

Quiz

*The average of tooth decay of a random sample of 101 clients of a dental office was 10 and standard deviation $S=3$ ($Z_{\alpha}=1.96$, $\alpha=0.05$). Compute the 95% confidence interval for the mean.

- A. 10.6
- B. 9.41-10.59
- C. 9.4
- D. 9.39-10.51
- E. 9.5-10.7

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*The frequency of tooth gangrene in a random sample of 100 subjects was 50 ($Z_{\alpha}=1.96$, $\alpha=0.05$). Compute the 95% confidence interval for the frequency of tooth gangrene.

- A. 49.41-50.59
- B. 0.402-0.598
- C. 0.200-0.800
- D. 45-55
- E. It cannot be computed from these data

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*We want to estimate the frequency of mouth cancer in population with age higher than 60 years old. In a study with 10.000 participants, 300 had mouth cancer. Which is the correct 95% confidence interval for the frequency of mouth cancer in population over 60 years old?

- A. 0.28-0.35
- B. None of the above
- C. 0.027-0.033
- D. 28-32
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- A. 0.02-0.04
- B. None of the above
- C. 0.027-0.033
- D. 2.8-3.2
- E. It cannot be computed from these data

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*We want to estimate the frequency of mouth cancer in population with age higher than 60 years old. In a study with 1000 participants, 30 had mouth cancer. Which is the correct 80% confidence interval for the frequency of mouth cancer in population over 60 years old ($Z_{critical}=1.29$)?

- A. 0.01-0.05
- B. None of the above
- C. 0.029-0.031
- D. 0.023-0.037
- E. It cannot be computed from these data

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Scenario – Amputations



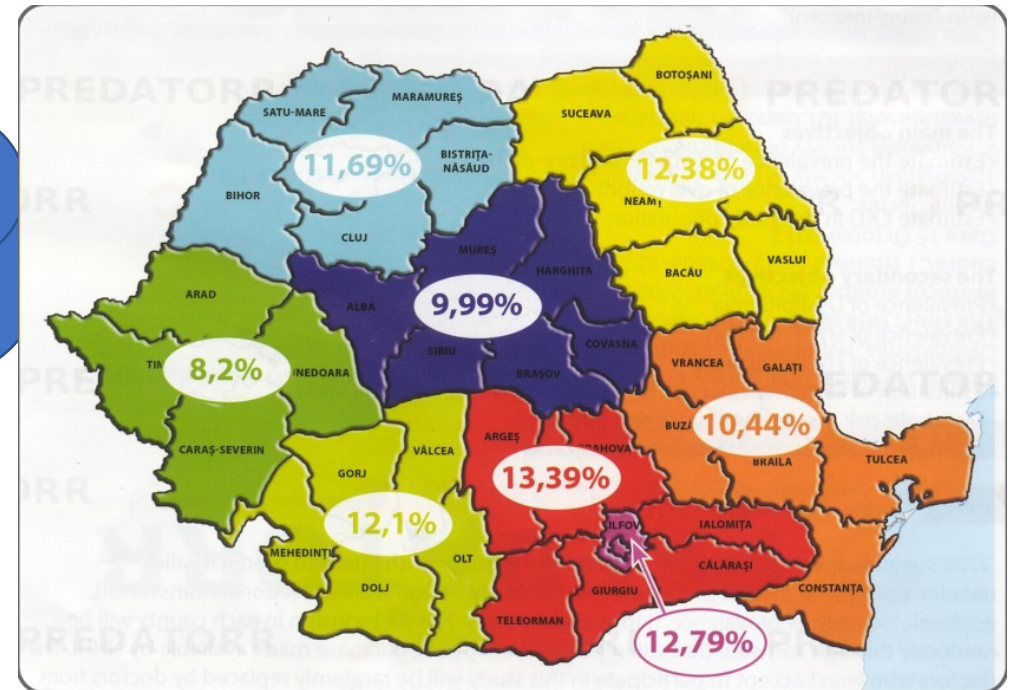
Whole
population,
no need for
inference

- The aim of the study was to assess the frequency of amputations due to diabetes in Romania. Data from **all hospitals** in the country in 5 years were analyzed.
- The total number of amputation due to diabetes was 24 312, 70.3% with diabetes mellitus type 2.
- **Every 21 minutes there is an amputation due diabetes**

Scenario – Predatorr study

- Aim: first study for the prevalence of diabetes in Romanian population
- Sampling method:
 - stratified,
 - cross-sectional,
 - clusterized
 - Random selection.
- 2728 participants
- Prevalence of diabetes was 11.6%

A sample,
need
inference:
confidence
intervals



*We want to estimate the prevalence of diabetes in Romania. In a study with 2728 participants the frequency of diabetes was 11.6% persons. Which is the correct 95% confidence interval for the frequency of diabetes in population of Romania?

- A. 10.99-12.21
- B. None of the above
- C. 0.11-0.12
- D. 0.096-0.136
- E. It cannot be computed from these data

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Example from scientific literature

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ORIGINAL ARTICLE

Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia

Qun Li, M.Med., Xuhua Guan, Ph.D., Peng Wu, Ph.D., Xiaoye Wang, M.P.H., Lei Zhou, M.Med., Yeqing Tong, Ph.D., Ruiqi Ren, M.Med., Kathy S.M. Leung, Ph.D., Eric H.Y. Lau, Ph.D., Jessica Y. Wong, Ph.D., Xuesen Xing, Ph.D., Nijuan Xiang, M.Med., *et al.*

Article Figures/Media Metrics

19 References 213 Citing Articles

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Chinese Translation 中文翻译

RESULTS

Among the first 425 patients with confirmed NCIP, the median age was 59 years and 56% were male. The majority of cases (55%) with onset before January 1, 2020, were linked to the Huanan Seafood Wholesale Market, as compared with 8.6% of the subsequent cases. The mean incubation period was 5.2 days (95% confidence interval [CI], 4.1 to 7.0), with the 95th percentile of the distribution at 12.5 days. In its early stages, the epidemic doubled in size every 7.4 days. With a mean serial interval of 7.5 days (95% CI, 5.3 to 19), the basic reproductive number was estimated to be 2.2 (95% CI, 1.4 to 3.9).

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MARCH 25, 2020

New York
en's Medical Center, NYC