

MEDICINE



PREMARITAL COUNSELING AND TEST

EDITING FILE =)



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MEDICINE
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COLOR INDEX | IMPORTANT | DOCTORS NOTE | EXTRA .

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OBJECTIVES

- **Recognize the Saudi Healthy Marriage program**
- **Recall the program's areas of pre-marital counseling**
- **List diseases included in the Saudi pre-marital screening program**
- **Identify the fate of tested individuals (case, carrier, clear)**
- **Recognize cultural considerations for pre-marital counseling in Saudi Arabia**

THE SCIENCE

The middle East is one of the regions known for high rates of **sickle cell disease** and **beta-thalassemia**.

- In the 80s Saudi Arabia was hyper-endemic with **Hep B Virus**.
- In Saudi Arabia, **Hepatitis C** persists as a problem in hemodialysis patients and IV drug users. In KKUH, Hep C prevalence was 0.58 % in 1996 and decreased to 0.08% in 2006.
- From the year 2000 to 2009, there were 2,956 reported Saudi cases of **HIV**. A rate of 1.5 cases per 100,000 Saudis.

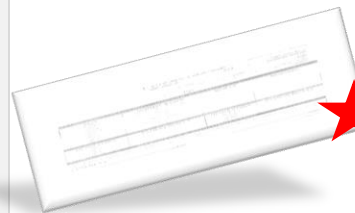
PREMARITAL COUNSELING

WHAT IS PREMARITAL COUNSELING :

Premarital counseling is a type of family therapy that helps couples prepare for marriage, and help to ensure that you and your partner have a strong, healthy relationship in addition to giving you a better chance for a stable and satisfying marriage .

PRE MARITAL SCREENING PROGRAM :

- Genetic disorders particularly Hemoglobinopathies like Thalasemia & Sickle cell anaemia are common in Saudi Arabia (1).
- A high prevalence of Carrier status was reported predominantly in the eastern and south western regions of Saudi Arabia.
- In 2004 the Saudi Ministry of Health implemented a mandatory premarital screening program to decrease the incidence of these genetic disorders in future generations.
- In 2008 this test was updated to include mandatory screening for HBV , HCV and HIV(2).
- In 2013 the program changes its name from pre-marital screening to health marriage programme an started electronic integration .



ANY SUCCUSSESFUL SCREENING PROGRAM MUST COMPLY WITH :



(1) Particularly in eastern and southern regions . (2) sexual transmitted disease
 (3) Can they afford the cost of the test ?

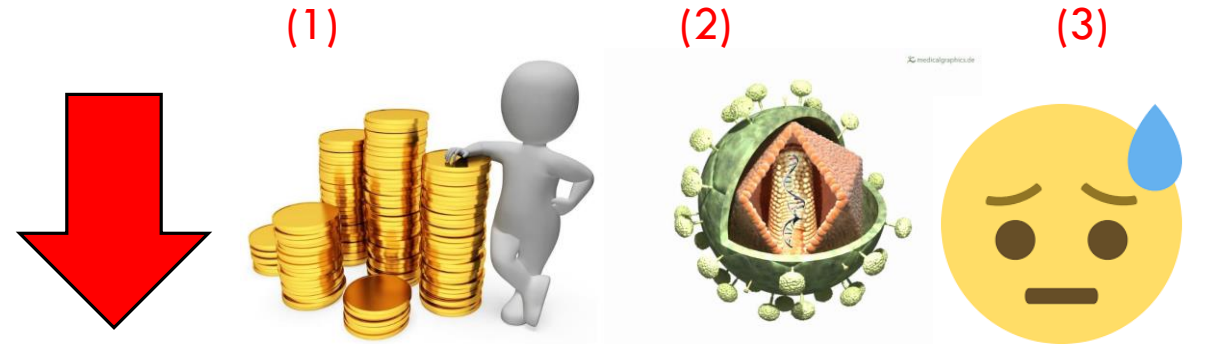
PREVALENCE

PRE-MARITAL COUNSELING IN KSA

The Saudi pre-marital screening program, tests for genetic blood disorders (hemoglobinopathies) and infectious diseases. Then according to the results, **it provides counseling on:**

