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Singapore Government

PRESS RELEASE

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**Opening Address by Dr Aline Wong,
Senior Minister of State for Health & Education,
at the Inaugural Biomedical Engineering Symposium of NTU & SGH on
23 Apr 98 AT 1.30 PM at the Auditorium, College of Medicine Building**

Distinguished guests, ladies and gentlemen:

Importance of biomedical engineering in medical breakthroughs

Progress in medicine in the past few decades has been due in no small

measure to rapid technological advances, particularly in the exciting fields of engineering, information technology (IT) and biotechnology. The practice of medicine has become increasingly inter-disciplinary. Through the application of engineering principles and concepts, clinical problems can be tackled from different angles with different and more creative solutions.

One widely known example is the invention of the stent, now commonly used to complement balloon angioplasty. The invention of the stent is an illustration of the collaborative efforts of physicians and engineers. Extensive joint research into the design, biomaterial and blood flow pattern in the arteries has led to the success of this contraption. Another outstanding product as a result of the close collaboration between medicine and engineering, particularly electronics and IT, is the implantable cardiac pacemaker. The inventor of the pacemaker, Wilson Greatbatch, is an electrical engineer by training. His invention is estimated to have saved 3 million lives since first used in 1960. The implantable cardiac pacemaker is a testimony to the importance of engineering in medicine.

Against the backdrop of such advances in medical care, I am pleased that NTU and SGH have embarked on this significant collaboration between engineering and clinical science for the benefit of patients. We are

well-positioned to develop R&D in this area, given NTU's strength in engineering and SGH's strength in specialist medical care. Together they make an ideal partnership in biomedical engineering research. This inaugural biomedical engineering symposium showcases some of the initiatives that have been started.

Some potential areas of collaborative research are: better implants suited to our local population and culture, more efficient diagnostic equipment, better and more cost-effective instruments and machines for the treatment of chronic and catastrophic conditions of high incidence in Singapore, such as cancer and heart diseases.

Our local researchers should focus strategically on developing new solutions to clinical problems that are tailored to our own demographic and disease patterns. This way, their efforts and products will benefit not just the local population. The products will also find a ready market in Asia because of the similarity of our Asian physique and culture. The development of prosthesis and implants like artificial heart valves, joints, bones, hearing aid, intelligent instruments, telemedicine systems, etc. will lead to commercial spin-offs in the regional healthcare industry.

Importance of R&D

Fundamentally, biomedical engineering research and other forms of medical R&D is but one of the three pillars supporting any good healthcare system. The other two pillars are clinical services and teaching. Singapore has a strong track record in the latter two but we are only beginning to build up our capabilities in R&D.

R&D is important because it can lead to innovations and inventions that are more cost- and clinically-effective. R&D will also meet the intellectual and creative drives of our healthcare professionals and spur them on to greater heights.

Singapore is still in the infant stages of development in R&D. We have a long way to go before we can match the developed countries in terms of funding and talents for R&D. But we are off to a good start. I believe Singaporean researchers can make significant progress if they tailor their research programmes to meet Singapore's unique circumstances and needs, as well as tap our existing strengths in different disciplines. We can also jumpstart the process through active collaboration with renowned institutions overseas, to bring in the expertise to develop our local talents.

The Government is supportive of R&D efforts. It is because of our belief

in the value of research that the National Medical Research Council (NMRC) was set up. Over the next 5 years, the Government has set aside \$150 million for the NMRC to fund medical research.

Importance of institutional practice and of collaboration between university and hospitals

However, funding is only one of the raw materials necessary for a successful research programme. Research efforts usually come to life only when specialists are working together in teams and have institutional support. The institution provides them with the intellectual and professional environment necessary to germinate new ideas and new methods. The best research in the world today is conducted in well-established institutions. Individuals cannot do it alone. In the Singapore healthcare environment, the public sector institutions are able to provide strong support for research efforts. I urge all physicians with an interest in R&D to continue their work in the public institutions. Your contributions are crucial for Singapore to maintain its leading edge in the healthcare system.

Finally, in a country Singapore's size, even the strongest institutions will not have all the necessary resources to support certain kinds of research. This is when collaboration becomes critical, to bring together the best combination of talents and resources available to a research project. This is especially so for

R&D work. This inaugural biomedical engineering research symposium is thus a step in the right direction to spearhead collaborative R&D efforts in a multi-disciplinary partnership.

I wish all participants a most fruitful and thought-provoking meeting.