AIMS
To determine if progesterone is absorbed transdermally and whether this absorption is influenced by menopausal status.

MATERIALS AND METHODS
Six menopausal and 4 premenopausal women were recruited into this study. The six menopausal women (>2 years since last menses) had elevated serum gonadotrophins (LH > 12 U/L, FSH > 32 U/L), low serum estradiol (< 100 pmo/L) and progesterone concentrations (< 3 nmol/L) consistent with primary ovarian failure. The 4 premenopausal women had normal menstrual cycles and were studied in the mid-luteal phase (day 20-21).

We measured serum and salivary progesterone concentrations before and up to 24 hours after topical application of 64 mg micronised progesterone cream (Pro-Feme®, Lawley Pharmaceuticals, Perth, Western Australia). Serum LH, FSH estradiol and progesterone were determined by Immulite (DPC).

RESULTS
In menopausal women, the basal serum progesterone (2.5 ± 0.2 nmol/L, mean±SEM) did not change significantly during the first 3 hours after treatment. Basal salivary progesterones were less than 3 nmol/L, but increased significantly (p < 0.05) peaking at 3 hours (73 ± 24 nmol/L) and returning to baseline values (3.5 ± 0.7 nmol/L) at 24 hours (see figure). In premenopausal women, serum progesterone concentrations did not alter after application of progesterone cream. However, salivary levels rose to a mean of 668 nmol/L at 4 hours, significantly higher (p < 0.05) than menopausal women at the same time and remained to baseline by 24 hours.

DISCUSSION
• We observed no change in serum progesterone concentrations after topical application of progesterone cream. Premenopausal women in the luteal phase had higher basal progesterone levels than menopausal women, but serum progesterones in both groups remained constant after application of progesterone cream.
• Salivary progesterone values rose significantly in premenopausal and menopausal women, peaking at 3-4 hours, suggesting that progesterone is absorbed through the skin and transported through the body.
• After administration of progesterone cream, salivary progesterones in premenopausal women in the luteal phase peaked at levels ten fold higher than reached by menopausal women.
• Assuming that progesterone secreted into saliva reflects exposure of other tissues to progesterone, then topical application progesterone can reach target.
• Salivary progesterone measurements confirm transdermal absorption, but a relationship between progesterone dosage and salivary concentrations still needs to be established.

REFERENCES: