

MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT

NOTIFICATION

New Delhi the 18th February, 2002

Subject : Guidelines for evaluation and assessment of Mental illness and procedure for certification.

No.16-18/97-NI. 1. – Mental illness has been recognized as one of the disabilities under section 2 (i) of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. “Mental illness has been defined under Section 2 (q) of the said Act as any mental disorder other than mental retardation.

2. In order to prescribe guidelines for evaluation and assessment of mental illness and procedure for certification, a committee was constituted by the Department of Health, Government of India vide Order dated 6th August, 2001 under the Chairmanship of Director General of Health Services on the basis of request made by the Ministry of Social Justice & Empowerment. The committee has submitted its report.

3. After having considered the report of the Committee, the undersigned is directed to convey the approval of the President to notify the guidelines for evaluation and assessment of mental illness and procedure for certification. Copy of the Report is enclosed herewith as ANNEXURE- A.

4. The minimum degree of disability should be 40% in order to be eligible for any concessions/benefits.

5. According to the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Rules, 1996 notified by the Central Government in exercise of the powers conferred by sub-section (1) and (2) of section 73 of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 (1 of 1996), authorities to give Disability Certificate will be a Medical Board duly constituted by the Central or the State Government. The Committee has recommended that certification of disability for the purpose of the Act may be carried out by a Medical Board comprising of the following members :

(a)	The Medical Superintendent/Principal/Director/Head of the Institute or his nominee	Chairperson
(b)	Psychiatrist	Member
(c)	Physician	Member

6. At least two of the members, including Chairperson of the Board must be present and sign the disability certificate.

7. The State Governments are, therefore, requested to constitute Medical Boards as indicated above immediately.

8. Specified test as indicated in ANNEXURE – A should be conducted by the medical board and recorded before a certificate is given.

9. The certificate should be valid for a period of five years for those whose disability is temporary and are below the age of 18 years. For those who acquire permanent disability, the validity can be shown as ‘permanent in the certificate’.

10. The Director General of health Services, Ministry of Health and Family Welfare shall be the final authority, should there arise any controversy/doubt regarding the interpretation of the definitions/classifications/evaluation tests etc.

SMT. RAJWANT SANDHU, Jt. Secy.

ANNEXURE – A

MINUTES OF THE MEETING

Minutes of the meeting of the committee to review the definition of mental illness and formulating guidelines for assessment of mental illness disability and procedure for certification held on 27th September 2001 (Thursday) under the Chairmanship of DGHS.

A meeting was held under the Chairmanship of DGHS on 27th September to review the definition of mental illness and formulating guidelines for assessment of mental illness disability and procedure for certification.

1. After detailed discussion consensus was reached on the view that the present definition of “mental illness” as contained in the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 section 2 (q) may be retained unchanged. This will be most suitable for the purpose of PWD Act.

2. With regard to assessment of disability related to mental illness it was agreed that the Indian Disability Evaluation and Assessment Scale (IDEAS) developed by the Rehabilitation Committee of the Indian Psychiatric Society (IPS) through a task force should be used with modifications for the purposes of the Act. The modified Scale, IDEAS is appended.

3. The Committee further recommended that certification of disability for the purposes of the Act may be carried out by a medical board comprising of the following members :

- (i) The Medical Superintendent/Principal/Director/Head of the Institute or his nominee -- Chairperson
- (ii) Psychiatrist -- Member
- (iii) Physician -- Member.

At least two of the members, including Chairperson of the board must be present and sign the disability certificate.

4. Meeting ended with the vote of thanks to the chair.

(Indian Disability Evaluation and Assessment Scale)

A Scale for measuring and quantifying disability in mental disorders.

Items :

- I. Self Care : Includes taking care of body hygiene, grooming, health including bathing, toileting, dressing, eating, taking care of one's health.
- II. Interpersonal Activities (Social Relationships) : Includes initiating and maintaining interactions with others in contextual and social appropriate manner.
- III. Communication and Understanding : Includes communication and conversation with others by producing and comprehending spoken/written/non-verbal messages.
- IV. Work : Three areas are Employment/ Housework/ Education Measures on any aspect.
 - 1. Performing in Work/Job : Performing in Work/employment (paid) employment/self-employment/ Family concern or otherwise. Measure ability to perform tasks at employment completely and efficiently and in proper time. Includes seeking employment.
 - 2. Performing in Housework : Maintaining household including cooking, caring for other people at home, taking care of belongings etc. Measures ability to take responsibility for and perform household tasks completely and efficiently and in proper time.
 - 3. Performing in School/college : Measures performance education related tasks.

- 0- No disability (none, absent, negligible)
- 1- MILD disability (slight, low)
- 2- MODERATE disability (medium, fair)
- 3- SEVERE disability (high, extreme)
- 4- PROFOUND disability (total cannot do)

TOTAL SCORE

Add scores of the 4 items and obtain a total score
Weightage for Duration of illness (DOI) :

- DOI : < 2 years : score to be added is 1
- 2-5 years : add 2.
- 6-10 years : add 3.
- > 10 years : add 4

GLOBAL DISABILITY :

Total Disability score + DOI score = Global Disability Score Percentages :

- 0 No Disability = 0%
- 1-6 Mild Disability = < 40%
- 7-13 Moderate Disability = 40 -70%
- 14-19 Severe Disability = 71-99%
- 20 Profound Disability = 100%

Cut off for welfare measures = 40%

MANUAL FOR “IDEAS”

In order to score this instrument, information from all possible sources should be obtained. This will include care of patient, the care given and case notes when available.

I. SELF CARE : This should be regarded as activity guided by social norms and conventions. The broad areas are :

- a. Maintenance of personal hygiene and physical health.
- b. Eating habits.
- c. Maintenance of personal belongings and living space.
 - a. Does he look after himself, wash his clothes regularly, take a bath and brush his teeth ?
 - b. Does he have regular meals ?
 - c. Does he take food of right quality and quantity ?
 - d. What about his table manners ?
 - e. Does he take care of his personal belongings with reasonable standard of cleanliness and orderliness ?

0 = No Disability
Patient's level and pattern of self care are normal, within the social cultural and economic context.

1 = Mild
Mild deterioration in self care and appearance (not bathing, shaving, changing clothes for the occasion as expected). Does not have adverse consequences such as hazards to his health. No embarrassment to family.

2 = Moderate
Lack of concern for self care should be clearly established such as mild deterioration of physical health, obesity, tooth decay & body odours.

