6. The system of claim ~~1~~5, wherein the manifold opens to just the balloon port, inflation port and vacuum port, and the control valve is a stopcock mounted for rotation on the manifold into three positions.

7. The system of claim 1, further including a pressure regulator located between the control valve and the balloon to limit a balloon pressure to a predetermined maximum.

8. The system of claim 1, wherein the pressurized vessel holds air.

9. The system of claim 8, further including a piston/cylinder assembly incorporated into the manifold on which the pressurized air acts and further including saline in the system distal to the piston/cylinder assembly for inflating the balloon.

10. A manufactured balloon catheter system, comprising:

a balloon catheter having a balloon on a distal end in fluid communication with an inflation lumen extending through the catheter;

an integrated inflation system assembled and packaged with the balloon catheter, the integrated inflation system having:

a manifold having internal passages;

a pressurized vessel integrated with an inflation port in the manifold;

a vacuum vessel integrated with a vacuum port in the manifold;

a balloon port in the manifold in fluid communication with the balloon catheter inflation lumen; and

a control valve on the manifold for selectively opening fluid communication between the manifold port and one or the other of the pressurized vessel and vacuum vessel.