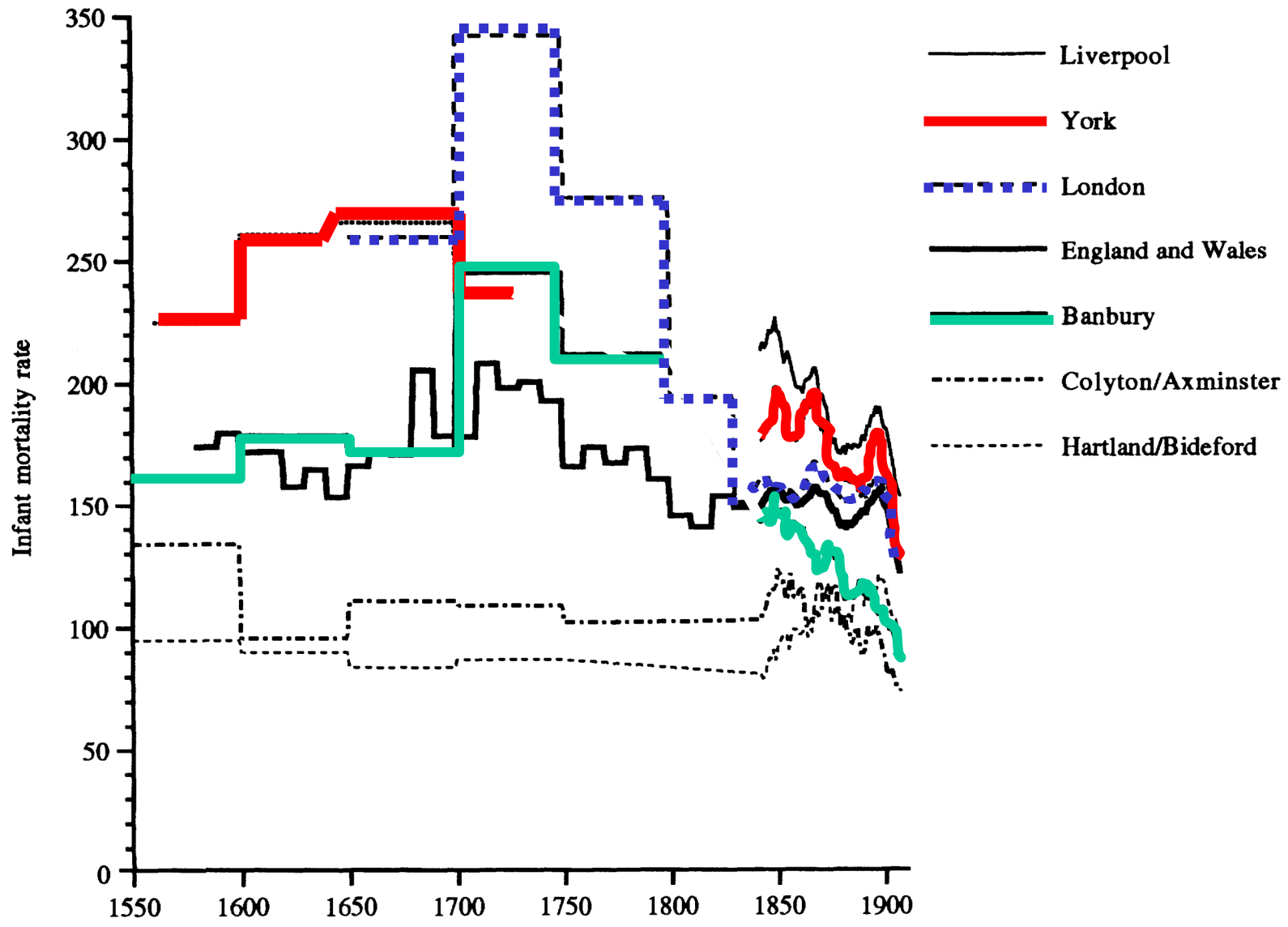


# New insights into the mortality patterns of early modern cities

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Galley & Shelton 2001 Pop Stud 55: 65-77

## How did towns influence national mortality trends?

Urbanisation increased the population subject to high death rates

Towns were reservoirs and entry points for infectious diseases

Urban centres were dependent on in-migration to sustain their population size, and to grow

Migrants from rural areas may have been particularly susceptible to urban diseases they had not encountered previously

THE DISEASES AND CASUALTIES THIS WEEK.



