

EDITORIAL

Beyond what we are....

Health research is an essential pre-requisite to the overall development of any country. Everyone concerned with research ethics needs to confront the greatest ethical challenge—the enormous inequities in global health. Only less than 10% of research funds are spent on the diseases that account for 90% of the global disease burden. Though 93% of the World's burden of preventable mortality occurs in developing countries, too little research funding is targeted to health problems in developing countries. Strengthening the health research capacity in developing countries is a critical need for achieving health equity.

It is essential that the developing countries create a strong national research infrastructure so that they can define priorities for health research, influence national, regional and global health agendas, and lobby for equitable allocation of resources.

Successful building of research capacity depends on national governments incorporating capacity building into their national plans, i.e. in research infrastructure. Health research capacity is the ability to define problems, set objectives and priorities, build sustainable institutions and organisations, and identify solutions to key national health problems. This definition encompasses research capacity at the levels of individuals, research groups, institutions, and nations. Investment in research capacity would need to be made for middle to long term and make a serious commitment to building local, national, and regional institutions. Autonomous research institutions attract funding and reduce administrative burdens.

According to the National Health Bulletin in Sri Lanka, lack of research culture, inadequa-

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Need higher ethical standards for Twin Research

Draft guidelines in circulation

Rapid progress of bioscience creates a strong need for continuing development of the national standards, policies and guidelines on ethics in research. We have recognised this need from the inception of the National Twin Registry of Sri Lanka (NTR). Our plan is to work towards establishing higher ethical standards when twins participate in medical research. However we intend to expand this ethical framework to cover other aspects of research involving human subjects in our part of the world.

It is possible to assign contemporary positions or streams of thoughts in bio-ethics along the lines established in the classical Hellenistic period of Western philosophy. The issues that dominate ethics in medical literature reflect the ethnocentric western philosophical and scientific tradition in which they are grounded. It is increasingly recognised that this philosophical and epistemological tradition is neither universal nor of overriding importance and that moral "rights" and "wrongs" are not absolute but may vary with the culture in which we live. Therefore our extended work will explain the philosophical basis of our arguments of the proposed guidelines from a developing world perspective.

New initiative such as ours (establishing a twin register and related genetic research) will inevitably create an essential need to bridge the existing divide between North-South bio-ethical philosophies. Our draft document on bio-ethics saw the light of the day to fulfill this need. The draft on Policy and guidelines contains 15 chapters. Some of the most important aspects discussed are ethical consideration, informed consent, data collection, documentation, storage and access to the twin data base, collection, storage and access to the human biological material including genetic material, funding, commercial exploitation, international collaboration, dissemination of results, and authorship.

We have circulated this document among national and international academics. So far we have received very encouraging comments from Prof Diyanath Samarasinghe, Professor of Psychiatry, University of Colombo, Dr. A.M.L. Belligaswatta (Director General of Health Services), Dr. Vasantha Muthuswamy, Chief of basic bio-medical research in ICMR, Secretary central ethics committee on human research, Indian Council on Medical Research, Dr. Karen J Hoffman, Acting Director, Division of Advanced Studies and Policy Analysis, Fogarty International Centre, National Institute of Health, USA, Director: Dr. Carel Ijsselmuiden, Program Southern African Research Ethics Training Initiative, School of Health Systems and Public Health, University of Pretoria, South Africa. The Sri Lanka Medical Association committee on ethics is discussing it and a feedback is expected. Many more have agreed to comment.

If you are interested, please contact us to obtain a copy. We welcome your suggestions. Let's advance our ethical approach to research.

NATIONAL TWIN REGISTRY WEB SITE

ONE OF THE FIVE HIGHLIGHTED BY THE ISTS

NTR Web site [www:http://infolanka.com/org/twin-registry/](http://infolanka.com/org/twin-registry/) is one of the 5 websites highlighted by the international society for Twin Studies. The other 4 are 2 from Australia, one each from Netherlands and Finland. The ISTS web site can be visited through <http://www.ists.qimr.au/links.html>. We are grateful to Mr. Keerthi Abeywickrama for upgrading and maintaining the web site.

