FIGURE 1. Flow diagram of study selection process

Citations identified through database searching (n=1348)

Additional records identified through hand search (n=3)

Potentially relevant citations identified and screened for retrieval (n=1351)

Citations excluded (n=1241)
  Animal studies
  Not primary research
  No educational intervention

Publications retrieved for more detailed evaluation (n=110)

Publications excluded (n=75)
  Not primary research (n=7)
  No evaluation tools reported (n=62)
  Tool not on central venous catheterization (n=6)

Potentially appropriate publications to be included for systematic review (n=35)

Articles excluded (n=10)
  Assessment not directly observed (n=6)
  Assessment not on learner performance (n=1)
  Duplicate tools (n=3)

Publications included in systematic-review (n=25)