3 = Severe
Decline in self care should be marked in all areas. Patient wearing torn clothes, would only wash if made to and would only eat if told. Evidence of serious hazards to physical health. (Malnutrition, infection, patient unacceptable in public).

4 = Profound
Total or near total lack of self-care (Example : risk to physical survival, needs feeding, washing, putting on clothes etc; Constant supervision necessary)

II. INTER PERSONAL ACTIVITIES

Includes patient's response to questions, requests and demands of others. Activities of regulating emotions, activities of initiating, maintaining and terminating interactions and activities of engaging in physical intimacy.

Guiding Questions :

- a. What is his behaviour with others ?
- b. Is he polite ?
- c. Does he respond to questions ?
- d. Is he able to regulate verbal and physical aggression ?
- e. Is he able to act independently in social inter-actions ?
- f. How does he behave with strangers ?
- g. Is he able to maintain friendship ?
- h. Does he show physical expression of affection and desire ?

Scoring :

0 = No
Patient gets along reasonably well with people personal relationship. No friction in inter-personal relationships.

1 = Mild
Some friction on isolated occasions. Patient known to be nervous or irritable but generally tolerated by others.

- 2 = Moderate
Factual evidence that pattern of response of people is unhealthy. May be seen on more than few occasions. Could isolate himself from others and avoid company.
- 3 = Severe
Behaviour in social situations is undesirable and generalized. Causes serious problems in daily living/or work. Patient is socially ostracized.
- 4 = Profound
Patient is serious and lasting conflict, serious danger to problems to others. Family afraid of potential consequences.

III. COMMUNICATION AND UNDERSTANDING

Understanding spoken messages as well as written and non-verbal messages and ability to reduce messages in order to communicate with others.

1. Questions :

- a. Does he avoid talking to people ?
- b. When people come home what does he do ?
- c. Does he ever visit others ?
- d. Is he able to start, maintain and end a conversation ?
- e. Does he understand body language and emotions of others such as smiling, crying, screaming, etc; ?
- f. Does he indulge in reading and writing ?
- g. Do you encourage him to be more sociable ?

Scoring :

- 0 = No Disability
Patient mixes, talks and generally interacts with people as much as can be expected in his socio-cultural context. No evidence of avoiding people.
- 1 = Mild
Patient described as uncommunicative or solitary in social situations. Signs of social anxiety might be reported.
- 2 = Moderate
A very narrow range of social contacts, evidence of active avoidance of people on some occasions and interference with performance of social rules causes concern to family.
- 3 = Severe
Evidence of more generalized, active avoidance of contact with people (leave the room when visitors arrive and would not answer the door or phone)
- 4 = Profound
Hardly has any contacts and actively avoids people nearly all the time. Eg : may lock himself inside the room. Verbal communication is nil or a bare minimum.

IV. WORK.

This includes employment, housework and educational performance. Score only one category in case of an overlap.

Employment :

Guiding Questions :

- a. Is he employed/unemployed ?
- b. If employed, does he go to work regularly ?
- c. Does he like his job and coping well with it ?
- d. Can you rely on him financially ?
- e. If unemployed, does he make any efforts to find job ?

Scoring :

0 = No Disability

Patient goes to work regularly and his output and quality of work performance are within acceptable levels for the job.

1 = Mild

Noticeable decline in patient's ability to work, to cope with it and meet the demands of work. May threaten to quit.

2 = Moderate

Declining work performance, frequent absences, lack of concern about all this. Financial difficulties foreseen.

3 = Severe

Marked decline in work performance, disruptive at work, unwilling to adhere to disciplines of work. Threat of losing his job.

4 = Profound

Has been largely absent from work, termination imminent. Unemployed and making no efforts to find jobs.

In similar ways, housewives should be rated on the amount, regularity and efficiency in which tasks in the areas are completed. Consider the amount of help required to completing these. Acquiring daily necessities, storing and serving of food, cleaning the house, working with those helping with domestic duties such as maids, looking after possessions and valuable in the house.

Students : Assess an score on performance in school/college, regularity, discipline, interest in future, behaviour at the educational institution. Those who had to discontinue education on account of mental disability / unable to continue further should be given a score of 4.

IDEAS SCORING SHEET :

	0	1	2	3	4
Self Care					
Interpersonal Activities					
communication & Understanding					
Work					
A TOTAL SCORE					
B DOI SCORE					
GLOBAL TOTAL SCORE (A+B)					

MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT

NOTIFICATION

New Delhi, the 1st June, 2001

Subject :- Guidelines for evaluation of various disabilities and procedure for certification.

No. 16-18/97-NI. I. – in order to review the guidelines for evaluation of various disabilities and procedure for certification as given in the Ministry of Welfare's O. M. No. 4-2/83-HW.- III, dated the 6th August, 1986 and to recommend appropriate modifications/alternations keeping in view the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995, Government of India in the Ministry of Social Justice and Empowerment, vide Order No. 16-18/97-NI. I dated 28.8.1998, set up four committees under the Chairmanship of Director General of Health Services – one each in the area of mental retardation, Locomotor/Orthopaedic disability, Visual disability and Speech and Hearing disability. Subsequently, another Committee was also constituted on 21 – 7 – 1999 for evaluation assessment of multiple disabilities and categorization and extent of disability and procedure for certification.

2. After having considered the reports of these committees the undersigned is directed to convey the approval of the president to notify the guidelines for evaluation of following disabilities and procedure for certification :-

1. Visual Impairment
2. Locomotor / Orthopaedic disability
3. Speech and Hearing disability
4. Mental Retardation
5. Multiple disabilities

Copy of the report is enclosed herewith as Annexure.

3. The minimum degree of disability should be 40 % in order to be eligible for any concessions / benefits.

4. According to the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Rules, 1996 notified on 31. 12. 1996 by the Central Government in exercise of the powers conferred by sub – section (1) and (2) of section 73 of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 (1 of 1996), authorities to give disability Certificate will be a Medical Board duly constituted by the Central and the State Government. The State Government may constitute a Medical Board consisting of at least three members out of which at least one shall be a specialist in the particular field for assessing locomotor / Visual including low vision / hearing and speech disability, mental retardation and leprosy cured, as the case may be.

5. Specified test as indicated in **Annexure** should be conducted by the medical board and recorded before a certificate is given.
6. The certificate would be valid for a period of five years for those whose disability is temporary. For those who acquire permanent disability the validity can be shown as 'permanent'.
7. The State Government / UT Administrations may constitute the medical boards indicated in Para 4 above immediately, if not done so far.
8. The Director General of Health Services, Ministry of Health and Family Welfare will be the final authority, should there arise any controversy / doubt regarding the interpretation of the definitions / classifications / evaluations tests etc.

