

Child health in late 19th century Stockholm

“What great that happens, happens quietly”

(Swedish saying)





Stockholm:

Beginning of 19th century: 30% of children died
in the first year of life

1880'ies: 0-5 years mortality about 20%,
whereof still about 15% in the first year

Butajira Demographic surveillance area in Ethiopia

1989: 30% mortality below 5 years of age,
whereof 14% in the first year







93.000 inh in 1850 -> 300.000 in 1900

Children 1/3

4.3 persons per apartment (1 or 2 rooms),
>2 persons/room in half of the newly built houses

Great social inequities, even within same house

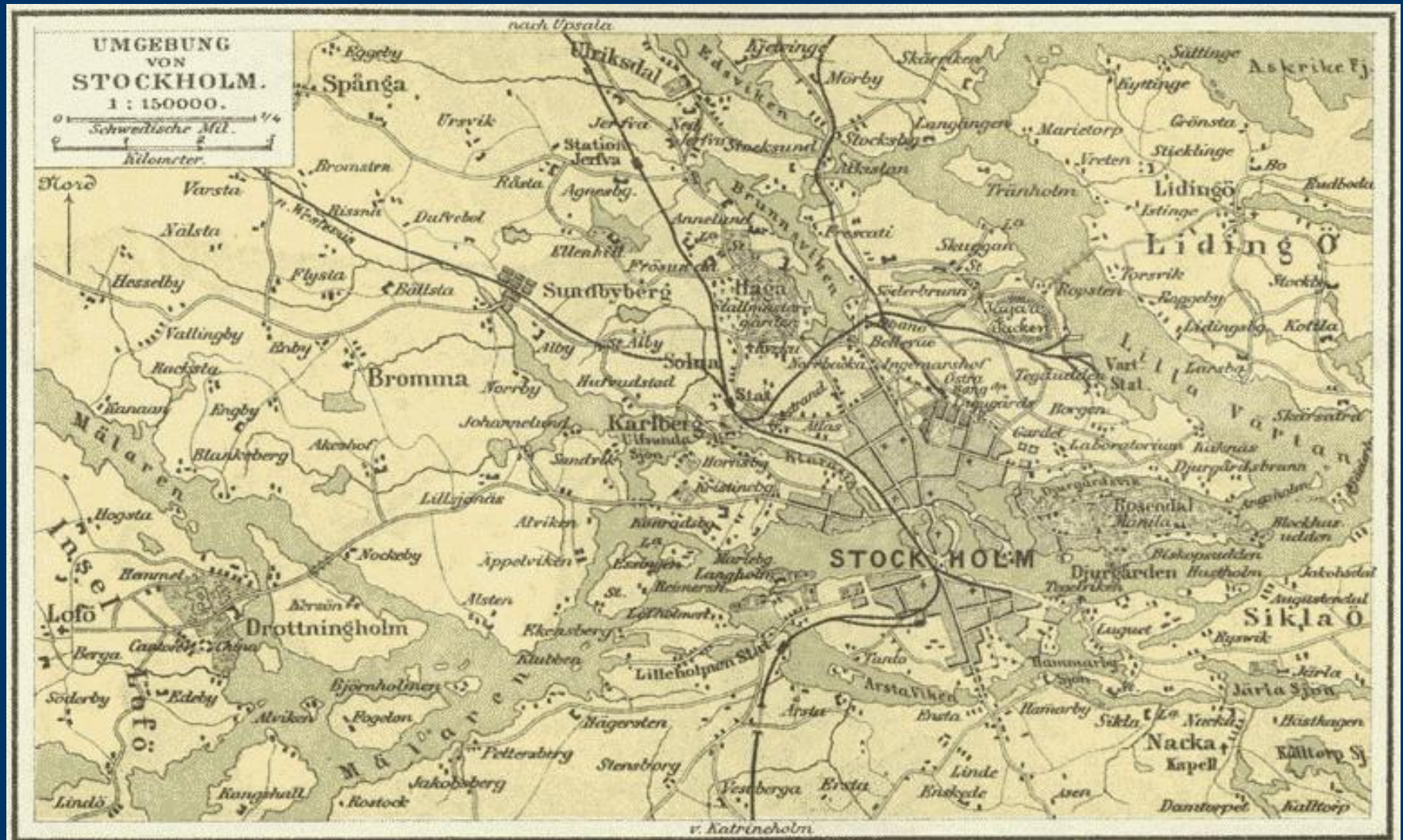
Many female headed households

About half of the households had lodger(s). 23%
of manual workers in Södermalm were lodgers.

