SWISS MED

Sri Sathya Sai Super Speciality Hospitals
Puttaparthi (Andhra Pradesh) and Bangalore (Karnataka) India

Swiss Review for Medicine and Medical Technique

1/05

The joy of life!

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The inspiring message of Sri Sathya Sai Baba has moved men and women to seek cures for the social illness of indifference to human suffering and need that is currently rampant throughout the world. Members of the Sri Sathya Sai International Organizations have gone into deprived communities in many countries and are dispensing healthcare freely with love and compassion, as prescribed by Sri Sathya Sai Baba. Foremost in the minds of these members of the Sai Organizations are Sri Sathya Sai Baba's words: "Hands that help are holier than lips that pray."
– ***Dr. Narendranath Reddy***
Chairman, International Medical Committee
– ***Dr. Michael Goldstein***
Chairman, Overseas Sri Sathya Sai Organization

INTERNATIONAL MEDICAL CONFERENCE ON "IDEAL HEALTHCARE FOR ALL" PUTTAPARTHI (ANANTAPUR DISTRICT, ANDHRA PRADESH), INDIA SEPTEMBER 3–4, 2005 20

The Sri Sathya Sai International Organization is organizing an international medical conference on behalf of the Sri Sathya Sai Medical Trust on 3rd and 4th September 2005, on the topic "Ideal Healthcare for All". The conference will be held at Prasanthi Nilayam, Puttaparthi, Anantapur District, Andhra Pradesh, India, 515134.
– ***Dr. Narendranath Reddy***
Chairman, International Medical Committee
– ***Dr. A. N. Safaya***
Chairman Organizing Committee
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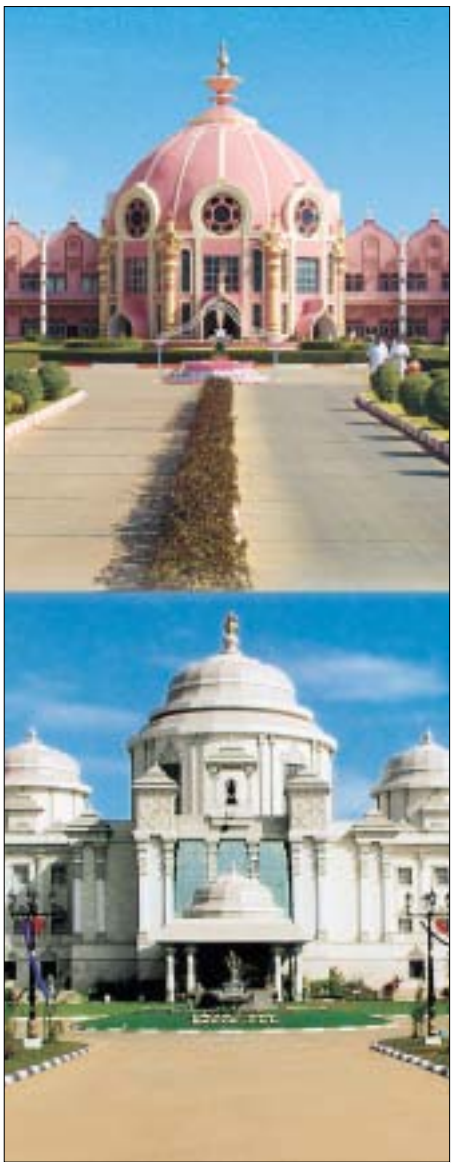

View (detail) of the main entrance of the Sri Sathya Sai Super Speciality Hospital in Puttaparthi (Andhra Pradesh), which opened on 22nd November 1991 (upper part of picture). The second Super Speciality Hospital (lower part of picture) is located in Bangalore (Karnataka). It opened on 19th January 2001. Overall views of the two hospitals are to be found in the centre spread, on pages 14 and 15 of this issue of SWISS MED.

MediCare

Ethics of modern medicine

The 4th International Symposium on Cardiology, which takes place in Puttaparthi, India, in September 2005, will be attended by participants from India, U.K., U.S.A., Germany, France, Israel, Sweden, Austria and other countries. They will discuss the significant improvements in the way we run hospitals and health care, as it is demonstrated by Sathya Sai Baba's two Super Speciality Hospitals in Puttaparthi and Bangalore.

According to Sri Sathya Sai Baba, education, clean drinking water and medical health care should be completely free for all, irrespective of caste, creed, colour, religion and country of origin. With respect to highly specialised medical care, the treatment of diseases such as heart surgery, brain surgery, advanced spinal surgery or kidney surgery has become quite costly, and in countries where the government offers free medical care, like in most of Western Europe, the resources seem to run short of the demands and the result is often long waiting lists or that the more affluent patients choose an alternative, costly treatment at private hospitals.

As high-technology diagnosis and treatment have evolved it has become possible to treat diseases that were incurable decades ago. In this context the costs have increased many fold. The increase in technology, the growing demand for highly specialised personnel and the corresponding high costs just seem to continue. However, along with perfection in technology and specialisation the skills are perfected but the ethical aspects in terms of a caring involvement between professionals and patients have suffered.

This is why the Sathya Sai Health mission is so important. This mission is based on a spiritual philosophy where love and care is the undercurrent of a set of human values governing all activities at Sathya Sai Baba's two model hospitals.

In Western medical research it is a well known fact that when the interaction between the professionals and the patients are based on a caring, human involvement the healing process is significantly enhanced. This relation is truly reflected in the results achieved at the Super Speciality Hospitals.

Even the structural design of the hospitals reflects this caring philosophy. They are not laid out like high silo plants, but rather as low buildings in contact with the environment, representing an openness that seems to embrace the patients.

Doctors and nurses at Sathya Sai Baba's hospitals follow the human values of love in speech and action, as well as love in feelings, i.e. equanimity, inner harmony and peace. The consummation of this is the principle of non-violence, where the patients are seen as divine beings and sparks of the very same love that also constitutes the true identity of the doctors and nurses. This highly spiritual philosophy, taught by Sri Sathya Sai Baba, is also the guiding principle for the many volunteers who take turns at the hospitals and contribute to the smooth running of a complicated, modern super speciality hospital.

The spiritual atmosphere and the rewarding experience of working there draws highly skilled doctors and other medical staff, as well as other volunteers, to the Super Speciality Hospitals and the statistics of the results achieved clearly speak for a unique approach to health care that deserves to be emulated. May the experience of the participants at the Symposium serve as beacons that will inspire the beginning of such a much needed development in our technically advanced hospitals around the globe.

Thorbjoern Meyer, PhD.
Chairman Zones 6 & 7 of the Sri Sathya Sai Organizations (Europe)
Chairman ESSE Institute and ESSE Academy
*Associate Professor at the CBS (deemed University) in Copenhagen and Head of the Research Centre for Organization and Development Based on Human Values and Dialogue (ret.)**

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Temples of Healing: Providing the best diagnostic and therapeutic facilities of modern high-technology medicine for the underprivileged sections of society.

A visit to the Sri Sathya Sai Super Speciality Hospitals in Puttaparthi (Andhra Pradesh) and Whitefield, in the neighbourhood of Bangalore (Karnataka), India, with a view to their forthcoming 4th International Symposium on Cardiology, which is to take place in September 2005.

Interview with Dr. A. N. Safaya, Director of the Sri Sathya Sai Institute of Higher Medical Sciences, Puttaparthi and Bangalore, India.

There is no doubt that in our Western countries the medical world is in a state of crisis. Not only are controversies that challenge the ethics of modern medicine bewildering both scientists and ordinary people. We are also confronted with difficulties in keeping the cost of health care down. Nevertheless, modern medicine is making dreams come true. But we run the risk that the benefits of these technological advances will sooner or later be far beyond the reach of the underprivileged sections of society. Do we have the possibility of solving this problem? Do we have a model institution that can show us the path we might take? Yes, we do! When, some years ago, we heard about the Sri Sathya Sai Super Speciality Hospitals in India and later read a report in the WHO World Health Forum (Vol. 19, 1998), entitled "Free high-tech health care in India", our decision was made: "One day we have to fly to India to carry out a thorough examination of this matter." Finally, that day came and we made the trip to India. Here is our report.