- ❖ The **odds** of transferring this disease to **their prospective marriage partner**
- ❖ The **odds** of transferring this disease to **their future children**
- ❖ **Solutions** and how to move forward

THE PROGRAM'S OBJECTIVES



- 4- To make it easier for people who want to make the test to ask for it
- 5- To raise awareness about the concept of a comprehensive healthy marriage

PREVALENCE CONT'

Certificate of healthy marriage

The certificate is issued after the test results have been done and counseling has been performed in the counseling clinic for cases that mandate it.

Examples of such cases: Having Hep C, hemoglobinopathy with chance of having diseased children

Cultural considerations

- Consanguineous marriage (56% in 1995, 57.7% in 2007 in KSA)*
- Respect the couple's decisions. The test is mandatory but the results are not mandatory.
- Family and tribal pressure
- Taboo of certain diseases/ stigma
- Privacy and confidentiality
-

TESTS PERFORMED

WHAT ARE THE TESTS PERFORMED



- Complete Blood Count.
- Sickle cell test.
- Hemoglobin electrophoresis (screening by ELISA).
- HBs Ag.
- HIV-Confirmation by Western blot Method
- Anti-HCV.
- HBV&HCV
- Anti-HIV.

THE REASON WHY WE SHOULD INCLUDE HEMOGLOBIN DISORDERS IN PREMARITAL SCREENING PROGRAM IS :

- These are autosomal recessive inheritable haemoglobinopathies .
- Common in some regions of Saudi Arabia.
- These are **incurable disorders** and causes significant morbidity and mortality.
- This imposes a heavy financial burden on the society.

HOW SCREENING TESTS CAN HELP

- A simple blood test can detect CARRIERS of these disorders .
- The future couples could be informed about their chances of producing affected children .

THE REASON WHY WE TO INCLUDE HIV / HBV / HCV IN PREMARITAL SCREENING PROGRAM IS :

- These diseases are now prevalent in epidemic proportion .
- They can be easily transmitted to sexual partners and to newborns .
- They are **not curable** .
- The mortality and morbidity rates are high.

HEMOGLOBINOPATHIES

LABORATORY INTERPRETATION OF HEMOGLOBINOPATHIES

β -Thalassemia minor (Trait) (1) :
symptomless heterozygous carrier state.

β -Thalassemia Major : severe symptomatic homozygous Anemia.

Sickle cell anemia.

Sickle cell trait.

TYPES OF ABNORMAL HB CHAIN PRODUCTION :

1/ Hb H : found in α -Thalassemia.

It is mild to moderate anemia , when 2-3 genes are deleted.



2/ Hb Barts : found in α -Thalassemia.

It is severe form of anemia , when all 4 genes are deleted.
Hb Barts cannot carry oxygen and is incompatible with life.
Infants are still born or die immediately after birth (hydropsefetalis)

★ TYPES OF NORMAL HEMOGLOBIN :

Can come as case scenario

Hb A comprises 92% of adult hemoglobin.

