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In This Issue 本期主題

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FEATURE ARTICLES 專題文章

Baby Doe and Neonatal Intensive Care

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In the short history of bioethics, the Baby Doe case and the issue of neonatal intensive care illustrates vividly the complex dynamics in the interplay of new technology know-how, government regulation, public debate and social action. Incubators for care of newborns was invented as long ago as the 1880's by French physician, but ventilatory support for preterm infants with lung immaturity was not possible until 1950's. The term 'neonatology' term first appeard in Alexader Schaffer's textbook: Diseases of Newborn (1960).

Facilities for intensive care of preterm infants were in sorry state in the 1950's. In 1963 Patrick B Kennedy, son of President J F Kennedy, was born 5.5 week premature and less than five pounds, died of respiratory distress after 38 hours. A combination of government enthusiasm and public support leads to rapid development of intensive care. More than 600 neonatal intensive care units boomed in the US in the next 20 years. By 1970-80, death rate of premature infants <1000 gm was reduced from 90% to less than 50%.

As the survival rate of premature infants improve, problems of severely disabled survivers and mental retardation became more evident. Some complications like retrolental fibroplasia was complication of medical intervention. However, the ethical dilemma of whether to aggressively treat preterm and disabled neonates were largely handled by medical professionals and parents in private, away from public attention.

In 1968, the film of a baby at John's Hopkins with Down's syndrome denied operative treatment of esophageal atresia was shown at Democratic Convention, drawing public concern and a wave of debate.

In 1973, Drs Duff and Campbell reported 299 consecutive deaths in their nursery at the Yale-New Haven Hospital, 43 of whom died from deliberate decisions to withdraw or withhold life-saving treatment, resulting in many protest letters to the New England Journal of Medicine. The landscape of bioethical debate on neonatal care was changing.

In1982, the Baby Doe case in Indiana came to National focus. This was a case similar to the Johns Hopkins case – the parents declined permission for surgery, and the attending physicians brought the case to court. The Indiana courts upheld parents' decision not to actively treat the baby; US Supreme Court declined review. The case was discussed in editorials in N Y Times and The Washington Post and received much greater publicity on TV than the Johns Hopkins case. An indignant President Reagan ordered his Secretary of Health and Human Services to prevent such outrageous behavior in the future. An Interim Final Rule in March 1983 required all intensive care nurseries and maternity wards to display notices stating: "*Discriminatory failure to feed and care for handicapped infants in this facility is prohibited by Federal law.*" Hotlines were set up for reporting of suspected violations to a DHHS "Baby Doe Squad" for investigation.

The American Academy of Pediatricians challenged the Interim Final Rule. Judge of the US District Court of Columbia held that the Interim Final Rule had been improperly issued. The DHSS reissued it in accord with proper procedures, removing the warning sign but used the Rehabilitation Act of 1974 to issue the basic directive forbidding discriminatory treatment of the severely disabled neonate. The Academy of Pediatricians again challenged, charging that Section 504 of the Rehabilitation Act of 1974 was not applicable to the care of newborns. Supreme Court agreed and ruled that "the Federal Government has no power to overrule parental decisions."

In 1984, Congressional anti-abortion advocates attached a Baby Doe Amendment to the Child Abuse Prevention and Treatment Amendments of 1984, a bill which authorized federal funding to states for Child Protection Services. The Law wassigned by President Reagan on October 9, 1984. 1985 DHHS issued regulations to implement the new federal law. It required that all medically indicated treatments be provided to infants unless "such treatment would merely prolong dying, not be effective in ameliorating or correcting all of the infant's life-threatening conditions, or otherwise by futile in terms of the survival of the infant." States were required to carry out surveillance of neonatal ICUs. Some States, such as California, preferred to give up their funding rather than implement the regulations.

To this date, the issue of withholding and/or withdrawing medical interventions from preterm and disabled neonates remain controversial. (See Prof. Victor Yu's article on "Selective non-treatment" in this issue of Newsletter).