Aged \_\_\_\_\_  
 Ague \_\_\_\_\_  
 Apoplexy \_\_\_\_\_  
 Asthma \_\_\_\_\_  
 Bedridden \_\_\_\_\_  
 Bloody Flux \_\_\_\_\_  
 Childbed \_\_\_\_\_

Colick \_\_\_\_\_  
 Consumption \_\_\_\_\_  
 Convulsion \_\_\_\_\_  
 Cough \_\_\_\_\_  
 Droplic \_\_\_\_\_  
 Fever \_\_\_\_\_  
 French Pox \_\_\_\_\_  
 Gout \_\_\_\_\_  
 Gravel \_\_\_\_\_  
 Grief \_\_\_\_\_  
 Gripping in the Guts \_\_\_\_\_  
 Hooping Cough \_\_\_\_\_  
 Horthohead \_\_\_\_\_  
 Jaundies \_\_\_\_\_  
 Livergrown \_\_\_\_\_  
 Loofenefs \_\_\_\_\_

4 Lunatick \_\_\_\_\_  
 8 2 Mortification \_\_\_\_\_  
 16 9 Plurilie \_\_\_\_\_  
 1 Rickets \_\_\_\_\_  
 2 9 Riling of the Lights \_\_\_\_\_  
 8 9 Small Pox \_\_\_\_\_  
 1 Stillborn \_\_\_\_\_  
 1 Stone \_\_\_\_\_  
 1 Stoppage in the Stomach \_\_\_\_\_  
 2 Suddenly \_\_\_\_\_  
 8 Teeth \_\_\_\_\_  
 1 Tiflick \_\_\_\_\_  
 1 Tympany \_\_\_\_\_  
 3 Ulcers \_\_\_\_\_  
 1 Water in the Head \_\_\_\_\_  
 2 Worms \_\_\_\_\_

1  
 5  
 1  
 3  
 4  
 52  
 8  
 1  
 1  
 5  
 49  
 17  
 1  
 1  
 3  
 1

Drowned in the River of Thames buried at St. Paul at Shadwell 1. Hang'd herself (being Lunatick) at St. Giles's without Criplegate 1. Kill'd by the Fall of a Floor at St. Katherine by the Tower 1. Overlaid 3.

Christned { Males — 231 }  
 { Females — 179 }  
 { In all — 410 }  
 Buried { Males — 293 }  
 { Females — 341 }  
 { In all — 634 }  
 Increased in the Burials this Week 75.