◆ ***Interviewer: Dr. Felix Wüst***

Dr. Safaya, it's a great honour and pleasure for me that you have agreed to this interview.

It's my pleasure, too.

Let us first tell our readers who you are. You have been a Professor of Hospital Administration and Medical Superintendent of the prestigious All India Institute of Medical Sciences. What led you to give up such an important post in the capital of India?

In fact, I took early retirement. I gave up the post because I was a devotee of Sri Sathya Sai Baba [1] and I was unexpectedly approached by him. He wanted to start a medical mission in which high-tech state-of-the-art medicine and technology could be given to the poorest of the poor without any distinction of caste, creed, country of origin, religion etc. We then took part in the drawing-up of such a venture and helped in planning and bringing about the practical results of the programme. I therefore joined him. Swami – a more familiar name used by his devotees – set up an international committee for the Sathya Sai Institute of Higher Medical Sciences and I was made Chairman of that committee, on which many prominent doctors from abroad were represented, such as Dr. Goldstein, Dr. Knife, a famous nephrologist from the Johns Hopkins Health Center, USA, Dr. Mitch Krucoff, from Duke University, USA, and many other doctors from abroad and

from India. We were about 10 to 12 persons, each a prominent doctor in his own professional field and all devotees of Swami. We sat down together to decide what was the best way to approach our mission to create a hospital. We decided on a super-speciality set-up. Swami agreed to this, and said: "Let's have a Super Speciality Hospital with the disciplines of cardiology, nephrology, neurology, oncology and ophthalmology". The result was that on 22nd November 1990 Swami made a declaration that he would establish a hospital at Puttaparthi, concentrating on these five super-specialities.

Why exactly these disciplines, and not others?

Most diseases involve the heart, the brain, cancers and the eyes. These diseases require high-technology diagnosis and treatment, which are very costly. These are very sophisticated fields and call for very sophisticated, highly-trained professionals and technicians – with the result that the medical care is so costly. It was probably in order to make such facilities and treatment available to the common man, who of course could otherwise not afford them, that Swami chose these particular specialities. The majority of other diseases are provided for, to a greater or lesser extent, by the Government and by other organizations in the field of medical treatment. Our aim is to provide treatment in these selected disciplines completely free and, as I have already mentioned, irrespective of caste, creed, colour, religion or country of origin. We don't check people's passports. We don't ask them their nationality. We only ask them for data relevant to their treatment. As human beings, the patients can come from any country and can receive treatment free of charge.

Did you really say "free treatment"? We shall have to discuss this more thoroughly. But first, please tell me something about your scientific contacts outside India. Do you have such contacts with Germany, France, Italy, America?

Yes, but not in the conventional way. The conventional way would be to have an agreement between one university and another. But we have a large number of Swami's devotees who are Indians living abroad, in the U.K., in the USA, in France, in Germany, in Australia, in New Zealand etc. These doctors are specialised in the disciplines that I have mentioned to you. They come here and they work here with the permission from our Government. They have temporary registration as doctors, they operate, they teach, they help and from their point of view they are performing seva [2], which means service, free service. This they do without any reimbursement. These people also undertake to bring us the latest technology from abroad, from their respective countries and institutions. Sometimes they take the doctors or technicians from this Institute and train them in their own countries, thus providing us with some sort of balance, so that technically and professionally our hospitals do not stand in isolation.

Is it difficult to find these people?

There are a large number of applications, not only from top specialists in the field, but also from the medical students who want to come to do a curricular hospital stay here. It is a favourite place for medical students, because in November 1994 the National Board of Examiners of India, a Government organisation, aimed at standardising postgraduate medical education in India, approved our Institute for training and accrediting specialists in cardiology, cardiothoracic surgery, urology and nephrology.

I read that you have also organized scientific symposia.

Yes, we have had three international conferences so far in cardiology. These were in 1993, 1994 and 1995. These were attended

by quite a large number of people from this country and from abroad, from the USA, the UK, France, Germany, Israel and Australia.

And the conventional aim was to exchange knowledge?

Yes, to exchange knowledge and to acquaint our visitors with our way of thinking and acting. Our people have also presented scientific papers. The participants could convince themselves that the provision of completely free high-tech medicine *is* possible in the present world.

For when do you plan the next symposium?

The next conference, I think, will be this year, in September 2005. It will take place here in Puttaparthi. We shall invite not only professionals of the medical sciences but also planners, administrators, medical financiers, medical insurance people, etc. We shall again discuss Swami's basic philosophy that disease is a consequence of society itself, of the way people live, of their life style and their food, the environment and so on. Therefore it is the duty of society to treat every person with a disease. Society is responsible and society has to pay for the treatment, because the person involved may not be able to pay.

Is this not quite a daring opinion?

Not at all! You see, the basic thing is that we should take it for granted that one of the fundamental rights of the human being is that – if he falls sick – he should be looked after by society. It is society that should join hands in order to look after the sick. It should not be left to the individual alone, because he may not be able to pay for good technology. Good treatment is definitely tied up with payment. That is the point.

Can your hospitals compete with other similar scientific institutions – in India and worldwide – when it comes to the mortality rate, the number of surgical operations, etc.?

Yes. All the basic medical data are constantly compiled in this institution, as well as in the other institution in Bangalore. These data, such as the average length of stay, the mortality, the morbidity, the infection rate etc., are constantly being monitored. All these data are clearly in line with the international standards. In some cases we even have results that are better than these international standards. As to our own country, India, I may say that our hospitals can claim to have the best possible data.

When you spoke about the medical disciplines in your hospitals you said you provide the treatment completely free. This is rather astonishing, I may say almost unbelievable – and not everybody's cup of tea in our Western countries!

I expected this question. The free treatment is mainly possible due to donations – small and large donations – made by the devotees of Sathya Sai Baba from all over the world. These donations go into a trust which is called the Sri Sathya Sai Medical Trust. This Sri Sathya Sai Medical Trust has a certain amount of money placed in the banks as its corpus fund. It is mainly the interest from this corpus fund that supports the day-to-day activities of both our hospitals. The two hospitals require about 2 Crores of Rupees [see 3] every month. Of course, a rigid cost control, cost engineering and continuous innovation help us cut the costs. In addition to these donations, some people make contributions for a particular purpose. Some people will come and say that they will give us one hundred heart valves, some people will say they will give twenty particular types of pace-makers. Others supply us with bulk quantities of syringes – plastic syringes and disposable syringes – things like that. Also it happens that certain local people will come forward and ask us what our everyday living requirements are.

10th February, 2005, in Puttaparthi, Anantapur District, Andhra Pradesh (A.P.), India: Dr. A. N. Safaya (left), Director, Sri Sathya Sai Institute of Higher Medical Sciences (a Unit of the Sri Sathya Sai Medical Trust), in conversation with Dr. Felix Wüst, Editor of SWISS MED.

Puttaparthi lies in the State of Andhra Pradesh – 165 km to the North of Bangalore, which is in the State of Karnataka. Puttaparthi has its own airport, but flights from Mumbai are not on a regular basis.Therefore a traveller should check with the airline bringing him to India whether flights are available. To be on the safe side, one may fly from Mumbai to Bangalore, which is served by several flights a day, and then take a taxi to travel on to Puttaparthi. Very good facilities are available on arrival in Bangalore and the drive to Puttaparthi takes approximately 2½ hours. (Recommended agents in Bangalore for pre-bookings from there: moditaxi@yahoo.com or moditravels@rediffmail.com)

They then might want to supply these requirements, perhaps for six months. That's how it works.

And you do not take any direct action in acquiring such donations?

No, we don't, they just come. You need a Sathya Sai Baba to be in the centre of this picture. Without him, all this would probably not have been possible.

So, you mentioned that you can run the two hospitals at a total cost of 2 Crores per month, some 370 000 in Euros. But how did you finance the setting-up of the hospital, your first one here in Puttaparthi?

The hospital was started with donations totalling 300 Crores. We needed 100 Crores for the land and the buildings, 100 Crores for the equipment, and 100 Crores were put, as I mentioned already, into a corpus fund. As I said, the interest from the corpus fund, amounting to 1 Crore a month, is sufficient to meet the monthly running costs of one hospital. The staff, by the way, are well paid, on a par with the All India Institute of Medical Sciences. Here in Puttaparthi we have some 300 paid employees, 46 others who work on an honorary basis and 100 volunteers who work as sevadals [4] each for a fortnight, at their own cost.

