NCPA/HPO Annual Report 2016

General Anaesthetics, Neuraxial blocks and Regional Blocks, Administered in Public Hospitals in Ireland in 2016 As captured in HIPE

March 2018

Contents

Foreword

This is the third NCPA/HPO Annual report and includes data for the year 2016. The format and layout of previous reports is retained and the caveats and limitations of previous reports also apply to this report.

- The data were retrieved from the national HIPE file by the HIPE team at the Healthcare Pricing Office using specific search criteria developed for this purpose.

- The authors acknowledge that the report only describes part of the workload of anaesthetists.

- The report gives the number of general anaesthetics, neuraxial blocks and regional blocks administered in public hospitals in Ireland as captured in HIPE.

- Data on patient age, gender, ASA status, the urgency of the procedure and type of procedure are also included.

- Neuraxial blocks given for pain relief on the labour ward may not have an accompanying surgical procedure, and general anaesthesia given for a course of ECT is recorded just once per stay in hospital.

- Organ Donation and Transplant Ireland (ODTI) continue to provide data on the number of patients with a diagnosis of brain stem death who donate organs for transplant.

- The audit project examining the recording of patient ASA status and the urgency of the procedure on anaesthetic record sheets continues and is now being undertaken in individual hospitals. While the results of these individual audits are private to the particular hospitals, some remarks and lessons which can be applied generally are included in this report.

- The methods used to retrieve and present data are constantly reviewed and updated.

For the first time the Annual Report contains data on discharge numbers and age categories for the new hospital groupings. Appendix 1 of this report contains the full list of hospitals in each hospital group.

Part 1:

Principal Data

Table 1 & Figure 1 describe the Number and Type of anaesthetic administered in 2013 – 2016 as reported to HIPE

The total number of anaesthetics* (Table 1 & Fig 1) remains very constant with small year on year fluctuations ranging from plus 1% to minus 1%. The fluctuations for general anaesthetics range from plus 1% to minus 2%, while the figures for regional blocks continue to show a small but steady increase.

Table 1

Number of anaesthetics administered in 2013 - 2016 by Anaesthetic type

Year	2013	2014	2015	2016
Anaesthetic type	**Anaesthetic Count**			
General	173,564	174,976	170,879	168,304
Neuraxial Block	53,565	53,075	53,609	53,058
Regional	7,312	7,623	7,900	8,414
TOTAL	**234,441**	**235,674**	**232,388**	**229,776**

Fig 1

Percent of anaesthetics administered in 2013 – 2016 by Anaesthetic type
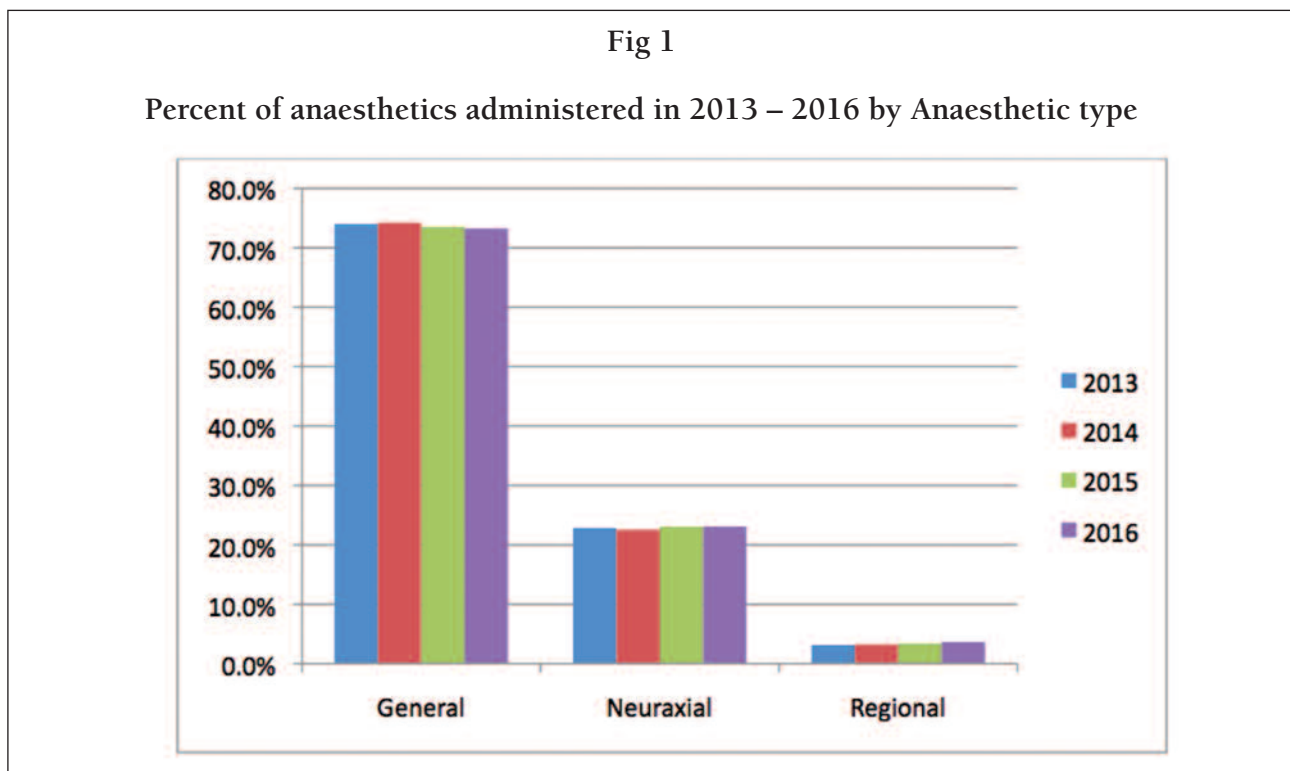
*The total number of anaesthetics is the sum of all three types of anaesthetics administered. The Anaesthetic count exceeds the Discharge count because some patients had more than one anaesthetic at the same time (e.g. GA and Neuraxial block) or more than one anaesthetic during the same admission.

