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Health care service in paediatric and adolescent gynaecology throughout Europe: A review of the literature

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ABSTRACT

Background: Paediatric and adolescent gynaecology is a special field of interest within general gynaecology and obstetrics. The care for children and young people differs from adults. In gynaecology, children should not be treated like little adults. Within Europe, there is great variability in the provision of care, availability of clinical networks and lack of national standards within paediatric and adolescent gynaecology. Therefore, this review aims to summarize the current evidence regarding best clinical practice within Europe.

Methods: A search was performed in Embase and Medline from 1974 onwards. Inclusion criteria were paediatric and adolescent population, gynaecology or reproductive health, care provision and evidence based clinical guidelines. In most papers recommendations were made, so no outcome measures could be used. It was, therefore, not possible to perform a meta-analysis. The risk of bias of the studies was assessed according to the GRADE and AGREE-2 guidelines.

Results: 91 papers were identified and a total of 7 papers were included in the final analysis. The main recommendations are:
- improvement for accessibility for healthcare facility,
- training of healthcare staff in communication and examination according to developmental age,
- develop evidence based clinical guidelines and standardize content of care delivered,
- add training in general adolescent topics to training curriculum of paediatric and adolescent gynaecology.

Conclusion and implications: There is limited information about best clinical practice and low quality of evidence of healthcare service available in the field of Paediatric and Adolescent Gynaecology. As a result there is a need to refine standards of training and care. EURAPAG should encourage adaptation of the unified standards of care in each European country. Furthermore, at this moment, there is insufficient inclusion of curriculum related to PAG in the undergraduate and post graduate training for recognition of patterns and symptoms in young women. EURAPAG should not only take a lead to develop common curriculum for undergraduate and post graduate education and training to address this unmet need but should also lead on their implementation within Europe.

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Contents

Introduction

This is the second paper for this mini-symposium developed by EURAPAG and EBCOG to increase awareness for future developments in paediatric and adolescent gynaecology (PAG) services in Europe.

Adolescence is a unique, transitional time in the stages of human development, and have specific medical needs. Although the first PAG practice was founded by Prof. Rudolf Peter in Prague in 1940 and the first adolescent clinic was established by J.R Gallagher in Boston Children's Hospital in 1951, it was in the 19th century that physicians in English boarding schools started to recognize the special needs of adolescents.

Since then there has been a lot of research in this field but still more needs to be done so that adolescents worldwide can have the best possible care [1].

Currently, adolescents account for one sixth of the global population, and individuals aged 15–24 years comprise 11% of Europe's population [2]. The gynecological care for children and adolescents is not the same as for adults for many reasons, first of all because they lack the abstract thought on the implications of their acts on their reproductive health and sexuality, and secondly their psychological and emotional needs are different than adults.

Decision making, sound judgement skills and anticipation and understanding of long term consequences are still developing during this age period.

Medical history taking, physical examination and treatment of an adolescent are a challenge for generalist physicians. Bedei et al. [3] have described in their paper the current situation of provision of paediatric and adolescent gynaecological care in Europe. They noted the differences in dealing with adolescent females from adults and the challenges that health providers without special training may face.

Each country organises their training of residence and undergraduate students differently. Furthermore, being a paediatric and adolescent gynaecologist has different meaning within and between the countries in Europe. Some clinical situations in children and adolescents are rare and the attending physician might not have appropriate training as a resident. These specific clinical situations might need to be managed by a multidisciplinary team. Other entities such as menstruation disorders or contraception may be more familiar to the non-PAG specialist.

There are a few countries with clinical guidelines provided by their national paediatric and adolescent gynaecology societies. Richmond et al. [4] states that 41% of European countries have national standards for clinical management. Clinical networks and clinical referral pathways exist in 70% of the countries. The national paediatric and adolescent gynaecology societies play an important role in this. However, in 74% of the countries, children are still often examined in general adult gynaecology clinic.

Consequently, there is a huge amount of variation in clinical management, service provision and training in this field. A unified policy towards the management of clinical conditions in PAG can alleviate the large discrepancies in care between European countries.

Unlimited access to healthcare, promotion of education of adolescent patients, and, first and foremost, specialized healthcare providers and consistent guidelines for the most pressing gynaecologic health issues in adolescents, are in our opinion, the cornerstones for provision of high quality adolescent care. Therefore, our objective is to review the existing evidence regarding the provision of health care in paediatric and adolescent gynaecology through Europe. By adding this knowledge to the current practice in Europe, the study may be a step in providing evidence-based standards of care.

