**Survey of emergency and essential surgical, obstetric and anaesthetic services available in Bangladeshi Government health facilities.**

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**Abstract**

***Objective***: Evaluate the capacity of government-run hospitals in Bangladesh to provide emergency and essential surgical, obstetric and anaesthetic services.

***Study Design***: Cross-sectional survey of 242 Bangladeshi Government healthcare facilities.

***Methods:*** The World Health Organisation Situational Analysis Tool to Assess Emergency and Essential Surgical Care (SAT) evaluates the ability of a healthcare facility to provide basic surgical, obstetric and anaesthetic care based on 108 queries that detail the infrastructure, human resources, surgical interventions, reason for referral, and surgical equipment and supplies available at each facility. For this this survey, the Bangladeshi Ministry of Health sent the SAT to sub-district, district/general and teaching hospitals throughout the country in April 2013.

***Results:***  Responses were received from 242 healthcare facilities: 218 sub-district, 22 district/general and 6 teaching hospitals. At the sub-district level, resuscitator bag valve and masks were unavailable in 33% of facilities, adult oropharyngeal airways in 40%, intravenous fluid bags in 31%, intravenous cannulas 36% and electricity in 15%. District hospitals were better equipped though oxygen and anaesthesia machines were unavailable in 14%, x-ray was unavailable in 5%, blood banks were absent in 18%, and neonatal resuscitation equipment was absent in 41%.

***Conclusions:*** There has been overall impressive progress by the Bangladeshi Government in providing essential surgical services. Areas for improvement remain across all key areas, including infrastructure, human resources, surgical interventions offered and available equipment. Investment in surgical services offers a high value and cost-effective opportunity to continue to improve the health of the Bangladeshi population and move the country towards universal healthcare coverage.

**Introduction**

Estimates suggest that at least 4.8 billion people lack access to timely essential and emergency surgical, obstetric and anaesthetic care, with the vast majority living in low and middle income countries (LMICs)1. Therefore, perhaps unsurprisingly, surgically treatable conditions contribute up to 32% of the Global Burden of Disease2. Surveys in countries with a low surgical capacity, such as Rwanda and Sierra Leone, have found that approximately 30% of total deaths have a surgically treatable cause and could have been prevented3, 4.

Bangladesh is a resource poor county and health expenditure is low both as a proportion of GDP (3.7%) and in absolute terms (total average annual expenditure per capita is $67). Despite this, Bangladesh made impressive progress towards its health-related millennium goals, achieving several targets using an approach that has championed community healthcare as a cornerstone of its success5. In particular, the country has made impressive reductions in infant mortality, achieving a rate of 41/1000 live births, a figure that is below the global average making it one of just a few LMICs to reach the Millennium Development Goal 4 target6. Nevertheless, research has suggested that there is still a significant need for surgical care services in Bangladesh, where road traffic accident victims alone account for an estimated 19% of bed occupancy in district and sub-district hospitals7.

Government-run healthcare facilities are utilised by the poorest in Bangladeshi society and provide basic healthcare services at minimal out of pocket costs to users8. Surgical services and inpatient care are provided from the sub-district level upwards. Sub-district hospitals, referred to locally as Upazilla Health Complexes (Upazilla HCs), each serve an average population of approximately 300,000 people9 and are intended to provide basic obstetric, gynaecological, anaesthetic, nursing and laboratory services10. At the secondary health care level, surgical care is provided by district and general hospitals that are staffed by specialist doctors and provide outpatient and inpatient services, as well as imaging, laboratory and radiological services. General and district hospitals serve an average population of 2.2 million people9. More specialised surgical specialty and sub-speciality care is provided at the tertiary health care level by teaching hospitals and medical college hospitals. These hospitals are better equipped, have more highly trained specialist staff, and serve a large regional population10.

**Objective**

The aim of this study is to assess the current emergency and essential surgical, obstetric and anaesthetic care capacity of government-run healthcare facilities in Bangladesh, to identify critical areas for improvement.

