

Economics of Thalassaemia care in Pakistan



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Thalassaemia

National Statistics

- Thalassaemia carriers 5%
- Total Carriers 8.5 million
- Thalassaemia births/year 5000 - 6000
- Thalassaemia Major 50 – 100,000

B – Thalassaemia Major

Management

Treatment

Blood transfusion.

Reduce iron over load – desferrioxamine infusion.

Bone marrow transplantation.

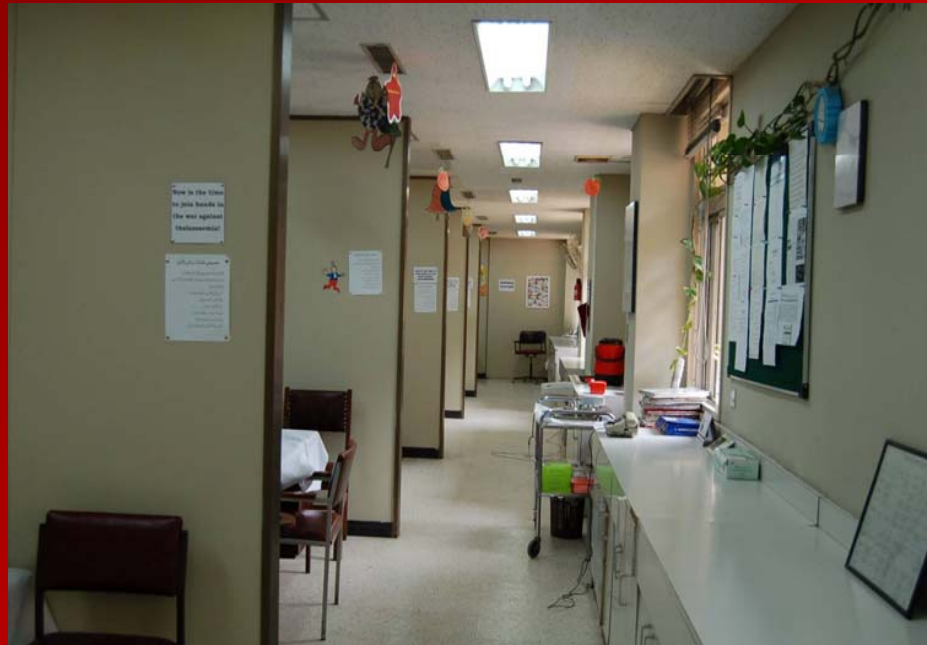
Gene Therapy

Prevention

Screening

Pre natal diagnosis

Thalassaemia centre PIMS





Future !!!

Thalassaemia Free Pakistan

Screening

Prenatal diagnosis

Economics of Thalassaemia Care in Pakistan

Prevention of Genetic disorders

Cost of treatment

Cost of Prevention

Analysis of benefit



Economics of Thalassaemia Care in Pakistan

Cost effectiveness of Thalassaemia prevention

- estimated number of new births of Thalassaemia major per year (N)
- (2) cost of treatment
- (3) cost of carrier screening
- (4) cost of prenatal diagnosis.

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Cost effectiveness of Thalassaemia prevention

- Thalassaemia major births 5-6000 / Year
- Average Blood requirement : 26 Units / year
- Desferol Requirement : 364 gms / year

Annual Requirement for treating Thalassaemia Major

Age group (yrs)	Mean Weight (kg)	Units of donor blood/yr	Desferal at 35 mg/kg/day X 5 days a week	Cost at Rs. 320 per gram
1-5	15	10	130 g	42,000
6-10	25	17	230 g	74,000
11-15	40	27	390 g	125,000
16-21	55	37	520 g	167,000
21-25	60	40	550 g	176,000
All ages:	39	26	364 g	116,000

Expenditure on preparation of one bag of blood

• Blood bag and transfusion set:	Rs. 120.00
• Screening for Hepatitis B:	Rs. 240.00
• Screening for Hepatitis C:	Rs. 900.00
• Screening for HIV:	Rs. 600.00
• Blood grouping:	Rs. 120.00
• Cross match:	Rs: 240.00
• Total cost:	Rs: 2220.00

Cost of Investigations per patient per year

• Haemoglobin estimation (X 24):	Rs. 720.00
• Liver function tests (X 2):	Rs. 855.00
• Serum ferritin (X 2):	Rs: 525.00
• Miscellaneous investigations:*	Rs. 900.00
• Total:	Rs.3000.00

Miscellaneous investigations: thyroid function tests, growth hormone, blood sugar, ECG and Muga-I scan of heart etc.

Total cost of treatment for Thalassaemia Per patient per year

Blood transfusions X 26 units per year:	Rs. 57,720
Desferal):	Rs. 116,000
Investigations:	Rs. 3,000
176	
Miscellaneous expenditures:*	Rs. 3,000
Total cost:	Rs. 240,000

- **Miscellaneous expenditures include cost of labour, antibiotics, occasional hospital admissions, and splenectomy if required.**

Total cost of treatment / cohort /yr

No. of Thalassaemics/yr	5000
Cost/patient/yr	Rs. 240,000
Total cost	Rs 1200,000,000

Cost of mutation analysis for Beta-thalassaemia / person

Standard ARMS PCR: Rs. 1,200

Multiplex ARMS PCR: Rs. 750

**Cost includes; tubes, syringes, CP, Red cell indices,
DNA extraction, Electrophoresis, Photography, and
labour**

Cost of Prenatal Diagnosis for Thalassaemia

Procedure	No.	Rate (Rs.)		Cost (Rs.)	
		Std PCR	Multi-plex PCR	Std PCR	Multi-plex PCR
Mutation analysis	X 2	1,200	750	2,400	1,500
CVS	X 1	-	-	300	300
Fetal testing	X 1	1,200	1,200	1,200	1,200
termination	X 1	-	-	1,500	1,500
Total	-	-	-	5,400	4,500

Team Approach:

