Large, multiplanar interstitial implants constitute a dosimetric challenge.
Preplanning and templates can help, when appropriate, but often the actual implant turns out quite different than was pre-planned.
We treat a large number of extensive interstitial implants with the HDR, and developed some procedures that facilitate the dosimetry:
1. Simulation: We use commercially available coded dummy wires to facilitate catheter identification. During simulation, we number the implanted catheters with the same number on the dummies and make a map of it. We recommend using the dummies provided by the manufacturer of the HDR used for treatment, for accurate determination of the source first position (this could be different for different manufacturers). 2. Films: AP-Lateral films are taken with the implant fully loaded with the dummies. Additional films (AP-Lateral) are taken with few catheters loaded with dummies at-a-time, to facilitate its visualization. For example, for a two-planar implant, we might load and film one plane at-a-time. 3. For breast implants we designed and built a special template, with the configuration required for RTOG breast protocol. 4. To help training new physicists for these implants, we simulate the implants using a humanoid phantom, to which we added layers of superflab material to simulate the breast and the implant. Implant planes could also be simulated using brachytherapy intra-op applicators commercially available, separated by the required interplanar thickness of superflab. 5. Implant geometry obtained with the planning system is projected onto simulation films for verification of its correctness.