

# Progress in Obstetrics & Gynaecology: Reflections from The Bulletin of the Kandang Kerbau Hospital for Women, Singapore

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## ABSTRACT

*This article reviews the articles in The Bulletin of the Kandang Kerbau Hospital for Women (Volume 1 to Volume VIII 1956,1957 & 1964-1969; 8 volumes with 12 issues) and reflects the progress of the Obstetrics & Gynaecology care in Singapore six decades later.*

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## INTRODUCTION

Before the birth of the Singapore Journal of Obstetrics and Gynaecology, local discussions on Obstetrics and Gynaecology (O&G) were recorded in "The Bulletin of the Kandang Kerbau Hospital for Women".<sup>1</sup> The first volume was started in 1956, under the editorship of Professor Benjamin Henry Sheares (who later became Singapore's president from 1971). Professor Sheares envisioned that the Bulletin would prepare post-graduates for higher examinations in Obstetrics and Gynaecology (it must be noted that there were no local examinations for O&G available at that time).

In the first editorial of the bulletin, Prof Sheares stated, 'If this bulletin faithfully mirrors our progress in our speciality and improves its scientific and editorial standards in the years to come, it must translate this progress into better care for women wherever Obstetrics and Gynaecology are practised in this part of the world.' (See Figs 1 to 5.)

Indeed, this has occurred. The Singapore Journal of Obstetrics and Gynaecology (SJOG), the official Journal

of the Obstetrical & Gynaecological Society of Singapore, has reflected the rapid progress in our O&G discipline and this progress has translated to improved care over the six decades since 1956. SJOG is approaching its 47th volume in 2016. SJOG has evolved since March 1970, when it started off as The Proceedings of the Obstetrical and Gynaecological Society which itself was a direct offspring from the Bulletin of Kandang Kerbau Hospital for Women started in 1956.<sup>2,4</sup>

### **INITIAL PHASE (1956-1958)**

The Bulletin of the Kandang Kerbau Hospital (KKH) for Women (the red cover journal; KKH Bulletin) first started as a publication of weekly Clinico-Pathological Seminars held in the hospital, very much like our Grand Ward Rounds today. These seminars were designed to prepare post-graduates for higher examinations in Obstetrics and Gynaecology. During these Seminars, junior members of the team would present a case, and emphasis was given to how presenting complaints were interpreted to derive the appropriate diagnosis and treatment.

Each volume of the bulletin was thus, a collection of cases (e.g. Case of Grande Multipara with Breech Presentation). Each article included history and physical findings meticulously noted during the care of the patient, and included laboratory findings, parameters, procedures and medications given to the patient. The discussion that ensued during the Seminar was also noted down in the form of a dialogue, and one could almost imagine what happened during the Seminar. As the Seminars were preceded over by senior doctors, the discussion would also include important learning points that would aid a post-graduate O&G trainee (or even a non-O&G doctor involved in the care of women) in caring for their patients. For instance, in "A Case of Intra-Abdominal Hemorrhage Complicating Pregnancy", the discussion revolved around the most common causes of intra-abdominal hemorrhage, and the means of categorizing these causes.

In 1956, a newborn nursery room was created in KKH for sick newborns and managed by paediatricians (Dr Elaine Field and Dr Gwen Smith) from Singapore General Hospital on a roster basis. While O&G was the bulletin's focus (which indeed, majority of the case presentations were on O&G cases), it was of interest that there were also case presentations involving Neonatology. Perhaps, this emphasized the need for O&G specialists to be familiar with common conditions involving neonates; it was also a glimpse into how the Bulletin would evolve

in the future, as Kandang Kerbau Maternity Hospital, became the centre for neonatal care with the largest NICU in Singapore and eventually transformed to a hospital serving both women and children. KKH NICU has benchmarked itself well with global NICUs in Vermont Oxford Network since 1998.<sup>5</sup> KKH is also the main site of the Growing Up in Singapore Towards healthy Outcomes (GUSTO) birth cohort study since 2009.<sup>6</sup>

After just two volumes, the Bulletin was not published between 1958 and 1964. In volume III (No. 1) of the Bulletin (published in March 1964 under the editorship of Mr. T H Lean who was previously the Honorary Secretary of the Editorial Board in 1956), Mr Lean pointed us to some of the possible reasons in his editorial. During that period, several post-graduates left the country (leaving few behind to continue the work of the journal), and the Royal College of Obstetricians and Gynaecologists in London turned down Kandang Kerbau Hospital's request for recognition of its training standards for the MRCOG.

### **SECOND PHASE (1964-69)**

The rebirth of the Bulletin was thus significant; because it was published a year after Kandang Kerbau Hospital's training standards were recognized and candidates from the hospital were considered as worthy to appear for the MRCOG examination in the United Kingdom. This was also remarkable as this new series coincided with the large clinical volume and staff resource inadequacy, with KKH as the busiest maternity hospital in the world, entering into Guinness Book of Record in 1966 as having the most number of babies with an obstetrics delivery load of 39,856.<sup>7</sup>

The aims of the Bulletin remained the same, but the area of influence was widened to cover the entire Malaysia – this was shortly after the Merger of Singapore with then Malaya to form Malaysia in 16 September 1963. The Bulletin also strove to cover the field of Neonatal Paediatrics more comprehensively, although case presentations involving neonatal conditions have been previously presented (both by Paediatricians and Obstetricians). Volume III opened with an article on Neonatal hyperbilirubinemia by esteemed Paediatrician, Professor Wong Hock Boon. In fact, in volume II of the Bulletin (which was published before the Bulletin's hiatus), there was also a case presentation on a similar topic moderated by Dr. Gwen Smith.

The format of the Bulletin also changed – it no longer covered case presentations given during the Grand Ward

Round equivalent. Instead, it presented material from post-graduate lectures given by notable O&G specialists and Paediatricians. The articles often included surveys, research, and information on important conditions, as well as opinion pieces (usually the editorials). It is also significant that in Volume III of the Bulletin, 40% of the articles provided original research involving case series or studies of local patients in KK Hospital. The inclusion of local research continued throughout the rest of the Bulletins that have been archived. This reflected the strong research culture in the hospital and the department of O&G, where better understanding of patient's conditions can lead to improved quality of care.