Methods

Our aim is to provide a review of the existing evidence regarding health care service provision in paediatric and adolescent gynaecology.

Medline and Embase were chosen as databases for identifying literature from 1974 up to the present. The last search was performed on February 19th 2018. The following search strategy was formulated according to population, intervention, comparison, outcome and study design (PICOS). The PICOS of this review is seen in Table 1. Not all articles were retrieved by the databases; the reference list of a paper was hand checked for other publications.

For inclusion, the paper had to be in English, to involve the paediatric and adolescent population and to refer to gynaecology or reproductive health. Excluded papers were often related to low income countries of the developing world. Although the evidence may be global, the implementation of healthcare service is local and may not be applicable to the European situation.

The search was first done in Medline and cross checked in Embase. Any duplicates were removed. Two investigators independently performed the assessment of the papers. The first investigator (EJR) read all the abstracts and included the papers. The second investigator (AV) checked all the abstracts. If there was a disagreement, this was solved by discussion between the

Table 1
The formulated PICOS search strategy.

Population	AND	Intervention	OR	Comparison	AND	Outcome	Study Design
Paediatric adolescent gynaecology girls adolescent Paediatric setting Reproductive health		Evidence based clinical practice Health care service Care provision Clinical network				guideline recommendation Good clinical practice	all

investigators. As most papers describe the care pathways and not outcome measures, it was not possible to perform a meta-analysis. Data extraction was done by summarizing the main recommendations for youth-friendly health care service, applicable to the whole field of paediatric and adolescent gynaecology.

The risk of bias was assessed on a study level according to the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) guidelines for observational studies and Appraisal of Guidelines for Research and Evaluation (AGREE) [6] Instrument. This is an appraisal instrument for practice guidelines. The items that were not answered were rated as one.

Results

Initially, 389 papers were identified in Medline and an additional 2 papers in Embase. There were 91 papers reviewed. The papers were classified by both investigators. The agreement between both investigators regarding relevant papers was 95%. After application of the exclusion criteria and discussion about the differences in agreement, a final total of 7 relevant papers (Fig. 1) were included.

Most papers included girls under age of 18 years. The summary of data extraction is presented in Table 2. All included papers look with an age-specific perspective to topics and healthcare services in the paediatric and adolescent gynaecological field. As healthcare services may be different globally, the country of origin was noted in the Table 2.

The main recommendations were divided into four categories, as follows:

- The accessibility of healthcare facility.
- The training of healthcare staff in adolescent medicine, advanced communication and examination according to developmental age.
- The content of medical care.
- The addition of general adolescent medicine topics to the training curriculum in paediatric and adolescent gynaecology or the resident training of obstetrics and gynaecology.

The first recommendation regarding ***accessibility of healthcare*** is to offer outpatient clinic after school hours, with up to date and age appropriate information, education and communication in the waiting room area. In addition, the facility should have a plan for outreach activities or involvement of gatekeepers to increase use of health care services. Furthermore, the service providers require to refer children and adolescents to the appropriate level of care according to local policies and procedures. In accordance with MacDougall [8] et al, the authors performed a survey among BritsPAG members on clinical network. They concluded that the presence of a lead clinician in the facility as well as building clinical networks improves the care for paediatric and adolescent girls.

The second recommendation is to ***train healthcare staff in*** communication, examination according to developmental age and in adolescent medicine. As was mentioned by Goldstein et al. [7], in many hospitals in the USA paediatric and adolescent gynaecology patients are often initially examined in regular adult gynaecology services. This is the same in most European countries. Most obstetricians and gynaecologists examine paediatric and adolescent girls from once a week to once a month. The majority of delivered care entailed contraception, prenatal care, abnormal uterine bleeding, sexual transmitted disease screening and treatment, and cervical cytology. The American Academy of Paediatrics [11] recommends gender neutral language, performance of physical examination with a chaperone and the use of motivational interviewing as patient centered counseling.