[History and case excerpted from: Albert R Jonsen. The Birth of Bioethics. Oxford University Press 1998, pp 244-252.]

Selective non-treatment of critically-ill or extremely preterm newborn infants

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Introduction

Advances in medical treatment and technology have created numerous medico-legal and ethical dilemmas in perinatal medicine. This review considers the issue of selective non-treatment, that is, medical decisions made after the birth of an extremely preterm and/or critically-ill infant to withhold or to withdraw treatment in certain clinical circumstances.

Decision to Withhold Treatment

A decision to withhold treatment is uniformly accepted as an appropriate option in lethal congenital malformations such as anencephaly. One grey area in which there is little consensus and for which neonatologists have to deal with is extreme prematurity. Studies have show that among many practising obstetricians and paediatricians, there is a tendency to underestimate the potential for survival and to overestimate the risks of disability for extremely preterm infants.

Our ethical approach in the Neonatal Intensive Care Unit (NICU) at Monash Medical Centre, with respect to the management of extremely preterm infants is in line with the policy which advocates offering neonatal intensive care to all infants with a birthweight ≥500g or gestation ≥ 24 weeks. The only exception suggested are those with birthweight <750g who do not respond to intubation, ventilation and cardiac massage in the delivery room. We have published our experience on 442 extremely preterm livebirths born at 23-28 weeks gestation in our Centre over a 10-year period 1977-1986. Overall, only 10% of these infants were not offered neonatal intensive care: 4% had major malformations and 6% were considered "nonviable" for which resuscitation at birth was not offered or not successful.

This relatively active management policy for extreme prematurity was exceptional in 1977-1986, and even today it might still be considered too proactive by some NICUs. We conducted a study to compare survival and outcome with another large NICU in Melbourne which adopted a considerably more conservative approach. The study found that the more proactive approach in our unit was associated with a higher survival rate of infants born < 1000g, which was not achieved at the expense of more survivors with disability. Nevertheless, the controversy and debate on the viability of extremely preterm infants and on ethical decision-making of withholding treatment continued for the past decade without real consensus reached.

The Royal College of Paediatrics and Child Health of UK has published a report in 1997 which stated that it may be reasonable to consider withholding treatment in an infant born at 23 weeks weighing little more than 500g. There is a general consensus that parents of a 22-week infant should be discouraged from seeking active treatment, while those of a 25 and 26-week infant should be encouraged to consent to neonatal intensive care. Even in major perinatal centres within developed countries, it is reasonable not to offer resuscitation at the time of birth for almost all 23-week infants, or for those 24-week infants who are born in a poor condition.

Decision to Withdraw Treatment

In the event that the infant's clinical course, despite initiation of neonatal intensive care, indicates that further curative efforts are futile, we believe that it is appropriate for life sustaining treatment to be discontinued, and palliative care which provides symptomatic relief and comfort be introduced. This approach, termed "individualised prognostic strategy", has been endorsed by the Committee of Bioethics, American Academy of Pediatrics. The attending neonatologist acts as advocate for the infant and as medical advisor to the parents, while the parents act as surrogates for the infants. The shift to palliative treatment requires consensus among all those involved in the care of the infant, both medical and nursing staff, as well as consent from the parents who should be closely involved in this widely shared decision-making process. The mode of death based on these practice guidelines has been documented in our unit over an 8-year period 1981-1987. Life sustaining treatment was withdrawn prior to death in 65% of 316 deaths. Among these infants, death was considered to be inevitable in the short term even with neonatal intensive care in 70%. In the remainder, the risk of severe brain damage was considered to be so great that death was considered preferable to a life with major disability. This experience is comparable with findings in UK, Holland, and New Zealand.

