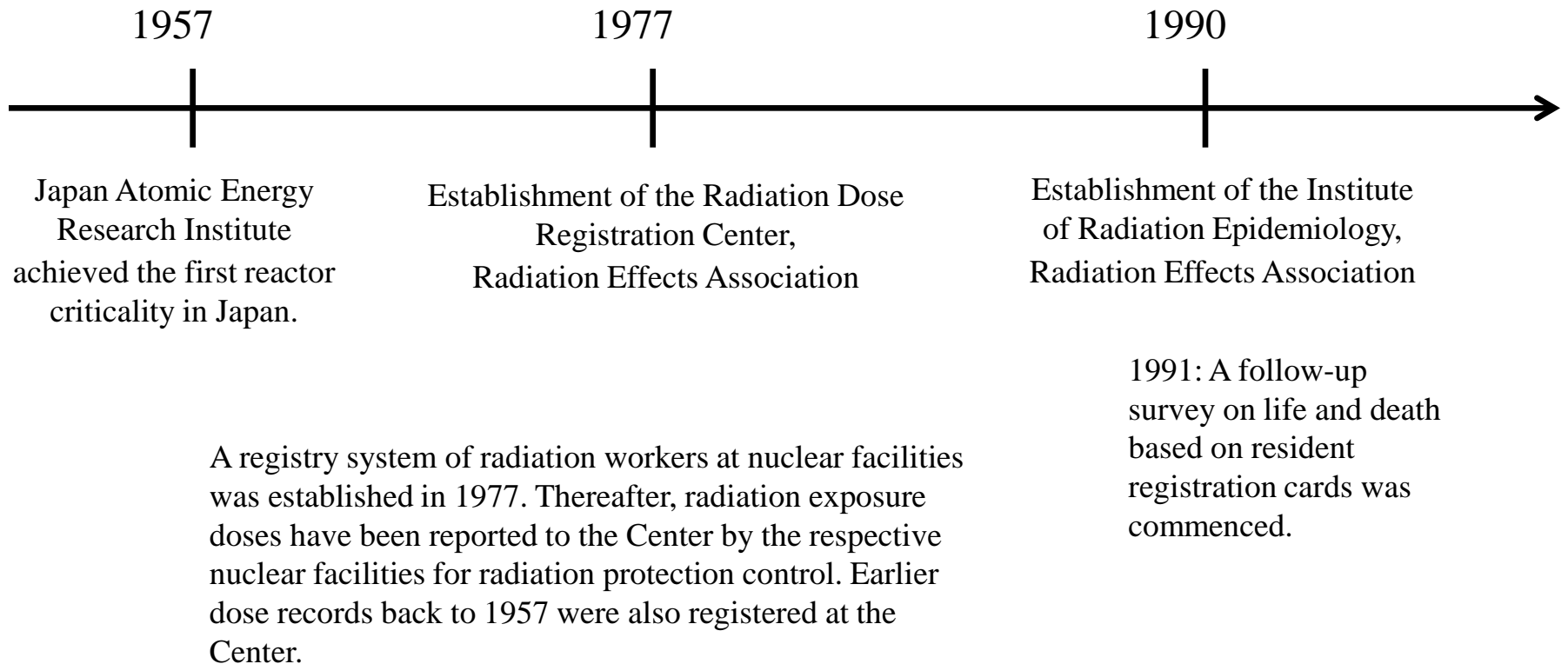


# Cohort Study of Nuclear Industry Workers in Japan

- Health effects of low radiation exposure dose
- Statistical analysis of relationship between causes of death and exposure doses

## Contents

- Setting of study population
- Radiation exposure doses
- Follow-up outcome (end point: death)
- Survey of confounding factors
- Confirmation of consent



# Setting of study population

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Workers engaged in radiation work at nuclear facilities, who were registered by March 1999

277,128 workers



- Addresses were unknown or incorrect.

