ante-natal clinician knowing what happens at the confinement, but it is even more important for him to recognize what is happening to the patient before the confinement. Until ante-natal care includes the careful study of the patient as a whole and throughout pregnancy it will be impossible to say that we are satisfied with the results it gives.

At present one is far from satisfied, but that simply means one remains dissatisfied with the amount and standard of ante-natal care. As far as can be judged, where the standard is satisfactory, one can hope to obtain a marked decrease in maternal morbidity, with an incalculable improvement in the health of the mothers, and a definite reduction in maternal mortality when combined with really skilled obstetrics. The effect on the stillbirths and neo-natal deaths remains in doubt. Fewer cranial injuries, certainly, but probably more premature babies from inductions, may result. This suggests that skilled and prolonged treatment and care of the infant is essential, and ante-natal care may benefit the mother even more than the child.

At the same time not ante-natal care alone, but all the influences at work to raise the health standard of the nation must benefit women and ultimately their infants. With the disappearance of rickets, and with better nutritional standards for children and adolescents, pregnancy and childbirth should become less dangerous to both mother and child. Among the helpful factors is the universal realization of the importance of prevention and the value of careful medical supervision during pregnancy. There are factors, however, which delay progress, and among these the inadequate training of the medical student and midwife in all that concerns obstetrics and infant care is the most serious. While there has been great progress in recent years, this has not gone far enough, and there can be little doubt that the best use is not being made of the available teaching material. The teachers are frequently too few, and only too often overworked. Expediency and improvisation are still advocated before efficiency. Ante-natal care will not fail to give satisfactory results when knowledge, careful observation, and unceasing vigilance are used to benefit every expectant mother.

The final position of the ante-natal clinic at the child welfare centre is problematical. It is generally agreed that the routine care of the pregnant woman should be in the hands of those who will attend her during labour. Whether the present tendency to enter institutions will go further, or whether the district midwife and the general practitioner will retain their present predominance in this field, remains to be seen. In either case, with the progress of medical education and the better training of midwives, the position of the clinics must alter. They may become consulting clinics, or they may serve as outlying clinics for central institutions. Their present role is that of pioneers, and their task predominantly educational. While the position to-day is not altogether satisfactory, we can say of ante-natal work, in the well-known phrase, that it is progressing as well as can be expected!

The Child Guidance Unit at the West End Hospital for Nervous Diseases (73, Welbeck Street, W.1) began work in October, 1932, and a report for the year 1933 by the honorary director (Dr. Emanuel Miller) has lately been issued. The special feature of this unit is that it is established in a voluntary hospital, and makes provision for in-patient observation and treatment, as well as for sessions held in special quarters in the out-patient department. All cases are seen in the first instance by a neurologist on the staff of the hospital, thus eliminating organic diseases and other unsuitable cases.

ARE WE SATISFIED WITH THE RESULTS OF ANTE-NATAL CARE? *

BY

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Ante-natal care was begun in this country about the beginning of the present century. It is now generally accepted as an integral part of the care of maternity, but no standard is yet in universal operation. The Maternity and Child Welfare Act was passed in 1918, and since that time ante-natal work has considerably expanded. Nevertheless, the general maternal mortality rate per 1,000 live births does not show any material change since that date. Maternal mortality is in part due to lack of ante-natal care, and the absence of any fall in the rate probably means that the ante-natal care given in many places is still insufficient.

Ante-natal care has the following objectives: (1) to maintain the health of the pregnant woman; (2) to secure delivery with the least possible disturbance to the pregnant woman; (3) to secure the birth of a healthy child at full time; and (4) to secure for the child an adequate supply of breast-milk during the normal period of lactation. The questions that arise are: (1) how can we secure these objectives; and (2) to what extent do the methods generally in use fall short of the best? Ante-natal care, so far as the mother is concerned, includes the problem of the maintenance of her general health and nutrition, and her obstetric state.