If treatment is free, you will certainly have a long waiting list of patients. How do you cope with this problem?

We have a large population and also – unfortunately particularly in this country – an enormous incidence of disease. 80% of the population are living below the minimum social economical level. They certainly cannot afford heart surgery, brain surgery, advanced spinal surgery or kidney surgery. So they come to us. In each case we examine these people thoroughly and give them the correct professional medical diagnosis. Then we assess whether the case is urgent or whether the patient can wait, and if the latter is the case we put him or her on the waiting list. There are various other aspects that we take into consideration when examining our patients. Suppose it is a child with serious heart disease, with parents who care for it very much – then we have to give priority to such a patient. We also have to give priority to cases where the family would be destitute through the loss of the breadwinner due to cardiac or neurological disease. In this context, quality health care offered free has a wider socio-economic impact than just the one life saved. It saves families from the clutches of poverty. But it remains a fact that for certain types of heart surgery, for example, the waiting list can be as long as four years. In such cases the patient is of course given a medical treatment, so that he can survive, and is asked to come back to the hospital every six months or maybe every three months, for a check-up.

You must employ some hundred doctors, technicians, nurses, etc. But Puttaparthi is only a small village. Where do all these people live?

We have large residential complexes alongside the hospital buildings to accommodate most of the staff working in these hospitals. This medical campus, the hospitals with all their supporting facilities and the whole infrastructure are managed by my staff on behalf of the Trust.

And the medical support you are giving to the villagers out in the country?

This is not our concern. These activities are carried out as a medical service, or seva, provided by the Sri Sathya Sai Seva Organisation.

How is medical care organized for diseases that are not covered by the highly specialised activities run by the two Super Speciality Hospitals?

In Bangalore, as well as here in Puttaparthi, the Trust has a so-called General Hospital where general medical care is provided. There you find dentistry, ear, nose and throat (ENT) care, gynaecological and obstetric facilities and general paediatric care, etc.

Do you practise alternative medical treatments like ayurveda, etc.?

No, no, no!

Why not? We are in India, where much of Eastern medical knowledge originated.

It is our clear intention not to practise this type of medicine in our Super Speciality Hospitals. Look, we have to be highly credible, highly accountable. We cannot run any risk in this respect.

The World Health Organisation (WHO) is the highest scientific medical body in the world. Do you have contacts with WHO? Have they ever paid you a visit?

Yes, and I myself went to Geneva. I spoke about the activities of the medical mission of Sri Sathya Sai Baba in the ILO [5] conference centre there, where many representatives of the WHO were present. In Geneva I also had a talk with the chief of the WHO representative in charge of the heart disease programme. However, we were not able to make any progress on further cooperation, because we do not fit into their structures, because ours is merely an institution-based activity. Incidentally, the talk that I gave at the ILO conference centre in Geneva was published in the WHO World Health Forum, Vol. 19, 1998.

Would you like to have any particular new contacts and if so, what kind of contacts should these be?

Yes, we would be very pleased if people, wishing to know more about our work, would pay a visit to our hospitals, in order to gain an impression, to some extent, of the principles on which these hospitals are based. We then would tell them that all this could very well also be achieved elsewhere. Also, we would like to explain to our visitors the basic principles and ideas of the Sathya Sai health mission. Let me try to briefly describe this to you. Disease being a global phenomenon, advice and treatment should also be seen from the global point of view. As I already said, treatment should be freely available from any medical institution on a global basis, as the birthright of every human being. This is what the keyword, globalisation, stands for. De-commercialisation is another such keyword. The healing arts and the treatment of patients should not be marketable, profit-making commodities. The cost of medical care should be absorbed by society and should be kept to an affordable level. Another important point is the humanisation of medicine. The medicine and the technological medical treatment given to the patients must be humanised. Medical technologies should not be applied in a purely mechanical way. No, this has to be done in a human way, considering the patient as a human being, as a man in society, as someone's father, mother, daughter or son. Medicine has to be practised with a smile, given with love and affection, and without causing any mental trauma to the patient. We have to speak to them kindly. If it's an incurable

disease, it has to be explained to the patient in a kind, sympathetic manner. Bear in mind that we do not have the last word! In their thought, words and deeds, the humans who provide the health care – health administrators, doctors, nurses and technicians – should adhere to the five human values, namely truth, righteous action, peace, love and non-violence. It's not the building or the equipment that make a good or a bad hospital, but the people who work there. We should not make profit from the suffering of other human beings. We should look after the person who is suffering with love and affection, just as Buddha did, just as other saints did, as Christ did. The final, decisive point is the spiritualisation of modern medicine, which is based on the principle of the creed that ultimately it is God who heals! We only provide the technology and the treatment! When we absorb this spiritualisation, we get away from our egoistic involvement in the process – "I have treated you, I have saved you" – that egoistic element is removed. Furthermore, as it is God who heals, everything is more subdued and the patient is given hope. He knows that there is some other force, some other power to which he can pray and which maybe will give results. In our case, we provide an organized service for the follow-up of all the patients treated in our hospital. This Patients' Counselling Department counsels the patients before admission, during hospitalisation and on their discharge from the hospital, because the requirements are different in these three phases. Before admission, our counsellor informs the patient about his disease, the possible consequences of his life style, etc. When the patient is in the hospital we explain to him what is being done, so that he knows exactly what is going on. When he is being discharged, the most important thing is that we counsel him to look on his disease as curable, and advise him on what he should do in order not to get worse or what he should do to prevent a relapse of the disease. This is what we call the spiritualisation of medicine. Our counselling, plus the element of prayer and the element of hope, is given to the patients with much love. They just have to recognise the spirit as the "driving force" behind every human being. Of course, all such spiritual activities and the results thereof are recorded. I don't think any other hospital in the world does these things.

You heal the man. But do you also change him completely?

Yes. We do try to. That is what Swami says: "The miracle is the transformation."

I fear that some of our readers may think that you are a "dreamer". What you tell us is so beautiful that it seems almost unreal.

When you see a beautiful rose, you say "Can it be true?" You see, you have to see the divine designer and if you think of him as the divine designer of everything, even things that look ugly may be made to look beautiful. That is why we teach our patients to look at things that way. Even cancer and the suffering that it brings may thus to a certain degree look tolerable to them.

I have read a statement from you: "The whole Institute started as a miracle, was built as a miracle, and functions as a miracle". What do you mean by this?

The miracle is that this hospital and the other buildings attached to it were built within seven months. That is the miracle. Normally, projects of this kind take at least three to four years. I am not alone when I tell you this story. There are thousands and thousands of workers who are witness to it. Hundreds of people worked without payment. Students carried the building materials and helped wherever they could. That is how the hospital was built. That, too, is a miracle. Then how the hospital functions is also a miracle. You see people working here. We have some 100 sevadal

workers here. Sevadal people are those – you must have seen them – with those green-blue scarves, and yellow scarves for the women. These are sevadals – 50 women and 50 men who come here from other Indian states, to work here for two weeks. This room that we are in has been cleaned by sevadals. All these things here have been cleaned by them. The in-house mailing system, with all these non-technical papers to be delivered to the various places, is run by sevadals. They are performing seva, offering their services to God.

Do you think this model can be replicated in other countries – even in Western countries?

Why not? They should be able to do it. I don't think Westerners are devoid of sympathy for the people. I don't think the West is lacking in the type of people who think that serving man is serving God.

I think our efforts would first of all have to be directed towards reforming and "transforming" the human character? A very hard thing to do!

That is true, but all the same there are people who have come from the West and are working here. You can see many of them working in the General Hospitals, in this hospital too. As a matter of fact, our problem is that we often have to refuse applications from such people because we just get far too many of them. This is not very pleasant for us, because these people really want to serve our patients here. They are prepared to work according to our rules and the rules of the institution, in order to meet the needs of our patients.

The U.K. is very much linked with the history of your country. What are your contacts, say with London?

