

## ORIGINAL

# Minor Surgery in Bahrain's Primary Care System

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## ABSTRACT

Many primary care physicians do not perform minor surgery in spite of its numerous advantages. We set out to determine how many primary care physicians in Bahrain perform 21 different types of minor surgical procedures, what difficulties they experienced and their attitude towards minor surgery. Ninety one of 109 physicians replied to a standardised questionnaire. Twelve of the 21 procedures were considered important to primary care, and only 8 were carried out by more than 50% of physicians. There was no statistical difference between the performance of family physicians and general practitioners. Fear of complication, lack of adequate training and time were the commonest reasons given for not performing a certain procedure. Our findings indicate that primary care physicians in Bahrain need to improve their minor surgical skills.

Bahrain is a small island in the Arabian Gulf with an area of 692 km<sup>2</sup> and has 508307 inhabitants. Medical services are provided by a well developed free of charge government health system and a small number of private health facilities. The government health system in Bahrain is oriented to primary care. The island has 19 health

centres (HC), which are dispersed in an even way in all residential areas, and therefore easily accessible to the general population. Each HC is operated by a team of 3-9 physicians and 2-5 nurses. At least one certified family physician is included within each health centre; the other physicians have training in internal medicine, paediatrics, or obstetrics and gynaecology. Each physician examines around 60 patients per clinic session of 7 hours. The total number of working physicians in the HCs is 125. Every health centre has a modern operating theatre for minor surgery.

Minor surgery in primary care has many advantages<sup>1-12</sup> (Table 1). Brown's research in London, England, shows that it is fifteen times cheaper to perform the same minor operations in general practice as compared to hospital operating theatres<sup>3,11</sup>. Furthermore, it is estimated that one-third of all new patients seen in a surgical out patient clinic can be handled by primary care physicians who are well trained in minor surgery<sup>7</sup>. In spite of all the advantages listed in table 1, it seems that some primary care physicians, for one reason or another, abstain from practicing minor surgery, or get involved only in a limited number of procedures. This phenomenon is not limited to general practitioners who did not receive formal training in

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**Table 1**  
**Advantages of minor surgery in primary care**

1. Cost-effective
2. Better job satisfaction
3. Financial benefits for the physician
4. Comprehensive care
5. Decreases waiting time, and hence morbidity
6. Decreases patient's anxiety

a family practice programme, but also applicable to specialists in family medicine<sup>10,13</sup>.

The present study seeks to:

1. Identify the attitude of primary care physicians in Bahrain towards minor surgery.
2. Identify to what extent primary health physicians are involved in minor surgery.
3. Determine the nature of difficulties encountered by physicians in performing minor surgical procedures.

## METHODS

A questionnaire was developed to assess the attitude, degree of involvement, and difficulties in performing 21 minor surgical procedures by primary care physicians working in the health centres in Bahrain. Pilot testing on the developed questionnaire was done prior to distribution. The selection of the 21 procedures was based on the current practice of minor surgery in the HC, and review of the literature. At the time of study, only 109 physicians were available. A questionnaire was sent to each of them through a third party for the anonymity of the subject. They were asked to return the completed questionnaires by mail within a 3 week period. The third party contacted the physicians to encourage them to complete the questionnaires.

The physicians were asked to give their opinion as to whether each of the procedures listed was essential to primary care. They were also requested to note whether they had performed any procedure in question during the past year, and to state any difficulty(ies) faced with each procedure. Additional space was left on the questionnaire form to allow the respondents to suggest other

surgical procedures they believed to be important in primary care. Provisions were made to assist physicians who may have had problems completing the survey form. Data were entered on a personal computer using dBase. Simple two way tables were constructed and statistical significance was tested by  $X^2$  test, or where appropriate, by Fisher's exact test using the statistical package SPSS/PC, version 3.0.

## RESULTS

Of the 109 questionnaire sent out, 96 were returned. Five questionnaires were not included because of incomplete data leaving 91 for analysis, an 83% response rate.

