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THE HONG KONG MEDICAL DIARY

香 港 醫 訊

VOL.27 NO.8 August 2022

Obstetrics & Gynaecology

OFFICIAL PUBLICATION FOR THE FEDERATION OF MEDICAL SOCIETIES OF HONG KONG ISSN 1812 - 1691

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* Studied population: 625 women participated who received preventive antibiotics between 48 hours before and after childbirth; 291 women completed the treatment.

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Contents

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The Cover Shot

Childbirth, past & present

A photo of ancient Khmer bas-relief carvings over the wall of Bayon Temple, Angkor, Cambodia. These sculptures depicted scenes of everyday life, such as childbirth. In Khmer, childbirth is called "chlong tonle", which means "crossing the river", a dangerous journey.

It is gratifying to conduct a delivery safely along with the arrival of a healthy baby; however, pregnancy and childbirth are not risk-free. Improvements in women's health, pregnancy screening, labour monitoring and perinatal care have saved a lot of mothers and babies.

Childbirth in the future? Further development would be enhanced by the integration of technological innovation and patient-centred care.

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Current Practice in Obstetrics and Gynaecology

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Editor

Dr Kwok-yin LEUNG

In early May this year, former Health chief Sophia CHAN said the fifth wave of COVID was under control as daily COVID cases fell below 300 for the first time since early February[1]. Monitoring was still required to ensure a gradual, safe and orderly relaxation of social-distancing measures.[1] In late May, former CE Carrie LAM said we should be most grateful for the timely assistance from the central government and full co-operation by the community at large.[2] It is nice to see that Hong Kong is moving steadily forward along the path to normalcy in the midst of stabilised COVID pandemic.

According to the Census and Statistics Department, the number of births declined by around 40% from 60,900 in 2016 to 37,000 in 2021.[3] The decline in births in the recent two years might be partly due to the outbreak of COVID-19 since early 2020. On the other hand, the number of deaths increased by around 9% from 46,900 to 51,200 over the past five years.[3] There are major changes in the healthcare delivery during the pandemic, which has a great impact on public health. In this August issue, a group of specialists share their views on the current practice in Obstetrics and Gynaecology.

Advances in genetic technology are making a major impact on the management of obstetrical and gynaecological problems, among others, associated with genetic disorders. More genetic disorders can be detected by advanced genetic testing, the latter becoming more effective, economical, flexible, and efficient nowadays than ever before. However, such testing may increase the chance of getting uncertain or unexpected findings, which in turn may have impact on the patients as well as their family members. In this August issue, Dr WC LEUNG highlights the programme entitled 'A Recap on the Genetics & Genomics in O&G Webinar 2022', which was jointly organised by the Hospital Authority and Hong Kong College of Obstetricians and Gynaecologists/ Hong Kong Academy of Medicine. This comprehensive webinar programme consists of a total of 20 video talks given by twelve local and seven overseas experts.

Adequate nutrition before and during pregnancy is important for maternal health, and for proper development of the foetus/baby. According to a survey reported by the Department of Health (DH) in 2014, the majority of the general female adult population in Hong Kong were deficient in their dietary intake of iron and calcium.[4] A recent DH survey also showed insufficient iodine status among pregnant and lactating women with inadequate or absent iodine supplements.[5] In this August issue, the author of this editorial highlights the role of nutritional supplementation, including vitamins, minerals and Docosahexaenoic acid (DHA) before, during and after pregnancy.

A decline in the incidence of and mortality from cervical cancer in Hong Kong has been associated with the implementation of a territory-wide screening programme for cervical cancer via cytological testing launched by the DH in 2004.[6] However, cervical cancer was still the eighth commonest cancer amongst females in 2019, and was the eighth

leading cause of cancer deaths.[6] It is well known that infection with high-risk types of human papillomavirus (HPV) is the causative agent in cervical cancer. The 2021 Cancer Expert Working Group of Hong Kong recommended primary HPV testing as an option in women between 30 - 64 years old.[7] In this August issue, Dr Aaron HY CHAN and Prof Karen KL CHAN review the current evidence on screening for cervical cancer, and discuss whether HPV testing is going to replace conventional cytological testing.

Uterine fibroids and adenomyosis are common, and can cause menorrhagia, pain and other symptoms. Conventional treatment of large and symptomatic fibroids includes myomectomy or hysterectomy. A recent meta-analysis showed that high-intensity focused ultrasound (HIFU) is superior to surgery in terms of symptomatic relief and significant complications, but similar to surgery in terms of symptom recurrence and pregnancy.[8] In this August issue, Dr Vivian WY NG and Dr Vincent YT CHEUNG describe the development of HIFU in Hong Kong, and review the effectiveness, safety and reproductive outcomes of HIFU.

The World Health Organization embraces a vision driving its Innovation in Health approach.[9] Nowadays, many innovations are transforming medicine at a remarkable pace to improve public health. It is important but not easy to deliver quality and safe healthcare in a cost-effective way. In this August issue, Dr Kenneth TSANG enlightens us on the healthcare innovations in a hospital setting.

The cover shot of this August issue is a photo of an ancient Khmer bas relief carving showing a woman giving childbirth. Dr Mona LAM uses this photo to show us the development of healthcare requires the integration of technology into patient-centred care.

I would like to express sincere thanks to my colleagues for their great contributions to this August issue, and the Editorial Board for their great support. Happy reading!

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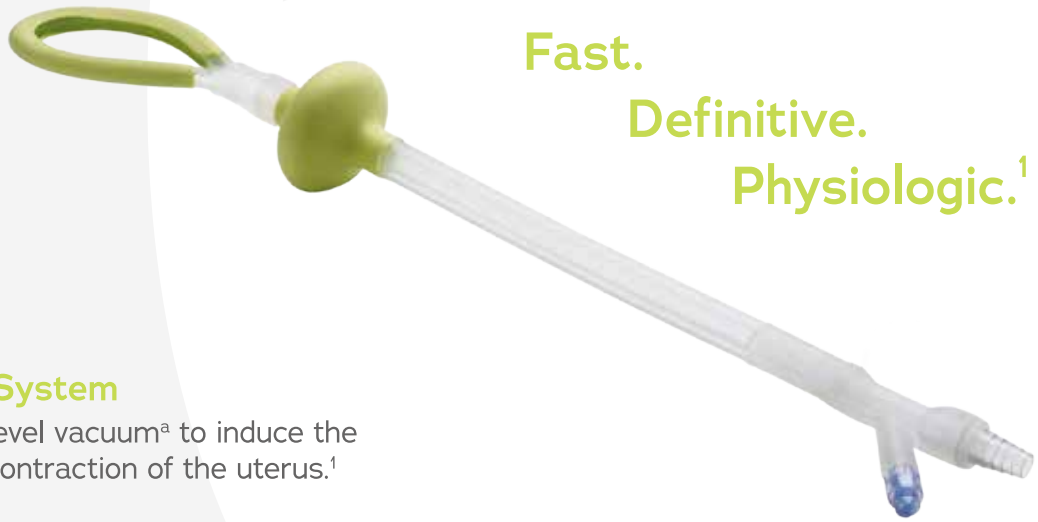

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A Recap on the "Genetics & Genomics in O&G Webinar 2022" during the COVID Era

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Genetics and Genomics (G&G) have become increasingly important in all branches of Medicine, and Obstetrics and Gynaecology (O&G) is no exception. Our College (HKCOG) established a Task Force in G&G in 2019 to promote and coordinate training in this important area. The idea to organise a seminar on G&G in O&G was conceived by Prof TY LEUNG and myself dating back to 9 May 2019 when we were participating in an MRCOG Part One training course in Beijing, before the arrival of COVID-19. When COVID-19 arrived, members of the organising committee thought that we could have a face-to-face seminar as usual soon after the COVID-19 ended. Unfortunately, COVID seems to be a never-ending story. Nonetheless, THE SHOW MUST GO ON. It so happened that the theme of the Hospital Authority (HA) Central Commissioned Training Programme (CCTP) 2021/22 for O&G had also been delegated to G&G. We thought it would be logical to combine the two projects together to concentrate the efforts for preparation, especially when the target audience, as well as the invited speakers, would largely overlap.

As it turned out, it was far from being straightforward for the HA and the HKCOG/HKAM to collaborate in running a seminar. However, by sticking to our original intention of providing good training for trainees (HA) and specialists (irrespective of HA or non-HA), we eventually overcame a number of administrative hurdles and arrived at our destination in March 2022.

The timing of our training programme coincided exactly with the 5th wave of COVID when we were all very busy combating the COVID outbreak. After some discussion on the format of the seminar, it was finally decided to be a webinar not on real-time, but with videos "On-demand, Anytime, Anywhere" via the HA e-Learning Centre (e-LC) platform. An e-flyer of the programme is shown in Fig. 1. It was hoped that this format would allow maximum flexibility in timing for the participants to enjoy the videos over a period of three months from March to May 2022. The webinar videos would also be permanently available from e-LC afterwards for future reference. The G&G topics in O&G would still be contemporary in 2022 or even 2023 and then the video programme will become an interesting and important piece of history for future reference.

There are altogether 20 video talks (with a total of 16 hours and 16 CME/CNE points) produced by eHKAM IT Team. The contents cover the contemporary situation and future development of G&G in O&G, including our four subspecialties: Maternal Foetal Medicine (MFM), Reproductive Medicine (RM), Gynaecological Oncology (GO) and Urogynaecology (UG). We had invited twelve local speakers from Hong Kong and seven overseas speakers from the U.K., Canada, Australia, Singapore, China and the United States. No registration fee was required for both HA and non-HA participants. Prior to the pandemic, when the format of HA CCTP was the traditional face-to-face seminar, the funding was usually not adequate to cover more than two overseas speakers because of business airfares and hotel accommodation. Thanks to the webinar format, we only needed to pay a modest honorarium to the invited overseas speakers; as a result, we could invite more overseas speakers, and broaden the exposure to their international knowledge and experience.

Questions and answers, although not real-time, could be shared via the e-LC platform. Perhaps the major drawback of the webinar format is the difficulty in establishing networking and friendship when compared to the traditional face-to-face seminar. Eventually there were 532 participants in total including 50 non-HA O&G specialists. Their positive feedback from the evaluation summary is very encouraging.

A précis of each of the five sessions of our webinar is presented in the following.

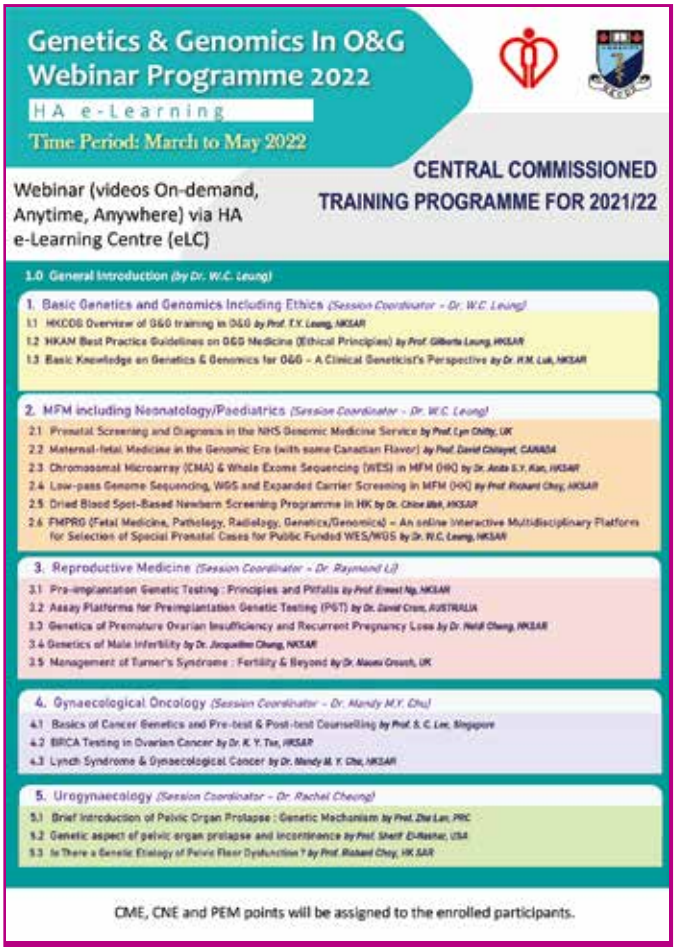
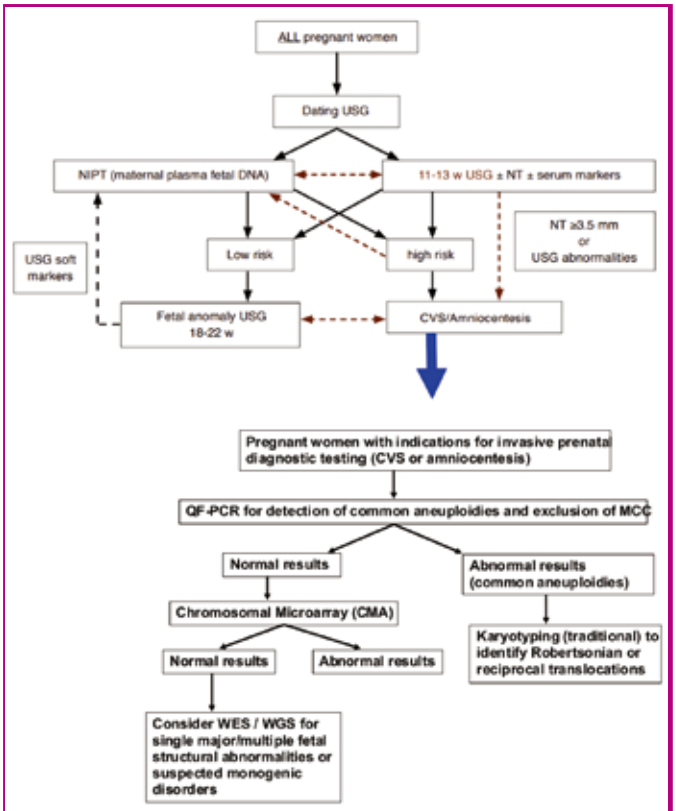