Principles of Selective Non-treatment

There are three clinical situations in which selective non-treatment are taking place in the NICU. (1) When death of infant is inevitable, few would disagree that elective non-treatment is morally and ethically acceptable. The initiation or continuation of life sustaining treatment would be considered in these cases futile and not in the best interest of the infant. Examples include most infants <500g birthweight and <24 weeks gestation, and those with severe respiratory failure or fulminant sepsis who have hypoxaemia, acidosis and hypotension unresponsive to ventilatory support. There is no obligation to provide futile medical care in such cases, as no infant with progressive multiple organ failure survive even with active cardiopulmonary resuscitation. (2) Infants with high risk of severe physical and mental disability: Here death is not inevitable with treatment, but most are prepared to consider selective non-treatment if the infant's development of self awareness and intentional action is believed to be virtually impossible, or there is no prospect of the infant ever being able to act on his/her own behalf. An extremely preterm infant with large, bilateral parenchymal haemorrhages and/or leukomalacia in the brain is example in this category. (3) More controversial a situation is when survival with moderate disability is possible and treatment but the infant is likely to suffer persistent pain, to require repeated hospitalisation and invasive treatment throughout life, and to experience early death in childhood or early adulthood. Examples include high spina bifida lesion associated with lack of bladder and bowel control, paresis of the legs and hydrocephalus. If treated, the infant would suffer a childhood most doctors and parents would regard as intolerable and the child would face a demonstrably awful life.

In the Royal College of Paediatrics and Child Health Report, five situations where the withholding or withdrawal of curative medical treatment might be considered are: (1) the brain death child, (2) the permanent vegetative state, (3) the 'no chance' situation, (4) the 'no purpose' situation, and (5) the 'unbearable' situation. It is unusual for the first two situations to occur in a neonate. The inevitable death scenerio discussed above correspond to the 'no chance' situation; the cases of severe physical and mental impairments making awareness or intentional action impossible correspond to 'no purpose' situation. In the 'unbearable' situation, the infant and family might feel, in the face of progressive and irreversible illness, that further treatment is more than than can be borne.

The Bioethics Committee of the Canadian Pediatric Society has proposed criteria which forbid hastening death but permits selective non-treatment for the above situations. Specifically, the Canadians recommended that infants of below 23 weeks gestation should be given compassionate care rather than active treatment, but treatment for those who are more mature should be tailored to the individual infant and family. Guidelines have also been proposed from the US, UK, and Australia. The principle with which these guidelines were established is that if continued life for the infant with treatment is a worse outcome than death, then the principle of primum non nocere imposes a professional, moral and humanitarian duty upon neonatologists to

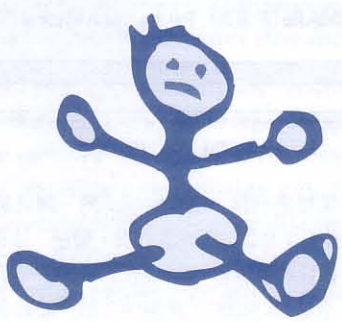
withhold or withdraw life sustaining treatment. When the process of dying is being artificially prolonged, most would agree that the harm of continued treatment exceeds any potential benefit. However, decisions based on quality of life considerations are more difficult, as there is inevitably imprecision in predicting the risk of intolerable disability or suffereing. Six ethical propositions have been published which ensure that decisions for selective non-treatment can be made in the best interest of the infant. (Appendix 1)

[First of two parts]

Editors' note: Owing to length and richness of the original paper, we apologise that it is necessary to publish it in two parts. This first part deals with ethical considerations and international professional guidelines in decision-making for selective non-treatment of these infants. The next newsletter will publish the medical-legal considerations and the role of Infant Bioethics Committee. Sections of Professor Yu's paper has been edited and abridged. References and footnotes have also been omitted.

