Partners Universal International Research Journal (PUIRJ)
Volume: 05 Issue: 01 | January– March 2026 | ISSN: 2583-5602 | www.puirj.com

# Pre-Wedding Medical Screening: What Every Couple Must Know Before Marriage

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**Abstract –** Marriage is among the most important choices, which one will take throughout his or her life. As the couples spend a lot of time and money on planning the ceremony, covering financial expenses, and organizing the household, pre-marital health screening remains a priority to many that was not explored and is underrated. This paper gives detailed analysis of the pre-wedding medical tests in terms of its history, clinical guidelines, and scientific basis of each of the primary types of screening. The topics covered in the article are infectious disease testing such as HIV, Hepatitis B, and Hepatitis C, screening of sexually transmitted infections, blood group and Rhesus factor compatibility, fertility profiling, genetic testing with inherited blood disorders such as Sickle Cell Disease and thalassemia, mental health assessment, and chronic disease screening such as diabetes, hypertension, and thyroid dysfunction. The article bases its assertions on established clinical evidence and actual results in the field of public health and proposes that pre-marital health screening is not a mere medical obligation at all, but a fundamental gesture of informed alliance. It is also discussed how the social and cultural barriers put off the couples to undergo these tests and provide a practical actionable structure of incorporating the health screening into the pre-wedding planning process. It concludes by reiterating the fact that early diagnosis, open dialogue, and active medical care are all the most significant preparations a couple can make before they get into the marriage.

**Keywords:** Pre-marital screening, Genetic counselling, Reproductive health, Vaccination review, STI testing, Bioethics, Congenital disorders, pre-conception care.

## 1. INTRODUCTION

### 1.1 The Conversation Most Couples Skip

There are hundreds of decisions that are made during planning a wedding. The hosting, invitations, food, florals and music are organized with a high level of care in several months of planning. However, there is one discussion that is so disregarded, not because it is less important, it is just awkward. That discussion is concerning health. Romance does not entail pre-wedding medical check-up. It is not brought up during dinner or at the time of taking a tour of the venue. However, it can be the one most feasible and affectionate act two individuals can undertake prior to making a commitment to a joint existence. Marriage is not just a union of emotions. It is a health partnership. Two individuals are on the verge of spending a life together, bed, potential children and many years of day to day living. The contribution that any individual makes to that marriage such as health, genotype and chronic illness has a direct impact on the other counterpart.

This paper does not set out to panic. It is intended to inform. Knowledge on the medical tests to consider prior to marriage, what they expose and the importance of such tests provides honesty to individuals in the

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marriage. It is not aimed at finding reasons to re-think a wedding. It is to enter a marriage with clear vision, correct knowledge and a plan towards a healthy future.

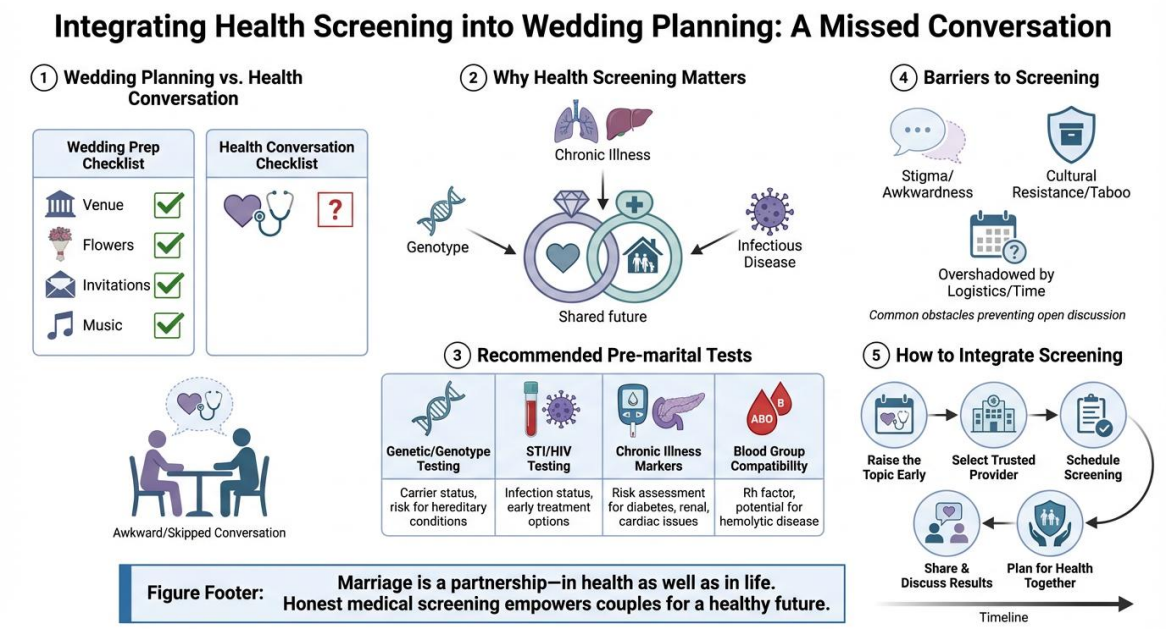


**Fig -1**: Integrating Health Screening into Wedding Planning

The following article discusses the science behind pre-marital health screening, the history of how and why these are recommended, the tests themselves and their measurement, the obstacles that couple cannot overcome in order to do these tests and the practical steps that every couple can undertake in order to make health screening a part of the pre-wedding planning.

## 2. OBJECTIVES

The main purposes of this paper are as follows. To begin with, it is necessary to present a comprehensive and convenient description of the most clinically significant pre-marital medical tests and the purposes thereof. Second, to map the historical and epidemiological background which led to formal pre-marital screening advice. Third, to determine the contemporary trends in health policy and individual practice regarding pre-marriage in the world. Fourth, to determine the main obstacles, social and systematic, that restrict access to pre-marital screening. Fifth, to introduce evidence-based solutions and a viable framework couples, healthcare practitioners, and policymakers can implement. Sixth, to identify possibilities of upcoming opportunities of pre-marital health screening considering the current trend of medical advancement and the change in social perception toward preventive treatment. Combined, these goals fulfil a larger role of providing the reader with knowledge and desire to approach pre-marital health preparation as an obligatory part of responsible partnership.

## 3. HISTORICAL CONTEXT HOW PRE-MARITAL HEALTH SCREENING EVOLVED

Screening of people prior to marriage is not a new practice. Its history can be traced to the early twentieth century when the large populations urbanizing and increasing incidences of syphilis and tuberculosis made

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governments in Europe and North America question whether marriage was a potential public health point of intervention. Premarital syphilis became legal in most states in the United States after legislation was passed in the late 1930s and 1940s. The reasoning behind it was simple. In case syphilis could be detected and treated prior to marrying, the families and especially the newborns would not be subjected to the same chain transmissions.

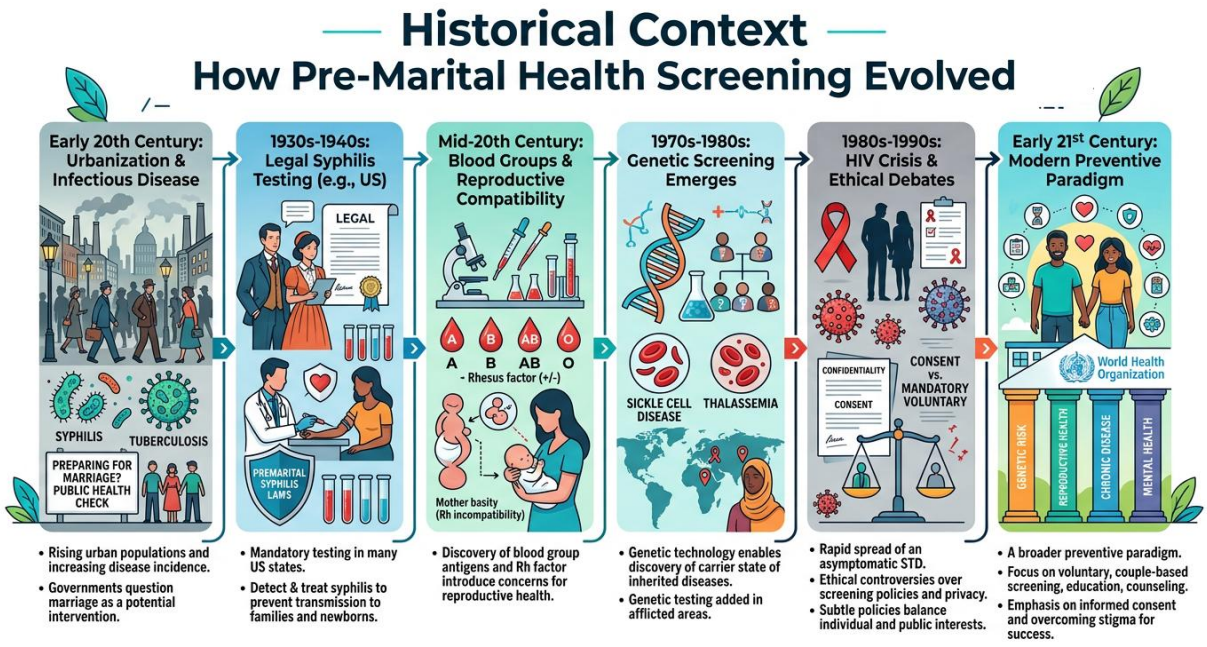


**Fig -2**: Historical Context How Pre-Marital Health Screening Evolved

The past decades were characterized by an increase in the number of medical scientific achievements in parallel with the expansion of pre-marital health considerations. The identification of blood group antigens and the Rhesus factor in the middle of the twentieth century raised new clinical issues on reproductive compatibility. Genetic screening technologies emerged in the 1970s and 1980s, which enabled the discovery of carrier state of inherited diseases (Sickle Cell Disease and thalassemia) so that health authorities in the afflicted areas began to include genetic testing in pre-marital health procedures.

