



Preconception Counseling in Nursing Practice-An Updated Review

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Abstract

Background: Preconception counseling is a cornerstone of reproductive healthcare, aiming to optimize maternal and fetal outcomes by addressing risk factors before conception. Despite its proven benefits, nearly half of pregnancies worldwide remain unplanned, underscoring the need for proactive counseling during routine care.

Aim: This review evaluates current evidence and guidelines on preconception counseling, emphasizing its role in nursing practice and interprofessional collaboration to improve pregnancy outcomes.

Methods: A comprehensive literature review was conducted, synthesizing recommendations from major organizations such as ACOG, ASRM, and SMFM. The review focused on risk assessment, chronic disease management, genetic screening, lifestyle modification, and preventive strategies.

Results: Preconception counseling significantly reduces maternal and neonatal morbidity by optimizing chronic conditions, reviewing medications, and addressing psychosocial, nutritional, and environmental factors. Key interventions include folic acid supplementation, immunization updates, genetic screening, and counseling on substance use and occupational hazards. Interpregnancy spacing and contraceptive planning further enhance outcomes. Nursing professionals play a pivotal role in patient education and coordination of care, supported by interprofessional teams including genetic counselors, pharmacists, and dietitians.

Conclusion: Integrating preconception counseling into routine healthcare fosters informed reproductive decisions, reduces adverse outcomes, and promotes lifelong health for mother and child. A multidisciplinary, patient-centered approach is essential for effective implementation.

Keywords: Preconception counseling, nursing practice, chronic disease management, genetic screening, maternal health, preventive care.

Introduction

Preconception counseling constitutes a critical component of reproductive healthcare, aimed at optimizing outcomes for both the prospective parent and the future offspring. The principal objectives encompass educating individuals and couples regarding reproductive health, identifying and mitigating risk factors, and implementing medical or

behavioral interventions prior to conception to reduce the likelihood of adverse pregnancy outcomes. Evidence indicates that nearly fifty percent of pregnancies worldwide are unplanned, highlighting the need for proactive engagement during routine healthcare encounters with individuals of reproductive potential. Every such encounter should be regarded as an opportunity to discuss lifestyle modifications,

nutritional adequacy, and other preventive strategies that can enhance maternal and fetal health. The American College of Obstetricians and Gynecologists (ACOG) emphasizes the importance of systematic reproductive intention screening by asking patients whether they plan to conceive within the upcoming year [1]. A positive response prompts structured preconception counseling, including evaluation of medical, genetic, and psychosocial risk factors, while a negative response warrants discussion of effective contraceptive methods to prevent unintended pregnancies [1][2]. This approach ensures that all individuals receive care that aligns with their reproductive goals while minimizing exposure to preventable risks.

Preconception counseling visits should be formally incorporated into clinical practice for all individuals intending to conceive. These consultations provide an opportunity for comprehensive risk assessment, including review of chronic medical conditions, medication use, immunization status, nutritional status, and family history of congenital or hereditary disorders. Counseling should also address modifiable lifestyle factors, including tobacco and alcohol use, dietary supplementation with folic acid and other micronutrients, weight management, and physical activity. Interprofessional collaboration is essential during these consultations, allowing for integration of nursing, primary care, obstetric, genetic, and pharmacy expertise to optimize care plans. By systematically addressing potential risks before conception, preconception counseling facilitates early interventions that can significantly improve pregnancy outcomes, reduce maternal and neonatal morbidity, and promote lifelong health for both parents and children. Moreover, framing preconception care as part of routine preventive healthcare ensures that reproductive planning becomes an ongoing process rather than a reactive measure, enabling healthcare providers to empower patients with knowledge and strategies to achieve healthy pregnancies [1].