**Methods**

The WHO Emergency and Essential Surgical Care Situational Analysis Tool (SAT) was used to assess the provision of surgical care in a representative cross section of hospitals in Bangladesh. This tool has been validated and has high reliability for identifying the strengths, weakness and gaps in four key aspects of a surgical health care delivery system: infrastructure and served population demographics, human resources providing surgical services (surgeons, anaesthetists and obstetricians), surgical intervention capability and rationale for referral, and emergency and essential surgical and anaesthetic equipment and supplies11. The tool consists of 108 questions with multiple answers resulting in 258 possible data points for each survey. The full list of surgical interventions assessed is presented in Table 6.

The SAT was disseminated in paper form to Upazilla HCs, district hospitals and general hospitals by the Bangladeshi Ministry of Health in April 2013. The primary period for collection of data was 15/04/13 to 24/10/2013, with subsequent data input into the WHO EESC Global Database. Data analysis was carried out using Stata 12.0.

**Results**

Data were received from 242 healthcare facilities, representing 49.5% of all government-run facilities offering surgical services in Bangladesh. Over 90% of survey forms were completed by a medical doctor working at the relevant healthcare facility, with the remainder completed by other healthcare workers or representatives of the facility. The highest response rate was from Upazilla HCs (53% of the total number offering surgical services) and the lowest response rate was from district and general hospitals (35% of the total number offering surgical services). A breakdown of health services across the country is shown in Table 1.

*Infrastructure and equipment*

The national availability of Upazilla HCs was 0.295 per 100,000 population, ranging from 0.224 in Dhaka to 0.420 in Barisal. Availability of district and general hospitals ranged from 0.038 (per 100,000) in Rajshahi and Dhaka to 0.072 in Barisal, with a national average of 0.044. The availability of teaching hospitals nationally was 0.011 (per 100,000) ranging from 0.006 in Rangpur to 0.015 in Dhaka. Teaching hospitals constitute the widest variation in surgical care provision for any type of healthcare facility, with almost 3 times as many teaching hospitals accessible per head in the highest performing region compared to the lowest. Considerable disparity was found between regions with respect to the total number of government healthcare facilities providing surgical care, with levels ranging from a low of 0.276 facilities (per 100,000) in Dhaka (the capital and most populous city) to as high as 0.504 in Barisal (a major city in south central Bangladesh). Healthcare facility density is summarised in Table 2.

Upazilla HCs served a median population of 257,000, whilst district and general hospitals served a median population of 1.3 million. A summary of the population characteristics of participating health facilities is presented in Table 3.

The surveyed Upazilla HCs faced disruption to electricity service in 15% of facilities, reporting frequent shortages in electrical supply with no backup generator available. Urine and haemoglobin testing were available in 64% of facilities sampled and 44% had a functioning anaesthetic machine. Most Upazilla HCs had all supplies required to provide emergency obstetric, surgical and anaesthetic interventions. However, specific significant equipment shortages were identified, including resuscitator bag valve and masks (unavailable in 33%), adult oropharyngeal airways (unavailable in 40%), intravenous fluid bags (barriers to supply in 31%) and intravenous cannulas (shortages in 36%).

The WHO standard precaution items checklist defines minimum infection control requirements12, and the SAT includes 7 of the 9 items on this checklist. Upazilla HCs faced significant barriers with regard to obtaining these items, with equipment sterilisers unavailable in 10%, sharps disposal containers unavailable in 20%, face masks unavailable in 16%, eye protection unavailable in 65% and protective gowns or aprons unavailable in 65%. Soap was unavailable in 5% and a further 25% had frequent shortages. Gloves were provided by patients. These results are shown in Table 4.

