

The Role of Health Research in Air Quality in the Central Valley

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Relationship of Research to Policy

- 1497: Vasco de Gama sails around the Horn of Good Hope
 - 100 of 160 sailors die of scurvy before reaching India
- 1519: Magellan departs to circumnavigate the world
 - 5 ships started
 - 1 ship with 18 sailors were the only survivors. Most of the rest died of scurvy

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- 1742: James Lind performs a randomized, controlled trial of dietary supplementation and finds that oranges and lemons reverse the effects of scurvy

The following are the experiments.

On the 20th of *May* 1747, I took twelve patients in the scurvy, on board the *Salisbury* at sea. Their cases were as similar as I could have them. They all in general had putrid gums, the spots and lassitude, with weakness of their knees. They lay together in one place, being a proper apartment for the sick in the fore-hold; and had one diet common to all, *viz.* water-gruel sweetened with sugar in the morning; fresh mutton-broth often times for dinner; at other times light puddings, boiled biscuit with sugar, &c. and for supper, barley and raisins, rice and currants,

ago and wine, or the like. Two of these were ordered each a quart of cyder a-day. Two others took twenty-five drops of elixir vitriol. three times a-day, upon an empty stomach; using a gargle strongly acidulated with it for their mouths. Two others took two spoonfuls of vinegar three times a-day, upon an empty stomach; having their gruels and their other food well acidulated with it, as also the gargle for their mouth. Two of the worst patients, with the tendons in the ham rigid (a symptom none of the rest had) were put under a course of sea-water. Of this they drank half a pint every day, and sometimes more or less, as it operated, by way of gentle physic. Two others had each two oranges and one lemon given them every day. These they eat with greediness, at different times, upon an empty stomach. They continued

Relationship of Research to Policy

- 1772-75: Captain Cook supplements his crew's diet with fresh fruit and vegetables and received the Copley Medal for losing no sailors over three years.
- 1795: 40 years AFTER Lind's experiment, Royal Navy develops the policy requiring citrus fruit for sailors!

Lessons Learned

- Where possible, research should drive policy
- Policy doesn't naturally follow from the research
- Sometimes the “politics” (where, when, who) of the research influence its impact on policy

Locality Issues in Air Quality

- Public Health impacts of air quality are variable
 - Composition of particulates varies chemically and biologically
 - Health effects are determined by an interaction between the environment (composition) and the individual (genetics)
 - Important to focus research in different populations and environments

UCSF Fresno

- Regional campus of UCSF with 8 residencies and 12 fellowships
- Investigator resources:
 - Cardiology in particulates and clot formation
 - Pulmonary in airways disease
 - Epidemiology
 - Clinical outcomes

