



Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology

journal homepage: www.elsevier.com/locate/ejogrb

Provision of paediatric and adolescent gynaecology in Europe today: A joint review by the European Association of Paediatric and Adolescent Gynaecology (EURAPAG) and European Board and College of Obstetrics and Gynaecology (EBCOG)

Ivonne Bedei^{a,*}, Zana Bumbuliene^b, Milko Sirakov^c, Tahir Mahmood^{d,f}, Paul L. Wood^e, on behalf of the European Association of Paediatric and Adolescent Gynaecology

^a Department of Obstetrics and Gynaecology, Klinikum Frankfurt Höchst and Mannheim University, Germany

^b Clinic of Obstetrics and Gynaecology, Institute of Clinical Medicine, Vilnius University Faculty of Medicine, Lithuania

^c University Hospital Sofia, Bulgaria

^d Victoria Hospital, Kirkcaldy, Scotland, UK

^e Cambridge University Hospitals, Cambridgeshire, UK

^f EBCOG Chair, Standards of care and Position statements working group, UK

ARTICLE INFO

Article history:

Received 7 August 2018

Accepted 8 August 2018

Keywords:

Paediatric and adolescent gynaecology

Standards of care

Training

Europe

EURAPAG

EBCOG

ABSTRACT

Paediatric and Adolescent Gynaecology (PAG) is a multidisciplinary field combining aspects of gynaecology but also includes paediatrics, endocrinology, genetics, radiology, psychology and urology.

Specialist knowledge is warranted for the care of these youngsters, and it is important that doctors attending to the gynaecological needs of children must understand that they are not just “little women”. Their needs and accompanying clinical approaches required are very different from those of adults in this sensitive area, as is the spectrum of diseases and problems. A multidisciplinary collaboration is as important as the establishment and adoption of standards in education, training and management.

The situation in Europe in PAG is varied, reflecting the relative youth of this area of special interest and thereby allowing for earlier consolidation of standards and services across Europe. This article summarises the background to PAG in Europe, inequitable current provision of care and issues relating to education and training all of which are relevant in providing a common approach to PAG problems and endeavouring to obtain the best outcomes. There remains huge diversity how the services for “young women” are currently delivered across different countries within Europe. A concerted European approach is urgently required to streamline standards of training and clinical care, to ensure high quality care by using agreed national and European pathways.

© 2018 Published by Elsevier B.V.

Contents

Introduction	117
International consolidation	117
Current provision	117
Standards	118

* Corresponding author.

E-mail address: ivonne.bedei@klinikumfrankfurt.de (I. Bedei).

Training	118
Germany	118
The United Kingdom	119
Eastern Europe	119
Russia	119
Baltic countries	120
Summary	120
Funding	120
Conflicts of interest	120
References	120

Introduction

The history of PAG in Europe originates primarily from Eastern Europe and specifically with the Hungarian Paediatrician Dr. L. Dobszay who wrote the first textbook on Paediatric and Adolescent Gynaecology in 1939. The first specialised inpatient service was established in 1940 at the University Hospital of Prague in what was then Czechoslovakia by Professor Rudolf Peter.

By 1953 PAG was formally included in the curriculum at Karls University in Prague for the first time in Europe. Over the next 20 years specialised services were delivered by pioneers within the Czech Republic (Karel Veselý, Jan Hořejší), Poland (Alina Komorowska), Hungary (Judit Örley), Bulgaria (E Svetoslavova, M Sirakov), the former Soviet Union (Jurij A. Gurkin) and the German Democratic Republic (Hans-Dieter Hirsche, Siegfried Hoyme & Marlene Heinz).

Pioneers in PAG were not however limited to Eastern Europe, with Professor Sir John Dewhurst in the United Kingdom and Professor Frits Lammes in the Netherlands also being renowned proponents of the subspecialty. Other pioneers in Europe include Irmi Rey-Stocker from Switzerland, R Contamin, Y Salomon-Bernard and Jean E. Toubanc from France, George Creatsas from Greece, Vincenzina Bruni from Italy, Lauri Rauramo and Dan Apter from Finland, Ch Lauritzen, J. Esser Mittag & A Wolf from the Federal Republic of Germany, Alfons Huber and Gerhard Tscherne from Austria and Anne Caufriez from Belgium.