A one-room with kitchen apartment housing 15
persons.....

(Key-Åberg K. Investigation into the housing
conditions of workers in Stockholm 1897)

Wooden huts in the outskirts of the city.
Recently constructed, stone buildings centrally



skillnaden med sin hälsa. Som stadsläkaren påpekade var det i första hand den fattiga befolkningen som drabbades, eftersom de på grund av sin ekonomiska situation och läget å bostadsmarknaden knappast hade något annat val än att villkorslöst anta de bostadserbudanden som fanns att få. Han understryker att de "fattige användas icke heller sällan som uttorkningsmedel i de nya husen, och sedan de uppfyllt sitt ändamål, flytta deras lyckligare lottade likar in."



- Jag vet aldrig om jag får någon som flyttar in i det här huset.
- Herrn skall inte vara ängslig, här i Stockholm finns fullt med folk som inte önska något högre än att torka ut fuktiga hus.

Housing

“The ice has to be cut away from the windows with an ax”

“..... houses dirty, damp and full of vermin.....”

“... lack of ventilation and unbearable smell of stagnant air..”



Food

Animal husbandry, poultry and gardening in peripheral areas

Slaughter-houses and dairy shops everywhere

Report of the Health Police 1880: “Abominable uncleanness in the sausage factories in the outskirts of Stockholm where rotten meat is often used...”

Milk shops were often used as family dwellings as well. Lots of (unhygienic) tricks with the milk- diluting with water-flour

Breastfeeding was not the rule, non-privileged mothers working long days away from home. Wet-nurses in rich families. Animal horns used in feeding children. From early 1900's Well Baby clinics that promoted breastfeeding (Gout de Lait model)

Sanitation and excreta disposal

1850'ies – Directly on the ground or in a pit

In attics and cellars containers, sometimes leaking.

Public privies (“fly meetings”)

Human excreta right into waterways

Health Ordinance of 1874:

Special containers for fecal matter and a system for collecting them (payed by the households)

Sold to farmers as manure.

Up to five families could be sharing a privy



Medical care

Only after the turn of the century.....

Institutional/home deliveries < 1

General Maternity Hospital (Allmänna BarnBördshuset)
since the 18th century:

Maternal mortality 7% in 1850ies -> <1%

Early child mortality 15% -> 5%



Sewerage

1864: Underground drainage pipe

1895: 40 premises in the center with water toilets

1896: 37% of buildings in Katarina parish still lacked underground drainage tubing

1904: 1500 water toilets

1909: Permitted to connect WC's to communal sewerage



Water

Carried from pit wells and from lake Mälaren

1854 report: ...In the summer and during dry periods, the water in these wells becomes perfectly disgusting, populated by small living creatures, some of them visible to the naked eye, some in the microscope, surely thriving on the uncleanness dissolved in that water.....

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Water, cont.

1858: Water-works with sand filters

1861: Piped water
(Considered unfit for consumption)

Water use 46 liters/person/day in 1882
84 liters in 1892
>100 liters by 1900

(Lindman K. Mortality in the first year
of life. 1898)