Contrastingly, the vast majority of district hospitals and general hospitals reported full availability of equipment and supplies detailed in the survey. Oxygen and a functioning anaesthesia machine were unavailable in 14% of these facilities, and x-ray machines were unavailable in 5%. Overall shortages and frequent difficulties obtaining equipment were reported by 35% of district and general hospitals, with specific shortages of resuscitator bag valve masks for adults in 31% of facilities, and for children in 37% of facilities. An additional 23% reported a shortage of suction pumps. Equipment availability is documented in Table 5.

*Surgical workforce and available surgical interventions*

Upazilla HCs reported a median of 50 beds and an average of 2 operating theatres. On average, staffing comprised one obstetrics and gynaecology specialist doctor, one general doctor providing surgical services (including obstetrics) and two paramedics or midwives. The most frequent interventions performed by Upazilla HCs were acute burn management, incision and drainage of abscesses, wound debridement, and male circumcision; all available in over 75% of centres. With regard to the Bellwether procedures, Caesarean section was offered by 55% of facilities, laparotomy by 7% of facilities and open fracture repair at 8% of facilities.

District and general hospitals reported a median of 23,279 admissions per year with an average of 2 functioning operating rooms. They carried out a median of 2,934 surgical procedures per year and employed a median of three qualified surgeons (two full-time and one part-time), two anaesthesiologists (one full-time and one part-time) and three fully qualified obstetrics and gynaecology doctors (two full-time and one part-time). In terms of the capacity of these facilities to offer Bellwether procedures, 95% offered caesarean section, 86% offered laparotomy and 77% offered open fracture treatment. Only 14% of these facilities offered neonatal surgery, 27% offered cleft lip repair, and obstetric fistula repair and cricothyroidotomy or tracheostomy insertion were offered at 32%. Encouragingly, 82% of these hospitals had blood bank facilities available at all times, and 59% had paediatric resuscitator bag valve masks available. A breakdown by health facility type of all surgical procedures performed is provided in Table 6 and surgical workforce density is detailed in Table 7.

**Discussion**

It is now increasingly acknowledged that surgery is an “indivisible, indispensable part of health care”13. This recent shift in focus has been reinforced via a resolution passed in 2015 by the 68th World Health Assembly, stressing the importance of emergency and essential surgical care and anaesthesia as a component of universal health coverage14, and is reflected in a renewed effort to incorporate a national surgical care plan into the existing or developing national health plans of LMICs across the world.

This is the largest and most detailed study to date of the surgical capacity of government-run health facilities in Bangladesh, and demonstrates remarkable progress towards offering comprehensive surgical, obstetric and anaesthetic care, whilst also highlighting several areas for improvement. The considerable commitment to health system strengthening already demonstrated by the Bangladeshi government has led to major improvements in recent years, and Bangladesh has met several of its Millennium Development Goal targets, including a reduction in the mortality rate for children aged under 5 from 144 to 41 per 1,000 live births since 1990, and a reduction in the proportion of underweight children in the same age range from 66.0% in 1990 to 36.4% in 201115. It is clear therefore that the capacity exists within Bangladesh to commit resources and coordinate a healthcare delivery workforce effectively and to strive towards the targets of the SDGs.

A substantial proportion of Upazilla HCs already provide surgical services and this success indicates that improving delivery of surgical care in the remaining centres is achievable. One important deficit highlighted by this survey was the failure to implement basic infection control measures and a shortage of supplies central to infection control in a number of these facilities, leaving both patients and healthcare workers exposed to significant risks, particularly when performing invasive surgical and obstetric procedures. Whilst overall district and general hospitals performed well with regards to infection control, measures were still missing in several facilities, with this deficit generally linked to a lack of appropriate supplies and equipment.

