Infant Mortality, Infant Feeding and Infant Growth

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Infant Mortality Rates WHO European Region
“Non-Preventable” causes of death:
A = Prematurity
B = Wasting

“Preventable” causes of death
C = Diarrhoea
D = Acute pulmonary diseases
E = Convulsions
F = Acute infectious fevers
G = Tuberculosis
H = Meningitis (non-tuberculous)
I = Syphilis
J = Rickets
K = Other causes

Causes of Infant Mortality
(per 1000 live births)

Forsyth D
Children in Health and Disease,
London, John Murray, 1909
“The direct and baneful agency of want of good breast-milk may be inferred from the table (figure below) from which it appears that the longer the supply of breast-milk and the more exclusively it is given the better the child is developed and vice versa”

Merei A, Whitehead J. Second report of Clinical Hospital for Diseases of Children, Manchester 1857
Pierre Budin
1846-1907

Author of
*Le Nourrisson* 1900

and founder of
*Les Consultations de Nourrissons* 1905
Puericulture Movement
‘Quand j’étais chef de service à la Charité, je m’occupais beaucoup des nouveau-nés et j’étais frappé d’une réponse qui m’était faite par les femmes accouchées antérieurement dans le service et qui s’y trouvaient de nouveau. Je leur demandais ce qu’était devenu l’enfant qu’elles y avaient mis au monde, et souvent elles me disaient: il est mort!’  

Pierre Budin
From Budin P. *Le Nourrisson* 1900
Consultations de Nourrissons

‘Les femmes sortent de la clinique en excellente santé, ainsi que leur bébé, mais huit ou quinze jours plus tard elles nous ramènent ce dernier en très mauvais état, il a de la diarrhée, des vomissements et a beaucoup diminué de poids.’

Gaston Variot
‘To create a consultation for infants three things suffice: a pair of scales, an apparatus for sterilising milk, and the devotion of a doctor’

Robinson L. *Practitioner* 1905
L’Oeuvre de la Goutte de Lait – Dr Gaston Variot at Bellville Dispensary, Paris
‘A Pair of Scales’

‘When babies develop normally they put on weight regularly and of a quantity more or less according to their age – this is a general rule. When the curve of weight gain of an infant is good, one can conclude that it is in an excellent state of health, and is in no danger; if it is unwell one knows that the weight goes down.’

P. Budin, 1900, Le Nourrisson
‘Apparatus for Sterilising Milk’

‘Du lait de vache de bonne qualité et sterilisé’
Goutte de Lait
Féchamp, Normandy
Leon Defour
Consultations de Nourrissons
Gouttes de Lait

Leon Dufour
‘The importance of the weight of an infant as a criterion of its health and progress is well known. Indeed, the weight is often the only criterion as to whether the infant is improving in health or not. At birth the average weight is 7 lbs; at three months it may be about 9 to 11 lbs; at nine months about 16 to 17 lbs; and at twelve months 19 to 20 lbs.’

‘Dufour’s standard has been used in the Finsbury Depot, as in French depots, and the charts appearing in the present volume are drawn to that scale.’
Glasgow Infant Milk Depots

Eric Pritchard, 1904. *The Physiological Feeding of Infants*

Variot G et Fliniaux M. Tables des croissances comparées des nourrissons élevés au sein et au biberon durant la première année de la vie. *Comptes Rendus – Academie des Sciences* 1914

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Infant Welfare Clinics: Pimlico and Golden Square branches of the Westminster Health Society, the Chelsea Health Society, and the Leeds Babies Welcome
Sources of ‘Early’ Growth Data

- Budin P, *The Nursling* 1900
- Pritchard E, *Physiological Feeding of Infants* 1904
- Variot G & Fliniaux N, *Academie des Sciences* 1914
‘Early’ Data: 1900-1916 from France and England

Days

Weight (kg)

Boys

6 weeks 3 months 6 months 9 months 12 months
‘Early’ data and WHO 2006
‘Recent’ Growth References

- Tanner and Whitehouse 1973
- Gairdner & Pearson 1971
- UK Cross Sectional 1996
- NCHS 2000
‘Early’ and ‘Recent’ Data

- Weight (kg)

- Time intervals: 6 weeks, 3 months, 6 months, 9 months, 12 months
How Did Babies Grow 100 Years Ago?
Weaver LT. European Journal of Clinical Nutrition 2010; 65: 3-9

![Graph showing weight gain over months for various studies from 1882 to 2006.](image-url)
Conclusions

- There has been a significant change in the rates and patterns of growth in infancy over the last 100 years
- Infant weight growth rates vary geographically and historically, according to birth-weight, feeding and disease
- There is a plasticity of developmental processes throughout the life course (fetal life, infancy, puberty, reproduction) and the WHO Infant Growth Standards cannot alone be regarded as an ideal growth trajectory for all babies at all times and places

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PUBLICATIONS

How did babies grow 100 years ago? Weaver LT. *European Journal of Clinical Nutrition* 2010; 65: 3-9

'In the Balance': Weighing babies and the birth of the infant welfare clinic. Weaver LT. *Bulletin of the History of Medicine* 2010; 84: 30-57

Feeding babies in the 21st century: Breast is still best, but for new reasons. Weaver LT. *History and Policy* 2009


Weaver LT. The emergence of our modern understanding of infant nutrition and feeding 1750-1900. *Current Pediatrics* 2006; 16: 342-347.


