

20. The gauge pressure you can produce is

$$p = -\rho gh = -\frac{(1000 \text{ kg/m}^3) (9.8 \text{ m/s}^2) (4.0 \times 10^{-2} \text{ m})}{1.01 \times 10^5 \text{ Pa/atm}} = -3.9 \times 10^{-3} \text{ atm}$$

where the minus sign indicates that the pressure inside your lung is less than the outside pressure.