Access to healthcare facilities was also identified as a source of considerable inequality, with marked differences noted between geographic regions in the quantity of Upazilla HCs, district and general hospitals per 100,000 population. Currently, Barisal and Khulna districts have a superior provision of secondary healthcare when compared with the other divisions, highlighting a need for investment in healthcare facilities within the other five administrative divisions, most significantly Chittagong and Rajshahi. Dhaka and Rangpur both compared poorly against other districts in terms of the availability of Upazilla HCs, while Barisal and Rajshahi had a significantly better provision of these services per head of population. By a significant margin, Barisal has the best ratio of both Upazilla HCs and district and general hospitals able to provide surgical care.

In collaboration with UNICEF, Bangladesh is undertaking a facility-based Emergency Obstetric Care Program across all districts, with the aim of improving maternal health services15. Within this program, obstetric care is classified into two categories: comprehensive emergency obstetric care and basic emergency obstetric care. Currently, all medical college hospitals, all 53 district hospitals, 3 out of 11 general hospitals, 132 Upazilla HCs and 63 maternal and child welfare centres are designated to provide comprehensive emergency obstetric care, while the remaining Upazilla HCs provide basic emergency obstetric care9. Basic emergency obstetric care can be offered by skilled staff in health centres without surgical or anaesthetic input, whilst comprehensive emergency obstetric care requires significant specialised surgical, obstetric and anaesthetic input, including the ability to perform caesarean deliveries and safe blood transfusions, as well as neonatal resuscitation and newborn care16. District and general hospitals in particular, therefore, require a minimum level of infrastructure to achieve this mandate. Key requirements include access to haemoglobin and urine testing and the guaranteed availability of blood banking and transfusion services, as well as neonatal resuscitation equipment. Our survey found that though the staff profile in all health centres generally matched their role in the provision of emergency obstetric care and essential surgical services, there were significant deficits in resourcing and infrastructure. Most importantly, blood banks were absent in 18% of district and general hospitals, 18% reported only infrequent access to functioning haemoglobin and urine testing, and neonatal resuscitation equipment was absent in 41% of district and general hospitals.

It is important to note that though this survey provides a welcome snapshot of overall surgical service provision in Bangladesh, the generalisability of the findings is limited by the non-random nature of sampling and the limited coverage of health facilities. Response bias may also play a role, as this survey relied heavily on motivated health practitioners to submit data. Additionally, non-responses were analysed as missing, but it is possible that these were actually intended as “nil,” delivering a potential over-estimate of the facilities and equipment available. The SAT questionnaire itself, though it has been validated, may not provide the most robust assessment of clinical intervention provision11. Overall, however, the findings of this survey support the growing body of evidence from other LMICs that a lack of infrastructure, inadequate human resources and unavailability of surgical interventions and emergency equipment pose significant barriers to provision of adequate surgical care17-21.

There is a perception that investment in surgery in LMICs is not cost effective, though this view that has been discredited through rigorous economic assessment and analysis both by surgically-treatable condition and by health facility. Studies of the cost effectiveness of hospitals providing care at the first referral level have shown that these facilities offer good health investment2, 22-24. The costs saved ranged from US$10.93 in a small district hospital in Bangladesh25 to US$32.78-$223 in a larger facility providing trauma services23, comparing favourably with many long established public health interventions. This demonstration of cost effective care in Bangladesh25 suggests that further investment in the surgical services of this country is both feasible and likely to be highly cost effective.

**Conclusions**

Providing surgical care to the vast and diverse population of Bangladesh is a significant challenge, and requires urgent investment to strengthen existing health systems. Inequalities in access to healthcare facilities, surgical interventions and equipment, and deficits in infrastructure and human resources all require coordinated and sustained efforts toward improvement. Given the impressive record of the Bangladeshi Government in effectively implementing change, investment in surgery offers an exciting and cost-effective opportunity to continue to ameliorate the health of its citizens in its move towards universal healthcare coverage.

Disclaimer: The authors include WHO staff. The views expressed in this publication reflect their personal opinions and not necessarily those of WHO.