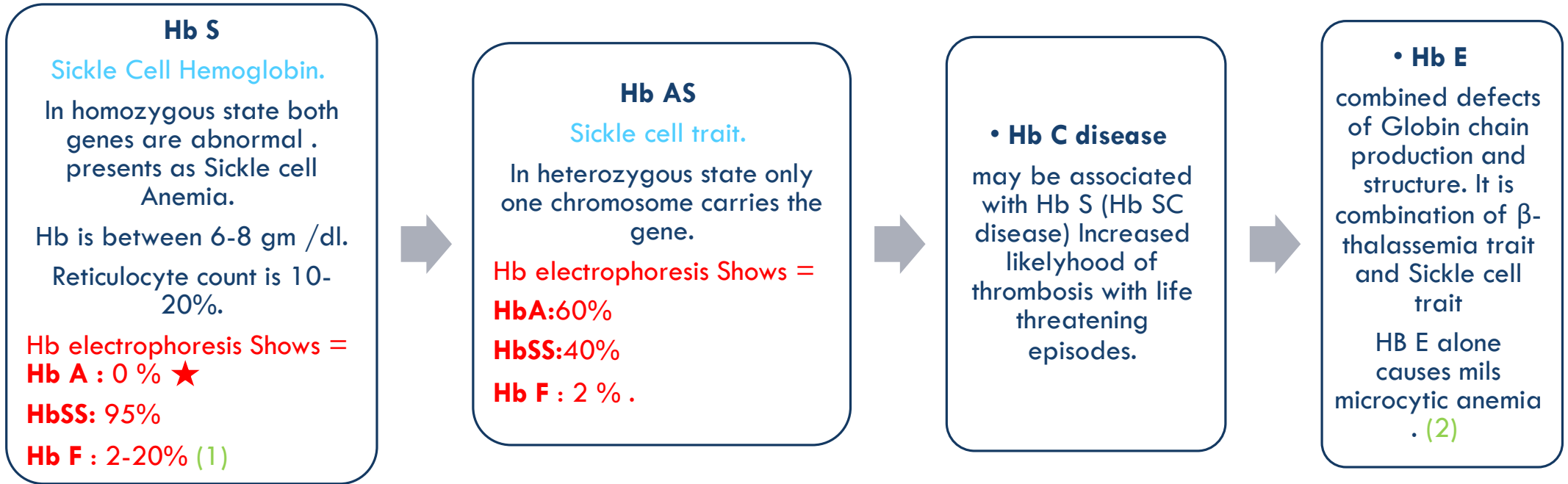
Hb A2 comprises 2-3% of adult hemoglobin. Increased In β -Thalassemia.

Hb F -- Comprises **less than 1% of hemoglobin in adults. Normal Hemoglobin in Fetus from 3-9th month of life. Increased In β -Thalassemia.**

HEMOGLOBINOPATHIES CONT'

★ TYPES OF ABNORMAL HEMOGLOBIN CHAIN STRUCTURE :

Can come as case scenario



Gene carrier is a person who carries an allele without exhibiting its effects . Such an allele is usually recessive, but it may also be dominant and latent, with symptoms that do not appear until adulthood .

(1) Sickling solubility test : precipitation of HB S gives a turbid appearance , parent of affected child will show sickle cell trait . (2) HB E alone cause mild microcytic anemia .

THALASSEMIA

• THE β THALASSEMIA TRAIT IS INDICATED BY THE FOLLOWING : (1)

- Normal or slightly low Hemoglobin.
- Decreased mean cell volume (MCV)
And/or reduced mean cell hemoglobin (MCH).
- Hemoglobin A2 Level $>3.5\%$ (2)
- **Microcytic hypochromic** picture.

HOW WILL YOU INTERPRET AN AUTOSOMAL \ RECESSIVE DISORDER

- This disorder manifests itself only when individual is homozygous for the disease Allele.
- The parents are generally unaffected healthy carriers .
- The offspring of an effected person will be healthy heterozygotes unless other parent is also a Carrier.

★ POSSIBLE FUTURE CHILD'S FAITH

- So when a Carrier marries a Carrier ; the offspring could be either of the following :
- homozygous and effected :25% chance (1 in 4 chance)
 - A Carrier : 50% chance .
 - Genetically Normal : 25% chance .

(1) Carrier . (2) by Hemoglobin electrophoresis.

VIRAL INFECTIONS AND ITS FATE

WHO IS A VIRAL CARRIER :

One who harbors disease organisms in his body without manifesting any symptoms, thus acting as a distributor of infection.

A VIRAL CARRIER'S FATE :

- HIV and Hepatitis B & C viruses can remain dormant for months or even years in CARRIERS without showing any symptoms. (1)
- With early diagnosis and treatment CARRIERS of HIV or hepatitis viruses can keep the symptoms under control and reduce the risk of serious complications.



