

### Breast Cancer: Summary of important changes to original decision tree

#### Updated decision tree:

**Red** = percentages in simulation without 5f included (FAST Forward trial).

**Blue** = percentages that change when 5f is included (FAST Forward trial).

Ductal carcinoma in situ 12%	Breast conserving surgery 69%	Radiotherapy 90%	40Gy 15f (START B trial) 100%/40% Fast forward 5f 0%/60%	
		No radiotherapy – all patients should have radiotherapy option discussed with them 10%		
	Mastectomy 31%	Consider radiotherapy if margins involved - 40Gy 15f 1%		
		No radiotherapy 99%		
Invasive cancer  Stage 1 37%	Breast conserving surgery 77%	High risk (<50yrs or >50yrs with high risk) 30%	40Gy 15f (START B) 100%/40% Plus boost: 4f boost 15% 5f boost 15% 8f boost 70%	
			5f (FAST forward) 0%/60% Plus boost: 4f boost 15% 5f boost 15% 8f boost 70%	
		Low risk 70%	Radiotherapy	40Gy 15f 100%/40% 5f (FAST forward) 0%/60%
			Consider no radiotherapy if >=70yrs and willing to take adjuvant endocrine for minimum 5yrs and have regular mammograms	
	Mastectomy 23%	High risk (if positive margin or <1mm) 8%	40Gy 15f 100%/40% FAST forward 5f 0%/60%	
		Intermediate risk (N1-3, LVI+, Grade 3) 4%	No radiotherapy 100%	

		Low risk (lymph node negative) 88%	No recurrence 96%	No radiotherapy 100%	
			Recurrence 4%	Non- radiotherapy treatment of recurrence 50%	
				Radiotherapy treatment for recurrence 50%	15f 90%/36%
					Palliative radiotherapy 30-36Gy 6f 10%
					Fast forward 5f 0%/54%
Stage 2 39%	Breast conserving surgery 53%	Breast and boost 80%	40Gy 15f (START B) 100%/40% Plus boost: 4f 15% 5f 15% 8f 70%  5f (FAST Forward) 0%/60% Plus boost: 4f 15% 5f 15% 8f 70%		
		Breast 20%	40Gy 15f (START B) 100%/40% 5f (FAST Forward) 0%/60%		
	Mastectomy 47%	High risk (4 nodes, positive margins, T >5cm) 35%	40Gy 15f 100%/40% 5f (FAST forward) 0%/60%		
		Intermediate risk (1-3 nodes, T3-5cm, LVI +ve, grade 3) 16%	No radiotherapy 100% Consider SUPREMO trial		
		Low risk (pN0) 49%	No recurrence 96%	No radiotherapy 100%	

			Recurrence 4%	Non-radiotherapy treatment 50%
				Radiotherapy treatment 50% <b>Curative:</b> 40Gy 15f (START B) 90%/34% 5f (Fast forward) 0%/56% <b>Palliative:</b> 30Gy-36Gy 6f 10%
Stage 3 8%	Good performance status 65%	Mastectomy 59%	Radiotherapy	40Gy 15f 100%/40% 42.5Gy 16f 0% 50Gy 25f 0% 5f (FAST Forward) 0%/60%
			No radiotherapy 0%	
		Breast conserving surgery 41%	Radiotherapy	40Gy 15f 100%/40% Plus boost: 4f 15% 5f 15% 8f 70%  5f (FAST Forward) 0%/60% Plus boost: 4f 15% 5f 15% 8f 70%
			No radiotherapy 0%	
	Poor performance status 35%	Symptomatic T4 lesion 65%		40Gy 15f 100%/40% 16f 0% 25f 0%

			30Gy 10f 0% 5f (FAST Forward) 0%/60%
		Asymptomatic lesion 35%	No radiotherapy 100%
Stage 4 4%	Metastatic symptoms 40%	Bone metastases 50%	Single fraction 75% 20Gy 5f if fracture or impending fracture 25%
		Visceral metastases 20%	20Gy 5f 20%
			No radiotherapy 80%
		Brain metastases 15%	30Gy 10f 60% 20Gy 5f 40%
		Spinal cord compression 15%	20Gy 5f 100%
	Local breast symptoms 30%		30Gy 10f 32% 30-36Gy in 5-6 weekly f 16% If good PS – 40Gy 15f 16% 6-8Gy in 1f 8% 20Gy 5f 8%
			No radiotherapy 20%
	Metastases, but no symptoms 30%		No radiotherapy 100%

### Key changes

- In the model simulation where the recent FAST Forward results were taken into consideration a 40%:60% ratio was used for 40Gy/15f:5f
- 50Gy/25f is no longer used and 40Gy/15f is now the standard
  - o it is likely that future practice will use the further hypofractionated 5f regimen (FAST Forward trial) so this has been modelled in a separate simulation
- The T/N/M staging for stages 1-4 have been removed from the old decision trees
- DCIS
  - o it has been added that radiotherapy may be considered (1%) after mastectomy if there is margin involvement
- stage 1
  - o definition of high risk after BCS has changed from 'young age' to '<50yrs or >50 with high risk'

- radiotherapy fractions of 42.5Gy/16f and 50Gy/25f have been removed for all groups
- for low risk breast cancers where radiotherapy may be given in recurrence, model update includes which fractions are used for both curative and palliative radiotherapy (stage 1 and 2 after mastectomy)