[www:http://infolanka.com/org/twin-registry](http://infolanka.com/org/twin-registry)

ties in research capabilities, absence of adequate incentives for research and near absence of a multidisciplinary and intersectoral approach to research, is a problem.

We aim to establish a center of excellence for twin, sibling and family studies and in particular, genetic studies. The aim of the project is not only academic but also raising awareness and catering to the needs of twins and their families.

We reject the fallacy that the developing world is only capable of carrying out basic and cheap research. Any country with an infant mortality rate of less than 50 should certainly invest in genetic research and investigation and treatment of genetic disorders. Sri Lanka has been sighted as one of the countries in the South East Asian Region that need to develop active programme of research in genetic disorders. Increasingly, genetics is extending beyond the confines of the research laboratory, and is being incorporated as a part of primary care in all countries. It will enable the benefits of modern genetics research to reach the common man, and thus fulfill the laudable objective of "health for all".

The way forward is international collaboration based on the research agenda set by us. From the inception of the Registry we took the stand that no collaboration will be entertained solely for economically cheap and easy research in the developing world. We are encouraged by the fact that the revised Declaration of Helsinki has taken the same view on this particular issue.

Research quality should not be the sole criterion for investment. High quality research obviously tops any list of evaluation criteria. To conduct poor quality research is bad ethics as well as bad economics, but to focus on the quality of research results or journal papers alone, is clearly insufficient. Scientific advances are not the only yardstick to measure the success of research. The choice of identified priorities as areas of work, the sustainability of studied interventions outside the research setting, and the investment in local research capacity are becoming equally important as indicators of success.

We wish to go further by translating the research findings into action through service development by empowering twins through their own organisation; the Multiple Birth Foundation of Sri Lanka. They should be the ultimate beneficiaries.

Mechanism of

NATURAL MULTIPLE pregnancy in women leading to dizygotic (DZ) twins is familial and varies across racial groups, suggesting a genetic predisposition. Female DZ twins and sisters of DZ twins have an increased frequency of twins compared with male DZ twins or brothers of DZ twins. Genetic effects on DZ twinning has been confirmed in subsequent investigations, but the estimated effects and modes of inheritance vary between studies.

The number of follicles that ovulate during reproductive cycles is characteristic for each mammalian species. The dominant follicle(s) that subsequently ovulates is selected at a time of rising concentrations of FSH around luteal regression. Current views suggest that concentrations of FSH exceeding some threshold around the time of follicle selection lead to multiple follicle growth and multiple ovulation. DZ twinning results from the release and fertilization of multiple oocytes, and mothers of DZ twins have a higher incidence of spontaneous multiple follicle growth and multiple ovulation. Strong evidence for major genes influencing the ovulation rate and multiple birth comes from animal models. These models also suggest that intraovarian factors play a role in the control of the ovulation rate.

TWINS TO BENEFIT FROM RESEARCH MULTIPLE BIRTH FOUNDATION LAUNCHED

The revised Declaration of Helsinki, on biomedical research in human subjects, emphasizes that research is justified only if the population to be studied stand to benefit. Therefore active involvement of twins in service development based on research is a part of our research endeavor. Therefore the Multiple Birth Foundation was formed to organise twins, multiples and their families. Its aims are to raise the awareness of unique challenges and issues faced by the twins, multiples and their families and to initiate service development to cater to their own needs by working with professionals, statutory services and government policy makers.

To fulfill this task the first regional branch of the MBF was formed at Madurawella Divisional Secretariat, Angurwatota in Kalutara District under the leadership of the Divisional Secretary Mr. K. Lionel Perera. Seventy-four twins have registered in this branch. We warmly welcome this response to our appeal to form such branches throughout the country.