The 1980s and 1990s HIV crisis further changed the discussion on pre-marital health. It was the first time when a sexually transmitted disease with an extended asymptomatic incubation and catastrophic long-term effects was spreading at an extremely rapid rate among the intimate partner networks. In most countries, HIV testing was included as a recommended part of pre-marital screening and in certain jurisdictions it was made mandatory. Ethical controversy that surrounded these policies, especially on confidentiality, consent, and coercion eventually led to more subtle policies that weighed the interests of the populace against the rights of the individual.

By the early twenty-first century pre-marital health screening had developed out of a preoccupation with infectious disease to a larger preventive paradigm based on genetic risk, reproductive health, chronic disease treatment, and mental health. International health agencies, such as the World Health Organization, started to focus more on the need to have voluntary and couple based screening programs which focus on education and counseling as opposed to compulsion. This trend was an indicator of increased awareness on the

importance of informed consent and psychological support to the success of any health screening initiative, and stigma is one of the biggest barriers to uptake.

## 4. CURRENT TRENDS IN PRE-MARITAL HEALTH SCREENING

There are a few key trends that are defining pre-marital health screening as it is perceived and practiced in the modern world. The former is an institutionalization move across the globe. Various countries in the Middle East, sub-Saharan Africa, South and Southeast Asia, and parts of Europe have established formal pre-marital screening programs, some of which are voluntary and others compulsory, which screen a series of diseases such as infectious diseases to genetic blood disorders. One example after being used in Saudi Arabia, in 2004, a national mandatory pre-marital screening program was implemented, which tests against sickle cell trait, thalassemia, HIV and Hepatitis B and C, and has been linked with a quantifiable reduction in new cases of these diseases among newborns. A similar program was enacted in Iran and has helped reduce the cases of new thalassemia by a huge margin.

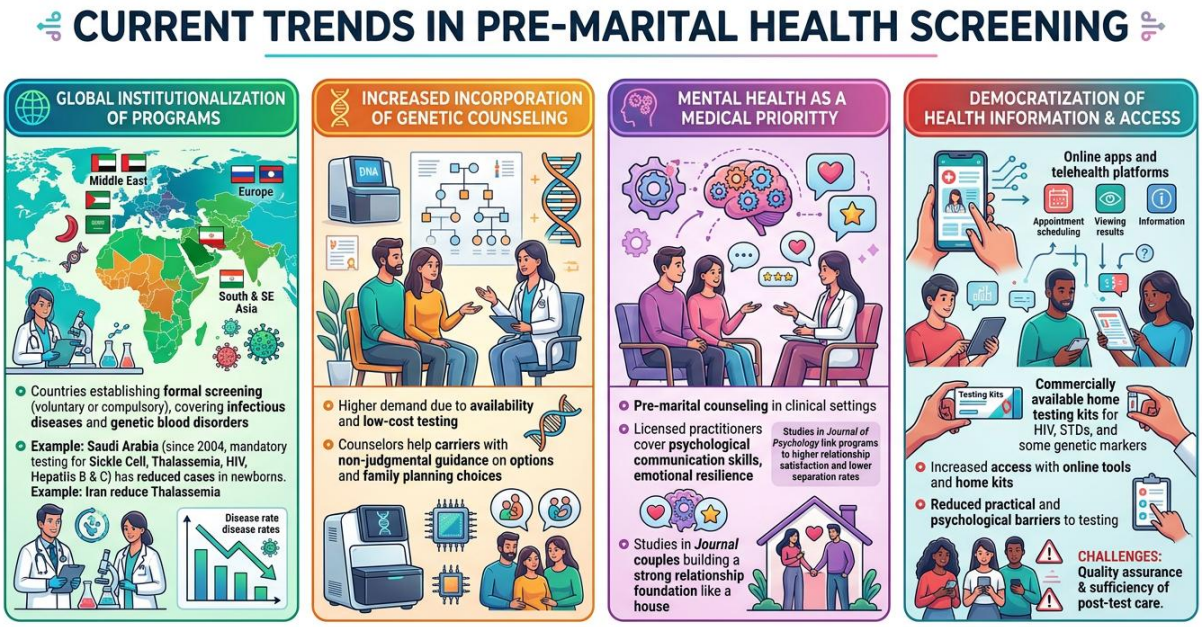


**Fig -3**: Current Trend in Pre-Marital Health Screening

The second is the increased incorporation of genetic counseling into the pre-marriage health services. The demand of genetic counseling has been on the rise with the availability and cheaper cost of testing technologies. Those couples who have tested positive as the carriers of the heritable conditions now stand a better chance than in the past decades to find a systematic counseling which tells them about their options and assists them to make intricate choices about family planning without being judgmental.

The third trend is that mental health is becoming a medical priority within the pre-marital setting. Pre-marital counseling programs, previously prerogative of a religious institution, are now being applied in a clinical setting by licensed mental health practitioners who include psychological preparedness, communication abilities, and emotional endurance in addition to physical wellbeing. Studies that have been published in

magazines like the Journal of Family Psychology show the levels of relationship satisfaction are higher and separation rates are lower among couples that have undergone pre-marriage counseling programs in the years after marriage.

The fourth and more important trend is that of democratization of health information. Online health app and telehealth technologies have enabled people to find out more information regarding pre-marital testing and schedule appointments and get the results without going through the complicated healthcare processes. A range of home testing kits of HIV, sexually transmitted diseases, and some genetic markers are now available commercially in most countries, reducing practical and psychological barriers to the tests. These developments are troubling the quality assurance and sufficiency of post-treatment care; nevertheless, it is a significant growth in access.

## 5. TESTING FOR HIV, HEPATITIS B, AND HEPATITIS C

### 5.1 Protecting Each Other From Day One

Viral infections such as HIV, Hepatitis B and Hepatitis C can stay within the body without showing any noticeable symptoms over a period of time. An individual may be a carrier of these viruses and transmit the disease to a partner without any symptoms. All three are sexually contracted, in blood and between a mother and her child during pregnancy or breastfeeding.

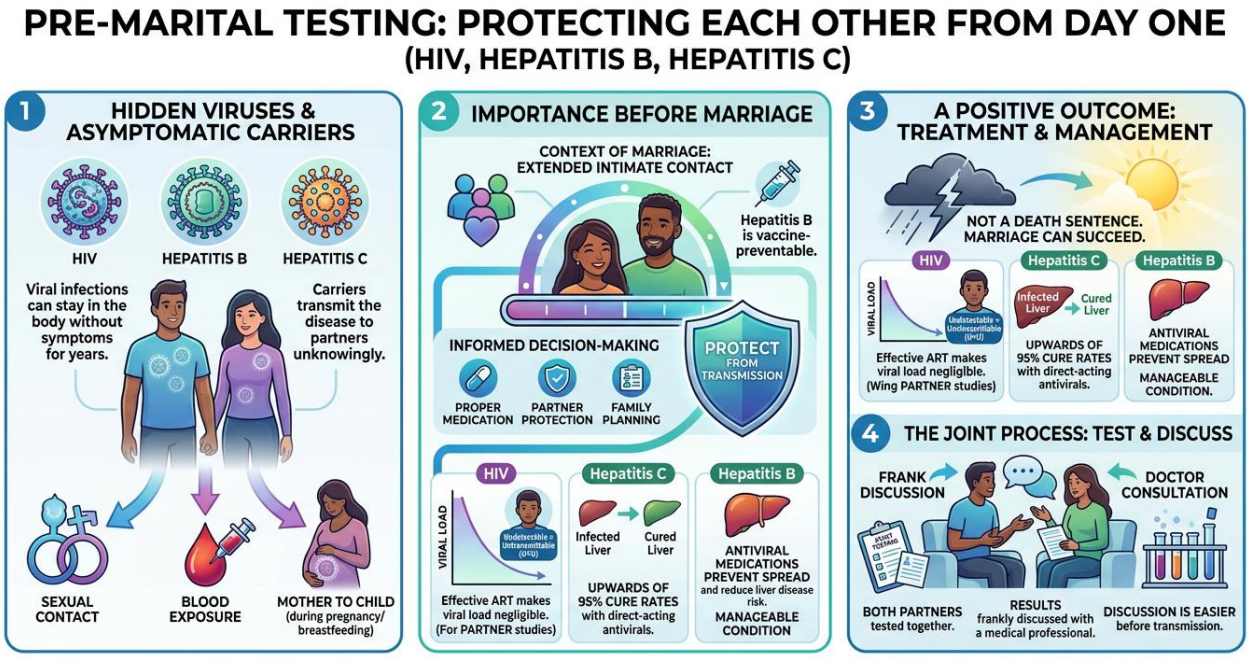


**Fig -4**: Pre-Marital Testing Protecting Each Other from Day one

These tests have specific significance prior to marriage because the context of marriage in its very nature requires extended intimate contact over several years. An individual infected with any of these should be told so, as he or she can proceed with proper medication, precautionary measures to protect his or her partner, and make an informed decision about having children. In the case of Hepatitis B, which is vaccine-

preventable, a partner aware of the situation can get vaccinated or start to undertake the needed countermeasures in the case of HIV.