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**Table 1 Health facility numbers, beds and service package**

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Hospitals9 | Beds9 | Service package10 |
| Sub-district |  |  | Basic essential obstetric care services, gynaecology, anaesthesia, nursing and basic laboratory facilities. |
| *Upazila Health Complex* | 425 | 18025 |
| Secondary |  |  | Medicine, surgery, Comprehensive essential obstetric services, orthopaedics, Ophthalmology, ENT. |
| *District Hospital* | 53 | 1350 |
| *General hospital* | 11 | 7850 |
| Tertiary |  |  | Medicine, surgery, orthopaedics, Ophthalmology, Eye and ENT, ARI, Reproductive care etc. |
| *Medical College Hospital* | 16 | 11960 |

**Table 2 Healthcare facility density/100000 population**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Barisal | Chittagong | Dhaka | Khulna | Rajshahi | Rangpur | Sylhet | National Mean |
| Population | **8,325,666** | **28,423,019** | **47,424,418** | **15,687,759** | **15,787,758** | **18,484,858** | **9,910,219** |  |
| Teaching | **0.012** | **0.007** | **0.015** | **0.006** | **0.013** | **0.011** | **0.010** | **0.011** |
| District | **0.072** | **0.039** | **0.038** | **0.064** | **0.038** | **0.043** | **0.040** | **0.044** |
| Sub-district | **0.420** | **0.317** | **0.224** | **0.319** | **0.380** | **0.270** | **0.343** | **0.295** |
| Total Facilities | **0.504** | **0.362** | **0.276** | **0.389** | **0.431** | **0.325** | **0.394** | **0.350** |

**Table 3 Characteristics of responding health facilities by type : medians**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Sub-district** | **District / General** | **Regional / Teaching** |
| **Population served by facility** | 257,000 | 1,335,000 | 2,826,000 |
| **Number of beds in facility** | 50 | 100 | 725 |
| **Total number of admissions / year** | 4,840 | 23,300 | 67,100 |
| **Total number of out-patient visits / year** | 49,100 | 125,000 | 518,000 |
| **Number of functioning operating rooms\*** | 2 | 2 | 14 |
| **Number of patients requiring surgery\* (inc. obs & gynae.)† / year** | 438 | 2,934 | 17,048 |
| **Number of children (<15 years) requiring surgery / year** | 82 | 225 | 490 |
| **Number of patients referred to higher facility for surgery / year** | 170 | 200 | 118 |
| **Average distance (kms) travelled by patients for surgery locally** | 15 | 31 | 150 |
| **Average distance (kms) travelled for surgery at higher level** | 30 | 75 | 5 |