Attention to the general health and nutrition of the mother involves a knowledge of her home surroundings, food, habits, work, and recreation, as well as a careful and systematic physical examination. These two factors—namely, the environment of the patient and her general physique—have to be carefully correlated, and advice should be given by a medical practitioner competent to do so as to any measures, social or medical, which are necessary to improve the patient's general hygiene. The home environment should be reported not only by the patient but also by a health visitor. In order that the doctor may be in a position to safeguard, and to improve if necessary, the mother's health, one consultation during pregnancy is not enough. This supervision should be carried out at regular intervals at appointed times. The failure of the mother to attend on any specified occasion should be followed up immediately by an inquiry at the home as to the reason for her non-attendance. This provision for ante-natal care is important, since it is not infrequently the case that the pregnant woman has failed to keep her appointment on account of her physical condition, which may urgently require treatment.

Ante-natal Work and Subsequent Confinement

The next point that arises concerns the obstetric state of the patient. A special physical examination of the mother is required to ascertain the condition. The Ministry of Health, in its regulations of 1930, has laid down that medical officers in charge of ante-natal clinics are required to possess special experience in practical midwifery and ante-natal work. The importance of the association of practical midwifery with ante-natal work is thus recognized, and I am convinced that, if the best results are to be obtained from these obstetrical examinations, they must be linked up with the subsequent confinement. It is impossible for an ante-natal medical officer

* Read in opening a discussion at a combined meeting of the Sections of Obstetrics and Gynaecology and Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

materially to enhance his experience unless he is in a position to check his diagnosis and prognosis by the happenings at the confinement itself. A paper report by another practitioner is insufficient for this purpose, and is an unsatisfactory alternative to attendance at the confinement.

Having thus secured the ante-natal care of the pregnant woman it is necessary to consider the confinement, so that there may be a minimum of disturbance to the patient. The obstetrician who has been responsible for the ante-natal supervision should take charge of the confinement. I am aware that there are different schools of thought as to the management of different varieties of complicated labour. It is not my province to discuss these, but it is my concern to know that the practitioner undertaking the management of the labour should be fully aware of its possibilities, and fully equipped and experienced to deal with any eventuality.

In order, therefore, that the foregoing conditions may be met, the following propositions are submitted:

1. That the general health of the expectant mother should be under the care of a medical practitioner competent to carry out not only medical examination, but also to advise as to the hygiene of pregnancy from both the social and the medical aspects.

2. That these consultations should take place regularly throughout pregnancy, and failure to keep an appointment should be inquired into without delay.

3. That the obstetric examinations made during the ante-natal period should be carried out by the obstetrician who will be in charge of the confinement, and who should have sufficient experience to cope with any abnormality, whether foreseen or not.

4. That hospital beds should be available for all ante-natal cases requiring such accommodation.

Where Present Methods Fail

These being the conditions which, in my opinion, should govern ante-natal care, it is necessary next to ask how far the present methods of ante-natal supervision comply with the propositions here set out. I think it may be fairly said that, so far as the work of local authorities is concerned, attention to the general health of the pregnant woman is given by a doctor, generally speaking, competent to do so from both the medical and the social aspects, although it may be doubtful if sufficient emphasis is always laid on the basic need for the adequate nutrition of the patient. Unfortunately, it is not always the case that women who fail to keep their appointments are immediately followed up to ascertain the reason for their non-appearance. If the reason is not connected with their health, it may be that no harm is done, but in many cases, especially towards the later weeks of pregnancy, failure to keep an appointment is often due to the physical state of the mother, which may require immediate attention, including her removal to hospital.

It is true that where the general health of the mother reveals some abnormality associated with the pregnancy—for example, albuminuria, or a complication of her general health—as, for example, heart disease—a hospital bed is not always available. Further, she may be unable to leave her home because she cannot make provision for its continued care during her absence, which in some cases may be prolonged. Ante-natal beds are also needed during the ante-natal period on account of the obstetric condition, and these again are not always available.

It is further the case that in only a limited number of instances is the obstetrician responsible for the confinement associated with the ante-natal work of local authorities. To my mind, where this association does not exist, the value of ante-natal care is very materially diminished. No matter how expert an ante-natal medical officer may consider himself to be, it is necessary that

he should be in a position to verify his findings by the actual experience of the confinement. This linking up of ante-natal obstetric work with the confinement is the only means whereby ante-natal care can be put on a sound and scientific basis and the true meaning of the ante-natal conditions can be properly understood and emergencies avoided.