Much of the vigor of the journal was due to the creation of the Postgraduate Committee in KKH (see Figs 6 & 7). The rejuvenated bulletin was published under the auspices of The Post-Graduate Committee of Kandang Kerbau Hospital, Singapore. Mr TH Lean in his editorial (Vol. III - No.1 - March 1964) stated, "The objective was to convince the Royal College of Obstetricians and Gynaecologists that this institution was worthy as a post-graduate institution and that its training merits status for the MRCOG examination. The Post-Graduate Committee of the Kandang Kerbau Hospital was formed out of this desire. The year 1963 was a year of joy. The Royal College of Obstetricians and Gynaecologists in the United Kingdom graciously granted recognition to this institution and accepted its candidates as worthy to appear for the MRCOG examination. Three assigned posts of the Department of Obstetrics and Gynaecology of the University of Singapore were accorded 24 months recognition, and 6 assigned posts of the Government Units were accorded 18 months recognition...

...The Bulletin gathers publication material from selected notabilities of the aforementioned Specialities. They represent material from series of post-graduate lectures which have been delivered by the notabilities and which had been organised by the Post-Graduate Committee for the benefit not only of the trainees and the entire medical staff of the Hospital, but also members of the Singapore Obstetrical and Gynaecological Society. The post-graduate lectures conducted twice a year viz: from March to June, and again from October to December, are supplemented in turn by the lectures which are given once a month by various personalities to members of the Society, and which have been sponsored either by the Society or the University's Committee of Post-Graduate Studies. It is hoped that the Bulletin as such, will bring to the door-step of the individual member of the Medical Profession in the nation of Malaysia, academic material

that doctors and surgeons might not have had the opportunity of hearing."

With an active scientific Bulletin for the region, The Fourth Asian Congress of Obstetrics and Gynaecology, the largest medical conference in Singapore at that time was held from 15 to 24 November 1968. Organized by OGSS, then a section of the Singapore Medical Association, under the auspices of the Asian Federation of Obstetrics & Gynaecology, the scientific Congress brought together in Singapore, for the first time, obstetricians and gynaecologists, scientists and related healthcare workers, from the region and the world. The President of the Congress and Hon. Treasurer of the Organising Committee was past Editor, Prof Sheares; and the Vice President of the Congress and Organising Chairman was the Editor Mr TH Lean. See Fig 8. There were over 400 O&G delegates with 175 scientific presentations and 24 scientific films presented. The conference was a great success and it raised the stature and standards of the local O&G fraternity. A special trust fund called the "Congress Trust Fund for the Obstetrical and Gynaecological Society of Singapore" was created from the surplus of the Congress. Proceeds from the investment of the Fund were used for educational and research purposes related to O&G in Singapore, e.g. research scholarships, travelling grants, book prizes, etc. A sum of \$10,000 from the proceeds of the Congress was also used for the creation of a Library at KK Hospital.

## **SPECIFIC INTEREST AREAS**

From 1964, the Bulletin was published twice each year. Some of the pertinent topics and issues discussed in the Bulletin are highlighted below in tandem with the 100 years timeline from 1888 to 1988 (Table 1):

## **MAKING OF AN O&G SPECIALIST**

In Volume III (No. 1) of the Bulletin, we celebrated that the training for MRCOG was recognized by RCOG (London). However, accreditation was still required by a foreign institution. In Volume IV (part 2) of the Bulletin, there was discussion in the editorial on starting a local Higher Diploma in Obstetrics and Gynaecology, and the hope of the editor was that someday, there will be a local diploma designating a Specialist Obstetrician and Gynaecologist who is not only acceptable in his own country but "indeed in any country in this wide world". Sure enough, in 1971, the M. Med (Obstetrics and Gynaecology) was introduced in Singapore and the First Joint M. Med (O&G)/ MRCOG Part 2 Oral Assessment Examination was held in KKH Singapore in 2006.<sup>8</sup>

## OBSTETRIC ANAESTHESIA

In the first volume of the Bulletin, a paper on Obstetric Anaesthesia was discussed during what would be today's equivalent of the Journal Club. The article was entitled "Anaesthesia-Analgesia in Obstetrics" and it noted the unique challenges in anaesthetizing an Obstetrics patient (e.g. prolonged gastric emptying time, treating both mother and child, sudden blood loss, risk of anoxia due to reduced intercostal muscle activity). Therein lies the argument for providing a specialized Obstetric Anaesthetic service. The article noted that the presentation drew much discussion from many doctors. The moderator noted that with regards to the area of Obstetric Anaesthesia, "no very good technique had yet been discovered".

In Volume IV (No. 1) published in March 1965, the editor presented his case for a dedicated Obstetric Anaesthesia service, highlighting the mortality ascribed to Obstetric Anaesthesia. Then, anaesthetists were obtained from a common pool based in the Singapore General Hospital. In this volume of the Bulletin, both an anaesthetist (Singapore General Hospital) and an obstetrician (KK Hospital) provided compelling arguments for developing such a service in KK Hospital. Thus, it was a relief to learn that the Anaesthesia Department of KK Hospital was opened in April 1971. The early efforts were not done in vain, as KKH Anaesthesia Department went on to distinguish itself globally with various trials.<sup>9-10</sup>

## RESUSCITATION

In Volume III (No. 1) of the Bulletin, Mr. TH Lean highlighted the significance of honing one's skills in resuscitation. In particular, the Obstetrician should be well versed in the resuscitation of the newborn. He noted that this was an area that the anaesthetists and paediatricians were better at – but it was no reason for Obstetricians to neglect the perfecting the skill.

4 years later, the same topic was brought up again in volume VII of the Bulletin. This volume featured a special section of journal of resuscitation of adult and neonate (recommendations of a committee consisting of Dr. SM Goon, Dr. B De Bras, Dr. AR Sivasambo, Mr TH Lean, Dr. E. Goonetilleke and Dr. Thomas Wong). The feature echoed concerns of the need for organized resuscitation in the institution, and for all ranks of doctors, nursing and para-medical personnel to be trained. This has come a long way now and since 2005, all ranks of doctors, nursing and para-medical personnel working in clinical

areas are regularly trained and recertified in BCLS every 2 years. Furthermore, a Code resuscitation team activated by overhead announcement has been in place since 1997 at the new hospital premises. Surgical and anaesthesia response times for crash caesarean sections in KKH were the best in the world as reported in 2005.<sup>11-12</sup> KKH paediatricians also took lead in The Singapore National Resuscitation Council's Neonatal and Paediatric Resuscitation Workgroup, 2010–2011 to establish the Newborn and Paediatric Resuscitation 2011 Guidelines.<sup>13</sup>