Healthy HBsAg Carriers

HBV

❖ Screening test :

- Following an acute HBV infection , which may be sub-clinical, 5-10% of patients will not clear the Virus and will become carriers of Hbs Ag.
- Carriers are usually discovered incidentally on blood Test either Pre marital examination or routine health check-up or blood Donation.

❖ Fate of HBV :

- 85% of cases → full recovery
- 5-10 % → chronic hepatitis / cirrhosis / liver carcinoma
- 10% → carriers



(1) May remain carrier for years

(2) Always +ve in carrier and infected person , the other 3 determine if it carrier or infected .

❖ VIRAL INFECTIONS AND ITS FATE CONT'

HCV

❖ Screening test :

- A single stranded RNA Virus.
- 70-90 % of cases found in post-transfusion cases.
- Again mostly found incidentally during Pre marital screening OR **routine check-up or Blood donation.**
- Not easily spread through sexual –contact.

❖ Fate of HCV : (1)

- Chronic liver disease → 70-80 % of cases.
- Cirrhosis of Liver → 5% of cases.
- Hepatoma → 15 % of cases

HIV

❖ Screening test :

- HIV is a Retrovirus infecting T-Helper cells bearing the CD4 receptors.
- Transmission is sexual --- 60-70% of cases.
- From mother to child ---- 90% of cases. (2)

❖ Fate of HIV :

- Confirmed by Western blot Test.
- Presence of HIV-antibodies gives no indication about disease progression. After exposure to HIV infected person it may take up to 3months to become positive.
- Consider repeating this test if exposure may have occurred < than 3 months prior to testing. (3)

(1) No carrier status found . (2) vertical transmission .

(3) You need to repeat any serological test after 6 months .

❖ REACTION AFTER SCREENING

IN CASE OF CARRIER FOR HEMOGLOBINIPATHIES:

- ✓ The future couple should be advised that after marriage your children could suffer from Sickle Cell anemia or Thalassemia.
- ✓ The physician will not issue the premarital fitness certificate.
- ✓ The decision will be for the future couple whether to go ahead with the marriage or not.

IN CASE OF CARRIER FOR HIV OR HEPATITS VIRUSES:

- ✓ The physician will repeat the test before confirming the diagnosis.
- ✓ If still positive ; will not issue premarital fitness certificate.
- ✓ HIV & HCV Positive are encouraged to avoid marriage— as there is much higher chance to transmit infection to your future spouse.
- ✓ In HBV Carriers , the healthy partner is advised to **be vaccinated**.
- ✓ The HIV ,HCV patient will be informed and referred to a Specialty Clinic for Follow-up.



POSSIBLE OUTCOMES AFTER SCREENING

1- ETHICAL ISSUES CAN ARISE



- usually premarital screening comes too late for couples to change their opinions about marriage.
- By this time they are already committed for this relationship.

2- A TABOO FOR FEMALE



- Rejecting marriage on these ground may effect her Social Life .
- Sometimes this stigma may prevent her from ever getting Married .

3- STIGMA FOR MALE OR FEMALE



- HIV-testing also has far-reaching social impact especially when someone is planning to marry.
- In some communities certain values may clash with the concept of premarital HIV-testing with major issues of confidentiality

Male and female will be affected equally

WHAT IS THE FAMILY PHYSICIANS ROLE ?

1- DISCUSS GENETIC COUNSELING

- Encourage individual or family to obtain information about a genetic condition that may effect them
- They can make appropriate decisions about marriage , reproduction and health management.



2- DISCUSS CONSANGUINITY

- Relationships by blood or common ancestry, in which the chances of offspring inheriting a recessive allele for a disease are increased .
- The closer the relationship , the greater the risk.

(especially in cousin marriages)



PREVALENCE OF CONSANGUINEOUS MARRIAGES IN MUSLIM COMMUNITY

25-60% of all marriages in Arab regions are consanguineous , with a high incidence of first-cousin marriage.