The PAG society of West Germany was founded in 1978, and the society is embedded not just in the German Society of Obstetrics and Gynaecology (DGGG), but also in the German Society of Paediatricians (DGKJ). Gynea in Switzerland was founded in 1992. The British Society was founded in 1998 but to this day there remain other European countries with no designated national PAG Society.

It is not clear if the PAG services in these countries are mainly managed by single PAG specialists, or if the service is (inappropriately) incorporated within adult patient gynaecology clinics. There remain pockets within Europe's 47 countries where the role of PAG is not fully recognised at every level.

International consolidation

For historical reasons the place of foundation and registration of EURAPAG was agreed as Prague in the Czech Republic. The Association was officially registered in March 2008 in Prague in accordance with Czech law. Since then there have been designated European Congresses in 2008 St Petersburg (Russia), 2011 Plovdiv (Bulgaria) and 2014 London (United Kingdom). The last European Congress of PAG was held in Vilnius (Lithuania) in 2017. At present there are 20 National Organizations for PAG who are Members of the Association. These consist of Belgium, Bulgaria, Cyprus, the Czech Republic, Finland, Germany, Greece, Hungary, Italy, Kazakhstan, Latvia, Lithuania, Netherlands, Poland, Russia, Serbia, Slovakia, Switzerland, UK, and Ukraine. There is also an opportunity for individual members to join EURAPAG.

At a global level the initial decision in 1970 to establish an international PAG Association was made by Huffman, Contamin and Stocker. In 1971 and during the first International Symposium on PAG, FIGIJ (the Federation Internationale de Gynecologie Infantile et Juvenile) was founded in Lausanne. The Association is also known as the International Federation of Pediatric and Adolescent Gynaecology. Since the establishment of FIGIJ, 18 World Congresses have taken place, starting in Bordeaux in 1972. The last World Congress was held in Florence in 2016.

It was during the 15th FIGIJ World Congress of PAG in Sao Paulo, Brazil, held in May 2007, that a separate meeting of representatives of 13 European countries proposed the establishment of a European Association of Paediatric and Adolescent Gynaecology – EURAPAG.

Current provision

In their survey Richmond et al. [1] contacted countries that are members of the European Board and College of Obstetrics and Gynaecology (EBCOG) and the European Association of Paediatric and Adolescent Gynaecology (EURAPAG). Via a questionnaire, they tried to establish how many countries had national societies, whether there were national standards for PAG and for instance whether there was legislation for female genital mutilation, protocols for transition to adult services, HPV vaccination programs, sex contraceptive education, safeguarding programs, clinical leads for PAG, delivery of PAG services and training available for PAG. Twenty-seven of 36 countries responded. Of these 77% had PAG societies, but only 44% had national standards.

A recent German survey has attempted to determine in which hospitals there is provision of a dedicated PAG service. Over 400 paediatric and more than 300 gynecologic services have been approached separately. Hospitals included in the survey are University, Teaching and General Hospitals. The survey was organized by the German Society of Paediatric and Adolescent Gynaecology. The survey aims to evaluate not only the coverage of PAG services over Germany, but also investigate if there is a specialist outpatient service or alternatively nothing other than a single person trained in PAG seeing patients with PAG problems on a random basis or attending a hospital as an emergency. The survey inquired as to the kind of problems being seen, divided into endocrinology cases, surgical interventions and anomalies of the female genital tract and is still in progress.

The extent to which a PAG service can provide pathways of care and demonstrate the wide variety of clinical issues to be addressed in children with gynaecological problems has been exemplified by McGreal & Wood [2].

