

**“PERCONCEPT”  
STUDY: PROVIDER OPINIONS  
ABOUT INTEGRATING PRECONCEPTION  
CARE INTO FAMILY PLANNING SERVICES**

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[https://doi.org/10.52556/2587-3873.2021.4\(91\).28-33](https://doi.org/10.52556/2587-3873.2021.4(91).28-33)

### Summary

The importance of preconception care for the mother and child health has long been demonstrated, but the practical realization of this prophylactic activity remains insignificant.

The article presents the “PerConcept” study results – a survey on “Family Planning” concept perceptions among physicians, whose activity is related to reproductive health. The study was conducted based on a unified questionnaire in three cities from three countries: Chisinau (Republic of Moldova), Irkutsk (the Russian Federation) and Ciudad de Mexico (Mexico). The survey involved 1.012 family physicians, obstetricians-gynecologists, urologists, andrologists, but also doctors of other specialties. A number of 991 questionnaires were validated and analyzed. About 79.5% of all respondents (788) reported that the term of “family” is associated with the birth of children. About 96.0% of respondents (951) believed that pregnancy should be planned by the couple/woman. From a professional perspective, 862 physicians (94.5%), consider that the concept of family planning should also really include a component of preconception care, simultaneous with contraception. The majority of participants – 91.1%, (831) had the opinion that strategies and programs in the field of family planning should be revised, in order to include preconception health services. Although the “PerConcept” study had some limitations, the authors consider that the results are interesting because doctors from 3 regions of the world: Europe, Asia, and North America had a similar opinion about the need to expand the family planning concept, which should really include the preconception care, with an equal approach as another component – contraception.

**Keywords:** preconception care, family planning, contraception, primary care, “PerConcept” study

### Rezumat

**Studiul „PerConcept”: Opinii ale lucrătorilor medicali privind integrarea pregătirii preconcepționale în cadrul serviciilor de planificare a familiei**

Importanța pregătirii preconcepționale pentru sănătatea mamei și copilului a fost demonstrată cu mult timp în urmă, însă realizarea practică a acestei activități profilactice rămâne a fi una nesemnificativă.

Articolul prezintă rezultatele studiului „PerConcept” – un sondaj privind percepțiile conceptului „Planificarea familiei” de către lucrătorii medicali, activitatea cărora se referă la sănătatea reproducerii. Studiul a fost realizat în baza unui chestionar unificat în trei orașe din trei țări: Chișinău (Republica Moldova), Irkutsk (Federația Rusă) și Ciudad de Mexico (Mexic). Sondajul a implicat 1.012 medici de familie, obstetricieni-ginecologi, urologi, andrologi, dar și medici de alte specialități. Un număr de 991 de chestionare au fost validate și analizate. Aproximativ 79,5% din toți respondenții

(788) au raportat că noțiunea de „familie” este asociată cu nașterea copiilor. Aproximativ 96.0% dintre respondenți (951) au considerat că sarcina ar trebui să fie planificată de cuplu/femeie. Dintr-o perspectivă profesională, 862 medici (94.5%) consideră că conceptul de planificare familială ar trebui să includă și componenta de pregătire preconcepțională. Majoritatea participanților (831; 91.1%) au fost de părere că strategiile și programele din domeniul planificării familiei ar trebui revizuite pentru a include serviciile de sănătate preconcepțională. Deși studiul „PerConcept” a avut unele limitări, autorii consideră că rezultatele obținute sunt interesante, deoarece medicii din trei regiuni ale lumii: Europa, Asia și America de Nord au avut opinii similare privind necesitatea modificării conceptului de planificare a familiei care, realmente, ar trebui să includă pregătirea preconcepțională, concomitent cu o altă componentă – contracepția.

**Cuvinte-cheie:** îngrijire preconcepțională, planificarea familiei, contracepție, asistență medicală primară, studiul „PerConcept”

### Резюме

**Исследование „PerConcept”: Мнения медицинских работников об интегрировании прегравидарной подготовки в услуги по планированию семьи**

Важность прегравидарной подготовки для здоровья матери и ребенка давно доказано, однако практическая реализация этой профилактической деятельности остается незначительной.