Data material and methods

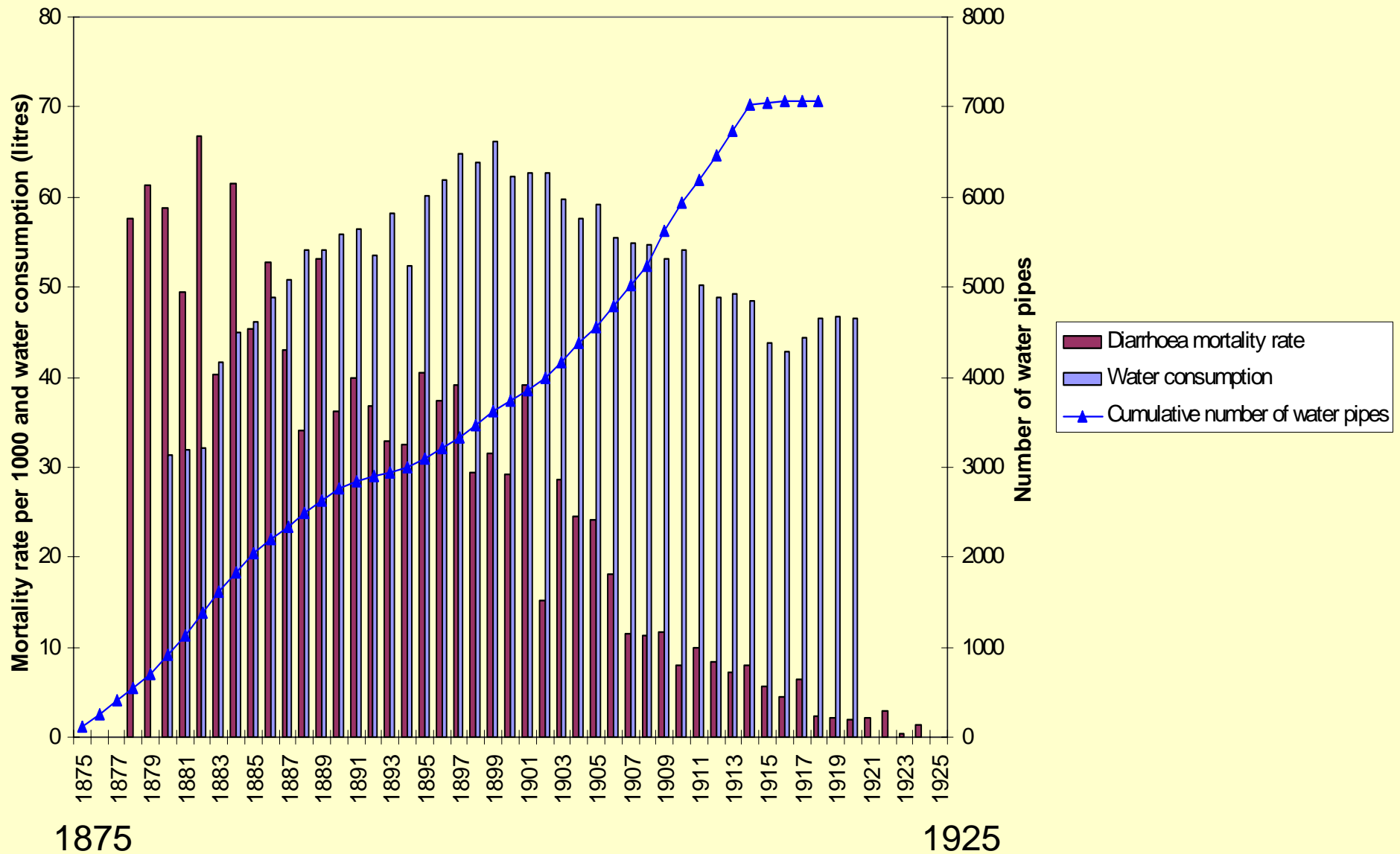
From the Roteman archives (individual records on date of birth, sex, household, fate):

In all about 190,000 children 0-9 years of age living in Södermalm some period between 1878 and 1925 (724,253 person-years and 16.574 deaths). Merged with death certificates of medical doctors.