## CANCER PREVENTION

In 1964, then Minister for Health set up a Female Genital Cancer Screening Unit in KK Hospital. Volume III (No. 2) of the Bulletin featured pathological and clinical aspects of Female Genital Cancer, with the premise that early detection of cancerous lesions will reduce mortality from cancer. These articles are noteworthy because of the rapid development of cancer screening since 1964, with the launch of Cervical Screen Singapore in 2002. In 2002 & 2003, KKH participated in the successful & impactful HPV vaccination trial of the worldwide FUTURE II Study.<sup>14</sup>

## PREECLAMPSIA

Volume III (No. 1) of the Bulletin in 1964 featured an invited contribution, Obstetric Management of Toxemias of Pregnancy by William B. Stromme, MD. from the Department of Obstetrics & Gynecology, University of Minnesota Medical School. For Severe Toxemias Obstetric Therapy, he advocated:

"In the main, the first phase of management is that of an intensive twenty-four to forty-eight hours of conservative medical therapy. Sedative and specific drug therapy directed against the convulsions and the fulminating hypertension are at least temporarily effective. Often they are vitally necessary. In addition to the barbiturates, the early administration of morphine sulfate will usually prove effective in relieving apprehension and irritability. Magnesium sulfate in adequate amounts can stop convulsions. It is not without danger and toxic symptoms and antidote should be familiar to those using the drug. We prefer intramuscular injection of a 50% solution given initially as 10 Gm. and followed with 5 Gm. dosage at six hour intervals.

In recent years we have learned to rely on the effectiveness and safety of reserpine. As recommended first by Assalil, two-and-one-half to five mgms. may be given slowly by intravenous injection or drip often with dramatic

improvement. It may be repeated in three or four hours if necessary. We have had little personal experience with the alkaloids of veratrum, but note your success in their usage here and also at the Boston Lying-In Hospital."

While Magnesium was advocated as one of the drugs to use for severe preeclampsia in the 1964 Bulletin, it was not recognized as the better drug until The Eclampsia Trial Collaborative Group in 1995. The trial showed conclusively that Magnesium sulphate is the drug of choice for women with eclampsia, with strong evidence that it is better than either diazepam and phenytoin in reducing recurrent convulsions. KKH and SGH O&G units were involved in the large (10, 141 pregnant women) global Magpie Trial<sup>15</sup>, a randomised placebo-controlled trial (1998-2002) that established that Magnesium sulphate is effective in considerably reducing the risk of eclampsia for women with pre-eclampsia.

The rates of eclampsia in KKH, Singapore showed a progressive reduction from 338 per 100 000 births in 1957 to 140 per 100 000 births in 1968, to 67 per 100 000 births from June 1994 to 1999 and to only 16 per 100 000 births from July 1999 to 2003, with only 10 cases for 61 595 deliveries (1: 6160).<sup>16-18</sup>

## GESTATIONAL DIABETES

If Preeclampsia is known by many to be a 'disease of theories' in view of its contentious causation, then Gestational Diabetes surely has been a 'disease of criteria'. These challenges of criteria were illustrated way back in the bulletin. In Volume IV (No. 1) of the Bulletin 1965, an article by T. H. Lean, MS, FRCS(G), FRACS, MRCOG, Consultant Obstetrician and Gynaecologist, Kandang Kerbau Hospital, Singapore on "Pregnancy and diabetes (A Review of some results and problems at the Kandang Kerbau Hospital)" stated:

"There are difficulties encountered in working out the incidence and these include the interpretations of the Glucose Tolerance Curves. Different countries and different centres adopt different standards in the assessment and diagnosis of a diabetic tolerance curve and even in the same country, different authorities might adopt different interpretations. I think a plea should now be made that in an insular State like Singapore, where most authorities have easy access and know one another well, a set standard 'should be adopted for the whole State. The criteria adopted by the Mayo Clinic, Rochester U.S.A. as shown in Table II appears to be a sensible standard for adoption. (Proc. Staff Meeting-Mayo Clinic 1963, Vol. 38 No.6)."

KKH was one of the 15 centres in world that participated in The Hyperglycaemia and Adverse Pregnancy Outcomes (HAPO) study from 2000 to 2006.<sup>19</sup> This was a large-scale (25,505 pregnant women) multinational observational study, demonstrating that the risk of adverse maternal, foetal and neonatal outcomes correlated positively with maternal glycaemia at 24–28 weeks of gestation in a continuous linear association. This is true even within glucose ranges previously considered normal in pregnancy. There is no threshold for risk in most of the complications.

The challenges of uniformity of criteria are still present today. In 2014 Ministry of Health, Singapore Clinical Practice Guidelines on Diabetes Mellitus<sup>20</sup>, stated, "There is lack of uniformity in the approach to screening and diagnosis of GDM internationally. ... A revised diagnostic criteria for GDM was recommended by the International Association of Diabetes and Pregnancy Study Groups (IADPSG). The new diagnostic cut points for the fasting, 1-h and 2-h plasma glucose measurements were developed based on the glucose levels that conveyed an odds ratio for adverse outcomes of at least 1.75 compared with the mean glucose levels in the HAPO study. Although some countries have adopted the revised diagnostic criteria, the benefits of using the revised diagnostic criteria are uncertain at this time and further studies and analysis will be required before implementing it locally."

## SEPTIC ABORTION

In the last red volume (Volume VIII) of 1969, the articles were very much focused on the topic of Septic abortion. This has been occasionally dealt with by the earlier issues of the article. In fact, the first report of the maiden issue of the Bulletin in 1956 was on "A Case of Attempted Criminal Abortion" presented by Dr SH Tow on 19 January 1956. The Moderator was Professor BH Sheares and the case was discussed by Dr LS da Silva. However Volume VIII was significant because it was the first time any Volume of the Bulletin had been so focused on a single topic. This marked the start of a possible trend (where each volume would focus only on a single pertinent topic), but there were no future Bulletins in this series to study such a trend.

One of the possible key reasons for devoting a whole issue to septic abortion in 1969 was the need to give attention to illegal abortions, which predisposed to septic abortion with dire consequences including maternal death. In fact in the Editorial of Volume VIII entitled 'The Problem of Septic Abortions at the Kandang Kerbau Hospital' read, "The present issue of the Bulletin incorporates a series

of articles which is designed to throw extensive light on the problem of septic abortions at the Kandang Kerbau Hospital. It represents the close study of the records of 336 cases of septic abortions which came for intensive care by the Combined Septic Abortion Unit for a period of 27 months."