APPENDIX 1. Ethical propositions for decision-making

1. Each infant born possesses an intrinsic dignity and worth that entitles the infant (within constraints of equity and availability) to all medical and special care that is reasonably thought to be conducive to the infant's well being.
2. The parent(s) bear the principal moral responsibility for the well-being of their infant and should be the surrogates for their infant, unless disqualified for one of the following reasons: decision making incapacity, unresolvable disagreements between parents, or choosing a course of action that is clearly against the infant's best interests.
3. The primary role of the attending physician is to be the advocate for his/her parent, the infant. The attending physician must take all reasonable medical measures conducive to the well-being of the infant.
4. When the burden of treatment lacks compensating benefit or treatment is futile, the parent(s) and attending physician need not continue or pursue.
5. Therapies lack compensating benefit when: (a) they serve merely to prolong the dying process; (b) the infant suffers from intolerable, intractable pain, which cannot be alleviated by medical treatment; (c) the infant will be unable to participate even minimally in human experience.
6. In the care of an infant from whom life-sustaining support or curative efforts are withheld, certain provisions are necessary to continue to respect the intrinsic dignity and worth of that infant. These include: (a) warmth and physical and social comforting; (b) enteric feeding and hydration, if compatible with the above ethical propositions; (c) freedom from pain, even if administration of analgesia may inadvertently hasten death.



Hereditary Diseases: New Challenges for Families and Carriers

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Genotyping provides an entire set of new tools for humankind to better understand the human condition, to better care for care, to fight against and to avoid sickness and disease. But as all tools, new and old, genotyping can be used in a virtuous or in a vicious way. Public discourse and education and the appropriate protection of human and civil rights will be needed to steward and accompany the transition into a new millennium of health literacy and health care. In our charter into the new territories of self-understanding and self-destination, it would not help if we hold on to old models of regulation and control by bureaucracies of various kind, which though their kind intention may be to protect the people from the dangers of progress.

The new challenges require a new action guide different from rules which were appropriate during periods of limited medical knowledge and lay ignorance. The new world of genotyping will have to call more for lay ethics than physician's ethics in health care matters. Carriers of sort will have to be given more – and better – information to take care of their health. This is my first thesis.

In the coming age of molecular genetic ethics a new moral action guide is required to determine priorities for groups of moral subjects and for new priorities of ethical principles. Among these principles, health literacy, self-determination and self-understanding, the right and duty to know and to learn about one's own genetic properties and risk profiles, and genetic solidarity with other fellow humans will have to play more prominent roles. Such an action guide has to address the different obligations and rights of different stakeholders:

1. Educated and responsible people have a moral duty to learn about their genetic properties and how to make the most out of these properties; they also have a moral duty to help fellow humans in taking care of their individual genetic properties, in particular to help members of their family.
2. Health care professionals are obligated to not suppressing or withholding genetic information from patients; they have the duty to do their utmost to educate their patients, and to guide and accompany them in caring for their health.
3. Lay persons and health professional should feel bound by an invisible contract of communication-in-trust and cooperation-in-trust, sharing responsibilities, rights, and obligations, also in the care of the less fortunate, less healthy, and less competent.
4. Governments, national and international institutions and organisations must provide legal, regulatory, and information networks for the protection of human and civil rights, for the development and improvement of health literacy, and for the protection against the exploitation and discrimination; regulatory ethics in human genetics should be based on the ethics of information and education, also the promotion of predictive services and the protection of privacy.

As with all new forms of knowledge and technology, individuals, families, societies, professionals, organisations and governments, locally and globally, have to evaluate the risks and benefits associated with genotyping. We are truly venturing into a new world, one that must find – so far it has not – its own ethics, based on cultural and ethical traditions and a new understanding of health literacy and genetic literacy and responsibility. It is my thesis that new knowledge in genotyping will have to lead to an improved concept of autonomy and

self-determination, empowering the individual to take better control over his / her health care and risk protection.

The revolution in genetic knowledge will also lead to a revolutionary modification of our concepts of health and disease, and of health care and its priorities. Health can no longer be understood as 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'; rather, it is a process of challenge and response, a process of balancing, which needs understanding, protection, and management by the individual person. This is my second thesis: Health is not just a status, it is not simply an objective and general criterion as expressed in the WHO definition of physical, emotional and social health, for which health care professionals provide proper services. Rather, health is the result of health-literate and risk-competent care of one's own physical, emotional, and social wellbeing and wellfeeling, achieved in competent understanding, modification and enhancement of individual genetic, social and environmental properties, with the support of health care professionals and equal access health care information including the predictive and preventive services.

