The present article reports on the career of Professor Nikolaos Louros and his contribution to the development of obstetrics and gynaecology. The data presented is based on desk research with the aim to gather and analyse relevant credible information from documents existing in primary and secondary resources in the archive of Foundation History of Medicine N. Louros. As a Professor at the University of Athens, Louros introduced new teaching methods. His multifaceted work includes writing, teaching, research, and the clinical and laboratory context. His scientific interest covers all areas of obstetrics and gynaecology. Pioneering and progressive in the medical field, he invented new clinical and surgical methods with international appeal. As a director, Louros established innovative rules in the Maternity Hospitals he directed. He supported every effort aiming to protect maternity and the child, and adopted a new approach regarding the problem of home-based obstetric help to the destitute women.

Keywords: Nikolaos Louros, history of medicine, maternity, gynaecology, obstetrics

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INTRODUCTION

Nikolaos Louros was born in Athens in 1898. His father was Constantine Louros, a Professor of Obstetrics and Gynaecology at the University of Athens and a politician. He was an internationally recognized Greek physician. Louros is considered the reformer of Greek Obstetrics and Gynaecology of the 20th Century.1 From an early point, he stood out for his pioneering and innovative thinking and organizational capacity. His scientific interest covers all areas of obstetrics and gynaecology including teaching, research, innovation in the clinical and laboratory context, organization and writing. The aim of the present paper is to report on the career of Professor Nikolaos Louros and his contribution to the development of obstetrics and gynaecology in Greece but also internationally. The data presented is based on desk research with the aim to gather and analyse relevant credible information from documents existing in primary and secondary resources in the archive of Foundation History of Medicine N. Louros.

MEDICAL STUDIES

His medical studies began in 1914 at the Medical School of the University of Athens and were completed in 1919 at the Medical School of the University of Bern. He continued his studies for the next five years in Vienna, Munich and Berlin.

PROFESSIONAL CAREER

Louros professional career began as a Lecturer at the University of Berlin in 1925. The following years, he served as a Registrar and Head of Scientific Laboratories at the State Clinic of Dresden. In 1928, he was unanimously elected as an Associate Professor of Obstetrics and Gynaecology at the University of Berlin. In 1936, he was elected as a Professor at the Chair of Obstetrics and Gynaecology at the University of Athens. In that position he completed his academic career in 1968 reaching the age limit.

ORGANIZATIONAL WORK

During his stay in Germany he contributed to the reorganization of the State Gynaecology Clinic of Dresden. The outcome was so satisfactory that

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they commissioned him, in collaboration with the technical service, to conduct a study for the construction of a supplementary 100-bed department in the same Clinic, as well as the construction of the Obstetrics and Gynaecology Clinic of Zwikau.\footnote{Foundation History of Medicine N. Louros, Louros Archives, Louros N. Curriculum Vitae, Box 11, Folder 5, (1965).}

In 1929, upon his return to Athens, he took over his father’s private Clinic Louros and reorganized and upgraded it to a 70-bed.\footnote{Ibid.} This Clinic had, apart from clinical duties, also scientific and teaching activities, while the construction and the use of an amphitheatre and well-organized laboratories were remarkable for this time.

As a Director, Louros expanded the Areteion Hospital. From 1935 to 1942, he assumed the direction of the Marika Eliadi Maternity Hospital, which he completely reorganized in every aspect. Moreover, Nikolaos organized the operation of the Greek Anti-Cancer Institute Agios Savvas. Moreover, he was commissioned the establishment of the Alexandra Maternity Hospital from its planning to its completion. From 1954 to 1968, Louros assumed the Direction of the Maternity Hospital and the First Obstetrics and Gynaecology Clinic of the University of Athens, which was housed there. The Maternity Hospital had the most modern technical scientific means for the examination of pregnant women and patients, such as the state-of-the-art instruments (Roentgen rays, ultraviolet, very short wavelength, radium, and isotopes) at the Radiology Department. He organized its operation in such a way that it operated as a model medical, educational and research centre internationally.\footnote{Louros, Nikolaos C. (1958), Maternité Alexandra et son fonctionnement, Revue Francaise de Gynécologie et D’obstétrique, 150 (5), 387.} No wonder, it was characterized by English professors, who visited it in 1961, as show-piece of Europe and one of the finest...
hospital buildings in Europe.\textsuperscript{5,6} This was extremely important in a period when Greece was still trying to recover from the aftermath of the war.