Confirmation of vital statistics based on resident registration cards at the relevant addresses

205,340 workers



Male, aged between 20 and 84

203,904 workers

# Radiation Exposure Doses

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## Radiation Dose Registration Center:

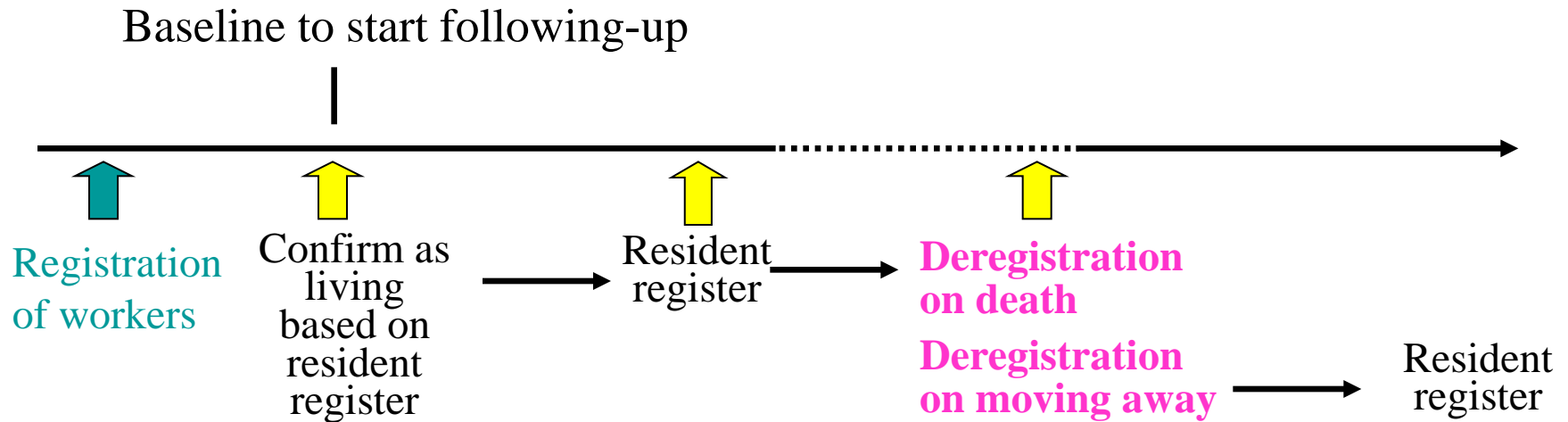
Accurate radiation exposure doses of each radiation worker are integrally ascertained and managed on a nationwide scale.

The Radiation Dose Registration Center provides data of each worker's doses for each fiscal year to the Institute of Radiation Epidemiology.

- Exposure doses are evaluated as cumulative doses by adding up the doses for each fiscal year in a statistical analysis on health effects.