В статье представлены результаты исследования „PerConcept” – опроса о восприятии понятия «Планирование семьи» среди врачей, деятельность которых связана с областью репродуктивного здоровья. Исследование проводилось на основе единого опросника в трех городах из трех стран: Кишинэу (Республика Молдова), Иркутск (Российская Федерация) и Мехико (Мексика). В опросе приняли участие 1012 семейных врачей, акушеров-гинекологов, урологов, андрологов, а также врачей других специальностей. Были заполнены согласно требованиям и проанализированы 991 опросника. Около 79.5% всех респондентов (788) утверждали, что термин «семья» ассоциируется с рождением детей. Около 96.0% опро-

иенных (951) считают, что беременность должна быть запланирована парой/женщиной. С профессиональной точки зрения 862 врача (94.5%) считают, что концепт планирования семьи должен включать компоненту прегравидарной подготовки. Большинство участников (831; 91.1%) придерживались мнения, что стратегии и программы в области планирования семьи следует пересмотреть, чтобы включить в них и услуги по прегравидарному уходу. Хотя исследование „PerConcept” имело некоторые ограничения, авторы считают, что результаты интересны тем, что врачи из 3-х частей мира: Европы, Азии и Северной Америки выразили аналогичные мнения о необходимости изменения концепта планирования семьи, который должен реально включать прегравидарную подготовку, наряду с другой компонентой – контрацепция.

**Ключевые слова:** прегравидарная подготовка, планирование семьи, контрацепция, первичная медицинская помощь, опрос „PerConcept”.

## Background

Implementing the programs which strengthens preconception care (PC) is a difficult process in many countries, regardless of their socio-economic status, being identified with various barriers both, in terms of the healthcare system and in terms of people, couples, or community.

Due to the lack of budgetary sources in the health system, most often, PC programs cannot be implemented as stand-alone programs, primarily because they are focused on health promotion and disease prevention measures, with a medium and long-term impact. As the most efficient way to implement PC, it is recommended to integrate them into primary medical services. It seems to be a clear situation, but some obstacles have been identified [1].

In another context, PC programs, conceptually, refer to Family Planning (FP). In our view, the preparing for pregnancy obviously involves, initially, its planning. Respectively, PC should be considered as a component part of FP. Thus, interventions to improve reproductive health could be more relevant and effective by inclusion of PC services in FP programs, which are already more or less implemented in primary care. This was the logic of the hypothesis that FP = Contraception + PC, which was launched at the VII<sup>th</sup> International Scientific-Practical Conference “Fundamental and Applied Aspects of Reproduction” in Irkutsk, Russia (2018) [2].

The analysis of bibliographic sources highlighted the existence of some research and practices in support of the above hypothesis. However, in reality, FP policies and programs are focused only on contraception, with aspects of PC being virtually ignored.

**The aim of the study was** to evaluate the perceptions of health providers in reproductive health

regarding the concept of FP, as well as the opportunities to expand it by including preconception health messages and services.

## Material and methods

The survey “The Perceptions of the “Family Planning” concept among health services providers” (“PerConcept”) is a cross-sectional, descriptive study. The intention to conduct the study was discussed with members of the Latin Association of Health Systems Analysis (ALASS) and professionals in health management. The idea was supported by researchers from Chisinau (Republic of Moldova), Irkutsk (the Russian Federation), and Ciudad de Mexico (Mexico). Physicians providing reproductive health services, members of the professional associations from the three locations were invited to participate in the survey. The survey was conducted from February to June 2019.

The questionnaire used for the survey included questions about the FP concept and participants. It was initially developed in Romanian; then translated into English, Russian, and Spanish. The interviewees had the opportunity to make additional comments, by completing the questionnaire on paper or in the electronic version. The results of the surveys conducted in each country were recorded in a common database. The statistical analysis of the cumulative data was performed using GNU PSPP 1.2.0 software.