### 1. Characteristics of Physicians Surveyed

Of the 91 physicians, 35 were certified family physicians (FP) and 56 general practitioners (GP). The GPs have different training. Some have worked in paediatrics, others in internal medicine and some in obstetrics-gynaecology before starting to work in the health centres of Bahrain.

Fifty two male and thirty nine female physicians responded to the survey. Of the 52 males there were 36.5% FP and 63.5% GP. Of the female respondents, 41 and 59 percent were FP and GP respectively.

The mean age and years spent in practice of the GP's were 38 and 13.1 respectively. On the other hand FP's had a mean age of 34.3 and an average of 9.4 years in practice (Table 2).

### 2. Attitude and Performance

In general, female physicians were less involved in minor surgery than their male counterparts (Table 3).

**Table 2**  
**Age and years spent in practice of GP and FP**

	GP (56)		FP (35)		Total (91)	
	mean	SD	mean	SD	mean	SD
Age	38	5.6	34.3	5.6	36.3	5.9
Years in practice	13.1	5.9	9.4	5.0	11.4	5.8

**Table 3**  
**Performance of minor surgery according to sex of physicians**

Minor surgical procedures	male %57.1 (n:52)	female %42.9 (n:39)	total %100 (n:91)	signi- ficance
Suturing of simple lacerations	98.1 (51)	87.2 (34)	93.4 (85)	NS*
Excision of skin lesions	84.6 (44)	38.5 (15)	64.8 (59)	NS
Curettage of Calluses and corns	75.0 (39)	48.7 (19)	63.7 (58)	SS**
Incision and drainage of abscess	92.3 (48)	74.4 (29)	84.6 (77)	S***
Resection of ingrowing toenails	44.2 (23)	12.8 (5)	30.8 (28)	SS
FB+ removal excluding Eye, EN++	78.8 (41)	87.2 (34)	82.4 (75)	NS
Drainage of subangular haematoma	73.1 (38)	33.3 (13)	56.0 (51)	SS
Reconstruction of pinna	32.7 (17)	10.3 (4)	23.1 (21)	S
Neonatal circumcision	82.7 (43)	53.8 (21)	70.3 (64)	SS
Freeing of tongue tie	23.1 (12)	5.1 (2)	15.4 (14)	S
Cautery of umbilical stump	42.3 (22)	41.0 (16)	41.8 (38)	NS
Excision of sebaceous cysts	61.5 (32)	23.1 (9)	45.1 (41)	SS
Cryo/cautery of warts	75.0 (39)	69.2 (27)	72.5 (66)	NS
Aspiration of cysts and joints	15.4 (8)	2.6 (1)	9.9 (9)	NS
Insertion of IUCDs	7.7 (4)	43.6 (17)	23.1 (21)	SS
Steroid injections of joints	13.5 (7)	5.1 (2)	9.9 (9)	NS
Injection of the carpal tunnel	7.7 (4)	2.6 (1)	5.5 (5)	NS
Injection of trigger fingers	1.9 (1)	2.6 (1)	5.5 (2)	NS
Aspiration of hydrocele	3.8 (2)	0.0 (0)	2.2 (2)	NS
External haemorrhoids-thrombus excision	0.0 (0)	2.6 (1)	1.1 (1)	NS
Nasal cautery and packing	19.2 (10)	15.4 (6)	17.6 (16)	NS

\*NS – Not Significant

\*\*SS – P or Fisher exact <0.01

\*\*\*S – P or Fisher exact <0.05

+FB – Foreign body

++EN – Ear & Nose



**Table 4**  
**Positive attitudes of 56 general practitioners (GP) and 35 family physicians (FP) towards 21 selected minor surgical procedures rated as essential\***

