

Jacqueline Moline, MD, MSC<sup>1,2,3,4</sup>, Anne Golden, PhD<sup>1,2,3</sup>, Gina Arena, MA<sup>1,2</sup>, Vincenza Caruso, BS<sup>1,2</sup>, Brittany Hobbie, BS<sup>1,2</sup>, Charles Purcell, BS<sup>1,2</sup>, Brian McQueen, BS<sup>5,6</sup>  
 Northwell Health<sup>1</sup>, Feinstein Institute for Medical Research<sup>2</sup>, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell<sup>3</sup>, Occupational & Environmental Medicine of Long Island (OEMLI)<sup>4</sup>, Firemen's Association of the State of New York (FASNY)<sup>5</sup>, National Volunteer Fire Council (NVFC) Cancer Subcommittee<sup>6</sup>

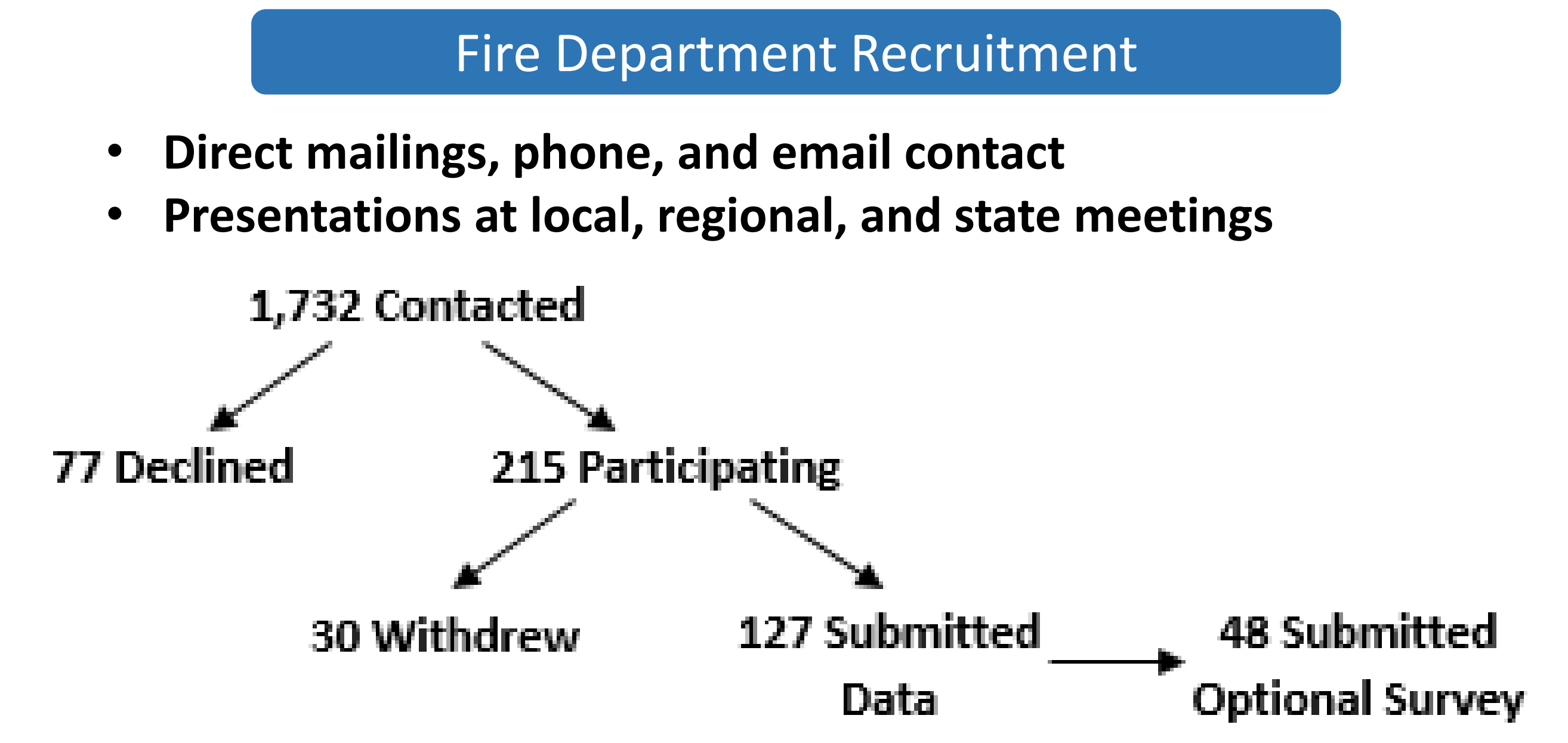
## Background

- Firefighting causes increased exposure to carcinogenic substances.
- Numerous studies have measured levels of chemical carcinogens at structural and vehicle fires, and from the personal protective clothing of firefighters, at concentrations that are considered hazardous and well in excess of permissible workplace levels.
- Evidence that career firefighters face increased risks of cancer may not be applicable to volunteers due to exposure differences related to the intensity, duration, and number of fires attended.
- The Firemen's Association of the State of New York (FASNY) is sponsoring the *first* large-scale all-volunteer study in the U.S. to determine cancer incidence and mortality rates and examine factors associated with increased cancer risks among volunteer firefighters.

### Study Objectives:

1. Determine whether cancer incidence and mortality among New York State (NYS) volunteer firefighters is greater than expected in the general population.
2. Provide estimates for the types of cancer and the expected numbers of cancers among volunteer firefighters, in order to support cancer prevention and screening programs and presumptive cancer legislation covering volunteer fire service members.

