WHAT IS CLAIMED IS:

1. An aspiration catheter system comprising:

an outer catheter defining an outer catheter lumen and an outer catheter distal opening;

an inner catheter configured to be positioned within the outer catheter lumen, the inner catheter defining an inner catheter lumen, an inner catheter distal opening, and a plurality of sidewall openings proximal to the inner catheter distal opening; and

an alignment element configured to indicate a predetermined position of the inner catheter relative to the outer catheter when the inner catheter is received within the outer catheter distal opening,

wherein when the inner catheter is at the predetermined position, at least one sidewall opening of the plurality of sidewall openings remains positioned within the outer catheter lumen and at least one other sidewall opening of the plurality of sidewall openings is positioned distal to the outer catheter distal opening.

2. The aspiration catheter system of claim 1, wherein the alignment element comprises a visible marker on the inner catheter.

3. The aspiration catheter system of claim 1 or claim 2, wherein the alignment element comprises an alignment structure extending from the inner catheter and configured to engage with a proximal end of the outer catheter.

4. The aspiration catheter system of any of claims 1-3, wherein the alignment element comprises a plurality of markers, each marker corresponding to a predetermined position of at least one sidewall opening of the plurality of sidewall openings of the inner catheter relative to the outer catheter distal opening.

5. The aspiration catheter system of and of claims 1-4, wherein an inner circumference of the outer catheter is between about 50 microns and about 200 microns greater than an outer circumference of the inner catheter.