When I went to Geneva, I also went to London. In the lecture hall in Wimbledon there were medical people and others who had been gathered together by the Sathya Sai Organisation of the U.K. I talked to them and I began by saying "I have come to the country which is the mother of modern medicine". In the beginning, all good medicine emanated from London and the rest of the U.K. And it originated on the basis of the spiritual, human attitude, without commercial intentions. I told the audience that I prescribe in the name of God. That is the beginning of every one of my prescriptions: I prescribe in the name of God. You see, this brings us back to the question of spiritualising modern medicine, as medicine with the human touch. Let me emphasise once again: We should not forget the human touch. We should not look upon the man, the patient, simply as a disease entity, but as a human being, and we should treat him as a human being.

The time that we planned for this interview is almost over. Thank you, Dr. Safaya!
To close our discussion – do you really think that what has been achieved in your hospitals can be achieved in other countries, too?

Yes, I do! Sathya Sai Baba has shown us the way. Admittedly, the work done in our hospitals is merely a drop in the ocean, but it

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will serve as a working model to show how it is possible to make complicated medical technology available, free of charge, to deserving patients who could not otherwise afford it. We certainly do not have any illusion that we will be able to treat all the heart disease, brain disease or kidney disease in the world or even here in India. But what we have done is to create a model where this can be achieved with all these non-commercial, spiritual and humanising values, with love and affection. It can be done, and it can be done in accordance with the latest state of the art. Once it is not looked upon as a profit-making process, you see, such an institution can work on a no-profit / no-loss basis. One cannot or should not grow prosperous through the suffering of human beings. I repeat: It is a model that can be replicated anywhere and in any society!

One last question regarding your next symposium in September 2005. Can anybody from the medical profession apply to take part in this event? Can you give a summary of the programme and further details?

A delegation of four doctors from here is at present in the USA, working on this project. Dr. Goldstein and others are also working on it. We shall soon be making an appropriate announcement to the medical world.

If any medical institution from outside India would like to invite you to talk about your hospitals and the whole Sathya Sai medical mission, would you accept such an invitation?

Yes, I probably would. But the invitation would in fact go to my immediate superior, Sathya Sai Baba. If it is his divine will, things will happen. If Swami feels that it would be a good idea to disseminate more information about this health mission, I am sure he would agree.

Let us hope that he will give his blessing to the idea and that one of these days, or years, a hospital based on your model will be entering into service somewhere in the West.

Anyway, as I told you, it is possible! And why not? If India – such a poor country – has been able to create these hospitals, why should it not be possible elsewhere? I remember when I first came here, I became Chairman of the International Committee in 1990 and this hospital here in Puttaparthi was commissioned in 1991. In 1990, when I came, Swami himself showed me the area where the hospital was to be built. I was amazed to hear his message. How can this take place? But it did take place. Look, let me reiterate: Modern medicine is being increasingly turned into a "science technology": telemedicine consultations, prescriptions by e-mail, surgery by robotics, etc. I fear that modern medicine threatens to degenerate into an impersonal, soul-less technology. What we need to do is to integrate therapy in the mental and spiritual dimensions with conventional modern medical treatment. Baba has shown us the way. He has put India on the medical map by establishing and running for a long time now – without any fanfare – two state-of-the-art, world-class, tertiary care hospitals where all treatment is totally free for everyone. Let me say again: What has been achieved here in India with Baba's help can take place in Texas in the USA, in the U.K. – anywhere in the world!

Dr. Safaya, you raise our hopes! Thank you very much for having welcomed us here in Puttaparthi and thank you indeed for this very interesting discussion. ◆

Statistics

Sri Sathya Sai Institute of Higher Medical Sciences
EPIP Area, Whitefield, Bangalore
As on 28th February 2005

Total No. of cardiac outpatient consultations:		184,909
Total No. of cardiothoracic vascular surgical interventions:		5,146
Total No. of cardiac catheterisation procedures:		9,572
Diagnostic procedures:	4,536	
Interventional procedures	5,036	
Total No. of echocardiograms:		116,408
Total No. of neurology outpatient consultations:		57,434
Total No. of neurosurgery outpatient consultations:		48,353
Total No. of neurosurgical interventions:		4,534
Total No. of neurocatheterizations:		604
Total No. of CT scans:		14,834
Total No. of MRI scans:		16,982

Sri Sathya Sai Institute of Higher Medical Sciences
Prasanthi Gram, Puttaparthi, Anantapur Dist. AP 515 134
As on 28th February 2005

Total No. of cardiac outpatient consultations:		589,459
Total No. of cardiothoracic vascular surgical interventions:		14,637
Total No. of cardiac catheterisation procedures:		14,685
Diagnostic procedures	10,508	
Interventional procedures	4,177	
Total . No. of echocardiograms:		375,629
Total No. of uro-nephrology outpatient consultations:		258,458
Total No. of uro-nephrological surgical intervetions:		25,665
Total No. of ophthalmology outpatient consultations:		270,566
Total No. of opthalmological surgical intervetions:		25,400
Total No. of laser treatments:		4,999
Total No. of CT scans:		4,040

Notes from the editor

[1] Sri Sathya Sai Baba; devotees also call him Swami. He was born on 23rd November, 1926, in Puttaparthi, Anantapur District, Andhra Pradesh (A.P.), India. He has an ashram (residence of a wise or holy man; a centre for religious studies with meditation, a place where spiritually interested people meet) in his native village, Puttaparthi, as well as in Whitefield in the neighbourhood of Bangalore, where he receives not only devotees but also high-ranking politicians and leaders and others from all over the world. He is particularly engaged in medical care, education and drinking-water projects in India. In Puttaparthi, as well as in Whitefield, in the neighbourhood of Bangalore, he has a General Hospital and a Super Speciality Hospital, known as the "Sri Sathya Sai Institute of Higher Medical Sciences". His educational programme comprises the whole range of education – from primary schools to three colleges which, in 1981, were merged, with Government approval, into a University, known as the Sri Sathya Sai Institute for Higher Learning. Recently, a Music College has also been added. Baba has undertaken many drinking-water projects during the last decade to bring safe drinking water to millions living in villages, towns and even cities in South India. There exist a large number of books and other information about Baba, available in nearly all world languages. Numerous press articles provide information about Baba, for example Bradsher, Keith: A Friend in India to All the World, Leaders Flock to the Holy Man With an All-Embracing Creed, The New York Times International, Sunday, December 1, 2002, p.10.
For more information, visit: www.srisathyasai.org.in

[2] Seva: Service, help, service in brotherly love. The service rendered to others should at the same time be considered as service to God. The service is done without asking for any favour in return but only to praise the Lord. Service in this sense is an expression of the glorification of God.

[3] 1 Crore = 10,000,000 Rupees (Rp) = Euro 182,315 = CHF 294,550.
100 Crore = 1,000,000,000 Rp = Euro 1,823,150 = CHF 2,945,500.
1 Lakh = 100,000 Rp = Euro 1,823 = CHF 2,945 (7 February 2005).

[4] Sevadal: An individual or a group of persons whose aim is to serve the next man, practising this service to worship God. See also [2].

[5] International Labour Organisation (ILO), Geneva.

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Sai Ideal Health Care for All

The inspiring message of Sri Sathya Sai Baba has moved men and women to seek cures for the social sickness of indifference to human suffering and need that is currently rampant throughout the world. Members of the Sri Sathya Sai International Organizations have gone into deprived communities in many countries and are dispensing healthcare freely with love and compassion, as prescribed by Sri Sathya Sai Baba. Foremost in the minds of these members of the Sai Organizations are Sri Sathya Sai Baba's words: "Hands that help are holier than lips that pray."

Tsunami Relief

Sri Lanka

Dr. Michael Goldstein, Chairman of the Prasanthi Council and Dr. Narendranath Reddy, Member of the Prasanthi Council and Chairman of the Sri Sathya Sai International Medical Committee, visited Sri Lanka on 8th January 2005 to assess the situation on the ground and met the Hon. Prime Minister of Sri Lanka, Sri Mahinda Rajapakse. They briefed him about the relief efforts of the Sai Organization to serve those in distress. Money, materials and medical relief are being provided.

Two teams of doctors, nurses and volunteers from the USA, Canada and Argentina left for Batticaloa, Sri Lanka, on 29th January 2005 and 10th February 2005. The teams provided grief counseling to more than 1,400 men, women and children. 568 patients were treated in the medical clinics. An infants' clinic was also conducted, where more than 150 children aged from 1 to 3 years were seen.