## Methods

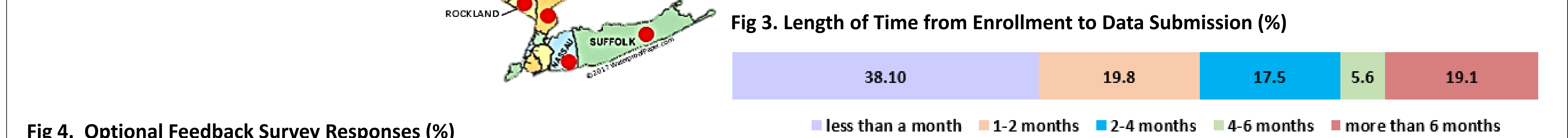
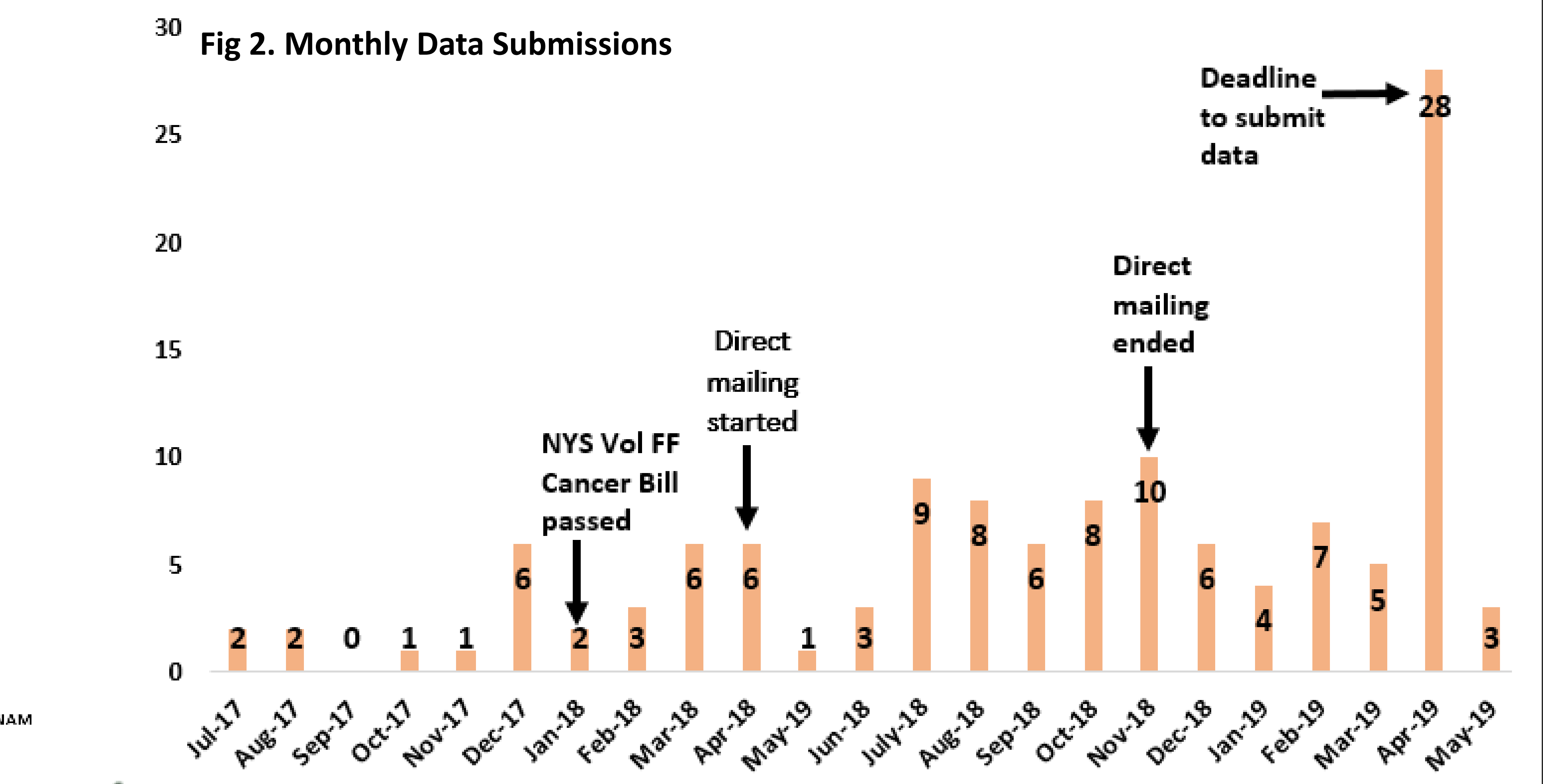
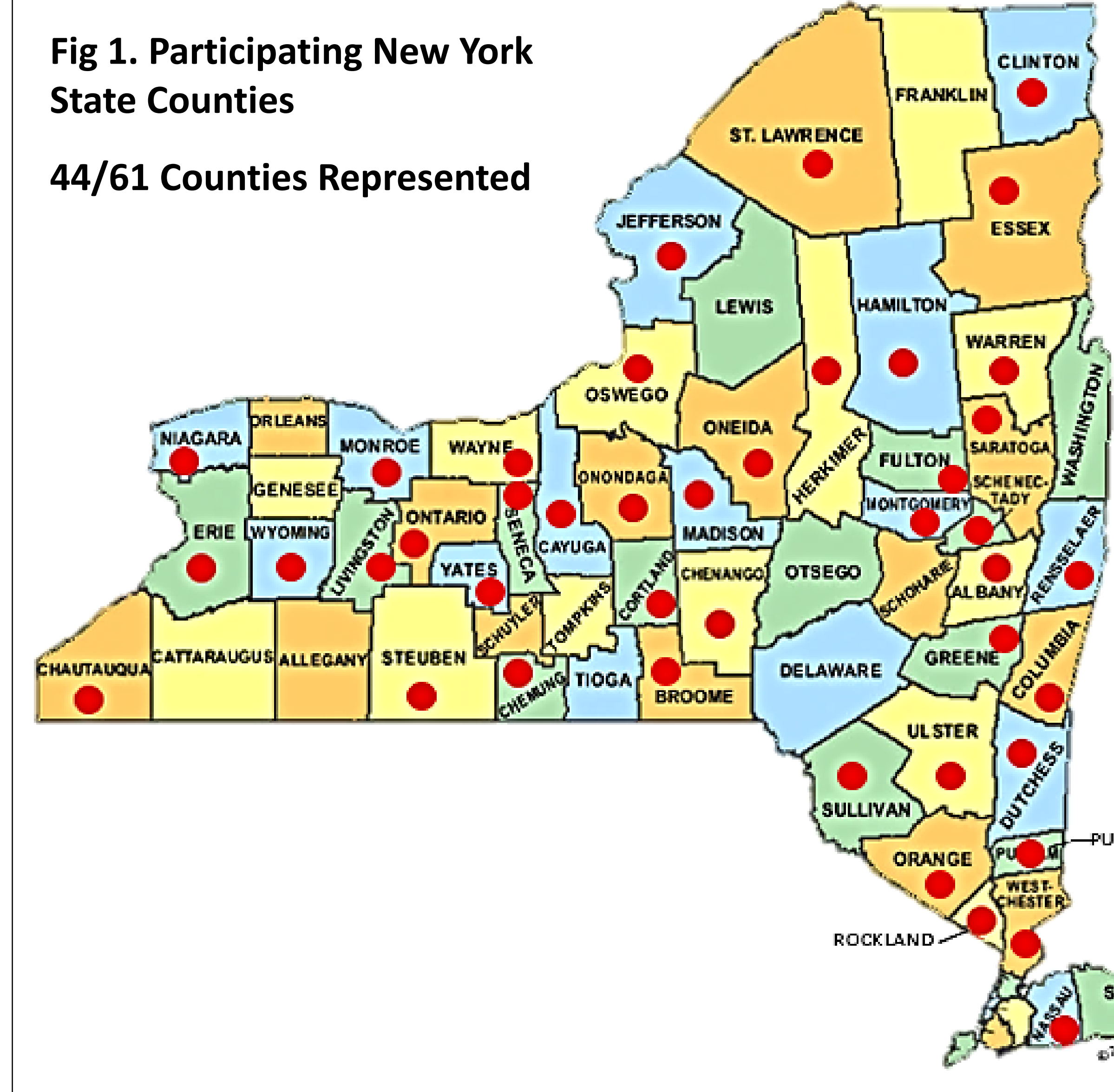