The third recommendation is to develop ***evidence based clinical guidelines*** or best practice to improve paediatric and adolescents

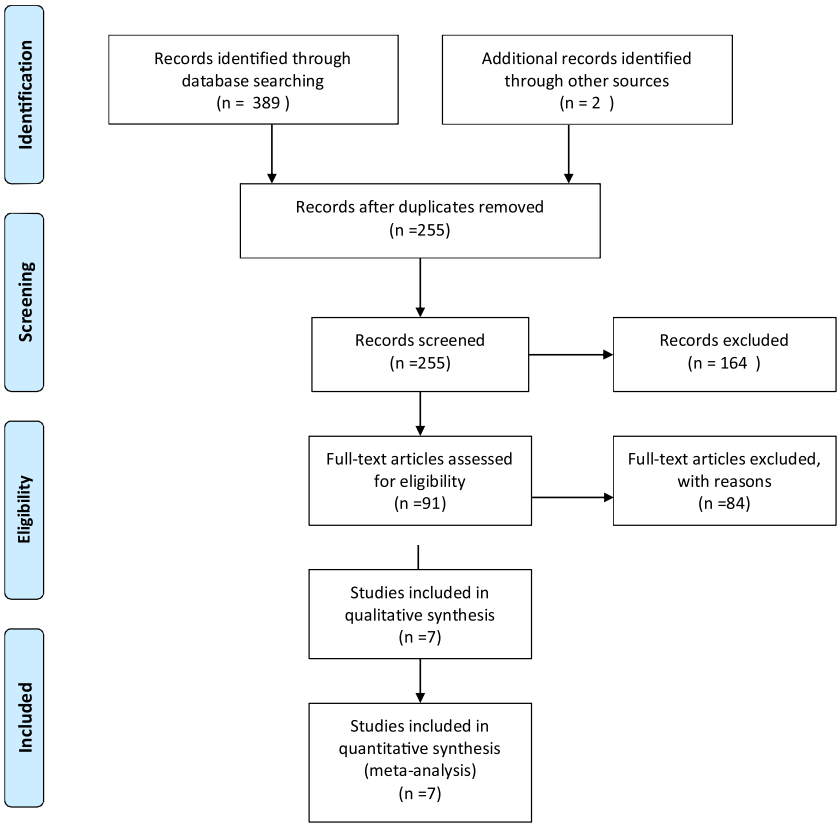

Fig. 1. PRISMA 2009 Flow Diagram [17].

Table 2
Summarizing key findings.

Author, year	Study design	Country of origin	Topic	Recommendation
Goldstein [7], 2009	Questionnaire about care of OBGYN (CARN network) to adolescents	USA	Service of reproductive health Immunization Contraception STD screening Abnormal menses Prenatal care 25% no training in PAG	First gynaecological visit depending on menarche and sexual activity Training on adolescent medicine, like eating disorders, depression and psychosocial screening, look for model in cross training during residency gynaecology
MacDougall [8], 2010	Survey among BritsPAG members on clinical network development	UK	Lead clinician in each hospital Clinical network	Lead clinician may improve quality of care
Hodes [9], 2017	Summary of existing care pathway female genital mutilation in children and young people	UK	Female Genital Mutilation clinical service	Staff specialized in advance communication and examination of children and young people Staff familiar with safeguarding procedures, multi agency working and legal implications Under age patient need to be seen in a paediatric clinic Multidisciplinary team working in clinic
Romero [10], 2015	Need assessment of health care capacity and implementation of evidence based practice for teen pregnancy prevention	USA	Teenage pregnancy	Evidence based clinical practice is necessary to improve adolescents reproductive health service Same day appointments After school hours appointments Starting hormonal contraceptive without prerequisite examination Wide range of contraceptive methods Taking and updating sexual health history at every visit Provision of confidential contraceptive and reproductive healthcare without need for parental or caregiver consent Low or no cost contraception and health service Divers health care center environment, eg teen focused materials Few received training on topics specific to adolescents
Marcell [11], 2017	Clinical report of American Academy of Pediatrics (AAP)	USA	Confidentiality Office visit Physical examination Laboratory tests Immunization Counseling	Provide opportunity to address sexual and reproductive health topics confidentially Extended office hours to improve access to care Brochures should address common concerns Separate waiting area with age appropriate magazines Free condoms available in discrete areas Use gender neutral language Assess a reproductive life plan Assess mental health for certain adolescent groups are at increased risk of depression Perform physical examination with a chaperone present AAP recommends chlamydia and gonorrhoea screening in all sexual active females anually APP recommends HIV screening once to adolescents On site pregnancy testing Provide counseling on safe sexual behaviour Patient centered counseling like motivational interviewing Encourage to involve parent for contraceptive compliance
Bearinger [12], 2007	Review focused on reproductive health of adolescents with literature of globally focused health and development organisations published since 2000	USA/ WHO/ UN	Reproductive health patterns, prevention and provision	National registries include birth rate opposed to pregnancy rates Remove obstacles when seeking for contraceptive methods, like increasing knowledge, access to service Clinical service assure accessibility and high quality reproductive health care Sex education program Youth development strategies to enhance life skills Clinical service should be available, accessible and appropriate for adolescents Provision of contraception Counseling around sexual decision making and healthy behaviour
WHO [13], 2015	Global standards	WHO & UN	Global standards for quality healthcare service for adolescents	Improve adolescent health literacy Implement system to ensure support of family and community Developmental and age appropriate information, counseling, care service Technical competence for health care providers Health care facility has convenient operating hours and ensures confidentiality Health facility provides quality service to all adolescents Health facility collects, analyses and uses data on service utilization and quality of care Adolescents are involved in planning, monitoring and evaluation of health service