# Ascertaining of Outcome (Death/Cause of Death)

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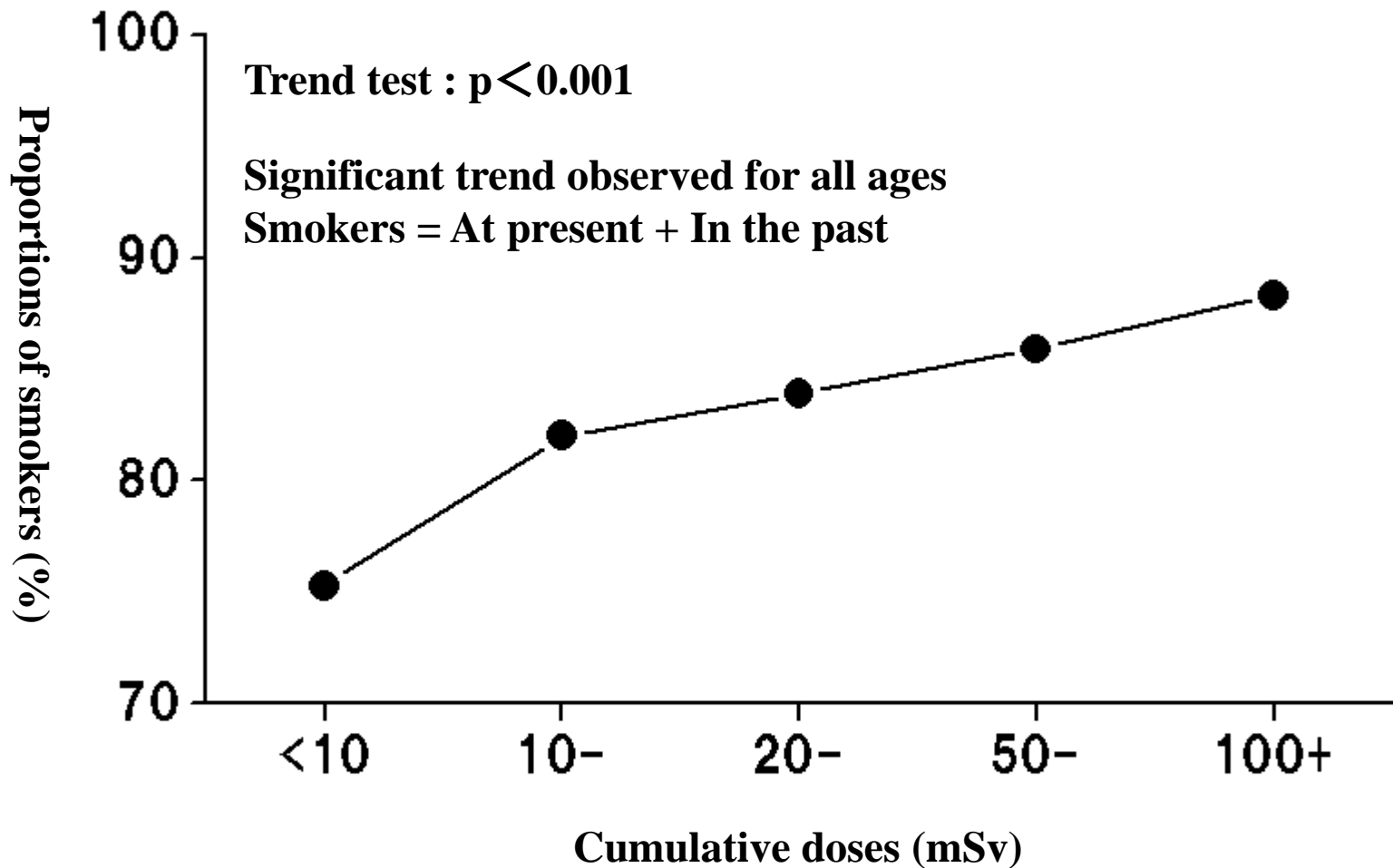


- Request municipalities to issue copies of resident registration cards regularly
- Confirm death by receiving the issuance of a certificate of deregistration on death
- Ascertain cause of death by linking with the death form data of the national vital statistics register (CD-R)