Fig. 1: The e-flyer of our webinar programme (Reproduced with permission from the Hospital Authority)



CMA = chromosomal microarray (molecular karyotyping), detecting microdeletions & microduplications; CVS = chorionic villus sampling; MCC = maternal cell contamination; NIPT = noninvasive prenatal testing; NT = nuchal translucency; QF-PCR (RAT) = quantitative fluorescent polymerase chain reaction (rapid aneuploidy testing); USG = ultrasound; WES = whole exome sequencing; WGS = whole genome sequencing

Fig. 2: Algorithms of prenatal screening & diagnosis in HKSAR (2022) (Developed by Dr WC Leung, Dr Anita KAN and Prof Richard CHOY)

BASIC GENETICS AND GENOMICS INCLUDING ETHICS

Prof TY LEUNG (Immediate Past President, HKCOG) started with an insightful overview on G&G training in O&G at three levels: O&G specialist level; subspecialist level; and a separate or additional subspecialty qualification in G&G using the potential future development of Foetal Genetics as an example. Training programmes in G&G in the U.K., the U.S.A. and Australia are presented for reference. Prof LEUNG's talk is thought-provoking, stimulating and facilitating further discussion in our College on the direction of future G&G training in O&G.

Prof Gilberto LEUNG (President, HKAM) discussed the ethical principles in G&G with special emphasis on the issues of consent in G&G testing including the Montgomery principle, confidentiality and information disclosure. He strongly recommended to the participants to refer to the latest HKAM Best Practice Guidelines on G&G Medicine (Ethical principles) published in 2021.[1]

Dr HM LUK, from a clinical geneticist's perspective, presented a comprehensive review on the basic knowledge on the spectrum of G&G tests with the interpretation of results in O&G settings. The paradigm shift from genetics to genomics is highlighted. High-quality genetic counselling is an essential part of the prenatal genomic testing pathway. The importance of a multi-disciplinary team approach is emphasised.

MATERNAL FOETAL MEDICINE

The latest algorithms of prenatal screening and diagnosis in the HKSAR (2022) are summarised for easy reference in Fig. 2. These new algorithms are presented in detail by our local speakers. It would also be interesting to learn from the international experience shared by our overseas speakers.

Prof Lyn CHITTY shared with us the prenatal screening and diagnosis in the U.K. National Health Service (NHS)'s Genomic Medicine Service. There are two shining points. The first one is the bespoke non-invasive prenatal diagnosis (NIPD) (diagnosis not requiring invasive testing to confirm) for de novo and paternal inherited monogenic disorders, further expanding to autosomal recessive and X-linked disorders. The second one is the rapid foetal exome sequencing (with a report being made available within 14 days) for selected

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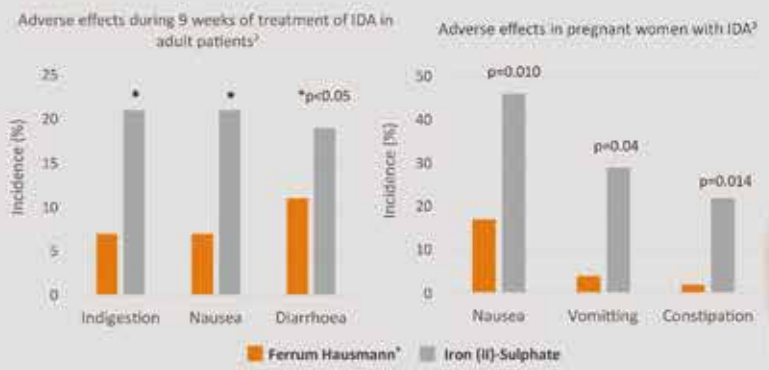

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dysmorphic foetuses under a multi-disciplinary team (MDT) approach. The latter has inspired us to develop our local Foetal Medicine, Pathology, Radiology, Genetics/Genomics (FMPRG) online interactive multi-disciplinary platform for selecting special prenatal cases for public-funded whole exome sequencing (WES)/ whole genome sequencing (WGS).

Prof David CHITAYAT gave an excellent overview in the Genomic Era on the current and future MFM in Canada in terms of prevention (contingent NIPT); diagnosis (chromosomal microarray [CMA], no more karyotyping, DNA gene panels and WES); and treatment (gene and stem cell therapies in-utero).

Dr Anita KAN started her talk with an important timeline showing the history of the development of prenatal screening and diagnosis in Hong Kong from traditional karyotyping since 1981 to the various current molecular tests. This is followed by a detailed account on the workflow and performance including limitations of quantitative fluorescent polymerase chain reaction (QF-PCR), karyotyping, CMA and WES in our local settings (Fig. 2).

Prof Richard CHOY talked on low-pass genome sequencing (4x), which carries great potential to replace CMA in future algorithms (Fig. 2) with its cost-effectiveness, high throughput, higher resolution and additional diagnostic yield including translocations and inversions.

Low-pass genome sequencing can also replace karyotyping. The ultimate role of WGS (30x) was discussed. The clinical implication of expanded carrier screening to reduce the risk of recessive genetic diseases in offspring was introduced. This is followed by a seven-minute video for public education.

This MFM session would not be completed without including the newborn screening (NBS) for inborn errors of metabolism (IEM). Dr Chloe MAK brings us through the journey of dried blood spot-based newborn screening (by tandem mass spectrometry) from a pilot study to the current territory-wide programme in all HA hospitals with maternity service.

Lastly, Dr WC LEUNG presented the new HA FMPRG programme. It is an online interactive platform for uploading special prenatal foetal medicine cases among the multi-disciplinary team members for education and voting to select appropriate cases for WES/WGS. The entire discussion and decision-making process can be completed online in a timely manner without the need of in-person meeting (perfect for social distancing during COVID). And all the cases can be archived on the website for education and research purposes together with secured patient privacy.

REPRODUCTIVE MEDICINE

In the field of reproductive medicine, genetics and genomics is relevant to various aspects, particularly in conditions such as gonadal failure, infertility and recurrent pregnancy loss. On the other hand, advances in assisted reproductive technology have enabled genetic testing of embryos at the pre-implantation stage for couples with known genetic conditions. In this way, selective replacement of screened embryos will help to prevent the transmission of the genetic conditions to the next generation. For these reasons, clinicians practising in obstetrics and gynaecology as well as in reproductive medicine will need a sound knowledge of genetics and genomics, which is covered in this teaching session.

Prof Ernest NG gave an excellent overview on pre-implantation genetic testing, highlighting the principles and pitfalls. It covered the code of practice, indications, procedures, effectiveness and limitations of various forms of pre-implantation genetic testing for monogenetic disease, aneuploidy and structural rearrangement.

Dr David CRAM, Past President of the Preimplantation Genetic Diagnosis International Society, presented a detailed talk on assay platforms for pre-implantation genetic testing, explaining how the technical methodology has evolved through the past years, and illustrating the application of the various molecular techniques with clinical examples.

Dr Heidi CHENG gave an informative talk on the genetics of premature ovarian insufficiency and recurrent pregnancy loss. The implications of an X chromosome aneuploidy, FMR1 premutation and other candidate genes on premature ovarian insufficiency were explained. The chromosomal causes as well as the role of pre-implantation genetic testing in the clinical management of recurrent pregnancy loss were also discussed.

Dr Jacqueline CHUNG presented a detailed discussion on the genetic factors of male infertility, particularly highlighting the implications of Klinefelter syndrome, Y chromosome microdeletion and cystic fibrosis on male infertility and its treatment.

Dr Naomi CROUCH, Immediate Past Chair of the British Society for Paediatric and Adolescent Gynaecology, delivered a comprehensive lecture on the management of Turner's syndrome. It covered both the fertility aspects as well as other non-fertility medical issues that we need to pay attention to in the long-term management of women with Turner's syndrome.

GYNAECOLOGICAL ONCOLOGY

Hereditary breast and ovarian cancer syndrome and Lynch syndrome are the two most important cancer syndromes relevant to gynaecologists. Recently, there are also therapeutic implications of certain biomarkers in the management of different cancers, including ovarian and endometrial cancers. All these aspects were covered in the gynaecological oncology session.

Prof SC LEE from Singapore delivered a talk on the basis of cancer genetics, including the general principles of genetic testing for hereditary cancer syndrome, the importance of a good family history and the four "Rights" in genetic counselling and testing for hereditary cancer syndrome – Right patient, Right reason, Right test and Right interpretation. Indiscriminate use of a large next generation sequencing (NGS) panel for germline testing should not be

performed as there is a higher chance of diagnosing conditions with no clear management guidelines and a higher rate of variants of uncertain significance, both of which can cause harm to the patients in various aspects.

Dr KY TSE discussed on BReast CAncer gene (BRCA) testing in ovarian cancers. BRCA mutation is common in epithelial ovarian cancer-germline mutation and somatic mutation were found in up to 15% and 6% of high-grade serous ovarian cancers respectively. Nowadays, most international guidelines recommend universal testing of all non-mucinous epithelial ovarian cancer for BRCA mutations. Information on the BRCA status would also have an implication for the use of PARP-inhibitors as maintenance therapy in patients with advanced or recurrent ovarian cancers.

Dr Mandy CHU delivered a talk on Lynch Syndrome and gynaecological cancers. Lynch syndrome contributes to 3-5% of all endometrial cancers. Individuals with Lynch syndrome are at increased risks of a number of malignancies, most commonly colorectal cancers, endometrial cancers and ovarian cancers. Professional bodies recommend universal screening of all endometrial cancers for Lynch syndrome, with molecular screening being the preferred strategy when resources are available. The mismatch-repair status of the tumour is also an important biomarker for the decision on the use of immunotherapy in endometrial cancers.

UROGYNAECOLOGY

Pelvic organ prolapse (POP) and urinary incontinence are two major distressing conditions in women with pelvic floor dysfunction (PFD). The intrinsic factor of genetic predisposition has been proved in family and twins studies. Given the strong heritability findings, linkage analyses have been followed by multiple candidate gene studies and recently genome-wide association studies (GWAS) have become the main focus.

Prof Lan ZHU reported a single-cell survey of various cell types in POP patients and elucidated the cell type composition and cell type-specific gene expression signatures in the prolapsed vaginal wall. Notably, 11 cell types were identified together with the transcriptional signatures and the differentially expressed genes (DEGs) in each cell type were defined. This suggested the potential synergistic effect of fibroblasts and smooth muscle cells on immune reactions in prolapse patients.

In the review presented by Prof Sherif EL-NASHAR, numerous genes associated with PFD were revealed. It suggested potential gene set candidate functional pathways for POP and stress urinary incontinence (SUI) are probably involved in collagen catabolism, protein-lipid complex remodelling, and extracellular matrix (ECM) organisation. This highlights the importance of overlapped genes involved in both diseases' functional pathways.