One should also be explicit with respect to what a positive outcome means in practice. Any of these infections does not mean a death sentence and does not necessarily mean a marriage cannot succeed. HIV antiretroviral therapy has nowadays made the condition a chronic disease rather than a death sentence. The available evidence suggests that individuals with HIV, with effective antiretroviral therapy and with an undetectable viral load, have a negligible chance of infecting their partners sexually: according to the United Nations Programme on HIV and AIDS, this is provided by both large-scale research, including the groundbreaking PARTNER study and the PARTNER 2 study, published in The Lancet. Likewise, direct-acting antiviral agents in the treatment of Hepatitis C are currently able to achieve upwards of 95 percent cure rates in most groups of patients. Although in the majority of cases incurable, hepatitis B can be treated by antiviral medications that prevent the spread of the virus, reducing the likelihood of developing liver disease and reducing the chances of transmission. The next practical thing is to do the deed as a couple. Both partners are to be tested, and their results should be frankly discussed between partners and discussed with a medical professional in case of positive results. The discussion might not be easy, but is a lot easier in the lead-up to a marriage than after transmission has happened.

## 6. SEXUALLY TRANSMITTED INFECTIONS

### 6.1 The Silent Threats to Reproductive Health

Outside HIV and hepatitis, there are other sexually transmitted diseases that can be very harmful in the long run, when undiagnosed and untreated. Some of the most common and common to all are syphilis, gonorrhea and chlamydia, all three are often asymptomatic or in other words, the person infected may be completely oblivious to the fact that they have the infection.

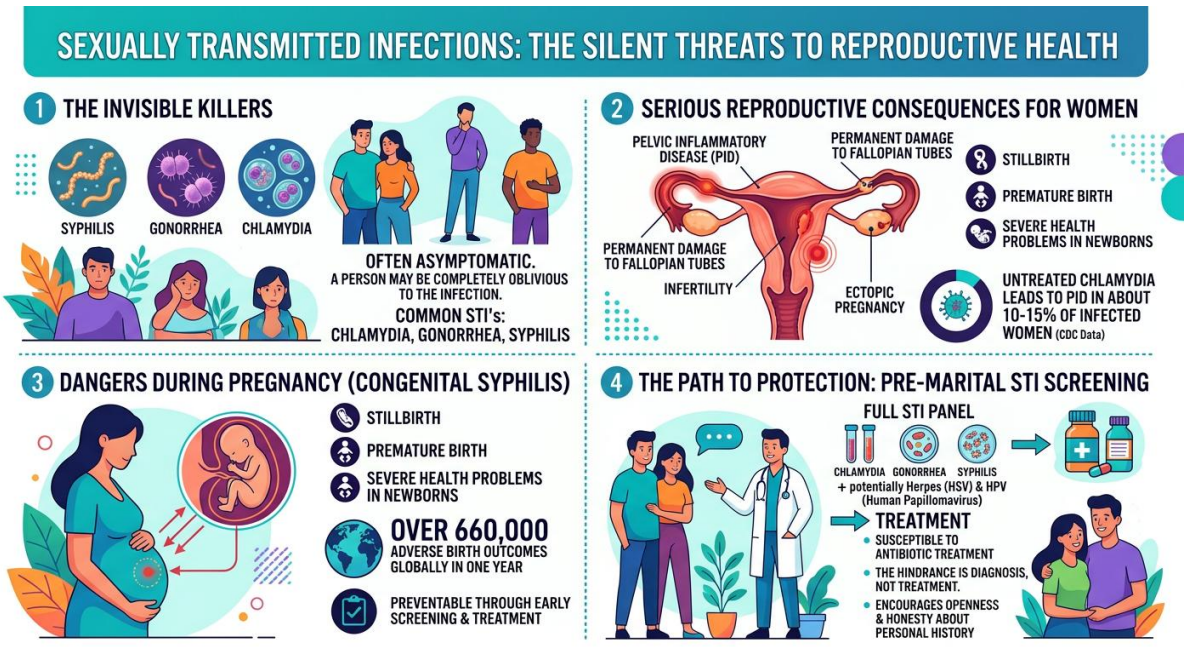


**Fig -5**: Sexually Transmitted Infections The Silent Threats to Reproductive Health

The effects of letting these infections progress untreated are serious. Chlamydia and gonorrhea are some of the most common causes of pelvic inflammatory disease among women and can cause permanent damage to the fallopian tubes leading to infertility or ectopic pregnancy. Untreated chlamydia leads to the development of pelvic inflammatory disease in about 10 to 15 percent of those infected women when left unattended, according to the Centers for Disease Control and Prevention. Syphilis also poses a different issue when it comes to pregnancy. Transmitted when a pregnant woman is infected with the infection, congenital syphilis has the potential to lead to stillbirth, premature birth, and various severe health problems in the newly born baby. The World Health Organization put the number of cases of adverse birth outcomes in the world in one year caused by congenital syphilis at more than 660,000, of which most are preventable through early screening and treatment.

The good part of this picture is that all of these three infections are susceptible to antibiotic treatment. The hindrance is not the presence of treatment but the absence of diagnosis. That is why pre-marital STI screening takes such a significant role in the wider health screening system. A full STI panel, ordered during a pre-wedding health check, provides a clinical point of contact to detect and treat infections that would otherwise go undetected over a period of years. Healthcare professionals often advise STI screening to include chlamydia, gonorrhea, syphilis and in certain instances herpes simplex virus and human papillomavirus. The details of the panel can depend on personal history, risk factors, and location. Couples who are open and honest about their background during their pre-wedding health consultation will be well placed to undergo the right type of testing.

## 7. RHESUS BLOOD GROUP STATUS

### 7.1 A Small Detail With Profound Implications for Pregnancy

The Rhesus factor, (Rh), is a protein antigen that can or cannot be present on red blood cells. Carriers of this antigen are described as Rh-positive, and those who do not have it as Rh-negative. In the purposes of everyday life, this distinction is not practically important. Nevertheless, in pregnancy, a Rh incompatibility between the mother and the fetus may lead to a disease with very severe and even deadly effects on the unborn baby.

When an Rh-negative woman carries a pregnancy which her father has passed on an Rh-positive blood group, her immune system can respond by treating the fetal red blood cells as invaders, thus attacking them. This is known as Rh incompatibility. The immune system is generally slow to form in a first pregnancy and the baby may be born with minimal problems. Nevertheless, after the maternal immune system has been sensitized, later Rh-positive pregnancies experience an immunologic attack with significantly greater vigor and severity and develop a disease called Hemolytic Disease of the Newborn. This disease may result in severe haemolytic anaemia, jaundice, hydrops fetalis, neurological injury and in the worst possible situation, fetal death.

The great thing about this state of affairs is that it can be avoided almost completely. Anti-D prophylaxis (Administration of Rh immunoglobulin) to an Rh-negative mother at predetermined times during pregnancy and after delivery is effective in preventing maternal sensitisation and removes the risk to subsequent pregnancies. Most countries have included this intervention in standard obstetric practice since the 1970s and have seen the incidence of Hemolytic Disease of the Newborn decrease significantly in those areas.

