

Is There a Role for the Obstetric Flying Squad in Peninsula Malaysia?

D Monga, S Achanna

ABSTRACT

Background: The Obstetric Flying Squad (OFS) has been operating in Peninsular Malaysia for over three decades. In the light of current controversies regarding its role in modern day obstetric practice, its status in Malaysia over the last 12 years is reviewed.

Method: Statistics from three Malaysian states (Kelantan, Trengganu and Malacca) were reviewed with regard to the numbers and places of delivery as well as OFS and ambulance call out rate (per 1000 deliveries). These statistics were obtained from the annual reports of the three state hospitals. Improvement in socioeconomic development was reviewed in order to study its impact on the requirement of OFS service.

Results: The last decade has witnessed a marked decrease in home deliveries, a higher proportion of high risk pregnancies delivering under medical supervision and a dramatic increase in the availability of telecommunication, transport and rural medical facilities. The OFS callout rate has fallen significantly, though the principal indication for calls were due to post-partum haemorrhage and retained placenta. The average time taken to reach a patient is 47 minutes for an OFS call compared to 26 minutes for an ambulance call in Kelantan.

Conclusions: Given the disadvantages of longer response time and the requirement for a skilled specialist to man the service, the OFS service can be completely replaced by the ambulance service (with training of drivers in first aid) in the general Malaysian setting. However, there may still be a limited role for the OFS in the isolated rural communities where access by land transport is extremely difficult.

Keywords: obstetric flying squad, ambulance calls, transport, home deliveries, rural communities

INTRODUCTION

The Obstetric Flying Squad (OFS) was pioneered in Bellshill, Lanarkshire in 1933, as a method of managing obstetric emergencies. This followed a suggestion by the late Prof E Farquhar Murray that "instead of rushing a shocked and collapsed patient to hospital for nursing and specialist aid, the specialist and nurse should be rushed to the patient"⁽¹⁾.

Since 1963, when Liang⁽¹⁾ first reviewed the OFS services, there have been several reviews on the subject. Many health professionals questioned the need for this service^(2,3), and some even viewed it as potentially life-threatening to the patients⁽⁴⁾. However, others strongly supported the OFS service⁽⁵⁻⁷⁾ and insisted that the service must continue in rural areas if the standard of care was to be maintained.

The OFS service has been in operation in Peninsular Malaysia for over three decades. The hospital that pioneered this service was the Malacca General Hospital (MGH), and the latest hospital to set up this service was Kota Bharu General Hospital (KBGH), Kelantan, in 1990.

With the role of OFS in modern obstetric practice being questioned in its country of origin, it becomes important for us to review the relevance of OFS in the local Malaysian setting. The objective of this study was to critically analyse the present day obstetric health care situation in Peninsular Malaysia and the cost:benefit ratio of the OFS service under prevailing circumstances.

MATERIAL AND METHODS

Various parameters were assessed to clearly define the role which the OFS service played in modern-day obstetric care. Usage of medical facilities by antenatal mothers and recent trends in the place of delivery were surveyed in three Malaysian states (Malacca, Kelantan and Trengganu). The place of delivery was divided into three categories, namely government hospitals (including health sub-centres), private hospitals (large hospitals and smaller maternity centres) and those deliveries conducted at home (usually by a government midwife).

The data on OFS calls (including indication and number of calls) were collected from three major hospitals, and compared with the trends of ambulance calls. These data were obtained from the annual reports of the three hospitals for the last decade in Malacca, and for three to four years in Kota Bharu and Kuala Trengganu. The OFS callout rate was calculated per 1000 deliveries.

Changing trends in the overall development of Malaysia's telecommunication and transport services, literacy and availability of medical services were reviewed in order to assess the status and requirement of OFS in this decade.

Department of Obstetrics
and Gynaecology
General Hospital
15586 Kota Bharu
Kelantan, Malaysia

D Monga, MD, DNBE (O&G)
Specialist

S Achanna, MRCOG
Consultant

Correspondence to:
Dr D Monga

Statistical analysis was performed using the Chi-square test, and $p < 0.05$ was taken as being statistically significant.

RESULTS

The home delivery rate in Kelantan (a north-eastern state in Peninsular Malaysia) fell from 87.2% in 1980 to 46.3% in 1991. While home deliveries formed a sizeable proportion of all deliveries in Kelantan, less than a quarter of pregnant women delivered at home in Johore (a southern Malaysian state bordering Singapore). This difference is statistically significant ($p < 0.01$).