Dizygotic Twinning

Several studies report increased concentrations of FSH during the menstrual cycle in mothers of DZ twins. The higher FSH concentration appears to result from an increase in the number of spontaneous FSH pulses without concurrent LH pulses

FSH release is controlled in part by feedback from inhibin peptides secreted from the ovary. Inhibin peptides are heterodimers of a common α -subunit and either β ₁- or β ₂-inhibin subunit, linked by disulfide bonds. The two forms of inhibin (A and B, respectively) appear to have similar biological properties, but are secreted mainly during the early follicular phase, whereas inhibin A increases gradually to peak concentrations during the luteal phase. A related family of peptides, the activins, is formed from homo- and heterodimers of the β ₁- or β ₂-inhibin subunit. Activin stimulates FSH secretion from cultured pituitary cells. However, most activin in human serum is bound to circulating proteins, particularly follistatin.

The α -subunit of inhibin has important roles in the control of ovarian function through feedback mechanisms on pituitary FSH release and through the effects of an altered balance between activins and inhibin in intraovarian regulation. Immunization against α -subunit in animal's results in an increased ovulation rate.

Genes in the pathway controlling the synthesis and release of FSH may be candidates for increased twinning frequency. Mutations in the gene for inhibin- α may increase the frequency of DZ twinning in women. (Adapted from Dizygotic twinning is not linked to variation at the alpha inhibin locus on human chromosome 2 by Grant W. Montgomery, David L. Duffy, Jeff Hall, Barbara R. Hadden Masahiko Kudo, Elizabeth A. McGee, James S. Palmer, Aaron J. Hsueh, Dorret J. Boomsma, Nick Martin in Journal of Clinical Endocrinology & Metabolism 2000; 85:3391-3395)

Athula Sumathipala, a guest speaker at the 10th international congress on twin research, in July 2001

The International Society for Twin Research holds its international congress once in 4 years. This year it will be held in London under the Chairmanship of Dr. Elizabeth Brian, a leading Paediatrician specialised in the care of multiples, and also the founder of the Multiple Birth Foundation, UK. The International Society for Twin Research has invited Dr. Athula Sumathipala as a guest speaker, who proposed and co-founded the SLNTR. He is requested to present our experiences in setting up the Sri Lankan Twin Registry. SLNTR is the only such registry in the developing world. This is in recognition of the enormous task of setting up the registry and bringing it up to international standards. The summary of his speech titled "starting from scratch" will be published in the next newsletter.

THE STORY OF THE JIM & JIM TWINS GENETIC DETERMINISM OR MERE COINCIDENCE?

Jim Springer and Jim Lewis are identical twins. They were separated at the age of 4 weeks and didn't see each other again until they were 39 years old. Even so, they share uncanny similarities that read more like fiction than fact. For example, they have both worked as part-time Deputy Sheriffs, have vacationed in Florida, have driven Chevrolets, have had dogs named Toy, and have married and divorced women named Betty. In addition, one twin named his son James Allan, and the other too named his son James Alan. Both liked maths but not spelling, and both enjoy carpentry and mechanical drawing. They have chewed their fingernails down to the nubs and have almost identical drinking and smoking habits. Both have had hemorrhoids, put on 10 pounds at about the same time, and first suffered headaches at the age of 18. They also have similar sleep patterns.

Jim and Jim have some differences as well. One wears his hair over his forehead, whereas the other wears it slicked back with sideburns. One expresses himself better verbally; the other is more proficient in writing. For the most part, however, they are more alike than different.

The Jim and Jim twins were part of the Minnesota Study of Twins Reared Apart, directed by Thomas Bouchard and his colleagues. The researchers brought identical (genetically identical because they come from the same egg) twins from all over the world to Minneapolis to investigate the psychological aspects of the

twins' lives. For example, the twins were interviewed and asked more than 15,000 questions about their family and childhood environment, personal interests, vocational orientation, values, and aesthetic judgments. Detailed medical histories were obtained, including information about their smoking, diet, and exercise habits. The researchers also took chest X-rays and gave heart stress tests and EEGs (brain wave tests). The twins were also given a number of personality, ability, and intelligence tests. Many argue that the many uncommon similarities discovered in the twin study are evidence of a genetic basis for habits, tastes, and behavior.