**\*: major and/or minor †: obstetrics and gynaecology**

**Table 4 Percentages of types of emergency/essential surgical care equipment/supplies available by type of health facility**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of equipment / supplies** | **Sub-district** | **District** | **Regional** |
| Resuscitator bag valve & mask (adult) | 29 | 64 | 67 |
| Resuscitator bag valve & mask (pediatric) | 29 | 59 | 50 |
| Stethoscope | 79 | 91 | 100 |
| Suction pump (manual or electric) with catheter | 55 | 77 | 83 |
| Blood pressure measuring equipment | 80 | 95 | 100 |
| Thermometer | 82 | 91 | 83 |
| Scalpel with blades | 67 | 91 | 50 |
| Retractor | 50 | 95 | 83 |
| Scissors | 74 | 91 | 67 |
| Oropharyngeal airway (adult size) | 74 | 77 | 67 |
| Oropharyngeal airway (paediatric size) | 38 | 59 | 67 |
| Forceps, artery | 30 | 86 | 67 |
| Gloves (sterile) | 73 | 82 | 67 |
| Gloves (examination) | 67 | 86 | 33 |
| Needle holder | 67 | 91 | 50 |
| Sterilizer | 78 | 91 | 33 |
| Vaginal speculum | 65 | 82 | 67 |
| Nasogastric tubes | 64 | 73 | 67 |
| Light source (lamp & flash light) | 49 | 64 | 33 |
| Intravenous fluid infusion set | 50 | 68 | 67 |
| Intravenous cannulas/scalp vein infusion set | 47 | 64 | 83 |
| Syringes with needles (disposable) | 48 | 86 | 67 |
| Sharps disposal container | 65 | 77 | 67 |
| Tourniquet | 67 | 68 | 33 |
| Needles & sutures | 55 | 73 | 67 |
| Splints for arm, leg | 58 | 55 | 50 |
| Urinary catheters (Foleys disposable) | 24 | 68 | 67 |
| Waste disposal container | 42 | 77 | 67 |
| Face masks | 72 | 64 | 50 |
| Eye protection | 48 | 55 | 33 |
| Protective gowns/aprons | 15 | 77 | 33 |
| Soap | 43 | 86 | 67 |
| Magill forceps (adult) | 67 | 68 | 33 |
| Magill forceps (paediatric) | 17 | 50 | 33 |
| Endotracheal tubes (adult) | 11 | 64 | 33 |
| Endotracheal tubes (paediatric) | 23 | 50 | 33 |
| IV infuser bags | 18 | 36 | 17 |
| Chest tubes insertion equipment | 17 | 27 | 17 |
| Laryngoscope Macintosh blades with bulbs & batteries (adult) | 4 | 73 | 33 |
| Laryngoscope Macintosh blades with bulbs & batteries (paediatric) | 24 | 68 | 33 |
| Cricothyroidotomy set | 15 | 18 | 17 |

**Table 5 Healthcare facility infrastructure; percentages of responses indicating availability at all times for all patients by type of health facility**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Sub-district** | **District /**  **General** | **Regional /**  **Teaching** |
| Do you have oxygen cylinder or concentrator supply with mask and tubing? | 83 | 100 | 100 |
| Do you have running water? | 95 | 100 | 100 |
| Do you have an electricity source/operational power generator? | 66 | 77 | 100 |
| Do you have a functioning anaesthesia machine? | 44 | 91 | 100 |
| Do you keep medical records? | 95 | 96 | 83 |
| Do you have an area designated for Emergency care? | 87 | 95 | 83 |
| Do you have an area designated for Postoperative care? | 45 | 55 | 83 |
| Do you have Management Guidelines – Emergency? | 42 | 43 | 50 |
| Do you have Management Guidelines – Surgery? | 17 | 55 | 67 |
| Do you have Management Guidelines – Anaesthesia? | 18 | 46 | 83 |
| Do you have Management Guidelines – Pain Relief? | 33 | 27 | 80 |
| Do you have a blood bank available at the facility? | 6 | 68 | 100 |
| Do you have a facility to test haemoglobin and urine? | 64 | 82 | 100 |
| Do you have a functioning X-ray machine available? | 29 | 59 | 100 |
| Do you have a functioning pulse oximeter available? | 31 | 77 | 80 |