From 11th to 25th March 2005, 152 Sai volunteers from the United Kingdom and Australia, in collaboration with the Sri Sathya Sai Organization of Sri Lanka performed 800 cataract operations, 200 dental operations, 22,000 consultations in various specialities, 2,000 dental consultations, and several hundred orthopaedic procedures. They distributed around 7,000 pairs of spectacles. The doctors screened several thousand school children from 58 schools and updated their health report cards.

Indonesia

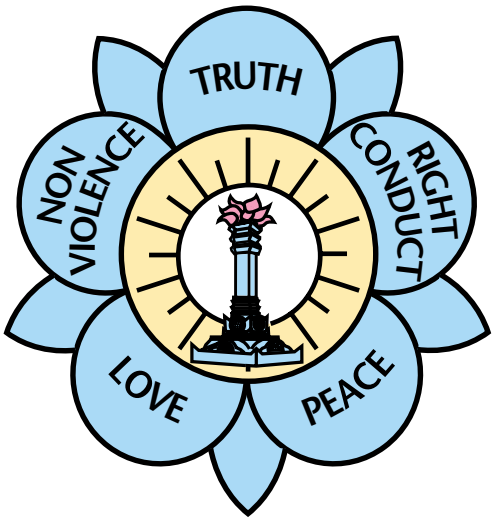
From 27th December 2004 to 9th January 2005, teams of physicians and Sai devotees from the Sathya Sai Organization made six visits to the devasted regions in Banda Aceh. They provided the bulk of the emergency medical supplies to two hospitals in Aceh. They also provided life-saving medical supplies for thousands of injured victims. A two-day medical camp was arranged on 9th January, serving 1,487 refugees in six villages of the North Aceh region. On January 13th 2005, much needed antibiotics and vaccines were distributed.

Thailand

On 23rd January 2005, a medical camp was held by Sai devotees in a school in Chengdau. 262 people were seen by the medical team and medicines were given to patients. Food, clothing, quilts, slippers, eating utensils and toothbrushes were distributed to 1,020 people.

Sai Net Project in Kenya, Africa

Malaria kills up to 1.8 million children a year on the African Continent and 350 million people live at high risk of malaria in 26 African countries. The Sri Sathya Sai Organization, after several discussions and briefings with the National Ministry of Health Malaria Control Program (MCP), has accepted the Sai Net Project as a partner in a roll-back malaria programme (RBM) and now has a plan to provide 50,000 Sainets (mosquito nets) fot the people of Kenya, particularly those at high risk (pregnant women and children under 5 years of age.), by the time of Baba's 80th birthday in November 2005.This has started in Kitale in Western Kenya, with a population of 16,800 in 20 villages, on 11th June 2005. 120 volunteers, some of them experienced doctors from the Sri Sathya Sai Organization provided two Sainets along with 4 kg. of maize meal for each family. These



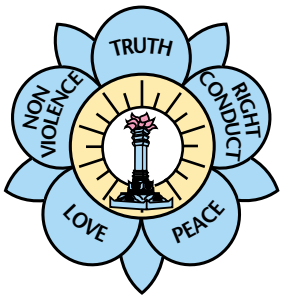
insecticide-treated mosquito nets, in a distinctive ochre shade and with the brand-name Sainet, each bear Baba's message, "Love All and Serve All". A total of 2,200 nets were given to 4,400 households, with love. This experience in Kenya will provide valuable lessons for the implementation of similar projects in other countries in Africa.

World Medical Camps

From Abu Dhabi to Zambia, in 24 countries and five continents, 213 medical camps were conducted in the last 12 months by overseas Sri Sathya Sai Organizations. These camps lasted one to four days and covered health education, prevention, and diagnostic and therapeutic services, including surgeries. A total of 68,198 patients were seen in these medical camps. Professionals, included physicians, dentists, audiologists, pharmacists, nutritionists, opticians, podiatrists, physiotherapists, laboratory technicians, nurses and speech therapists. Physicians provided primary care in internal medicine, pediatrics, obstetrics and gynecology and specialties such as cardiology, pulmonology, endocrinology, gastroenterology and ophthalmology. Patient education was provided on heart disease, hypertension, diabetes, dyslipedemia, obesity, asthma and giving up smoking.
Let us all take up this challenge with compassion and love. Let us embrace and act upon the eternally true spiritual principles found in all of the world's religions and espoused by Sri Sathya Sai Baba. Sri Sathya Sai Baba has declared, "Among the means to ensure health, spiritual discipline is the most important. Let your love flow towards all and if the doctor is full of love and compassion, God works through him."

Dr. Narendranath Reddy
Chairman,
International Medical Committee

Dr. Michael Goldstein
Chairman,
Overseas Sri Sathya Sai Organization



International Medical Conference on "Ideal Healthcare for All"

The Sri Sathya Sai International Organization is organizing
an international medical conference
on behalf of the Sri Sathya Sai Medical Trust

on 3rd and 4th September 2005

on the topic
"Ideal Healthcare for All".
The conference will be held at Prasanthi Nilayam,
Puttaparthi, Anantapur District, Andhra Pradesh, India, 515134.

The purpose of this conference is to elucidate the fundamental attributes of "Ideal Healthcare for All". We are hopeful that the Sri Sathya Sai Health Mission and the other participants in this conference will discuss practical ways and means to realize this ideal: "Ideal Healthcare for All". This ideal includes the following primary considerations: Practitioners and all agencies involved in the administration of healthcare must consider the nature of human life, the sacredness of human life and the great spiritual significance of supporting human life through healthcare, and must respond accordingly, not only with drugs and surgical procedures, but more importantly, with love and compassion and understanding. Economic considerations should not prevent people from receiving the benefits of healthcare. Private and government resources must be mobilized in order to extend the benefits of modern healthcare, standard healthcare, to all people. Healthcare must focus on preventing disease, not merely reacting to the disease after it has occurred. Serious and competent healthcare professionals, including those in supportive roles in government, industry and research, must incorporate these ideal considerations into their practice, administration and business. They must apply these considerations, inspire their respective medical communities to embrace them, and wholeheartedly dedicate themselves to the transformation of the institution of healthcare towards the goal of "Ideal Healthcare for All". Thus the noble aims of healthcare will be restored by providing healthcare for all once it is based on the principles of love, compassion and professional excellence.

All those interested in participating in this conference may contact Dr. Narendranath Reddy.

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Dr. A. N. Safaya
Chairman, Organizing Committee
Sri Sathya Sai International Conference on "Ideal Healthcare for All"

Like Shining Stars

A cardiologist's view of Baba's hospitals and the future of healthcare

By Dr. Mitchell W. Krucoff, MD, FACC, FCCP,
Durham, North Carolina (USA)*

It was 12 years ago that Sri Sathya Sai Baba's omnipresence touched my life at the level of my direct awareness. At that time I was an interventional cardiologist with an established career in clinical research into new medical technologies at Duke University Medical Centre [Durham, North Carolina]. I accepted the invitation from the Cardiology Society of India and the Texas Heart Institute in 1989, to present our work at their Congress on Coronary Artery Disease, as an interesting opportunity to visit India. Little did I know that this was merely the surface of events, as I could perceive them.

I had travelled a good deal over the years, but India touched my soul. At the end of the Congress, as I took my seat on the plane to fly home, my head was spinning with matters from worrisome epidemiologic data on Indian heart disease to stunning cultural impressions and new professional acquaintances. At that moment, an unusually friendly and talkative man sat down next to me. He spoke excitedly about his personal experience with an Avatar in Puttaparthi, and about the many educational and humanitarian works of this Holy Man, Sri Sathya Sai Baba. He described the vision and the plans for a super speciality hospital, with computers and medical technologies of the highest quality, which would be created as a free-healthcare facility for any person in need. He talked about the Divine Script for the sequence of events planned, in which services for heart disease would be the first to be implemented. He told me that Sai Baba had assigned him the task of going back to the USA to find a Western cardiologist familiar with 'high tech' medical practice and equipment, who could join professionals and devotees from India on a Board of Directors to put this hospital into operation. Then he stopped, looked at me and asked me what I did for a living.