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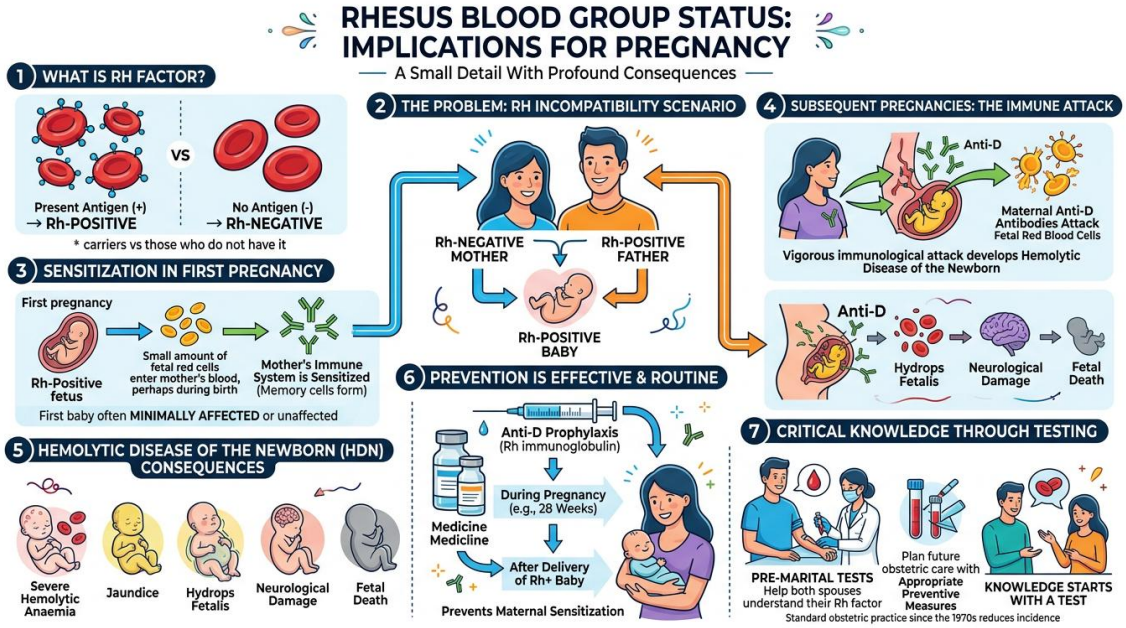


**Fig -6**: Rhesus Blood Group Status Implications for Pregnancy

The condition of this protection is knowledge. Without knowing that a woman is Rh-negative, her health care provider cannot give her a proper prophylaxis. And that information, in most situations, starts with a blood group test conducted prior to or during pregnancy. Pre-marital tests help both spouses to understand their blood type and Rh factor. In case a couple suspects that the woman is Rh-negative, then they can make sure that they plan future obstetric care with appropriate preventive measures during the initial stages of any pregnancy.

## 8. FERTILITY PROFILE

### 8.1 Gaining Clarity Before Time Becomes the Most Pressing Factor

The issue of fertility is one that many couples until months and years of unsuccessful conception, does not trade as a serious issue of concern. When a couple goes to the doctor to help them with fertility issues, the couple might already have a large amount of anxiety, grief, and relationship stress in their balance. Fertility testing before marriage does not ensure that these challenges will be evaded but it does give couples valuable information when they have the greatest number of choices and more time to choose which choice to make.

The most common basic fertility profile of women involves hormone levels, follicle-stimulating hormone, luteinizing hormone, estradiol and anti-Mullerian hormone, which give a clinical picture of ovarian reserve and general reproductive endocrine activity. Antral follicle count can also be conducted through a transvaginal ultrasound and this represents the approximate number of remaining follicles that can be stimulated. In the case of men, a semen test determines the concentration, motility and morphology of sperm, all of which determine the likelihood of a natural conception. In other instances, other hormonal tests such as testosterone and follicle-stimulating hormone could be recommended towards male partners.

There is a need to convey such tests correctly. They are not deterministic, which means that they are probabilistic. A man experiencing a low count of sperms can still procreate naturally or with little aid. A less ovarian reserve woman is still able to become pregnant without help. The tests are not precise results predictors. What they do is give the directional information which can be used in influencing planning.

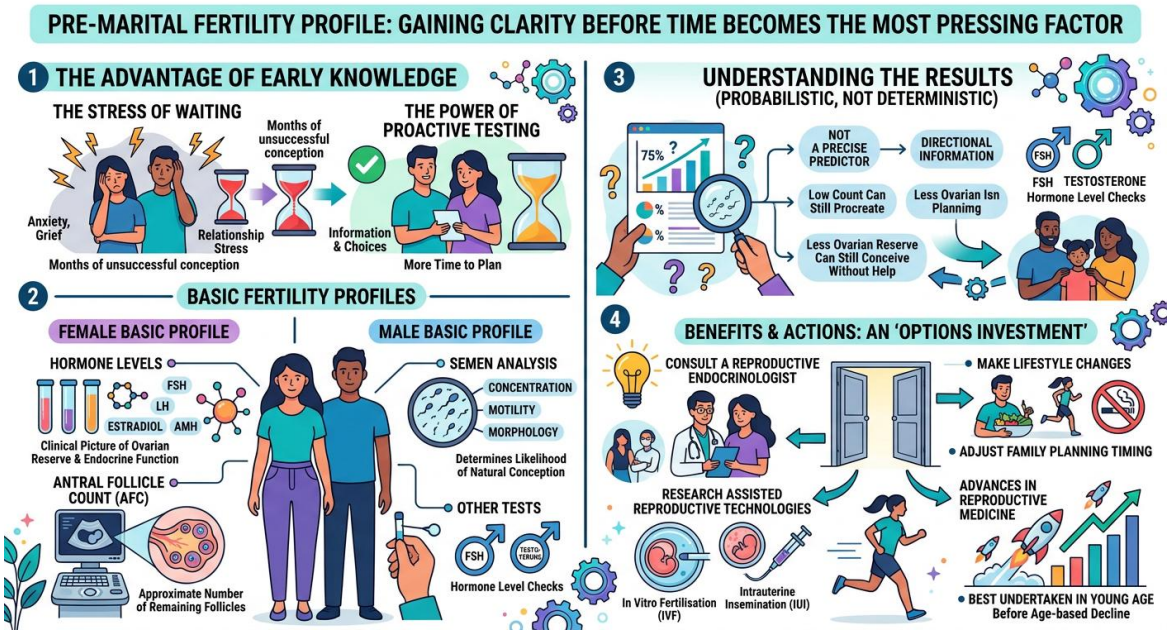


**Fig -7**: Pre-Marital Fertility Profile

A couple that learns at the early stages that one of the partners has a condition related to fertility has the time available to visit a reproductive endocrinologist, research on the options available to them, including in vitro fertilisation or intrauterine insemination, make lifestyle changes, including weight control, quitting smoking and nutritional optimisation, or just change the timing of the way they plan their families with a full understanding of what was involved. There has been an improvement in reproductive medicine in the last thirty years. The rates of assisted reproductive technologies have been improved significantly. These technologies are best undertaken in young age where age based deterioration in eggs quality and ovarian reserve are not the most defining factors. In this sense, pre-marital fertility assessment is an options investment.

## 9. GENOTYPE COMPATIBILITY

### 9.1 Understanding Genetic Risk Before It Becomes a Family Tragedy

In the pre-marital screening, genotype testing is defined as the determination of carrier status of hereditary blood disorders usually Sickle Cell Disease. SCD is a genetic disorder that is caused by point mutation in haemoglobin beta-globin subunit gene. When the mutation is passed down in both parents, the haemoglobin produced is a rigid polymer in the low-oxygen environment and folds the red blood cells into a characteristic sickle shape. These sickle cells block blood vessels, which cause episodes of severe pain, called vaso-occlusive crisis, and eventually lead to progressive damage of the spleen, kidneys, lungs, bones, and brain. The disease greatly diminishes the quality of life and the life expectancy.

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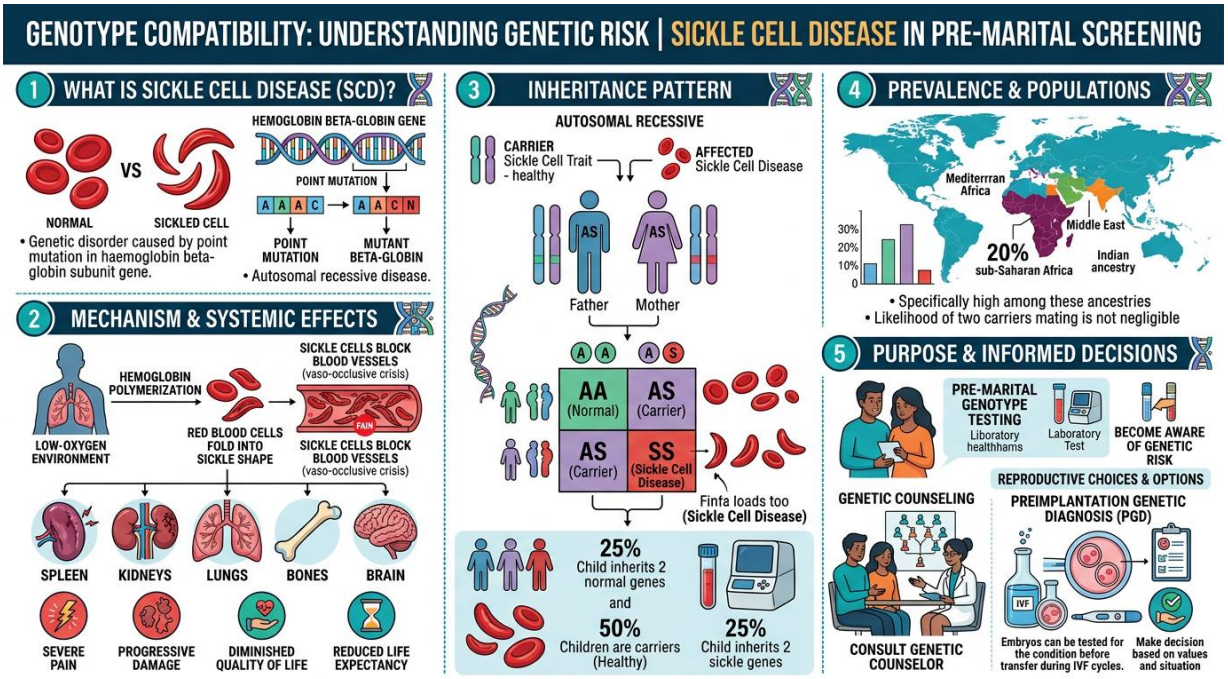


**Fig -8**: Genotype Compatibility Understanding Genetic Risk

The Sickle Cell Disease is an autosomal recessive disease. A carrier is a person who receives a normal gene on the one hand and a sickle gene on the other he is referred to as having sickle cell trait and tends to be healthy throughout life. Nevertheless, when two carriers of sickle cell trait conceive, there is a 25 percent likelihood that the pregnancy would result in a child having Sickle Cell Disease, 50 percent chance that it would result in a carrier, and 25 percent chance that it would result in a child inheriting two normal genes.