The concept of the establishment of clinical networks in PAG is a core principle for service development (MacDougall et al.) [3]. An emerging model is that of flexible groupings of hospitals with a lead clinician in PAG in each hospital with the networks setting standards, providing clinical, educational and referral pathways and allow for problem-sharing. When asked, clinicians believed that National Societies in PAG should provide advice on running

services, the provision of examples of good practice, identification of networks, development of guidelines and patient information and provision of resources for educational meetings.

Standards

The adoption of standards in PAG has been facilitated by the European Board and College of Obstetricians and Gynaecologists. EBCOG published a paper on Standards of Care for Women's Health in Europe in 2014 [4] and included a section on PAG, heralding an important step forward in recognition of the subspecialty.

The EBCOG Standards Document highlights how the physical and psychological wellbeing of children and adolescents is crucial for their future general and reproductive health and how gynaecological conditions can be common and disruptive, with rare conditions requiring specialist multidisciplinary management. The document stressed how the inappropriate provision of care can result in poor outcomes and adverse long term consequences.

Training

The following countries have been chosen as examples in an attempt to demonstrate how expert PAG training is carried out in parts of Europe (Table 1).

Germany

The German Society for PAG is the second largest national society in Europe after Russia in terms of membership numbers. Members mainly consist of gynaecologists and paediatricians but also some paediatric surgeons. The board consists of six members, three paediatricians and three gynaecologists. PAG training is not officially included in the undergraduate university curriculum, and efforts are being made to remedy this. PAG is not an officially recognised subspecialty and there is no standardised training program or catalogue. The German Society offers two intensive training courses (level I and level II, each with a written exam at the end of a 3 day

Table 1
Provision of PAG services in individual European countries.

Country	PAG Society	PAG training for undergraduate students provided	PAG recognised as a subspecialty	Standardised PAG training curriculum	Provision of training	PAG Guidelines	Government funded HPV National Immunisation Programme	PAG Journal
Germany	Yes	No	No	No	Intensive training courses I and II, Berlin symposium, quality circles and possibility of local hospitalisation Annual clinical meeting, Annual training day	No	Yes	Yes, "Korasion" published quarterly No
Great Britain	Yes	No	No	Electronic portfolio for specialist training Advanced Training Skills Module (ATSM) plus - Attendance at a suitable theoretical course, attendance at a Level 2 course for child protection and development of a Quality Improvement Initiative		Yes, various	Yes	
Greece	Yes	Yes	No	Yes	Annual meeting, national seminar every two years Annual week-long update in PAG (Florence), clinical training available. Annual courses in Cagliari, Messina, Campobasso and Salerno Within OB/GYN residency training for 6–8 weeks	No	Yes	Yes
Italy	Yes	No	No	No		Yes, various	Yes	No
Netherlands	Yes	No	No	No		Yes, primary amenorrhoea	Yes	No, from 2018 JPAG with Society Membership No
Latvia	Yes	No	No	No	Eight weeks training in OB/GYN residency training Two weeks training in OB/GYN residency training, annual PAG conference, Intensive training weeks	No	Yes	No
Lithuania	Yes	No	No	No		No	Yes	No
Russia	Yes	No	No	Advanced training modules conducted every five years. A system of continuous professional studies is being implemented	Large conferences every three years organised by the "Union of Paediatric and Adolescent Gynaecologists" together with the Russian Society of Obstetrics and Gynaecology Two weeks paediatric residency training, annual symposium/conference annual training course, pre-attestation course and attestation every five years	Standards of diagnosing and managing main PAG disorders approved by the Russian Ministry of Healthcare Yes, various	No	Yes - "Paediatric and Adolescent Health" x6/year
Serbia	Yes	No	No	No			In progress	No
Ukraine	Yes	Yes	Yes	PAG certificates after 3 months training for gynaecologists and paediatric surgeons and after five months training for paediatricians		Yes, PAG diagnostic and treatment algorithms approved by the Ukrainian Ministry of Health	No	No