We talked constantly over the next 18 hours. As the plane landed in New York, he gave me a book about Baba, and asked me if I would care to become involved in this hospital effort. I told him I would be very interested to know more.

Plans then unfolded at a very rapid pace, with so many 'coincidences' that even my relatively cynical Western side ceased thinking of them as coincidences at all. I received a telephone call and some architectural plans for a magnificent hospital design like nothing I had ever seen. I received an invitation to come to the first meeting of the Board in Puttaparthi on the occasion of Baba's 65th birthday.

Fascinated and unable to resist, I nevertheless remained skeptical, expecting there to be a catch somewhere. As a Religious Studies Major at Yale in the early 70s, I was aware of the existence of many frauds and charlatans who used Eastern traditions to bilk rootless Westerners. Nonetheless, as I travelled back to India, everything seemed different. There were no delays at immigration or with flight connections. There were strangers who helped me at every step. And there were all sorts of other signs along the way.

The author, Dr. Mitchell W. Krucoff, is Professor of Medicine/Cardiology, Senior Staff, Interventional Cardiology, Duke University Medical Centre; Director, Cardiovascular Devices Unit, Director, MANTRA Study Project, Duke Clinical Research Institute; Director, Cardiovascular Laboratories, Durham VA Medical Centre. These institutions are in Durham, North Carolina, USA.

Having gone without sleep but not tired, bounced around by the long taxi ride from Bangalore, I found myself in Prashanthi Nilayam [Baba's ashram in Puttaparthi], face to face with the voices from the telephone chats, and at Darshan face to face with His Holiness. That night the Board met, and the next day we were all granted an interview with Baba to go over the plans for the hospital. Baba was particularly kind to me, the obvious newcomer. He riveted my attention by discussing personal things in my life that He could only have known through Divine means. He created vibhuti [holy ash] and a series of rings from His Hand, the last of which He placed on my very odd-sized finger. It was a perfect fit.

I toured the ashram, the schools and other facilities. I celebrated the completion of the giant Hanuman and the museum of world religions in the auspicious prelude to Baba's birthday. I returned to the United States knowing that I had been blessed with involvement in one of the greatest humanitarian efforts on the face of the earth. I happily communicated this fact, and information on the hospital project, to the Presidents and CEOs of the medical electronics industry whom we had come to know over the years through our research into heart disease. As the hospital became operational at an unimaginable pace, I was thrilled to have had even such a very small role in such a phenomenal project. Little did I know how completely Baba's works were yet to influence my life and my professional orientation.

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After my first visit to Puttaparthi, it was two years before I was called to return. During that time I was joined in my work by a nurse, Suzanne, whose sensitivity and skills with patients quickly confirmed her role as my clinical and research partner. We worked together in research with patients whose coronaries were so blocked and whose hearts were so weak that they had been told their situation was hopeless and there was nothing further that doctors could do. As we applied new technologies for opening the coronary blockages in these patients, it was not unusual that whole families would gather in prayer at the bedside before the patients were taken to the operating theatre for their catheterisation procedures. The informed consent which we discussed with these patients for this research warned them that we expected that one out of every three would die during these procedures. At the end of our first year the mortality was 3%, not 33%. Of course, at that time we attributed these results to the new technologies available for coronary revascularisation, not to the prayers per se. How differently we think about this today.

In 1994 we travelled together to Puttaparthi. The Sri Sathya Sai Institute of Higher Medical Sciences had been in operation one year, having done thousands of cardiac procedures with outstanding results. These results were later presented at an international symposium of cardiologists and heart surgeons, held at Prashanthi Nilayam. During that visit, Suzanne and I were offered the opportunity to visit the hospital and to observe patients undergoing catheterisation and open heart surgery procedures.

In that one day our entire view of medical care was reoriented. We were literally bathed in the healing atmosphere created through Baba's Loving Vision, embedded in every detail, from the concrete walls to the gleaming marble floors, and in every individual, from the members of the staff to the patients and their families. 'What we saw was the highest level of technology; with some equipment even newer than what we are using at Duke Medical Centre. But the technology was dwarfed by the overall context of everything in the hospital – healthcare in God's service. Among the personnel of the hospital, whether cleaners, cooks or heart surgeons, all the work was done in God's service. Among the patients and their families, many of whom had never seen a plumbing fixture, much less a digital cardiac catheterisation laboratory, there was no fear, no anxiety and no depression, such as we commonly see on our hospital rounds in the USA. As we went round the hospital in Puttaparthi every patient and family member, children and adults, literally beamed at us. They clearly knew that, physically and spiritually, they were in God's Hospital.

This experience was so profound that during the entire flight home to North Carolina we talked of nothing else. It was inconceivable to us that an atmosphere so tangibly spiritual would not somehow affect the immune system, pain thresholds, tissue healing characteristics or other classical physiologic aspects of healing. It seemed quite likely that, when combined with state of the art technology, the healing might be significantly enhanced compared to what happens in western-style hospitals, where the technology itself becomes the basis of healthcare. As clinical researchers by profession, we examined the available literature regarding the role of compassion and spirituality on cardiovascular and procedural outcomes. Unlike new cardiac drugs and devices, where there is an enormous amount of scientific data on the safety and efficacy of new therapies, we found almost no systematic information available on the role of love or prayer. Yet every nurse and doctor has had the experience of caring for a patient who was so sick that they really should have died, but they didn't. And in such cases, you generally don't have to look far to find something – a photo

of a newborn grandchild, or a family fervently praying – that indicates there is something far more profound at work than science can currently grasp.

Living as we do in the academic culture of the Duke Clinical Research Institute, we raised the question of scientifically studying the role of spirituality and human interaction in patients undergoing cardiac procedures at one of our formal research conferences. We did this with some trepidation that our professional colleagues might react quite negatively to the whole idea. But like all of the paths that Bhagawan's radiance has illuminated in our lives, the research conference was packed to standing room only, and the discussions ranged over ideas and concepts that were at the same time heartfelt, extremely interesting and stimulating.

And so in 1994, with Baba and His Hospital as the guiding light, we formed the Monitoring & Actualisation of Noetic Trainings or 'MANTRA' Study Project, to systematically study the role of spirituality and human interaction in clinical outcomes for patients undergoing cardiac procedures. 'Noetic' therapies include any methods that purport to engage human or Divine life force, spirit or energy without the use of a tangible drug, device or procedure. In our first pilot protocol, 150 patients undergoing urgent coronary stenting for unstable angina or acute heart attacks were prospectively randomised to additional therapy with prayer, energy healing, relaxation therapy and imagery. The results of this study were publicly reported at the American Heart Association Scientific Sessions – the largest, most competitive cardiology meeting in the world – and have since been published in the peer review literature in the American Heart Journal.

Based on the findings of this pilot study, we designed a more definitive, larger multicentre prospective study of prayer and human interaction, in the form of the MANTRA Phase II Study. At Baba's ashram in Bangalore in 1998 we presented this protocol to Baba during an interview. He gently held the protocol in His Lap, opening it to places selected by His Touch, and he blessed our efforts to go forward. Currently, ten high-profile academic centres across the United States have enrolled more than 450 patients in this ongoing clinical trial.

In addition to the MANTRA Study Project, professional scientific interest in these areas is growing in many directions. The American College of Cardiology has formally commissioned a consensus paper on spirituality, which we were asked to author. And in the fall of the year 2000, the National Institute of Health [the U.S. Government] formally requested applications for clinical studies examining the influence of prayer and spirituality on human clinical outcomes.

Far from the antagonism and skepticism we had anticipated, the mainstream medical community has embraced the application of good science to the study of human compassion and prayer in healthcare with exponential enthusiasm. As we look back to the 1990s, when fiscal constraint, time management and corporate downsizing were inflicted on all healthcare systems in the United States, we recognise a decade in which the landscape of healthcare was radically transformed. Not many doctors and nurses who went into medical practice became experts in time management or the billing of codes. In such an arid working environment, the serious study of compassion, life energy and spirituality by major academic medical centres has been welcomed like water in the desert.

And everywhere we go, everywhere we present or discuss or are interviewed about this work, Baba's light shines from below the surface, making it clear that we are simply watering the seeds that He has long ago planted all over our troubled world. The

"Every nurse and doctor has had the experience of caring for a patient who was so sick he should have died, but didn't."