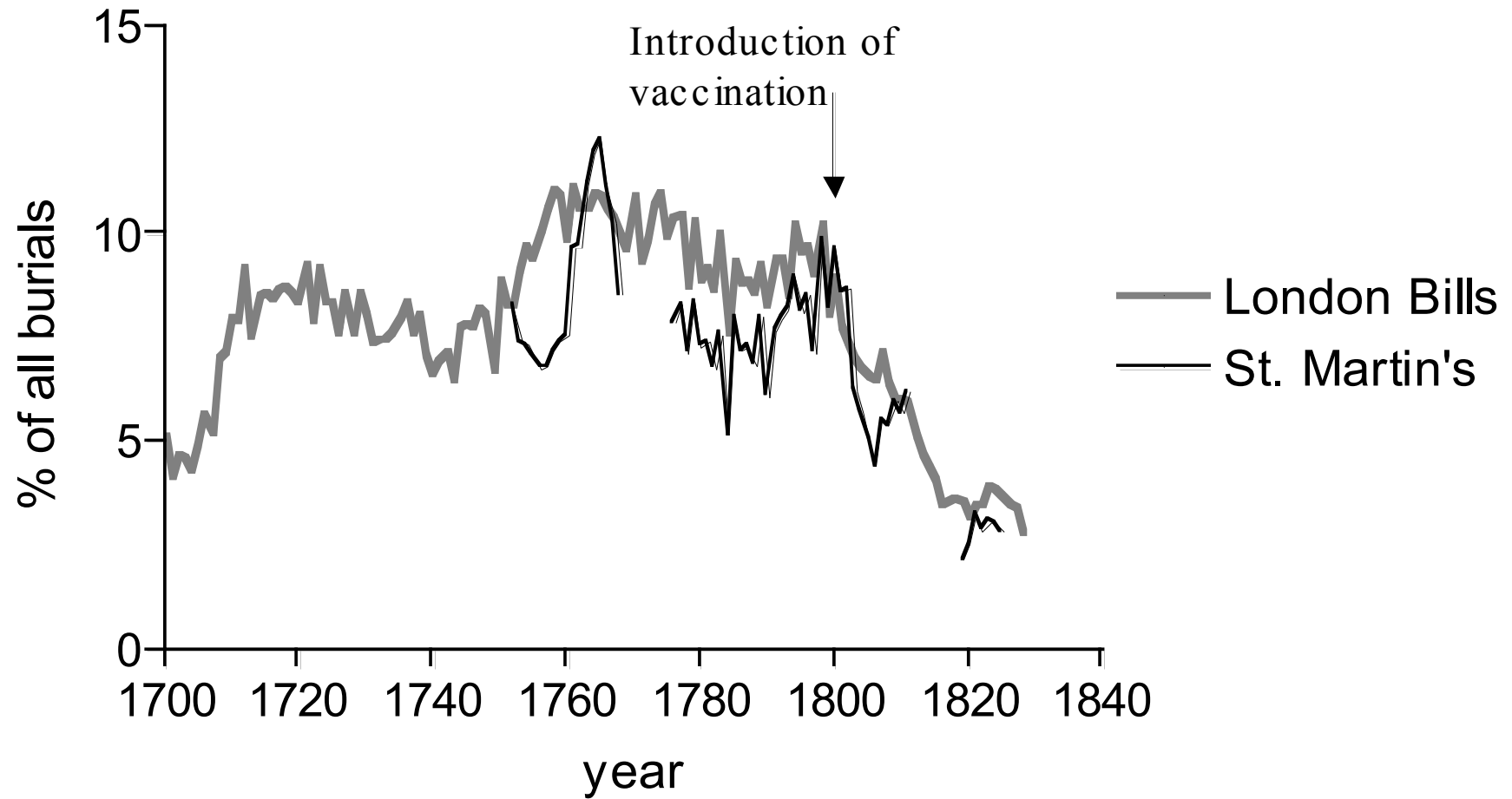
Whereof have died,  
 Under two years of Age — 218  
 Between Two and Five — 71  
 Five and Ten — 24  
 Ten and Twenty — 19  
 Twenty and Thirty — 57  
 Thirty and Forty — 55  
 Forty and Fifty — 51  
 Fifty and Sixty — 45  
 Sixty and Seventy — 44  
 Seventy and Eighty — 32  
 Eighty and Ninety — 11  
 Ninety and upwards — 7