I have confined my remarks to the ante-natal work of local authorities, but the principles on which ante-natal care, in my opinion, should be founded are not altered because the confinement is to be carried out under private auspices. Such confinements include: (1) those conducted at home by midwives; (2) those conducted at home by general medical practitioners; (3) confinements in private nursing homes or wards by general medical practitioners. In these cases either the ante-natal supervision as here envisaged is inadequate, or the obstetrician has not such experience or equipment as to enable him to cope with every obstetric condition or emergency. The fact that a consultant obstetrician is at call is not sufficient. A consultant is usually called in after an emergency has arisen. If there is a practitioner of experience in these matters at hand it seems to me essential, if the best results are to be obtained, to make use of his services from the beginning, and not wait until it is evident that special and perhaps extreme measures are required.

Ante-natal Care and the Child

I have not dealt with the effects of ante-natal care on the child. This is a subject to which I have given consideration, but in respect of which I cannot submit any satisfactory information. The fact that the mortality rate of children under 4 weeks has undergone little change since 1918, while the mortality rate of children under 1 year has been considerably reduced since that date, would seem to indicate that our present methods of ante-natal and possibly intra-natal care have not effected any material change in the healthiness of the offspring. Here it would appear to me that the obstetrician has to extend the scope of his work to include the child under 4 weeks, and to correlate his ante-natal work and the nature of the confinement with the condition of the child at birth.

How to Obtain the Best Results

Much has been achieved in respect of the establishment of ante-natal centres by the Ministry of Health, and although it is impossible to assess the value of these centres at the present time I have no doubt that their work will prove to be the most valuable of any that is done for the national health. In order that we may get the full advantage of ante-natal work, discussions like the present are of great value. Their value would be considerably enhanced if local authorities and practitioners would keep a detailed record in every case of the following among other facts:

1. The nature and the amount of ante-natal supervision.
2. The general health and state of nutrition of the patient during pregnancy.
3. The obstetric state as recorded ante-natally.
4. Noteworthy features of the ante-natal period—for example, the co-operation of the patient, the presence of some abnormality, or the need for a period of hospital treatment or the like.
5. The anticipated course of the labour.
6. The actual course of the labour.
7. Noteworthy features during the puerperium.
8. The general health of the mother and the state of the pelvic organs at some later period, say three months after confinement.
9. The condition of the child at birth as anticipated ante-natally.

10. The actual condition of the child at birth.
11. The health of the child some time after birth, say at three months.

In the foregoing I have set out the best methods of ante-natal supervision as they appear to me in the present state of knowledge. As these are not in general use, and as no standard method has been laid down or applied, it is practically impossible to assess the value of ante-natal care from the gross results which are available. If, however, the different authorities and practising physicians could be persuaded to keep records such as I have indicated, we should shortly have the necessary information to enable us to arrive at such a valuation, and to decide how best we can achieve satisfactory ante-natal supervision.

The history of medicine shows that obstetrics in the limited sense has always been regarded as a special art. The present discussion raises a wider problem than the art of obstetrics, because the nation to-day is interested in the rearing of a healthy race. The care of the mother and the child is therefore all-important. Indeed, it seems to me that this should be a division of medicine for special study and practice. A new kind of specialist is required: one whose functions would be first, ante-natal care in its wide sense, having regard to both the mother and the unborn child; secondly, the confinement of the mother; and, thirdly, the care of the mother and child for a period after the birth. A wider specialism on these lines would, I believe, secure better results in the rearing of healthy children than specialisms limited, as at present, to the much narrower fields of obstetrics and gynaecology on the one hand and paediatrics on the other.

PHARMACOLOGY AND THERAPEUTICS OF SODIUM EVIPAN

WITH SPECIAL REFERENCE TO ABNORMALITIES
UNDER EVIPAN ANAESTHESIA

BY

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Sodium evipan has now definitely established itself as an anaesthetic both in medical and in dental practice, and the purpose of this article is to give a short account of its pharmacology, and the pathology of such cases as have come under the authors' notice.

