

Domain 2

ITEM 1

Your research team wants to assess causal effects between anticoagulants and bleeding adverse events. Which one of the following statistical methods would be best to use?

- A. Multivariate analysis.
- B. Regression analysis.
- C. Propensity score-matching analysis.
- D. Logistic regression analysis.

ITEM 1 (Biostatistical Methods)

Answer C: Propensity score-matching analysis.

The best method for assessing causal effects from practice-based observational data is propensity score-matching analysis (Answer C is correct). Because of the nature of practice-based research involving observational data, propensity score-matching analysis minimizes selection bias by applying statistical matching criteria to samples in comparison groups. Multivariate, regression, and logistic regression analyses assess associations, not causal inferences (Answer A, Answer B, and Answer D are incorrect).

1. Austin PC. A critical appraisal of propensity-score matching in the medical literature between 1996 and 2003. *Stat Med* 2008;27:2037-49.
2. Kier KL. Biostatistical applications in epidemiology. *Pharmacotherapy* 2011;31:9-22.
3. Shields KM, DiPietro NA, Kier KL. Principles of drug literature evaluation for observational study designs. *Pharmacotherapy* 2011;31:115-27.