reproductive health care and healthcare service, and to standardize the content of care delivered. Richmond et al. [4] found that 41% of European countries do have national clinical care standards on paediatric and adolescent gynaecology made by their respective national societies. Romero et al. [10] concluded that evidence based clinical practice is necessary to improve adolescent reproductive health services. This enables accessibility and quality of reproductive health services for adolescents. Their recommendation is to reach this goal on a healthcare system level. They also pointed out the need for more research to identify barriers and facilitators to implement the evidence based clinical practice. In addition, it is recommended that the health care facility collects, analyses and uses data on service utilization and quality of care. The World Health Organization (WHO) [13] developed global standards for quality health care service for adolescents in general and not specifically for gynaecology. Their standards are a summary of the evidence that was found up to 2015. The WHO subdivided the standards into measurable criteria containing input-, process- and output criteria. These criteria may be adopted to standardize care across Europe.

The fourth recommendation about ***training in the field of PAG***, is to add general adolescent health training, such as eating disorders or psychosocial evaluation to the training curriculum of paediatric and adolescent gynaecology or resident training obstetrics and gynaecology depending on the country. Goldstein [7] et al suggest to look for a model to cross-train with paediatric residents to learn more about adolescent medicine to include psychosocial development, abuse and depression. This lack of training opportunities may also affect pattern recognition in daily practice and lead to substandard care.

In Table 3, the evidence across the studies is presented by Grading of Recommendations, Assessment, Development and Evaluation (GRADE) [5] guidelines for observational studies. This is presented on a study level, and not on outcome levels, as most papers did not describe outcome measures. Most included papers [7–10] are surveys or questionnaires, and their quality of evidence is low to start with as they are non-randomised controlled trials by design according to GRADE criteria. The response rates of the surveys were about 50%. Romero et al. [10] included healthcare centers. The items were retrieved by self report, which may have been a risk of bias as well. Both have lead to downgrading of this evidence to very low.

As the papers of Marcell [11], Bearinger [12] and WHO [13] are international organization guidelines, the GRADE criteria are not applicable as such. Their papers [11–13] were viewed by AGREE-2 [6], instrument for appraisal of guidelines (Table 4). At the moment, neither minimum domain scores nor patterns of scores across domains have been set to distinguish between high quality and poor quality guidelines.

Discussion

This is the first review of evidence regarding service provision and healthcare service in a paediatric and adolescent gynaecology population in Europe. The clinical implications of these results are to develop proper training curricula for ObGyn residents in paediatric and adolescent gynaecology and set standards for good clinical practice. Besides the gynaecological problems, the curriculum can also address adolescent health topics and explore the psychosocial context of teenagers. Most paediatric and adolescent gynaecology care is delivered by obstetricians and gynaecologists. In most European countries there is no formalized speciality training for this subspeciality or field of interest [4]. The development of this curriculum can lead to better pattern recognition and knowledge of treatment options by clinicians. As a result, this will implicitly upgrade the quality of care delivered by these well-trained professionals. In addition, training of gynaecologists and nurses in advanced communication and examination skills appropriate to the developmental age of the child or adolescent will also improve the clinical care delivered. This is in accordance to Michaud [14] who states that the quality of healthcare currently delivered in Europe may be improved to international standards. One way to achieve this is to increase the competence of the healthcare professional delivering the service by training the professionals with adolescent appropriate communication skills, counselling techniques and training in specific health problems per age category.

In addition, the development of evidence based clinical guidelines or best clinical practice in this field may lead to standardisation and improvement of the quality of care delivered. Many of the clinical entities in paediatric and adolescent gynaecology are rare. The evidence in the literature of these rare entities consists of case reports or observational studies. However, even if this evidence is considered of low level by study design, it is the only available one. This may make the development of best evidence-based clinical guidelines rather challenging. Ambresin [15] showed that although guideline-driven medical assistance can improve the quality of care, young people prioritize this only in specific context. Both are in accordance to an approach proposed by Sackett et al. [16], in which evidence based medicine integrates the external evidence with clinical expertise and patient preference.