Sickle Cell Disease is specifically high among the populations that have a sub-Saharan African, Mediterranean, Middle East, and Indian ancestry. The frequency of carriers in some populations in sub-Saharan Africa is over 20 percent, i.e. the likelihood of two carriers mating together is not negligible due to the chance alone. Pre-marital genotype testing enables couples to be aware of their genetic risk on a particular genetic case before starting a family. Importantly, the fact that both the spouses are carriers of the sickle cell trait does not require any specific treatment. It offers a source of information that the couple can consult with the aid of genetic counseling to make the decision that is based on their values, their situation as well as the totality of the available reproductive choices including preimplantation genetic diagnosis where embryos can be tested of the condition before transfer during IVF cycles.

## 10. THALASSEMIA SCREENING

### 10.1 Lessons From Public Health Success Stories

Thalassemia is a cluster of inherited diseases that are marked by the decreased or absent synthesis of one or more of the globin subunits which make haemoglobin. The most serious clinically, thalassemia major or Cooley anaemia, necessitates regular blood-transfusion during the lifespan, iron chelation therapy to control the complications of the iron overload produced by transfusion and, in some instances, bone-marrow transplantation. In the absence of proper treatment, the condition is severely disabling and causes premature

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death. Modern management has increased life expectancy by a great margin, but the cost to the affected people and their families is still high.

Thalassemia is also an autosomal recessive inherited condition like sickle cell disease. The chances of an affected child birth among two parenting carriers in each pregnancy are one in four. The highest level of thalassemia carrier is seen among the peoples of the Mediterranean, Middle East, South Asia, and Southeast Asia. The World Health Organization has in estimates worldwide, determined that about 1.5 percent of the world population is born with a major haemoglobin disorder and thalassemia constitutes a significant part of this element.

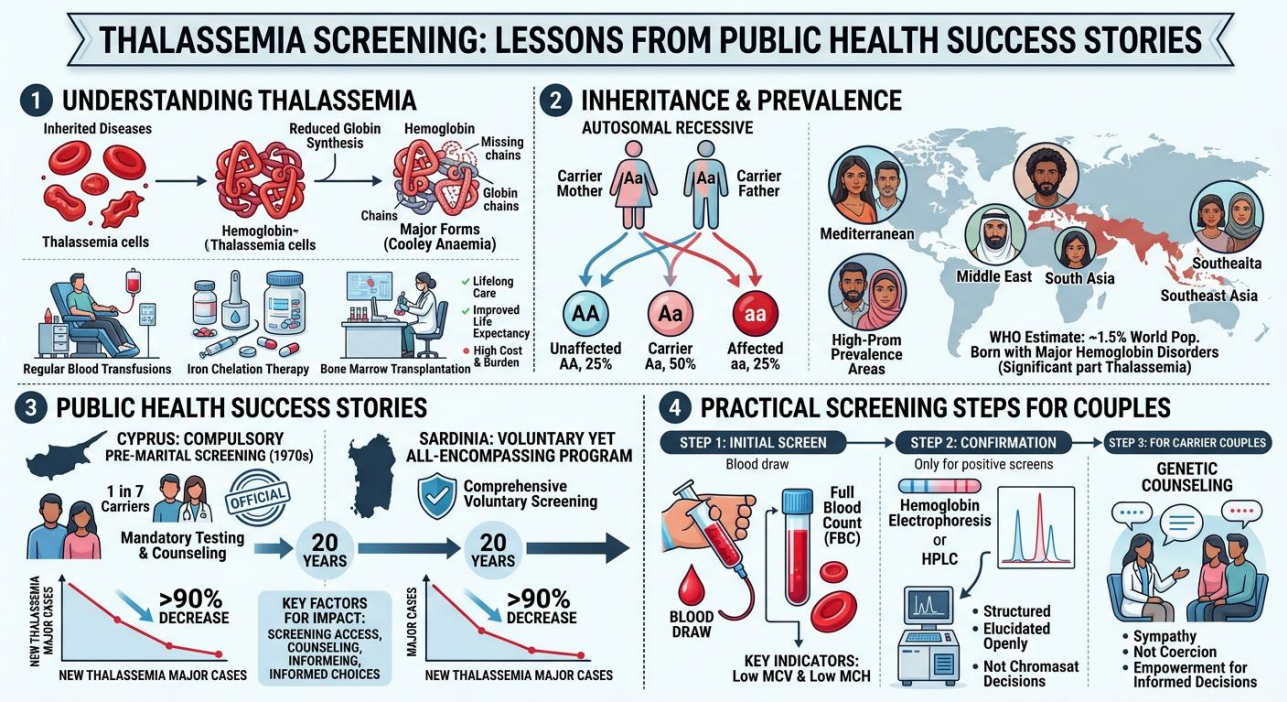


**Fig -9**: Thalassemia Screening Lessons From Public Health Success Stories

The history of thalassemia screening in the US population speaks volumes concerning the potential success of the organised pre-marital screening programs. The Mediterranean island of Cyprus, where thalassemia major was one of the highest in the world in the 1970s with around one in seven of the population bearing the thalassemia trait, in the 1970s developed a compulsory pre-marital screening and counseling program. In the course of twenty years, the number of new thalassemia major cases in Cyprus had made a decrease of more than 90 percent. Sardinia which used a similar voluntary yet all-encompassing screening program registered the same decrease during the same period of time. All these outcomes confirm that the impact of screening can be epidemiological when there is access to screening, the availability of counseling, and couples are empowered to make informed choices.

In the case of individual couples, the practical actions are simple. A full blood count, a routine and cheap test of blood, can indicate the typical low mean corpuscular volume and mean corpuscular haemoglobin that indicates the carrier status of thalassemia. In case of a positive result on the first screen, the diagnosis can be verified by haemoglobin electrophoresis or high-performance liquid chromatography. Couples where both

the partners are known to be carriers should be appropriately provided with genetic counseling which should be structured and elucidated openly, with sympathy and not coercion.

## 11. MENTAL HEALTH ASSESSMENT

### 11.1 Recognising That Emotional Readiness Is Clinical Readiness

The problem of global health interest is chronic non-communicable diseases, and their applicability to the pre-marital period has a direct and considerable effect. Some of the most widespread cases of chronic illnesses in the adult population include type 2 diabetes, hypertension, and thyroid disease, and all three are often not realised upon marriage. Such conditions are usually not characterized by dramatic initial symptoms. They are built over time, producing unclear and readily ignored signals like fatigue, thirstiness, periodic headaches, weight gain and loss, mood or energy variation.

