BACKGROUND/AIM: Early detection of recurrent prostate cancer (PCa) lesions is paramount to allow patients to avail of localised salvage therapy options. The most significant reason for failure of salvage therapy is undetected metastatic disease. This demonstrates the need for a more accurate monitoring tool. The prostate-specific membrane antigen (PSMA) is increasingly investigated as a novel tracer for gallium 68 PET/CT to detect PCa lesions in patients with recurrent disease.

MATERIALS AND METHODS: The Embase, Pubmed and the Cochrane databases were searched to identify studies investigating the accuracy of $^{68}$Ga-PSMA-PET/CT in detecting PCa lesions. Studies were analysed with regards to image analysis, sensitivity, specificity and detection rates; compared to conventional methods and with the effects of contributing characteristics.

RESULTS: 24 studies were analysed. $^{68}$Ga-PSMA-PET/CT was associated with sensitivity and specificity values of 33-93%, and >99% respectively. The tracer produced excellent contrast 1 h post injection. Probability of detection increases with increasing prostate-specific antigen (PSA), and at low PSA levels, is greater than that of current choline tracers. Early detection of lesions by the tracer allows alterations in follow up treatment. However, detectability may be affected by tracer trapping, androgen deprivation therapy and levels of PSMA expression.

CONCLUSION: $^{68}$Ga-PSMA PET/CT shows promise as a tool for the detection of PCa lesions in patients with suspected recurrence. However further studies with more reports on sensitivity and specificity with longer follow-up times are needed.