

# 1918 Pandemic Profile in Colorado

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## BACKGROUND

- 1918 influenza pandemic studied nationally.
- Regional and local differences are lost in national studies.
- Local or state mortality may reveal differences from national data that is more applicable to planning on a local or regional level.

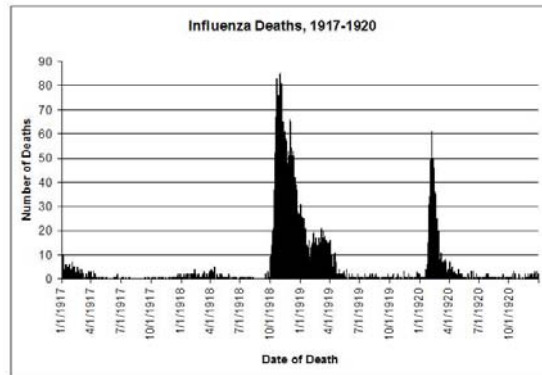
## OBJECTIVE

- Review death certificate data from 1917-1920, the two epidemic years, and a year before and after the known epidemic years to identify a profile of the epidemic in Colorado, specifically.

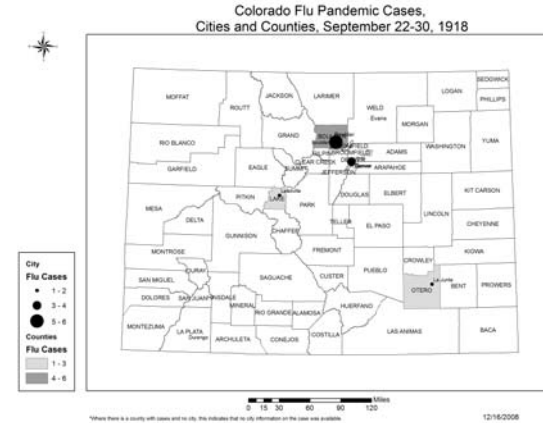
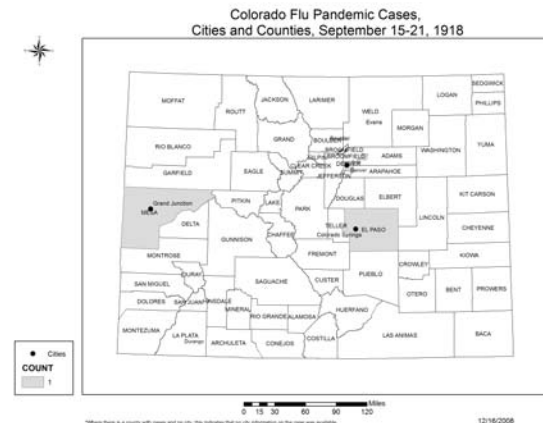
## METHODS

- Compilation of frequencies for variables:
  - Age, Gender, Marital Status, Race, City/County, Place of Origin, Trade.
  - Date of Death, Cause of Death, Contributing Cause of Death, Place of Death, Duration of Condition.
- Plotting of mortality and morbidity curves from 1917-1920, for both pneumonia and influenza.
- Mapping of epidemic in September and October of 1918, prior to the first big wave, to get more detailed information on the beginning of the wave.

## RESULTS



- The influenza mortality curve shows no wave in April, unlike national data, a great wave similar to the rest of the country, in October, and another large wave in 1920. Both the pneumonia mortality, and the influenza and pneumonia onset curves show the same pattern as this curve.



- The map of the third week shows a case in Denver, a student.
- The map of the last week, one week prior to the explosion of cases in Denver, as shown on national maps, has three cases in Denver, two students, and four cases in Boulder, all soldiers at the university.

- 90% of cases in the October 1918 wave had co-morbid pneumonia, 3654 of 4058 deaths, compared with 66% in the February 1920 wave.
- 2% had other bacterial infections in the 1918 wave, compared with 3.5% in 1920.
- 6.6% had other acute conditions, such as obstetric problems, or acute heart problems, in 1918 compared with 16.8% in 1920.
- 2.8% had a chronic lung condition prior to death from influenza in 1918, compared with 6.8% in 1920.
- 10% of deaths were of persons in the military, or mining-related trade in 1918, compared with 4.4% in 1920.
- 66% of deaths were among 18-39 years of age, 2.8% among 0-1 year, 1.2 among 70 or older, as consistent with national level data in 1918, compared with 39% for 18-39, 7.1% for 0-1, and 5.2% for 70 or older, in 1920.

## LIMITATIONS

- There was not a control group of people with non-pneumonia, non-influenza causes of death.
- Frequencies for any given field varied according to how much information on each death certificate was filled out.
- Adjusted rates were not possible because of the lack of population data for a denominator, for those years.
- Recoding was dependent on the validity of the diagnoses and the availability of information in the cause of death or contributing cause of death field, so the resulting recoded variables are subjective deduction.

## CONCLUSIONS

- The mortality curve showed a high wave in 1920, but it is not known whether this was another pandemic wave or a severe flu season with another influenza virus.
- The maps lend credence to the national conclusions that military personnel and public arenas, such as universities may have had a role in transmission of the virus, and may indicate where to look for the index cases.
- The frequencies confirm that the co-occurrence of pneumonia during this pandemic, as hypothesized nationally, was devastating and are worth exploring as a cause of death in addition to the initial virus. It was not possible to determine if there were different distributions in the 1920 wave.