- Data Acquisition**
- Participating fire departments submitted data on-line or by mail/fax:
    - General fire department and training event information
    - Personnel records for all past and present members including: full name, date of birth, address, and service details
  - The Office of Fire Prevention and Control approved a Freedom of Information Law (FOIL) request to obtain 2012-2016 fire activity summaries for every fire department in the state.

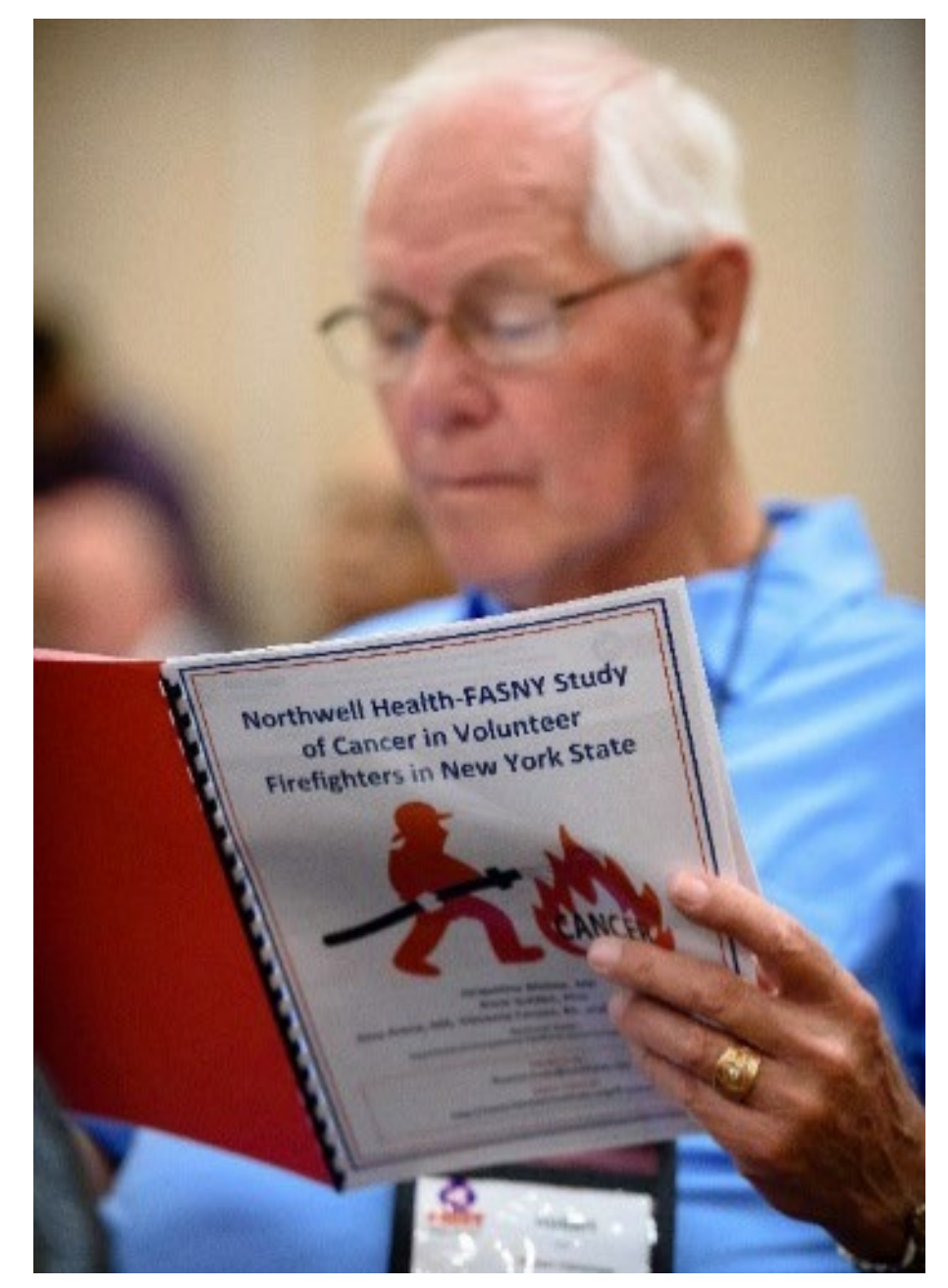
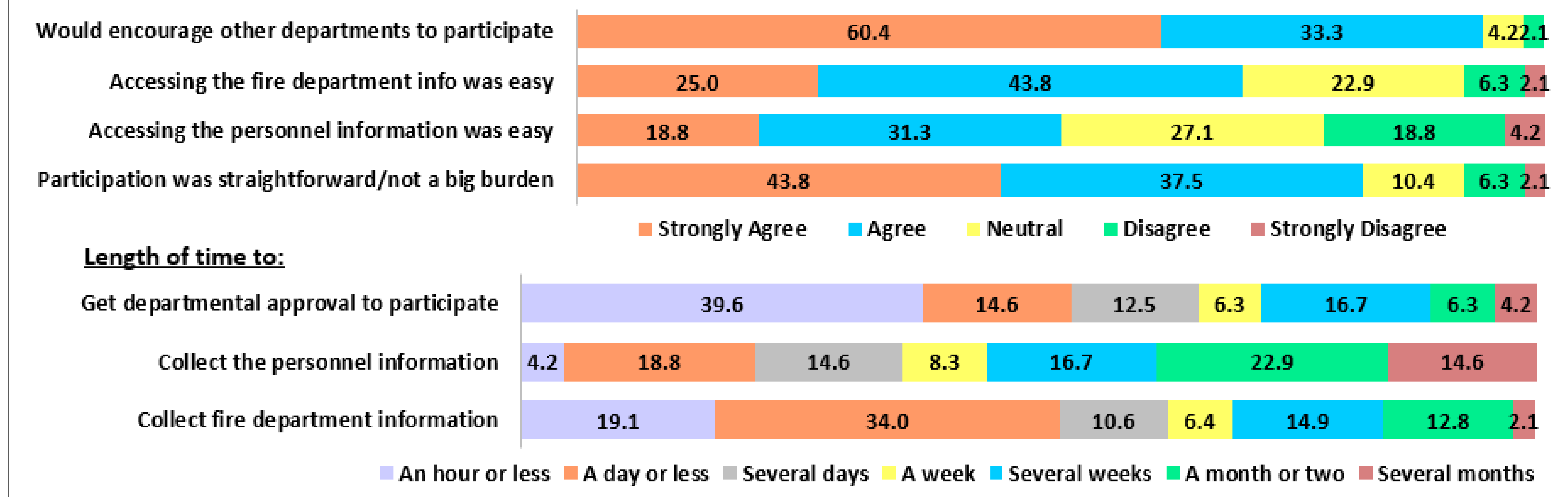
**Field Decontamination Kits**

- Participating departments opted-in to a raffle to win post-fire field decontamination kits to remove carcinogens from gear and skin.

## Participants and Results



### Fig 4. Optional Feedback Survey Responses (%)



**Acknowledgements/Funding**  
 Special thanks to the Firemen's Association of the State of New York for funding this study

## Next Steps

- Data submitted by fire departments are being harmonized to create a final "study roster" for linkage analyses with state cancer registries and the National Death Index in late 2019. The size of the roster depends on the quality of personnel records and may reach 13,000 firefighters.
- Trends in number of years served as a volunteer, year and age when fire service began, and regional location will be reviewed.
- Departmental factors, including fire runs, will be used to assess community-level exposure indices and evaluate whether exposures from firefighting in the volunteer fire service contribute to increased risks for certain cancers seen in comparable studies of career firefighters.
- Strategies for engaging volunteer firefighters for inclusion in the new National Firefighter Registry will be informed by the lessons learned from this unique study.