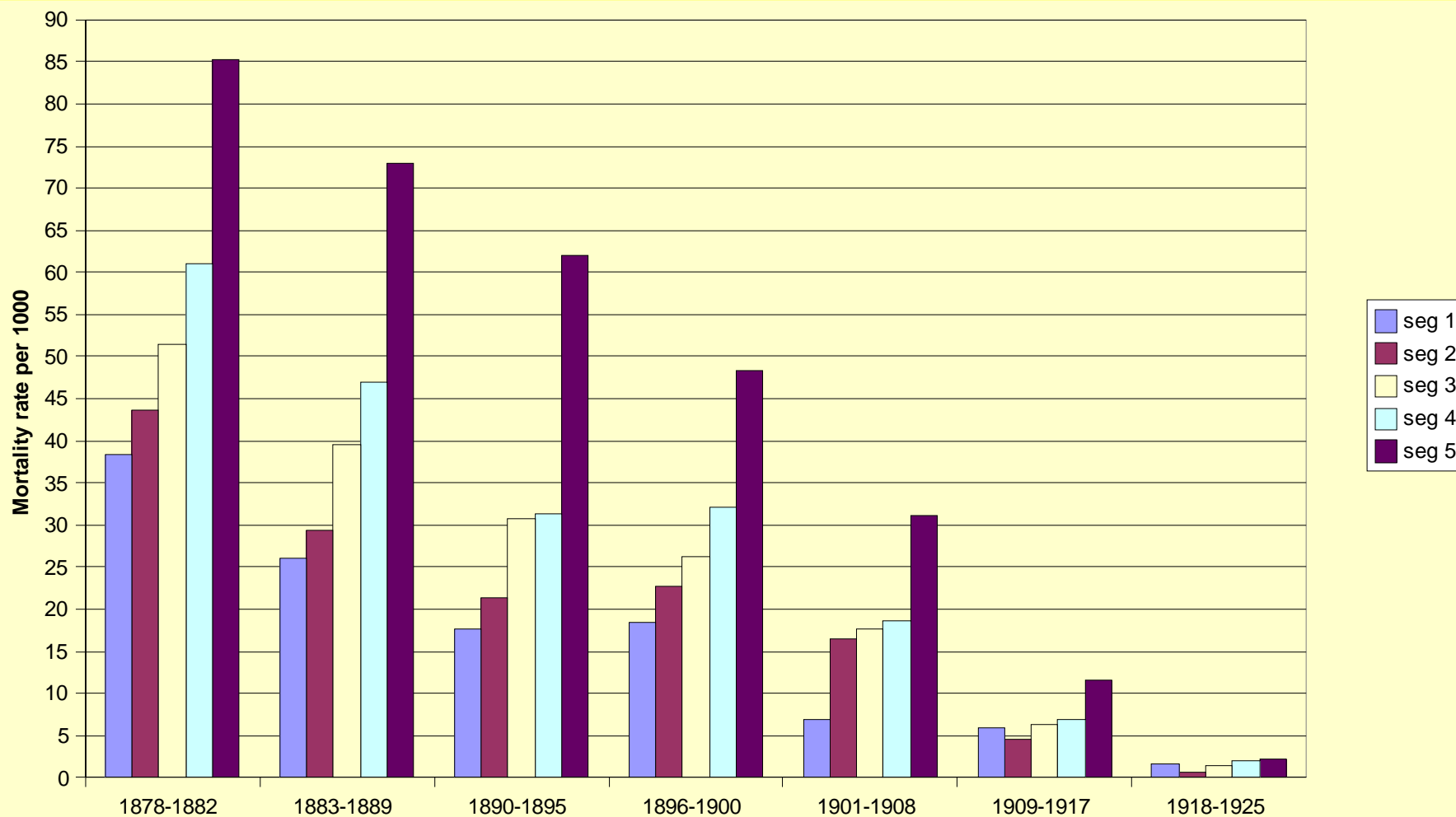
- For diarrheal disease mortality, only follow-up time and deaths below 2 years of age were used.
- A subsample consisting of Rote 15 (better-off) and Rote 16 (non-privileged, high-up on hills)
- For measles mortality, the children 0-15 years registered as having lived during some period in Maria parish (36,718 entries, 28,444 child-years of follow-up and 832 deaths, that could be classified (90%))

Mortality=deaths/follow-up time. Cox' regression in SAS. Erikson-Goldthorpe classification of Historical International Classification of Occupations