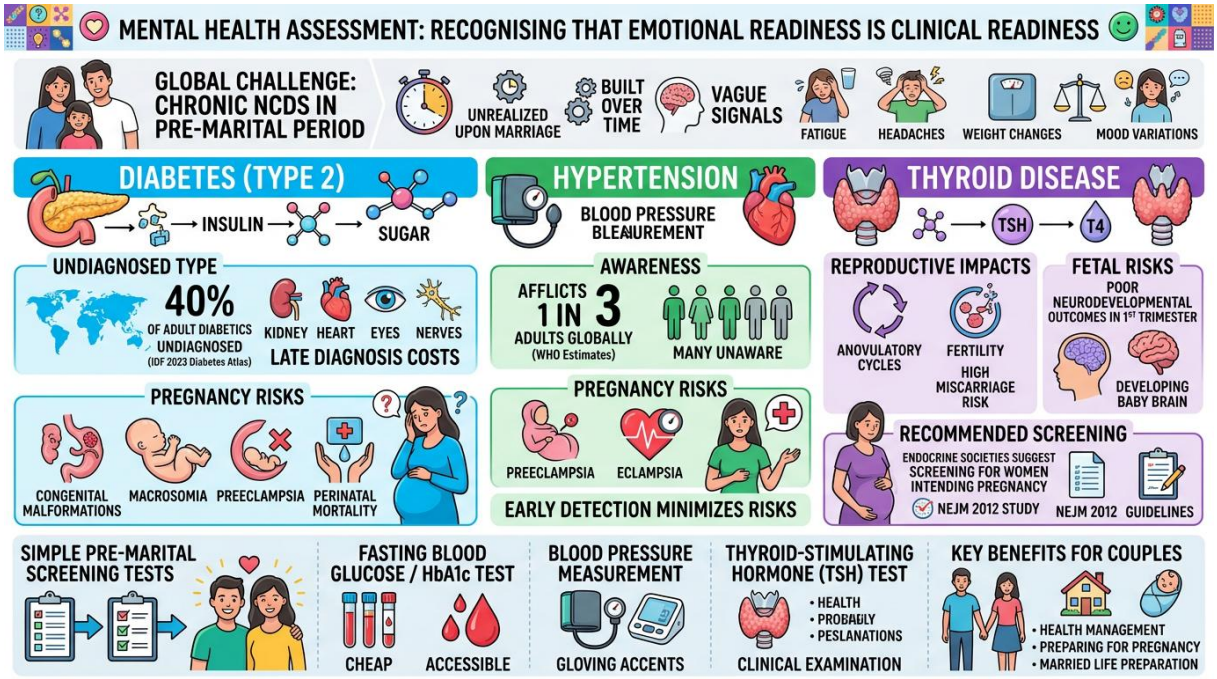


**Fig -10**: Mental Health Assessment

The international incidence of diabetes of the undiagnosed type is large. In its 2023 Diabetes Atlas, the International Diabetes Federation calculated that about forty percent of the global population of adults with diabetes have not been diagnosed. As diabetes is a major cause of kidney disease, cardiovascular disease, blindness, and peripheral neuropathy, the costs of late diagnosis are high. Uncontrolled pre-existing diabetes in the context of pregnancy is also a significant risk factor leading to congenital malformations, macrosomia, preeclampsia and perinatal mortality.

The same situation is observed with hypertension. The World Health Organization estimates that the condition afflicts about one in every three adults all over the world and a good percentage of sufferers do not even know of their situation. During pregnancy, hypertension is a cause of one of the major causes of maternal mortality in the world, which are preeclampsia and eclampsia. Early detection and treatment of hypertension prior to pregnancy is a first line chance of minimizing this risk.

Thyroid diseases which include hypothyroidism as well as hyperthyroidism influence reproductive functioning in a variety of ways. Hypothyroidism is characterized by anovulatory cycles, impaired fertility, high risk of miscarriage, and, most importantly, poor neurodevelopmental outcomes in the fetus in case the levels of maternal thyroid hormones are inadequate throughout the first trimester. The study in the New England Journal of Medicine in 2012 has shown the significance of thyroid functioning during early pregnancy and the future guidelines by endocrine professional societies have continued to suggest that thyroid functioning should be screened in women intending pregnancy.

The screening of these conditions during pre-marital includes the following: fasting blood glucose or glycated haemoglobin test to determine the risk of diabetes, blood pressure to detect hypertension, and thyroid-stimulating hormone test to ascertain the thyroid functioning. The tests are cheap, easily accessible, and do not involve a lot of blood collection and a short clinical examination. Their guidance can directly affect the process of the couple managing their health concerning the preparation of pregnancy and their married life.

## 12. CHRONIC DISEASE SCREENING

### 12.1 Diabetes, Hypertension, and Thyroid Disease

Knowing the significance of health screening before marriage is not enough. An honest analysis of the reasons that couples do not even consider such tests should be conducted to make any viable solutions.

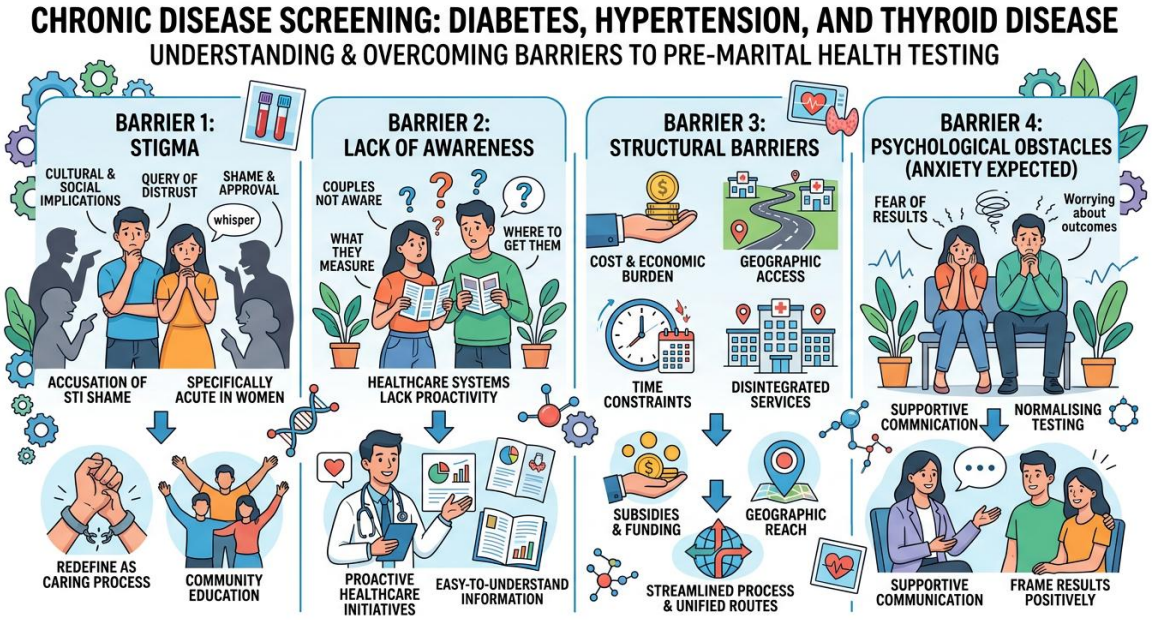


**Fig -11**: Chronic Disease Screening

The barrier that is most widespread is stigma. There are widespread cultural and social implications of the pre-marriage health-testing which include a query of distrust, disapproval, or an implication that one or both of the potential partners has an embarrassing health background. Even bringing up the topic of STI testing in a community that has a high degree of stigmatisation of sexually transmitted infections can be seen as an accusation. This stigma is especially acute in women who have a chance to be socially penalties without

fellow-men of the same community. To salvage this obstacle, it is necessary to engage the culture, educate communities, and redefine pre-marital testing as a caring process and not view as an exploration of past.

The second significant hindrance is the lack of awareness. A large percentage of couples, especially those in the environment where pre-marital screening is not a cultural norm, are just not aware of their existence, what they measure, or where they can get them. The healthcare structures that fail to actively provide or suggest pre-marital screening panels are losing many possibilities to inform couples about the things that they, in most situations, would gladly hear were it were presented in a way that was easy to understand and sensitive.

The third category of challenge is represented by structural barriers, such as cost, geographic access to healthcare and time constraints. Even a simple blood test can symbolize a significant economic load in the low- and middle-income environment, and specialist (e.g., genetic counseling) services can be highly inaccessible. In affluent environments, disintegration of healthcare services and lack of a unified pre-marital screening route implies that partners must visit several healthcare providers and referrals to have a full assessment.

Lastly, is the psychological obstacle of the anxiety expected. A lot of people and couples do not want to test their health not because they know that they will not get a satisfactory answer but because they are afraid of waiting to get it. Healthcare professionals and counselors have a significant role to play in this by being honest and supportive in communication to normalize testing and to put results into perspective using a positive framework.

## 13. THE BARRIERS THAT KEEP COUPLES FROM GETTING TESTED

Knowing the value of pre-marital health testing is not enough. An objective estimate of the reasons why couples do not undergo these tests is critical towards coming up with viable solutions.


**Fig -12**: Explaining Why Couples Avoid Pre-Marital Health Testing

The most widespread barrier is stigma. Within most cultural and social settings, health tests prior to marriage are accompanied by overtones of mistrust, judgment or the implication that one or both parties has a scandalous medical record. In societies where sexual diseases are so stigmatised, bringing up the topic of STI testing can be viewed as an imputation. It is especially acute in the context of women, as the latter could be socially punished by men of the same society. To overcome this barrier, it is important to engage cultures and educate communities and redefine pre-marital testing as an act of mutual concern and not a research into personal background.

The second key obstacle is the absence of awareness. Another major percentage of the couples, especially in an environment where pre-marital screening is not a culture, just have no idea that such tests exist, what they test, or where they can obtain them. Healthcare systems that fail to actively provide or prescribe pre-marital screening panels are missing a lot of avenues through which couples may be informed about many things that they would have definitively desired were it to be delivered in a clean and sensitive way.

