

## 2.0 LITERATURE REVIEW

Although breast cancer is the major cause of cancer-related death in women, there is limited information on the patterns of relapse and prognosis following relapse.

In 2006, Elder et al. reported the results of a study on patterns of breast cancer relapse at the Strathfield Breast Centre (TSBC) in Australia.<sup>4</sup> The study involved 2509 patients with non-metastatic invasive breast cancer. It showed that most relapses occurred within the first five years of diagnosis, with the risk of relapse greatest between one and two years from primary surgery. The relapse rate was 18% and bone was the most common site of relapse. According to the study, the prognosis after relapse was dependent on the timing and sites of relapse. Late relapses were associated with better survival compared to early relapses. They reported a 5-year survival rate of 41%, 20% and 13% for local, regional and distant relapse respectively. In patients with distant relapse, the survival rate after relapse for those with first metastasis confined to bone was higher than for those with visceral metastases. Two other studies reported by Imkampe et al. and Giordano et al. showed similar outcomes based on sites of relapse. This is illustrated in Table 1.<sup>20,21</sup>

These studies also showed that clinicopathological factors played an important role in determining outcome in patients with breast cancer. These prognostic factors include tumour stage, size of tumour, nodal status and grade. High stage, large size, positive node and high grade are poor prognostic factors. They are associated with a higher risk of relapse.<sup>4,20,21</sup>

Table 1 – Overall survival for different sites of relapse

Study	No. of patients	Overall survival			
		LR	RR	BR	VR
Elder et al.	2509	41%	20%	16%	13%
Giordano SH et al.	834	41% *	-	23%	13%
Imkampe A et al.	294	83%	33%	23%	13%

LR = local relapse, RR = regional relapse, BR = bone relapse, VR = visceral relapse

\*Local relapse was defined as soft tissue relapse which included skin, chest wall, breast and nodal relapses.

Note: Elder et al. and Giordano SH et al. reported a 5-year overall survival and Imkampe A et al reported a 3-year overall survival.

A study by Taib et al. reported the survival analysis of 413 Malaysian women with breast cancer diagnosed between 1993 and 1997 at the University Malaya Medical Centre. The main objective of the study was to analyse the overall survival and the prognostic factors that affect survival. They suggested that ethnicity may be one of the significant prognostic factors in addition to stage, size of tumour, nodal status and grade.<sup>22</sup> Although Chinese women were found to be more at risk of breast cancer, the study reported that survival was poorest among the Malay women. However, they also reported that 40% of Malay women presented with more advanced disease compared to 30% and 31% of Chinese and Indian women respectively. This may be one of the reasons for poorer prognosis among the Malay women. Oestrogen receptor (ER) status was not found to be a significant prognostic factor in this study.

A study involving 647 patients carried out at the University of Texas showed that ER status had a significant effect on the rates and sites of relapse.<sup>23</sup> It reported a significantly higher rate of relapse in patients with ER negative status compared to ER positive status. ER negative

status was also found to be associated with a significantly higher rate of tumour relapse in the viscera and soft tissues, while ER positive status was associated with a significantly higher rate of tumour relapse involving bone.