Diarrheal disease mortality below 2 years by water consumption and number of water pipes connected, Stockholm 1878-1925



Diarrheal disease mortality below 2 years of age by familys socio-economic group

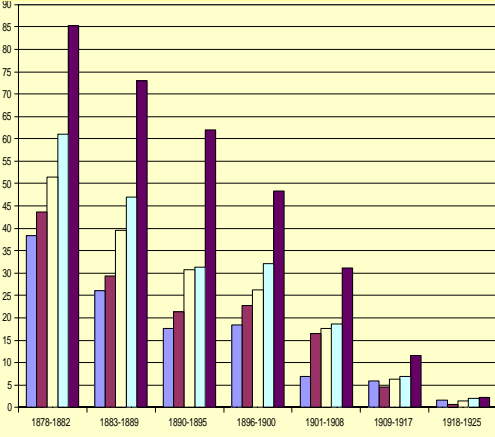


Mortality from diarrheal diseases by age-group and area, Maria parish, Stockholm 1878-1900

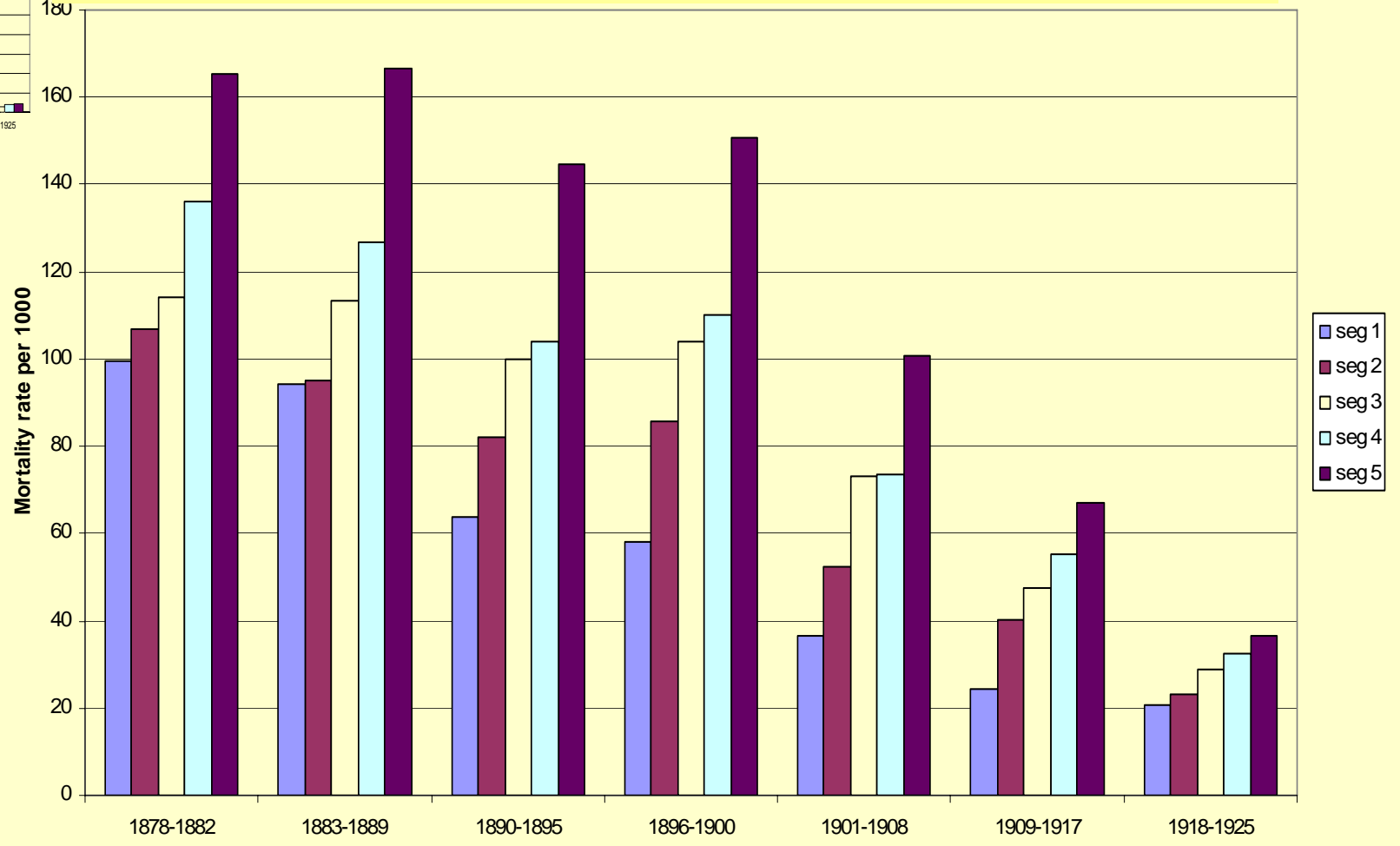
from	Mortality	Follow-up	Dead
Rote area	Age (months) (years x 100) "diarrheal"	rate	
15	0-		
5	41	260	
6.3			
	6-		
11	38	104	
2.7			
	12-		
23	70	38	
0.5			
16	0		
5	50	345	
6.9			
	6-		
11	46	176	
3.8			
	12-		