The new challenges posed by genotyping will have to review, and possibly modify, some traditional principles in bioethics; it might call for bringing other more suitable principles into the forefront. In particular, we will have to review and discuss traditional principles of confidentiality, beneficience, informed consent, and harm, and to introduce new principles of informed requests, informed contract, duty to know, health literacy, health responsibility, pedigree ethics. Also, issue of patenting and profit-sharing in genotyping will need further evaluation.

Empowering Carriers to Take Care of their Genetic Properties

Some people have a defect in controlling antigens in their major histocompatibility complex; some are more gifted than others, some have other capabilities and incapabilities. As all of us have their specific set of ability, inability or disability, a new form of solidarity might arise, a solidarity to help each other to overcome or live with incapacities, and to cherish each other's capacities. This is my third thesis: Even if a new concept of health and health care, including solidarity in health care, does not develop, for large health insurance providers the mix of insured persons requesting support for genetic disability of one form or another might even out reimbursement to specific individuals. Furthermore, predictive and preventive literacy and responsibility will reduce the cost of acute intervention and improve the quality of life.

Rapid discoveries of minute differences between individual person's genetic code will not only lead to better prediction of health risk, but will also provide new opportunity of individually tailored recommendation for diet and lifestyle long before acute medical intervention and medication is required. Close to 100,000 SNP'sm molecular signposts expressing individual variations from the human genome and determining individual capacities for health or susceptibility for disease have been found. The interpretation of SNP's not only will help in new drugs development in treating diseases, but will also create drugs that can balance the individual genetic setup long before diseases develop. These developments hold promise for understanding and fighting cancer, dementia, infections, and heart diseases.

We are close to new prevention strategies for many genetically predetermined diseases. Phenylketonuria (PKU), a genetic disorder in milkfat metabolism, was deadly for all newborn carriers, but the disorder can be 'cured' by selective diet during the first weeks after birth without further medication or lifelong chronicity. ADPKD, an autosomal dominant late-onset polycystic kidney disease which will requiring lifelong hemodialysis or kidney transplantation is caused by two malfunctioning proteins responsible for kidney maturation. Research reporting that specific diet in transgenic polycystic kidney rats can prevent cyst development holds promise for severe genetic disease such as cystic fibrosis. These new ventures and remedies can be introduced sooner, and with less controversy, than the widely debated therapeutic germline interventions.

In the identification of individual genetic predispositions and setup, the old concept of 'disease', 'disorder', 'health norm' will have to be revised. A better model would be to talk about severity of impact, and probability of redress or modification. The ethical attitude towards individual genetic profiles and genetic predispositions should therefore be: Do ask, and do tell. Such an attitude of asking and telling would run against many traditional attitudes in medicine and genetic consultation, and also against the principle establishing a 'right not to know'. This is my fourth thesis: It is the health literate individual's obligation to ask and to gain general and individualised genetic knowledge for her or his control and improvement of health care, and quality as well as length of life. When they do so, they will find a response by the medical community in providing information, education and consultation, and be able to implement genetic knowledge into individual lifestyle and diet decision making.

New Challenges in Pedigree Responsibility

When priorities in medicine shift from acute intervention to long term, predictive and preventive services, parental and family responsibilities and pedigree relations will definitely be transformed. Some of these new challenges might be very controversial and revolutionary at least in the beginning. (See **Case of Ms Han**). Family relations will be influenced by new sources for (unfounded) guilt-feelings, shame, accusations, self-denials, even divorce, suicide, breakup of familial relations. The golden rule for genetic ethics must be not to hide behind traditional attitudes towards secrecy and privacy, but to openly and aggressively inform, educate, teach and support dialogue and discourse in the families and in society. This should not, however, be done against the traditional forms of communication and cooperation, or against the will of the diagnosed. Rather, the health professional should seek her or his support, and make the best use of sometimes dormant principles of family responsibility and solidarity.

