It is therefore disquieting that manifestly inappropriate confidence intervals, presented by Paul J Turnbull and colleagues in their paper on the prevalence of HIV infection among ex-prisoners, passed the editorial process.[1] The usual asymptotic formula of p±1·96 SE, which produces a symmetric interval, yields inappropriate limits for proportions such as prevalences when the number of positive results is low: a negative lower limit can occur, uninterpretable as a "margin of error." When the observed proportion is 0 the symmetric method produces the interval 0 to 0, irrespective of the preset confidence interval; Turnbull and colleagues have shied away from quoting this degenerate interval for the prevalence in homosexual/bisexual men (0 out of 20 sampled), for which an upper limit of zero is singularly inappropriate.

An "exact" but more complex method is recommended for small samples and proportions away from 0·5.[2] For sample sizes up to 100 this method is used by the program CIA,[3] and tabulations are available.[4] For sample sizes above 100 when the number of positive results is low an approximate method uses tables for the Poisson distribution.[4] Thus for the "Others" group in the authors' table, with an observed prevalence of HIV positive samples of 3/188, the 95% confidence interval is (0·6187 to 8·7673)/188—that is, 0·3 to 4·7%. Accordingly, the published table should be replaced by the one given here. For the first few rows of the table the symmetric method gives a reasonable approximation to the exact interval, but for the last three it does not. In every instance the symmetric method gives an interval that is shifted to the left compared with the interval produced by the exact or Poisson method; hence it gives a falsely reassuring upper limit for the prevalence.

Ex-prisoners in England: results of testing saliva samples for HIV antibodies

Group	No tested	HIV antibody positive: No (%)	HIV antibody positive: 95% Confidence interval (%)
Total sample	385	19 (4·9)	3·0 to 7·7
Injectors:	148	15 (10·1)	5·7 to 16·7
Men	103	8 (7·8)	3·3 to 15·3
Women	45	7 (15·6)	6·5 to 29·5
Non-injecting women	29	1 (3·4)	0·1 to 17·8
Homosexual/bisexual men	20	0	0·0 to 16·8
Others	188	3 (1·6)	0·3 to 4·7

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Carpal tunnel syndrome and hormone replacement therapy

SIR,—Ronit Confino-Cohen and colleagues report on two women in whom the carpal tunnel syndrome resolved with hormone replacement therapy.[1] We have found that the syndrome is one of many musculoskeletal conditions seen at the menopause that may respond to hormone replacement therapy.

We examined 42 perimenopausal women (≤3 years since their last menstrual period) attending a menopause clinic to identify rheumatological disorders and to assess the response to hormone replacement therapy. For each patient 10 somatic and psychosomatic menopausal symptoms were graded 0-3 (0=none, 3=severe). The pain scores (graded 0-3 for each joint) that had been symptomatic for three months within the past three years were totalled. Patients completed visual analogue scales for pain (0-10 cm) and were examined by the same observer for evidence of rheumatic disorders. Joints were scored for tenderness (0-3). The carpal tunnel syndrome was diagnosed according to the criteria of the American State Health Department,[2] and one point was scored for the presence of each of Tinel's and Phalen's signs and median nerve sensory loss in each arm (maximum 6). Modified criteria of Yunus *et al* were used to diagnose fibromyalgia[3] and a count of tender points used (0-14). Patients were then assessed by a gynaecologist, and oestrogens (subcutaneous implant, transdermal patch or cream, or oral treatment) were started. Progestogens were prescribed when appropriate. Patients were reassessed after six months with the same clinical evaluation, and a visual improvement scale was used to score musculoskeletal symptoms and general wellbeing.

The table shows the diagnoses and response to hormone replacement therapy. Twenty eight patients complained of rheumatic symptoms and 34 diagnoses were made (six women had more than one diagnosis). Five patients reported a non-specific arthralgia affecting the hands with digital swelling, but examination and investigations yielded normal results. Other diagnoses included spondylosis (three patients) and tendonitis (two). A further two women had symptoms of the carpal tunnel syndrome but not signs. Overall, psychosomatic scores correlated with pain ($r=0·33$, $p=0·03$). Thirty seven women were reassessed after six months. Somatic scores ($p<0·001$), psychosomatic scores ($p<0·001$), and pain scores on the visual analogue scale ($p=0·02$) had improved significantly. Improvement scores for general wellbeing and musculoskeletal symptoms correlated strongly ($r=0·66$, $p<0·001$).

Previous authors have noted musculoskeletal symptoms at the menopause but have not detailed specific rheumatological disorders.[4,5] Surprisingly, 17% of our 42 women had the carpal tunnel syndrome and a further 5% had symptoms without signs. A recent study found evidence of the carpal tunnel syndrome in 32% of women after oophorectomy.[6] Changes in forearm fat content that occur at the menopause, which are prevented by hormone replacement therapy,[7] may explain these findings and the impressive response to hormone replacement therapy seen in our group and the women reported on by Confino-Cohen and colleagues.

We found that 14% of our patients had fibromyalgia, and low oestrogen concentrations were seen in those with persistent symptoms. Oestrogen withdrawal lessens rapid eye movement sleep and heightens depression,[8] both of which are associated with fibromyalgia, and hormone replacement therapy seems a logical option in this group. Although there is undoubtedly a strong placebo effect with hormone replacement therapy[9] and our study was uncontrolled with few patients, hormone replacement therapy seemed to be highly efficacious in many patients, suggesting the need for further randomised studies. Many common rheumatological disorders, including the carpal tunnel syndrome, seen in middle aged women may be part of the climacteric syndrome, for which hormone replacement therapy should be encouraged.

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Commoner rheumatological diagnoses and response to hormone replacement therapy (HRT) over six months in 42 perimenopausal women

	Osteoarthritis	Carpal tunnel syndrome	Fibromyalgia
No of patients	8	7	6
Mean age (years)	48·5	49·5	46·3
No treated with HRT	7	6	4
Mean menopausal symptoms score (0-10):			
Somatic:			
At entry	4·9	4·7	6·8
At 6 months	1·7	1·3	0·8
Psychosomatic:			
At entry	8·0	6·8	7·5
At 6 months	3·0	1·0	3·3
Mean pain score:			
At entry	6·4	NA	24·5
At 6 months	5·4		6·25
Mean visual analogue pain scale (0-10 cm):			
At entry	3·6	NA	5·4
At 6 months	3·3		4·6
Mean visual analogue improvement scale (−5 to +5 cm):			
General wellbeing	3·7	3·3	3·2
Musculoskeletal pain	1·7	NA	2·4
Mean examination score:			
At entry	4·0	3·0	12·9
At 6 months	2·3	0·5	4·5

NA=Not applicable.

Passive smoking and otitis media with effusion

SIR,—Several points arise from Anthony Hinton's letter[1] commenting on my and A P Coatesworth's paper.[2] The difference in findings between our survey[2] and his[3] may result from differences in