Growth and development as a positive health indicator

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Major health indicators

Mortality, morbidity, proportion of children under a given cut off point.

Infant mortality 10/1000 ¿ And the other 990? In the case of children:

Physical growth and psychomotor development

Positive indicators:

They are concerned with the whole population group
They express a positive process

Physical growth

Period	Consensus	s Measureme	nt Mathematics
Prenatal	+	BW, GA	Means, Z scores, etc
Neonatal	. –	?	?
Childhoo	od &		
adolesce	nce +	H, W, BMI	LMS, Z scores, etc

Psychomotor development0-5-????

- Weight increment in g/day
- Duration of hospital admission
- Time eelapsed until recovery of birth weight
- etc

Proposal for neonatal growth assessment



<u>Results of a sample of 650 very low birth</u> <u>weight babies</u>

PC.Age	Median	W DS	Periods.
1	29.2 -	0.74	
2	33.3 -	1.08	1 - 2 = 26 days
3	36.0 -	1.84	2 - 3 = 19 "
4	40.2 -	1.74	3 - 4 = 32 "
			1-4=77 "

<u>Psychmotor development as a public</u> <u>health indicator</u>

- Information : easy to obtain at primary care level
- Reliable
- Expressing development of population groups, not necessarily individuals
- Cross sectional

Indicator of Psychomotor development

13 developmental items, 4 - 5 for each child:
Smiles responsively, head upright, searches for sound searches object, neat pince - grasp, walk well, combine words, bladder control, complete phrase, recognises three colours, toe-heel walk, draw a person 6 parts, copy cross.

- Pass or not pass
- Sent from health center to a processing center
- Estimation of 50 the percentile of age of attaining each item (logistic regression)
- Differences between these medians and those from the National Reference ie: ww 360 – 381 Dif. = - 21

d = Median of the group - median of NR

National reference 50 th centile of age of attaining 79 developmental items

AREA		CENTILOS					
Mot	tricidad fina (Cont.)	25	50	75	90		
22.	Junta manos	0,17 (0,14-0,19)	0,25 (0,23-0,27)	0,34 (0,32-0,37)	0,42 (0,39-0,47)		
23.	Pasa un cubo de mano mirándolo	0,27 (0,23-0,29)	0,33 (0,31-0,35)	0,39 (0,37-0,41)	0,45 (0,42-0,50)		
24.	Prensión cúbito palmar	0,39 (0,36-0,41)	0,45 (0,43-0,47)	0,51 (0,49-0,54)	0,58 (0,55-0,62)		
25.	Prensión pinza superior		0,76 (0,65-0,80)	0,87 (0,84-0,93)	0,99 (0,93-1,16)		
26.	Vierte/pasa de botella	-	0,94 (0,86-1,00)	1,27 (1,22-1,34)	1,61 (1,53-1,71)		
27.	Introduce/pasa en botella	0,87 (0,82-0,91)	1,02 (0,98-1,05)	1,21 (1,15-1,29)	1,46 (1,35-1,65)		
28.	Garabatea	0,91 (0.87-0.94)	1,05 (1,01-1,08)	1,26 (1,22-1,31)	1,60 (1,51-1,73)		
29.	Torre de 4 cubos	1,23 (1,18-1,27)	1,42 (1,38-1,46)	1,66 (1,61-1,72)	1,98 (1,89-2,09)		
30.	Torre de 8 cubos	1,82 (1,74-1,88)	2,18 (2,12-2,23)	2,61 (2,54-2,68)	3,12 (3,01-3,26)		
31.	Corrige torre	1,60 (1,50-1,69)	2,24 (2,16-2,33)	3,14 (3,00-3,32)	(85) 3,82 (3,59-4,12)		
32.	Imita puente	2,16 (2,05-2,25)	2,58 (2.50-2.64)	3,07 (2.99-3,17)	3,66 (3,51-3,87)		
33.	Dibuja persona 3 partes	2,93 (2,83-3,02)	3,45 (3,38-3,53)	4,07 (3,98-4,18)	4,80 (4,64-5,00)		
34.	Copia cruz	3,24 (3,12-3,33)	3,67 (3,58-3,75)	4,22 (4,13-4,34)	4,93 (4,73-5,20)		
35.	Dobla un papel en diagonal	(30) 3,14 (2,93-3,29)	3,72 (3,61-3,82)	4,48 (4,37-4,63)	(85) 4,92 (4,76-5,14)		
36.	Dibuja personas 6 partes	3,59 (3,48-3,69)	4,20 (4,12-4,27)	4,90 (4,81-5,01)	5,72 (5,56-5,93)		
37.	Copia un triángulo		(55) 5,09 (4,90-5,20)	5,53 (5,44-5,66)	(85) 5,87 (5,73-6,14)		
Len	guaje	25	50	75	90		
38.	Cloqueo palabral	-	-	-	(83,3) 0,04		
39.	Busca con la mirada a la madre	0,30 (0,26-0,33)	0,39 (0,36-0,42)	0,47 (0,44-0,54)	(80) 0,49 (0,45-0,57)		
40.	Respuesta al no		(55) 0,50 (0.45-0.54)	0,59 (0.54-0,63)	0,82 (0,73-1,06)		
41.	Silabeo da-da-da ta-ta-ta	•	0,51 (0,44-0,55)	0,50 (0,57-0,64)	0,70 (0,66-0,80)		
42.	Silabeo pa•pa ma•ma, no específico	(30) 0,49 (0,43-0,53)	0,58 (0,54-0,61)	0,69 (0,66-0,72)	0,80 (0,76-0,85)		
43.	Palabra frase	(35) 1,01 (0,97-1,05)	1.09 (1,04-1,14)	1,41 (1,33-1,51)	(85) 1,89 (1,70-2,25)		
44.	Señala 2 figuras	(30) 1,03 (0,89-1,14)	1,37 (1,28-1,45)	1,81 (1,74-1,90)	2,25 (2.13-2.42)		

<u>Linear regression of median age</u> <u>differences (D)</u>



edad (en días) de alcance de pautas en grupo de referencia

Median age at attaining the item DI = 1 + b = 1 + (-0.19) = 0.89

Developmental index and trends in 5410 children from 5 "inner cities"

Are	a DI	Trend (day / day)	<u>CDE</u> ₄
A	0.86 (0.82;.0.91)	- 0.15 (0.10-0.20)	0.88 (0.87-0.89)
B	0.82 (0.79; 0.86)	- 0.19 (-0.15; -0.24)	0.83 (0.82; 0.85)
С	0.77 (0.70; 0.85)	- 0.26 (-0.15; -0.16)	0.81 (0.78; 0.83)
D	0.85 (0.80; 0.90)	- 0.16 (-0.10; -0.22)	0.85 (0.80; 0.90)
E	0.85 (0.79-0.91)	- 0.17 (- 0.10; -0.23)	0.84 (0.82; 0.87)

Correlation coefficients an growth & development indicators

Weight	Height	Dev Index
- 0 7/18	- 0 381	2005 0.85
	<u>Weight</u>	<u>Weight Height</u> - 0.748 - 0.381

Perinatal mortality- 0.866	- 0.519	
Mortality 1 - 4 - 0.613	- 0.604	
NBI (poor families)- 0.852	- 0.620	

Limitations for use G&D as public health indicator

Neonatal Physical growth: There is now a proposal of a set of indicators Psychomotor development There is now a proposal: What to measure How to handle the data Next steps: to achieve a consensus to reach the Public Health level

Thank you very much