Similar gradients in the expected direction for season (summer months higher) and for sex of child (boys higher mortality)

Diarrheal mortality for comparison



Overall mortality below 2 years by socio-economic group and time period, Stockholm 1878-1925



Measles – an important category of non-diarrheal mortality

Mortality rates by cause and age-group, selected years 1885-1910, Maria parish

Age (yrs)	Child-years followed	Pneumonia/ bronchitis (n=196)	Measles (n=134)	Diarrheal (n=119)	Diphtheria (n=90)	Tuberculosis (n=89)	fever (n=79)	Pertussis (n=39)	All n=832	Scarlet
<1	2,552	47	16	43	3	10	3	9	160	
1-4	8,387	7	10	1	7	4	6	2	36	
5-9	9,846	1	1	0	2	2	1	0	8	
-14	7,658	0	0	0	0	1	0	0	3	

Multivariate analysis* of determinants of death in childhood by cause, Maria parish, Stockholm 1985, -91 and 1910

Other causes		Measles			
Variable	RR	95%CI	RR	95%CI	RR
2-3 children in family	2.4	1.3-4.7	1.0		0.8
4-5 children in family	3.3	1.7-6.6	1.1		0.9
>6 children in family	3.4	1.6-7.5	0.9		0.7
Age <6 months			1.3	0.7-2.6	9.0
Age 6-23 months	8.0		5.6-11.4		4.9
Low social class			1.7	1.2-2.4	1.3
Born out of wedlock	1.2		0.6-2.2		1.4

*Cox' regression technique

- Several structures in the data material “make sense” - sex differences, age structure of mortality risks, social gradients, proxies for crowding and measles mortality risk and other, seasonal pattern
 - Low attack-age for diarrheal diseases (causes?)
 - Positive impact of water quantity to households (rather than quality)
 - The improved health of children documented took place in the absence of immunizations and other modern public health tools
 - Positive role of a strong central political power?
 - Lack of importance of water toilets
 - It took a very long time for improvements to occur
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Presentation was based mainly on three papers:

- Burström B, Macassa G, Öberg L, Bernhardt E, Smedman L. Equitable child health interventions. *Am J Publ Hlth* 2005;95(2):208-16
- Burström B, Diderichsen F, Smedman L. Child mortality in Stockholm during 1885-1910: The impact of household size and number of children in the family on the risk of death from measles. *Am J Epidemiol* 1999;149(12):1134-41
- Ylva Edenius. Mortality from diarrheal diseases among children at 19th century Södermalm (Swedish). Stockholm: Karolinska Institutet, 2003 (project report)

Lisa Öberg and Eva Bernhardt are at Stockholm University whereas the others are somehow linked with the Karolinska Institute. All are connected to the Centre of Health Equity Studies in Stockholm.

<http://ukwangela.ki.se/Reykja/forel.ppt>
