

Question 1:

A new drug has been studied in 3000 patients prior to approval. The upper limit for the detection of rare adverse reactions in this safety database would be:

- 1 in 100
- 1 in 1000

Explanation:

When a drug is approved by the FDA, typically several thousand patients have been treated with the drug for a relatively short time. As a result, pre-approval trials can only well describe adverse event rates that occur in about 1 in 100 patients and often cannot detect rare adverse events, occurring in less than 1 in 1000 people. The "rule of 3" states that if an event was not observed in a clinical trial with N participants, it can be concluded with 95% confidence that fewer than 3/N people will experience the event. For example, if there were no myocardial infarctions (MI) in a clinical trial of 3000 people, then one can be 95% certain that the true rate of MI is fewer than 1 in 1000 people.

- 1 in 10,000
- 1 in 1,000,000

Question 2:

Who can report a potential adverse drug reaction to the FDA?

- Patients
- Physicians
- Drug Manufacturers
- All of the above

Explanation:

The FDA collects spontaneous reports through MedWatch. Prescribers, patients, pharmacists and manufacturers can all file MedWatch reports.

Question 3:

Which of the following is an example of a type A adverse reaction?

- Agranulocytosis after starting diaminodiphenyl sulfone (dapsons)
- Cheilitis associated with isotretinoin

Explanation:

Type A reactions are related to pharmacological effects of the drug and are generally well described by the time a drug is approved for marketing. They are usually common, dose related, and can be mitigated by using doses that are appropriate for the individual patient. The cheilitis associated with isotretinoin is an example of a type A adverse reaction.

- Squamous cell carcinoma after PUVA treatment
- PML after efalizumab

Question 4:

Which of the following is true about spontaneous reporting of adverse drug events?

- Most adverse drug events that occur are reported to the FDA.
- Spontaneous reports can be used to calculate the incidence of an adverse event.
- Information generated from spontaneous reports should be subjected to further studies.

Explanation:

Data from spontaneous reporting has significant limitations including under reporting of adverse events, lack of information about the number of people exposed, and bias in the reporting, making it difficult to determine causation. Because of this, spontaneous reports should be considered hypothesis generating, and information generated from spontaneous reports should be subjected to further studies.

- Events are reported more commonly for older drugs.

Question 5:

Which of the following is an advantage of using propensity scores over traditional regression analysis?

- Propensity scores improve the efficiency of the analysis.

Explanation:

Propensity scores improve statistical efficiency by creating a single covariate that estimates the probability of receiving a specific treatment. Propensity scores create a balance of baseline clinical characteristics, allowing for direct comparison of similar individuals, but cannot adjust for unmeasured confounders or for selection bias (confounding by indication).

- Propensity scores can adjust for unmeasured confounding.
- Propensity scores randomize patients to a treatment arm.
- Propensity scores adjust for confounding by indication.