GAURI CHATTERJEE, Jt. Secy.

APPENDIX . III

A. MENTAL RETARDATION

1. Definition :- Mental retardation is a condition of arrested or incomplete development of the mind, which is especially characterized by impairment of skills manifested during the development period which contribute to the overall level of intelligence, i. e., cognitive, language, motor and social abilities.
2. Categories of Mental Retardation :-
 - 2.1 Mild Mental Retardation :- The range of 50 to 89 (Standardized IQ test) is indicative of mild retardation. Understanding and use of language tend to be delayed to a varying degree and executive Speech problems that interfere with the development of independence may persist into adult life.

- 2.2 Moderate Mental Retardation :- The IQ is in the range of 35 to 49. Discrepant profile of disabilities are common in this group with some individuals achieving higher levels in visuo-spatial skills than in tasks dependent on language while others are markedly clumsy by enjoy social interaction and simple conversation. The level of development of language is variable; some of those affected can take part in simple conversations while others have only enough language to communicate their basic needs.
- 2.3 Severe Mental Retardation :- The IQ is usually in the range of 20 to 34. In this category, most of the people suffer from a marked degree of motor impairment or other associated deficits indicating the presence of clinically significant damage to or mal-development of the central nervous system.
- 2.4 Profound Mental Retardation :- The IQ in this category estimated to be under 20. The ability to understand or comply with requests of instructions are severally limited. Most of such individuals are immobile or severally restricted in mobility, incontinent and capable at most of only very rudimentary forms of non-verbal communication . They possess little or no ability to care for their own basic needs and require constant help and supervision.
3. Process of Certifications :-
- 3.1 A disability certificate shall be issued by a Medical Board consisting of three members duly constituted by the Central / State Government. At least one shall be a Specialist in the area of mental retardation namely Psychiatrist, paediatrician and Clinical Psychologist.
- 3.2 The examination process will consist of three components, namely , Clinical assessment , assessment of adaptive behaviour and intellectual functioning.

B. VISUAL DISABILITY :-

1. Definition :- Blindness refers to a condition where a person suffers from any of the conditions, namely ,
- i) total absence of sight , or
 - ii) Visual acuity not exceeding 6 / 60 or 20 / 200 (snellen) in the better eye with best correcting lenses ; or
 - iii) limitation of field of vision subtending an angle of 20 degree or worse.
2. Low Vision :- Persons with low vision means a person with impairment of vision of less than 6 / 18 to 6 / 60 with best correction in the better eye or impairment of the field in any one of the following categories :-
- a) Reduction of fields less than 50 degrees
 - b) Heminaopia with macular involvement
 - c) Attitudinal defect involving lower fields.

3. Categories of Visual Disability

All with Correction

Category	Better Eye	Worse eye	% age impairment
Category 0	6/9 – 6/16	6/24 to 6/36	20 %
Category I	6/18 – 6/36	6/60 to Nil	40 %
Category II	6/40 – 4/60 or field of vision 10 ⁰ - 20 ⁰	3/60 to Nil	75 %
Category III	3/60 to 1/60 or field of vision 10 ⁰	F. C. at 1 ft to Nil	100 %
Category IV	F. C. at 1 ft. to Nil or field of vision 10 ⁰	F. C. at 1 ft to Nil	100 %
One eyed person	6/6	F. C. at 1 ft to Nil or field of vision 10 ⁰	30 %

Note : F. C. means Finger Count

4. Process of Certification

A disability certificate shall be issued by a Medical Board duly constituted by the Central / State Government having, at least three members. Out of which at least one member shall be a specialist in Ophthalmology.

B. SPEECH & HEARING DISABILITY

1. Definition of Hearing : - A person with hearing impairment having difficulty of various degrees in hearing sounds is an impaired person.

2. Category of Hearing Impairment :

Category	Type of Impairment	DB Level	Speech Discrimination	% age of Impairment
I	Mild Hearing Impairment	DB 26 to 40 dB in better ear	80 to 100 % in better ear	Less than 40 %
II (a)	Moderate Hearing Impairment	41 to 60 dB in better ear	50 to 80 % in better ear	40 % to 50 %
II (b)	Severe Hearing Impairment	61 to 70 dB in better ear	40 to 50 % in better ear	51 % to 70 %
III	a) Profound hearing Impairment b) Total Deafness	71 to 90 dB 91 dB and above/in better ear/to hearing	Less than 40 % In better ear Very poor discrimination	71 % to 100 % 100 %

- i) Pure tone average of hearing in 500, and 2000 HZ, 4000 HZ by conduction (AC and BC) should be taken as basis for consideration as per test recommendations.
 - ii) When there is only as island of hearing present in one or two frequencies in better ear, it should be considered as total loss of hearing.
 - iii) Whenever there is no response (NR) at any of the 4 frequencies (500, 1000, 2000 and 4000 HZ), it should be considered as equivalent to 100 dB loss for the purpose of classification of disability and in arriving at the average.
3. Process of Certification :
A disability certificate shall be issued by a Medical Board duly constituted by the Central / State Government having, at least three members. Out of which at least one member shall be a specialist in the field of ENT.

C. LOCOMOTOR DISABILITY

1. Definition :-

- i) Impairment : An impairment in any loss or abnormality of psychological, physiological or anatomical structure or function in a human being.
- ii) Functional Limitations : Impairment may cause functional limitations which are partial or total inability to perform those activities, necessary for motor, sensory or mental function with the range or manner of which a human being is normally capable.
- iii) Disability : A disability is any restriction or lack (Resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.
- iv) Locomotor Disability : Locomotor disability is defined as a persons inability to execute distinctive activities associated with moving both himself and objects, from place to place and such inability resulting from affliction of musculoskeletal and / or nervous system.

2. Categories of Locomotor Disability

The categories of Locomotor Disabilities are enclosed at **Annexure – A.**

3. Process of Certification :

A disability certificate shall be issued by a Medical Board duly constituted by the Central / State Government having, at least three members. Out of which, at least one member shall be a specialist from either the field of Physical Medicine and Rehabilitation or Orthopaedics.

Two specimen copies of the disability certificate for mental retardation and others (visual disability, speech and hearing disability and locomotor disability) are enclosed at **Annexure-B.**

It was also decided that whenever required the Chairman of the Board may co-opt other experts including that of the members constituted for the purpose by the Central and the State Government.