training) each year, thereby providing a qualification to interested physicians. There are always also participants from other European countries, mainly Switzerland and Austria. However, there is not an official requirement to practice PAG in a hospital or outpatient setting. Every second year there is a Paediatric and Adolescent Gynaecology Symposium held in Berlin, mostly for German speaking countries. In 2017 the Symposium was organised by Germany, Austria and Switzerland together in order to strengthen international collaboration. The next meeting in 2019 will include an international session. German Board members take part in the compilation of Guidelines linked to the field, but there are no official recommendations for different PAG specific problems. The German PAG Society is taking part with special sessions linked to the wider paediatric, obstetric and gynaecological congresses, making PAG more accessible and bringing it to the mind of a broader audience. Specialists of the field also organise “quality circles” for interested colleagues in their area, meeting once every three months to discuss cases or new developments and to enhance networking [5]. The official journal of the German PAG society is the “Korasion”, which is released quarterly. On the official website, patients and colleagues can see who has been qualified by the Society and provides attention to PAG cases in their region.

Despite an HPV vaccination program and vaccination covered by the health insurance companies, the rate of children and adolescent girls being vaccinated is low in comparison to other European countries [6–8]. Interestingly, the eastern part of Germany has a considerable higher rate of vaccinated girls (46.2%) than the western part (29.1%) [7].

The United Kingdom

The British Society for Paediatric and Adolescent Gynaecology (BritSPAG) was conceived in 1998 and held its first national meeting in 2000. In comparison to the German PAG Society, BritSPAG has a broader variety of members including nursing professionals highlighting the multidisciplinary nature of PAG, and there are designated places on the national committee for representatives from paediatric endocrinology, paediatric urology and psychology. In Great Britain PAG is also not at present included in the official curriculum for medical students. There is no actual PAG module for core skills for obstetric and gynaecological specialist trainees (residents), but there is an electronic portfolio for specialist training which contains issues relating to PAG. Furthermore given the increasing recognition of PAG as an area with specific training requirements, the General Medical Council in the United Kingdom has approved an Advanced Training Skills Module (ATSM) for PAG which was updated in 2016, as a joint venture between BritSPAG and the Royal College of Obstetricians and Gynaecologists. The ATSM must be undertaken under the supervision of an identified preceptor who is skilled in the management of Paediatric and Adolescent Gynaecology and should be completed within 12–18 months. Attendance at a suitable theoretical course is compulsory and BritSPAG organises an annual clinical meeting and an annual training day. A level two course for child protection must be attended and a Quality Improvement Initiative must be developed.

Eastern Europe

There are ongoing attempts to formalise PAG as a subspecialty in countries such as Bulgaria where PAG has been practised since 1956, and this is an ongoing process. During the socialist years prior to 1989, there was a well-organised network of PAG consultation services located in each of the 28 District Hospitals with appropriately trained staff and a central Department at the University Hospital for Obstetrics and Gynaecology in Sofia which

organised regular postgraduate courses and national Congresses. Since 1989 the service has been disrupted with closure or privatisation of the District Hospitals, the only remaining central consulting room being at the University Hospital in Sofia. Specialists trained in PAG numbered approximately 40, with the Bulgarian PAG Society established in 1998. The number of clinicians practicing PAG has fallen to around 10–15 and this is against a background of a small country with a decreasing birth rate, reasons why the structure of PAG services has changed. Over the last three years Bulgaria has introduced a national vaccination programme for HPV providing free vaccination for girls aged 12–13 years old, although coverage to date has been limited to 25–30% of the applicable population.