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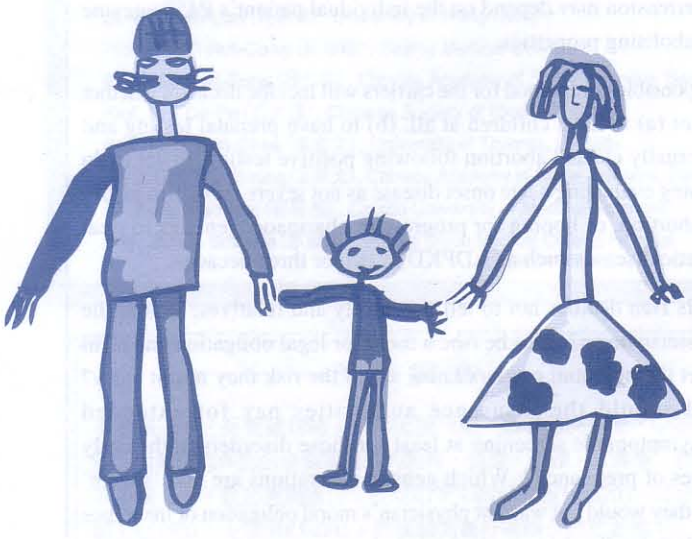

This leads to my fifth thesis: In complex issues of privacy, disclosure, right not to know, and duty to know, individual patients should be legally empowered and morally supported in making individual choices –

(a) for mandating disclosure of individual predictive, preventive, or therapeutic knowledge,
(b) for refusal of all or some information, and
(c) for postponing such a decision for later, based on then existing individual circumstances or clinical results; this would include respecting the decision by some patients not to be informed about carrier status so that they be allowed to postpone facing the challenge of deciding whether to inform their family or note.

Moral issues of informing and protecting family members can similarly be handled by allowing

(a) first the probands to choose for themselves among a number of procedures by which family members of various degree may or may not be involved, informed, or invited, and
(b) secondly to approach and confront the family members based on options chosen by the proband.

As the degree in which intimate relationships within the families will change as a result of genotyping for carrier status, these decisions and the consequences should be left to the family (i.e. should not be routinely controlled by physicians and insurers). The realm of institutional and socio-political responsibility should be restricted to support, public education, discourse, financial and professional support of genetic screening and consultation.

[Editors' note: Sections of this paper has been edited and abridged. References and footnotes have also been omitted.]

CASE of Ms Han

At age of 60, Ms Han was diagnosed as having end stage renal disease due to a genetic condition of ADPKD. She is now faced with the dilemma of whether to tell her daughters, one of them being pregnant in the first trimester. The daughters and their children might have the same disease. Is Ms Han morally required to trade her right to privacy against a moral obligation to inform her daughter and other members of the extended family about her own fate, and encourage them to seek diagnosis for themselves, and plan their lives accordingly? To know about one's carrier status of ADPKD is beneficial if lifestyle changes are made, such as preventing and treating hypertension, avoidance of sports such as certain forms of aerobics or stretching or riding. Drug of choice in treating hypertension may depend on the individual patient's P450 enzyme metabolising properties.

Responsible parenthood for the carriers will include decision whether or not (a) to have children at all, (b) to have prenatal testing and eventually elected abortion following positive testing, or (c) to do nothing evaluating a late onset disease as not severe enough to justify an abortion, or hoping for progress in pharmaocogenetics to treat genetic diseases such as ADPKD in two or three decades.

If Ms Han decides not to tell the family and relatives, should the physician do so? Has he /she a moral or legal obligation and right to let the potential carriers know about the risk they might carry? And should the insurance authorities pay for extended presymptomatic screening at least for those disorders in the early stages of pregnancy? Which genetic aberrations are less 'severe' that they would not warrant physician's moral obligation or insurance funds to pay?