Function:

Preconception counseling serves a critical function in reducing maternal and neonatal morbidity and mortality by addressing health risks and optimizing medical conditions before conception. The objective is to prepare individuals physically, psychologically, and socially for pregnancy, ensuring both maternal well-being and optimal fetal development. The American College of Obstetricians and Gynecologists (ACOG) and the American Society for Reproductive Medicine (ASRM) emphasize a structured approach to preconception care, focusing on the identification and management of modifiable and non-modifiable risk factors that may adversely affect pregnancy outcomes [1][2][3]. A fundamental aspect of preconception counseling involves the optimization of chronic medical conditions prior to conception. Conditions such as chronic hypertension, pregestational diabetes, obesity, thyroid disorders—

particularly untreated hypothyroidism—psychiatric disorders, HIV infection, thrombophilias, autoimmune diseases, and cardiopulmonary disorders are associated with increased risks of maternal and fetal complications. Early management, dose adjustment, and stabilization of these conditions can significantly reduce the incidence of adverse outcomes, including preterm birth, congenital anomalies, and maternal morbidity. Additionally, a careful review of all current medications is necessary to ensure their safety, efficacy, and appropriateness for use in pregnancy, with adjustments made when necessary to minimize teratogenic risks. Genetic counseling and family history assessment are essential components of preconception care. By identifying hereditary conditions and offering appropriate genetic screening, clinicians can inform couples of potential risks and available interventions, enabling informed reproductive decision-making. Screening for infectious diseases, including sexually transmitted infections and HIV, is also crucial to reduce perinatal transmission and protect maternal health. Ensuring that immunizations are up-to-date, including vaccines such as influenza and rubella, provides further protection against preventable maternal and neonatal complications. Additionally, cervical cancer screening should be current to identify and manage any precancerous conditions before pregnancy.

Nutritional assessment, weight optimization, and counseling regarding appropriate weight gain during pregnancy play a vital role in preventing complications such as gestational diabetes, preeclampsia, and fetal growth abnormalities. Screening for substance use, including tobacco, alcohol, and illicit drugs, along with assessing exposure to intimate partner violence, allows for early interventions that can improve maternal and fetal outcomes. Preconception counseling also addresses environmental and occupational exposures to teratogens and provides guidance on safe interpregnancy intervals, particularly for individuals with recent deliveries, to optimize maternal recovery and reduce risks of adverse outcomes in subsequent pregnancies. Reviewing prior pregnancy complications, including preterm labor, preeclampsia, gestational diabetes, and intrauterine growth restriction, allows healthcare providers to implement strategies aimed at reducing recurrence risk. Counseling preventive measures, lifestyle modifications, and pharmacologic interventions can directly improve pregnancy outcomes. Finally, preconception education on diet, supplements, travel precautions, and general safety practices empowers patients with knowledge that supports fetal health, especially during early gestation when organogenesis occurs. By addressing these domains comprehensively, preconception counseling establishes a foundation for a healthier pregnancy, optimizes maternal and fetal outcomes, and reinforces

the role of preventive care in reproductive health [1][2][3].

Issues of Concern

Pregnancy planning and interpregnancy spacing are fundamental components of preconception counseling, with significant implications for both maternal and neonatal outcomes. Age-appropriate sexual education should be provided to all individuals of reproductive age, including adolescents, to ensure informed decision-making regarding reproductive health. Contraceptive counseling and education on the prevention of sexually transmitted infections (STIs) are particularly critical for individuals under 25 years of age, regardless of gender, as these interventions reduce the incidence of unplanned pregnancies and mitigate associated health risks [4]. Empowering couples to consciously determine the timing of conception is essential for optimizing both physical health and psychosocial well-being. Unintended or unplanned pregnancies frequently result in delayed initiation of prenatal care, which increases the likelihood of adverse events during gestation and poorer perinatal outcomes [1]. The timing between pregnancies, or interpregnancy interval (IPI), is a major determinant of pregnancy safety and maternal recovery. Counseling patients who have recently delivered on optimal spacing between pregnancies is a crucial aspect of preconception care. The American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM) recommend waiting a minimum of six months after delivery before attempting conception, with an ideal interval of approximately eighteen months [1][5]. Shorter IPIs, particularly those under six months, are associated with elevated rates of pregnancy complications, including preterm birth, low birth weight, and maternal anemia. Additionally, interdelivery intervals of less than eighteen months are linked with increased risk of uterine rupture in patients undergoing a trial of labor after cesarean (TOLAC) [1][5].

