Detectors used for dosimetric measurement of beta sources require careful attention to the geometry and response characteristics, particularly at distances of a few millimeters from the source. In this study we are evaluating the suitability of a number of detectors, including radiochromic film, a solid state diamond detector, and very small volume ionization chambers (0.01cc). The measurements are made in water or water equivalent media, and the results are to be used in computing dose distributions for sources with significant beta emissions and potential application in intravascular brachytherapy. For calibrated radiochromic film, we were able to verify dose for a combined Cobalt/Manganese source at a distance of two millimeters. We also obtained a dose distribution at the surface of the source. The solid state diamond detector has the advantages of very thin sensitive volume, small size, and near tissue equivalency. It has been used to measure transmission characteristics of a number of materials as well as relative dose falloff. These measurements were also made with a small volume ionization chamber and showed significantly less transmission for the solid water relative to water than the diamond detector. This demonstrates a variation in the response between these two detectors at very close distances from a beta source.