<i>Minor surgical procedures</i>	<i>GP</i> <i>%61.5</i> <i>(n:56)</i>	<i>FP</i> <i>%38.5</i> <i>(n:35)</i>	<i>Total</i> <i>%100</i> <i>(n:91)</i>
Suturing of simple lacerations	96.4 (54)	94.3 (33)	95.6 (87)
Excision of skin lesions	83.9 (47)	77.1 (27)	81.3 (74)
Curettage of Calluses and corns	89.3 (50)	80.0 (28)	85.7 (78)
Incision and drainage of abscess	91.1 (51)	94.3 (33)	92.3 (84)
Resection of ingrowing toenails	73.2 (41)	62.9 (22)	69.2 (63)
FB <sup>+</sup> removal excluding Eye, EN <sup>++</sup>	82.1 (46)	82.9 (29)	82.4 (75)
Drainage of subangular haematoma	78.6 (44)	88.6 (31)	82.4 (75)
Reconstruction of pinna	42.9 (24)	42.9 (15)	42.9 (39)
Neonatal circumcision	87.5 (49)	91.4 (32)	89.0 (81)
Freeing of tongue tie	37.5 (21)	42.9 (15)	39.6 (36)
Cautery of umbilical stump	73.2 (41)	88.6 (31)	79.1 (72)
Excision of sebaceous cysts	73.2 (41)	74.3 (26)	73.6 (67)
Cryo/cautery of warts	94.6 (53)	94.3 (33)	94.5 (86)
Aspiration of cysts and joints	30.4 (17)	25.7 (9)	28.6 (26)
Insertion of IUCDs	73.2 (41)	85.7 (30)	78.0 (71)
Steroid injections of joints	37.5 (21)	40.0 (14)	38.5 (35)
Injection of the carpal tunnel	26.8 (15)	37.1 (11)	30.8 (26)
Injection of trigger fingers	26.8 (15)	31.4 (13)	28.6 (28)
Aspiration of hydrocele	16.1 (9)	8.6 (3)	13.2 (12)
External haemorrhoids-thrombus excision	16.1 (9)	11.4 (4)	14.3 (13)
Nasal cautery and packing	46.4 (26)	28.6 (10)	39.6 (36)

\* No significant difference between GP and FP in performance of each of the listed procedures was found

+FB – Foreign body

++EN – Ear & Nose

Only 12 procedures of the 21 listed were considered essential by more than 50 per cent of all physicians

(Table 4). When it came to performance, only 8 operations were performed by more than 50% of the respondents (Table 5).

**Table 5**  
**Performance of 21 selected minor surgical procedures by primary care physicians at the health centres in Bahrain\***

Minor surgical procedures	GP %61.5 (n:56)	FP %38.5 (n:35)	Total %100 (n:91)
Suturing of simple lacerations	92.9 (52)	94.3 (33)	93.4 (85)
Excision of skin lesions	66.1 (37)	62.9 (22)	64.8 (59)
Curettage of Calluses and corns	67.9 (38)	57.1 (20)	63.7 (58)
Incision and drainage of abscess	85.7 (48)	82.9 (29)	84.6 (77)
Resection of ingrowing toenails	32.1 (18)	28.6 (10)	30.8 (28)
FB+ removal excluding Eye, EN++	85.7 (48)	77.1 (27)	82.4 (75)
Drainage of subangular haematoma	53.6 (30)	60.0 (21)	56.0 (51)
Reconstruction of pinna	23.2 (13)	22.9 (8)	23.1 (21)
Neonatal circumcision	73.2 (41)	65.7 (23)	70.3 (64)
Freeing of tongue tie	19.6 (11)	8.6 (3)	15.4 (14)
Cautery of umbilical stump	35.7 (20)	51.4 (18)	41.8 (38)
Excision of sebaceous cysts	42.9 (24)	48.6 (17)	45.1 (41)
Cryo/cautery of warts	78.6 (44)	62.9 (22)	72.5 (66)
Aspiration of cysts and joints	10.7 (6)	8.6 (3)	9.9 (9)
Insertion of IUCDs	23.2 (13)	22.9 (8)	23.1 (21)
Steroid injections of joints	10.7 (6)	8.6 (3)	9.9 (9)
Injection of the carpal tunnel	5.4 (3)	5.7 (2)	5.5 (5)
Injection of trigger fingers	3.6 (2)	0.0 (0)	2.2 (2)
Aspiration of hydrocele	1.8 (1)	2.9 (1)	2.2 (2)
External haemorrhoids-thrombus excision	1.8 (1)	0.0 (0)	1.1 (1)
Nasal cautery and packing	21.4 (12)	11.4 (4)	17.6 (16)