- In Saudi Arabia , 90% of couples detected as carriers did not follow the advice and went ahead with their marriages.
- There are many teachings in Islamic Culture which promote healthy marriage and role of counseling
- Marriages between members of same tribe or extended family groups are favored in Muslim communities.
- Social and familial commitments make it difficult to ask partners to undergo pre marital testing.



WRONG THOUGHTS ABOUT PREMARITAL COUNSELING

Wrong religious beliefs could be obstacles to premarital screening success regardless of education level.

A SUCCESSFUL PRE MARITAL COUNSELING APPROACH

Education and attitude of the couples to be screened .

The meaning of the term “**carrier Status**” should be made known to public long **before they get married.** (1)

- Active involvement of policy makers to establish and implement appropriate screening techniques and policies.

- “Solution focused” pre marital counseling: Helping couples to develop a shared vision for the marriage.
 1. Solution- oriented interventions .
 2. Solution -oriented questions and feedback

- Educational programs about the benefits of premarital examination should target unmarried males , so they can make informed choices about unmarried females and consanguineous marriages.

(1) Encourage the person to check him/her self earlier .



AVAILABLE CHOICES AFTER POSITIVE TEST RESULTS

Avoidance of marriage.

Those who proceed can be offered reproductive options after prenatal diagnosis.

Any mandatory screening program does have the potential to succeed as long as the **TARGET POPULATION** is clearly identified and all **ethical issues** (confidentiality of results) ,religious , cultural and human rights and concerns about post-diagnostic management are fully addressed.

TO PREVENT SUCH SITUATIONS :

- Members of the screening Team should be all **educated** (lab technologist; nurse practitioners; physicians; counselors; out-reach workers ; social workers.)
- There should be good **cooperation** between community and religious leaders, schools, parents, and health professionals.



WHAT IF IT WAS HEP C OR HIV?

1. Repeat the tests to confirm.

2. Counseling is mandatory as well.

- Transmission to wife- no vaccines, health education
- Transmission to future children
- Solutions: refer to specialty clinic as needed. (antiviral therapy)

3. The marriage

- Hep C: if decided to proceed, sign that they received counseling and they are going ahead with the marriage despite counseling
- HIV: Medical record goes to MOI. Only allowed to marry from other HIV affected individuals.



SCENARIO #1

Mohammed and Fatima presented to the primary care clinic for pre-marital screening. You performed the following blood tests: complete blood count, sickle cell test, hemoglobin electrophoresis, and virology tests for HIV, Hep C, and Hep B. Both were clear from any abnormalities.

1. Is counseling required in this situation?

SCENARIO #2

Amal and Tareq performed pre-marital screening tests and it was found that Tareq is a Hep B carrier. Repeat the tests to confirm. To issue them a health marriage certificate it is mandatory that they go to the counseling clinic.

what will you counsel them about?

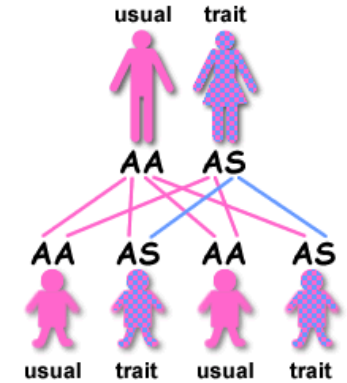
1. Transmission to wife- Hep B vaccine
2. Transmission to future children – Hep B vaccine
3. Solutions: refer to specialty clinic as needed.

❖ CASE SCENARIOS

SCENARIO #3

- Ali, from the Eastern region, presented to your clinic for pre-marital screening as he intends to marry his cousin. His prospective wife did the test and was clear from any abnormalities. Ali's hemoglobin electrophoresis shows Hb A : 60 % , Hb SS :40% , Hb F : 2 % , meaning he is a carrier of sickle cell trait.

What would you tell them about the odds of inheritance for their future children?