**Pioneering thinking**

In 1928, Louros was the first to introduce colour to the hospitals, transforming the cold white hospital environment.\textsuperscript{7} In 1945, he proposed an integrated system of general health insurance for the entire Greek population.\textsuperscript{8} He was well ahead of his time since a similar system to what he proposed was implemented in England years later. Innovative was also his action to introduce a detailed statistical system in a period when statistics were not part of the routine procedures of care. As a Director in the Marika Eliadi Maternity

![Figure 2: Nikolaos Louros at a Maternity Hospital during his visit in the USA where he was invited to give a series of lectures. Source: Foundation History of Medicine N. Louros, Box 3, Folder 2.](image)

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\textsuperscript{5} Foundation History of Medicine N. Louros, Louros Archives, Letter Nixon to Louros, Box 17, Folder 5, (23 May 1961).

\textsuperscript{6} Foundation History of Medicine N. Louros, Louros Archives, Letter Moir to Louros, Box 17, Folder 5, (12 May 1961).

\textsuperscript{7} Louros, Nikolaos C. (1972), Thoughts about the Hospitals in the present and the future, Hippocrates, 1 (3), 187.

\textsuperscript{8} Louros, Nikolaos (1945). The health organization of the country: A plan, Athens; Kostas Papadogiannis, 2-11.
Hospital, Louros established for the first time the practice of statistical data collection, while in the Alexandra Maternity Hospital a Statistical Service for the complete recording and monitoring of the Hospital’s scientific work was developed under his command. In fact, the statistical data regarding the women admitted to the Alexandra Maternity Hospital are amongst the richest in the international literature of that time. Moreover, he introduced the concept of the ‘full-time’ doctor. According to this concept, a number of hospital beds were available to physicians for their private clients. This approach has three advantages: it elevates the social level of the hospital, guarantees financial resources for its maintenance, and safeguards the physicians’ full employment in the hospital.

This system was successfully applied in the Alexandra Maternity Hospital with 1/3 of the beds corresponding to second and first class wards and luxury. Later, other Greek hospitals, such as Hippocratio, adopted this system.

Protection of pregnant women, motherhood and children (mobile service system, social welfare services, neonatal care)

Louros paid particular attention to the protection of motherhood and child, both for the population of the capital and the countryside. Among his most astonished achievements was the development of regulations for the protection of motherhood before, during and after pregnancy, but also for the care of new-borns, particularly the premature ones. Before the war, for the first time internationally, he applied the Mobile Service System having the Marika Eliadi Maternity Hospital as its base. According to this concept, a car modified appropriately into a portable obstetric surgery, contained the necessary means to carry out a natural delivery at home even in the most unfavourable conditions. Therefore, in the case of reaching the capacity of the Maternity Hospital, the Mobile System was sent free of charge to carry out deliveries at the homes of destitute families who had previously evaluated for it by a visiting nurse. The car was accompanied by an experienced registrar of the Maternity Hospital and one midwife, and had the capacity to carry out

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10 Louros, N. (1972), 186.
11 Foundation History of Medicine N. Louros, Louros Archives, Maternity Protection, Box 25, Folder 1, (1937).
five deliveries on a daily basis. In 1954, the Greek Government with the support of the World Health Organization (WHO) and UNICEF applied a pilot Plan for Maternity Protection via mobile units in Thessaly, which has been published in 1937 and was based on the model of the Mobile Service System of the Maternity Hospital.\textsuperscript{12} The aim was to counsel, examine and treat pregnant and parturient mothers, infants and children of up to three years of age. This is quite innovative even for nowadays, especially for Greece that has many rural and remote areas with limited access to care.