Sodium evipan is the soluble salt of a new barbituric acid derivative: *n*-methyl-C-C-cyclo-hexanyl-methyl barbituric acid. It is not a volatile anaesthetic, but is rapidly detoxicated by the liver. Detoxication depends upon its decomposition within the liver, and it is stated that a rabbit can disintegrate half the narcotic dose within thirteen minutes.¹ Kennedy has also shown that detoxication of sodium evipan in mammals is very rapid.² Another characteristic of this drug is its high therapeutic quotient. In a cat this is represented by the figure 4, since 25 mg. generally gives full anaesthesia, while 100-110 mg. is the lethal dose.³ In the dog the quotient is 3.3. It may fairly be inferred, therefore, that only 20 to 30 per cent. of the lethal dose is used to produce clinical anaesthesia, and this factor must be noted when criticism of the unreversibility of evipan is made. Traces of the unchanged substance are found in the urine, but it is mostly eliminated in the form of urea.

During narcosis the blood pressure may fall by not more than 20 mm. Hg, and respirations are depressed both in rate and in amplitude.⁴ Overdose causes the cessation of respiration, the heart continuing to beat until secondary heart failure occurs, due to anoxaemia. Kennedy and Narayana have shown that the depressant action of sodium evipan on the frog's heart is very rapidly removed by washing, and is antagonized by adrenaline. They obtained complete recovery in a few seconds. The ventricle, apparently, is affected before the auricle; when the beats had completely ceased excitability still remained.⁵ Even while suffering from overdose, some animals have been kept alive by artificial respiration until enough of the drug had been excreted to allow the respiratory centre to resume normal function.

Technique of Administration

The technique of administration is well known, and consists of the intravenous injection of a 10 per cent. solution in sterile distilled water. This solution is made up immediately prior to injection, and is run in at rates which vary with different operators. An average figure would be about 1 c.cm. in ten seconds, although we, personally, deliver the first 2 c.cm. with greater rapidity. A common indication of the dose is to instruct the patient to count aloud, to note the volume given before unconsciousness supervenes, and to give the same volume again, or more, according to the duration of anaesthesia required. The symptoms produced by the injection are dramatic. While the first 2 c.cm. are entering the circulation the patient counts aloud with great confidence, but during the administration of the third c.cm. he usually begins to hesitate; a surprised look comes over his face, rapidly followed by a vacant stare, the counting becomes disordered and whispered, and finally with a deep sigh or yawn he drifts into anaesthesia. Unconsciousness usually occurs about the time of "hesitation," and is immediately preceded first by a feeling of intoxication and then by intense drowsiness. Respiratory and circulatory changes have been mentioned above, and the problem of "twitchings" will be dealt with later.

Duration of Anaesthesia

It is sometimes difficult to estimate the time during which anaesthesia occurs, since with identical doses different patients have remained anaesthetic for as little as five minutes and as long as an hour, but in most cases fifteen to twenty minutes can be promised with certainty. For recovery, four hours or longer is the general rule, varying according to the dose and the constitution of the patient. In neurotic people the recovery period is frequently accompanied by emotional crises, but people of stable temperament usually recover quite quietly. The patient generally remembers nothing either of anaesthetic or recovery period, except the fact that he has slept well.

Abel and Jarman rightly point out that with "minimal doses" (that is, injecting 2 c.cm., waiting thirty seconds, and giving the third c.cm. cautiously until unconsciousness occurs, and then discontinuing) the anaesthesia lasts from five to fifteen minutes; the patient then wakes, is quite rational, and after half an hour's rest, or sleep, is often able to walk home.⁶ It must be stressed that until recovery is complete the usual tests for sobriety are not satisfied, and the patient should be allowed to rest in quiet until feeling fit. We only know of one case of nausea or vomiting after recovery; this was in a man who was sent home on a tram, having previously had a large draught of black coffee. In a few cases headaches have been recorded (always after large doses), and these are usually likened to the aftermath of alcoholic excess.