On representation by the applicant, the Medical Board may review its decision having regard to all the facts and circumstances of the case and pass such order in the matter as it thinks fit.

LOCOMOTOR DISABILITY
REVISED GUIDELINES FOR EVALUATION OF THE
PERMANENT PHYSICAL IMPAIRMENT

1.1 Guidelines for Evaluation of Permanent Physical Impairment of Upper Limb.

1. The estimation of permanent impairment depends upon the measurement of functional impairment and is not expression of a personal opinion.
2. The estimation of measurement should be made when the clinical condition has reached the stage of maximum improvement from the medical treatment. Normally the time period is to be decided by the medical doctor who is evaluating the case for issuing the PPI Certificate as per standard format of the certificate.
3. The upper limb is divided into two component parts, the arm component and the hand component.
4. Measurement of the loss of function of arm component consists of measuring the loss of motion, muscle strength and co-ordinated activities.
5. Measurement of loss of function of hand component consists of determining the prehension, sensation and strength. For estimation of prehension opposition, lateral pinch cylindrical grasp, spherical grasp and hook grasp to be assessed as shown in Hand Component of Form A Assessment Proforma for upper extremity.
6. The impairment of the entire extremity depends on the combination of the functional impairments of both components.

1.2 **ARM COMPONENT**

Total value of arm component is 90 %

1.2.1 **Principles of evaluation of range of motion (ROM) of joints**

1. The value of maximum ROM in the arm component is 90 %
2. Each of three joints of the arm is weighed equally (30 %)

Example

The intra articular fractures of the bones of right shoulder joint may affect range of motion even after healing. The loss of ROM should be calculated in each arc of motion as envisaged in the Assessment Form A (Assessment Performa for Upper Extremity)

Arc of ROM	Normal value	Active ROM	Loss of ROM
Shoulder Flexion-	0-220	110	50%
Rotation	0-180	90	50%
Abduction-Adduction	0-180	90	50%

Hence the mean loss of ROM of shoulder will be

$$50+50+50/3 =150/3 = 50\%$$

Shoulder movements constitute 30% of the motion of arm component, therefore the loss of motion for arm component will be $50 \times 0.30 = 15\%$. If more than one joint of the arm is involved the loss of percentage in each joint is calculated separately as above and then added together.

1.2.2 Principles of evaluation of strength of muscles

1. Strength of muscles can be tested by manual method and graded from 0-5 as advocated by Medical Research Council of Great Britain depending upon the strength of the muscles.
2. Loss of muscle power can be given percentage as follows:

Manual muscle Strength grading	Loss of strength in percentage
0	100%
1	80%
2	60%
3	40%
4	20%
5	0%

3. The mean percentage of loss of muscle strength around a joint is multiplied by 0.30.
4. If loss of muscle strength involves more than one joint the mean loss of percentage in each joint is calculated separately and then added together as has been described for loss of motion.

1.2.3 Principles of evaluation of coordinated activities:

1. The total value for coordinated activities is 90%.

- 2 Ten different coordinated activities should be tested as given in **Form A (Appendix. I of Annexure A)**
- 3 Each activity has a value of 9%.

1.2.4. **Combining Values for the Arm Component :**

The total value of loss of function of arm component is obtained by combining the value of loss of ROM, muscle strength and coordinated activities, using the combining formula.

$$a + \frac{b(90 - a)}{90}$$

Where a = higher value
b = lower value

Example

Let us assume that an individual with an intra articular fracture of bones of shoulder joint in addition to 16.5 % loss of motion in arm has 8.3 % loss of strength of muscles and 5% loss of coordination. These values should be combined as follows :

Loss of ROM - 16.5 %		$\frac{16.5 + 8.3(90 - 16.5)}{90}$
		= 23.33 %
To add		
Loss of coordination – 5 %		$\frac{20.25 + 5(90 - 20.25)}{90} = 27.0 \%$

So that total value of loss of function in Arm Component will be 27.0 %.

1.3 **HAND COMPONENT :**

1. Total value of the Hand Component is 90 %
2. The functional impairment of hand is expressed as loss of prehension loss of sensation and loss of strength.

1.3.1 **Principles of evaluation of prehension :**

1. Total value of prehension is 30 %

It includes

- a) Opposition – 8 %
 - Tested against – Index finger – 2 %
 - Middle finger – 2 %
 - Ring finger - 2 %
 - Little finger - 2 %

- b) Lateral pinch – 5% - Tested by asking the patient to hold a key between the thumb and lateral side of index finger.
- c) Cylindrical grasp – 6 % Tested for
 - i) Large object of 4 inches size – 3 %
 - ii) Small object of 1 inch size – 3 %
- d) Spherical grasp – 6 % Tested for
 - i) Large object of 4 inches size – 3 %
 - ii) Small object of 1 inch size – 3 %
- e) Hook grasp – 5 % - Tested by asking the patient to lift a bag.

1.3.2. Principles of evaluation of sensation :

1. Total value of sensation in hand is 30 %
2. It should be assessed according to the distribution given below :
 - i) Complete loss of sensation

Thumb ray	: 9 %
Index finger	: 6 %
Middle finger	: 5 %
Ring finger	: 5 %
Little finger	: 5 %
 - ii) Partial loss of sensation : Assessment should be made according to percentage of loss of sensation in thumb / finger(s).

1.3.3 Principles of evaluation of strength :

1. Total value of strength is 30 %
2. It includes :
 - i) Grip strength : 20 %
 - ii) Pinch strength : 10 %

Strength of hand should be tested with hand dynamo-meter or by clinical method (grip method).

Additional Weightage – A total of 10 % additional Weightage can be given to following accompanying factors if they are continuous and persistent despite treatment :

1. Pain
2. Infection
3. Deformity
4. Mal-alignment
5. Contractures
6. Cosmetic disfiguration
7. Dominant extremity – 4 %
8. Shortening of upper limb.

First 1" – No Weightage

For each 1" beyond first 1" – 2 %.

The extra points should not exceed 10 % of the total Arm Component and total PPI should not exceed 100 % in any case.

1.3.4. Combining values of Hand Component :

The final value of loss of function of hand component is obtained by summing up values of loss of prehension, sensation and strength.