Figure 3: The Mobile Service System of Marika Eliadi Maternity Hospital. Source: Foundation History of Medicine N. Louros, Box 25, Folder 1.

At the Alexandra Maternity Hospital, he organized a Social Welfare Service aiming to link the Maternity Hospital with the Maternity Stations of the Patriotic Institution of Social Welfare and Awareness of the capital and the regions, in order to monitor the health of women after their departure from the Maternity Hospital. Emphasis was also given to the care of new-borns and premature babies by introducing special incubators. In the Neonatal Department, new-borns were monitored until the age of two. He also operated a model Blood Bank and Breast Milk Bank, with the capacity to cover breast milk demand throughout the country.

\textsuperscript{12} Foundation History of Medicine N. Louros, Louros Archives, Plan of operations for a maternal and child health project in Greece, Box 22, Folder 8, (1950).
Family planning
(in a period when female contraception was illegal)

Aware of the international developments, he was the first in Greece to realize the importance of family planning and supported the establishment of Family Planning Centres based on the model of those already operating in England and the USA. Since the first years of operation of the Alexandra Maternity Hospital, there was a Fertility-Sterility External Clinic, where counselling was given on infertility and family planning issues. At that time conception control was not officially allowed in the country except at the Fertility-Sterility Out-patient Department of the Alexandra Maternity Hospital under his direction. Under the auspices of the Hellenic Eugenics Society (HES), he served as president for twenty years, and by the advisory and technical support of experts from abroad he started a campaign in the direction of family planning in Greece. In 1958, the State and University Maternity Hospital Alexandra was included in the IPPF's World List of Family Planning Agencies. In 1966, under the auspice of the HES was initiated the Premarital and Marital Advisory Centre at the Out-patient Obstetric Department of Alexandra Maternity Hospital. The Centre operated voluntarily from February 1966 to July 1968 under the direction of the Associate Professor Ioannis Danezis. The Centre was staffed by specialized health professionals: an obstetrician, a midwife and a social worker. The specialists volunteered their time and provided free advice and information on family planning and sexual education.

Informing pregnant women with novel teaching methods for that era

Nikolaos Louros first applied the system of recorded lectures at the External Obstetrics Clinic. He collaborated with the Greek Productivity Centre of the Athens Cinematographic Service to create the lectures. The

14 Foundation History of Medicine N. Louros, Louros Archives, Letter Louros to Gamble, Box 12, Folder 2, (13 February 1955).
lectures lasted three to five minutes and provided information regarding the early stages of pregnancy and the stages before performing a Quick Painless Delivery (QPD).18,19 The lectures for the early stages of pregnancy were six and were held from Monday to Saturday. Each lecture had a different subject; the history of Alexandra Maternity Hospital; namely the frequency and importance of examining the pregnant woman; her lifestyle and work; how to preserve her beauty and health; the signs that the delivery starts and the appropriate time for the admission of the pregnant woman into the Maternity Hospital; the importance of QPD. Four lectures were held regarding the QPD aiming to prepare the pregnant woman both mentally and physically. During these lectures, pregnant women were informed of what exactly is taking place during pregnancy and childbirth, so that knowing what is happening to them and what is going to happen during the delivery, it would help eliminate the fear that predisposes them and help them feel less pain. A Gym was also operating inside the Maternity Hospital for the preparation of the body with specific and safe exercise.