Critics of the Minnesota twin study dispute this conclusion. They point out that some of the separated twins had been together several months prior to their adoption, that some twins had been reunited prior to their testing (in some cases a number of years earlier), that adoption agencies often place twins in similar homes, and that even strangers who spend several hours together and start comparing their lives are likely to come up with coincidental similarities. Still, even in the face of such criticism, the Minnesota Study demonstrates the interest scientists have shown in the genetic basis of behavior.

(Adapted from Psychology, contexts of Behaviour, 2nd Edition 1996-Jane S. Halonen & John W. Santrock published by McGraw Hill, Boston, USA.)

What is twin research?

The "twin method" can contribute to the understanding of genetic, environmental and developmental influence on human variation and disease. The information and knowledge gained through this research will aid in understanding the aetiology of diseases and help in preventing and treatment of diseases. Twin research and twin registries unite diverse disciplines and research methods, to a common platform forming multi disciplinary collaborations. There is a growing recognition that research requires a partnership and there is much to be gained from collaboration rather than competition between the different partners.

Exhibition at Bandarawella

One of the Provincial Councils (Uva) organised a medical exhibition to commemorate the word health day. One of our Committee members Dr. DARK Dayaratne, who is also the Consultant Physician Badulla, undertook to organise a stall on genetics and another on twin research and the registry. A large crowd visited our stalls. Sixty-five twin pairs registered in the NTR. All of them were school children.

The genetics stall was awarded a cash prize of Rs.7500 as second best stall in the exhibition.

Members of the Supervisory Committee of the National Twin Registry

- Dr. Athula Sumathipala
- Prof. Devaka Fernando
- Dr. Sisira Siribaddana
- Dr. Nihal Abeysinghe
- Prof. Narada Wamasooriya
- Dr. D.A.R.K. Dayaratna
- Dr. Deepthi De Silva

NEWS

MSc on Twin studies in Sri Lanka

The Board of Study Community Medicine of the Post Graduate Institute of Medicine has agreed for two of their MSc students to carry out twin studies for their theses. Dr. MRN Abeysingha, who is a member of the NTR supervisory committee and also a committee member of the Board of Study on Community Medicine, will be supervising the two students. We welcome this move and would extend our support to these two in every possible way. We wish to encourage more and more to embark the scientific inquiry in this field, which can offer a lot to our knowledge

GRANTS

The NTR has been successful in obtaining support from the Wellcome Trust, an internationally renowned research charity based in UK. These awards are competitive and, based on the scientific merit of the work.

International Collaborative Research Initiative Grants

We were awarded a grant to expand the work of the registry and to do some feasibility work. This newsletter is also supported by this grant.

Travel grants

Dr. Matthew Hotopf, Senior Lecturer, Department of Psychological Medicine, Institute of Psychiatry, Kings College, University of London, visited us to establish collaborative links and also delivered a guest lecture at the SLMA sessions.

Dr. Sisira Siribaddana, Dr. Nihal Abeysingha, Dr. DARK. Dayaratne attended workshop in Cambridge on genetics epidemiology on complex traits. These were awarded by the Wellcome Trust travel grant scheme.

Ethical clearance

We have obtained ethical clearance for the establishment of National Twin Registry project, from the Ethical Committee of the Faculty of Medicine, University of Colombo, and from the institute of Psychiatry, Kings College, University of London, to provide collaborative support.

This newsletter is supported by a grant from The Wellcome Trust UK

TWIN NEWS

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FROM:

**News Letter of the
National Twin Registry of Sri Lanka**

C/O: Department of Medicine
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