Suicide, undetermined, accidental death rates, per million population 15 and over. England and Wales and Scotland, 1971

	Numbers E. and W.	Numbers Scotland	Rates E. and W.	Rates Scotland	Difference in rates	Twice S.E. of difference of the rates
Suicide rate (SR)	3,941	377	106	98	8	10
*Undetermined rate (WR) ..	1,099	223	30	58	28	8
Accident rate (AR)	1,465	162	39	42	3	7
*SR+UR+AR	6,505	762	175	198	23	15
*AR+UR	2,564	385	69	100	31	10
*SR+UR	5,040	600	136	156	20	13

* Indicates a difference in the rates significant at 5 per cent.

SALIVA AND SERUM LITHIUM ESTIMATIONS IN PSYCHIATRIC PATIENTS

DEAR SIR,

The beneficial therapeutic action of lithium carbonate in the prophylaxis of the affective psychoses has been established by Coppen *et al.* (1971) and Hullin *et al.* (1972). The importance of monitoring lithium at a therapeutic level has been stressed. When serum estimations are used the therapeutic limits are 0·7–1·3 m. Eq./L, and thus serial readings are required for maintenance. Toxicity occurs with serum levels of 1·6 m. Eq./L or above (Schou *et al.*, 1968). Thus regular venous samples are required for monitoring the serum level of lithium.

The following study was carried out in a weekly clinic dealing solely with the biochemical stabilization and control of patients receiving treatment with lithium carbonate. The clinic had been operational for eight months and had 40 patients undergoing maintenance therapy from a psychiatric hospital with a catchment area population of 450,000. Patients attended for serum estimation, initially weekly and then at gradually increasing intervals up to six-weekly when full stabilization had been reached.

Despite a rapid service from the laboratory, attendance at the clinic for venepuncture, estimation of serum lithium and regulation of dose occupied the greater part of the morning. (The method used for lithium estimation was described by Brown and Legg (1970) from the laboratory where our estimations were carried out). Over the trial period patients were asked to provide a 5 ml. sample of saliva in addition to their venous sample. Both samples were collected between 9.30 and 10.30 a.m. Whilst dosage monitoring was carried out solely from the serum estimations, serum and saliva levels were compared using the same method. Salivation was facilitated by sucking a pebble and by visual stimuli; no sialogogues were used.

For this study, no account was taken of the formulation of lithium carbonate, nor of any other medication the patient was receiving.

Over a period of 19 weeks, 88 estimations of synchronous serum and saliva lithium were carried out in 25 different patients. The findings are represented graphically (overleaf).

The correlation co-efficient for the relationship between serum and saliva values was carried out as follows:

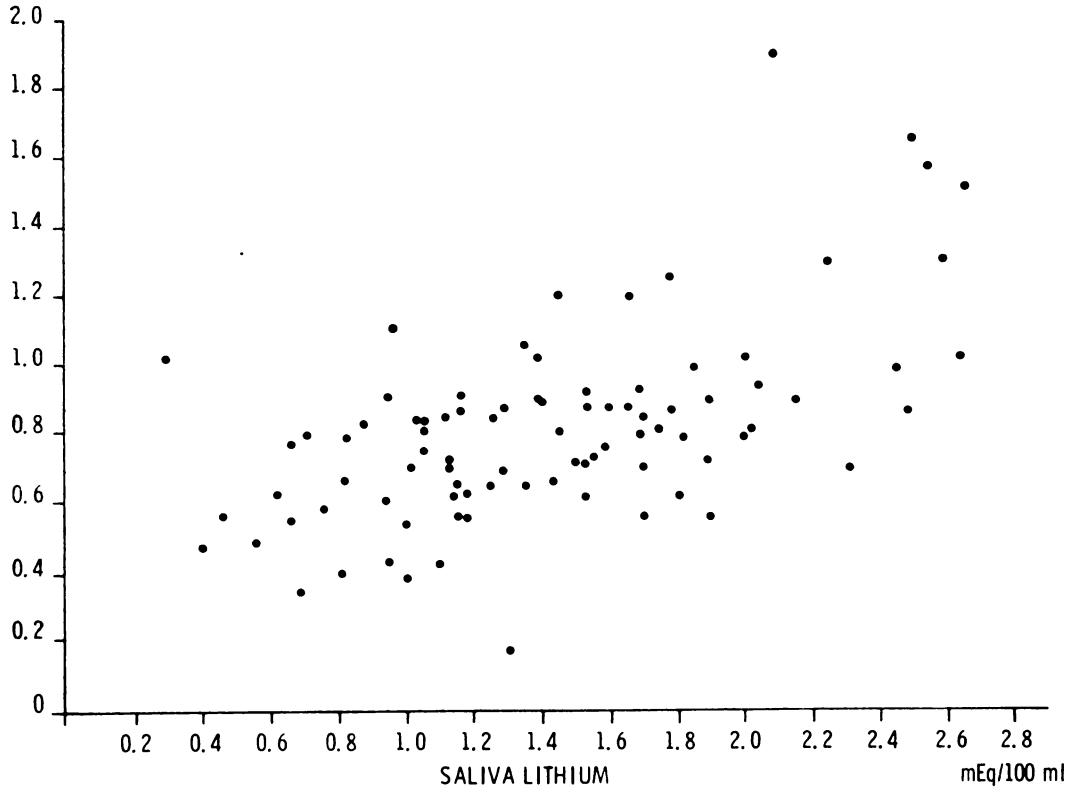
All values (N = 88) $r = 0{\cdot}384$ $p < 0{\cdot}001$.

If it is intended that the dosage of lithium should be monitored using saliva samples, therapeutic limits for saliva must be devised. Regression lines were calculated but are not shown here, as further work is required to establish the validity of the assumption of a linear relationship.

Burgen (1958) reported that lithium concentrations in saliva were related to, though higher than, those in plasma at low saliva flow rates. At higher flow rates, using chemical sialogogues, they approximated to plasma levels except that the saliva : plasma ratio for lithium was independent of the absolute plasma concentration. Spring and Spirtes (1969) similarly demonstrated in five healthy individuals a direct relationship between saliva and serum concentrations of lithium when the salivary glands were not stimulated. In our patients lithium estimations were carried out under constant conditions and at the same time of day, using saliva produced by salivary glands stimulated only by sucking a pebble; saliva levels were consistently higher than serum levels, and the two levels correlated.

As all these patients remained euthymic for the duration of this study, changes of saliva volume with mood were considered irrelevant.

If the method fulfils its early promise of effectiveness in controlling lithium medication (an ongoing study is in progress at the clinic to establish threshold limits for saliva and also the possibility of monitoring



lithium medication using saliva levels) it is considered that a reliable patient who requires long-term lithium maintenance could be monitored entirely or partially using samples of saliva. Regulation could be managed by post. This would be advantageous to both patients and staff in terms of 'clinic-time', reducing for the patient consequent loss of work and earnings, and it would also facilitate the treatment of patients from outlying rural areas.

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'NATURE-NURTURE' RESEARCH

DEAR SIR,

May I make use of your correspondence columns in order to obtain some information from your readers? I am preparing a study of the grounds on which scientific journals sort out good work from bad in the traditional areas of 'nature-nurture'

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