MANTRA Study Project has become central to our work with 'high tech' interventions, as clinical research examining how much better the healing results may be when 'high tech', 'high touch' and 'higher being' are combined. Nowhere is the importance of this work more evident than at the bedside of our patients. "When heart disease strikes, life itself hangs in the balance. Fear, anxiety and pain are ready accompaniments in this setting. While the best in medical technology is a key part of the battle, it is from the look in the patient's eyes that the question comes: "Is high tech all you have to offer?"

Like shining stars in the darkest of nights, Baba's hospitals in Puttaparthi and Bangalore not only give the answer to that question in the free healthcare that they provide every day, but they are also examples of how much God is ready to teach us about the alleviation of human suffering through optimal medical care. He has built up these programmes – all we have to do is to open our eyes and see. For Suzanne and myself, for our clinical practice at Duke, for our research and for its reporting to the Western world of modern medicine, what a blessing it is to have such a guiding light.

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A software product solution for the capture, storage and transmission of echocardiogram images, using the unique ABO™ (Adaptive Binary Optimization) technology

EchoView™ FD – Full Disclosure

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MatrixView Limited, Singapore

EchoView™ FD is a software product solution, for the capture, storage and transmission of echocardiogram images using the unique ABO™ (Adaptive Binary Optimization) technology.

It is based on client server architecture. It is made up of two main modules.

1. EchoView™ FD capture station
2. EchoView™ FD viewing station

This solution enables the clinicians to record and store Full Disclosure Echocardiogram images without any additional overheads. Cardiologists and referring physicians can retrieve and playback the moving frame echocardiograms and perform diagnosis from a remote location at any given time.

PS – The present version of the software is only LAN-enabled and works seamlessly on Local Area Network.

How does it work?

The EchoView™ FD capture station captures the video output signal (raster format) from echocardiographic equipment located at multiple locations in a hospital like Cardiac OPD, ICU/Cath Lab/ Cardiac OT and transforms it to digital format. This digital data is compressed using the ABO™ technology, without any loss of data. The compressed data that is 100% lossless is stored in a central storage server in real time.
The cardiologists and the referring physicians can seamlessly retrieve the stored lossless images for offline diagnosis, reviewing, and presentations at conferences, for second opinion studies, teleconsultations and for medical education purposes within the local area network using any EchoView™ FD viewing station. The physician can also playback the retrieved data using our player for diagnosis. They can also export the captured snapshots from the playback in BMP format and the moving frames in a raw AVI format for easy portability. It can also be printed as a report.
The use of ABO™ technology enables us to store, archive and transmit the echocardiograms at a very high speed and using the existing hospital resources across the local area network or wide area network preserving the original attributes of the digital image (lossless format).
The time taken to transmit the compressed images using the EchoView™ FD solution is significantly less in comparison with the existing methods of compression and transmission of images.

Features of EchoView™ FD

– Records the moving frame echocardiogram images from the EchoView™ capture station.
– Compresses using the ABO™ lossless compression technique and stores it in a central storage server.
– Ability to playback from any EchoView™ viewing station, located on the LAN within the hospital premises.
– The reviewing doctor's comments can be updated to the prerecorded echocardiogram files from any EchoView™ recording or viewing stations.

– Image viewing functions like magnification and field of view can be performed on still images (snapshots from the MVU player).
– Option to save the still images in BMP format on the local machine.
– Option to export from MVU format to AVI format on the local machine for ease of portability.
– Ability to download and playback the file from the storage server to any EchoView™ capture station or EchoView™ viewing station.
– Real-time echocardiogram diagnosis and viewing at the EchoView™ recording station.
– Ability to integrate the EchoView™ FD system with the Hospital Management Information System (HMIS).
– Ability to print report including selected image snapshots.
– Ability to copy data on CD or DVD for back-up.
– Ability to serve simultaneous requests by multiple viewers.
– Ability to track the errors and efficiency of the system.
– EchoView™ is also a digitizer.

The present scenario

Many echocardiography systems in the market today as well as the majority of the installed systems, were not designed with digital echo capabilities. Additional acquisition hardware is required and for others a software option must be purchased to enable digital echo capability.
Very few come with the capability of writing digital data directly to disk or computer network without an analog intermediary. Most of the system manufacturers who provide this type of solution limit it to acquiring digital clips with limited acquisition time, say to ten seconds or less per acquisition without audio. Very few or none provide the capability of acquiring a digital echo without the restriction of fixed acquisition time, known as *"FULL DISCLOSURE"* or *"STREAMING VIDEO"* acquisition of digital echocardiogram.
The echocardiogram readings in the first case are saved in MOD/VHS for further diagnosis. The cardiologist or the cardiac specialists find it time-consuming and difficult to go through the entire tape to come to a final conclusion, given the time constraint. Long-term storage of the VHS media erodes the quality for diagnosis.
Added to this is the huge size of the data and the cost of managing this data, in terms of storage and transmission, is an expensive proposition. Typical study size after compression using Full Disclosure systems can range anywhere from 30MB to 200MB or even greater study sizes for some cases.

Inconvenience caused by the digital systems that use "fixed number of seconds or heartbeats" or "CLIPS" to represent a view

1. These systems fail for studies where sweeps are preferred and more acquisition time per view is required to assess the anatomy e.g.: pediatrics, vascular etc.
2. These prove to be inadequate in cases of echocardiograms for patients who are difficult to scan or those with irregular heartbeat etc.
3. Using such systems requires at least about six months of training, specialization and expertise.
4. Examination times may be extended, as the sonographers search for representative sequence in a particular view.
5. Many institutions continue to use video tapes in parallel for extended periods due to lack of clinical confidence.
6. Thus the workflow benefit of digital technology is significantly reduced.

The convenience of using a Full Disclosure system over a digital system with the capability of acquiring a digital echo with a limited acquisition time (fixed number of heartbeats or seconds)

1. A Full Disclosure acquisition delivers productivity and improved workflow for an echo department, without the limitation of systems restricted to clips.
2. A Full Disclosure system is capable of acquiring the digital echocardiograms in real time for several minutes or more. This is extremely useful for difficult and critical cases, where the clips may be inadequate for an accurate diagnosis and treatment planning.
3. The sonographer has the flexibility to acquire as much or as little information as is required for clinical situations.
4. No forced change in the sonographer's workflow or re-training is required.
5. With minor adjustments, the full benefit of digital echo can be realized.
6. No restrictions of fixed acquisition times.
7. Videotape recorders can be taken out of service immediately.
8. The reviewing process is enhanced, by allowing virtually instant access to any acquired sequence of echocardiogram images in the study by using the random navigation capability of digital review stations.

Benefits of deploying EchoView™ FD

EchoView™ FD provides all the advantages of a *"FULL DISCLOSURE"* Echocardiogram acquisition system like unlimited recordings unlike existing ten seconds loops, thus eliminating all the disadvantages of a digital system using "fixed number of seconds or heartbeats" or *"CLIPS"* to represent a view.

It helps in increasing the productivity by
– streamlining and improving the clinician's workflow,
– making the echocardiograms available online to the referring physicians for second-opinion diagnostics, thus enabling online collaboration among doctors,
– phenomenally compressing the digital data without any loss of data, enabling a cost-effective storage solution, faster retrieval and transmission using the ordinary telephone lines and existing bandwidth,
– eliminating the redundant and repeated echocardiograms,
– increases the ROI and provides better patient care, and more patients can be served in a given limited period of time.

Case study: A success story

Customer profile

Picture 1

Sri Sathya Sai Institute of Higher Medical Sciences Bangalore
The Sri Sathya Sai Institute of Higher Medical Sciences, in Bangalore, is a modern multi-super speciality hospital, which provides the best medical care. It is unique, in that it aims to serve the sick with utmost dedication and commitment.
This Institute provides free services, including diagnostic, medical, pre-operative, surgical, and post-operative services, at no cost to the patient or his/her family. It has state-of-the-art medical care in the fields of cardiology, cardiac surgery, neurology and neurosurgery.
The hospital has 333 beds, including 120 intensive-care beds. It is constructed on a 350,000sq. feet site. It is a fully residential institution, with its own staff quarters and canteens for staff and visitors.

