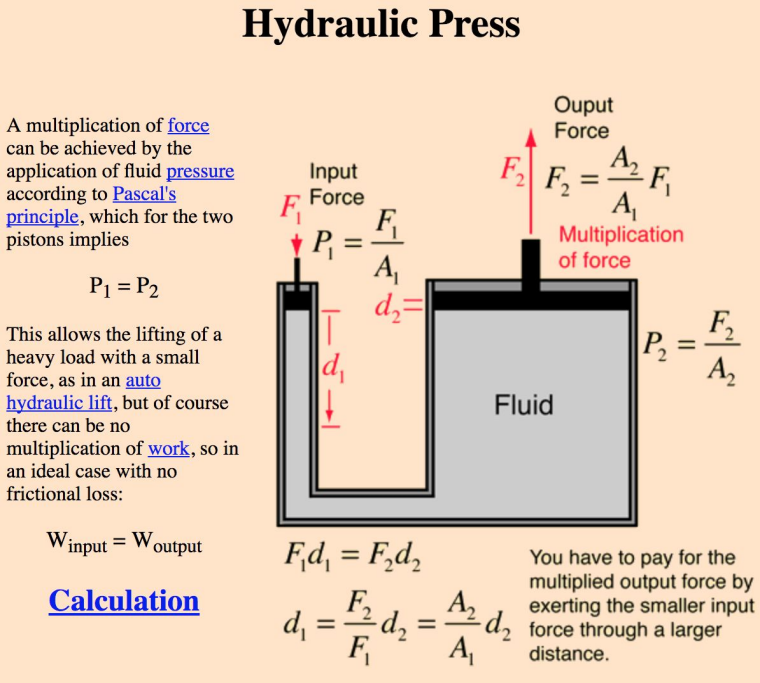
Interview #2 - November 21, 2017

- Greet/hello (5min)
- Video of Carolee transfer
- ask for her weight (122) and height (5'6)
- Pugh Chart - importance and specs (15mins)
    - Design Criteria
- Present our ideas (30 - 40min)
    - **Gas spring w/ harness vs. gas spring w/ sling**
        - Video showing how easy it can be to unlock the gas spring https://www.youtube.com/watch?v=HojDjwwRZ04 2:24
        - Gas spring selling website http://www.indgassprings.com/how-gas-springs-work.html
    - **Lift Seat Assist** - discuss and then rate
        - Primary difficulty is in overcoming gravity
        - When sitting to standing, a caregiver provides the energy needed to lift a person
        - Example: 150 lb person (67 kg), lifting center of mass against gravity about 12 inches (0.3 m) ---> 67 kg x 9.8 m/s^2 x 0.3m = 200J of potential energy
        - https://www.spinlife.com/Uplift-Technologies-Upeasy-Premium-Power-Seat-Lift-Uplift-Seat-Assists/spec.cfm?productID=110091 upeasy premium power seat lift
            - Uses hydraulic force: any externally applied pressure is transmitted to all parts of the enclosed fluid, making possible a large multiplication of force.
            - Small force, large distance = Large force, small distance



- Other technologies
    - Uses chair sling underneath bottom
        - Japanese “Skylift” http://nasent.net/goods/lift/skylift.html
        - Stand Aid (1:10) https://www.youtube.com/watch?v=5dLWGoYzK2o&feature=related
        - Strapstand https://www.spinlife.com/EasyStand-StrapStand-Adult-Standing-Frame/spec.cfm?productID=85118
    - Easy Pivot https://www.youtube.com/watch?v=104BSbi1I30
    - **Elastic/resistance band**
- If time permits… talk about **other transfer devices**
    - Transfer belt: https://www.rehabmart.com/product/safetysure-transfer-belt1-27212.html
    - Patient Lifter (commonly used in nursing and hospitals) https://en.wikipedia.org/wiki/File:Patientenlifter.JPG

3. Pugh Chart

Design Criteria	**Weight**	Hancock II Tissue Valve	On-X Aortic Heart Valve	Starr-Edwards Mitral Valve
Thromboresistance	3	2	3	1
Durability	3	2	4	3
Hemodynamic performance	2	3	4	2
Need for anticoagulation	1	4	1	1
Mortality of reoperation	2	2	4	1
Total		13	17	
Weighted Total		(6+6+6+4+4)= 26	(9+12+8+1+8)= 38	

I employed a basic scale of 1-3 for weighing the design criteria. The criteria with the highest weights were thromboresistance and durability. The medium criteria chosen were hemodynamic performance and mortality of reoperation. The lowest weighted criterion is the need for anticoagulation.

I employed an absolute scale of 1-5, with 1 as least favorable and 5 as most favorable. For rating the various designs, I abstained from choosing a baseline model because none of the designs I chose are considered the absolute standard for heart valve replacements.