The emergence of Midwives/Visiting Nurses

As a Professor, Louros considered midwives and visiting nurses an integral part of maternity and child protection. He also considered that midwives with the proper education would, on one hand displace the unskilled empirical midwives, and on the other, they would efficiently help the population of the countryside with their service.20 Moreover, Louros highlighted the lack of midwives in the regions, underlined their inadequate wages, informed the competent state bodies on that issue, and supported every effort aimed at improving the conditions of their work. He considered a prerequisite for the exercise of these professions to hold a diploma of the certified Institutes. The teaching programs for the students of the Midwifery School Virginia Skilitsi at the Marika Eliadi Maternity Hospital, the Midwifery School Queen Frederica of the Public Maternity Hospital and the School of Visiting Nurses were organized by him. It is worth noting that at the Alexandra Midwifery School the selection of the candidates was done under strict criteria and the possession of a high-school diploma was a prerequisite.

18 Foundation History of Medicine N. Louros, Louros Archives, Professor Louros Lectures for the External Obstetrics and Gynecology Clinic, Box 21, Folder 7, (1955).
19 Foundation History of Medicine N. Louros, Louros Archives, Professor Louros Lectures for Childbirth: mental and physical preparation, Box 21, Folder 4, (1954).
Louros organized the teaching of obstetrics and gynaecology for Medical School students. In university lectures, he allowed lecturers to develop their teaching skills and helped many young physicians to follow an academic career. He also urged his colleagues to do research and statistically analyse the scientific issues. By following the international developments in his field and encouraging his colleagues to go abroad with a scholarship for in-service training, he opened a new era at the University and laid the foundations of a School with all the specialisations and sub-specialisations of obstetrics and gynaecology.

It was the first time in Greece when he introduced the review of scientific literature. More specifically, compulsory meetings were held on a weekly basis in order to provide international literature updates for obstetricians.
and gynaecologists. The small group meetings and discussions were also first introduced in Greece by him. On a weekly basis, the students of all Departments of the Alexandra Maternity Hospital were gathering in order to discuss for one hour about obstetrical, gynaecological, embryological and neonatal cases.\textsuperscript{21} He introduced the educational TV, where he presented his clinical and surgical methods through filmed recordings. Furthermore, round-table discussions were coordinated by him, where obstetrical and gynaecological cases were presented for discussion and debate.

In 1945, he was appointed to a Chairman of the Examination Committee of the Ministry of Health for the acquisition of specialisation on Obstetrics and Gynaecology. He was one of the pioneers of the establishment of Medical Schools in the country’s regions and his name was associated with the Medical Schools of Patra, Alexandroupoli and Ioannina.\textsuperscript{22} As a Professor, Louros was invited to give a series of lectures at several Institutes and Universities in Germany (University of Heidelberg, East Berlin, West Berlin, Munich, Erfurt), England (University of London, Royal Society of Medicine of London), the USA (Mount Sinai Hospital in New York, New York Hospital, St. Louis Hospital in Missouri, Passavant Hospital in Chicago), as well as many others in Europe including Norway, Denmark and France. In 1965, he was invited by the University of Sydney to assume the teaching of Obstetrics and Gynaecology for one month.

**Research activity - Medical Achievements**

Early on, Louros showed interest for scientific research. During his stay in Germany, he got involved in laboratory research studying streptococcal infections after the delivery and after gynaecological surgical operations, and the importance of defence mechanisms of the reticular endothelial system and the vaginal microbiota.\textsuperscript{23} In collaboration with Warnekros and Becker he invented Sepsis Antitoxin. This technique had been widely applied in many parts of the world as a method of treating sepsis until the discovery of antibiotics. Upon his return to Greece, he got involved in clinical research and focused on the treatment of uterine neoplasms. His main achievements include the quick painless delivery and the radical surgery for cervical cancer. Louros was the first to use hyaluronidase for the treatment of uterine toxaemic oedema. Another achievement was the proposal of a new surgical method for

\textsuperscript{21} Ibid., p.12.

\textsuperscript{22} Marketos, S. (2001), 11.

the treatment of hypertension induced urinary incontinence. Moreover, he modified and improved the Burger artificial vagina creation method.