The third category of challenge is structural barriers such as cost, geographic access to healthcare, and time constraints. Even a simple blood panel can be a significant financial strain in low- and middle-income environments, and specialist services like genetic counseling might well be totally unavailable. In the high-income environment, healthcare services dispersion and the lack of a pre-marital screening transition system imply that couples in high-income settings are frequently required to go through numerous providers and referrals to have a fully successful assessment.

Lastly, one has the psychological obstacle of the expected fear. A lot of people and couples do not want to get health tested not because they think they will get a bad result but because they fear the bit of uncertainty that comes with waiting to get a bad result. Healthcare providers and counselors have a significant role in this by supporting, and being honest in their communication which normalised the testing and puts the results in a positive context.

## 14. SOLUTIONS AND A PRACTICAL FRAMEWORK FOR COUPLES

To successfully overcoming these barriers, response should occur on several levels, starting with individual choices and up to health policy level. The most actionable framework, as per couples who have read this article, is as follows.

The first step is timing. Couple must make plans of getting their pre-marital health check-ups at least four-six months before the wedding day. This window enables adequate time to be taken before the test value is received, follow up investigations to be done on the case where advised, specialist consultations to be made where needed and any necessary treatments to be started. Setting this process off during the last few weeks before a wedding puts undue pressure on the situation, and the options available in the event of a major discovery are limited.

The second is the consultation step. The couple must set up a visit with a general practitioner or family medicine doctor that will be able to gather a detailed history of the health, measure personal risk factors, and schedule a proper panel of tests. Ideally, couples ought to meet as a pair or at least with each other regarding their respective results. Transparency in a health consultation pre-marriage creates the basis of the openness of communication that the long-term relationship needs.

The third step is testing. The following pre-marital screening tests are usually recommended and may include blood group typing and Rh factor, HIV serology, Hepatitis B surface antigen, and Hepatitis C antibody testing, a

full blood count to exclude anaemia and suggest potential presence of thalassemia or other haemoglobinopathies, haemoglobin electrophoresis when genetic testing of Sickle Cell trait or thalassemia is required, testing of fasting blood glucose or glycated haemoglobin, thyroid-stimulating As an extra aspect depending on specifications and wishes, fertility profiling and mental health assessment may also be ordered.

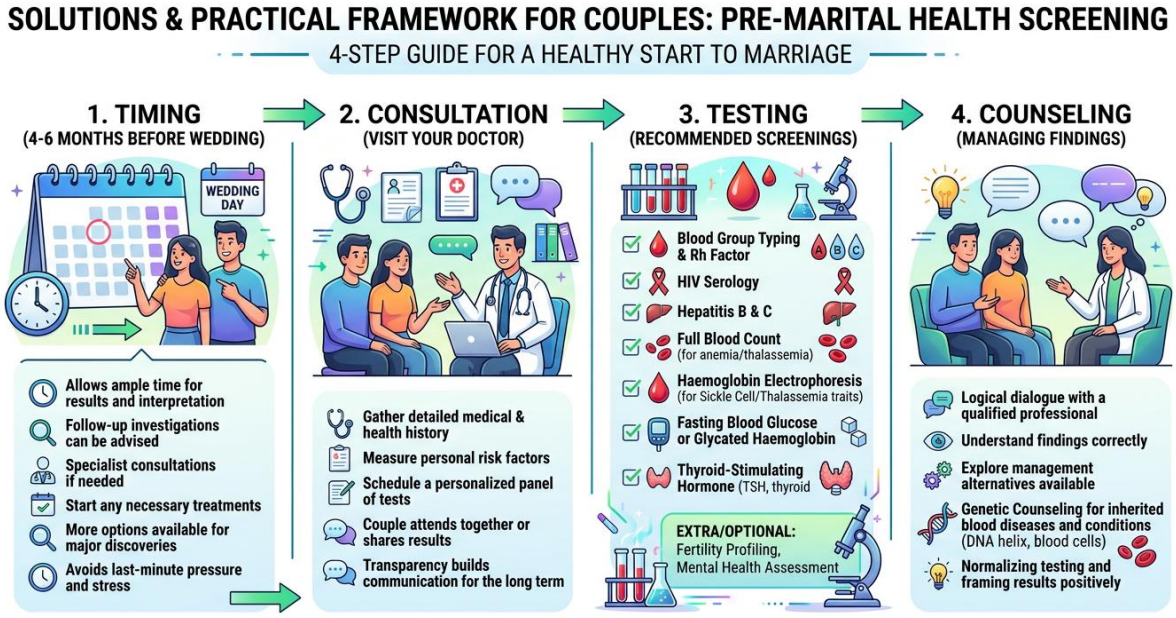


**Fig -13**: Solutions & Practical Framework for Couples

The fourth step is counseling. In case any of the tests provides a significant or unexpected finding, the reaction must not be panic but a logical dialogue with a qualified professional in the field who will be able to interpret the finding correctly and provide the management alternatives available. Specifically, genetic counseling is a professional service that holds immeasurable practical usefulness to couples who have to negotiate the discovery of a genetic blood disease or other conditions that are inherited.

## 15. FUTURE PROSPECTS

### 15.1 Where Pre-Marital Health Screening Is Heading

A number of forces converge to determine the direction of pre-marital health screening. The first is further democratization of genetic testing. The cost of large-scale carrier screening panel, which can identify risks of tens of single-gene disorders at once, is now dramatically lower thanks to advances in next-generation sequencing technology. Increased screening of carriers (testing the partners of a wide variety of recessive diseases without prior knowledge of family history or ethnicity) is also actively encouraged by professional organizations such as the American College of Obstetricians and Gynecologists and the European Society of Human Genetics. With their prices constantly decreasing, these panels will probably be an integral part of pre-marital and pre-conception care.

The second driver is the adoption of artificial intelligence and digital health tools into the screening procedure. AI-assisted review of sophisticated genetic information, computerized risk stratification software, and computerized counseling systems are starting to overcome some of the capacity limitations that have traditionally restricted access to expert genetic counseling. Although these technologies cannot supersede the human stem and sympathetic communicative skill of a competent counselor, they can be utilized to reach out to populations that currently do not receive the high-quality genetic assistance.

The third force is the increasing world policy concern on the preparedness of reproductive health. With the global health community (especially given the work to meet the Sustainable Development Goals regarding maternal and child health) starting to acknowledge pre-marital and pre-conception health screening as a cost-effective intervention with multi-generational benefits, it is gaining popularity as a type of intervention. Countries with high carrier rates of hereditary blood diseases are being informed through programmes that have shown quantifiable drops in the burden of these disorders, including those in Cyprus, Sardinia and Iran.

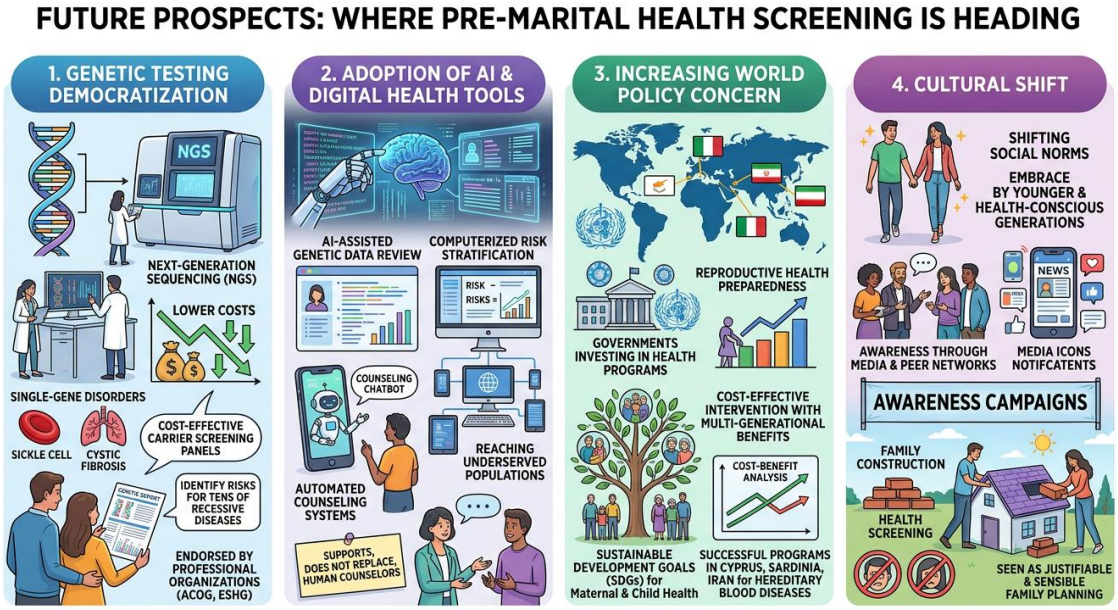


**Fig -14**: Future Prospects Where Pre-Marital Health Screening is Heading

The fourth force is the cultural change. The social norms that have historically led to discouragement of couples seeking pre-marital health screening are slowly changing as more couples learn about the importance of pre-marital health screening during awareness campaigns, through the media and peer networks. In most environments, especially those environments with younger and health-conscious generations, pre-marital health testing has started being seen not as an imposing aspect of a procedure, but as a justifiable and sensible measure in the process of family construction.