## Survey of Confounding Factors (Daily Habits, etc.)

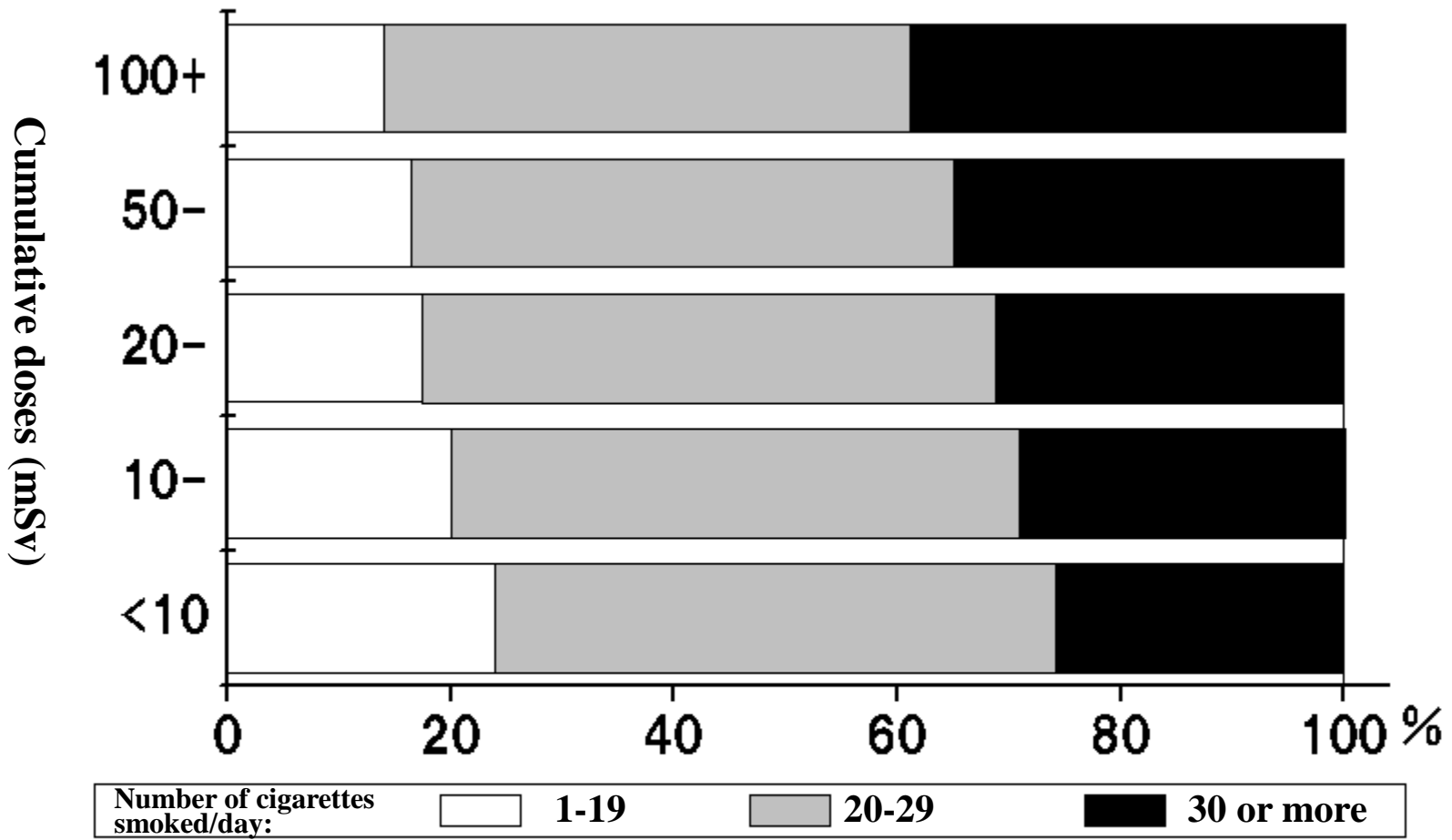
# Questionnaire on Confounding Factors (Daily Habits, etc.)

Period	First Survey Oct. 1997 to Mar. 1999	Second Survey Sept. 2003 to Mar. 2004
Targets	Approx. 58,000 workers working at nuclear-related workplaces at the time of the survey	Approx. 74,000 male workers and retirees aged between 40 and 84 as of July 2003 <ul style="list-style-type: none"> <li>• Exposure 10mSv or more: All</li> <li>• Exposure less than 10mSv: Extract 40% (Matched by age and area)</li> </ul>
Method	Directly hand questionnaires to relevant workers at workplaces	Send questionnaires by mail addressed to relevant workers
Items	<ul style="list-style-type: none"> <li>• Smoking</li> <li>• Drinking</li> <li>• Non-nuclear-related work</li> <li>• History of medical exposure</li> </ul>	In addition to the items on the left <ul style="list-style-type: none"> <li>• Job type, job title</li> <li>• Years of education, experiences of job/work transfer without family, etc.</li> </ul>
Responses (Rate)	Approx. 48,000 Response rate: 83%	Approx. 45,000 Response rate: 62%
Total	Approx. 80,000 (13,000 were included in both surveys)	