Special considerations are warranted for patients with recent bariatric surgery, as rapid weight loss and nutritional adjustments can negatively affect fetal growth. In such cases, delaying conception for twelve to twenty-four months post-surgery is advised, allowing the period of rapid weight reduction to stabilize and ensuring adequate nutritional reserves for pregnancy. Counseling on the timing of conception should also consider prior pregnancy complications, maternal chronic conditions, and psychosocial factors, as these influence the risk of recurrence and guide individualized strategies to minimize adverse outcomes. Effective preconception counseling encompasses discussions on contraceptive planning, interpregnancy interval, and reproductive readiness, providing a foundation for safer pregnancies and healthier maternal and neonatal outcomes. By prioritizing deliberate pregnancy planning and

appropriate spacing, healthcare providers can significantly reduce maternal and infant morbidity and mortality while supporting informed reproductive decision-making [5].

Management of Chronic Disease and Medication Review

Preconception care for women with chronic medical conditions necessitates a comprehensive, multidisciplinary approach to optimize maternal and fetal outcomes. All women with pre-existing chronic diseases should engage in early discussions with their primary managing clinicians regarding their reproductive intentions. Ideally, these consultations occur before conception, allowing for medical optimization of the underlying condition and minimizing potential risks to both the mother and fetus. Preconception counseling focuses on primary and secondary preventive strategies, patient adherence to treatment regimens, and overall health promotion, providing the foundation for a safer pregnancy [1][2]. A thorough review of the patient's medical history, current disease status, medication regimen, and social determinants of health is critical during preconception assessment. Factors such as limited support systems, financial constraints, or other barriers may influence a patient's ability to maintain optimal disease management. Pregnancy introduces physiological changes that can exacerbate chronic conditions and increase maternal and fetal risk, necessitating additional clinical visits, modifications to treatment plans, and implementation of targeted interventions. Patients with chronic conditions including seizure disorders, diabetes mellitus, cardiac or renal disease, and autoimmune disorders should be referred to a high-risk obstetric specialist, such as Maternal-Fetal Medicine (MFM), for collaborative preconception planning and ongoing management throughout gestation [2].

Providers must carefully evaluate both the effects of chronic disease and its management on pregnancy outcomes, as well as the reciprocal impact of pregnancy on disease progression. Chronic hypertension is among the most common conditions encountered in reproductive-age women. Prior to conception, patients should transition to antihypertensive agents with established safety profiles during pregnancy, as many standard therapies, including angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), are contraindicated due to teratogenic risks. Recommended medications include labetalol, initiated at 100 to 200 mg twice daily, nifedipine in extended-release formulations at 30 to 60 mg once daily, and methyl dopa at 250 mg two to three times daily [6]. Comprehensive assessment for end-organ damage is also warranted, including evaluation for hypertensive retinopathy via ophthalmology consultation, renal impairment through urine protein analysis, and cardiac assessment for left ventricular hypertrophy using

electrocardiography. Lifestyle counseling regarding avoidance of tobacco, excess sodium, and high caffeine intake is also essential. Chronic hypertension significantly increases the risk of preeclampsia and fetal growth restriction, necessitating ongoing monitoring throughout gestation [1][6].

