

Brooks, Caldwell, Kneeland, et al, Differential survival may not explain the gender gap in growth patterns of Adolescents with CF. Ped Pulm 1989 suppl 17, A694:406.

## The Northern New England CF Consortium

- The Northern New England Cystic Fibrosis Consortium (NNECF) is a regional, voluntary, multi disciplinary group of clinicians and health care professionals from the CF Centers in Maine, New Hampshire, and Vermont.
- Mission Statement: to improve continuously the quality, safety, effectiveness and costs of medical interventions in the care of cystic fibrosis patients and their families.



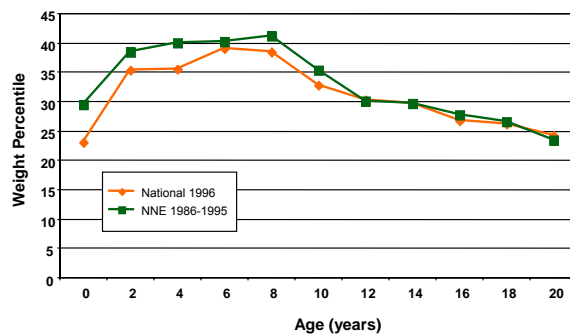
## Goal

- Assess and explain differences in growth patterns of boys and girls with CF.

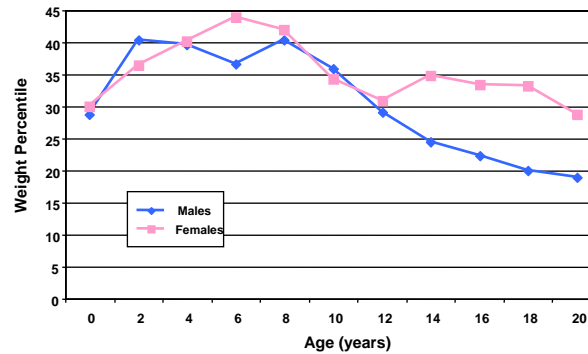
## Study Population

- All 477 CF patients ≤ 20 years old in Northern New England 1986-1995
- Comparison of NCHS weight percentiles in adolescent boys and girls using data from the CFF Patient Registry.
- 60% have 5 or more years of weight data.

## NCHS Weight Percentiles Decline with Age

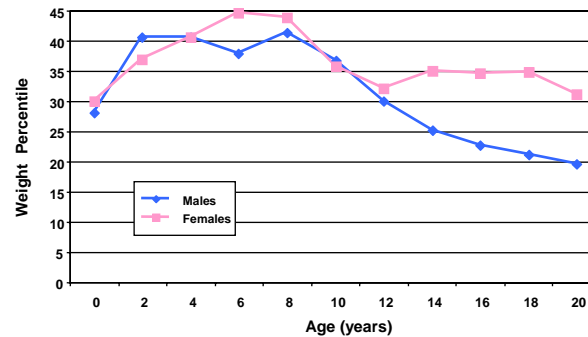


## A Gender Gap in NCHS Weight Percentiles Develops After 12 Years of Age

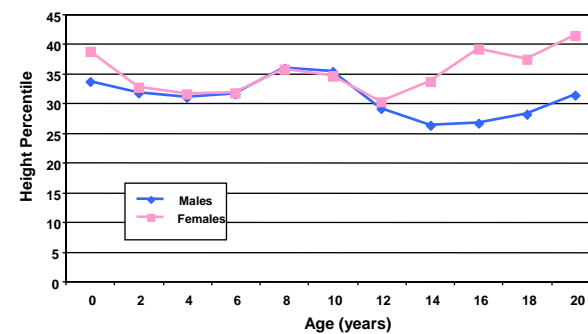


**Hypothesis:** The accelerated death rate of females compared to males in adolescence causes the divergence in weights by removing the smallest girls and artificially improving the weight curve of the surviving females.

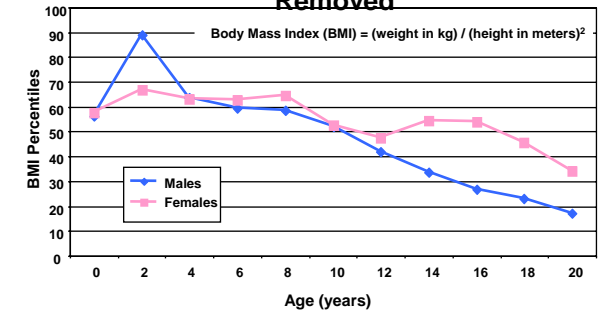
## NCHS Weight Percentiles - Deaths Removed



## NCHS Height Percentiles Show a Similar Gender Gap - Deaths Removed



## BMI Percentiles - Deaths Removed



## Results

- Weight percentiles decline after age 8 years.
- Between 12 and 14 years, girls and boys weight percentiles diverge.
- This 10 to 15 point difference in weight percentiles persists though adolescence.
- Height and Body Mass Index (BMI) show similar gender specific patterns during adolescence.
- The differences persist even after the deaths are removed from the analysis.

## Conclusion

- In this regional data set, differential survival in adolescence does not explain the 15 point divergence in weight percentiles between males and females.

## Speculation

- The following factors might contribute to this adolescent growth difference between boys and girls:
  - Lung disease severity
  - Caloric intake and energy utilization
  - CF specific estrogen effect

## Questions for the Future

- Is this an opportunity for aggressive, earlier nutritional interventions, particularly in boys?
- These analyses must be repeated on the National CFF data set to see if the effect is robust and to examine possible factors for risk adjustment.