WHAT IS CLAIMED IS:

1. A method of making an introducer sheath configured for percutaneous insertion of a prosthetic heart valve through a blood vessel of a patient, comprising:

inserting a metal sleeve into a mold;

inserting a polymer tube comprising a closed end and an open end into the metal sleeve;

pressurizing and heating the polymer tube to cause the polymer tube to expand against an inner surface of the metal sleeve so as to form an inner liner of the sheath, wherein pressurizing the polymer tube comprises injecting compressed gas into the polymer tube.

2. The method of claim 1, wherein the preform cylindrical polymer tube is made of nylon-12, polyethylene, or fluorinated ethylene propylene.

3. The method of claim 1 or 2, wherein the polymer tube has a radial wall thickness in the range of from 0.025 mm (0.001 inch) to 0.075 mm (0.003 inch).

4. The method of any of claims 1-3, wherein the metal sleeve has a radial wall thickness in the range of from 0.05 mm (0.002 inch) to 0.15 mm (0.006 inch).

5. The method of any of claims 1-4, wherein pressurizing and heating the polymer tube comprises injecting heated compressed gas into the polymer tube.

6. The method of any of claims 1-5, wherein heating the polymer tube comprises heating with a heat source separate from the pressurized gas.

7. The method of any of claims 1-6, wherein the metal sleeve comprises a plurality of circumferentially or helically extending slots.

8. The method of any of claims 1-7, wherein the blood vessel is the femoral artery of the patient.

9. The method of any of claims 1-8, further comprising forming an outer polymer liner on the metal sleeve.