Pregestational diabetes requires optimization of glycemic control prior to conception, with the goal of achieving hemoglobin A1c levels below 6.5%. Weight management strategies should be implemented, and assessment for long-term complications of diabetes is recommended, including renal dysfunction, retinopathy, and cardiovascular compromise. Screening for thyroid dysfunction is advised, particularly in patients with poorly controlled or long-standing disease, as hypothyroidism may coexist and exacerbate complications. Pregnancy in women with diabetes is associated with increased risk for congenital anomalies, particularly cardiac defects, fetal growth restriction, and neonatal complications such as hypoglycemia, respiratory distress syndrome, and hyperbilirubinemia, highlighting the importance of meticulous preconception planning and glycemic optimization [1]. Thyroid disorders, specifically hypothyroidism, require careful preconception management to maintain thyroid-stimulating hormone (TSH) within normal reference ranges. Uncontrolled hypothyroidism can contribute to early pregnancy loss, preterm birth, preeclampsia, placental abruption, and fetal demise. Patients should be closely monitored with serial laboratory testing and individualized titration of levothyroxine to mitigate risks [7].

Women living with human immunodeficiency virus (HIV) should achieve viral suppression through optimized antiretroviral therapy prior to conception. Collaborative management with an HIV specialist is essential to ensure maternal health and minimize vertical transmission risk. Specific interventions, including consideration of the mode of delivery and adherence to antiretroviral therapy, are critical components of preconception and antenatal planning [8]. Inherited or acquired thrombophilias represent another critical area requiring preconception attention. A detailed assessment of thromboembolic risk informs decisions regarding prophylactic anticoagulation during pregnancy. Low-risk thrombophilias, such as heterozygous factor V Leiden mutations or heterozygous prothrombin G20210A mutations without prior venous thromboembolism (VTE), may require only surveillance or prophylactic low molecular weight heparin (LMWH) if a first-degree relative is affected. High-risk thrombophilias, including homozygous mutations or combined heterozygosity, necessitate more aggressive anticoagulation strategies, including intermediate or therapeutic dosing of LMWH or unfractionated heparin (UFH). Warfarin is contraindicated in pregnancy except in specific mechanical valve scenarios due to its teratogenicity [9][10]. Ongoing monitoring for thromboembolic events is essential,

given the heightened physiological hypercoagulability during gestation [1][10].

Implementation of preconception counseling and chronic disease management extends beyond pharmacologic considerations to include optimization of lifestyle factors, patient education, and psychosocial support. Counseling should address smoking cessation, alcohol avoidance, nutritional adequacy, exercise guidance, and stress reduction, all of which contribute to improved pregnancy outcomes. Additionally, individualized risk assessment for prior obstetric complications, family history, and comorbid conditions informs the development of a tailored preconception plan. High-risk pregnancies demand coordination across multiple disciplines, including endocrinology, cardiology, nephrology, and hematology, in addition to MFM, to ensure comprehensive risk mitigation and optimal maternal-fetal health. In conclusion, the management of chronic disease and careful medication review prior to conception is an essential component of preconception care. By optimizing the treatment of chronic conditions, adjusting pharmacologic regimens to pregnancy-safe alternatives, and addressing psychosocial and lifestyle factors, healthcare providers can reduce maternal and fetal morbidity and mortality, enhance pregnancy outcomes, and support informed reproductive decision-making. This approach requires a multidisciplinary, patient-centered strategy that balances the complexities of chronic disease management with the physiological demands of pregnancy, ensuring both maternal health and optimal fetal development [1][2][6][10].

Genetic Disorders and Carrier States

Preconception counseling encompasses a thorough evaluation of genetic risk factors and carrier states to reduce the likelihood of adverse pregnancy outcomes and congenital anomalies. The American College of Obstetricians and Gynecologists (ACOG) recommends that all patients planning a pregnancy undergo counseling regarding specific genetic conditions and, when appropriate, targeted genetic testing. Universal carrier screening is advised for cystic fibrosis and spinal muscular atrophy, reflecting the significant prevalence and potential morbidity of these conditions. Similarly, hemoglobinopathies should be screened universally, as highlighted in the ACOG Practice Advisory issued in August 2022 [1]. Additional targeted screening is indicated for specific patient populations or family histories. Fragile X syndrome testing is recommended for individuals with a family history of fragile X-related disorders, those with premature ovarian insufficiency before 40 years of age, or individuals with intellectual disability suggestive of fragile X syndrome. Patients of Ashkenazi Jewish descent may benefit from screening for Canavan disease and familial dysautonomia, while Tay-Sachs disease screening is advised for individuals of Ashkenazi Jewish, French-Canadian, or Cajun ancestry or for those with a known family history of

the condition. Beyond these recommendations, clinicians should individualize screening for other known genetic disorders affecting the patient or her family [1].