The speciality of Paediatric Gynaecology in the Ukraine was formally introduced in 1997 by the corresponding Order of the Ministry of Health. The Ukrainian PAG society was established in 2002 by Prof. I.Vovk, and she remains the President of PAG society. Every year the Association of Obstetricians and Gynaecologists of Ukraine organises conferences, and the PAG society has their own separate session during these congresses. In the official list of medical specialities, there is an established post of Paediatric and Adolescent Gynaecologist. The pioneers who started training students in Paediatric Gynaecology in Kharkiv National Medical University were Professors L.F. Koulikova and I.A. Tuchkina. The internship course in paediatric gynaecology was introduced as a primary specialisation of a two-year course for paediatricians. After completion of the course interns obtained a certificate in the PAG specialty. After a few years the internship course was reduced to one year, and in 2006 this was cancelled altogether. Today in Ukraine, PAG specialists are being trained according to the following scheme: medical university, specialty Paediatrics (6 years); internship course (primary specialisation) in Paediatrics (2 years); and specialisation in Paediatric Gynaecology (5 months). Continuing education training for doctors with certificates in PAG includes an annual training courses, pre-attestation courses, and attestation (once in 5 years). Obstetrician/gynaecologists and paediatric surgeons can work as PAG doctors after three months of specialising in PAG and obtaining the PAG certificate. Paediatricians can work as PAG doctors after five months of specialisation and obtaining the PAG certificate. PAG diagnostics and treatment algorithms (pubertal uterine bleeding, precocious, delayed puberty) are approved by the Ukrainian Ministry of Health. In the Kharkiv region, more than ten local protocols for the diagnosis and treatment of various pathologies in PAG have been developed.

Russia

In Russia, obstetricians and gynaecologists can provide gynaecological care to girls and adolescents only after completion of an advanced training module (a course of thematic development). Such courses are conducted by Professors from University Clinics of Obstetrics and Gynaecology every five years. Currently, a new system of continuous professional studies is being implemented in Russia. According to the system, credits are given for attending congresses, conferences and seminars where scientific achievements of PAG are presented, and seminars or schools, where training in paediatric and adolescent reproductive health care takes place. Paediatric and adolescent gynaecologists work in cities with over 10,000 children population (people of both genders aged 0–17 years). Usually these are large Russian towns. Currently, special training for gynaecologists, who will be able to perform routine examination of girls aged 3, 7, 12, 14, 15, 16 and 17 years, are conducted. There are standards of diagnosing and managing main gynaecologic disorders in PAG approved by the Ministry of Healthcare in Russia. Clinical recommendations (protocols) have already been developed. Large conferences are

organised every three years by the interregional public organization “Union of Paediatric and Adolescent Gynaecologists” together with the Russian Society of Obstetricians and Gynaecologists, V.I Kulakov Federal State Budget Institution “Research Center for Obstetrics, Gynaecology and Perinatology”, and the Ministry of Healthcare of the Russian Federation. In 2015 the first national conference with foreign attendants called “Reproductive health of Children and Adolescents” was organised together with Russian Paediatric Urologists and Andrologists. The next conference will be organized in 2019. Prof. E.Uvarova is the main specialist for PAG in the Russian Ministry of Healthcare, and is responsible for arranging the PAG conferences in various parts of the country, dedicated to the analysis of the work done by PAG specialists and important problems of the field in Russian regions.

Baltic countries

In the Baltic countries PAG societies were established in Latvia in 1996, and in Lithuania in 1999. Only two doctors from these countries are PAG fellows and PAG is not officially recognized as a subspecialty. There are no published national standards relating specifically to PAG. The first books in the field of paediatric and adolescent gynaecology were published in 2004 in the Lithuanian [9] and Latvian languages [10].

In Lithuania, for example, during their residency in obstetrics and gynaecology, trainees have two weeks PAG training, in Latvia this is eight weeks, but there are no clear requirements or established graduation exams. In Lithuania every year intensive training courses of one weeks' duration are held to qualify interested physicians (obstetrician gynaecologist, paediatricians, family doctors), but that is not a necessary requirement to perform PAG in a hospital or outpatient setting. Paediatric and adolescent gynaecology conferences are held once per year in Vilnius. A national program for Human Papilloma Virus vaccination has been available in Latvia from September 2010 for 12 years old girls, and in Lithuania from September 2016 for 11 years old adolescent girls. Estonia started vaccination in schools from January 1, 2018 for 12 years old girls with catch up to 14 years with vaccine Gardasil 9.

