John F. Kennedy Institute
for North American Studies

Research Area:
Labor and Demographics, Economic History

Freie Universität Berlin

Origins and Effects of Rural Public Health Programs in North Carolina

Did county-level investments in public health affect health outcomes in North Carolina as was hoped?

Overview

Project focuses on the U.S. state of North Carolina since they were a leader in the rural public health efforts within the United States

- First to develop a state-wide plan of county health work, with an organized hierarchical structure and suggested public health activities for the counties to engage in

- Encouraged all counties, and other states, to set up county health organizations to educate and treat residents. These were partly funded by the state, as well as by the county, private organizations, and after 1921, the Federal Government through the Sheppard-Towner Act

Activities of North Carolina County Health Organizations

1) Educational
- Public meetings
- Mailing of letters and information to county residents
- Publishing health bulletins
- Issuing press articles

2) Prevention and treatment of polluted soil
- Building of sanitary bathrooms
- Examining soil for evidence of bacteria or parasitic worms
- Treating infected soil areas
- Treatment of hookworm patients

3) Quarantine
- Confined persons to homes if found to have measles, typhoid, or influenza
- Allowed to leave only if cleared by public health official

4) Physician or nurse visit to schools
- Gave lectures, checked for defective vision, enlarged tonsils or adenoids, defective hearing, intestinal parasites, and gave smallpox vaccinations

5) Vaccinations of typhoid, smallpox, and whooping cough

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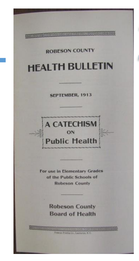

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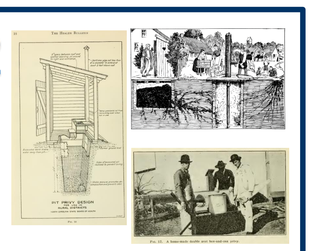

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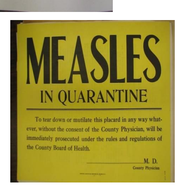

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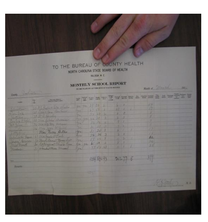

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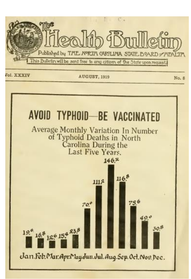


Genesis of U.S. Rural Public Health Programs

Both rural and urban public health efforts took off in the 1910s, however unlike urban areas, in rural areas there was no real precendent for activities to be responsible for

Rural public health in the United States grew out of two independent efforts
- Typhoid prevention efforts in Yakima County, Washington to try to reduce the infection rate of Typhoid, which was likely nearly 15% of the county population in the 1900s

- Hookworm eradication campaigns in the SE U.S. These lasted until about 1915, and have been credited as resulting in huge productivity and education gains (Brinkley 1997, Bleakley 2007)

Differences in outcomes by date of CHO adoption

Figure on right plots annual infant mortality rate for early, middle, and non-adopters of a CHO. For each group, a slight downward trend, but no noticeable differences across the groups. This is in contrast to similar activities occuring within the cities. (Fox 2011, Moehling and Thomasson 2014)

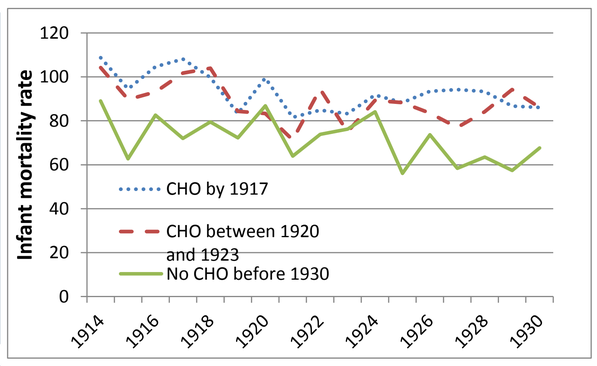


Figure on right plots decennial mortality rate from diarrhea and enteritis by age group for early, middle, and non-adopters. No clear effects for infants and children under age of two, but evidence of an effect for older age group. Non adopters saw little effect over the study period, middle saw an effect in the second decade, and early saw an effect only in the first decade.

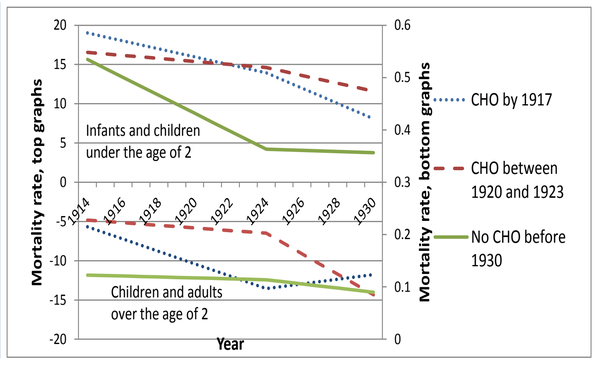
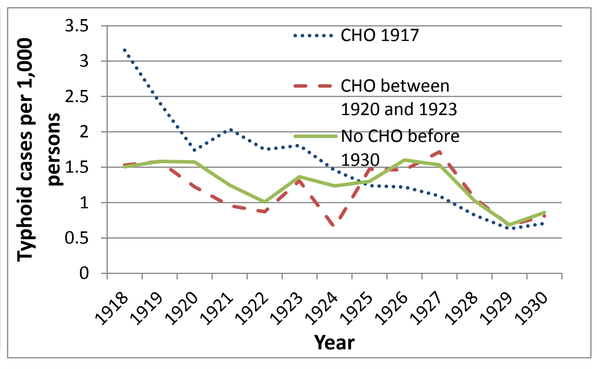


Figure on right plots annual typhoid morbidity for early, middle, and non-adoptors. Typhoid infection rates were highest in counties which began their public health work the earliest, however by 1925 the infection rates were below those for the other groups in the sample. This suggests that the early adopters of CHOs likely did so out of a public health need, and were able to reduce typhoid infection rates.



Data

County-level mortality data by age and cause and morbidity data by cause available through the annual reports of the North Carolina from 1914 on. Most data available for all years

Population data obtained by aggregating the individual level data entered by Ancestry.com for the decennial censuses

Initial analysis based sample of 14 counties: 7 with a CHO by 1917 (early adopters), 3 who set up a CHO between 1920 and 1923 (middle adopters), and 4 who did not set up a CHO before 1930 (non-adopters)

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Preliminary Conclusions

- Infant mortality in the different counties seemed unaffected by the presence of rural public health activities
- Mortality for specific causes was seemingly reduced
- Results suggest that the origins and goals of the programs had a significant effect on the eventual effects of the CHOs

References

Bleakley, H., Disease and development: Evidence from Hookworm Eradication in the American South. Quarterly Journal of Economics 122 (2007) 73-117.

Brinkley, Garland, The decline in Southern agricultural output, 1860 – 1880. Journal of Economic History 57 (1997) 116-138.

Fox, Jonathan. Public health movements, local poor relief, and child mortality in American cities, 1923-1932. MPIDR Working Paper 2011-005.

Moehling, C. and M. Thomasson, Saving babies: The impact of public education programs on infant mortality, Demography 51 (2014) 367-386.