

## How can an intensive care unit decide how many beds are available that day for elective surgery?

[Click here](#) for the classic paper that I rely on repeatedly. Simple queuing theory performs well at predicting appropriate total numbers of ICU beds for surgical patients ([click here](#)). Because of uncertainty in length of stay for each patient, the decision of whether an ICU bed will be available for each scheduled patient is best made soon before surgery ([click here](#)). This would be even more so when there are also add-on cases ([click here](#)). Still, most of the variability in ICU usage is attributable to elective surgery ([click here](#)), just as for PACU usage ([click here](#) and [click here](#)). Therefore, because it is economically rationale to avoid delays in PACU admission from the OR (i.e., is appropriate to plan PACU staffing to an upper percentile of workload [[click here](#) and [click here](#)]), generally the least expensive and practically easiest approach to managing occasional lack of ICU beds is to use the PACU as overflow. This is the same approach as used to prevent the emergency medicine department from filling with patients awaiting surgery. A drawback is that overnight stay in the PACU is associated with longer hospital length of stay, among patients with routine ICU admission postoperatively ([click here](#)). Consider also using the very effective methods to decide how much ICU capacity to set aside (i.e., reserve) for elective cases ([click here](#) and [click here](#)). Discrete-event computer simulation frequently needs to be used as part of the planning process ([click here](#)).

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