Liberalising abortion laws could prevent illegal induced abortion. The abortion laws in Singapore were progressively liberalized to a point where termination of pregnancy is now available 'on demand' up to the 24th week of pregnancy.<sup>21</sup> Before 1967, legal abortion was restricted only to those cases in whom maternal life was endangered. In 1967, Medical committee of the National Family Planning and Population Board was set up and abortion was extended to (i) cases with congenital fetal malformation (ii) cases where the woman was a victim of a sex crime or where there had been intercourse with an insane or feeble minded person. In 1968, First Abortion Bill was introduced and abortion was further extended to cases deemed unsuitable for continuing pregnancy for family, social and economic reasons. This facility was only available to those women resident in Singapore for more than 4 months prior to abortion.

Induced Abortion became legal in Singapore and Voluntary Sterilisation Act came into effect on 20 March 1970. In 1974, New Abortion Act was introduced and this made it possible for abortions to be performed up to 24 weeks pregnancy, at the written request of the woman, by a registered medical practitioner with prescribed qualifications and/or experience in a government hospital or in an approved institution. It is now very rare to have septic abortion cases in KKH.

## FAMILY PLANNING

In the same Editorial of Volume VIII, it concluded as follows: "It is needless to stress again that septic abortions are serious clinical problems. They tax the acumen of the clinicians and tax all the energies of the intensive care unit which in a large measure will include sustained and first class nursing until the cases are out of danger. More important is that if a case escapes death, the morbidity and the gynaecological aftermaths yet to be studied will leave permanent scars on the individual patients. For this and other reasons too evident to be mentioned, it can be well agreed that it is far better to prevent an unwanted pregnancy than to get rid of an unwanted pregnancy especially in unfavourable circumstances. The Family Planning Programmes in Singapore to-day should help to provide a suitable answer."

Effective family planning, legislation on abortion with incentive and disincentive schemes in Singapore have clearly helped the government in earlier years to achieve the desired demographic changes within this densely populated city state. However thereafter its effects in reversing fertility trends since 1986 and encouraging more children has been trying and challenging and indeed has met little success in general.<sup>21</sup>

Concomitant with improved social and economic factors, improved medical care, liberalization of abortion laws with easy access to safe abortion facilities and reduced fertility rates from effective family planning, the maternal mortality rate continued to improve from 37.8 per 100,000 births in 1969 to 4.2 per 100,000 births in 1989.<sup>22</sup>

## ACADEMIC MEDICINE

Despite the unsurpassed heavy clinical workload, the interest in academic medicine was evident. In the Editorial of Volume V No.1 of the Bulletin March 1966, entitled 'Kandang Kerbau Hospital - In Retrospect and in Prospect' read, "Clearly, there is a mountain of wealth of clinical material that can be found at the Institution and clearly much clinical material is going to waste as there is insufficient personnel and insufficient facilities to be directed towards aspects of clinical studies and research. Nevertheless the Hospital tries her uppermost. No less than 35 publications have been affected over the past 3 years over various aspects of research at the Institution and the Bulletin is adequate testimony of the scope and the struggles of the endeavours. The Trophoblastic Registry and Studies of the Hospital is second to none in the world and over the past two years, teams from the University of California sponsored by the Hooper Foundation had been researching into perinatal problems of Hyaline Membrane Disease and Hyperbilirubinemia in the newborn. At the moment no less than 20 clinical problems in Obstetrics and Gynaecology are being intensively studied from aspects of Uterine functions to Cancer Gynaecology.

The Hospital is currently involved in International family population problems and is a participant in a World Population Council Study on the use of Intra-Uterine Contraceptive Devices inserted during the immediate post-partum and post-abortum periods. The target of 10,000 cases has been reached at the half-way mark at this time. This study is financed by grants from the World Population Council. The perpetual grouse impeding proper consolidation and more highly developed research is the overload of routine work, the over-worked

and under-staffed medical personnel and of course, the poor support in finance and equipments that are now required in proper modern day research.

Without resort to refined methods of assessment such as the "Critical Path Analysis" - the simple mind can readily see that urgent prospective measures must be invoked if at all the Hospital is going to be developed into one worthy of a teaching Hospital in the Republic. The field of Obstetrics and Gynaecology has part vested interests in the proposed Institute of Medical Specialities that is being put up close to the General Hospital. Such of necessity include Endocrinology, Renal Physiology and Radio-Therapy.

But there are many aspects of Obstetrics and Gynaecology which warrant research in the country and the base for an institution to be involved in aspects of such research has already been set at the Kandang Kerbau Hospital. There need be no argument now for Kandang Kerbau Hospital to be prospectively developed into a Teaching and a Research Institution, and it must be deliberately turned away from its slogan role of a "Babies Assembly Line" or a "Human Factory" or whatever equivalent name that it had been tagged with.

The Bulletin looks to this prospective future and pledges its unceasing efforts towards this end."

With an active scientific Bulletin and a highly successful scientific congress as more than adequate testimony, the physician staff of KKH, represented by Editorial Board of the Bulletin, the Postgraduate Committee of KKH and the Organizing Committee of Congress, were eagerly aspiring with vigor to develop KKH as a worthy Teaching and a Research Institution of the world.

## LATER PHASE

The Bulletin of the Kandang Kerbau Hospital for Women evolved to The Proceedings of the Obstetrical and Gynaecological Society on March 1970 with the same

Editor (Mr TH Lean) under the auspices of the Obstetrical and Gynaecological Society of Singapore (OGSS). It was later renamed The Singapore Journal of Obstetrics and Gynaecology (SJOG) in 1977 with Prof Sultan Karim as editor and became the official Journal of OGSS). Indeed OGSS, as a society can trace its origins to the informal discussions and exchange of viewpoints among doctors who were interested in practising Obstetrics and Gynaecology and who used to meet on a regular basis at the Kandang Kerbau Maternity Hospital, in the early post war years. The bulletin was itself a formal record of some of these scientific exchanges.

SJOG is coming to its 47th volume in 2016 from 1970. With the success of SJOG as a national journal, KK Hospital has also started another own in-house bulletin - KK Review around 1994 with some success. The review bulletin was later revamped as KK Hospital Review when Kandang Kerbau Hospital became KK Women's and Children's Hospital in the adjacent new premises at Kampong Java in 1997. One article (KK Hospital Review Volume 2 Issue 1 March 1999) on "Beyond Quality Care in KK Hospital" by Dr Lawrence Chan, Senior Consultant, emphasized on the opportunity and a duty to excel in medicine in Singapore.<sup>23</sup> He stated, "Thus, beyond quality patient care can be excellence in patient care, teaching and training, and clinical research". As KKH became an institution within the umbrella cluster of SingHealth in 2000, the KK Hospital Review was eventually and inevitably merged with the Proceedings of SGH to form the Proceedings of Singapore Healthcare in 2010.<sup>24</sup>

## CONCLUSION

The progress in O&G care as recorded by SJOG (the bulletin's successor) has been remarkable.<sup>25,26</sup> The past editors and members of editorial boards of The Bulletin of the Kandang Kerbau Hospital for Women would be very pleased with the tremendous progress made and that they have been translated into better care for women in Singapore.