## Results

Out of the total number of 1012 received questionnaires, 991 were completed as required and have been validated (536 in Chisinau, 144 in Irkutsk, and 311 in Mexico).

About a half of the participants (524) were family physicians/general practitioners (GPs), and a quarter of them were obstetricians-gynecologists (243). Urologists/andrologists made up 4% of the participants (40). GPs in the study in Moldova were 72.0%, in Mexico – 35.4%, and in Russia – 19.4%. Regarding the number of obstetricians-gynecologists, the highest rate is found in Irkutsk – 79.2%, followed by Chisinau – 20.9% and Mexico – 5.5%. Urologists/andrologists participated only in the Republic of Moldova (RM) (7.1%) and Russia (1.4%) surveys. The Mexican team surveyed additionally 49 pediatricians and 15 neonatologists.

In the cumulative group predominate young doctors with an internship of up to 10 years – 37.2% (369), followed by participants with 11-20 years of professional activity – 23.4% (232) and those with 21-30 years professional experience – 22.4% (222). Physicians with more than 30 years of experience accounted for 17% of the participants (168). The

study in the RM was prevailed by doctors with a professional activity of 21-30 years – 27.1% (145), in Russia and Mexico – less than 10 years, – 68,1% (98) and 40.8% (127) respectively.

The general sample is made up of 80.5% women (798), without a significant difference among countries. A number of 759 participants mentioned that they have children (76.6%). The number of the respondents who are parents varies from 89.0% (477) in the RM to 66.9% (208) in the Mexican and 51.4% (74) in the Russian studies.

About 79.5% of the respondents (788) reported that the term “family” is associated with the birth of children, while for 169 respondents (17.1%) the functioning of the family does not provide conceptually for the need to have children, answering the question *“Is the ‘family’ term associated with the childbirth in the culture of your country /locality?”* It is interesting that while respondents from the RM and Mexico gave a negative answer, in 17.9% and 17.7% cases, respectively, the percentage of those in Russia, who responded similarly, was lower – in 12.5% cases. That answer was given by: 25.0% GPs (131), 12.3% obstetricians-gynecologists (30), and 5% urologists and andrologists (2) etc. The 13.5% of female doctors (143) and 13.5% of male doctors (26) gave a non-affirmative answer; and 17.3% of respondents have children (131), compared to 28,8% of those without children (38). Surprisingly, young doctors with professional experience less than 10 years answered in this way, in 12.8% cases, while in the categories with longer professional experience the share of negative answers varies between 20.2% and 22.5%.

In 96.0% (951) responders believe that pregnancy should be planned by the couple/woman. In 34 cases (3.4%), the participants expressed their opinion about the naturally occurrence of pregnancy. Only in 6 cases (0.6%) they could not decide or did not have a clear opinion on the subject. When asked to assess the proportion of couples planning their pregnancy, about 45% (448) of the doctors said that less than one-third of couples plan. In contrast, 8.7% (87) of the participants believed that the majority of pregnancies (more than 81%) are planned.

The largest number of participants gave the positive answer to the question *“Do you consider that it is necessary to prepare the couple for pregnancy in order to reduce the health risks for mother and child?”* Thus, a vast majority of the respondents – 98.5% (976) consider that PC is important for reducing the health risks for both mother and child: 99.7% doctors in Mexico City, 99.3% – in Chisinau and 93.1% – in Irkutsk. In 13 cases, participants mentioned that no prior preparation of couples is required before

pregnancy occurrence. Most of the respondents who had this opinion were young doctors (12). Only 3 respondents of those who are parents do not support the idea (0.4%), compared to 12 doctors who do not have children (5.2%) at the moment. When asked about the percentage of couples who visited a medical provider to ask for PC information, about a half of the doctors (519) answered that it was less than 20% of couples. However, one in ten respondents considered that more than 71.0% of couples made a PC visit.

More than 90% of the respondents (911) thought that PC refers to the family planning field. From the professional perspective, 912 of participants (92.0%) considered that the concept of FP should really include the PC component. However, 78 people had a different opinion (7.8%) with almost the same distribution among the professional categories of respondents. Thus, 8.4% of the GPs do not support this (44), as well as 8.6% of the obstetrician-gynecologists (21), and 7.5% of the urologists and andrologists (3). The higher rate of non-affirmative answers was among young doctors – 9.5% cases.

