

# A Mail-Based Mouthwash Collection Study to Obtain DNA from a Geographically Dispersed Cohort of Current and Former Smokers

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## Background

- Blood is the preferred specimen for obtaining genomic DNA for epidemiological studies, but blood samples are difficult to collect when subjects are geographically dispersed.
- An alternative method involves collecting oral epithelial cells with a mouthwash rinse.
- This method appears promising for large-scale studies because the samples have been shown to:
  - remain stable for several days at room temperature
  - remain stable for at least a year during storage at -80°C before DNA extraction
- It is unknown how subjects in different population subgroups will respond to this type of data collection.

## Objective

To assess the response rate to a study involving collecting DNA through the mail from a cohort of current and former smokers, and to determine the characteristics associated with response.

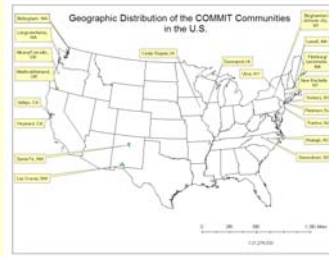
## Sample

- 4,607 people who participated telephone surveys as part of the Community Intervention Trial for Smoking Cessation:
  - between 1988 and 1993,
  - completed follow-up surveys in both 2001 and 2005,
  - and consented to receiving the DNA data collection materials in the mail.

## Methods



Telephone Survey



- Sample collection kits were mailed to the participants in July through October 2005.

- The kits contained:

- a personalized cover letter and consent form
- a 40-ml collection container with a screw-on lid
- a sealed 44-ml bottle of Scope mouthwash
- a postage-paid, preaddressed return mailing envelope and leak-proof zip-lock bag for the collection container
- instructions for participants
- a check for US \$10



- The all-inclusive cost per sample received was \$33.00.

- After the sample is mailed back, the next steps are to process the sample, freeze it, and complete DNA extraction.

Process Sample



Freeze the sample



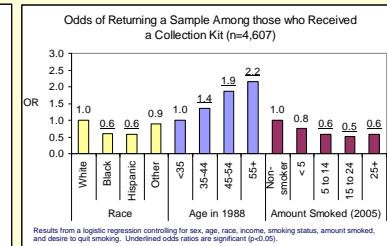
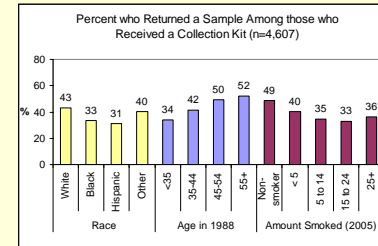
Extract DNA From Sample



Genotype Lab

## Results

- A total of 1,943 usable samples were returned (42%).
- Smoking behavior was associated with response to the DNA collection effort with former smokers having the highest response rate (48%) and all smokers had a 35% response rate.
- Those who were white/non-Hispanic race/ethnicity and who were older were more likely to respond. Gender, income, and desire to quit were not associated with response.



## Summary

- DNA samples can be efficiently obtained through the mail for large, population-based genomic studies.
- Investigators should use information on variability in who responds when planning these studies.

## Acknowledgments



This research was funded by the National Cancer Institute (NCI) RO1 CA 100802.