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Figure 1: Foreword

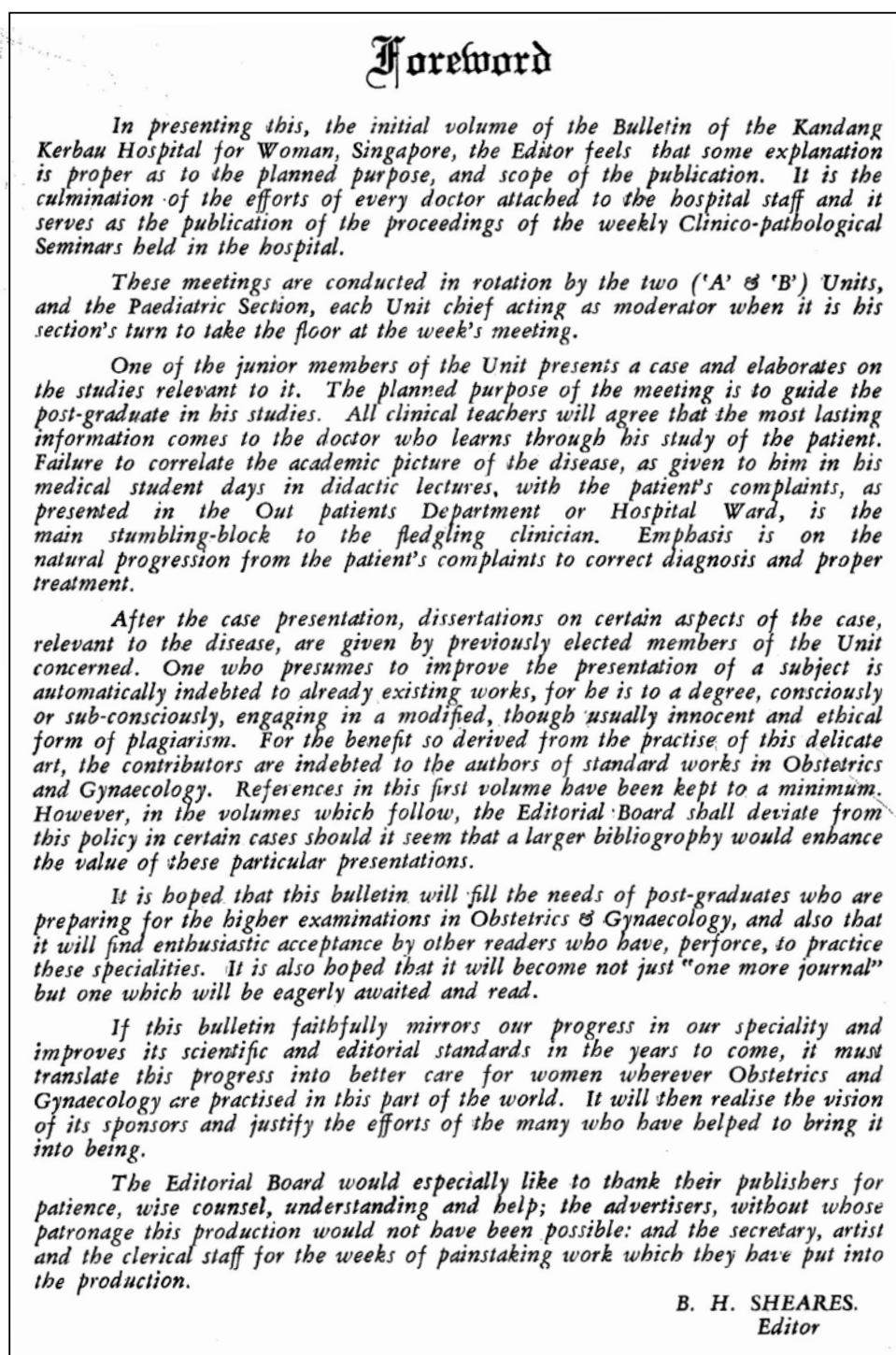


Figure 2: Foreword

<i>The Bulletin of the</i>	
<b>KANDANG KERBAU</b>	
<b>HOSPITAL FOR WOMEN</b>	
SINGAPORE	
<i>Editorial Board</i>	
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Volume One Number One 1956	

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**Figure 4: Refer to Inside Front Cover. SJOG Cover Pages for 1956, 1964, 1970 and 1976**

**Figure 5: Refer to Inside Back Cover. SJOG Cover Pages for 1977, 1995, 2000, 2015**

Figure 6 : Post-Graduate Program Pamphlet

<p>8 May 1964 - PANEL DISCUSSION "The Early Detection of Female Genital Cancer" The Pathologist's View Doctor K K Tan, MB, DCP. The Gynaecologist's View Doctor T A Sinnathuray, MB, FRCS(G&amp;E), MRCOG.</p> <p><u>CHAIRMAN:</u> Doctor S M Goon</p> <p>15 May 1964 - PANEL DISCUSSION "The Obstetric Invalid" Professor B H Sheares, MD, MS, FACS, FRCOG. Doctor A C Sinha, MB, FICS, MRCOG.</p> <p><u>CHAIRMAN:</u> Doctor S H Tow</p> <p>22 May 1964 - PANEL DISCUSSION "Abortions" <u>SPEAKERS:</u> Doctor T K Chong, MB, MRCOG. Doctor N N Ling, MB, FRCS(G), MRCOG. Doctor S M Goon, MB, MRCOG. <u>CHAIRMAN:</u> Doctor Y K Lee, MB, LLB, MRCP.</p> <p>5 June 1964 - PANEL DISCUSSION "The Gynaeco-Obstetric Patient and Her Psychiatrist" Gynaeco-Obstetric aspects Doctor N N Ling, MB, FRCS(G), MRCOG. Psychiatric aspects Doctor Y C Wong, MB, DPM, MRGP(E).</p> <p><u>CHAIRMAN:</u> Doctor S H Tow</p>	<p>KANDANG KERBAU HOSPITAL SINGAPORE -----oCo-----</p> <p>POST-GRADUATE COURSE (Third Series)</p> <p>Organised by The Post-Graduate Committee Kandang Kerbau Hospital</p> <hr/> <p>All doctors are cordially invited Tea will be served at 4:15 pm before the lecture</p> <p><u>PLACE:</u> University Lecture Theatre Kandang Kerbau Hospital Hampshire Road, Singapore 8</p> <p><u>TIME:</u> 5:00 pm each Friday</p>
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Figure 7 : Post-Graduate Program Pamphlet

