Unfortunately, your colleague has now buckled under the pressure of having to actually do engineering analysis, thus designing the patient lift has become your problem. Now you are asked to also design a wall mounted lift, as shown in the diagram.

A. This is designed to be bolted to a strong steel structure. Consider both cases, arm straight out and rotated to one side, to select 4 appropriate size ANSI bolts. Please add a 2X factor of safety.

B. The winch that lifts the patient has a 6” diameter spindle with a 1” shaft and needs to lift the patient 1 m in 5 seconds. Select two bearings for the spindle and explain your choice. Recommend a part # from this vendor: http://www.sdp-si.com/

C. Any other thoughts on this design?