Table I – OFS and ambulance calls

Year	OFS calls/1000 deliveries			Ambulance calls/1000 deliveries		
	Malacca	Trengganu	Kelantan	Malacca	Trengganu	Kelantan
1980	6.9	No OFS	No OFS	78.6	No OFS	No OFS
1984	9.6	No OFS	No OFS	90.6	No OFS	No OFS
1989	3.5	12.1	No OFS	29.9	172	No OFS
1990	2.2	9.4	0.6	33.8	138	195
1991	2.0	5.9	0.7	34.4	122	194
1992	2.0	5.4	0.3	31.7	117	163.3
1993			nil			140

Table II – Health facilities in Kelantan

Facility	Year					
	1970	1975	1980	1985	1988	1991
General Hospital	1	1	1	1	1	1
District Hospital	1	1	2	4	6	8
University Hospital	-	-	-	1	1	1
Health Centre	19	29	33	37	42	41
Rural Centre	-	4	60	100	118	145
Midwife clinic	59	114	82	62	56	53

Table III – Selected indicators

Indicator	Kelantan		Malaysia	
	1980	1988	1980	1988
Motor vehicles (per 1000)	99	178	178	283
Electricity (% houses supplied)	38.8	93.5	49.9	Not available
Below poverty line (%)	67.1	31.6	39.6	Not available
Doctor/1000 population	0.9	4.1	2.6	3.5

Table IV – Comparison of available facilities (1991)

Country	Literacy (%)	People/Doctor	People/Telephone
Australia	99.5	438	1.8
Malaysia	72.6	2656	10.3
Nigeria	42.4	6900	397
China	72.6	724	116
Thailand	91	4361	36.4
Pakistan	31	2122	99.2

Table I shows the total number of OFS and ambulance calls at Malacca General Hospital from 1980 – 1991. The number of ambulance calls decreased by 46.5% over the decade and the OFS callout rate fell by approximately 70%. The indications for OFS calls in 1991 were due to retained placenta (66%) and post-partum haemorrhage (PPH) (33%).

In the four years since its inception, the OFS callout rate at Kuala Trengganu has decreased by 50% (Table I). Ambulance calls showed a marginal decline over this period. KBGH started the OFS service in 1990, and the OFS callout rate, extremely low to start with (0.6/1000) also fell by 50% over three years. In the first half of 1993, there was no OFS call. Ambulance call rates have however, remained fairly constant in this state (Table I). Post-partum haemorrhage was the leading indication for the calls (41.6%), followed by retained placenta (25%). The average time taken to reach a patient for an OFS call was 47 minutes compared to 26 minutes for an ambulance call.

Table II shows the increase facilities over the last two decades in the state of Kelantan. The total number of health care centres has quadrupled since 1970. An additional University Hospital was set up in 1985. With the increase in the number of district hospitals, main health centres and subcentres, the number of midwife clinics recorded major decline from 114 in 1975 to only 56 in 1988.

The availability of doctors, electricity and motor vehicles, and changes in the socioeconomic status of Malaysia over the last decade are highlighted in Table III. The national indicators were compared with the state of Kelantan, in which this study was undertaken. Although the poverty level was higher and the availability of motor vehicles and electricity were markedly less in Kelantan compared with Malaysia in general, the number of doctors per 10,000 population showed a marked increase in 1988 in this relatively underdeveloped east coast state⁽⁹⁾.

Malaysia's relevant socioeconomic indicators are compared to those of some developing countries and Australia in Table IV. Although all parameters were significantly less compared to Australia, the telecommunication facilities and doctor : population ratio was higher compared to neighbouring country like Thailand and other developing countries like Pakistan and Nigeria⁽¹⁰⁾.

DISCUSSION

The maternity health care in Malaysia comprises a three-tier system. Primary care is provided by trained government midwives and resident doctors at main health centres and subcentres. The secondary level is formed by district hospitals which are manned by 4 – 7 resident doctors. Adequate blood transfusion and ambulance services are available and referrals to tertiary centres are made whenever necessary. At the tertiary centres, the full backup service of blood transfusion, laboratory, paediatric, intensive care, anaesthesiology and operating facilities are available.

Although the home delivery rate of 46.3% in Kelantan (in 1991) is much higher than the 1% rate in UK⁽⁸⁾, it was a significant decrease from 82.7%, a decade ago. This might be due to improved health education, improvements in obstetric service and infrastructure, changes in the attitudes of health care providers or a combination of factors. As more women deliver in hospitals, the need for an OFS service would diminish gradually.