Prof Richard CHOY reported the overall slower growth rate of POP fibroblasts and the addition of oestradiol suppressed cell proliferation of all fibroblasts, especially in POP fibroblasts. The isoprostane production was significantly increased in cardinal ligament-derived fibroblasts and the matrix metalloproteinase two mRNA was significantly increased among women with POP. These findings indicate a decreased cell proliferation together with a depleted antioxidant defence system which may explain the molecular mechanisms in POP.

As the knowledge of genetics in urogynaecology grows, it provides novel insights into the pathogenesis of PFD. Additional work needs to be done to establish a possible role for genetic testing in clinical practice that could address the best treatment options.

Acknowledgement

Organising Committee:
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1. HKAM GnG Guideline https://www.hkam.org.hk/sites/default/files/PDFs/HKAM%20GnG%20Guideline.pdf

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References:
1. Hong Kong Product Package Insert of DURATOCIN (Date of revision: JAN 2020). 2. Gallos ID *et al* 2018. Uterotonic agents for preventing postpartum haemorrhage: a network meta-analysis. *Cochrane Database Syst Rev.* 12(12):CD011689. 3. Malm M *et al* 2018. Development and stability of a heat-stable formulation of carbetocin for the prevention of postpartum haemorrhage for use in low and middle-income countries. *J Pept Sci.* 24(6):e3082.

Abbreviated Prescribing Information of DURATOCIN

Active Ingredient: Carbetocin. **Indications:** Prevention of postpartum haemorrhage due to uterine atony. **Dosage & Administration:** *Caesarean section under epidural or spinal anaesthesia* 100 mcg (1mL) IV slowly over 1 min. *Vaginal delivery* 100 mcg (1mL) IV slowly over 1 min or IM. **Contraindications:** Hypersensitivity. During pregnancy & labour before delivery. For induction of labour. Hepatic or renal disease. Serious CVD. Epilepsy. **Special Warnings and Precautions:** Must only be administered after delivery of infant & ASAP, preferably before delivery of placenta. Intended for single administration only. No data on additional doses of carbetocin or the use of carbetocin following persisting uterine atony after oxytocin. Monitor early signs of hyponatraemia e.g. drowsiness, listlessness & headache, particularly in patients receiving large vol of IV fluids. Use with caution in migraine, asthma, CVD or any state in which a rapid addition to extracellular water may produce hazard for an already overburdened system. Carefully monitor patients with eclampsia & pre-eclampsia. No studies on gestational DM. No established safety & efficacy, and dosage recommendation on adolescents. **Side Effects:** *IV* Headache, tremor, hypotension, flushing, nausea, abdominal pain, pruritus, feeling of warmth. *IM* Anaemia, headache, dizziness, tachycardia, hypotension, chest pain, nausea, abdominal pain, vomiting, back pain, muscular weakness, chills, pyrexia, pain. **Interactions:** Concomitant use w/ vasoconstrictors in conjunction w/ caudal block anaesthesia may lead to severe HTN. May enhance BP enhancing effect of ergot-alkaloids e.g. methylergometrine. Prostaglandins may potentiate effect of carbetocin. Some inhalation-anesthetics e.g. halothane & cyclopropane may enhance hypotensive effect of carbetocin, weaken effect of carbetocin & cause arrhythmias.

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HK-DUR-2200001 Date of Production: Mar 2022

Nutritional Supplementation Before, During and After Pregnancy

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 31 August 2022.

Vitamins, minerals and omega-3 fatty acids (OFA) are essential for many cellular and metabolic activities. During pregnancy and lactation, there are increasing requirements for these nutrients to prepare the maternal body for delivery and for lactation, and to ensure the short-term as well as long-term development of the foetus/baby.[1-3] The Department of Health (DH) has summarised the key requirements for these nutrients[4]. In particular, the demand for folic acid, vitamin A and iodine increases during the course of pregnancy.[4] In the second and third trimesters, there is also a higher demand for iron, zinc, omega-3 fatty acids, and calcium.[4] Sufficient intake of folic acid, iodine, zinc, vitamin A and Docosahexaenoic acid (DHA) are required during lactation.[4] Nutrients deficiency is associated with pregnancy complications and adverse outcomes.[1-3] The aim of this article is to review the current evidence and guidelines on the role of nutritional supplementation before, during and after pregnancy.

SUPPLEMENTATION OR NOT

Adequate nutrition is best achieved through the consumption of a healthy and balanced diet.[5] However, more than 90% of the general female adult population in Hong Kong were deficient in their dietary intake of iron and calcium according to a DH survey published in 2014.[6] A recent DH survey also showed insufficient iodine status among pregnant and lactating women with inadequate or absent iodine supplement.[7] Given that the requirement of some nutrients is relatively large while the amount of calories required for a typical pregnancy is small, appropriate nutritional supplementation is a key component of, though not a substitute for, a healthy and balanced diet.[1,8] Nutritional supplementation is widely practised in Hong Kong, similar to the practice in the United States.[1]

Targeted supplementation should be given to meet the special needs of subgroups of pregnant women, including nulliparity, short inter-pregnancy interval, multiple pregnancies, obesity, vegetarian, smoker, prior history of bariatric surgery or gastrectomy, current history of anaemia, vomiting, diabetes, hypertension, gastrointestinal disorders and liver diseases.[1,2,8] Consultation with a registered dietitian with special training in maternal nutrition is recommended for those women with special nutritional needs.[8]

Nutritional supplementation may not be required in well-nourished pregnant women. Since many pregnant women are taking a multivitamin supplement from early or before pregnancy, it is important to ask which multivitamins they are already taking or planning to take before prescription to avoid excessive intake, which may have adverse effects but without benefits.[3,9] Taking more than one daily dose of multiple micronutrient supplements should be avoided.[8]

FOLIC ACID AND IRON

The World Health Organization (WHO) recommends preconception folic acid for the prevention of neural tube defects.[5] In the U.S., micronutrient supplementation, including folic acid, is recommended for all reproductive-age women, starting at least two to three months before conception and continuing throughout pregnancy until the cessation of lactation or at least four to six weeks after delivery.[1] For women who have a risk factor for neural tube defects such as a personal or family history of an affected pregnancy, use of anticonvulsants, mutation in enzymes related to folate (e.g. methylenetetrahydrofolate), insulin-dependent diabetes, obesity with body mass index >30 kg/m2, malabsorption syndromes, and bariatric surgery, daily intake of 4 mg is recommended.[8] For women who do not have these risk factors, a daily intake of 400 μg (0.4 mg) of synthetic folic acid is adequate.[8,9] Folate supplement is indicated in pregnant women with thalassemia, multiple pregnancies or after repeated vomiting. Excessive intake of folic acid should be avoided in view of its potential risks including promoting cancer, interaction with medications, and impairment of foetal development.[2]

Correction of anaemia before pregnancy and in the first trimester of pregnancy reduces the risk of preterm delivery and low birthweight (LBW).[8] The proportion of anaemia among pregnant women who attended Maternal and Child Health Centres decreased from 4.7% in 2010 to 2.6% in 2018.[10] The WHO recommends antenatal multiple micronutrient supplements that include iron and folic acid in areas of dietary deficiency to reduce the risks of LBW and small-for-gestational-age babies.[1,5] An iron supplementation, at 30 mg daily, is recommended for all pregnant women starting at the first antenatal visit.[8] Weekly supplementation of 80-300 mg elemental iron is as effective as daily

supplementation of 30-60 mg elemental iron in preventing iron-deficiency anaemia with fewer adverse effects such as constipation.[2,9] Iron supplements can be given daily or 1-3 times per week.[8]

When anaemia is detected by a complete blood count (CBC) during antenatal routine blood testing, the cause of anaemia should be determined by checking serum ferritin concentration and haemoglobin pattern. Iron and folic acid should be given to correct anaemia due to iron deficiency and thalassemia, respectively. If a woman has iron deficiency anaemia (defined as haemoglobin < 11 g/dL at any stage), an additional iron supplement of 30-120 mg per day should be given until anaemia is corrected.[8] Haemoglobin level can be repeated at 28 weeks to guide further iron supplementation.[9] To enhance iron absorption, a high dose should be divided into several smaller doses during the day.[2,8] Iron absorption can also be enhanced by intake with vitamin C.[8]

IODINE AND CALCIUM

Thyroid homeostasis is essential for the development of foetal brain tissue. Severe iodine deficiency can result in maternal and foetal hypothyroidism and affect child neurodevelopment. Recently, the DH recommends informing women of the importance of adequate iodine intake to ensure optimal thyroid function both before and during pregnancy.[2,7] Although fish and seafood contain a large amount of iodine, certain types of these foods, contaminated with parasites, germs, or toxins, should be avoided.[2] Pregnant and lactating women are advised to use iodised salt (containing 95 μg of iodine per one-quarter teaspoon) or consider an iodine supplement of 150 μg each day.[2,7,8] Since not all prenatal supplements contain the latter dose of iodine, it is important to check the iodine content of the supplement which women are taking.[11] If a woman has a pre-existing thyroid disorder, she should seek medical advice before taking an iodine supplement.[2]

As most of the women in Hong Kong were deficient in their dietary intake of calcium[6], calcium supplementation is commonly prescribed and may reduce the risk of pre-eclampsia.[2,8] Pregnant women at risk of hypertension are advised to take a calcium supplement.[9] The WHO recommends using calcium as well as magnesium to relieve cramps in the lower extremities during pregnancy.[2]

OTHER VITAMINS AND MINERALS

Vitamin D deficiency is associated with neonatal hypocalcemia, maternal osteomalacia and pre-eclampsia.[2,8] The WHO recommends vitamin D supplements for pregnant women with a suspected vitamin D deficiency[2] including those who are vegetarians/vegans or have limited sun exposure. Such supplementation may reduce the risk of pre-eclampsia, gestational diabetes, and LBW.[2] Vitamin D of between 200 and 600 IU per day is used for supplementation[2,8] while 1,000-2,000 IU per day is used to treat vitamin D deficiency.[8] Cholecalciferol (D3) is preferred over ergocalciferol (D2).[8] However, there is insufficient evidence to recommend routine screening of all pregnant women for vitamin D deficiency (< 20 ng/dL or 50 nmol/L).[8]

Although vitamin A is essential in pregnancy and vitamin A deficiency is associated with night blindness, routine vitamin A supplementation is not recommended for pregnant women in areas where vitamin A deficiency is uncommon.[2] Excessive intake of vitamin A (more than 3,000 ug/day), from multiple micronutrient supplements or liver products, should be avoided because hypervitaminosis A is teratogenic, affecting cranial neural crest cells.[2,8,12] In the absence of an identified deficiency, taking high-dose supplements of vitamin C or E is not recommended because there is little or no benefit in pregnancy and such supplements may cause harm.[3,9]

Zinc is essential for many biological processes and can increase the absorption of folate.[2] Zinc deficiency in pregnancy may affect growth, immunity, and metabolic status of a child. Pregnant women can take routine supplementation of zinc in a standard prenatal vitamin supplementation formula.[8] If there are additional risk factors for the haemorrhagic disease of the newborn including maternal liver disease or anticipated premature delivery, oral vitamin K1 (phytomenadione 10 mg daily) should be given in the last month of pregnancy.[12] There is no strong evidence to support routine supplementation with vitamin B1, B2, B3, B5, B6, B7 or B12 in pregnancy.[12]

OTHER NUTRIENTS

A Cochrane database in 2018 showed omega-3 long-chain polyunsaturated fatty acids (PUFA) (800 mg DHA and 100 mg EPA per day) reduced preterm birth before 37 weeks and before 34 weeks, but increased post-term and large-for-gestational-age babies.[13] A recent study showed that women with a low total omega-3 PUFA status in early pregnancy had a higher risk of early preterm birth, and omega-3 supplementation substantially reduced this risk.[14] On the other hand, women with higher total omega-3 status in early pregnancy were at a lower risk of early preterm birth, and supplementing increased this risk.[14] So, whether it is beneficial for pregnant women to take omega-3 supplementation depends on whether they are low in omega-3 in early pregnancy.[9] After delivery, although fish consumption is associated with a higher DHA in breast milk, there is no conclusive evidence on the effects of DHA on infant growth, later body composition or other outcomes.[3]