Several important examples of the implications of an improved health care delivery system are the development of easily accessible health care service for teenagers with after school hours, same day appointments, a welcoming environment and age appropriate patient leaflets. Also, starting contraceptives without a prerequisite examination and low or no cost contraception will influence the uptake of contraceptive use and as a consequence will lower the teenage pregnancy and abortion rates. The WHO and UN guideline [13] on global standards for quality health-care services for adolescents in general is also suitable for the paediatric and adolescent population with gynaecological health issues. Ambresin [15] defined indicators of youth-friendly health care from the perspective of adolescents. These indicators for the health care system are also the same, e.g. appointments after school hours, continuity of healthcare with same clinician and welcoming age appropriate environment.

The first limitation of this review is the weakness in reporting, analysing and presentation of evidence in most of the included papers. Retrieving articles about health care provision or evidence based guidelines in the field of paediatric and adolescent gynaecology alone was difficult. This is probably due to the relative novelty of Paediatric and Adolescent Gynaecology as a subspecialty, with, consequently, little research in the field. The

Table 3
Evidence table, GRADE [6].

Authors	Risk of bias	indirectness	inconsistency	imprecision	Publication bias	Quality rating
Goldstein [7], 2009	High, response rate 58%	no	no	Yes, large variation in practice	no	⊕x̂x̂x̂
MacDougall [8], 2010	High, response rate 47%	no	no	n/a	no	⊕x̂x̂x̂
Hodes [9], 2017	Expert opinion based on published case series	no	no	unclear	no	⊕x̂x̂x̂
Romero [10], 2015	High, data collection by self reporting	no	no	unclear	no	⊕x̂x̂x̂

Quality of evidence: high ⊕⊕⊕⊕, moderate ⊕⊕⊕x̂, low ⊕⊕x̂x̂, very low ⊕x̂x̂x̂. n/a = not answered.

Table 4
Evidence table according to AGREE [7].

Authors	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6	Quality rating
Marcell [11], 2017	83%	78%	20%	60%	7%	0%	5
Bearinger [12], 2007	83%	78%	25%	34%	4%	25%	6
WHO [13], 2015	100%	100%	65%	89%	58%	0%	7

The scale is from 1 to 7, where 1 is strongly disagree and 7 means strongly agree. If an item not was not applicable, the item was rated as 1 (absence of information). All items were reviewed by both authors. The maximum score of domain 1 was 42, and the minimum score was 6. For domain 2 this was respectively 42 and 6; for domain 3, 112 and 16; for domain 4, 42 and 6; for domain 5, 56 and 8; for domain 6 this is 28 and 4.
All six domain scores are independent and were not combined into a single quality rating score.

current evidence consists of a study design of surveys and observational studies. As a consequence, most studies included in this review show a low quality evidence. However, we did consider these studies valuable because they show overall the same trend and could be used for comparison. There are sparse data in this field. In addition, there may have been reporting bias.

Secondly, much of the literature has been published in the public health field in developing countries, where reproductive health outcomes, such as birth rates amongst adolescents, are used as outcome measures. Exclusion of this evidence may have lead to selection bias in this review. In contrast, one may argue that although this evidence is global, this may not be generalizable and transferable to the healthcare service within European developed countries. Therefore in our opinion, this approach may not have altered our overall conclusions.

At the moment, little scientifically based evidence exists about the most effective health care service or program approach in paediatric and adolescent gynaecological care. This can be either in influencing healthy behaviours in adolescents regarding prevention of pregnancy and sexual transmitted disease or in much rarer entities, like disorders of sex development (DSD) and uterine anomalies. Careful health care evaluation, evidence based guidelines and research on health outcomes must be developed. Some areas within paediatric and adolescent gynaecology will overlap public health goals, for instance provision and uptake of contraceptive care and prevention of teenage pregnancy. In conclusion, to fulfill the goals as described above, this may be the right time to create a bridge between public healthcare and clinical care as well.

This review shows that there is currently limited information about evidence- based best clinical practice. There is a low quality of evidence in research about best healthcare service in the field of PAG. There is thus a need to refine and redefine standards of care. In addition, there is insufficient curriculum training in recognition of patterns and symptoms in paediatric and adolescent gynaecological healthcare. Goals of EURAPAG would also be to encourage setting the standards of training in PAG, encourage adaptation of the standards of health care services and develop evidence based best practice, so that it can be applicable in each European country.

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Conflicts of interest

EJR has previously been a consultant for Pfizer. None of the authors received any financial support for this work.

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