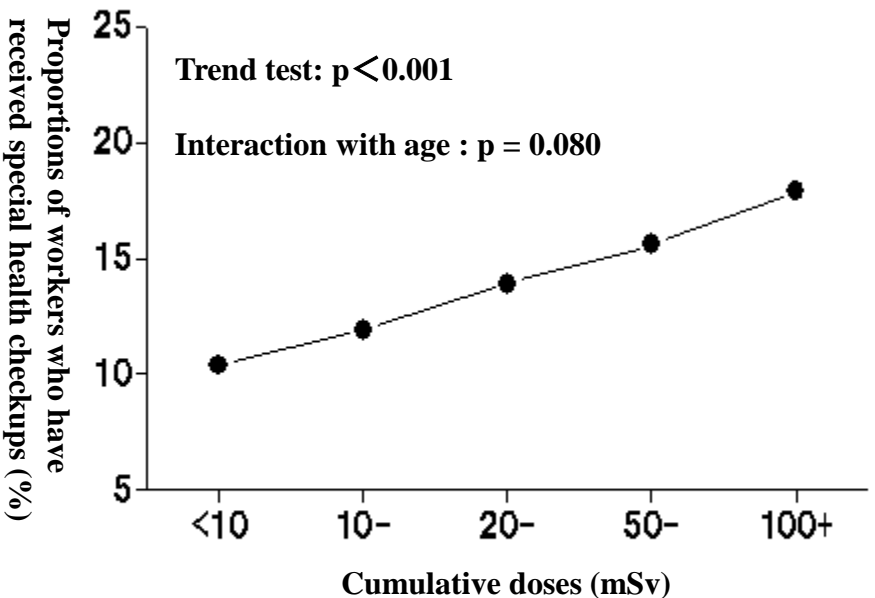


**Positive Association between Exposure Doses and Proportions of Smokers**  
**– First Survey of Confounding Factors –**

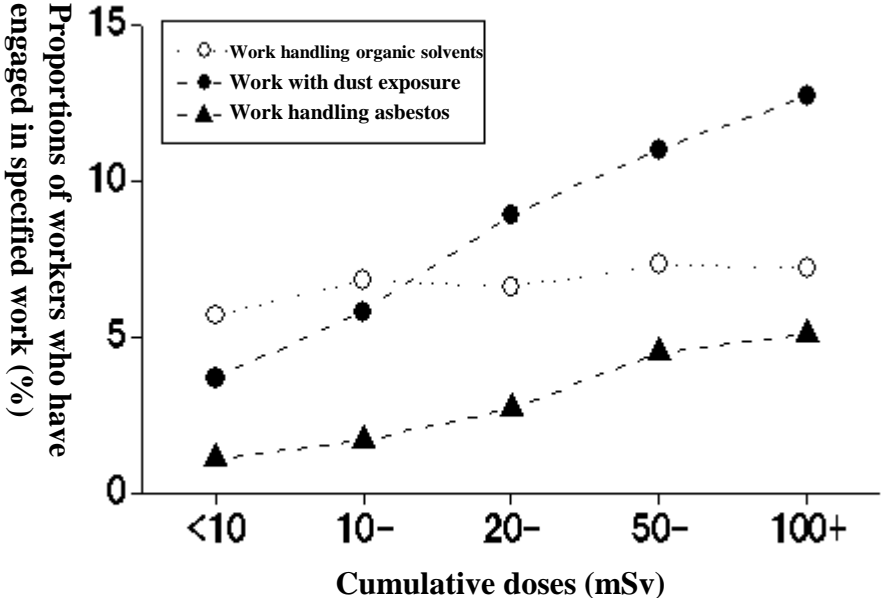




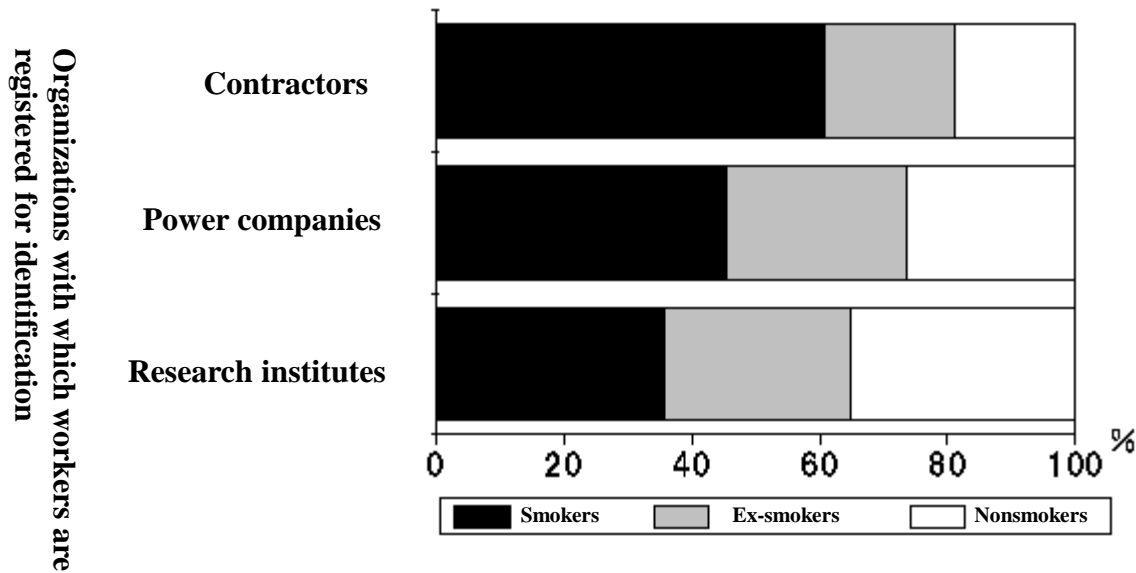
**Number of Cigarettes Smoked per Day for Cumulative Doses among Current Smokers**  
 – First Survey of Confounding Factors –



**Association between Exposure Doses and History of Receiving Special Health Checkups**  
 – First Survey of Confounding Factors –



**Association between Exposure Doses and History of Engaging in Specified Work**  
 – First Survey of Confounding Factors –



**Proportions of smokers by organization**

Other findings in surveys of confounding factors:

Correlation between doses and organizations to which workers belong

Correlation between death rate and organizations to which workers belong

Importance of ascertaining workers' social and economic conditions

E.g., job type and job title

# Explanations of Epidemiological Study and Confirmation of Consent

# Confirmation of Consent to Participate in Epidemiological Studies

In light of heightened social awareness and requests concerning the protection of personal information:

- From the end of 2003 to FY2004, we conducted a survey, targeting approximately 200,000 individuals who were alive at that time, concerning explanations and confirmation of consent by the opt-out method.
- For those who expressed their intention not to give consent, the follow-up survey of life and death would not be continued thereafter.

放射線業務従事者または放射線業務従事者であった皆さまへ  
放射線疫学調査にご協力下さい



## ご説明の内容

(財)放射線影響協会について  
放射線疫学調査とは  
これまでの調査で得られた結果について  
調査の対象となる方は  
あなたにさせていただくことは  
必要な情報はこのようにして集めさせて頂いています  
収集した情報はこのように使わせて頂いています  
収集した住所などの情報は、第三者に提供されることはありません  
情報は厳重に管理されています  
この調査は文部科学省の委託調査です  
「疫学研究に関する倫理指針」に基づいて実施しています  
倫理委員会の承認に基づき実施しています  
放射線疫学調査の対象者になることに同意しない場合には

財団法人 放射線影響協会 放射線疫学調査センター