

SIZING STEP-DOWN UNITS IN HOSPITALS

M. Armony, Stern School of Business, New York University, marmony@stern.nyu.edu

C.W. Chan, Columbia Business School, Columbia University, cwchan@columbia.edu

B. Zhu, Courant Institute of Mathematical Sciences, New York University, zhubo@cims.nyu.edu

The use of Step Down units (SDUs) in hospitals has been a matter of controversy in the medical community. On one hand, an SDU alleviates ICU congestion by providing a safe care environment for post-ICU patients before they can be transferred to the general wards. On the other hand, SDUs can take capacity away from the already over-congested ICU. We propose a queueing model that provides SDU sizing guidelines, noting that under some circumstances this optimal size is zero. Our methodology is focused on fluid and diffusion asymptotic analysis. The results are compared against an extensive simulation study.