His methods had international appeal and were disseminated abroad through film recordings.24 Under his direction, a large number of internationally recognized Professors and young physicians participated in round-table discussions, in-service training and observation of his surgical procedures at the Alexandra Maternity Hospital.25 In fact, it was the first time that foreign physicians requested to be trained in Greece. International scientific and academic institutions were interested in his methods, for example in 1948 the Royal College of Obstetrics and Gynaecology in London invited him to develop his method of quick painless delivery, as well as his theory on fibroidectomy.

Publications

His work includes more than 200 scientific publications in Greek, English, German and French, in prestigious scientific journals, such as the Journal of the International College of Surgeons, American Journal of Obstetrics and Gynaecology, International Journal of Fertility, Deutsches Medizinisches and Revue Francaise De Gynecologie Et D’Obstetrique journal. Louros is the author of a number of scientific works, including the ‘Obstetrics and Gynaecology’, which was released in five editions and translated into French as Gynecologie. It was the first time a Greek textbook was translated into French. It even received excellent reviews in prestigious scientific journals, such as The Lancet and the Journal of the American Medical Association. In addition, the International Federation of Obstetrics and Gynaecology commissioned him to write the Dictionary of Obstetrics and Gynaecology, which was published in 8 languages (Greek, Latin, English, French, German, Spanish, Italian and Russian). At the suggestion of the publisher Charles Thomas in the United States, he wrote the Monograph on Three Surgical Techniques: a) Radical Hysterectomy for Cancer of the Cervix, b) Myomectomy, c) Operation for Stress Incontinence. He participated with announcements and invited speeches at international conferences in all five continents. In Greece, Nikolaos participated as a speaker or organizer at a large number of conferences alongside other internationally renowned professors. As an author, Louros has written a large number of books of historical-medical and literary contents and medical, social and literary articles published in the daily and periodical press.

24 Ibid.
Distinctions

Louros was a member of the most important Greek and foreign academies and scientific societies, which gave him international recognition in his field. Among other distinctions, he was an Honorary Member of the Royal Society of Medicine of London, the German Gynaecological Society, the Central Association of Obstetricians and Gynaecologists of America and the International Planned Parenthood Federation (IPPF). He was also the founder of the Greek Department of the International College of Surgeons and its globally elected president. Moreover, he was a president of the most important societies in Greece, such as the Obstetrics and Gynaecology Society of Athens and the Academy of Athens. From 1947 to 1964, he was the honorary physician of the royal family. It is worth mentioning that he was honoured with many medals and distinctions, such as the Medal of the International College of Surgeons and the Grand Cross of Merit of West Germany. As revealed in the letters of the archive of the Foundation History of Medicine N. Louros, he was honoured and enjoyed respect internationally. At the award ceremony for the title of Honorary Member of the International College of Surgeons, the world-renowned American Professor of Gynaecology Jack Greenhill stated in his speech amongst others ‘Louros is one of the foremost obstetricians and gynaecologists in the entire world’.26 It is worth noting that the IPPF suggested him as an Honorary Member to use his name to give prestige to their organization in Greece.27 His contribution

to maternity protection was recognized by foreign entities. In March 1960, the Persian government invited him to organize Maternity Protection in Persia. In 1963, he participated as a Maternity Expert at the Second European Meeting of Investigators, invited by the World Health Organization. In June 1964, he was commissioned to go to the Soviet Union as an expert of the World Health Organization on obstetrics and gynaecology.

**Conclusion**

Nikolaos Louros contribution to obstetrics and gynaecology is important and multifaceted. The new clinical and surgical methods he invented had international appeal. As a professor, Louros introduced new teaching methods. He established innovative rules in the hospitals he managed and organized the operation of the Alexandra Maternity Hospital in such a way that it became a model research and scientific centre internationally. Finally, he supported every effort to protect maternity and childhood and raised the problem of home-based obstetric help to the destitute women.

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