<p><u>PROGRAMME</u></p>	
<p>6 March 1964 - LECTURE "The Diagnosis of Sex In the Unborn and Newborn" Professor H B Wong, MB, DCH, MRCP(E), FRFPS(G).</p> <p><u>CHAIRMAN:</u> Mr T H Lean</p> <p>19 March 1964 - PANEL DISCUSSION "Non-Haemorrhagic Vaginal Discharge" Doctor S H Tow, MB, MRCOG. Doctor Donald Chan, MB, MRCOG, FRCS(G&amp;E)</p> <p><u>CHAIRMAN:</u> Doctor S M Goon</p> <p>20 March 1964 - LECTURES AND PANEL DISCUSSION "Shock and Obstetric Shock" Professor L Tinckler, FRCS. Mr T H Lean, MB, FRCS(G), FRACS, MRCOG.</p> <p><u>CHAIRMAN:</u> Doctor S H Tow</p> <p>3 April 1964 - SYMPOSIUM "Congenital Abnormalities In the Newborn" Professor H B Wong, MB, DCH, MRCP(E), FRFPS(G). and Staff of the Perinatal Unit at Kandang Kerbau Hospital</p> <p><u>CHAIRMAN:</u> Doctor S M Goon</p>	<p>10 April 1964 - LECTURE "The Amenorrhoeic Patient" Doctor (Miss) Y Salmon, MB, MRCOG.</p> <p><u>CHAIRMAN:</u> Doctor S M Goon</p> <p>17 April 1964 - SYMPOSIUM "The Placental Insufficiency Syndrome" <u>Obstetric aspects</u> Doctor T A Sinnathuray, MB, FRCS(G&amp;E), MRCOG. <u>Paediatric aspects:</u> Professor H B Wong, MB, DCH, MRCP(E), FRFPS(G).</p> <p><u>CHAIRMAN:</u> Doctor S H Tow</p> <p>24 April 1964 - SYMPOSIUM "Genital Prolapse" <u>Anatomic aspects</u> Professor R Kanagasuntheram, Ph.D. <u>Gynaecological aspects</u> Doctor S M Goon, MB, MRCOG.</p> <p><u>CHAIRMAN:</u> Mr T H Lean</p>

**Figure 8**



**4th Asian Congress of Obstetrics and Gynaecology, Singapore Conference Hall,  
15-24 November 1968. Organising Committee Photo taken in KKH.  
Back Row (Left to right): Dr WC Cheng, Dr SP Wong, Dr YN Loke, Dr WR Rasanayagam,  
Dr KS Khew, Dr KD Chong, Front Row (Left to right): Dr R Yung, Dr SS Ratnam,  
Prof BH Sheares, Dr TH Lean, Prof SH Tow, Dr SM Goom.**

**Table 1: The Singapore O&G Timeline – 100 years of O&G from AD 1888 to 1988**

1888	The first Maternity Hospital (8 beds) in Singapore opened at the junction of Victoria Street and Stamford Canal. The first patient was admitted on 2nd January 1889 and her baby was safely delivered. The first account of trained nurses in Singapore was in 1888, when the Maternity Hospital in Victoria Street employed Mrs Woldstein, a qualified midwife.
1894	Maternal Deaths were first reported in 1894 in Singapore at the first Maternity Hospital
1905	Female pauper patients from Tan Tock Seng Hospital were transferred to KKH. Subsequently, the hospital was also used to house female lepers and poor children. It eventually became the Pauper Hospital for Women and Children.
1905	The Straits Settlements and Federated Malay States Government Medical School, the predecessor of NUS, was founded. The first batch of seven students graduated in 1910.
1907	First recorded case of Caesarean Section performed in Singapore.
1908	The Maternity Hospital at Victoria Street closed on 20th November 1908 and the new Maternity Block at the General Hospital at Sepoy Lines was completed and received patients from 1 Dec 1908. In 1908, the Midwives Bill was introduced.
1910	In 1910, in response to concerns over the high infant mortality rate on the island, Mrs Blundell, a Municipal nurse, was appointed with the primary function of instructing non-European mothers in the proper care of their infants. This marked the official beginning of the Maternal and Child Health Service in Singapore. First regular course for Asian midwives was started.
1911	Infant Mortality Rate fell below 300 per 1000 births. Dr Lee Choo Neo was the first Straits Chinese girl to obtain her Senior Cambridge Certificate and the first woman to qualify in medicine from the Medical School in 1919.
1914	The old Maternity Hospital at Victoria Street was reopened in September 1914 as a Free Maternity Hospital of 12 beds.
1915	The first Midwives Ordinance came into force. Maternity Hospital at Victoria Street had 174 deliveries.
1922	Professor J S English, Singapore's first Professor of Midwifery and Gynaecology assumed the Chair on 26th February 1922.
1923	The Midwives Ordinance 1923 established the Central Midwives Board in Singapore. In Britain, the Central Midwives Board was already established by Midwives Act which was passed in 1902
1924	Kandang Kerbau Hospital was converted into a free maternity hospital. On 1 October 1924, Kandang Kerbau Maternity Hospital (KKH) was opened with 30 beds and 12 children's cots. The hospital was led by Professor J S English, Singapore's first Professor of O&G. On that momentous day, five babies were born – three Malays, one Chinese and a Japanese.
1927	Home visiting of mothers and newly born infants living in rural areas of Singapore (outside the Municipal) under the charge of Ida MM Simmons, Public Health Matron was instituted in 1927. KKH had 1,019 deliveries in 1927.
1929	Dr Benjamin Henry Sheares graduated from the King Edward VII College of Medicine with LMS (Licentiate in Medicine and Surgery) in March 1929.
1932	Maternal Mortality Rate was 750 per 100,000 births. Combined stillbirth and neonatal death rate was 108 per 1000 births.
1933	In 1933, 2.5% of the patients admitted for delivery in KKH had antenatal care. One old building in KKH was pulled down and a block with 120 beds was erected. The building of the Third Class Block at KKH with new lying-in wards were opened at the end of September 1933 resulting in increased accommodation for patients. A flat on the top of this block was for the Assistant Medical Officer and another served as quarters (opened in 1934) for six medical students. Additional wards in the new buildings was opened in 1934.
1935	The total number of births in KKH was 2575.
1936	The Public Health Act and Midwives Act passed.

