The definitive approach to establishing causality is an experiment, but oftentimes there are serious empediments to performing experiments for the advancement of knowledge. For instance, medical ethics forbids that we ask a “treatment group” to smoke for 10 years and a “control group” to refrain from smoking for 10 years, so we can study the outcomes. The next-best approach in such medical cases is an observational study, in which we track the fortunes of people who have already contracted a disease. Establishing causality in such situations is fraught with difficulties, but Janet Lane-Claypon, Sir Austin Bradford Hill, and Sir Richard Doll made very important progress in that direction not so long ago.

What is a case-control study?

Describe some important early examples of case-control studies?

What was the first modern case-control study? Who did the research, when, and where? How were the case and control groups assembled?

medical ethics

How does medical ethics influence studies of smoking and lung cancer?

smoking and lung cancer

The first influential investigations of smoking and lung cancer were observational studies. Who carried out this research? When and where? What types of observational studies were involved?

Hint: Possibilities include case-control study, prospective study, retrospective study.

What did epidemiologist Richard Doll originally suspect was the primary cause of lung cancer? Why did he change his mind?
How long did it take to actually establish causality in this particular area?