1.3.5. Combining values for the Extremity :

Values of impairment of arm component and impairment of hand component should be added by using combining formula :

$$a + b \frac{(90 - a)}{90}$$

a = higher value
b = lower value

Example :

$$\begin{aligned} \text{Impairment of Arm} - 27 \% & \qquad 64 + \frac{27(90 - 64)}{90} \\ \text{Impairment of hand} - 64 \% & \qquad = 71.8 \% \end{aligned}$$

The total value can also be obtained by using the Ready Recknoer table for combining formula given at **Appendix. II of Annexure. A.**

2. Guidelines for Evaluation of Permanent Physical Impairment in Lower Limb

The measurement of loss of function in lower extremity is divided into two components : Mobility and standing components,

2.1 Mobility Component :

1. Total value of Mobility Component is 90 %
2. It includes range of movement (ROM) and muscle strength

2.1.1. Principles of Evaluation of Range of Movement :

1. The value of maximum range of movement in mobility component is 90 %
2. Each of three joints i.e. hip, knee and foot-ankle component is weighed equally – 30 %

Example :

A fracture of right hip joint bones may affect range of motion of the hip joint. Loss of ROM of the affected hip in different areas should be assessed as given in **Form B** (Assessment Proforma for lower extremity) (**Appendix. I of Annexure. A**)

Affected joint – Rt. Hip Arc of Movement	Normal ROM	Active ROM	Loss in Percentage
Flexion – Extension	0 – 140	70	50 %
Abduction – Adduction	0 – 90	60	33 %
Rotations	0 – 90	30	66 %

$$\text{Mean loss of ROM of Rt. Hip} = \frac{50+33+66}{3} = 50 \%$$

Since the hip constitute 30 % of the total mobility component of the lower limb, the loss of motion in relation to the lower limb will be $50 \times 0.30 = 15 \%$.

If more than one joint of the limb is involved the mean loss of the ROM in percentage should be calculated in relation to individual joint separately and then added together as follows to calculate the loss of mobility component I relation to that particular limb.

For example :

Mean loss of ROM of Rt. Hip	50 %
Mean loss of ROM of Rt. Knee	40 %
Loss of mobility component of Rt. Lower Limb will be	$(50 \times 0.30)+(40 \times 0.30) = 27 \%$

2.1.2. Principles of Evaluation of Muscle Strength :

1. The value for maximum muscle strength in the limb is 90 %
2. Strength of muscles can be tested by Manual Method and graded 0 – 5 as advocated by MRC of Great Britain depending upon the residual strength in the muscle group.
3. Manual Muscle grading can be given percentage like below :

Power Grade of Ms	Loss of Strength in Percentage
0	100 %
1	80 %
2	60 %
3	40 %
4	20 %
5	0 %

4. Mean percentage of muscle strength loss around a joint is multiplied by 0.30 to calculate loss in relation to limb.
5. If there has been a loss muscle strength involving more than one joint the values are added as has been described for loss of ROM.

2.1.3. Combining values for mobility component :

1. The value of loss of ROM and loss of muscle strength should be combined with the help of combining formula $\frac{a + b(90 - a)}{90}$

(a = higher value, b = lower value)

Example : Let us assume that the individual with a fracture of right hip bones has in addition to 16 % loss of motion, 8 % loss of muscle strength also.

Combined Values :

$$\begin{aligned} \text{Motion} - 16 \% & \qquad 16 + \frac{8(90 - 16)}{90} \\ \text{Strength} - 8 \% & \qquad = 22.6 \% \end{aligned}$$

2.2. Stability Component :

1. Total value of the stability component is 90 %
2. It should be tested by clinical method as given in Form B (Assessment Proforma for lower extremity). There are nine activities which need to be tested and each activity has a value of ten per cent (10 %). The percentage valued in relation to each activity depends upon the percentage of loss stability in relation to each activity.

2.3. Extra Points :

Extra points have been given for pain, deformities, contractures, loss of sensations and shortening. Maximum points to be added are 10 % (excluding shortening). Details are as follows :

i)	Deformity	in functional position	3 %
		in non-functional position	6 %
ii)	Pain	Severe (grossly interfering with function)	9 %
		Moderate (moderately interfering with function)	6 %
		Mild (mildly interfering with function)	3 %

iii)	Loss of sensation	Complete loss	9 %
		Partial loss	6 %
iv)	Shortening	First ½”	Nil
		Every ½” beyond first ½”	4 %
v)	Complications	Superficial Complications	3 %
		Deep complications	

3. **Guidelines for Evaluation of Permanent Physical Impairment of Trunk (Spine) :**

Basic Guidelines :

1. As permanent physical impairment caused by spinal deformity tends to change over the years, the certificate issued in relation to spine should be reviewed as per the standard format of the certificate given at **Annexure – B of Appendix. III**
2. Permanent physical impairment should be awarded in relation to spine and not in relation to whole body.
3. Permanent physical impairment due to neurological deficit in addition to spinal impairment should be added by combining each situation should be valued as follows :

3.1. **TRAUMATIC LESIONS :**

3.1.1 **Cervical spine injuries**

**Percentage of PPI
in relation to Spine**

- | | | |
|-----|---|------|
| i) | 25 % or more compression of one or two adjacent vertebral bodies with No involvement of posterior elements, No nerve root involvement, moderate Neck rigidity and persistent Soreness | 20 % |
| ii) | Posterior element damage with radiological Evidence of moderate partial dislocation/ subluxation including whiplash injury : | |
| a) | With fusion healed, No permanent motor or sensory changes | 10 % |
| b) | Persistent pain with radio logically demonstrable instability | 25 % |

- iii) Severe Dislocation :
 - a) fair to good reduction with or without fusion with no residual motor or sensory involvement 10 %
 - b) Inadequate reduction with fusion and persistent radicular pain 15 %

3.1.2. **Cervical Intervertebral Disc Lesions** **Percentage of PPI in relation to Spine**

- i) Treated case of Disc Lesion with persistent pain and no neurological deficit 10 %
- ii) Treated case with pain and instability 15 %

3.1.3. **Thoracic and Thoracolumbar Spine Injuries :**

- i) Compression of less than 50 % involving one vertebral body with no neurological manifestation 10 %
- ii) Compression of less than 50 % involving single vertebral or more with involvement of posterior elements, healed, no neurological manifestations persistent pain, fusion indicated 20 %
- iii) Same as (b) with fusion, pain only on heavy use of back 15 %
- iv) Radiological demonstrable instability with fracture or fracture dislocation with persistent pain 30 %

3.1.4. **Lumbar and Lumbosacral Spine :**

Fracture

a)	Compression of 25 % or less of one or two adjacent Vertebral bodies. No definite pattern or neurological Deficit.	15 %
b)	Compression of more than 25 % with disruption of Posterior elements, persistent pain and stiffness, Healed with or without fusion, inability to lift more Than 10 kgs.	30 %
c)	Radiological demonstrable instability in low lumbar Or Lumbosacral spine with pain.	35 %

3.1.5. **Disc lesion :**

a)	Treated case with persistent pain	15 %
b)	Treated case with pain and instability	20 %
c)	Treated case of disc disease with pain activities of lifting moderately modified.	25 %
d)	Treated case of disc disease with persistent pain and stiffness, aggravated by heavy lifting necessitating modifications of all activities requiring heavy weight lifting	30 %

3.2. **NON TRAUMATIC LESIONS :**

3.2.1. **Scoliosis :**

Basic guidelines – following modification is suggested.