## Reflections from The Bulletin of the Kandang Kerbau Hospital for Women, Singapore

1938	Free female immigration allowed, helping to end the disparity in numbers between the sexes. About half (5,551) of the 11,206 babies born in Singapore in 1938 were delivered at KKH.
1940	Another block was built on the site of an old bungalow to give accommodation for the Ante-Natal Wards, the Labour Wards and some lying-in beds, bringing a total numbers of beds in KKH up to 180 when it opened in July 1940. Until the advent of the World War II, KKH remained a Free Maternity Hospital. All paying cases, both 1st and 2nd class, including all cases of gynaecological cases, were dealt with at the General Hospital at Sepoy Lines.
1942	During the hostilities with the Japanese in World War II, the Hospital was converted into an Emergency General Hospital with 500 beds and used to treat casualties. Singapore surrendered to Japanese troops on 15 February 1942. It became known as Chuo Byoin (Central Hospital) during the Japanese Occupation and served as the Civil General Hospital for Japanese civilians and the local community. Dr Benjamin Henry Sheares was its Deputy Medical Superintendent then.
1945	The Japanese surrendered on 5 September 1945 and Singapore was run by the British Military Administration until 1st April 1946.
1946	On 1st April 1946, Singapore became a separate Crown Colony. The Maternity Wing of the General Hospital at Sepoy Lines was closed down and all O&G patients were transferred to KKH. KKH resumed its function as the only O&G Hospital in Singapore.
1947	Infant Mortality Rate was 87 per 1000 births. Combined stillbirth and neonatal death rate was 106 per 1000 births. Maternal Mortality Rate was 290 per 100,000 births. In 1947, 62% of the patients admitted for delivery in KKH had antenatal care.
1948	Dr Benjamin Henry Sheares became the first local doctor to hold the O&G specialist diploma of MRCOG. Professor J S English retired in May 1948. KKH had 10,272 deliveries in 1948. Perinatal Mortality Rate was above 50 per 1000 births. Maternal Mortality Rate was 240 per 100,000 births.
1949	Family Planning Association of Singapore was registered by a group of Singapore women in July 1949. In November 1949, Mrs Constance Goh opened Singapore's first family planning clinic at her husband's medical clinic in North Bridge Road.
1951	Dr Benjamin Henry Sheares became the first local to be appointed as Professor of O&G in University of Malaya in January 1951. KKH reorganized in 1951 into a two unit system, a university unit under Professor BH Sheares and a government unit under Dr AC Sinha.
1952	The School of Midwifery was set up in 1952.
1953	Laying of the Foundation Stone of new wing of KKH by Sir John Nicoll, Governor of Singapore on October 6 1953.
1954	KKH had 20,301 deliveries in 1954. Singapore had 57,961 babies in 1954 with Perinatal Mortality Rate of 31.7 per 1000 births and Maternal Mortality Rate of 152 per 100,000 births. Domiciliary Aftercare Services were introduced to cope with the high demand for beds at KK Hospital in May 1954.
1955	Opening of the New Wing and Out-patients Department of KKH by Lady Black, wife of Sir Robert Black, Governor of Singapore on 10th August 1955. There was a total of 266 Obstetric beds, 50 Gynaecological beds and 26 premature nursery beds. The New Wing included a Students' hostel which can accommodate 30 O&G students and 8 housemen. Singapore was awarded the Kettering Shield for having the best Maternal and Child Health Service in the Commonwealth in 1955. Domiciliary Delivery Services were introduced to cope with the high demand for beds at KK Hospital in August 1955.
1956	The Bulletin of the Kandang Kerbau Hospital (the precursor of Singapore Journal of Obstetrics and Gynaecology (SJOG) began in March 1956 and the first editor was Prof Benjamin Henry Sheares. Application for RCOG accreditation by KKH was unsuccessful. Newborn nursery room created in KKH for sick newborns and managed by paediatricians (Dr Elaine Field and Dr Gwen Smith) from Singapore General Hospital on a roster basis.

## Reflections from The Bulletin of the Kandang Kerbau Hospital for Women, Singapore

1958	KKH had 31,724 deliveries in 1958. Singapore had 63,460 babies in 1958 with Infant Mortality of 44 per 1000 births, Perinatal Mortality Rate of 29.0 per 1000 births and Maternal Mortality Rate of 79 per 100,000 births. Female life expectancy was 64 years.
1959	Dr Oon Chiew Seng became the first gynaecologist (MRCOG) to go into private practice in May 1959. Dr AC Sinha resigned for private practice and Dr Chong Tuck Kwong became head of the government unit. Singapore attained internal self-government on 3 June 1959.
1960	Registration of the Obstetrical and Gynaecological Society as a section within the Singapore Medical Association on 7 September 1960 with Prof Benjamin Henry Sheares as its first president. Family Planning Association of Singapore launched the first large scale family planning campaign which lasted 3 months.
1961	Women's Charter 1961 superseded non-Muslim family law systems applied in Singapore. Prof Sheares resigned for private practice and Dr Tow Siang Hwa was appointed acting Head of the University Unit. The maternal and child health services of the Municipal and the rural Singapore administered by the City and Government Health Departments respectively, were integrated in 1961 as the Maternal & Child Health (MCH) Services within the Ministry of Health. Singapore's first Siamese twins (Karen and Kate) born at KKH were successfully separated on 12 December 1961 by Drs Yeoh Ghim Seng and J E Choo, at Singapore General Hospital.
1962	Dr Chong Tuck Kwong resigned for private practice. The KKH O&G Government Department was organised into two Training Units, A and B, under Mr T H Lean and Dr S M Goon.
1963	On 16th September 1963, Singapore, Sabah and Sarawak joined with Malaya to form the Federation of Malaysia. Training posts in KKH became recognized and accredited by RCOG for MRCOG examinations. Three assigned posts of the Department of Obstetrics and Gynaecology of the University of Singapore were accorded full 24 months recognition, and 6 assigned posts of the Government Units were accorded 18 months recognition.
1964	Racial riots in July and September 1964 placed heavy strains on KKH and staff who had to man it during the curfews.
1965	Singapore was separated from Malaysia on 9 August 1965 and became an independent republic.
1966	The Singapore Family Planning and Population Board, a government Statutory Board was inaugurated on 7 January 1966. Kandang Kerbau Maternity Hospital reached a peak of 39,835 deliveries in 1966 and held this record in the Guinness Book of Record till 1976. Singapore had 55,299 babies in 1966 with Perinatal Mortality Rate of 24.6 per 1000 births and Maternal Mortality Rate of 48 per 100,000 births. There were 6 O&G specialists (all MRCOGs) in Singapore. Prof Tow Siang Hwa became the first local to be awarded the RCOG William Blair Bell Memorial Lectureship.
1967	Full recognition of 24 months' training in O&G at KK Hospital Government Units by RCOG
1968	The Fourth Asian Congress of Obstetrics and Gynaecology was organized by the Obstetrical and Gynaecological Society in Singapore on November 1968. Mr Lean Tye Hin became the President of Asian Federation of Obstetrics and Gynaecology in 1968. KKH Domiciliary Delivery Service and Domiciliary Aftercare Service were terminated in 1968. In 1968 the first Abortion Bill was introduced and abortion was extended to cases deemed unsuitable for continuing pregnancy for family, social and economic reasons.
1969	O&G Department in Thomson Road General Hospital (renamed Toa Payoh Hospital (TPH) in 1974) opened in 1969. Creation of the OGSS Congress Trust Fund (for O&G Education and Research) with Mr Lean Tye Hin as the first Chairman. Prof Tow Siang Hwa resigned for private practice and Dr SS Ratnam was appointed Professor and Head of the University Unit. The Big Flood in Farrer Park and Serangoon area wreaked havoc in KKH on 10 December 1969. Abortion Bill and Voluntary Sterilization Act 1969 passed on 29 December 1969 in Parliament.
1970	Induced Abortion became legal in Singapore and Voluntary Sterilisation Act came into effect on 20 March 1970. Dr Charles Ng Sen Ark became the first Singaporean to be awarded the MRCOG Gold Medal. Female life expectancy was 68 years.