Patients with a significant family history of genetic disorders should be referred to a genetic counselor. Genetic counseling provides comprehensive risk assessment, educates families on inheritance patterns, and discusses the potential impact of specific disorders on fertility and pregnancy outcomes. Counseling also informs patients about reproductive options designed to reduce transmission risk, including preimplantation genetic diagnosis (PGD) during in vitro fertilization (IVF). Referral to a reproductive endocrinology and infertility (REI) specialist is appropriate for patients interested in advanced reproductive technologies to mitigate genetic risks. These measures support informed reproductive decision-making and optimize prenatal outcomes [1]. In addition to genetic considerations, evaluation of immunity and vaccination status is a critical component of preconception care. Immunity to rubella, varicella, and hepatitis B should be confirmed. Other vaccinations should be updated prior to conception where possible. Recommended vaccines include tetanus-diphtheria-acellular pertussis (Tdap), ideally administered at 27 to 36 weeks gestation during each pregnancy, measles-mumps-rubella (MMR) with at least a 28-day interval before conception, and the varicella vaccine, which should commence two months prior to conception to allow completion of the two-dose series. Hepatitis B, meningococcal, and pneumococcal vaccines should be administered based on individual risk and appropriateness. Human papillomavirus (HPV) vaccination should not be delayed in those planning pregnancy; if pregnancy occurs during the series, administration can be paused and resumed postpartum. Annual influenza vaccination and COVID-19 vaccination are also advised to reduce maternal and fetal morbidity [1].

Screening for sexually transmitted infections (STIs) and cervical cancer is integral to preconception care. Patients should be assessed for chlamydia, gonorrhea, syphilis, HIV, and hepatitis B and C based on age, risk factors, and local epidemiologic guidelines. Early detection and treatment of STIs prior to conception minimize the risk of adverse pregnancy outcomes, including miscarriage, preterm birth, and neonatal infection. Cervical cancer screening should also be current, as untreated dysplasia or malignancy can complicate pregnancy [1]. Nutritional assessment and supplementation play a vital role in preparing patients for pregnancy. A diet rich in fruits, vegetables, and whole grains supports maternal health and fetal development. Daily multivitamin supplementation is recommended, with attention to avoiding excessive intake of fat-soluble vitamins (A, D, E, and K), which can accumulate and become toxic, as well as excessive

iodine, which may result in congenital goiter. Adequate folic acid supplementation is essential, with 400 micrograms daily advised at least one month prior to conception for individuals at average risk for neural tube defects (NTDs). High-risk patients, including those with a personal or partner history of NTDs or seizure disorders, should receive 4 mg of folic acid daily beginning three months prior to conception and continuing through the first trimester. Evidence suggests high-dose supplementation can reduce NTD incidence by up to 70% [11].