## 16. VACCINATION AND IMMUNIZATION REVIEW

### 16.1 The Pre-Marital Health Step Most People Forget

When couples are planning their pre-marital health checks, the discussion usually revolves around blood tests when they sit with a healthcare provider to discuss them. Most of the clinical agenda is taken by

Partners Universal International Research Journal (PUIRJ)
Volume: 05 Issue: 01 | January– March 2026 | ISSN: 2583-5602 | www.puirj.com

infectious disease markers, genetic panels, hormone levels and blood glucose readings. The review of the vaccination status is what is usually neglected to the smallest detail, even though a range of vaccine-preventable infections have direct and thoroughly recognized hazards to the expectant mothers, unborn children, and the partners of the immunodeficient. Looking back at immunization background is not a dramatic or complex affair to be undergone prior to marriage. It involves a short medical history and, in the vast majority of cases, either one or two other blood tests. Clinical payoff is, however, high.

## 16.2 Rubella Immunity

German measles in the case of rubella is a mild viral disease to most normal adults. This is quite another thing in a pregnant woman in the first trimester. A cluster of severe birth defects such as deafness, blindness, congenital heart disease, and intellectual disability are caused by congenital rubella syndrome, the outcome of rubella infection during early pregnancy. The World Health Organization has estimated that the world annually has a congenital case of rubella syndrome in more than 100,000 children born in environments where there is low vaccination coverage against the disease.

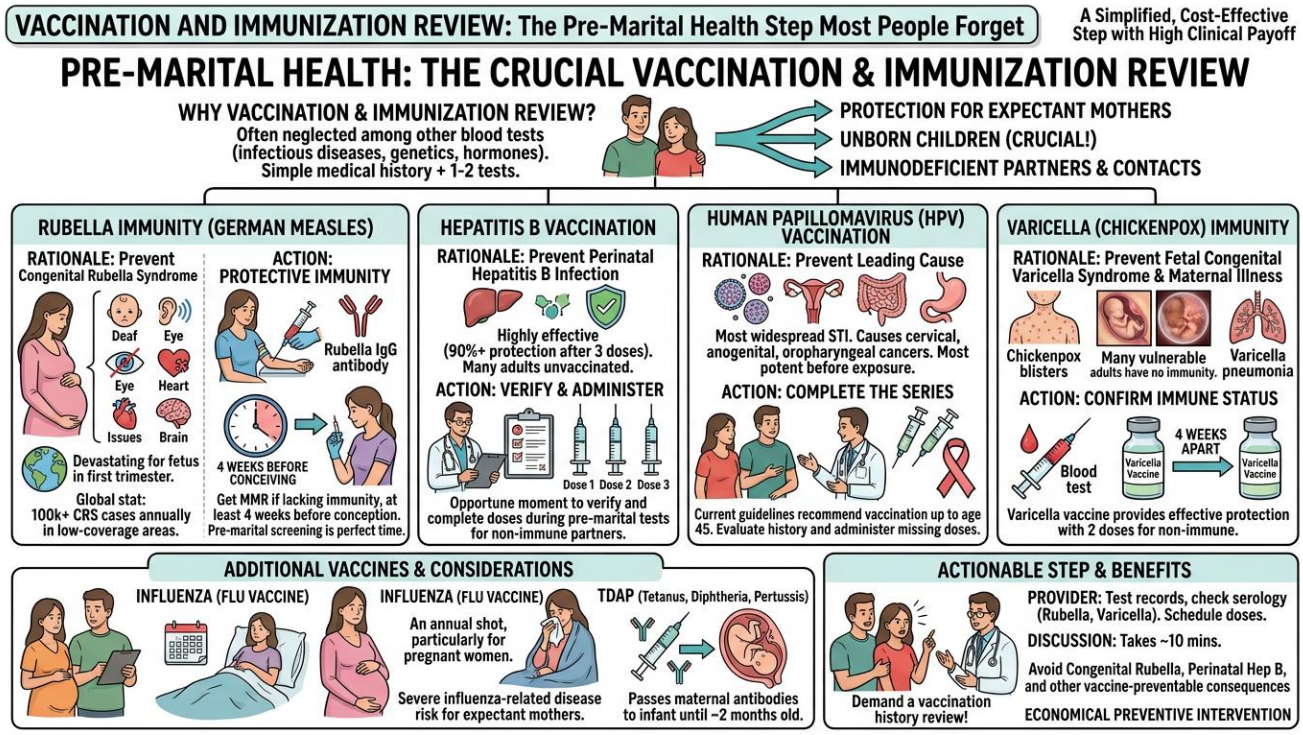


**Fig -15**: Vaccination and Immunization Review

Protective immunity is determined by a simple blood test that is done to determine the level of rubella IgG antibody in a woman and it depends on whether a woman is vaccinated or has been infected. Measles, mumps, and rubella (MMR) should be vaccinated among women who lack immunity prior to marriage and leave at least four weeks before trying to conceive since the vaccine includes a live attenuated virus. Pre-marital screening gives the perfect time frame whereby such can occur without pressure and urgency.

## 16.3 Hepatitis B Vaccination

The Hepatitis B vaccine is among the most successful vaccines which have been used in the treatment where protection rates are reported to be more than 90 percent after a full course of three doses in healthy adults.

However, a considerable percentage of the non-vaccinated adults who were not vaccinated in childhood or adolescence are also not insured. The pre-marital time when both partners are already undergoing testing on the issue of Hepatitis B would be an opportune moment to verify the vaccination and administer any pending vaccination to non-immune and uninfected partners.

### 16.4 Human Papillomavirus Vaccination

The HPV is the most widespread sexually spread infection worldwide and is the leading cause of cervical cancer, among various other anogenital and oropharyngeal cancers. The vaccine HPV, which comes as a two or three-dose course, depending on the age of the person who started the vaccine, is most potent when used prior to the contact with the virus. Most countries have current clinical guidelines that recommend HPV vaccination of adults to the age of 45 where it has not been administered previously. The pre-marital health consultation is a convenient way of evaluating the history of vaccinations and administering any outstanding doses to the couple.

### 16.5 Varicella (Chickenpox) Immunity

Pregnancy-acquired varicella infection may lead to fetal congenital varicella syndrome, and other serious maternal illnesses such as varicella pneumonia. The vulnerable adult population who are not vaccinated against chickenpox has been identified. Immune status can be confirmed through a blood test and the varicella vaccine can be used to confer effective protection in non-immune patients with two doses separated by a minimum of four weeks.

### 16.6 Influenza and Tdap

All adults are recommended to receive annual influenza vaccination; it is especially significant in pregnant women who have a very high risk of getting a severe influenza-related disease. Tdap vaccine (tetanus, diphtheria, pertussis) is advised at every pregnancy to pass maternal antibodies to the infant who cannot be immunized against pertussis until the age of 2 months. Knowledge of such recommendations at premarital stages permits the couples to implement them organically as part of the continued management of their health.

### 16.7 Actionable Step

During the pre-marital health consultation, the partners are expected to demand a review of their vaccination history. The provider ought to test records or where no records exist, test immune status by serology of rubella and varicella. Superior vaccinations ought to be taken or scheduled. This one talk can avoid the congenital rubella syndrome, perinatal hepatitis B infection and various other vaccine-preventable consequences. Discussion of the procedure will take an average duration of ten minutes and is among the most economical preventive interventions in the reproductive health medicine.

## 17. CONCLUSION

Informed care is at the most basic level what pre-wedding medical testing is. It sends a message, through deed, that both partners are not only concerned with the current health of each other, but also with their future and overall wellbeing and the wellbeing of the family they might create. These screenings mentioned in this paper, which include infectious disease screening, sexually transmitted disease screening, blood group compatibility screening, fertility testing, genetic predisposition to inherited conditions screening, mental health screening and chronic disease screening are not meant to build barriers to marriage. They are meant to eliminate the more threatening barriers that may arise when major health issues are overlooked and not

taken care of. The main lesson learned about the reviewed scientific and clinical evidence in this article is that the earlier one detects a problem, the better results will be obtained in almost all types of health condition. A partner cannot be harmed by an infection that is diagnosed and handled before marriage. An inherited risk that is known beforehand can be dealt with using counseling and informed reproduction planning. It is a chronic condition that is controlled at an early age that brings about a few complications during pregnancy and throughout a long married life than those that are found many years after during a crisis scenario.

Pre-marital screening of health has a bright future. The growing number of genetic testing technologies, an increase in policy favoring, and a changing cultural attitude are all the above building up into a situation whereby more couples than ever before will have a chance to get into their marriages with full health information. The required medical equipment to identify such risks is available and more accessible. Their use has solid and coherent evidence. The rest is an educational, normalizing, and caring medical practice. When a couple goes to get a medical checkup done and married they have shown that there is something significant other than the medical findings. They have demonstrated that they are able to carry on tricky discussions with candor and shared concern. That ability is, perhaps, much more than any single test result the greatest possible basis of a mutual life.

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