## Reflections from The Bulletin of the Kandang Kerbau Hospital for Women, Singapore

1971	Dr Benjamin Henry Sheares became 2nd President of the Republic of Singapore on January 1971. The first ever sex-change surgery was successfully performed on a man in Singapore in July 1971. O&G Department in Alexandra Hospital (AH) opened in 1971. The KKH Anaesthesia Department started in April 1971. The first local Master of Medicine (Obstetrics and Gynaecology) examination was offered with 3 successful candidates in 1971.
1972	On 27 July 1972, the Constitution of the Obstetrical and Gynaecological Society of Singapore (OGSS) was registered and the society became an independent body. The Inaugural Meeting of the new society was held on 3 September 1972 and Professor S S Ratnam became the first President of the new society and 41 members present constituted the Founder Members of the new society. Laparoscopy was first demonstrated in KKH by Dr PC Steptoe in early 1972. The first ultrasound machine for O&G use was acquired in Singapore at Thomson Road General Hospital. Voluntary Sterilization (Amendment) Act 1972 passed in Parliament.
1974	Termination of Pregnancy Authorization Board abolished and Abortion Law liberalized under Termination Of Pregnancy Act 1974. Voluntary Sterilization Act 1974 passed and under this act, decision to carry out treatment for voluntary sterilization rests with a registered practitioner acting with consent. Maternal Mortality Rate was 20 per 100,000 births.
1975	The Nurses and Midwives Act enacted. In 1975, the Anaesthetic Service started to decentralize and the Anaesthetic Unit at KKH became an independent unit that was solely dedicated to O&G. By 1975, Kandang Kerbau Hospital had 560 beds (372 for obstetric and 188 for gynaecological cases). In addition, there were 54 labour beds, 273 nursery cots and 191 special nursery cots. 'A' class constituted 5.3%, 'B' 15% and 'C' 79.7% of the beds.
1976	The septic abortion rate after legalization fell to 34.2 per 1000 abortions in 1976 (from 75.1 in 1967). A total 22 full-time and 13 part-time MCH centres provided the full range of maternal and child health services. During the year, 5 MCH centres were closed. The new Marine Parade Polyclinic which opened is the first combined Outpatient Dispensary and MCH Centre. There were 58 O&G specialists in Singapore. Ultrasound machine was first installed in KKH.
1978	The School of Midwifery (to give way to Bukit Timah Road Widening Scheme) was transferred to School of Nursing in SGH. Intensive care unit set up in KKH.
1983	The birth of the first IVF (test-tube) baby in Asia 19th May 1983 in KKH
1985	National University Hospital in Kent Ridge and its O&G Department opened. The main part of the University department of KKH shifted to NUH O&G Department in 1985 while the remaining university unit in KKH stayed until 1988. Prof SS Ratnam became President of the International Federation of Gynaecology and Obstetrics (FIGO) in 1985.
1986	OGSS organized the successful 12th World Congress of Fertility and Sterility in Singapore. O&G Department of Singapore General Hospital opened. Dissolution of the Singapore Family Planning and Population Board on 30th June 1986
1987	Singapore had 43822 babies in 1987 with Perinatal Mortality Rate of 9.1 per 1000 births and Maternal Mortality Rate of 7 per 100,000 births. Falling birth rate causes reversal of "stop at two" policy with "have three or more if you can afford it". Tax and maternity leave benefits introduced for third child.
1988	Dragon Year in Chinese Zodiac Cycle. Singapore had 53230 babies in 1988 (14,431 in KKH) with Perinatal Mortality Rate of 7.3 per 1000 births and Maternal Mortality Rate of 11.3 per 100,000 births.

This extracted O&G Timeline which stretches from AD 1888 to 1988, chronicles the important events relating to obstetrics and gynaecology in Singapore. It records the progressive number of deliveries in the maternity hospital at Victoria Street and later in KKH, from 1915 with 174 deliveries, leading up to KKH being the world's busiest maternity hospital since the 1950s with a peak of 39,835 deliveries in 1966, a record which was maintained till 1975.

It traces the evolution of Singapore O&G health care providers from the untrained traditional birth attendants, the "bidans" and midwives to trained and registered midwives, general practitioners and O&G specialists. It shows the growth of the local O&G fraternity since Dr Benjamin Henry Sheares became the first local obstetrician to hold the specialist diploma of MRCOG (Membership of the Royal College of Obstetricians and Gynaecologists) in 1948. This has grown to 233 O&G registered O&G specialists in Singapore.

It documents the improvements of O&G care in Singapore through the increasing Female Life Expectancy and the decreasing Maternal Mortality Rate and the Infant Mortality Rate and later Perinatal Mortality Rate, over the years. The maternal mortality dropped dramatically (by 100 fold) from 750 per 100,000 births in 1932 to 7 per 100,000 births in 1987. The perinatal mortality decreased by more than 10 fold from above 50 per 1000 births in 1948 to 9.1 per 1000 births in 1987. Standards of maternal, perinatal and infant care are intimately related to socioeconomic factors and health care policies of the government.