turnkey service provider, ACENDIS (China) normally get involved in the project starting with design phase. China is changing so drastically in these years in all aspects. This has significant impact



**VICTOR CHEN**  
GENERAL MANAGER  
OF ACENDIS CHINA



ZHU HAI MOTHER AND CHILD HOSPITAL, CHINA



**TÜRKER KÖKSAL**  
DIPL. ING. ARCHITECT  
HEAD OF ARCHITECTURE  
DEPARTMENT OF  
ACENDIS CHINA

on the design concept too. Lately, Chinese developers have looked into providing medical services in a shopping mall environment. Specialist consultations, dentistry, ophthalmology, digital imaging, cosmetic surgery, physiotherapy, traditional Chinese medicine, medical check centers of preventive medicine and many other medical services are being considered. Such 'SUPER CLINICS' will transform the way medical services will be delivered to serve the people.

and culture, design of these facilities and model of care are modernized. Healthy China 2030 is the most recent comprehensive reform and policies for China's healthcare system. This reform will see the expansion of the healthcare industry, facilitating the growth of hospitals, medical centers and other healthcare related facilities with innovative ideas and the PATIENT CENTERED concept.

## "China's health-care system is facing new opportunities with ACENDIS CHINA"

### The beginning of more private healthcare providers in China

International competitions and the engagement of international architectural firms with medical planners have influenced the concepts, planning and design of healthcare facilities in China. Not only medical facilities are influenced, senior living and age care are impacted too. While keeping the traditional Chinese lifestyle

China's healthcare industry is full of potential. However, Competition is also intensifying. It is big challenge for ACENDIS (China) positions and brands itself in the market. On the other side, the turnkey solution concept for hospital project are still new in the industry. ACENDIS (China) should keep strengthening its service capability and profession and dedicated to build a unique international hospitals for its clients.





CAIDIAN HOSPITAL, WUHAN / CHINA | AWARD WINNER: "HIGHLIGHTS OF ARCHITECTURAL HOSPITAL DESIGN 2018"



HEALTH CITY, FOSHAN/CHINA



**SCOPE OF SERVICES**

- Project Evaluation
- Architectural Design / Medical Planning
- BOQ Preparation
- Equipment Specification
- Bid Matching
- Technical Evaluation
- Procurement
- Drafting of Facility Schedule
- Delivery
- Installation, Commissioning & Acceptance Testing
- Training and Handover

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# Focusing on the individual.



Löwenstein Medical is dedicated to the development, production and sales of medical devices and workstations for anaesthesia, neonatology, paediatrics and intensive care ventilation as well as homecare.

Innovative technology, ergonomic design and creative user interfaces distinguish their high-end-systems and permit optimal support to the clinical user in every situation. The strategy of Löwenstein Medical constantly seeks the benefit - for medicines, clinical users and patients.

## ESOPHAGEAL, VENTILATION MONITORING

From research instrument to standard bedside method



Lung-protective ventilation reduces ventilation associated complications (Ventilator Associated Lung Injury and Ventilator-Induced Lung Injury), especially by decreasing the mechanical pressure and volume strain on the lungs.

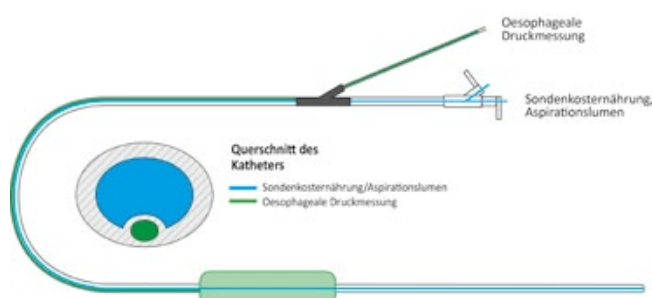
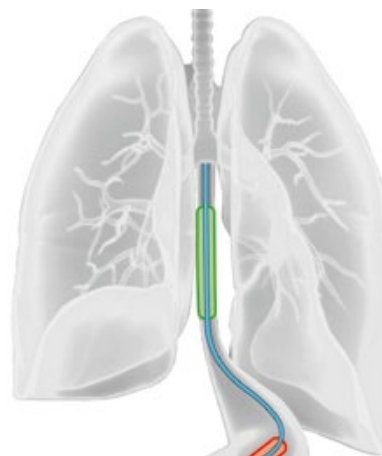
Clinical findings in recent years show that lung-protective ventilation can be effected only with regular adjustment of the ventilator settings to the individual lung function. The adaptation of ventilation therapy based on esophageal pressure measurement is a simple, valid and minimally invasive method which requires only the placement of a modified feeding tube. The changes in esophageal pressure during a breathing cycle reflect the changes in pleural pressure. The transpulmonary pressure situation, or the difference between alveolar pressure and intrapleural pressure, shows the extent of mechanical stress on the alveoli. It is responsible for VALI. The

inspiratory plateau pressure set on the ventilator plays a less important role. Studies show that, given the high variability in the ratio of the lungs' elasticity to the thorax, the inspiratory plateau pressure set on the ventilator results in highly varied transpulmonary pressure gradients. In patients with elevated pleural pressure, resulting from increased intra-abdominal pressure, for example, the same inspiratory pressure may be associated with lesser ventilator-associated lung injury than in patients with low pleural pressure. When an elevated intra-abdominal pressure is present (e.g., in cases of obesity, ileus, ascites), an inspiratory plateau pressure of more than 30 mbar can be tolerated if the inspiratory transpulmonary pressure is not accompanied by a potentially dangerous increase of more than 25 mbar.

The end-expiratory transpulmonary pressure (TTP exp) can be adjusted by titration of the applied PEEP as airway pressure is related to the applied PEEP. The titration of the applied PEEP to TTP exp between 0 and 10 mbar (but always in the positive range) can reduce

the cyclical alveolar collapse. In contrast to other methods for detection of individual PEEPs, this procedure also can be used during spontaneous breathing and weaning. In cases of weaning, an esophageal pressure measurement can provide valuable information (e.g., unveiling patient-ventilator asynchrony, monitoring of muscular effort, calculation of intrinsic PEEP under spontaneous breathing) and permit the weaning process to be optimized. During weaning and assisted spontaneous breathing in a critical situation, the patient's Work of Breathing can be determined with use of a PESO (esophageal) catheter and pressure support for the patient can be adjusted to the affected lung function. With the availability of modern intensive care ventilators and PESO monitors, this established method can now be used easily at the patient's bedside.

About the author: Dr. Sven Pulletz is an anesthesiologist with authorization to provide training for special intensive care medicine. In his research work and as senior physician at the clinic for anesthesia and internal medicine in Osnabrück Hospital, his focus is on lung-protective intensive care ventilation.



Esophageal catheter with simultaneous administration of enteral tube Placement of esophageal catheter

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