Supplementation with probiotics may be associated with a small possible reduction in caesarean section, Group B streptococcus colonisation and the risk of gestational diabetes, but the evidence is not strong.[9] There is no evidence on the effects of probiotics on the infant's later risk of overweight or obesity.[3] For herbal preparations, their effectiveness and safety are variable depending on the nature of the preparations and the condition being treated.[9]

SUPPLEMENTATION AFTER PREGNANCY

For lactating women, there is an increasing need for iodine and choline. Daily consumption of 290 μg of iodine and 550 mg of choline throughout the first year postpartum is required.[11] Whether lactating women should continue taking a prenatal multivitamin postpartum depends on whether they can get adequate nutrients including iron, folic acid, iodine and choline through their diet alone.[2,11] Women with a vegetarian diet are at risk for nutritional deficiencies including iron and vitamin B12, and thus should be given supplementation.[11] Besides, lactating women who have had a malabsorptive bariatric procedure (such as gastric bypass surgery) or who have certain gastrointestinal disorders, may not be able to absorb nutrients including vitamin B12, folic acid, iron, and calcium.[11]

At birth, the body iron content of most newborn babies is sufficient.[11] So, iron supplementation may not be required in the first six months despite low iron content in breast milk.[11] However, the body iron content is affected by gestational age at birth, maternal iron status, and timing of umbilical cord clamping.[11]

In conclusion, to promote the health of pregnant women and their offspring, appropriate advice on nutritional supplementation should be given to all pregnant women, in particular to those who require special needs. It is important to prevent deficiency of nutrients including folate, iron, iodine and calcium while avoiding excessive supplementation.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Nutritional Supplementation Before, During and After Pregnancy " by Dr Kwok-yin LEUNG and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 31 August 2022. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. **Appropriate nutritional supplementation during pregnancy can replace a healthy and balanced diet.**
2. **There is an increasing demand for folic acid, vitamin A and iodine during the course of pregnancy.**
3. **It is appropriate to refer a pregnant woman with gastrectomy or bariatric surgery to a registered dietitian with special training in maternal nutrition for a nutritional consultation.**
4. **It is important to ask which multivitamins a pregnant woman is already taking before prescription of nutritional supplementation to avoid excessive intake.**
5. **Giving folic acid supplementation before conception cannot prevent foetal neural tube defects.**
6. **A daily intake of 4 mg folic acid is recommended for all pregnant women for prevention of foetal neural tube defects.**
7. **It is useful to correct anaemia in a woman before she gets pregnant to reduce the subsequent risk of preterm delivery and low birthweight.**
8. **It is important to inform pregnant women of the importance of adequate iodine intake to ensure optimal thyroid function both before and during pregnancy.**
9. **It is a common practice to give calcium supplementation during pregnancy to reduce the risk of pre-eclampsia, or to relieve leg cramps.**
10. **Lactating women with a vegetarian diet should be given nutritional supplementation including iron and vitamin B12.**

ANSWER SHEET FOR AUGUST 2022

Please return the completed answer sheet to the Federation Secretariat on or before 31 August 2022 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Nutritional Supplementation Before, During and After Pregnancy

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1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

Name (block letters):_____ HKMA No.: _____ CDSHK No.: _____

HKID No.: __ __ - __ __ __ __ X X (X) HKDU No.: _____ HKAM No.: _____

Contact Tel No.:_____ MCHK No. / DCHK No.: _____(must fill in)

Answers to July 2022 Issue

Autism Spectrum Disorder

1. F 2. F 3. T 4. F 5. T 6. T 7. F 8. F 9. T 10. F

Certificate Course on

Renal Medicine 2022

(Video Lectures)

Jointly organised by

The Federation of Medical Societies of Hong Kong

Hong Kong Society of Nephrology

Objectives:

To update the participants on new advances in renal medicine and clinical practice of common renal problems, and to help the participants to interpret results of common renal investigations.

Date	Topics	Speakers
1 Sept 2022	Common investigation tests for renal disease including approach to proteinuria and haematuria	Dr. Ronald Lin Associate Consultant Department of Medicine & Geriatrics Caritas Medical Centre
	Update and management of acute kidney injury	Dr Chun-Hay Tam Clinical Associate Professor (Honorary) Department of Medicine & Therapeutics, The Chinese University of Hong Kong; Honorary Clinical Assistant Professor Department of Medicine, University of Hong Kong
8 Sept 2022	Update and management of glomerular disease	Dr Jason Ip Associate Consultant Department of Medicine Tseung Kwan O Hospital
	ABC of hemodialysis therapy	Dr Gensy Mei-Wa Tong Specialist in Nephrology
15 Sept 2022	Nutritional Management in Kidney Diseases	Ms Cherry Pui-Yee Law Dietitian Pamela Youde Nethersole Eastern Hospital
	Kidney Involvement in Multi-System Disorders	Dr Desmond Yat-Hin Yap Clinical Associate Professor Department of Medicine University of Hong Kong
22 Sept 2022	Drug prescribing in renal failure	Dr Andrew Luk Associate Consultant Department of Medicine & Geriatrics Tuen Mun Hospital
	ABC of peritoneal dialysis therapy	Dr Joseph Ho-Sing Wong Associate Consultant Department of Medicine Queen Elizabeth Hospital
29 Sept 2022	Update on diabetic nephropathy	Dr Maggie Ma Consultant Department of Medicine Queen Mary Hospital Honorary clinical Associate Professor University of Hong Kong
	Update and management of chronic kidney disease	Dr Wing-Fai Pang Associate Consultant Department of Medicine & Therapeutics Prince of Wales Hospital
6 Oct 2022	Update and management of hypertension	Dr Wai-Yan Lau Associate Consultant Department of Medicine Alice Ho Miu Ling Nethersole Hospital
	ABC of renal transplantation	Dr Ka-Fai Yim Consultant Department of Medicine & Geriatrics Princess Margaret Hospital

Date : 1, 8, 15, 22, 29 September & 6 October 2022 (Every Thursday)
Duration of session: 1.5 hours (6 sessions)
Time : 7:00 pm – 8:30 pm
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Quiz for doctors: DOCTORS are required to complete a quiz after the completion of each lecture
Language Media : Cantonese (Supplemented with English)
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Certificate : Awarded to participants with a minimum attendance of 70%
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The Development of High-Intensity Focused Ultrasound for Fibroids and Adenomyosis in Hong Kong

Dr Vivian WY NG
MBBS, MRCOG
Resident
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INTRODUCTION

Uterine fibroids and adenomyosis are both common gynaecological diseases that can cause heavy menstrual periods. Women can also experience anaemia, debilitating pelvic pain, reduced fertility, and pressure symptoms from these benign conditions. For many years, surgical management such as myomectomy and hysterectomy has remained the standard definitive treatment. However, with the increasing demand from women who request uterine preservation, high-intensity focused ultrasound (HIFU) has emerged as an alternative treatment option.

PRINCIPLES OF HIFU TREATMENT

The principle of HIFU lies behind the capability of focused ultrasound waves to generate heat and induce thermocoagulation necrosis at a specific target, without damaging the adjacent tissues. Its unique ability to reach deep-seated soft tissue tumours without needing to go through a skin incision has enabled treatment for tumours at the liver, kidney, pancreas, and uterus.[1] It aims to create a temperature of over 60°C for one second or longer at the target tissue.[1,2] During the treatment process, the HIFU beam has to be guided under magnetic resonance or ultrasound imaging for target localisation and treatment monitoring. Magnetic resonance-guided HIFU uses temperature changes and ultrasound-guided HIFU (USgHIFU) uses grey-scale changes to determine the adequacy of tissue ablation.[1,2] It has been suggested that USgHIFU is less expensive and requires a shorter treatment time than magnetic resonance-guided HIFU.[3,4]

At Queen Mary Hospital, HIFU treatment is performed using the JC HIFU system (Chongqing Haifu Technology, Chongqing, China). This is an USgHIFU system, which consists of a real-time 3.5 MHz diagnostic ultrasound scanner integrated into the centre of a 12 cm diameter, 15-cm focal length and 0.8 MHz therapeutic ultrasound transducer (Fig. 1 and 2). The ultrasound transducer system, which is immersed in a degassed water circulation system, has a motion capability in 6 directions and is controlled by a master computer unit.[2,5,6]

Before HIFU treatment, all patients will have pre-treatment mechanical bowel preparation. The lower abdominal skin is degassed with suction, degreased with alcohol and shaved. The urinary bladder is catheterised to allow adjustment of the bladder volume. During treatment with the patients under monitored anaesthetic care in a prone position, and the lower abdominal skin put in contact with degassed water, the target lesion is carefully located and divided into 5 mm sliced images. The acoustic output power is set between 350 and 400 W. Oxytocin infusion is given during treatment. With successive sweeps from the deep to the shallow region, the entire volume of the lesion is ablated by adjusting the ultrasound beam coordinates. Post-treatment analgesics are given for pain relief if needed and patients are discharged home after 24 hours. [2,5,6]

Fig 1: JC high-intensity focused ultrasound system (Personal collection)

Fig 2: Real-time diagnostic ultrasound scanner integrated in the centre of the therapeutic ultrasound transducer (Personal collection)

PATIENT SELECTION

As with any treatment modality, careful patient selection is crucial to treatment success. The selection criteria for HIFU therapy vary depending on the experience of individual centres. Generally, this treatment is applicable for premenopausal women with symptomatic fibroids or adenomyosis. Women with pedunculated subserosal fibroids, fibroid suspicious of malignancy, extensive pelvic adhesions such as a history of acute pelvic inflammatory disease or repeated laparotomies, severe pelvic endometriosis, are generally considered contraindications for treatment.[2] Women who desire future fertility used to be inappropriate candidates for this treatment, but with expanded experience and knowledge of pregnancy outcomes following treatment, most centres nowadays will allow women who desire future fertility to undergo HIFU treatment.[2,7]

HISTORY AND DEVELOPMENT OF HIFU IN HONG KONG

HIFU treatment of fibroids was first introduced in Hong Kong in 2007 at the Hong Kong Sanatorium and Hospital. With their ExAblate 2,000 magnetic resonance-guided HIFU system (InSightec, Tirat Carmel, Israel), they could achieve a fibroid shrinkage of 25 ±12%, and a mean symptom severity score reduction from 37.5 to 25.6, at three months after treatment.[8]

At Queen Mary Hospital, the JC HIFU system (Chongqing Haifu Technology, Chongqing, China; Fig. 1) has been installed since 2006 mainly for the treatment of hepatocellular carcinoma.[9] Since 2012, we have started HIFU treatment for uterine fibroids and adenomyosis, with promising results on relief of symptoms and reduction of fibroid or adenomyosis volume (Table 1).[5,6]

At Prince of Wales Hospital, from January to December 2012, 20 patients with 22 symptomatic fibroids were treated using the HIFU-2001 USgHIFU system (SJTU Suntec Industry, Shanghai, China), using a modified protocol consisting of repeated and shortened treatment of high-input acoustic intensity and intensified sonication pulses. Most patients reported substantial symptomatic improvement of fibroid-related abdominal pain, menorrhagia, and urinary symptoms, with a median volume shrinkage at three months of 17.2%.[10] In a subsequent study conducted between June 2013 and December 2017, it was shown that oxytocin-augmented HIFU showed significantly better results than the control HIFU group, with promising long-term imaging and clinical outcomes (Table 1).[11]

Since 2019, a private medical clinic has been providing outpatient USgHIFU service using the the JC 200 and JC model (Chongqing Haifu Technology, Chongqing, China) for gynaecological diseases.[12] With day surgery facilities available, patients can be discharged home two to four hours after treatment. Although it was stated in a review article that 147 patients had received treatment over a period of 14 months, at the time of writing this article, no outcome data on the effectiveness of their treatment has ever been published.[13]

Table 1: Summary of available local data on the effectiveness of HIFU treatment (Developed by the authors)

