Category III

Hypofractionated Radiation Therapy for Breast Cancer: A Unit Review in Alignment with International Guidelines

Dom Van Loggerenberg

The Breast Care Centre of Excellence (BCCE), Johannesburg, South Africa

Objective: Randomized trials and international guidelines endorse hypofractionated whole-breast irradiation (HF-WBI) as standard of care for early breast cancer, offering equivalent tumour control with shorter treatment times and reduced system burden. In South Africa, where access and throughput are critical, real-world uptake is particularly relevant. This review evaluates our centre's adoption of HF-WBI and adherence to guideline-based practice.

Materials and Methods: We retrospectively reviewed all breast cancer patients referred for radiotherapy from 2018–2024, stratifying fractionation as conventional WBI (CF-WBI; ~50 Gy/25 fractions), hypofractionation (40.05 Gy/15 or 42.5 Gy/16), and ultra-hypofractionation (≈26 Gy/5). Among those receiving breast-conserving therapy (BCT), we assessed annual HF-WBI adoption, age distribution (<50 *vs.* ≥50 years), and boost use.

Results: Across yearly datasets, HF-WBI increased steadily and substantially. In 2018, HF-WBI accounted for 17/138 CF/HF cases (12.3%). Uptake rose through 2019 (21.0%), 2020 (27.1%), 2021 (43.4%), 2022 (38.6%), 2023 (54.6%), and reached 82.4% in 2024 (103 HF *vs.* 22 CF). Ultra-hypofractionation (≈26 Gy/5) appeared from 2022 onward at low but increasing levels (e.g., 6 cases in 2024). Boost delivery was used across schedules; HF-WBI frequently included a boost (e.g., 59 cases in 2023; 70 in 2024), indicating protocol flexibility without abandoning shorter courses. Importantly, HF-WBI was used in both younger and older patients (e.g., 2024: <50 $y = 32$; ≥50 $y = 70$ within HF cases), reflecting rising clinician confidence across age groups as guideline-concordant practice matured.

Conclusion: Our multi-year review demonstrates a decisive transition from conventional to HF breast RT, with HF-WBI becoming the predominant regimen by 2024. Real-world implementation was feasible with sustained boost utilisation and broad age inclusivity, aligning with international guidelines while improving patient convenience and departmental efficiency. Wider adoption of HF-WBI—and selective use of ultra-hypofractionation—can expand equitable access and support service sustainability in resource-constrained health systems.

Recommendations

1. Adopt "HF-by-default" for eligible BCT patients, requiring a documented exception for CF-WBI.
2. Scale a FAST-Forward pathway (≈26 Gy/5) where clinically appropriate with clear selection criteria.
3. Standardise boost indications in HF schedules (e.g., 10–16 Gy in 4–8 fractions).
4. Embed age-agnostic eligibility in MDM checklists to avoid age-based bias against HF.
5. Bundle HF-WBI with DIBH planning QA for left-sided cases to maintain cardiac/lung constraints.
6. Implement a KPI dashboard tracking HF share, median treatment days, boost rate, and re-planning rate.
7. Update patient-facing education to explain HF schedules and boost delivery, improving adherence.

Keywords: Hypofractionated; South Africa; guidelines

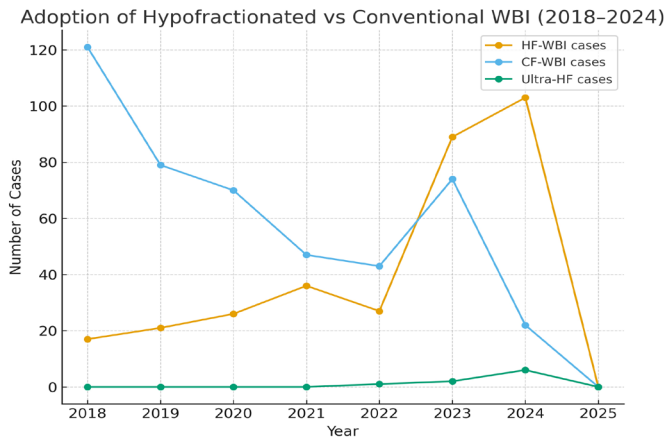

Figure 1. Uptake of hypofractionated *vs.* conventional whole-breast irradiation (2018–2024).

WBI: Whole-breast irradiation, HF: Hypofractionated, CF: Conventional