Some participants came up with interesting opinions about the role of the PC: *“It is self-evident that FP means not only contraception and pregnancy planning, but also PC”* and *“The concept of PC can reduce the morbidity or pregnancy risks”*. etc. Others expressed: *“The concept of FP should really include the contraception and PC components”* and *“PC should be added to the FP services”*.

The majority of participants – 91.1% (831) consider that strategies and programs in the field of FP should be revised to include preconception health services. About 12.3% of obstetricians-gynecologists (30), followed by 7.3% GPs (38) and 5.0% of urologists (2) have a different opinion. Among these, young specialists with a professional activity less than 10 years – 6.7% (25) predominate.

The interviewees mentioned the importance of ensuring the access of the population to information and services: *“I think that a set of large investigations should be carried out for couples planning pregnancy and those diagnosed with infertility”* and *“It would be welcome to examine both woman and man in a couple, until they conceive, not just the future mother”* etc.

The largest number of comments refer to adolescent health, especially to improving knowledge, attitudes and behaviors on topics related to FP, preventing unwanted pregnancy and empowering them to conceive a pregnancy during adulthood: *“I think there should be a more specific FP program for adolescents, who are a vulnerable category of the population, in order to promote their openness to strengthen reproductive health”*; *“Training in FP with infor-*

mation on PC importance should begin in adolescence, before young people conceive"; "Training programs on PC should be developed for adolescents".

Some participants mentioned the importance of media: "... (internet, TV, radio) to raise awareness and mobilize patients, as primary medicine alone does not cope with this situation".

However, some family doctors were precautionous about adding PC to FP services: "These are noble intentions, but in order to achieve them, GPs will be involved again in additional activities". This opinion indicates that GPs consider PC to be an important component, but at the same time they are worried because they could be overburdened. They may need more information and training in providing PC, to be more familiarized with the mechanisms for providing FP services, which would facilitate their daily activities and improve the feedback from patients (woman, man, couple, etc.). At the same time, other comments indicate that doctors "...accept the activity of a FP office in the primary medical service, so that burden to be not only on the GPs shoulders".

Some participants spoke about the need for effective training programs on preconception health for FP providers: "We hope that this modified concept will be included and the population will receive counseling in the preparing for pregnancy the couple"; "It is important to make sure that health care professionals know in-depth about FP strategies, beyond contraceptive methods and they are fully trained to provide timely guidance on the true meaning of PC".

## Discussions

According to World Health Organization (WHO), PC can make a useful contribution to reducing maternal and childhood mortality and morbidity, and to improving maternal and child health in both high- and low-income countries. One size cannot fit all, however. The content and mechanisms of delivery of preconception will need to be adjusted to the realities of different countries [3]. Even where strong public health programs are in place across the life-course, they do not guarantee that women enter pregnancy in good health. PC is an important intervention to reduce risks in early pregnancy and lead to healthy outcomes from women and babies. It entails risk assessment, health promotion, counseling and, if indicated, referral to a specialist. PC aims to improve couples' informed decision-making by providing information on reproductive options [4].

[Van Voorst S.](#) et al. (2016) mentioned the importance of integrating PC services into primary health care to ensure that services reach larger numbers of people of reproductive age and that people receive quality counseling and services from providers who know them [5].

In reality, the integration of PC services into primary care is not as simple as it may seem at first glance. Steel et al. conducted a systematic review of barriers in the process of providing PC services and programs [6]. The most consistently cited barrier, by GPs and obstetricians were insufficient clinical time and time spent on preconception counseling. Primary care providers also face difficulties with prioritizing PC together with other preventive care issues [6,7]. Potential interventions for improving the delivery of PC guidelines should also focus on providing tools and resources to assist providers in delivering the content and evidence base of the guidelines. Understanding the views of both women and providers as well as the theoretical basis for changing their behavior will be essential when designing effective implementation strategies for improving the delivery and uptake of PC [1].

