The ability of Staphylococcus aureus to adhere to endothelial cells (EC) is a critical step in the development of metastatic infection. The importance of active complement was confirmed by experiments using serum with added EDTA or cobra venom factor, a protein that depletes C3. Logphase S. aureus, expressing minimal capsule, was incubated with serum under various conditions, washed, and then incubated at 37?C for 30 min with cultured human umbilical vein EC (ATCC CRL-1730). Incubating S. aureus in complement-active normal human serum (NHS) decreased binding to EC by 58% compared to organisms incubated in heat-inactivated serum. This decreased by 56% in complement-active serum, suggesting that inhibition of S. aureus adherence to EC is due, in part, to .complement-mediated diminished binding to fibronectin