REPORTS 報 告

Seminar on Ethical Issues in Perinatal Medicine

On 25.11.1999 the Hong Kong Bioethics Association co-organised a Seminar on Ethical Issues in Perinatal Medicine with two clinical departments of Kwong Wah Hospital - Department of Obstetrics & Gynaecology and Department of Paediatrics. It was the first of such collaborations, and attracted an audience of over 150 from diverse disciplines. The seminar was chaired by Dr. C S Ho, Chief of Service of Department of Paediatrics Dr. Mary HY Tang (Chief of Service, Prenatal Diagnostic Unit, Tsang Yuk Hospital) reviewed the topic of prenatal diagnosis – its objectives, options for testing, impact on pregnancy, and ethical considerations. The benefits of prenatal diagnosis to the parents and society as a whole are clear, but due caution must be addressed related to reducing suffering to family and the child. Parental autonomy is in general respected, but should there by any limits? What happens when the parents opt for aborting a child with relatively minor abnormality? Or the contrary situation of opting for continuing the pregnancy despite major or lethal abnormalities? Societal acceptance of certain conditions like Down's syndrome affect perceptions of the parents with respect to whether a good quality of life is possible for the child.

Dr Stephen TS Lam (Head, Clinical Genetic Service, Department of Health) delivered a thoughtful talk on ethical issues of clinical genetics. The central theme covered in this presentation is one of informed consent in different settings, be it for genetic testing, screening or to be listed in a genetic register. By informed consent, one refers to the process of getting the individual to be acquainted with essential information about the condition under discussion, and obtaining voluntary consent for the procedure to be carried out. The completeness of information, the language facilitating comprehension, are both important. Consent can only be given upon full understanding of the potential utility and risks involved. The whole concept behind this process rests with the belief that clients have the right to be informed and the autonomy to arrive at their own decision. In considering genetic testing for children, the question arises as to when this consent should be given and by whom. It is generally considered ethical that children have a right to be informed, and their assent be acquired beyond certain age, say seven. For genetic screening, informed consent may not be absolutely required if the procedure is mandatory or commonly accepted as a routine, but informed dissent should be considered. Screening on a research basis is, however, different and proper informed consent should be fetched from all involved. Finally, for inclusion in a genetic register, it is considered vital to have informed consent, since the register will carry important personal data which may be of interest to many parties besides the clients. Steps have to be built into the system to make sure that data are not released without consent from the clients.

Ex-co members of our Association, Dr. Chiu Siu Wai and Dr Shaw Pang Chiu (both are faculty academics of the Chinese University of Hong Kong) discussed the implications of the presentations and raised questions for floor discussion.

The speeches and discussion were followed by a case presentation by medical staff of the two clinical departments. The case of severe neurological malformation diagnosed prenatally and with substantial parental stress in perinatal care. The approach to such highly emotional cases were discussed by panelist speakers Dr Ko Wing Man (Deputy Director, Hong Kong Hospital Authority), and Mrs Agnes Wong (Chairperson, Catholic Diocesan Commission for Pastoral Care Workers). A rich discussion with lively exchanges of interdisciplinary prespectives followed, and concluding remarks are made by Dr. Lawrence CH Tang , Chief of Service, Department of Obst & Gynaecology of Kwong Wah Hospital.

MESSAGES 消息

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第五卷第四期	Human Genome Project人類基因組圖測繪

All readers are welcome to contribute to our Newsletter. Articles should generally not exceed 2500 words and should preferably be submitted in e-copy plus hard copy. E-copy can be directly emailed to: Dr Derrick Au, ksau@ha.org.hk

Hard copy should be mailed to: Dr Derrick Au, Department of Rehabilitation, Kowloon Hospital, 147A Argyle Street, Kowloon, Hong Kong.