The present method

1. Echocardiogram study is carried out by a clinician or a doctor, and in many instances it would be the clinician.
2. The patient diagnosis report is physically sent to the doctor for reference.
3. Interesting and critical cases will be recorded in MOD/VHS to facilitate further diagnosis.
4. The doctor carries out repeated echocardiogram studies as and when needed.

Challenges

1. The echocardiograms were stored in MOD/VHS. This made the diagnosis very difficult as it was a tedious procedure for the cardiologists to quickly go through the entire tape for diagnosis.
2. Long-term storage of these VHS media eroded the quality for diagnosis.
3. The cardiologists were not able to make any offline diagnosis of the echocardiogram recordings. Their work demanded that they view and analyze the echo recordings from remote places within the hospital campus.
4. The clinicians performed repeated echoes on the patients, which raised the cost and lowered the patient care. The patients had to wait for many hours.
5. The overall productivity was at its lowest and a proper workflow ceased to exist.

Solution

Proposed ideal solution
The EchoView™ FD software solution was proposed and implemented. It is used to capture and record the moving frame echocardiogram images with patient information, compress using ABO™ technology without any loss of data and store all the echocardiograms in a central storage server.
This will be accessed by the cardiologists for playing back the echocardiograms for the purpose of reviewing/second-opinion studies or diagnosis from any EchoView™ recording/viewing station.
The patient records are updated with the doctor's comment from the EchoView™ capturing stations. The data from the central storage system is regularly backed up using DVD, and indexed.

Simplified and automated workflow with EchoView™ FD implementation

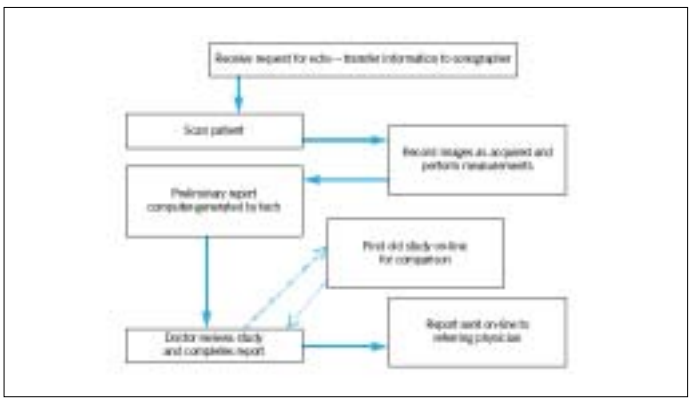

Figure 1

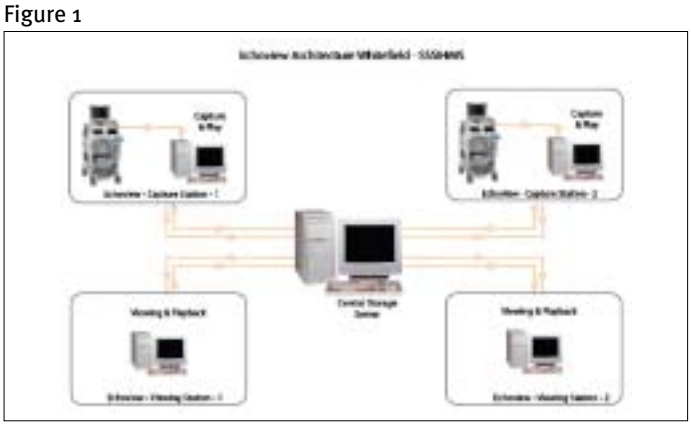

Figure 2

The capturing EchoView™ FD station: Where the actual scanning of the patient is displayed on an echocardiogram ultrasound machine and is captured using the EchoView™ FD capturing station. Pictures 2 and 3.

Picture 2

Picture 3

This is a reviewing station, where the echocardiologist can review the captured echo in his office on distant location in the same premises. Pictures 4 and 5.

Picture 4

Picture 5

Results

1. All the challenges were successfully met. The solution eliminated the problem of repeated echocardiograms being performed.
2. The duplication of work and the inconvenience caused to the patients and the cardiologists was eliminated.
3. The storage space and the bandwidth required for storage and transmission of the echocardiograms were dramatically reduced.
4. The overall productivity and the workflow were dramatically improved.
5. The hospital is able to provide better patient care, on time.
6. The customer is delighted!!

Testimonials

Dr. A.N. Safaya,
Director
Sri Sathya Sai Institute of Higher Medical Sciences
(A Unit of Sri Sathya Sai Medical Trust)
EPIP Area, Whitefield
Bangalore-560 066
INDIA

"The image quality is good and the system significantly reduces the huge space required to store images. We have seen the value of compressing lossless and transmitting analog echocardiogram images from our echocardiogram machines to our centralized server. It means that our chief cardiologists and senior specialists need not be present as the echocardiograms are produced and that means the valuable time of the most important people in the Cardiology Department can be better utilized to see more patients. The images can be seen at a later time at any EchoView™ viewing terminal within the hospital to enable diagnosis and treatment."

Dr. P.K. Dash
Head, Department of Cardiology
Sri Sathya Sai Institute of Higher Medical Sciences
(A Unit of Sri Sathya Sai Medical Trust)
EPIP Area, Whitefield
Bangalore-560 066
INDIA

"In our hospital, about 160 echocardiogram images are read per day and in many instances, these readings need to be re-scanned.

With this solution, the images are captured and saved without loss, and as a result it eliminates the need to re-scan. This increases productivity by at least 40% and saves significant costs and time for both doctors and patients. It also enables doctors to access images in the near real time anywhere within the hospital campus and allows them to share the images for conferences and teaching purposes."

Praveen Vemula
Technical Officer
Hospital Administration
Sri Sathya Sai Institute of Higher Medical Sciences
(A Unit of Sri Sathya Sai Medical Trust)
EPIP Area, Whitefield
Bangalore-560 066
INDIA

"Our hospital had been looking for many years for a way to digitize echocardiograms, but without much success despite numerous vendors proposing different solutions. I would rate this compression technology as one of the best inventions of this IT millennium. Now consultants can access patient echocardiograms and make decision based on them from anywhere in the hospital without congesting the hospital's bandwidth."

Dr. Reeta Varyani, M.D
DNB resident, Cardiology
Sri Sathya Sai Institute of Higher Medical Sciences
(A Unit of Sri Sathya Sai Medical Trust)
EPIP Area, Whitefield
Bangalore-560 066
INDIA

"EchoView™ has given us an opportunity to be a part of a great revolutionary change that we had never imagined we would be part of. It is a real breakthrough. It has challenged the conventional system of learning and practising cardiology.
At our hospital, EchoView™ was launched a couple of weeks ago and the results are already evident! Our senior consultants and professors have to repeat only half the echoes they had to earlier. Quality of images provided by EchoView™ is so good and so close to the original that our consultants are very satisfied just going through the echoes recorded to come to a decision regarding the management.
And what about the patients? We have been able to cut down their waiting times by more than half. Also this new technology is helping us to advance our academic interests and further our knowledge in the field of echocardiography.
As residents in the Outpatient Department, we are not witness to all the echoes that are performed in our department. But, with the introduction of EchoView™, at the end of the day's work we have opportunity to go through the echoes of rare and interesting cases, which we would have otherwise missed.
EchoView™ is a real feather in our cap, especially since we are the first Cardiology Institute in the country to have and utilise such technology. It has been a step further in being able to provide stat-of-the-art technology to help our patients, to simultaneously reassign the work of our consultants and also to help us in our learning process. Now, if that is not a revolution, then what is?"

About MatrixView Limited

MatrixView Limited [ASX; MVU] is a leading core technology company specializing in providing data compression and optimization solutions. The company is developing its patent-pending Adaptive Binary Optimization (ABO™) technology for mission-critical industries such as medical, financial services, security, entertainment and defense by addressing the current unmet technology needs in these industries.
MatrixView's ABO™-enabled technology solutions represent a paradigm shift in digital content management and will change the way in which data is managed, stored, retrieved and transmitted by removing the technical complexities and challenges of existing IT infrastructure and continuously breaking digital technology barriers.

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