burials by cause of death

burials by age group



# Smallpox was the single most lethal disease in C18th London

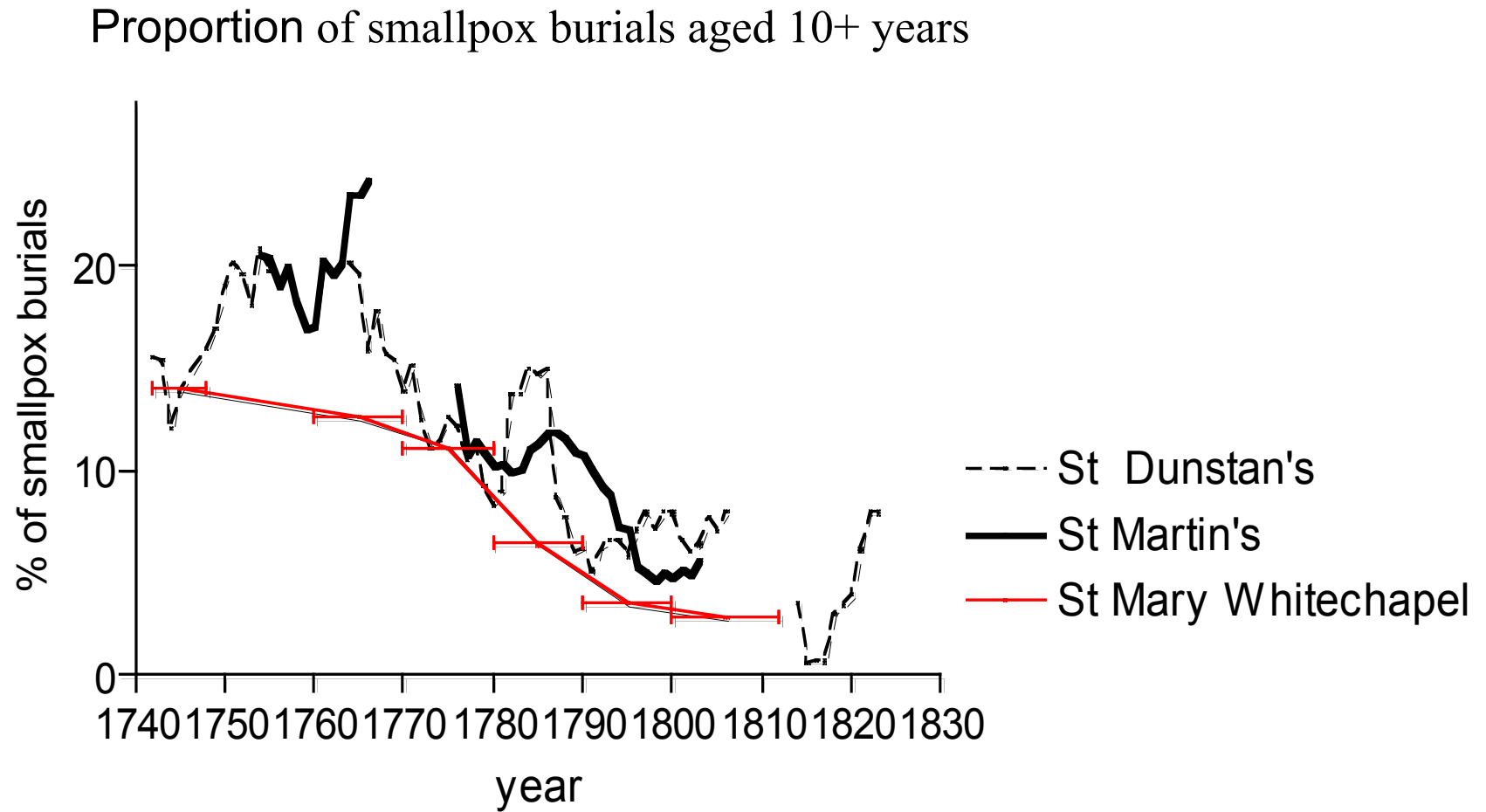


## Adults were still at risk of smallpox in mid-eighteenth century London

Percentage of smallpox burials by age, St. Martin-in-the-Fields

<b>Age</b>	<b>1752-66</b>	<b>1775-99</b>
0	13.7	23.3
1-4	54.5	61.5
5-9	10.9	9.4
10-19	<b>4.6</b>	<b>1.8</b>
20-49	<b>15.6</b>	<b>3.5</b>
50+	0.7	0.6
Mean age at death (years)	7.8	3.9