Ukoha W.C. and Dube M. (2019) reported that although PC is recognized as an important factor in improving pregnancy outcome, most primary health care nurses lack the necessary resources to provide PC. The situation in countries with limited resources is more complicated [8]. A review by Shannon G.D. et al. identified primary care as the most common setting for preconception health service [9]. However, the authors also concluded that there is no agreed consensus on the best method to deliver care within primary care. It is possible that many strategies acting synergistically are needed to improve service delivery.

An important requirement for preconception consultation is pregnancy planning, which is possible through the use of contraceptives. Women recognize that planning is an important benefit of contraception; however, they recognized it as a disadvantage also, as it is difficult to decide when to stop its use and try to enter the pregnancy [4].

Hussein N. (2020) mentioned that given the fact that since the general practitioners' primary concern is difficult to capture women to go for preconception assessment, it would seem feasible to reach this through family planning clinics. Family planning clinic was viewed as the preferred setting to deliver preconception assessment of reproductive risks [10].

At the same time, there is a confusion about the interpretation of the concept of FP in general. In 2018 The WHO published the *Family Planning, A Global Handbook for Providers (3<sup>rd</sup> edition)*, which is considered to be a key document that contributes to ensuring the quality and safety of FP services, encouraging all national health systems and other interested organizations to engage in this important topic [11]. This document includes a very modest

compartment regarding PC, the other part of the document being devoted to contraception. The information provided on the subject is related by the fact that a woman who wants to have a baby can use advice on preparing for pregnancy and giving birth safely, thus having a healthy child. There are some very general recommendations for women only, including supplementation with folic acid and iron. This handbook, along with other sources, confirms that in general FP is meant only to prevent pregnancy. In other words, the FP is often considered by the general population and health care providers as synonymous to contraception (FP = Contraception).

The report *Providing Quality Family Planning Services: recommendations of CDC and the US Office of Population Affairs* (2014) provides recommendations developed collaboratively by the Centers for Disease Control and Prevention (CDC) and the Office of Population Affairs (OPA) of the US Department of Health and Human Services. They advanced recommendations for the provision of quality FP services, which include contraceptive services, pregnancy testing and counseling, helping clients achieve pregnancy, basic infertility services, preconception health services, and sexually transmitted disease services [12]. The authors conclude that providers of FP services should offer PC services to female and male clients according to CDC recommendations to improve preconception health and care. Including PC into FP planning services could ensure a higher quality of couple preparation for pregnancy occurrence, including more active involvement of men.

The "PerConcept" study participant's perception revealed that contraception and PC are two components of FP that interact with each other. Before making the decision to discontinue a contraception, the woman/couple should assess what the preconception risks are and reduce them. PC also includes the contraception component until the couple decides that the possible risk for the future pregnancy has been removed. This interaction can ensure continuity of care in reproductive health, obviously within the FP programs. Incorporating pregnancy intention screening into primary care to address unmet PC and contraception needs may improve delivery of FP services [13, 14].

### Limitations

The selection of survey participants was not carried out according to rigorous sampling criteria initially established (the Mexican study included other categories of specialists). However, this circumstance did not constitute an obstacle to the analysis of the results. The survey was conducted in

only one city in each country and therefore it cannot be considered as representative at the level of the participating countries. The research results only express the opinions of specialists about the need to include PC component in FP services.

### Conclusions

The "PerConcept" study confirmed the topicality of the issue regarding the rationality of modifying the FP concept by including the PC component that will be approached equally with another component - contraception.

Survey participants mentioned the importance of increasing access to preconception care and health services in order to improve maternal and child health. Health educational programs should include information about fertility, contraception and preconception.

Even if the research did not cover a larger number of countries, we believe that the results are interesting because the respondents from Europe, Asia and North America had similar opinions regarding the inclusion of PC in FP programs. This could contribute to a more efficient integration of PC services into primary health care, which could serve as a topic for future researches.