\* No significant difference between GP and FP in performance of each of the listed procedures was found

+FB – Foreign body

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Additional minor surgical procedures which were suggested included excision of chalazion (4 physicians), and marsupialization of bartholin cyst (1 physician).

### 3. Difficulties encountered in minor surgery

In the case of those performing a certain procedure,

the commonest excuse was lack of time. Lack of training and fear of complications were indicated by most physicians as a cause for not performing a listed procedure. For the various types of difficulties encountered in minor surgery by primary care physicians refer to table 6.

**Table 6**  
**Difficulties encountered in minor surgery by primary care physicians in the health centres of Bahrain by percentage**

Minor surgical procedures	Lack of training	Lack of interest	Lack of time	Lack of facilities	Cultural	No. incentive	Fear of complication	Others
Suturing of simple lacerations	3.3	0.0	33.0	8.8	2.2	3.3	6.6	1.1
Excision of skin lesions	14.3	6.6	22.0	12.1	1.1	2.2	7.7	0.0
Curettage of Calluses and corns	9.9	3.3	22.0	6.6	0.0	2.2	3.3	2.2
Incision and drainage of abscess	3.3	1.1	15.4	2.2	1.1	2.2	8.8	2.2
Resection of ingrowing toenails	38.5	11.0	29.7	4.4	3.3	2.2	11.0	0.0
FB+ removal excluding Eye, EN++	6.6	1.1	23.1	12.1	0.0	3.3	11.0	0.0
Drainage of subangular haematoma	11.0	6.6	15.4	2.2	0.0	3.3	6.6	0.0
Reconstruction of pinna	34.1	7.7	23.1	8.8	2.2	1.1	22.0	0.0
Neonatal circumcision	14.3	12.1	11.0	4.4	1.1	3.3	8.8	0.0
Freeing of tongue tie	48.4	5.5	12.1	5.5	2.2	5.5	19.8	0.0
Cautery of umbilical stump	15.4	3.3	11.0	2.2	1.1	4.4	13.2	0.0
Excision of sebaceous cysts	18.7	5.5	26.4	9.9	0.0	4.4	7.7	1.1
Cryo/cautery of warts	6.6	4.4	13.2	13.2	0.0	2.2	1.1	0.0
Aspiration of cysts and joints	42.9	6.6	13.2	9.9	3.3	6.6	48.4	0.0
Insertion of IUCDs	27.5	4.4	8.8	3.3	28.6	5.5	5.5	1.1
Steroid injections of joints	58.2	7.7	9.9	4.4	2.2	6.6	37.4	0.0
Injection of the carpal tunnel	61.5	5.5	8.8	5.5	1.1	5.5	36.3	0.0
Injection of trigger fingers	58.2	6.6	6.6	5.5	2.2	3.3	30.8	0.0
Aspiration of hydrocele	62.6	7.7	9.9	3.3	5.5	3.3	41.8	0.0
External haemorrhoids-thrombus excision	58.2	9.9	14.3	14.3	2.2	4.4	37.4	0.0
Nasal cautery and packing	44.0	5.5	7.7	15.4	1.1	3.3	17.6	0.0

+FB – Foreign body

++EN – Ear & Nose



## DISCUSSION

When attitude and performance were considered, there was not a 100 per cent consensus for any of the procedures listed. In fact, a marked discrepancy between attitude and performance was noticed in many of the procedures listed. This was attributed to more than one factor. To state the reasons behind this discrepancy, the following procedures are considered:

### 1. Suturing of cut wounds

Although suturing of cut wounds is the most common minor operation performed in the health centres in Bahrain<sup>14</sup>, 6.7% of the respondents (5 females and 1 male, of them 3 were family physicians) do not perform the procedure. Part of this may be attributed to the fact that the physicians have questioned different medical backgrounds. Some of them used to practice antenatal care, paediatrics, or internal medicine for an extended period of time before assuming their present jobs, and thus seem to have lost the interest and skills needed to perform this and other procedures. Another unlikely but possible explanation is that these physicians did not get the chance to suture someone in the last one year.

### 2. Insertion of Intra Uterine Contraceptive Device (IUCD)

Inserting an IUCD is a common procedure in primary care. In a study of 401 family physicians in the United States, 99% gave an affirmative response that FP should be able to insert an IUCD<sup>13</sup>. Our survey shows that only 73.2 and 85.7 percent of GP and FP, respectively, believe that primary care physicians should insert an IUCD (Table 4); while only 23.2 and 22.9 percent of all GPs and FPs have placed an IUCD

during their last year of practice (Table 5). Even female practitioners, who should not have a cultural difficulty in carrying out this procedure seem to have a problem in this area; only 44% of them perform IUCD insertion (Table 7). There was no statistical significance between the female FPs and female GPs in IUCD insertion.

The marked discrepancy between the attitude and performance in this respect can be easily attributed to cultural factors. In general, in our daily practice, women presenting for IUCD insertion ask for a female physician, which puts 57% of those questioned (the male practitioners) out of the scene of action. Another explanation for this discrepancy is lack of training. Lack of training is, again, mentioned by both FP and GP to be the main reason for not being able to insert an IUCD (27.5%).

### 3. Cryotherapy

While 95% of physicians believe that cryotherapy of warts is an essential important procedure in primary care, only 73 per cent of them perform such a skill. Possible explanations for this, other than reasons given in table 6 include: (a) the nurses carry out this procedure in some of the HCs, (b) the presence of alternative therapeutic (chemotherapy), and (c) lack of opportunity.

### 4. Procedures rarely performed

Injection of joints and trigger points with steroids, aspiration of fluids from the joints, enucleation of thrombosed external haemorrhoids, and aspiration of a hydrocele were the least performed procedures. This was mainly due to deficiency in training. Furthermore, the fact that some physicians stated

**Table 7**  
**The practice of IUCD insertion by 39 female practitioners in the health centres of Bahrain**

Practitioner	Inserting		Not inserting		Total	
	No	%	No	%	No	%
FP	10	53	9	47	19	49
GP	7	35	13	65	20	51
Total	17	44	22	56	39	100

that lack of time is a difficulty encountered in giving steroid injections, reflects a lack in cognitive knowledge. It is the experience of the authors and others<sup>11</sup>, that steroid injections are easy to perform, take few minutes, and are highly rewarding in terms of relief to the patient, at least for a considerable period of time. The problem in cognitive knowledge is again reflected by 22% of the physicians contributing to this survey – 22% of the physicians find difficulty in shaving callous and corns because of lack of time!

### Lack of Incentive

Contrary to our expectations, this study showed that the absence of an incentive scheme for doing a minor procedure has a minimal bearing on performance. Brown and others from the UK agree that the chief disincentive to performing minor operations in general practice is financial<sup>2,3,6</sup>. The presence or absence of an incentive can also explain the big difference between Australia and the US in terms of the number of surgical procedures that are considered essential in primary care; whereas, 8 procedures were identified as essential to GPs in Australia, 15 surgical procedures were considered essential in the US, where a fee for service is the rule<sup>4,13</sup>.

### CONCLUSION

**Based on the response of the primary care physicians in Bahrain, the data presented in this study shows that these physicians need to improve their cognitive and motor skills in minor surgery.**

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