The largest structural curve should be accounted for while calculating the PPI and not the compensatory curve of both structural curves.

3.2.2 **Measurement of Spine Deformity :**

Cobb’s method for measurement of angle of curve in the radiograph taken in standing position should be used. The curves have been divided into following groups depending upon the angle of major structural scoliotic deformity.

Group	Cobb’s Angle	PPI in relation to Spine
I	0 - 20	Nil
II	21 - 50	10 %
III	51 - 100	20 %
IV	101 & above	30 %

3.2.3. **Torso Imbalance :**

In addition to the above PPI should also be evaluated in relation to the torso imbalance. The torso imbalance should be measured by dropping a plumb line from C7 spine and measuring the distance of plumb line from gluteal crease.

Deviation of Plumb line	PPI
Upto 1.5 Cm	4 %
1.6 – 3.0 Cm	8 %
3.1 – 5.0 Cm	16 %
6.1 and above	32 %

3.2.4.	Head Tilt over C 7 spine	PPI
	Upto 15	4 %
	More than 15	10 %

3.2.5. Cardiopulmonary Test :

In cases with scoliosis of severe type cardiopulmonary function tests and percentage deviation from normal should be assessed by one of the following method whichever seems more reliable clinically at the time of assessment. The value thus obtained may be added by combining formula.

a.	Chest Expansion	PPI
	4 - 5 Cm	Normal
	Less than 4 Cm reduction in Chest expansion	5 % for each Cm
	No expansion	25 %
b.	Counting in one breathe : Breathe Count	PPI
	More than 40	Normal
	0 - 40	5 %
	0 - 30	10 %
	0 - 20	15 %
	0 - 10	20 %
	Less than 5	25 %

3.2.6. Associated Problems : To be added directly but the total value of PPI in relation to spine should not exceed 100 %.

a)	Pain :	
	- mildly interfering with ADL	4 %
	- moderately restricting ADL	6 %
	- severely restricting ADL	10 %
b)	Cosmetic Appearance :	
	- No obvious disfiguration with Clothes on	Nil
	- Mild disfigurement	2 %
	- Severe disfigurement	4 %
c)	Leg Length Discrepancy :	
	- First ½” shortening	Nil
	- Every ½” beyond first ½”	4 %

- d) Neurological Deficit - Neurological deficit should be calculated as per established method of evaluation of PPI in such cases. Value thus obtained should be added telescopically using combining formula.

3.3 KYPHOSIS :

Evaluation should be done on the similar guidelines as used for scoliosis with the following modifications :

3.3.1. Spinal Deformity	PPI
Less than 20	Nil
21 - 40	10 %
41 - 60	20 %
Above 60	30 %

- 3.3.2. **Torso Imbalance** – Plumb line dropped from external ear normally falls at ankle level. The deviation from normal should be measured from ankle anterior joint line to the plumb line.

Less than 5 cm in front of ankle	4 %
5 to 10 cm in front of ankle	8 %
10 to 15 cm in front of ankle	16 %
More than 15 cm in front of ankle (Add directly)	32 %

3.4.1. Miscellaneous Conditions :

Those conditions of the spine which cause stiffness and pain etc. are rated as follows :

	Condition	Percentage PPI
A	Subjective symptoms of pain, no involuntary muscle spasm, not substantiated by demonstrable structural pathology	-0 %
B	Pain, persistent muscles spasm and stiffness of spine, substantiated by mild radiological change	-20 %
C	Same as B with moderate radiological changes	-25 %
D	Same as B with severe radiological changes involving any one of the regions of spine	-30 %
E	Same as D involving whole spine	-40 %

4. Guidelines for Evaluation of PPI in cases of Short Stature / Dwarfism :

1. Recumbent length or longitudinal height below 3rd percentile or less than 2 standard Deviation from the mean is considered to have short stature.
2. The evaluation of a short stature person should be considered only when it is of disproportionate variety and is accompanied by an underlying pathological conditions, e.g. Achondroplasia, Chandrodysplasia, Punctata, Spondyloepiphysical dysplasia, mucopoly and acchrydosis etc.
3. The ICMR norms as enclosed at **Appendix III of Annexure. A** should be used as a guidelines for the height.
4. Every 1” vertical height reduction should be valued as 4 % permanent physical impairment.
5. Associated skeletal deformities should be evaluated separately and total percentage of both should be added by combining formula.

5. Guidelines for evaluation of Permanent Physical Impairment in Amputees :

Basic Guidelines:

1. In case of multiple amputees if the total sum of permanent physical impairment is above 100 %, it should be taken as 100 % only.
2. If the stump is unfit for fitting the prosthesis additional Weightage of 5 % should be added to the value
3. In case of amputation in more than one limb percentage of each limb is added by combining formula and another 10 % will be added but when only toes or fingers are involved only 5 % will be added.
4. Any complication in form of stiffness of proximal joint, neuroma infection, etc. should be given upto a total of 10 % additional Weightage.
5. Dominant upper extremity should be given 4 % additional Weightage .