Author, year (fibroid/adenomyosis study)		Symptom Improvement/reduction	Fibroid/adenomyosis volume	Re-intervention rate
Chan, 2010[8] (fibroid)		*UFS-QOL* 3-m: from 37.5 to 25.6	3-m: 25±12% reduction	Not reported
Leung et al., 2014[10] (fibroid)		*Symptom Score: Baseline/3-m* Abdominal pain: 1.30/0.84 Pictorial chart: 278.90/185.00 IIQ-7: 14.60/3.50 UDI-6: 28.30/10.90	3-m: median 17.2% reduction (95% CI, 4.3%–26.6%)	Not reported
Yu et al., 2019[11] (fibroid)	Study HIFU (Oxytocin-augmented)	*Quality of life (SF-36) Score 100 in ≥ five categories* Baseline: 0 3-m: 33.3% 6-m: 66.7%	*Compared with baseline % median (IQR)* 3-m: 51.1 (33.9-59.9) 15-m: 28.3 (0-36.4)	0 (< 24 months)
	Control HIFU	*Quality of life (SF-36) Score 100 in ≥ five categories* Baseline: 16.7% 3-m: 17.4% 6-m: 12.5%	*Compared with baseline % median (IQR)* 3-m:76.6 (61.6-99.5) 15-m: 75.9 (53.8-120.4	62.5% (< 24 months)
Cheung et al., 2019[5] (fibroid)		*UFS-QOL* 3-m: 40.7% (0-59.3) 6-m: 45.5% (0–70.4) 12-m: 44.9% (0–71.4)	*% reduction (range)* 3-m: 57.4 (-51.5–95.2) 6-m: 60.1 (-18.9–97.8) 12-m: 75.9 (-33.7–99.3)	15% (10-20 months after HIFU)
Cheung et al., 2022[6] (adenomyosis)		*MPS* 3-m: 45.55 (-83.3-100) 6-m: 57.25 (-83.3-100) 12-m: 27.95 (-100-100) *UFS-QOL* 3-m: 50 (9.1-69.7) 6-m: 40.9 (27.3-66.7) 12-m: 39.5 (0-70)	*Uterus volume % reduction (range)* 6-m: 24.4 (1.2-42.0) *Adenomyosis volume % reduction (range)* 6-m: 46.3 (2.1-78.4)	30% (15-30 months after HIFU)

3-m, 6-m, 12-m, 15-m: 3-month, 6-month, 12-month, 15-month after HIFU treatment, respectively
IIQ-7: Incontinence Impact Questionnaire
IQR: Interquartile range
MPS: Menstrual pain score
SF-36: 36-item short form health survey
UDI-6: Urogenital Distress Inventory
UFS-QOL: Uterine Fibroid Symptom and Quality of Life score

EFFECTIVENSS

Table 1 summarises the most available local data on the effectiveness of HIFU in the treatment of fibroids and adenomyosis. The treatment outcomes are mostly comparable to those reported in other studies, with demonstrable improvement in symptoms and fibroid/adenomyosis volume reduction. However, recent review studies on comparing the outcomes of HIFU treatment for symptomatic uterine fibroids have revealed that HIFU has a higher re-intervention rate than other uterine-sparing alternatives.[14,15]

In the treatment of adenomyosis, although our outcomes were similar to those reported previously,[16-18] with over 80% of patients showed improvement of symptoms, the re-intervention rate seemed higher than our own experience in treating uterine fibroids[5] and other image-guided HIFU studies for adenomyosis.[16-18] We believe that treatment success will likely improve with growing experience on the technique and utilisation of this technology. Nevertheless, the effectiveness of HIFU in adenomyosis is generally less well established than in fibroids, explaining why some authors advocate the use of combined therapy using gonadotropin-releasing hormone agonist and/or levonorgestrel-releasing intrauterine system after HIFU to reduce the chance of recurrence of related symptoms.[19,20]

SAFETY

Skin burn is a known and mostly reported complication after HIFU.[21] In a recently published prospective cohort study (IDEAL Exploratory study), the incidence of second-degree skin burn was 0.2% (3/1353).[22] Patients with abdominal scarring and poor skin preparation may be more prone to this complication.[21] However, a second-degree skin burn, if it occur during HIFU, will usually resolve without additional treatment and sequelae.[5] Other adverse events such as urinary retention, urinary tract infection, hematuria, transient pain and weakness in the back or lower limb are usually mild and transient.[23-25] A rare but transient occurrence of thrombocytopenic purpura and abnormal liver function, which was speculated to be due to massive leiomyolysis or tumour lysis syndrome after HIFU ablation for a large uterine fibroid has been reported.[26]

Complications are classified into minor or major according to the Society of Interventional Radiology (SIR) Standards of Practice Committee.[27] Major complications are defined as Class C, which requires minor therapy or hospitalisation of less than 48 hours; Class D, which requires major therapy, unplanned increase in the level of care, or prolonged hospitalisation of more than 48 hours; Class E, which carries permanent adverse sequelae; and Class F, which results in death.[27] To our knowledge, in Hong Kong, three patients with major complications after HIFU have been previously reported: (1) thermal bowel injury after adenomyosis ablation, requiring small bowel resection, suspected to be due to overly extensive ablation of the adenomyotic lesion (SIR Class D);[6,28] (2) nerve injury with prolonged buttock pain and bilateral lower limb weakness after adenomyosis ablation, requiring physiotherapy and walking support; the patient recovered completely after six months (SIR Class C);[6] and (3) third-degree skin burn after fibroid ablation, due to the fibroid too close to the skin surface (SIR Class C).[10]

REPRODUCTIVE OUTCOMES

One of the common reasons for women to choose HIFU for the treatment of uterine fibroids or adenomyosis is related to fertility. Many women prefer to preserve the uterus so they can conceive later. Some women are advised by their gynaecologists to have their fibroids or adenomyosis treated before contemplating pregnancy. Although there has been concern that HIFU ablation might affect the ovarian function or fertility reserve, our study published in 2016 was the first to show that ovarian reserve was not affected by USgHIFU therapy in premenopausal women, by using anti-Mullerian hormone as a marker.[29,30] This finding has been confirmed subsequently by many other similar studies.[31,32]

Most studies have shown that pregnancies after HIFU ablation for fibroids and adenomyosis are safe and successful.[33-35] The minimally invasive nature of HIFU, together with its ability to ablate fibroids or adenomyosis with less uterine scarring when compared with surgery, suggests that HIFU can be a well-tolerated approach for patients desiring fertility and may not increase obstetric risk. To our knowledge, no uterine rupture has been reported during pregnancy or labour after HIFU treatment. In addition, case studies have shown that women with submucous fibroids or adenomyosis who have infertility, can conceive after HIFU treatment and deliver term babies.[36,37]

CONCLUSION

2022 marks the tenth year of HIFU treatment for uterine fibroids and adenomyosis at Queen Mary Hospital. Its demand in our centre is rising due to its minimally-invasive nature, good treatment outcomes and short recovery time. It is possible that with more evidence available on its safety and long-term outcomes, HIFU may become a preferred uterine-sparing alternative for women with symptomatic fibroids and adenomyosis.

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Radiology Quiz

Radiology Quiz

Dr Derek LH CHAN

MBBS, FRCR

Dr Derek LH CHAN

A 24-year-old male presents with lateral tibial pain for four years. The radiograph of the right knee was performed.

Questions

1. What is the abnormality on this radiograph?
2. What are the most likely differential diagnoses?
3. What is the next step of the investigation?

(See P.32 for answers)

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COC=combined oral contraceptive

Study design: [2] An international multicentre phase III trial conducted at 72 centres in 12 European countries to assess the reliability, cycle control, side effects and effects on blood pressure (BP) and body weight of the monophasic formulation of 20 µg ethinylestradiol/150 µg desogestrel. 1684 sexually active, healthy women were accepted into the study. All women took the pill in a 21/7 regimen. Data was obtained over 25 970 cycles. [4] A randomized, multicentre study carried out at 52 centres in France to compare the cycle control and tolerability of 2 oral contraceptives containing 20 µg ethinylestradiol and either 150 µg desogestrel or 75 µg gestodene. 1016 healthy adult women aged between 18-45 received the desogestrel (n = 509) or the gestodene (n = 507) preparation in a 21/7 regimen for 6 treatment cycles. [4] An open, parallel group comparison study, carried out at 19 centres in 4 European countries to compare cycle control, bleeding patterns and efficacy of two low-dose combined oral contraceptives. 453 healthy women aged 18-35 years were randomized to receive a 24/4 regimen of 3 mg drospirenone/20 µg ethinylestradiol (n=230) or a 21/7 regimen of 150 µg desogestrel/20 µg ethinylestradiol (n=223). Daily bleeding was recorded over 7 treatment cycles. [5] An open, randomized, double-blind, multicentre phase III study, carried out at 67 centres in 6 European countries to compare contraceptive efficacy, cycle control, and tolerability of a 23-day regimen with 20 µg ethinylestradiol and 75 µg GSD and a 21-day regimen with 20 µg ethinylestradiol and 150 µg desogestrel. 890 healthy women aged 18-35 years were randomized to receive a 23-day regimen of 20µg ethinylestradiol /75 µg gestodene (n=445 for 2975 cycles) or a 21/7 regimen of 20 µg ethinylestradiol and/150 µg desogestrel (n=445 for 2992 cycles).

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Selected Safety Information

Indications: contraception. **Dosing and administration:** Tablet for oral use. Each tablet contains 0.150 mg desogestrel and 0.020 mg ethinylestradiol. The tablets must be taken in the order directed on the strip every day at about the same time. One tablet is to be taken daily for 21 consecutive days. Each subsequent strip is started after a 7-day tablet-free interval. **Contraindications:** Combined hormonal contraceptives should not be used in the following situations. Should any of the conditions appear for the first time during COC use, the product should be stopped immediately. • Presence or risk of venous thromboembolism (VTE) - Venous thromboembolism – current VTE (on anticoagulants) or history of (eg deep venous thrombosis [DVT] or pulmonary embolism [PE]). - Known hereditary or acquired predisposition for venous thromboembolism, such as APC-resistance, (including Factor V Leiden), antithrombin-III-deficiency, protein C deficiency, protein S deficiency. - Major surgery with prolonged immobilization. - A high risk of venous thromboembolism due to the presence of multiple risk factors. • Presence or risk of arterial thromboembolism (ATE) - Arterial thromboembolism – current arterial thromboembolism, history of arterial thromboembolism (e.g. myocardial infaction) or prodromal conditions (e.g. angina pectoris). - Cerebrovascular disease – current stroke, history of stroke or prodromal condition (e.g. transient ischaemic attack, TIA). - Known hereditary or acquired predisposition for arterial thromboembolism, such as hyperhomocysteinaemia, and antiphospholipid (anticardiolipin-antibodies, lupus anticoagulant). - History of migraine with focal neurological symptoms. - A high risk of arterial thromboembolism due to multiple risk factors or to the presence of one serious risk factor such as: - Diabetes mellitus with vascular symptoms - Severe hypertension – Severe dyslipoproteinaemia • Presence or history of pancreatitis associated with severe hypertriglyceridaemia. • Presence or history of severe hepatic disease as long as liver function values have not returned to normal. • Presence or history of liver tumours (benign or malignant). • Known or suspected sex steroid-influenced malignancies (e.g., of the genital organs or the breasts). • Endometrial hyperplasia. • Undiagnosed vaginal bleeding. • Hypersensitivity to the active substances or to any of the excipients. • Mercilon® is contraindicated for concomitant use with medicinal products containing ombitasvir/paritaprevir/ritonavir and dasabuvir. **Precautions or warnings:** The suitability of Mercilon® should be discussed with the woman considering below conditions. Risk of venous thromboembolism (VTE); risk of arterial thromboembolism (ATE); development of cervical cancer; breast cancer; transaminase (ALT) elevations due to hepatitis C treatment, hypertriglyceridaemia,, hypertension, jaundice and/or pruritus related to cholestasis; gallstone formation; porphyria; systemic lupus erythematosus; haemolytic uraemic syndrome; Sydenham's chorea; herpes gestationis; otosclerosis-related hearing loss; (hereditary) angioedema; Crohn's disease and ulcerative colitis; chloasma. **Adverse events:** Some women may experience mild side effects while taking the drug. Common undesirable effects are depressed mood, mood altered, headache, nausea, abdominal pain, breast pain, breast tenderness, and weight increased. Like all medicines, Mercilon® can have side effects, although not everybody gets them. Tell your doctor if you notice any unwanted effect, especially if severe or persistent, or if there is a change in your health that you think might be caused by the Pill.