## Adults declined as a proportion of smallpox victims from the 1770s





## By the mid-C18th adult smallpox victims in London were not 'typical' migrants

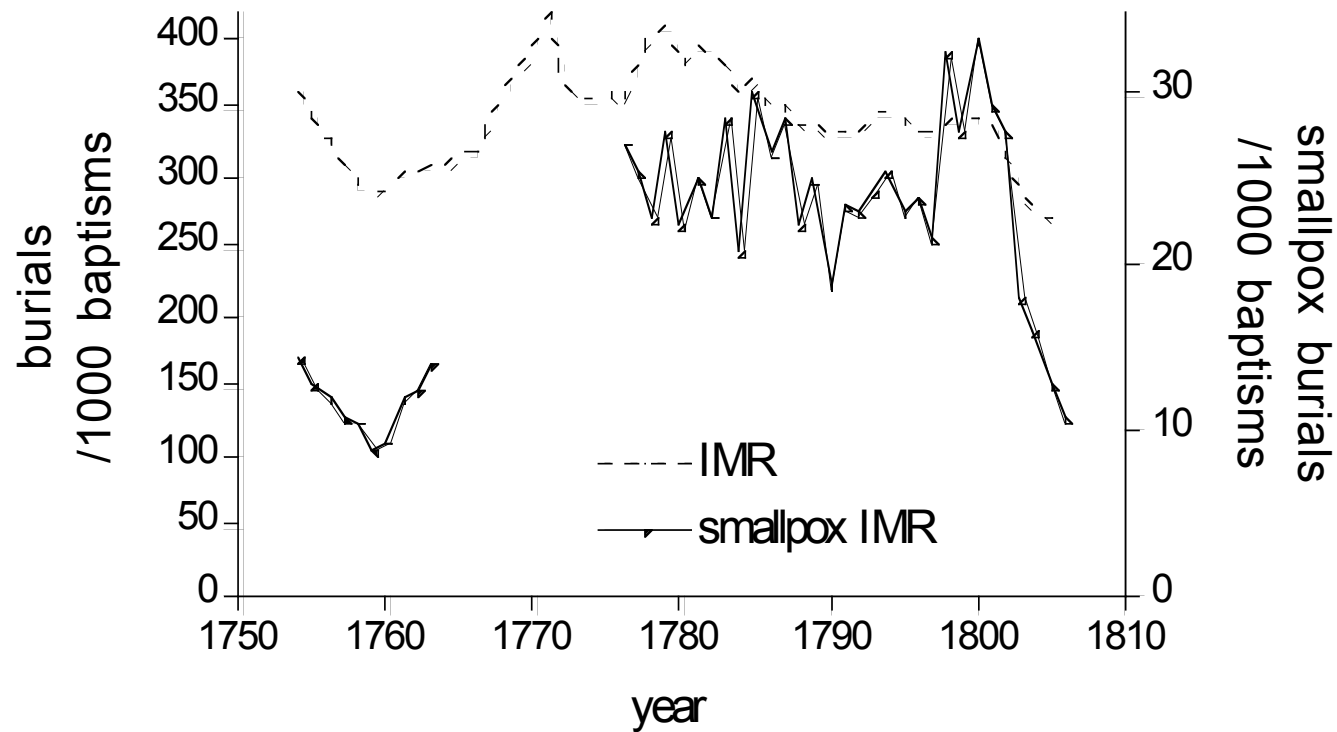
Adult victims in St. Martin's were  
more likely to be male  
less likely to be paupers  
suggesting they may have migrated further on average  
than most migrants

Implies that smallpox epidemics were frequent in rural areas near London, but still rare in many other areas in the 1750s.

After 1770 fewer migrants were vulnerable, and this reduced total smallpox mortality in London

# No evidence for impact of inoculation on the urban-born

a. Total and smallpox infant mortality rates



## Few adults were vulnerable to smallpox in mid-C18th Manchester

Age distributions of smallpox burials in St. Martin-in-the-Fields, London, and the collegiate church, Manchester

	St. Martin's 1752-66	St. Martin's 1775-99	Manchester 1753-61	Manchester 1772-78
Age				
0	13.7	23.3	20.1	27.6
1-4	54.5	61.5	67.3	68.1
5-9	10.9	9.4	7.6	3.3
10-19	4.6	1.8	2.1	0.5
20-49	15.6	3.5	2.9	0.5
50+	0.7	0.6	0.0	0.0
% aged <10	79.1	94.2	95.0	99.0
N	1083	2022	725	1717