Sl. No.	Upper Limb Amputation	PPI & loss of physical function of each limb.
1.	Fore-quarter amputation	100 %
2.	Shoulder Dislocation	90 %
3.	Above Elbow upto upper 1/3 of arm	85 %
4.	Above Elbow upto lower 1/3 of forearm	80 %
5.	Elbow disarticulation	75 %
6.	Below Elbow upto upper 1/3 of forearm	70 %

7.	Below Elbow upto lower 1/3 of forearm	65 %			
8.	Wrist Disarticulation	60 %			
9.	Hand through carpal bones	55 %			
10.	Thumb through C.M. or through 1 st MC joint	30 %			
11.	Thumb disarticulation through metacarpophalangeal joint or through proximal phalanx	25 %			
12.	Thumb disarticulation through inter phalangeal joint or through distal phalanx	15 %			
		Index Finger (15 %)	Middle Finger (5 %)	Ring Finger (3 %)	Little Finger (2 %)
13.	Amputation through Proximal phalanx or Disarticulation through M.P. joint	15 %	5 %	3 %	2 %
14.	Amputation through middle phalanx or Disarticulation through PIP joint	10 %	4 %	2 %	1 %
15.	Amputation through Distal phalanx or Disarticulation through DIP joint	5 %	2 %	1 %	1 %

1.3 Lower Limb Amputations :

1.	Hind quarter	100 %
2.	Hip disarticulation	90 %
3.	Above Knee upto upper 1/3 of thigh	85 %
4.	Above Knee upto lower 1/3 of thigh	80 %
5.	Through Knee	75 %
6.	B.K. upto 8 cm	70 %
7.	B.K. upto lower 1/3 of leg	60 %
8.	Through Ankle	55 %
9.	Syme's	50 %
10.	Upto mid foot	40 %
11.	Upto fore foot	30 %
12.	All toes	20 %
13.	Loss of first toe	10 %
14.	Loss of second toe	5 %
15.	Loss of third toe	4 %
16.	Loss of fourth toe	3 %
17.	Loss of fifth toe	2 %

6. Guidelines for Evaluation of Permanent Physical Impairment of Congenital deficiencies of the limbs :

6.1 Transverse Deficiencies :

1. Functionally congenital transverse limb deficiencies are comparable to acquired amputations and can be called synonymously as congenital amputation, however, in some cases revision of amputation is required to fit in a prosthesis.
2. The transverse limb deficiencies therefore should be assessed on basis of the guidelines applicable to the evaluation of PPI in cases of amputees as given in the preceding chapter.

For Example :

	PPI
- Transverse deficiency Rt. Arm complete (Shoulder disarticulation)	90 %
- Transverse deficiency at thigh complete (hip disarticulation)	90 %
- Transverse deficiency Proximal Upper Arm (Above elbow Amputation)	85 %
- Transverse deficiency at lower thigh (Above Knee Amputation Lower 1/3)	80 %
- Transverse deficiency forearm complete (elbow disarticulation)	75 %
- Transverse deficiency lower forearm (Below Elbow Amputation)	65 %
- Transverse deficiency carpal complete (wrist disarticulation)	60 %
- Transverse deficiency Metacarpal complete (Disarticulation through carpal bones)	55 %

6.2 Longitudinal deficiencies :

6.2.1. Basic Guidelines :

1. In cases of longitudinal deficiencies of limbs due consideration should be given to functional impairment
2. In Upper limb loss of ROM loss muscular strength and hand functions like prehension etc. should be tested while assessing the case for PPI.
3. In lower limb clinical method of assessing the stability component and shortening of lower limb should be given due Weightage.
4. Apart from functional assessment the lost joint/part of body should also be valued as per distribution given in chapter Guidelines for Evaluation of PPI in upper extremity. The values so obtained should be added with the help of combining formula.

Example :

Congenital Absence of humerus where forearm bones directly articulate with scapula.

There will be mild reduction in ROM and strength of muscles in the existing joints apart from loss of body part.

Loss of shoulder joint can be given – 30 %

Loss of ROM of Elbow/Shoulder & Wrist

All the components should be added together by the combining formula of :

$$\frac{a + b (90 - a)}{90}$$

6.2.2 In cases of loss of single bone in forearm the evaluation should be based on the principles of evaluation of Arm component which include Evaluation of ROM, Muscle strength and coordinated activities. The values so obtained should be added together with the help of combining formula.

6.2.2. In cases of loss of single bone in leg the evaluation should be based on the principles of evaluation of mobility component and stability components of the lower extremity. The values obtained should be added together with the help of combining formula.

7. Guidelines for Evaluation of Physical Impairments in Neurological conditions :

7.1 Basic Guidelines :

1. Assessment in Neurological conditions is not the assessment of disease but the assessment of its effects, i.e. clinical manifestations.
2. These guidelines should only be used for central and upper motor neurone lesions..
3. Proforma (Form A & B) will be utilized for assessment of lower motor neurone lesions, muscular disorders and other locomotor conditions.
4. Normally any neurological assessment for the purpose of certification has to be done six months after the onset of disease however exact time period is to be decided by the Medical Doctor who is evaluating the case and has to recommend the review of certificate as given in the standard format of certificate.
5. Total percentage of physical impairment in any neurological condition should not exceed 100 %.
6. In mixed cases the highest score will be taken into consideration. The lower score will be added telescopically to it by the help of combining formula :

$$a + \frac{b(90 - a)}{90}$$

7. Additional rating of 4 % will be given dominant upper extremity.
8. Additional Weightage up to 10 % can be given for loss of sensation in each extremity but the total physical impairment should not exceed 100 %.

7.2 Table – I

Neurological Status	Physical Impairment
Altered Sensorium	100 %

7.3 Table – II

Intellectual Impairment (to be assessed by Clinical Psychologist)

Degree of Mental Retardation	IQ Range	Intellectual Impairment
Border Line	70 – 79	25 %
Mild	50 – 69	50 %
Moderate	35 – 49	75 %
Severe	20 – 34	90 %
Profound	Less than 20	100 %

7.4 Table – III

Speech defect	Physical Impairment
Mild dysarthria	Nil
Moderate dysarthria	25 %
Severe dysarthria	50 %

7.5 Table – IV

Cranial Nerve Disability

Type of Cranial Nerve Involvement	Physical Impairment
Motor Cranial nerve	20 % for each nerve
Sensory Cranial nerve	10 % for each nerve

7.6 Table – V

Motor System Disability

Neurological Involvement	Physical Impairment
Hemiparesis :	
Mild	25 %
Moderate	50 %
Severe	75 %

7.7 Table – VI

Sensory System Disability

Extent of Sensory Deficit	Physical Impairment
Anaesthesia	Upto 10 % for each limb
Hypoaesthesia	Depending upon % of sensation
Pareasthesis	Loss of sensation upto 30 % depending
Hands/feet sensory loss	Depending upon % of loss of sensation

7.8 Table – VII

Bladder Disability due to Neurogenic Involvement

Bladder Involvement	Physical Impairment
Mild (Hesitancy/Frequency)	25 %
Moderate (Precipitancy)	50 %
Severe (Occasional but recurrent incontinence)	75 %
Very severe (Retention/Total incontinence)	100 %

7.9 Table – VIII

Post Head Injury Fits and Epileptic Convulsions

Frequency/Severity of Convulsions	Physical Impairment
Mild – occurrence of one convulsion only	Nil
Moderate 1-5 convulsions/month on adequate-Medication	25 %
Severe 6-10 convulsions/month on adequate-Medication	50 %
Very severe more than 10 fits/months on adequate -Medication	75 %