Patients should also receive counseling regarding safe dietary practices. Consumption of fish high in mercury, such as shark, king mackerel, marlin, bigeye tuna, swordfish, orange roughy, and tilefish, should be avoided, while low-mercury fish like light canned tuna, tilapia, shrimp, and cod may be consumed in moderation, limited to two to three servings per week. All seafood must be fully cooked. Additionally, pregnant individuals should avoid unpasteurized or raw milk, undercooked eggs, and improperly prepared meats to prevent *Listeria* and other foodborne infections, which pose significant risks during pregnancy [12]. Weight management is another key aspect of preconception care. Obesity is associated with increased risks of infertility, early pregnancy loss, gestational diabetes, hypertension, congenital anomalies, fetal macrosomia, cesarean delivery, delivery complications, endometritis, and venous thromboembolism. Preexisting chronic diseases such as diabetes, hypertension, cardiovascular disease, and stroke further exacerbate these risks. Individuals with a body mass index (BMI) greater than 30 should be considered for referral to a dietitian for structured nutritional counseling [1][13][14]. Conversely, underweight or malnourished individuals are at risk for nutrient deficiencies that can result in low birth weight and preterm labor. These patients require dietary counseling and may also benefit from dietitian referral [1]. Physical activity should be encouraged to support cardiovascular health, maintain appropriate weight, and optimize overall well-being. Moderate-intensity exercise for at least 30 minutes a day, five days per week, is recommended before, during, and after pregnancy. Competitive athletes require individualized counseling to ensure sufficient caloric intake and hydration, preventing adverse effects on fetal growth and development [1][15].

Substance use counseling is essential in preconception care. Tobacco use is linked to preterm labor, fetal growth restriction, low birth weight, and placental abruption. Smoking cessation, including counseling for partners, reduces perinatal mortality and low birth weight by at least 20%. Interventions such as the 5A's approach—ask, advise, assess, assist, and arrange follow-up—are recommended for structured cessation support [1]. Alcohol use is associated with fetal alcohol spectrum disorders,

neuropsychological deficits, and fertility complications, and no safe level has been established. Women should be advised to abstain completely from alcohol when planning pregnancy [1][2][16]. Illicit drug use increases the risk of neonatal abstinence syndrome, low birth weight, placental abruption, and maternal complications, and cessation programs, counseling, and specialist referral should be provided [1]. Environmental and occupational toxin exposures should be assessed and mitigated. Toxins such as lead, arsenic, fluoride, toluene, flame retardants, bisphenol A (BPA), phthalates, perfluoroalkyl substances (PFAS), polychlorinated biphenyls (PCBs), pesticides, and industrial solvents have been associated with reproductive toxicity, fetal loss, birth defects, and developmental delays. Preconception counseling should include education regarding avoidance of these substances, workplace and home hazard mitigation, and adherence to safety protocols, such as wet cleaning methods to reduce airborne particulate exposure [12]. Specific patient education includes guidance on lead exposure, which is commonly encountered in homes built before 1978. Cleaning with damp cloths and professional removal of lead-containing materials are advised to reduce neurodevelopmental risks. Flame retardants in furniture and household items have been linked to decreased cognitive and motor function, and patients should choose flame-retardant-free products. Air pollutants, such as polycyclic aromatic hydrocarbons (PAHs), have been associated with preterm birth, low birth weight, and autism spectrum disorders; avoidance strategies include adherence to air quality alerts and minimizing outdoor activity during peak pollution [12]. Solvents used in household and industrial products may contribute to miscarriage and low birth weight; use of nontoxic alternatives is recommended. Phthalates and BPA, often present in plastics and personal care products, are associated with neurodevelopmental and reproductive complications, and patients should utilize phthalate-free, BPA-free, or non-plastic alternatives [12]. PFAS, commonly found in nonstick cookware, may impact fetal growth, and minimized use is advised. Pesticide exposure has been linked to childhood cancers, autism spectrum disorders, and cognitive impairment, and organic food choices and avoidance of home-use pesticides are recommended [12].

In summary, comprehensive preconception counseling addresses genetic risk, immunity, infection screening, nutrition, weight management, exercise, substance use, and environmental exposures. The systematic evaluation of these factors reduces maternal and fetal morbidity and mortality, informs individualized reproductive planning, and promotes optimal pregnancy outcomes. By integrating genetic counseling, vaccination, dietary guidance, lifestyle modifications, and environmental safety strategies, healthcare providers can establish a foundation for a healthy pregnancy, prevent congenital anomalies, and

support long-term maternal and child health [1][11][12][13][14][15][16].