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Cervical Cancer Screening: Adapting to a New Approach

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INTRODUCTION

In 2019, cervical cancer was the eighth commonest cancer amongst females in Hong Kong with an age standardised incidence rate of 8 per 100,000.[1] It is also the eighth leading cause of cancer deaths in Hong Kong. Since 1983, there has been a steady decline in the age standardised incidence and death rate from cervical cancer, largely due to the implementation of a territory-wide screening programme launched by the Department of Health (DH) in 2004, targeting at women between the ages of 25 and 64. According to the DH's Report of Health Behaviour Survey published in June 2020, 45.8% of women in the targeted age group were ever screened for cervical cancer.[2] There is much potential for improvement as compared to the United Kingdom (U.K.), where up to 70% of women aged between 25-64 years old are adequately screened.[3] To increase the acceptance and uptake of cervical screening is a matter that involves many levels from education to policy and should be spearheaded by the gynaecologist and the general practitioner (GP). The aim of this article is to provide an update and highlight the approaches to cervical screening and uncover the evidence behind them.

BACKGROUND

The father of cervical cancer screening was Dr George Papanicolaou, who discovered the "cervicovaginal smear" or "Pap" smear in the 1940s. This conventional method of sampling, fixation and staining was then superseded by the liquid-based cytology technique in the 1990s. With the discovery of the human papilloma virus (HPV) as an aetiological factor in the development of cervical cancer, HPV vaccination and testing has taken hold since the beginning of the 21st century. Since then, the quest to find the most appropriate screening method and interval is a hotly debated topic in the scientific literature and varies with different localities and governing bodies. The screening tests available include cytology-based versus HPV-based methods or a combination of the two. The goal is to accurately screen at-risk individuals in a cost-effective manner to reduce the overall burden of the healthcare system.

CERVICAL CANCER SCREENING GUIDELINES

The Hong Kong College of Obstetricians and Gynaecologists (HKCOG) last published their revised guideline for cervical cancer prevention and screening in 2016.[4] It was the first local guideline to introduce HPV testing as part of cervical cancer screening. In 2021 the Cancer Expert Working Group (CEWG) of Hong Kong recommended primary HPV testing as an option in women between 30-64 years old,[5] details of which can be found in Table 1 along with the most updated American Cancer Society (ACS) guideline and the approach of the national cervical screening programme in the U.K. for comparison.[6,7] It is apparent that the future direction is moving towards HPV testing as a primary screening method, such as that which is fully implemented in the U.K., where cytology-based testing and co-testing (HPV testing together with cytology), are no longer a part of the national standard. In the U.S., the ACS guideline does suggest the preference of HPV-based testing. However, the ACS also provides alternatives of cytology or a co-test as they appreciate that the U.S. is currently undergoing a transition period from cytology to HPV testing. Hong Kong is also going through this transition period. Different public sector units and private practitioners have different practices of which the latest CEWG recommendation accommodates in the same fashion as that of the ACS guideline. It is therefore prudent to have knowledge of the recommended methods to provide our local population with the appropriate screening tests in our daily practice both now and for the future.

CYTOLOGY-BASED SCREENING

Conventional cytology screening involves fixation of cervical cells on a slide, which is then viewed under a conventional light microscope with the use of the Papanicolaou stain. This was the first screening test that brought about a decrease in the incidence of cervical cancer. This method was time-consuming, the quality was operator-dependent, and the samples could be easily contaminated with blood and mucus. This results in unsatisfactory tests which require retesting and more visits to the clinic. In the mid-1990s, liquid-based cytology emerged as an alternative method, a method utilising a medium that allows blood and mucus to be separated from cervical cells. It has become much more convenient to perform a smear which takes less time and reduces the number of unsatisfactory results. In addition to cytological screening, liquid-based cytology allows for HPV testing on the same sample. Though liquid-based cytology has its advantages, it should be noted that its performance as a screening test in terms of sensitivity has not been proven to be superior to conventional cytology.[8] The sensitivity of cytological screening allows for a reduction in the cumulative incidence of cervical cancer by 91% if performed every

Table 1: Comparison of cervical cancer screening programmes prepared by the authors based on the following sources: (1) Hong Kong College of Obstetricians and Gynaecologists (HKCOG) 2016.[4] (2) Hong Kong Cancer Expert Working Group (CEWG) 2021.[5] (3) American Cancer Society (ACS) 2020.[6] (4) National Health Service Cervical Screening Programme (NHS CSP).[7] hrHPV (High risk HPV)

Targeted population (age)	HKCOG 2016	CEWG 2021	ACS 2020	NHS CSP
24.5 - 49 years	/	/	/	hrHPV testing every 3 years
25 - 65 years	/	/	hrHPV testing every 5 years Alternative: • Cytology every 3 years • Co-testing (hrHPV + cytology) every 5 years	/
25 - 29 years	Cytology annually for 2 consecutive years, then 3 yearly cytology if normal	Cytology annually for 2 consecutive years, then 3 yearly cytology if normal	/	/
30 - 64 years	Cytology annually for 2 consecutive years, then 3 yearly cytology OR Co-testing (hrHPV testing + cytology) every 5 years	Either one of: • Cytology every 3 years • hrHPV testing every 5 years • Co-testing (hrHPV testing + cytology) every 5 years	/	/
50 - 64 years	/	/	/	hrHPV testing every 5 years

three years.[4] Although performing the test annually or biennially can provide a further reduction by 93%, performing the test every three years is seen to be the most cost-effective way for screening. However, given that cytological analysis requires much expertise and can be costly, even a three-yearly interval for screening can significantly increase the overall costs to a healthcare system. Hence, it was necessary to search for a more sensitive and less costly method for cervical screening.

HPV TESTING: FROM ADJUNCT TO PRIMARY SCREENING

With the knowledge that more than 95% of cervical cancer can be attributed to HPV, researchers in the 1990s began to investigate the use of HPV testing to enhance cervical screening.[9] In 1999, the U.S. Food and Drug Administration (FDA) approved the use of HPV testing as an adjunct for cytological screening. It should be noted that HPV testing for cervical screening must only include high-risk oncogenic HPV types. In 2003, the FDA approved co-testing, a process where cytology and tests for HPV were performed at the same time. Pooled data from four large-scale randomised controlled trials performed in Europe showed a significant reduction in invasive cancer with co-testing.[10] In the 2012 ACS guideline, primary co-testing was the preferred method for screening given the reassurance of a double negative result.

In search of local data in the Chinese population, a group from the University of Hong Kong conducted a prospective randomised controlled trial to study the co-test versus cytology alone. The findings, published in 2020, revealed that co-testing led to earlier detection of preinvasive lesions and a reduced detection of high grade intraepithelial lesions (HSIL) in subsequent screening rounds.[11] This, however, came at the cost of a fourfold increase in colposcopy referrals. In addition to increased colposcopy referrals, women would require two tests instead of one. Hence, the co-test is thought to be the least cost-effective way for preventing cervical cancer.[12]

The contribution of cytology to the increased sensitivity of the co-test has been challenged as HPV testing is known to have a higher sensitivity than cytology alone.[13] A group from the U.S. found that the cytological component of the co-test had minimal contribution to the increased sensitivity.[14] Population-based data in the U.S. found that HPV testing alone might be sufficiently sensitive for primary screening for cervical cancer.[15] The results of the ATHENA trial in the U.S. paved way to the approval of using primary HPV testing over cytology and co-testing.[16] The HPV FOCAL trial in Canada and the COMPASS trial from Australia both helped to solidify the use of primary HPV testing with increased sensitivity over cytology.[17,18] The 2016 HKCOG guideline was ambivalent about recommending primary HPV testing as there was insufficient evidence at the time. As new evidence emerged, the CEWG 2021 recommendations have now incorporated primary HPV testing as a primary screening method in Hong Kong.

PRIMARY HPV TESTING

Primary HPV testing carries a higher sensitivity to detect HSIL with a high negative predictive value but a lower specificity as compared with cytology-based techniques. A higher sensitivity gives a better screening test and allows for a longer screening interval of five years. A low specificity, however, can lead to positive results that are clinically insignificant. HPV infection is often transient with an estimated clearance time between nine to 12 months and most infections will not manifest as cervical lesions. HPV is also highly prevalent in those below 30 years old. The lower specificity of an HPV test can therefore create unnecessary referrals to the colposcopy clinic. Additional visits and examinations, psychological stress and the potential effect of further management on a

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HK-DA-266-2021

patient's fertility and the risk of premature deliveries can dramatically impact a woman's life. Therefore it is suggested that primary HPV screening may be more beneficial to those above 30 years old as stated in the CEWG 2021 recommendations.[19] Even so, owing to the nature of HPV infections, there will still be a large proportion of patients between 30 and 64 years old who come back with clinically insignificant positive results. How to triage these patients poses a clinical conundrum.

TRIAGING POSITIVE HPV RESULTS

There are several options available for triaging HPV-positive patients including cytology, HPV genotyping and dual staining with Ki67 and P16. In Hong Kong, for triaging, the CEWG 2021 recommendations advise local practitioners to follow the HKCOG 2016 guideline, which states that it is still uncertain which triage test is best.

"Reflex cytology" is the preferred option in the U.K. and U.S. and the results of reflex cytology will guide the need for referral to the colposcopy clinic and subsequent follow up. Since liquid-based cytology methods allow for both cytology and HPV testing on the same sample, "Reflex cytology" is a convenient method of triaging.

HPV 16/18 genotyping has been suggested as an alternative triage approach as these subtypes account for around 50% of high grade precancerous lesions.[20] Many currently approved HPV tests for primary screening have incorporated HPV 16/18 genotyping. In both Australia and the U.S., if the primary HPV test was HPV 16/18 positive, reflex cytology is recommended, but the woman should be referred to colposcopy even if the cytology is normal.[21,22] In the U.K., HPV genotyping as triage for HPV positive patients is not a part of the national standard. It was found that HPV genotyping can increase detection of HSIL by around 1% with a 6% increase in referral to the colposcopy clinic. This disproportionate increase in colposcopy referral for a 1% increase in HSIL detection for applying genotyping as triage is thought to add very little in terms of clinical benefit and is so far not recommended in the U.K..[23] It is however important to note that the effectiveness of using cytology as triage in the U.K. is heavily dependent on a recall system, where HPV-positive but cytology-negative women are advised to return for repeated screening at a shorter interval.

P16 is a tumour suppressor protein that is expressed in HPV-related squamous cell carcinoma. Ki67 is a biomarker for cellular proliferation. The expression of both P16 and Ki67 has been studied as a triage method in HPV-positive patients and has been found to be superior to cytological triage.[24,25] The results of these studies are promising and may have the potential to be implemented in future cervical screening guidelines.

ADDITIONAL CONSIDERATIONS

Both liquid-based and conventional cytology confer an advantage over primary HPV testing of being able to pick up infections, detect endometrial cells and can also uncover non-HPV related tumours of the gynecologic tract. On the other hand, primary HPV testing can offer the added advantage of preventing more cases of adenocarcinoma of the cervix.[26] It is also important to note there are a wide variety of primary HPV test kits that are available but not all confer increased sensitivity over cytological testing. Choosing a validated test kit is vital to the accuracy of a screening programme. Validation of HPV test kits utilises Meijer's criteria which is the basis of the 2009 international validation criteria. In a recent paper published in 2021, eleven HPV test kits were validated and fulfilled all requirements.[27]

HPV SELF-SAMPLING

Barriers to the attendance for cervical screening are multifactorial and can include embarrassment, inconvenience, discomfort and cultural influences. To increase the screening rate, alternatives to conventional clinic visit have been proposed. In the advent of HPV testing, the possibility for self-sampling is becoming a reality. The evidence suggests that the sensitivity and specificity of self-sampling is comparable with a clinician-obtained sample.[28] A local study published this year found a high acceptance rate with 89.2% of 321 under-screened women willing to have self-sampling again.[29] This study also found a concordance of 90.2% for HPV detection between self-sampled and clinician-sampled specimens. The World Health Organization recommendations on self-care interventions advocate the use of self-sampling as part of cervical cancer screening. A recent paper identified 48 countries to have HPV-based screening and 17 of them (35%) have introduced self-sampling in their national programmes.[30] In Australia, self-collection will be an option for all participants under their National Cervical Screening Program later this year. With the evolution of remote healthcare brought about by the COVID-19 pandemic, more countries may choose to adopt this in the near future.

CONCLUSION

The implementation of primary HPV testing over cytological testing is taking a foothold in the international community. It is likely that HPV testing will become common practice in our locality. The CEWG 2021 recommendations have provided healthcare practitioners with a practical approach in this transition period. This article has outlined the different methods of cervical cancer screening and discussed the clinical considerations to help the gynaecologist and GP to adapt to this new era.