So there are different ways of PAG administration, depending on whether the country has a PAG organisation, the number of members or professionals providing PAG, the size of the county itself, legislation and training facilities. Some countries like Germany provide PAG services in a decentralised way, with specialists all over the country. Some smaller countries like Bulgaria may provide PAG nowadays in a more centralised way, with one specialised University Hospital being the reference centre for the whole country. Other countries, for example Luxemburg, send their special cases abroad, to be seen in France, Germany or Belgium.

An International Fellowship of Paediatric and Adolescent Gynaecology (IFEPAG) has been established by FIGIJ. This consist of an International Diploma of recognition for those physicians of different specialities (including gynaecologists, endocrinologists, paediatricians, paediatric surgeons, specialists in adolescence and family physicians) who practice Paediatric and Adolescent Gynaecology. The first IFEPAG exam was held back in 1997 during

the 7th European Congress of PAG in Vienna, and was created by Prof. Dr. George Creatsas, Chairman of FIGIJ at the time.

EBCOG is currently developing a common curriculum for European Postgraduate training in Obstetrics and Gynaecology. PAG features within this working document and sets the scene for the further development and formalisation of PAG training and services within Europe in order that standards of training and care can be maintained. More focus is put on trainees, and the EURAPAG board has a designated trainees' representative in order to strengthen OB/GYN residents and enhance networking. A special curriculum for trainees without a specialist or an outpatient PAG clinic in their training hospitals, as described by Huguélet et al. may be a further way to enhance basic PAG skills in residents [11].

Summary

In summary PAG in Europe has evolved from its own infancy and continues to mature, with the realisation of the importance of securing the gynaecological and reproductive health of children and adolescents. Without appropriate advice and care, the impact of failing to provide effective and experienced management in childhood and adolescence will have repercussions that will resonate throughout adulthood. A concerted European approach is required to streamline standards, pathways of care, and education and training which is already under way.

Funding

The development of this article was not funded.

Conflicts of interest

Nil. None of the authors received any financial support for this work.

References

- [1] Richmond A, Priyanka S, Mahmood T, MacDougall J, Wood P, et al. Paediatric and adolescent gynaecology in Europe: clinical services, standards of care, and training. *J Pediatr Adolesc Gynecol* 2016;29:299–303.
- [2] McGreal S, Wood PL. A study of paediatric and adolescent gynaecology services in a British district general hospital. *BJOG* 2010;117:1643–50.
- [3] MacDougall J, Creighton SM, Wood PL. Clinical networks in paediatric and adolescent gynaecology. *BJOG* 2009;117:131–3.
- [4] EBCOG (www.ebcog.com). Standards of Care for women's Health in Europe. 2014. <https://www.ebcog.org/publications/tag/gynaecology>.
- [5] Niemann I. “Kooperation kompetent”: Frauen- und Kinderärzte/-innen lernen voneinander, *korasion* Nr. 3 Juli 2013. 2013.
- [6] Poethko-Müller C, Buttman-Schweiger N. Impfstatus und Determinanten der Impfung gegen humane Papillomviren (HPV) bei Mädchen in Deutschland. *Ergebnisse der KiGGS-Studie – Erste Folgebefragung (KiGGSWelle 1)*. *Bundesgesundheitsbl* 2014;57:869–77.
- [7] Robert Koch Institut Epidemiologische Bulletin. 4. Januar 2018/Nr.1.
- [8] Robert Koch Institut Epidemiologisches Bulletin 24. August 2017/Nr. 34.
- [9] Bumbuliene Ž, Jakubcionyte R, Kieslyte JM, Vasjanova V. Vaiku ir paaugliu ginekologija. Vilnius: Vaistu zinios; 2004.
- [10] Auzina I. Bernu un pusaudzu ginekologija. Riga: Rasa ABC; 2004.
- [11] Huguélet PS, Browner-Elhanan KJ, Fleming N, Karjane NW, Loveless M, Sheeder J, et al. Does the North American society for pediatric and adolescent gynaecology short curriculum increase resident knowledge in pediatric and adolescent gynaecology? *J Pediatr Adolesc Gynecol* 2016;29:623–7.