Clinical Significance

Preconception counseling holds a pivotal role in optimizing maternal and fetal outcomes by identifying and addressing potential risks before conception. The clinician must conduct a comprehensive risk assessment encompassing medical, surgical, psychosocial, genetic, nutritional, and behavioral factors. This includes evaluation of chronic health conditions, prior surgical history, family history of genetic disorders, lifestyle behaviors, and psychosocial circumstances such as support systems and financial stability. Screening for alcohol, tobacco, and illicit drug use is a critical component, as these behaviors are directly linked to adverse pregnancy outcomes, including preterm birth, fetal growth restriction, and congenital anomalies. Following the risk assessment, individualized risk-reduction strategies should be implemented. This may include adjustment or optimization of chronic disease management, lifestyle modification, nutritional counseling, and mental health support. Patients should be educated about environmental exposures to toxins such as lead, phthalates, and pesticides, and measures to minimize exposure should be discussed. Immunization status should be reviewed, and vaccines updated as indicated to prevent maternal and neonatal infections. Genetic counseling and, when appropriate, targeted screening should be offered to assess potential inherited risks and guide informed reproductive decisions. The overarching objective of preconception care is to establish wellness prior to conception, ensuring that chronic conditions, behavioral issues, and environmental exposures are optimally managed. Early intervention in this period has been shown to significantly reduce perinatal morbidity and mortality. By addressing modifiable risk factors before pregnancy, clinicians can improve outcomes for both mother and child and provide a foundation for a healthier gestational course. This proactive approach embodies the central tenet of obstetric care, emphasizing prevention, patient education, and the promotion of long-term maternal and fetal health [17].

Enhancing Healthcare Team Outcomes

Effective preconception counseling relies on a coordinated interprofessional approach to ensure comprehensive risk assessment, planning, and intervention. Collaboration among healthcare providers—including primary care clinicians, obstetricians, reproductive specialists, mental health professionals, nutritionists, and pharmacists—is essential to address the multifaceted health factors that can affect pregnancy outcomes. Each member of the healthcare team contributes unique expertise, whether in optimizing chronic disease management, providing behavioral health support, recommending appropriate nutritional interventions, or adjusting medications for safety prior to conception. Consistent documentation within the healthcare record is critical for continuity of

care. All providers involved in a patient's care should have access to a complete and up-to-date care plan, including medical history, medications, behavioral health assessments, genetic screening results, immunization status, and lifestyle counseling. This transparency allows providers to identify overlapping risks, avoid conflicting interventions, and implement evidence-based strategies to optimize health prior to pregnancy. An interprofessional approach is particularly valuable for patients receiving care from multiple specialists or managing complex health conditions. Coordination among providers facilitates early identification of modifiable risks, including chronic disease exacerbations, medication contraindications, nutritional deficiencies, or psychosocial stressors. By addressing these factors proactively, the team can minimize pregnancy complications, improve maternal and fetal outcomes, and reduce healthcare utilization associated with preventable adverse events. Furthermore, all providers should routinely address reproductive health considerations with patients of reproductive age, regardless of specialty, to foster awareness and encourage proactive planning. When healthcare teams integrate preconception counseling into routine care, they enhance patient engagement, ensure safer pregnancy planning, and contribute to improved interprofessional communication and patient-centered outcomes [17].

Nursing, Allied Health, and Interprofessional Team Interventions

Preconception counseling and care require a well-coordinated interprofessional effort to optimize health outcomes for both the patient and future pregnancy. Each member of the healthcare team plays a unique and complementary role, ensuring that medical, behavioral, and social factors are addressed before conception. Non-obstetric clinicians are critical in managing chronic medical conditions that may affect pregnancy outcomes. For example, a neurologist may be consulted to optimize seizure control in a patient with epilepsy prior to conception, or a cardiologist may manage preexisting hypertension or heart disease. Coordination between these specialists and the obstetric team is essential to ensure continuity of care, appropriate medication adjustments, and risk mitigation during pregnancy. Failure to integrate care across disciplines can result in suboptimal management, increasing the risk of adverse maternal and fetal outcomes. Genetic counselors provide specialized expertise in identifying heritable risks, offering guidance on screening and testing, and interpreting results for patients and families. Their role includes educating patients on reproductive options, the implications of carrier states, and available interventions, including preimplantation genetic testing. In high-risk cases, genetic counseling is an essential component of informed decision-making and empowers patients to make choices that