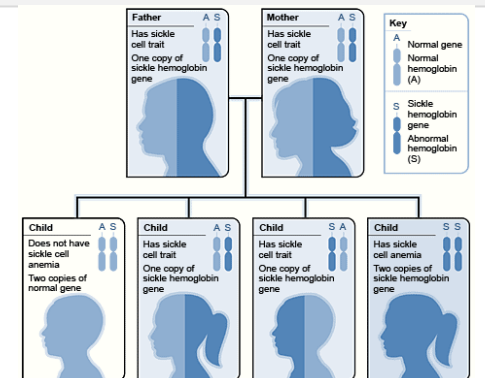


What If Ali's Fiance Sara Was Also A Sickle Cell Trait Carrier?

Counseling:

1. Transmission to future children?
 2. Solutions/alternatives?
- Find another partner for marriage who doesn't have sickle cell trait or anemia

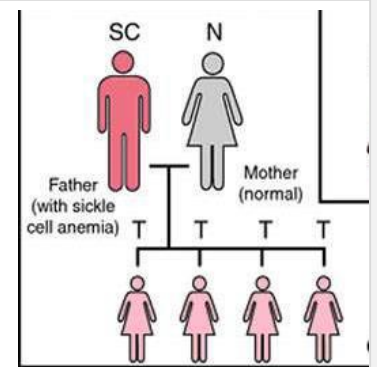
Certificate of healthy marriage will be given after they go to the counseling clinic.





WHAT IF ALI HAD SICKLE CELL ANEMIA AND SARA WAS CLEAR?

- Odds of transmission to future children?
- Is an appointment at the counseling clinic mandatory to issue the certificate?

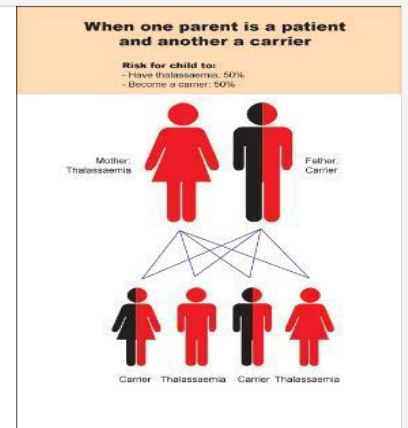


WHAT IF ALI IS A CARRIER AND SARA HAS SICKLE CELL ANEMIA?

Counseling:

- 1.Odds of transmission to future children?
 - 2.Alternatives/solutions?
- Find another partner for marriage who doesn't have sickle cell trait or anemia

Certificate of healthy marriage will be given after they go to the counseling clinic.





EXAMIN YOUR SELF !

1- The percentage of transmission of HIM from mother to child?

- A. 90%
- B. 60%
- C. 70%

Ans A

2-A married couple, two of them are carrier for an autosomal recessive disorder, what 's the chance of their children to carrier the disease?

- A. 25%
- B. 50%
- C. 75%

Ans A

3-What the right decision for the physician to make in the same case of the above?

- A. Encourage him to avoid marriage.
- B. repeat the test before confirming the diagnosis.
- C. It's confidentiality, no need to report it.

Ans B

4-A husband came for premarital screening program, the husband's results were , HBsAg is positive, HBeAg is negative, HBe-antibody is positive, HBV-DNA is Negative.

Results indicate?

- A. Healthy HCV infected
- B. Unhealthy HBsAg Carrier
- C. Healthy HBsAg Carrier

Ans C

5-What should you follow to provide successful premarital counselling?

- A. Explain The meaning of carrier Status.
- B. Encourage the consanguineous marriages
- C. Tell them single life is better.

Ans A

6-One of the below was a reason to include hemoglobinopathies in premarital Screening Program, which one?

- A. Not Common in some regions of Saudi Arabia.
- B. These are incurable disorders.
- C. Doesn't cause morbidity and mortality.

Ans B

THANK YOU

FOR CHECKING OUR WORK

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