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Healthcare Innovation

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INTRODUCTION

In light of Hong Kong's unique regulatory and intellectual property framework and our geographical advantage, it is no surprise that under China's 14th five-year plan, Hong Kong will assume an important role in becoming the centre of medicine and medical innovation. Thus far, over HK$130 billion has been invested by the government in 28 research laboratories which have started operating at Hong Kong Science Park.[1] The Hong Kong Exchange has relaxed the listing rules to facilitate cultural change and encourage the influx of researchers.[2] These start-ups have brought in further HK$1.1 billion from various investors, transforming Hong Kong into the gatekeeper of Guangdong-Hong Kong-Macao Greater Bay Area (GBA) opportunities.[1] However, there is no simple formula for success, which requires a detailed evaluation of the existing innovation technology ecosystem, and a clear understanding of our strengths and the challenges we face.

As a key member of one of Hong Kong's private healthcare providers, I was invited to be one of the guest speakers in the Inaugural Asia Summit on Global Health in November 2021.[8]

This allowed me to discuss opportunities and formulate plans with many stakeholders, as well as providing insight into the particular strengths that will allow us to become one of the world's major research and innovation hubs.

WHAT IS HEALTHCARE INNOVATION

Healthcare innovation refers to any "new idea, knowledge, technology, product, policy, process and practice that are related to health, most often associated with advancements in health services".[3] Artificial intelligence (AI), cloud platform, telemedicine, as well as technologies in diagnosis, monitoring and treatment of various health conditions. A private hospital on Hong Kong Island (the hospital), is a joint venture hospital between IHH Healthcare Berhad and NWS Holdings Limited, alongside our clinical partner -The University of Hong Kong (HKU). This academic and commercialisation partnership allows us to have an intellectual insight in embracing the culture of innovation, new ideas and creativity.

Back in 2020, the hospital launched the "app" to provide comprehensive healthcare management for doctors and patients. This free "app" allows patients to manage their appointments, health records, test results, etc. As the hospital is part of a network of 80 hospitals across 10 countries, the hospital's electronic health record management platform allows our doctors and patients flexible access to their medical records and examination reports at any time from any location.

In September 2021, the hospital's Remote Hypertension Care Programme was awarded the "Healthcare Award" in the "Hong Kong Business Technology Excellence Awards 2021"; the programme allows continuity of patient care from the comfort of one's home. This represents Hong Kong's first technology involving a 4G SIM card being linked to a blood pressure machine. The data captured are then uploaded to a cloud platform, which allows the hospital's doctors to understand patients' treatment compliance and the appropriateness of their treatment. This was the hospital's first step in applying innovative technology to remote management of chronic disease.

Apart from the hospital's telehealth and digital platform initiatives, a new surgical robotic system has been introduced opening the pathway to treating gynaecological disease where prior robotic systems available in Hong Kong are less favourable in this respect. This robotic system has recently been introduced in the NHS at Milton Keynes University Hospital NHS Trust and was concomitantly introduced into two university teaching private hospitals in Hong Kong. Doctors can now offer women needing gynaecological procedures, such as hysterectomy, greater access to minimal access surgery (MAS) allowing for speedier recovery. [9]

In late 2021, the hospital collaborated with HKU Clinical Trials Centre on various medical research projects. Along with the government's acceleration of the clinical trials approval process, and the registration of new chemical or biological entities, treatments could be made sooner to serve the community.

BARRIERS TO HEALTHCARE INNOVATION

Despite initial successes achieved at the hospital, there are also barriers to overcome and challenges to be faced by all partners within this ecosystem in order to ensure the sustainability of these innovations and technological advances. Personally, I believe there are four major challenges requiring more work.

Innovative Ideas: Perception and Adoption[4]

Healthcare professionals are highly skilled and intelligent, and will develop their own personal perception on innovative ideas/initiation. They would evaluate before adoption and apply changes to "control" the consequences. Hence, it is important to understand healthcare professionals' adoption of new practices and to communicate clearly before translating ideas into action.

Public-private Partnership

For successful adoption of healthcare innovation in a private hospital setting, it is important to monitor joint public-private performance, especially in sharing knowledge and resources and in highlighting risks during this period of continuous change, alongside with implementation and improvement in healthcare innovation.[5] We must be circumspect in the partnership and re-structuring of public-private healthcare systems. It is essential to involve a wide range of partners in order to increase the pooling of expertise, share risk, identify the priorities in research because the sheer quantity of activity required for driving innovation adoption and implementation is a challenge in itself.

Continuous Talent Development, especially in Biomedical Technology[6]

With regard to the cultivation of talent, the hospital has worked closely with HKU, contributing to the development of degree programmes and training of students. This helps to ensure any new trainees are well-rounded in key areas, allowing the hospital to identify potential future candidates. Attractive sponsorship in continuous learning development and career paths helps to create an inspiring atmosphere in which employees can succeed. This should be extended to the whole healthcare system level, such as the Global STEM (science,technology,engineering,mathamatics) Professorship Scheme[1], so that talented candidates are attracted and motivated to do their best, shaping our innovative future in healthcare.

Healthcare Innovation as "Responsible Innovation" Aligned with Societal Values[7]

The importance of any kind of healthcare innovation is not developed purely from a single-person's technocentric logic. Instead, it must be made accessible to a large population, thereby benefiting their health rather than just focusing on the economy. These technologies, digital platforms and telemedicine must be integrated well in order to enhance patient engagement and improve their level of care and overall experience.

CONCLUSION

Hong Kong's future as a one-stop support centre for healthcare innovation is bright and promising. With the effort of not only myself, but all parties, serving to ensure we create a culture where innovation can flourish. I am delighted and honoured to be part of this transformational process.

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	1	★Cert course on Medical Ultrasound 2022 (Video lectures) 2	★Zoom Live Exploring the Current Role of SGLT2 Inhibitors in Cardiorenal Protection - Online ★Certificate Course on Update in Diagnosis of Prostate Cancer 2022 (Video Lectures) 3	★LI SHU PUI SYMPOSIUM 2022: 100 Years of Medical Service in Hong Kong – Yesterday, Today and Tomorrow ★Zoom Live Personalized Medicine and the Treatment of Hypertension - Online ★Zoom Live Hong Kong Chinese Medical Association Ltd. Professorial Lecture Series on "What's New in Medicine?" ★Certificate Course in Allergy 2022 (Video Lectures) 4	★In-person / Zoom HKMA-HKSH CME Programme 2021-2022 (Physical Lecture + Online) Topic: Endoscopic Spine Surgery ★Zoom Live Latest Updates on Meningococcal B Disease - Prevention and Recommendations - Online 5	★Zoom Live Symposium on End of Life Care - Online Lecture 1: Common Clinical Problems and Community Resources in EOL Care Lecture 2: The Gold Standards Framework Proactive Identification Guidance (PIG) - Certify Death at Home, Case Sharing Lecture 3: Palliative Care Development in Public Sector and the Last Journey Program Lecture 4: Taiwan Experience in EOL Care 6
7	8	★Cert course on Medical Ultrasound 2022 (Video lectures) 9	★The Hong Kong Neurosurgical Society Monthly Academic Meeting –To be confirmed ★Certificate Course on Update in Diagnosis of Prostate Cancer 2022 (Video Lectures) 10	★Zoom Live Insomnia with Co-morbid Psychiatric Disorders - Online ★Certificate Course in Allergy 2022 (Video Lectures) 11	★Zoom Live Updated Management of OA Knee - Online 12	13
14	15	★In-person / Zoom HKMA-GHK CME Programme 2021-2022 Topic: Fast Track Rehabilitation After Total Knee Replacement And Robotic Assisted Total Knee Replacement (Physical Lecture + Online) ★Certificate Course in Ophthalmology 2022 (Video Lectures) 16	★Certificate Course on Update in Diagnosis of Prostate Cancer 2022 (Video Lectures) 17	★Hybrid Conference 22nd Regional Osteoporosis Conference (ROC 2022) ★Zoom Live MRI and PET CT of Carcinoma of Prostate - Online ★Certificate Course in Allergy 2022 (Video Lectures) ★FMSHK Executive Committee Meeting 18	19	20
21	22	★Certificate Course in Ophthalmology 2022 (Video Lectures) 23	★Certificate Course on Update in Diagnosis of Prostate Cancer 2022 (Video Lectures) 24	★Certificate Course in Allergy 2022 (Video Lectures) 25	★Zoom Live 1) An Update on Bariatric Surgery - a Safe and Effective Treatment for Obesity and its Co-morbidities; 2) How to Tackle "Too Much Skin" After Successful Weight Reduction - Body Contouring Surgery - Online 26	27
28	29	★Zoom Live The HKMA Adult Immunization Campaign - New Recombinant Vaccine Technology to Help Protect Older Adults Against Influenza - Online ★Certificate Course in Ophthalmology 2022 (Video Lectures) 30	★Zoom Live How highly selective alpha 1a blocker a safer option targeting benign prostatic hyperplasia - Online 31			

Date / Time	Function	Enquiry / Remarks
2 TUE 7:00 PM *(9 Aug)*	**Cert course on Medical Ultrasound 2022 (Video lectures)** Organiser: The Federation of Medical Societies of Hong Kong Speaker: Dr Grace HO (Aug 2) Dr Kwok-yin LEUNG (Aug 9)	Ms Vienna Lam 2527 8898
3 WED 2:00 PM	**Zoom Live** **Exploring the Current Role of SGLT2 Inhibitors in Cardiorenal Protection - Online** Organisers: HKMA-Central, Western & Southern Community Network Speaker: Dr WU Enoch	Ms Daphne LO 3108 2514 1 CME Point
7:00 PM *(10, 17, 24 Aug)*	**Certificate Course on Update in Diagnosis of Prostate Cancer 2022 (Video Lectures)** Organiser: The Federation of Medical Societies of Hong Kong Speaker: Dr CHENG Kwun Chung, Bryan (Aug 3) Dr YEUNG Sin-yu, Cynthia (Aug 10) Dr LEUNG Kwong-chuen, Angus (Aug17) Dr MAK Siu-king & Mr Ku Ki-man Imen (Aug 24)	Ms Vienna Lam 2527 8898
4 THU 8:50 AM	**LI SHU PUI SYMPOSIUM 2022: 100 Years of Medical Service in Hong Kong – Yesterday, Today and Tomorrow** Organiser: Hong Kong Sanatorium & Hospital LSP Lecture Speaker: Prof Gabriel LEUNG Venue: Ballroom, JW Marriott Hotel Hong Kong or Zoom Webinar	Enquiry: Hong Kong Sanatorium & Hospital Website: www.hksh.com/lsp2022
2:00 PM	**Zoom Live** **Personalized Medicine and the Treatment of Hypertension - Online** Organiser: HKMA-KLN East Community Network Speaker: Dr Kei-yan NG, Andrew	Ms Daphne LO 3108 2514 1 CME Point
7:00 PM *(4, 11, 18 ,25Aug)*	**Certificate Course in Allergy 2022 (Video Lectures)** Organiser: The Federation of Medical Societies of Hong Kong Speaker: Dr Gilbert T.CHUA (Aug 4) Dr Marco H.K. HO (Aug 11) Dr Agnes S.Y. LEUNG (Aug 18) Dr Adrian Y.Y. WU (Aug 25)	Ms Vienna Lam 2527 8898
7:30 PM	**Zoom Live** **Hong Kong Chinese Medical Association Ltd.** **Professorial Lecture Series on "What's New in Medicine?"** **The 11th Professorial Lecture:** **Humanitarian medicine on Belt and Road for the 21st century: Story of CCOUC and GX Foundation** Organiser: Hong Kong Chinese Medical Association Ltd. Speaker: Prof Emily Ying-yang CHAN	HKCMA Ms Stone Tse Tel: 2527 8898 1 CME Point
5 FRI 2:00 PM	**In-person / Zoom** **HKMA-HKSH CME Programme 2021-2022 (Physical Lecture + Online)** **Topic: Endoscopic Spine Surgery** Co-Organiser: Hong Kong Medical Association & Hong Kong Sanatorium & Hospital Speaker: Dr KO, Joshua Venue: HKMA Dr Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept. 2527 8452 1 CME Point
2:00 PM	**Zoom Live** **Latest Updates on Meningococcal B Disease - Prevention and Recommendations - Online** Organiser: HKMA-YTM Community Network Speaker: Dr Wei-sze LAU	Ms Candice TONG 3108 2513 1 CME Point
6 SAT 2:00 PM	**Zoom Live** **Symposium on End of Life Care - Online** **Lecture 1: Common Clinical Problems and Community Resources in EOL Care** **Lecture 2: The Gold Standards Framework Proactive Identification Guidance (PIG) - Certify Death at Home, Case Sharing** **Lecture 3: Palliative Care Development in Public Sector and the Last Journey Program** **Lecture 4: Taiwan Experience in EOL Care** Co-Organiser: Hong Kong Medical Association & Hospital Authority Speaker: Dr Wai-tsan CHEN, Tracy, Dr CHAUNG Lai, Dr Po-tin LAM & Dr Ying-wai WONG (WANG Ying-wei)	Ms Candice TONG 3108 2513 2.5 CME Point
10 WED 7:30 AM	**The Hong Kong Neurosurgical Society Monthly Academic Meeting –To be confirmed** Organiser: Hong Kong Neurosurgical Society Speaker: Dr Shu-yan YEUNG, Jennie	Dr Calvin MAK 2595 6456 1.5 CME Point
11 THU 2:00 PM	**Zoom Live** **Insomnia with Co-morbid Psychiatric Disorders - Online** Organiser: HKMA-New Territories West Community Network Speaker: Dr Pui-lam YIP, Issac	Ms Daphne LO 3108 2514 1 CME Point
12 FRI 2:00 PM	**Zoom Live** **Updated Management of OA Knee - Online** Organiser: HKMA-Shatin Community Network Speaker: Dr Chi-nok CHEUNG	Ms Candice TONG 3108 2513 1 CME Point
16 TUE 2:00 PM	**In-person / Zoom** **HKMA-GHK CME Programme 2021-2022** **Topic: Fast Track Rehabilitation After Total Knee Replacement And Robotic Assisted Total Knee Replacement (Physical Lecture + Online)** Co-Organiser: Hong Kong Medical Association & Gleneagles Hong Kong Hospital Speaker: Dr Chun-hoi YAN Venue: HKMA Dr Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept 2527 8452 1 CME Point
7:00 PM *(16,23,30 Aug)*	**Certificate Course in Ophthalmology 2022 (Video Lectures)** Organiser: The Federation of Medical Societies of Hong Kong Speaker: Dr HO Wing-lau & Dr CHAN Chung-yan, Tommy (Aug 16) Dr WAN Ho-nam, Kelvin & DR WONG Ka-wai, Jasper (Aug 23) Dr HO Wing-lau (Aug 30)	Ms Vienna Lam 2527 8898