7.10 Table – IX

Ataxia (Sensory or Cerebellar)

Severity of Ataxia	Physical Impairment
Mild (Detected on Examination)	25 %
Moderate	50 %
Severe	75 %
Very severe	100 %

8. Guidelines for Evaluation of Physical Impairment due to Cardiopulmonary Diseases :

8.1 Basic Guidelines :

1. Modified New York Heart Association subjective classification should be utilized to assess the functional disability.
2. The assessing physician should be alert to the fact that patients who come for disability claims are likely to exaggerate their symptoms. In cases of any doubt patients should be referred for detailed physiological evaluation.
3. Disability evaluation of cardiopulmonary patients should be done after full medical, surgical and rehabilitative treatment available, because most of these diseases are potentially treatable.
4. Assessment of cardiopulmonary impairment should also be done in diseases which might have associated cardiopulmonary problems, e.g. amputation, myopathies, etc.
5. For respiratory assessment, routine respiratory functions test should be done, however, in cases of interstitial lung diseases, diffusion studies may be done.
6. In cases of Angina pectoris (Chest pain) base line studies in resting ECG should be done. When there is persistence of symptoms, exercise or stress test should be done.

8.2 The proposed classification with loss of function is as follows :

Group 0 : A patient with cardiopulmonary disease who is asymptomatic (i.e. has no symptoms of breathlessness, palpitation, fatigue or chest pain)

Group 1 : A patient with cardiopulmonary disease who becomes symptomatic during his ordinary physical activity but has mild restriction (25 %) of his physical activities.

Group 2 : A patient with cardiopulmonary disease who becomes symptomatic during his ordinary physical activity and has 25 – 50 % restriction of his physical activities

Group 3 : A patient with cardiopulmonary disease who becomes symptomatic during his less than ordinary physical activity so that his ordinary physical activities are 50 – 75 % restricted.

Group 4 : A patient with cardiopulmonary disease who is symptomatic even at rest or on mildest exertion so that his ordinary physical activities are severely or completely restricted (75 – 100 %)

Group 5 : A patient with cardiopulmonary disease who gets intermittent symptoms at rest (i.e. patients with bronchial asthma, paroxysmal nocturnal dyspnoea etc.)

1. Definition of Multiple Disabilities :

Multiple disabilities means a combination of two or more disabilities as defined in clause (1) of section (2) of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995, namely –

- I. Locomotor disability including leprosy cured
- II. Blindness/ low vision
- III. Speech and Hearing impairment
- IV. Mental Retardation
- V. Mental Illness

2. Guidelines for Evaluation :

In order to evaluate the multiple disability the same guidelines shall be used as have been developed by the respective sub-committees of various single disability, viz. Mental Retardation, Locomotor disability, Visual disability and Speech and hearing disability and recommended in the meeting held on 29.2.2000 under the chairmanship of Dr. S.P. Agarwal, Director General of Health Services, Government of India, with reference to Order No. 16-18/96-N.I.I, dated 28th August, 1998 and communicated to Ministry of Social Justice and Empowerment, Government of India, vide letter No. S-13020/4/98-MH, dated 16th March, 2000.

However, in order to arrive at the total percentage of multiple disability, the combining formula $\frac{a + b (90 - a)}{90}$, as given in the ‘Manual for Doctors to Evaluate Permanent Physical Impairment, developed by Expert Group meeting on Disability Evaluation’, should be used, where “a” will be the higher score and “b” will be the lower score. However, the maximum total percentage of multiple disabilities shall not exceed 100 %.

For example, if the percentage of hearing disability is 30 % and visual disability is 20 %, then by applying the combining formula given above, the total percentage of multiple disability will be calculated as follows :-

$$30 + \frac{20 (90 - 30)}{90} = 43 \%$$

3. Procedure for Certificate of Multiple Disability :

The procedure will remain the same as has been developed by the respective sub-committees of various single disability and finalized in the meeting under the chairmanship of Dr. S.P. Agarwal, held on 29.2.2000. The final disability certificate for multiple disability will be issued by Disability board which has given higher score of disability by combining the score of different disabilities using the combining formula, i.e. $a + \frac{b(90 - a)}{100}$. In case, where two scores of disability are equal, the final certificate of multiple disability will be

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Issued by one of them as decided by local authority.

Appendix – III of Annexure. A**STANDING HEIGHTS FOR INDIAN POPULATION (IN INCHES) MEAN AND STANDARD DEVIATIONS**

Age	Mean	S.D.	- 2 S.D.	Mean	S.D.	- 2 S.D.
Less than 3 months	22.13	2.32	17.49	21.65	2.13	17.39
3 months +	24.68	1.58	21.52	23.98	2.40	21.80
6 months +	25.55	3.19	19.17	25.35	1.43	22.49
9 months +	27.36	1.77	23.82	26.26	1.52	23.22
1 year +	29.09	2.07	24.95	28.54	2.04	24.46
2 years +	32.13	2.10	27.93	31.53	2.28	26.97
3 years +	34.96	2.58	29.80	34.33	2.50	29.33
4 years +	37.80	2.65	32.50	37.20	2.50	32.20
5 years +	40.19	3.16	33.84	39.92	2.90	34.12
6 years +	42.71	2.81	37.09	42.28	3.41	35.46
7 years +	44.84	3.41	38.02	44.40	3.34	37.72
8 years +	46.96	2.89	41.18	46.53	3.03	40.47
9 years +	48.70	3.65	41.40	48.38	2.96	42.46
10 years +	48.97	3.93	41.11	50.55	3.15	44.25
11 years +	52.51	3.83	44.86	52.60	3.73	45.14
12 years+	54.45	3.99	46.47	54.80	4.03	46.74
13 years +	56.93	3.84	49.25	56.65	3.63	49.39
14 years +	59.10	3.95	51.20	58.07	3.82.	50.43
15 years +	61.22	3.94	53.34	58.89	3.27	52.35
16 years +	62.79	3.84	55.11	59.44	2.80	53.84
17 years +	63.54	4.11	55.32	59.64	2.95	53.74
18 years +	64.21	3.76	56.59	59.72	2.31	55.10
19 years +	64,37	3.79	56.79	59.72	2.31	55.10
20 years +	64.60	2.75	59.10	59.72	2.32	55.08
21 years +	64.64	2.40	59.84	60.24	2.24	55.76