The catheter/needle adhesion force is the force required to separate the catheter from the needle at their point of adhesion.

Turning to Table II, it is clear that the inventive compositions A–F demonstrated significantly lower values for the force required to penetrate the skin, drag through the skin and for retraction, then the two commercially available silicone lubricants shown. the values for catheter/needle adhesion indicated acceptable lubricating properties such that the needle can be easily separated from the catheter when the needle is withdrawn from the catheter to needle assembly. It is apparent that the inventive compositions have excellent adherent properties on the substrate to which they are applied, yet are non-tacky and do not transfer to adjacent surfaces. Rather, these adjacent surfaces easily slide over the coated surface due to the lubricating properties of the inventive compositions. The inventive compositions may be employed as coating on a variety of materials and substrates, thereby imparting their lubricating effects. It is apparent that the inventive compositions exhibit improved lubricity over the prior art.

TABLE II

	Penetration	Drag	Retract	Catheter/Needle Adhesion
Needles Coated with Coating:				
A	242	37	37	120
B	257	44	41	95
C	246	18	22	57
D	270	45	44	158
E	288	20	41	70
F	262	56	56	97
G*	282	76	82	189
H**	297	29	48	114

*Comparative Composition from U.S. Pat. No. 3,574,073 (Dow Corning MDX-4-4159 commercial needle lubricant)
**Trimethylsilyl terminated PDMS (Dow Corning medical grade 360 fluid silicone)

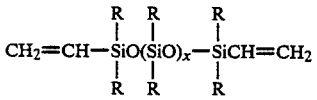
The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention and all such modifications are intended to be included within the scope of the claims.

We claim:

1. A film-forming composition providing adhesion properties to a substrate in combination with lubricity, characterized by

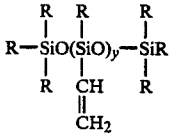
(a) a reactive component for providing adhesion, said reactive component comprising

(1) a first siloxane polymer having the formula selected from the group consisting of



(I)

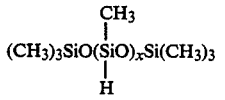
and



(II)

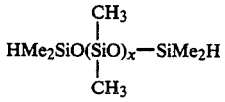
wherein R is selected from the group consisting of alkyl $C_{1\text{-}20}$, haloalkyl, aryl, haloaryl, cycloalkyl, silacyclopentyl, aralkyl and mixtures thereof; x is about 60 to about 1000; and y is about 3 to about 25;

(2) a siloxane cross-linking polymer of the formula



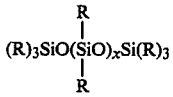
wherein x is about 8 to about 12 and

(3) a siloxane chain-extending polymer having the formula



wherein x is about 140 to about 160;

(b) a non-reactive lubricating siloxane polymer component of the formula



wherein R is selected from the group consisting of alkyl $C_{1\text{-}20}$, haloalkyl, aryl, haloaryl, cycloalkyl, silacyclopentyl, aralkyl, and mixtures thereof; x is about 20 to about 1350,; and

(c) the mole ratio of vinyl groups to hydrogen groups is within the range of between about 0.010:1 and 0.20:1.

2. A film formed by the composition of claim 1.

3. The composition of claim 1 wherein the first siloxane polymer of the reactive component is present in amounts of about 3% to about 35% by weight of the total composition.

4. The composition of claim 1 wherein the second siloxane crosslinking polymer of the reactive component is present in amounts of about 0.3% to about 5.5% by weight of the total composition.

5. The composition of claim 1 wherein the third siloxane chain-extending polymer of the reactive component is present in amounts of about 2.5% to about 50.0% by weight of the total composition.

6. The composition of claim 1 wherein the mole ratio of hydrogen groups of the crosslinking polymer to the hydrogen groups of the chain-extending polymer is about 5.0:1 to about 20:1.

7. The composition of claim 1 wherein the viscosity of the reactive component is about 100 to about 100,000 centistokes.

8. The composition of claim 1 wherein the average molecular weight per crosslink of the total reactive component is about 5,000 to about 75,000.

9. The composition of claim 1 wherein the non-reactive lubricating component is present in amounts of about 10% to about 90% by weight of the total composition.

10. The composition of claim 1 wherein the viscosity of the non-reactive siloxane polymer is about 20 to about 300,000 centistokes at room temperature.