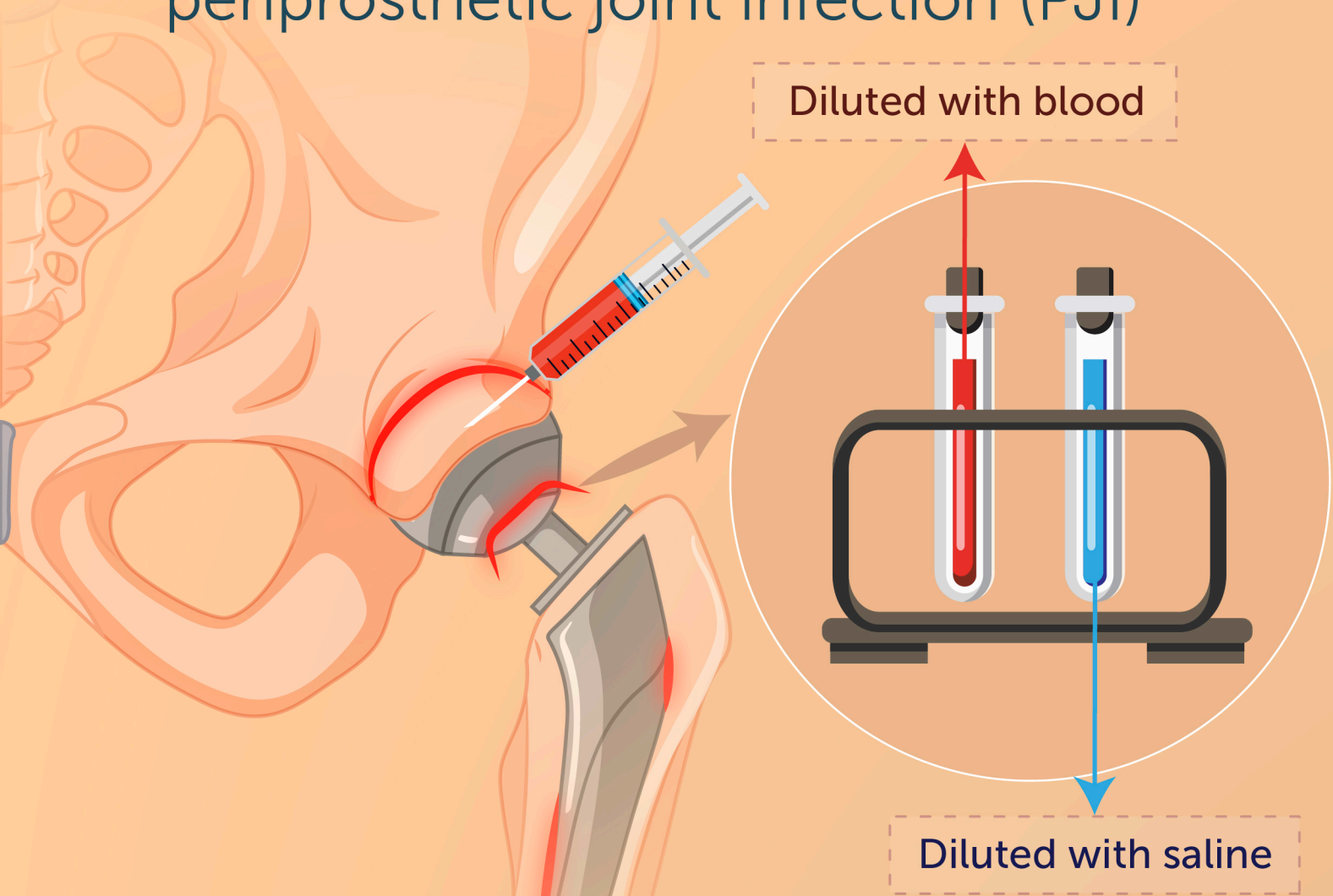


Does the Quality of Synovial Fluid Aspirates Affect the Diagnosis of Periprosthetic Joint Infection?

Synovial fluid is an important specimen source for diagnostic testing for periprosthetic joint infection (PJI)



However, synovial fluid specimens are often diluted with saline or blood, making them unreliable for diagnosis

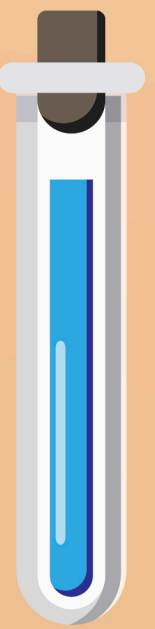


71,116 synovial fluid samples from one laboratory were analyzed

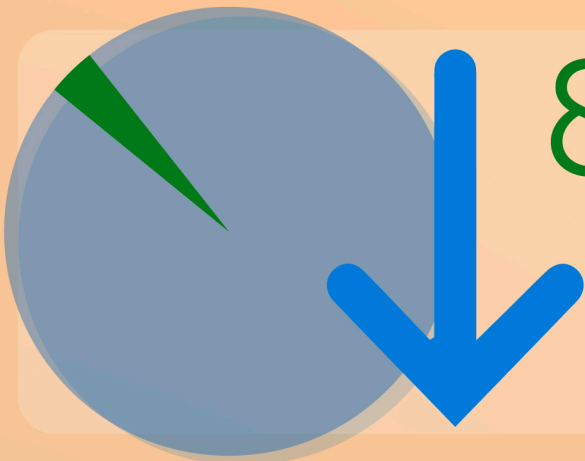


A poor-quality specimen was defined as

- RBC count >1 million cells/uL, or
- Optical density at 280 nm of <0.324 or >1.19