reduce the likelihood of passing on genetic disorders. Nursing professionals play a central role in patient education and preconception preparation. Nurses are often the first point of contact for patients and can provide guidance on general health maintenance, medication adherence, nutrition, and lifestyle modifications. By understanding the key elements of a preconception visit, nurses ensure patients receive accurate, evidence-based counseling regarding health optimization, safe behaviors, and risk reduction strategies. Nursing interventions also include monitoring patient progress, reinforcing adherence to medical recommendations, and coordinating referrals to other specialists when needed [11].

Pharmacy staff contribute to preconception care by reviewing all medications for teratogenic risk, efficacy, and dosage appropriateness. Pharmacists are well-positioned to counsel patients on medication safety, suggesting alternatives when necessary and collaborating with prescribers to ensure that chronic conditions remain controlled while minimizing potential harm to the fetus. This collaboration is particularly critical in patients with complex medical regimens, including anticoagulation therapy, antiepileptic drugs, or antiretroviral treatment. Nutritionists and registered dietitians provide tailored dietary counseling, helping patients achieve optimal weight and nutrient status before conception. This guidance is especially important for patients with comorbidities such as diabetes, hypertension, or obesity, which can significantly impact pregnancy outcomes. Dietitians can develop individualized nutrition plans to improve metabolic health, support fertility, and reduce the risk of pregnancy complications. Addiction specialists, substance use clinics, and tobacco cessation programs are integral in supporting patients to reduce or eliminate exposure to harmful substances. Interventions in this domain are associated with improved maternal and neonatal outcomes, including lower rates of preterm birth, fetal growth restriction, and congenital anomalies. These professionals provide behavioral counseling, medication-assisted treatment when appropriate, and structured follow-up to maintain abstinence during preconception and pregnancy [17].

Public health and immunization clinic staff further enhance preconception care by reducing access barriers to preventive services. They ensure patients are up-to-date on vaccines such as rubella, varicella, hepatitis B, Tdap, and influenza, providing counseling on timing and safety relative to conception. These professionals also play a role in community outreach, health education, and linking patients to additional services that support preconception wellness. Through coordinated interprofessional interventions, preconception care can comprehensively address medical, behavioral, genetic, nutritional, and environmental factors. Each team member contributes to minimizing risks, optimizing health, and improving

pregnancy outcomes. The collaborative approach ensures that patients receive individualized, evidence-based care, fostering safer pregnancies, better maternal and neonatal health, and long-term well-being for the family [11][17].

Conclusion:

Preconception counseling represents a proactive strategy to improve maternal and neonatal health by addressing modifiable and non-modifiable risk factors before conception. This review highlights its clinical significance in reducing complications such as preterm birth, congenital anomalies, and maternal morbidity through early interventions. Comprehensive counseling encompasses chronic disease optimization, medication safety, genetic risk assessment, immunization, nutritional guidance, and lifestyle modification. Additionally, counseling on interpregnancy intervals and contraceptive planning ensures safer pregnancies and better maternal recovery. The success of preconception care depends on an interprofessional approach, integrating expertise from nursing, obstetrics, genetics, pharmacy, nutrition, and behavioral health. Nurses, as frontline providers, play a critical role in patient education, risk assessment, and care coordination. By embedding preconception counseling into routine preventive care, healthcare systems can transform reproductive health from a reactive to a proactive model, empowering patients to make informed decisions and achieve optimal pregnancy outcomes. Ultimately, preconception counseling is not merely a clinical recommendation but a public health imperative that supports healthier families and reduces healthcare burdens associated with preventable complications.

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