**Table 6 Percentages of interventions performed by type of health facility**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Intervention** | **Sub-district** | | **District** | | **Regional** | |
| Caesarean section | | 55 | | 95 | | 50 |
| Laparotomy (uterine rupture, ectopic pregnancy, acute abdomen, intestinal obstruction, perforation, injuries) | | 7 | | 86 | | 50 |
| Cricothyroidotomy/Tracheostomy | | 3 | | 32 | | 17 |
| Chest tube insertion | | 6 | | 45 | | 50 |
| Removal of foreign body (throat/eye/ear/nose) | | 54 | | 82 | | 67 |
| Acute burn management | | 80 | | 95 | | 67 |
| Incision & drainage of abscess | | 95 | | 100 | | 83 |
| Suturing (for wounds, episiotomy, cervical & vaginal lacerations) | | 93 | | 100 | | 83 |
| Wound debridement | | 81 | | 100 | | 83 |
| Dilatation & curettage/vacuum extraction (obstetrics/gyn) | | 48 | | 86 | | 67 |
| Obstetric fistula repair | | 5 | | 32 | | 33 |
| Tubal ligation/vasectomy | | 75 | | 91 | | 83 |
| Biopsy (lymph node, mass, other) | | 13 | | 82 | | 50 |
| Appendectomy | | 16 | | 95 | | 50 |
| Hernia repair (strangulated, elective, congenital) | | 16 | | 95 | | 50 |
| Hydrocelectomy | | 19 | | 95 | | 50 |
| Cystostomy | | 11 | | 77 | | 50 |
| Urethral stricture dilatation | | 7 | | 55 | | 50 |
| Male circumcision | | 79 | | 100 | | 67 |
| Neonatal surgery: abdominal wall defect, colostomy, imperforate anus, Intussusceptions | | 1 | | 14 | | 17 |
| Cleft lip repair | | 2 | | 27 | | 17 |
| Clubfoot repair | | 3 | | 50 | | 17 |
| Contracture release/skin grafting | | 5 | | 82 | | 33 |
| Joint dislocation treatment | | 41 | | 91 | | 67 |
| Drainage of osteomyelitis/septic arthritis | | 11 | | 77 | | 33 |
| Amputation | | 5 | | 82 | | 50 |
| Cataract surgery | | 2 | | 59 | | 33 |
| Regional anaesthesia blocks | | 24 | | 73 | | 50 |
| Spinal anaesthesia | | 27 | | 95 | | 50 |
| Ketamine intravenous anaesthesia | | 22 | | 95 | | 50 |
| General anaesthesia inhalational | | 10 | | 82 | | 33 |

**Table 7 Median (range) numbers of health professionals available by type of health facility**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of health professional** | **Sub-district** | **District** | **Regional** |
| Surgeons full-time (qualified) | 0 (0 : 7) | 2 (0 : 23) | 0 (0 : 4) |
| Surgeons part-time | 0 (0 : 5) | 1 (0 : 5) | 0 (0 : 32) |
| Anaesthesiologist physicians full-time (qualified) | 0 (0 : 1) | 1 (0 : 3) | 0 (0 : 0) |
| Anaesthesiologist physicians part-time (qualified) | 0 (0 : 1) | 1 (0 : 2) | 0 (0 : 2) |
| Obstetricians/Gynaecologists full-time (qualified) | 1 (0 : 3) | 2 (1 : 5) | 0 (0 : 1) |
| Obstetricians/Gynaecologists part-time | 0 (0 : 2) | 1 (0 : 1) | 0 (0 : 6) |
| General doctors providing surgery full-time (including obstetrics) | 1 (0 : 8) | 2 (0 :13) | 2 (0 : 4) |
| General doctors providing surgery part-time (including obstetrics) | 0 (0 : 4) | 2 (1 : 2) | 0 (0 : 1) |
| General doctors providing anaesthesia full-time | 0 (0 : 5) | 1 (0 : 3) | 0 (0 : 3) |
| General doctors providing anaesthesia part-time | 0 (0 : 2) | 1 (1 : 2) | 0 (0 : 0) |
| Nurses/Clinical officers providing anaesthesia full-time | 0 (0 : 12) | 0 (0 : 32) | 1 (0 : 4) |
| Nurses/Clinical officers providing anaesthesia part-time | 0 (0 : 10) | 1 (0 : 1) | 5 (0 : 19) |
| Clinical officers providing surgery full-time | 0 (0 : 10) | 1 (0 : 5) | 0 (0 : 1) |
| Clinical officers providing surgery part-time | 0 (0 : 5) | 1 (0 : 1) | 0 (0 : 9) |
| Paramedics/Midwives full-time | 2 (0 : 23) | 4 (0 : 90) | 4 (0 : 10) |
| Paramedics/Midwives part-time | 0 (0 : 14) | 1 (0 : 1) | 4 (0 : 36) |