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Xi Huo* (x.huo@math.miami.edu). *Dynamical behaviors of antimicrobial de-escalation and continuation systems*. Preliminary report.

Antimicrobial de-escalation is a widely practiced drug use strategy in hospitals, but its advantages in comparison with the conventional strategy (continuation) are not well understood. We have developed mathematical models and have numerically showed that de-escalation is only superior to continuation under certain parameter sets which cannot be mathematically characterized due to the complexity of the models. Recently, we simplify our previous models and analyze their dynamical behaviors and bifurcation phenomena. We are thus able to quantify the conditions for de-escalation being superior to continuation, and explain this medical problem mathematically. (Received January 30, 2018)