The OFS calls at MGH, KBGH and Kuala Trengganu GH have shown a marked decline over the review period. This could be explained by the increasing trend in hospital deliveries and also by the fact that more women with high risk pregnancies are being screened and encouraged to deliver under medical supervision following the implementation of the colour coding system for high risk pregnancies by the Ministry of Health⁽¹¹⁾.

For KBGH, the average time taken for an ambulance to reach the patient is 26 minutes compared to 47 minutes for an OFS call. Trehan et al⁽⁴⁾ in a London-based study, reported that the average time taken for a woman to arrive in a hospital from home was 5 – 10 minutes whereas it takes 28 to 40 minutes or more for the OFS to reach the patient's house. This delay in OFS which is experienced universally by all centres offering the service, could be due to the time taken to mobilise staff, organisation of equipment and blood products and problems associated with locating the patient's home. In fact, Trehan et al found that 23% of the patients would have done better had they been brought in by ambulance and for 7% of the patients, the call proved more dangerous compared to direct transfers. From our study, one antenatal patient (with hand prolapse) wasted precious time waiting for the OFS to arrive when ambulance transport would have been a more expedient choice. This delay would have been more serious had rupture of the uterus occurred. All cases of retained placenta (66% from Malacca and 25% from Kota Bharu) would have also been managed earlier with direct ambulance transfers (Table III).

The other major disadvantage of this service as raised by some authors^(3,4) is the dispatch of skilled and experienced staff away from the hospital to attend to an OFS call. They may be away for an hour or more, depriving those patients already in hospital of specialist care. This problem is inevitable in a setting such as ours, where there is a shortage of specialist staff. Inadequate supervision of cases in hospital when the specialist staff is away can be potentially dangerous for the in-patients. The other option of sending a relatively junior and inexperienced house officer in the OFS team would defeat the purpose of the whole exercise, since the objective is to provide emergency specialist services at domiciliary level⁽¹⁾.

CONCLUSIONS

A rapid increase in the number of hospitals and health care centres, fairly good availability of doctors, increasing literacy rates and dramatic advances in telecommunication and transportation have definitely reduced the role of OFS services. Transfusion and anaesthesia are rarely required in the urban home setting and it is usually faster to transport the patient to hospital by ambulance. The OFS may still have a place in isolated rural communities, as proposed by some authors^(3,5-7). Those living in areas virtually inaccessible or not easily accessible by land transport may benefit from receiving specialist obstetric and anaesthetic care with blood transfusion facilities at home through the OFS in critical situations.

We recommend that each state in Peninsular Malaysia regularly perform a critical review of its OFS service and justify the provision of the OFS service with respect to their ambulance services.

ACKNOWLEDGEMENT

We wish to thank the Director General of Health, Malaysia, for his kind permission to publish this article.

REFERENCES

1. Liang DYS. The emergency obstetric service, Belshill Maternity Hospital: 1933-61. *J Obstet Gynecol Br Commonwealth* 1963; 70:83-93.
2. Chamberlain G, Pearce JM. The flying squad. *Br J Obstet Gynaecol* 1991; 98:1067-9.
3. Ryan TDR, Kidd GM. The Liverpool urban obstetric flying squad: changing patterns of practice 1965-84. *Br Med J* 1987; 294:97-9.
4. Trehan AK, Fergusson ILC. The flying squad - an expensive and potentially dangerous practice in modern obstetrics. *Br J Obstet Gynaecol* 1991; 98:1177-9.
5. Browne GPR. The Liverpool urban obstetric flying squad. *Letter. Br Med J* 1987; 294:442.
6. Callander CC. The Liverpool urban obstetric flying squad. *Letter. Br Med J* 1987; 294:443.
7. Roberts ADG, Macafee CAJ. The Liverpool urban obstetric flying squad. *Letter. Br Med J* 1987; 294:443.
8. Callander C, Hutton P. The anaesthetist and the obstetric flying squad. Could complacency creep in? *Anaesthesia* 1986; 41:721-5.
9. Jabatan Tenaga Rakyat Kelantan. Economic report 1989/90. Department of manpower development, Kelantan, Malaysia.
10. Asiaweek. SW Morrison ed. Hong Kong: Asiaweek Limited, 1991; 17:8:10.
11. Garis Panduan - Pengendalian kes-kes berisiko tinggi bagi ibu-ibu mengandung (2nd ed). Ministry of Health, Malaysia, 1991.