### Funding

The "PerConcept" survey was conducted on a voluntary basis by the partners from participating countries. The authors received no financial support for the research, authorship, and/or publication of this article.

### References

1. Mazza D, Chapman A, Michie S. Barriers to the implementation of preconception care guidelines as perceived by general practitioners: a qualitative study. In: *BMC Health Serv Res*. 2013, Jan 31;13:36.
2. Shishcanu D, Marianian AY, Iliadi-Tulbure C. Preconceptional care: opportunities and challenges. *Acta biomedica scientifica*. 2018; 3 (3), 69-74.
3. Meeting to Develop a Global Consensus on Preconception Care to Reduce Maternal and Childhood Mortality and Morbidity. World Health Organization Headquarters, Geneva 6-7 February 2012, Meeting report. Available from: <https://apps.who.int/iris/handle/10665/78067>.
4. Boukje van der Zee, Inez D de Beaufort, Eric A P Steegers. Perceptions of preconception counselling among women planning a pregnancy: a qualitative study. In: *Family Practice*. 2013; 30:341-346.
5. Sabine van Voorst, Sophie Plasschaert, Lieke de Jong-Potjer, Eric Steegers & Semiha Denктаş. Current practice of preconception care by primary caregivers in the Netherlands. In: *Eur J Contracept Reprod Health Care*. 2016 Jun; 21(3):251-8.

6. Steel A, Lucke J, Reid R, Adams J. A systematic review of women's and health professional's attitudes and experience of preconception care service delivery. In: *Family Practice*. 2016, Vol. 33, No. 6, 588–595.
7. Marianian A, Kolesnikova L, Protopopova N, Burina E, Kalinkina O. Awareness of doctors about the problem of fetal alcohol syndrome and fetal alcohol spectrum of disorders in Irkutsk. In: *Alcoholism: Clinical and Experimental Research*. 2018, Vol.42, Iss. S1.- P. 81A.
8. [Ukoha WC, Dube M. Primary health care nursing students' knowledge of and attitude towards the provision of preconception care in KwaZulu-Natal.](#) In: *Afr J Prim Health Care Fam Med*. 2019, Nov 12;11(1): e1-e8.
9. Shannon GD, Alberg C, Nacul L, Pashayan N. Preconception healthcare delivery at a population level: construction of public health models of preconception care. In: *Matern Child Health J*. 2014, Aug; 8(6):1512-31.
10. Hussein N. Preconception assessment of reproductive genetic risk in primary care: A survey of general practitioners' practices and preparedness. Available from: [https://www.researchgate.net/publication/315877068\\_Preconception\\_assessment\\_of\\_reproductive\\_genetic\\_risk\\_in\\_primary\\_care](https://www.researchgate.net/publication/315877068_Preconception_assessment_of_reproductive_genetic_risk_in_primary_care).
11. Family Planning. A global handbook for providers. Evidence-based guidance developed through worldwide collaboration, 3<sup>rd</sup> edition, 2018. Available from: <https://apps.who.int/iris/bitstream/handle/10665/260156/9780999203705eng.pdf;jsessionid=027939A21D681CBFFC67C66E0DBB28FD?sequence=1>.
12. Gavin L, Moskosky S, Carter M, Curtis K, Glass E, Godfrey E, et al. Providing Quality Family Planning Services: Recommendations of CDC and the U.S. Office of Population Affairs. Recommendations and Reports. April 25, 2014 / 63(RR04); 1-29. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6304a1.htm>
13. Lang AY, [Boyle JA](#), [Fitzgerald GL](#), [Teede H](#), [Mazza D](#), [Moran LJ](#), et al. Optimizing preconception health in women of reproductive age. In: *Minerva Ginecol*. 2018. Feb;70(1):99-119.
14. [Srinivasulu S](#), [Falletta KA](#), [Bermudez D](#), [Almonte Y](#), [Baum R](#), [Coriano M](#), et al. [Primary care providers' responses to pregnancy intention screening challenges: community-based participatory research at an urban community health centre.](#) In: *Family Practice*. 2019 Nov 18;36 (6):797-803.

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