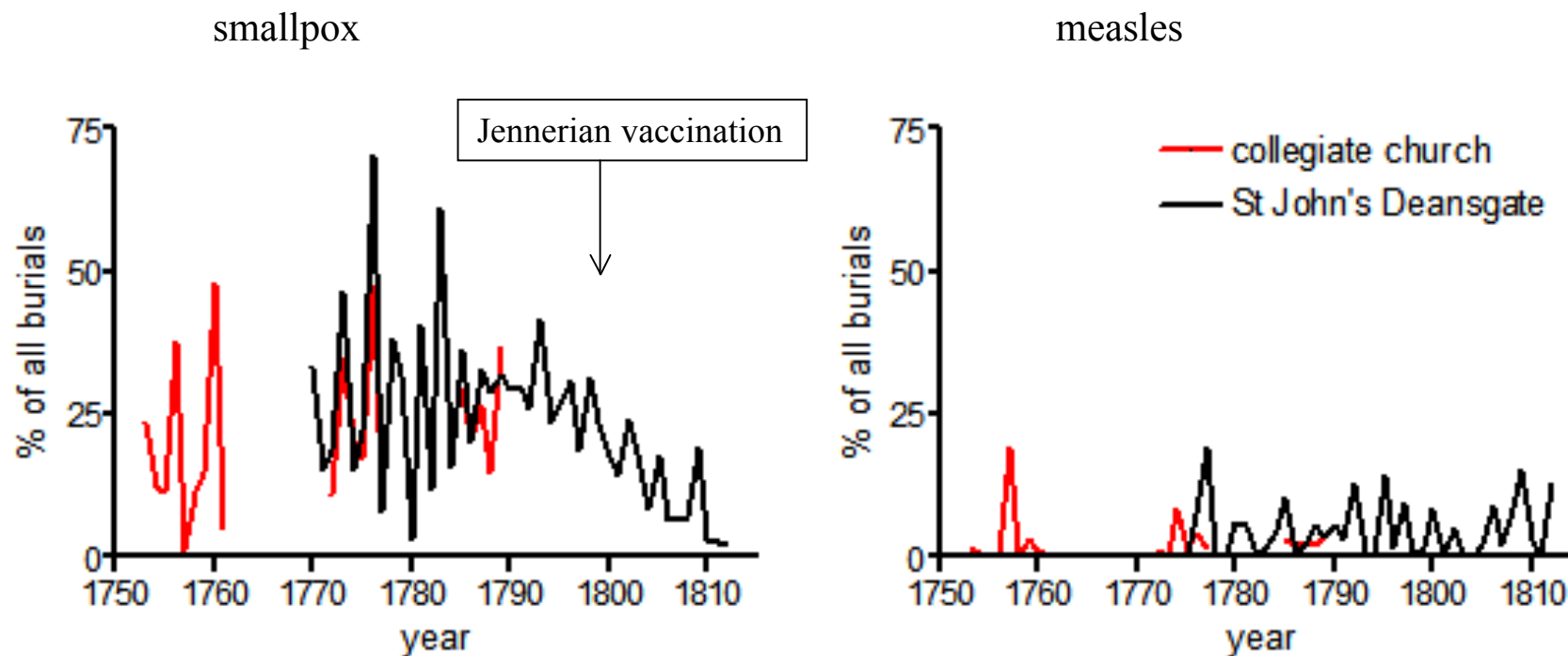
## Smallpox was more lethal, and more endemic, in Manchester than in London

Percentage age distributions of smallpox burials aged under ten years of age

Age	St. Martin's 1752-66	St. Martin's 1775-99	Manchester 1753-61	Manchester 1772-78, 1785-89
0	17.3	24.7	21.2	27.9
1	21.8	25.6	31.3	36.2
2	18.0	18.5	18.6	19.8
3	17.0	12.9	11.8	9.7
4	12.1	8.3	9.1	3.3
5-9	13.8	10.0	8.0	3.1

## Smallpox transmission could be sustained in relatively small populations

Percentage of all burials aged under two, Manchester



## Conclusions

- Smallpox was a major cause of death in English towns before 1800
- By the 1750s smallpox was a childhood disease in rural areas close to London and Manchester
- The transmission dynamics of smallpox probably led to early and widespread endemicisation, and may account for the peculiar lethality of early modern towns
- Uptake of inoculation or viral change increased smallpox exposure in rural populations after 1770 and reduced the risks associated with urban immigration
- Vaccination rather than inoculation was critical in reducing smallpox mortality amongst the urban-born