Conclusion: Non CT-planned RT does not allow precise patient-specific sparing of organs at risk. This resulted in greater variation in mean heart doses in the pre CT era. The CT-planned RT included dose constraints to the heart and both the mean dose and the variation in mean dose were therefore lower. In general mean heart doses were lower for both pre CT and CT-based RT, but the maximum doses for the left-sided patients showed that part of the heart received a high dose. The left anterior descending (LAD) coronary artery is typically located in a high dose region, and an increased risk of stenosis in the LAD following left-sided RT has indeed been reported. The approach applied in this study provides a method to estimate doses received by patients treated in the pre-CT era. Further work is needed to determine the doses and variations for other techniques commonly used in breast cancer RT, for example tangential RT including the parasternal lymph nodes, which is expected to result in higher heart doses.

**Conclusions**

- Non CT-planned RT does not allow precise patient-specific sparing of organs at risk.
- Greater variation in mean heart doses in the pre CT era was observed.
- Mean heart doses were lower for both pre CT and CT-based RT.
- Maximum doses for the left-sided patients showed part of the heart received a high dose.
- The left anterior descending (LAD) coronary artery is typically located in a high dose region, with an increased risk of stenosis in the LAD following left-sided RT.
- The approach applied in this study provides a method to estimate doses received by patients treated in the pre-CT era.
- Further work is needed to determine the doses and variations for other techniques commonly used in breast cancer RT, for example tangential RT including the parasternal lymph nodes, which is expected to result in higher heart doses.