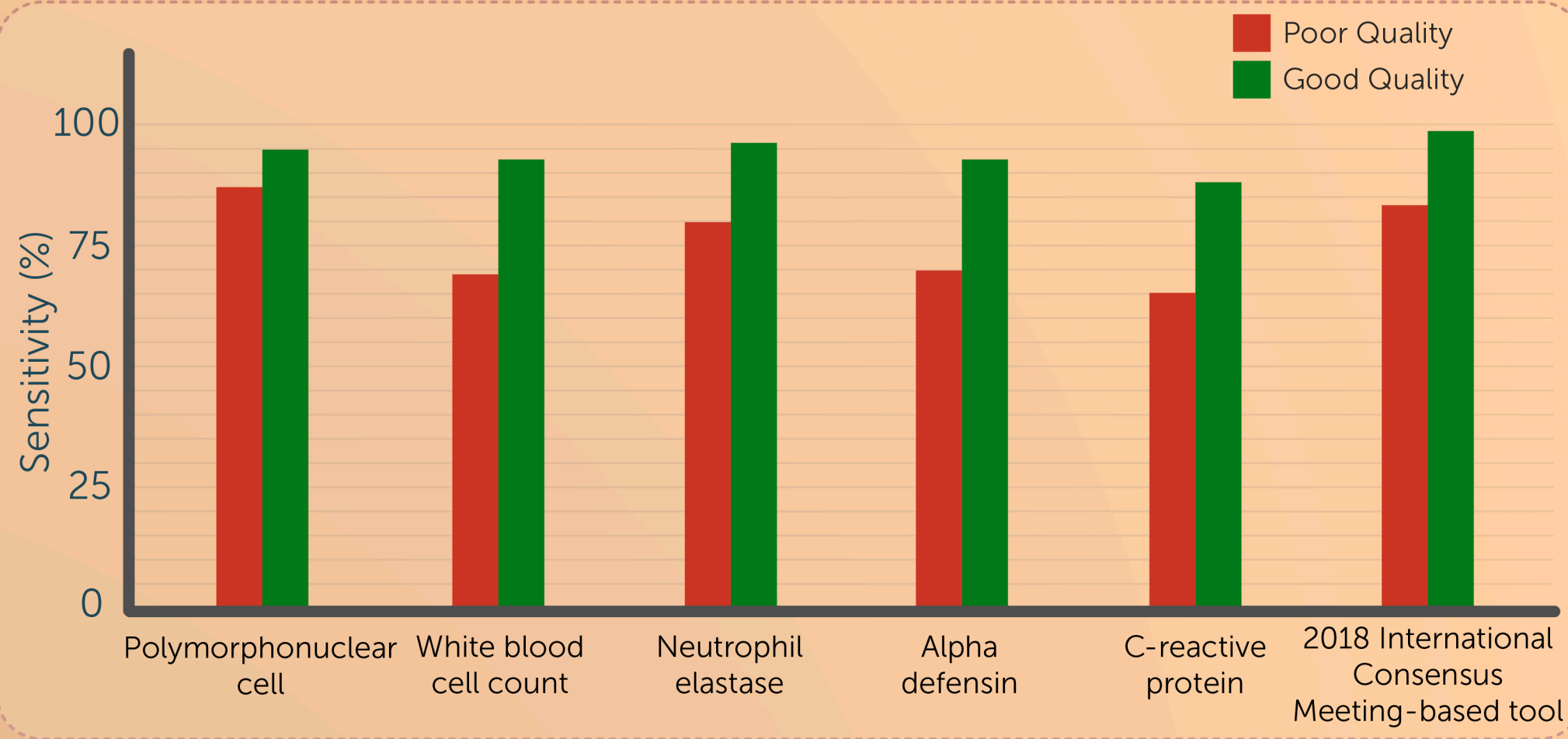


Sensitivity of good- versus poor-quality specimens was evaluated against ICM criteria for PJI



8% of samples were of poor quality because they were compromised by saline and/or blood

In poor-quality specimens sensitivity of all biomarkers to detect PJI was lower



What proportion of aspirates analyzed at one laboratory are of poor quality?

Does a poor-quality aspirate decrease the sensitivity of International Consensus Meeting (ICM)-based scores and synovial fluid biomarker tests; their ability to anticipate a positive culture?

- ➔ When synovial fluid is diluted with saline or blood, the biomarkers and cells being measured also are diluted, which decreases the sensitivity of laboratory testing
- ➔ Future research should exclude poor-quality samples, because they will cause an artificial reduction in test sensitivity
- ➔ When the fluid submitted is contaminated by saline or blood, clinicians should not rely on negative synovial fluid testing to rule out PJI