Supplementary information on protocol breaches

* In two patients, breast tissue touched the CT couch using the standard prone treatment board. One patient was scanned using an 8cm extension set, but the additional height would have presented a very high risk of collision between patient and gantry on-treatment, and so was not used for treatment. The second patient did not undergo a CT-planning scan as treatment would not have been possible in view of the reasons above.

† Four patients at treatment planning were found to have WBCTV <750cm³; for practical reasons, estimation of breast volume in the clinic was based on selecting women of cup size D or above (based on the correlation between cup size and breast volume noted during our previous prone work (Kirby et al)). Cup-size is, however, an imperfect predictor of breast volume. Using cup size rather than breast volume as an inclusion criterion would have prevented these protocol breaches, although would have meant treating patients less likely to benefit from any cardiac-sparing effect of prone treatment as a proportion of self-selected D-cup patients have breast volumes of <750cm³.

†† Three patients were withdrawn due to problems with their prone radiotherapy treatment plans. One patient had a very medial tumor, and adequate tumor bed coverage would have necessitated the addition of a direct anterior beam. Use of an anterior beam would have made assessment of treatment setup position extremely difficult and the attending clinician elected to proceed with the VBH plan whose dosimetry was satisfactory and which only required tangential fields. Two further patients were withdrawn as the attending clinician felt the contralateral breast dose was unacceptably high (although no study-specific contralateral breast dose-volume tolerances were specified). In one patient the contralateral breast NTD<sub>mean</sub> dose for the prone plan was 14 times greater (0.1 vs 1.4Gy) than the VBH plan, and for the second patient it was 2.5 times greater (0.2 vs 0.5Gy). One patient’s tumor bed was very close to the axilla and the second patient had a very medial tumor bed. These cases highlight the difficulty of using prone treatment for very medially- or laterally-located tumor beds.

‖ Three patients were withdrawn due to unacceptable prone setup errors: one was withdrawn on fraction one (errors >25mm despite multiple setup attempts) and two withdrawn on fraction 3 (errors of >20mm on consecutive days). It was not possible to ascertain the reason(s) for such gross setup errors.