Date / Time	Function	Enquiry / Remarks
18 THU 8:50 AM	**Hybrid Conference** 22nd Regional Osteoporosis Conference (ROC 2022) Organizer: The Osteoporosis Society of Hong Kong Venue: The Langham, Hong Kong	ROC 2022 Conference Secretariat Tel: 2559 9973 Email: roc@icc.com.hk
2:00 PM	**Zoom Live** **MRI and PET CT of Carcinoma of Prostate - Online** Organiser: HKMA-HK East Community Network Speaker: Dr Sing-fai SHUM, John	Ms Candice TONG 3108 2513 1 CME Point
8:00 PM	**FMSHK Executive Committee Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F,Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms Nancy CHAN 2527 8898
26 FRI 2:00 PM	**Zoom Live** **1) An Update on Bariatric Surgery - a Safe and Effective Treatment for Obesity and its Co-morbidities; 2) How to Tackle "Too Much Skin" After Successful Weight Reduction - Body Contouring Surgery - Online** Organiser: HKMA-KLN City Community Network Speaker: Dr Tsun-miu TSUI & Dr Siu-kee LAU, Gregory	Ms Candice TONG 3108 2513 1 CME Point
30 TUE 2:00 PM	**Zoom Live** **The HKMA Adult Immunization Campaign - New Recombinant Vaccine Technology to Help Protect Older Adults Against Influenza - Online** Organiser: Hong Kong Medical Association Speaker: Dr Kay-yan TSANG	Ms Candice TONG 3108 2513 1 CME Point
31 WED 2:00 PM	**Zoom Live** **How highly selective alpha 1a blocker a safer option targeting benign prostatic hyperplasia - Online** Organiser: Hong Kong Medical Association Speaker: Dr LAM, Pei Wayne	HKMA CME Dept. 2527 8452 1 CME Point

Certificate Course for Nurses and Allied Health Professionals • Course No. C383 • CME/CNE Course

Certificate Course on

Respiratory Medicine 2022

(Video Lectures)

Jointly organised by

The Federation of Medical Societies of Hong Kong 香港醫學組織聯會

Hong Kong Thoracic Society Limited 香港胸肺學會

CHEST Delegation Hong Kong and Macau Limited

Date	Topics	Speakers
7 September 2022	Update in Asthma Management	Dr. CHAN Ka Pang Associate Consultant Department of Medicine & Therapeutics Prince of Wales Hospital
14 September 2022	Management of Pleural Disease	Dr. Macy LUI Consultant Department of Medicine Queen Mary Hospital
21 September 2022	Imaging and Investigation of Respiratory Medicine	Dr. Alvin CHOI Medical Officer Department of Medicine North District Hospital
28 September 2022	Interventional Pulmonology	Dr. CHAN Wai Man Johnny Consultant Physician Queen Elizabeth Hospital
5 October 2022	Tracheostomy and CPAP Therapy	Mr. NG Shu wah Nurse Consultant United Christian Hospital Miss Maggie LIT Nurse Consultant Queen Elizabeth Hospital

Date : 7, 14, 21, 28 September & 5 October 2022 (Every Wednesday)
Time : 7:00 p.m. - 9:00 p.m. (Total 5 sessions, 2 hours per session)
Course Feature: Video lectures (with Q&A platform for participants to post the questions)
Language Media : Cantonese (Supplemented with English)
Course Fee : HK$1,200
Certificate : Awarded to participants with a minimum attendance of 70%
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel.: 2527 8898 Fax : 2865 0345 Email : vienna.lam@fmshk.org

Online Application from website: http://www.fmshk.org

Answers to Radiology Quiz

Answers:

1. Lytic expansile lesion at proximal right tibial metaphysis, abutting the articular surface, with a narrow zone of transition. No internal matrix was identified. Thin internal septations evident. No pathological fracture, periosteal reaction or obvious soft tissue component.

2. Aneurysmal bone cyst. A giant cell tumour.

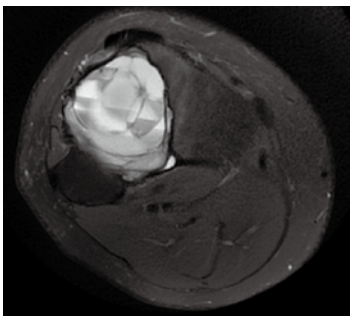
3. MRI with contrast.

   The subsequent MRI (images of fluid-sensitive fat suppressed sequence in sagittal and axial slice) shows an expansile bone lesion with a narrow zone of transition at the lateral tibial metadiaphyseal region, extending to the articular surface. Multiple multiloculated cysts with fluid/fluid level are seen within. Findings are compatible with the aneurysmal bone cyst. The differential would be a giant cell tumour.

   The patient was referred to orthopaedics surgery and underwent curettage and cementation of the lesion. Subsequent histopathology showed a giant cell tumour with secondary aneurysmal bone cyst changes.

   Giant cell tumours are low-grade tumours that can have a radiologically aggressive appearance. They can have malignant potential (5-10%), and classically metastasise to the lungs (5%).

   Local recurrence in the periphery of the lesion after surgery can occur in up to 10% of cases. Therefore, these patients often have imaging follow up. Medical treatment with denosumab is also advocated.



Dr Derek LH CHAN
MBBS, FRCR

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UNIQUE PREBIOTIC BLEND OF 5 HMOs[1-3]

3 CATEGORIES OF HMOs	5 OF THE MOST ABUNDANT HMOs FOUND IN BREAST MILK	3 AREAS OF IMPACT
ACETYLATED^	LNT	DIGESTIVE HEALTH, IMMUNE SUPPORT
FUCOSYLATED	2'-FL, 3-FL	DIGESTIVE HEALTH, IMMUNE SUPPORT, BRAIN DEVELOPMENT
SIALYLATED	3'-SL, 6'-SL	DIGESTIVE HEALTH, IMMUNE SUPPORT, BRAIN DEVELOPMENT

DUAL IMMUNE BLEND & SYNBIOTIC BLEND[3-12#]

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* Sources: Ipsos HCP Claim study, 2020 (Hong Kong) during Jun-Jul 2020, interviewing 134 healthcare professionals (doctors or nurses) with specialty in obstetrics/gynecology/pediatrics in Hong Kong. Margin of error ±8.47% at 95% confidence level.
\+ Sources: Nestlé® has been "The most recommended manufacturer for allergy prevention + HMO among healthcare professionals" in 2018-2020. Nestlé Hong Kong Limited's claim conducted by Nielsen in 2018 among Healthcare professionals (doctor or nurses) with specialty in obstetrics/gynecology/pediatrics in HK. Sample size is 130. Margin of error ±8.6% at 95% confidence level (Copyright © 2018, The Nielsen Company). Nestlé Hong Kong Limited's claim is based on a study conducted by Nielsen in June to July 2019, interviewing 132 healthcare professionals (doctors or nurses) with specialty in obstetrics/gynecology/pediatrics in HK. Margin of error ±8.53% at 95% confidence level. (Copyright © 2019, The Nielsen Company).
^ 2'-O-Fucosyllactose (a type of synthetic HMO, not sourced from breast milk), 25 mg per 100 mL of prepared formula in NESTLÉ® NAN® PRO 1-3 and 26 mg per 100mL in NAN® PRO KID 4.
\# 2'FL, LNT, 6'SL, 3'SL and DFL (types of HMO, not sourced from breastmilk) 173 mg per 100 mL of prepared formula in NESTLÉ® NAN® INFINIPRO® 1.
^^ Each capsule contains 200 mg DHA.

REFERENCES:
1. FHS (HK). (2020). Child Health Parent information: vitamin D.Retrieved from https://www.fhs.gov.hk/english/health_info/child/30078.html (Accessed on 25 Jan 2020). 2. EFSA Panel on Dietetic Products, Nutrition and Allergies. (2009). EFSA Journal, 941, 1 14. 3. EFSA Panel on Dietetic Products, Nutrition and Allergies. Allergies.(2014). EFSA Journal, 12(10), 3840. 4. Bourdeau , T., et al. (2021). Nutrients, 13, 3011. 5. Blanchard, C., et al. (2018). US Patent no. US10092633B2.

IMPORTANT NOTICE: A well balanced diet, both during pregnancy and after delivery, helps sustain an adequate supply of breastmilk. We recommend that mothers consult a healthcare professional before adding any dietary supplement to their diet during pregnancy or lactation. After delivery, we believe that breastfeeding is the ideal nutritional start for babies as breastmilk provides a balanced diet and protection against illness for your baby. We fully support the World Health Organizations recommendation of exclusive breastfeeding for the first six months of life along with the introduction of adequate nutritious complementary foods and sustain breastfeeding up to two years of age. The recommended daily dose should not be exceeded. We also recognize that breastfeeding is not always an option for parents. We recommend healthcare professionals to inform parents about the advantages of breastfeeding. If parents consider not to breastfeed, healthcare professionals should inform parents that such a decision can be difficult to reverse and that the introduction of partial bottle feeding will reduce the supply of breastmilk. Parents should consider the social and financial implications of the use of infant formula. As babies grow at different rates, healthcare professionals should advise on the appropriate time for a baby to begin eating complementary foods. Infant formula and complementary foods should always be prepared, used and stored as instructed on the label in order to avoid risks to a baby's health. NESTLÉ® NANCARE® D HA & Vitamin D and E Drops is not a substitute for breastmilk and does not replace a balanced diet. Please advise parents on the appropriate use of this dietary supplement to their child's diet, particularly if there is a health concern or a known immune compromised condition. NESTLÉ® NANCARE® DHA & Vitamin D and E Drops is Food for special medical purpose. For the dietary management of breastfeeding babies or babies consuming infant milk formula with sub optimal level of vitamin D.

Information for healthcare professionals only