Table 2 & Figure 2 describe the number of patient discharges reporting an anaesthetic procedure(s) in 2013 – 2016 by gender as reported to HIPE

The male: female ratio remains at 2:3 (Table 2 & Fig 2) and there is no difference in the year on year variation in numbers between the sexes.

Table 2

Number of patient discharges reporting an anaesthetic procedure(s) in 2013 - 2016 by Gender

Year	2013	2014	2015	2016
Gender	Discharge Count			
Male	85,593	86,104	85,257	83,975
Female	137,582	138,370	136,129	134,303
TOTAL	223,175	224,474	221,386	218,278

Fig 2

Percent of patient discharges reporting an anaesthetic procedure(s) in 2013 - 2016 by Gender
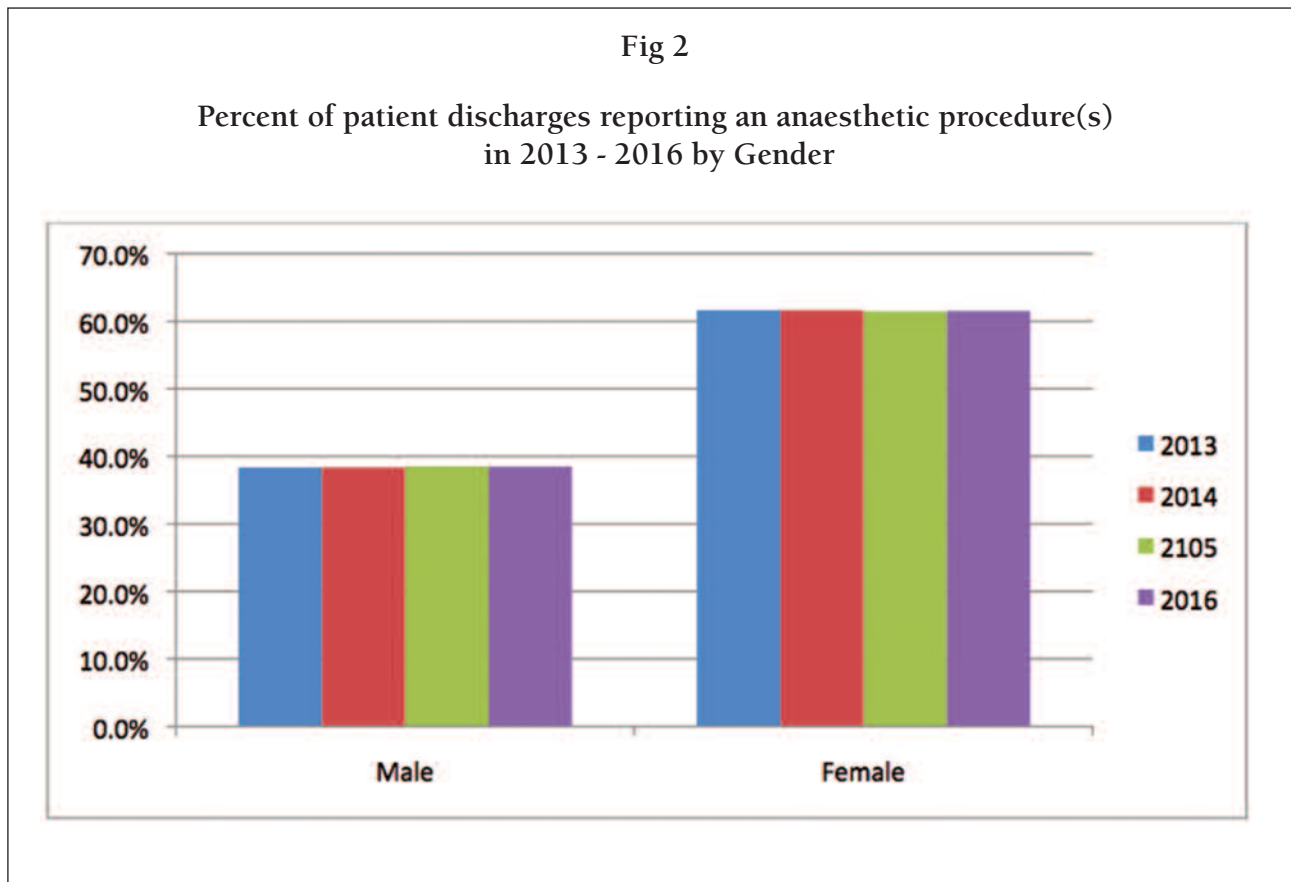
Table 3 & Figure 3 describe the number of anaesthetics administered in 2013 – 2016 by patient ASA status as reported to HIPE

The percent of patients with an ASA 9* status recorded by HIPE has fallen from 34.2% to 24.1% since 2013 (Table 3 & Fig 3). While this is encouraging, the fact remains that 24% of anaesthetic record sheets reported to HIPE do not indicate the patient ASA status.

Table 3

Number of anaesthetics administered in 2013 - 2016 by patient ASA status

Year	2013	2014	2015	2016
ASA status	Anaesthetic Count			
1 Normal healthy patient	76,699	78,387	75,351	74,370
2 Mild systemic disease	56,537	62,237	67,432	72,408
3 Severe systemic disease limiting activity	19,561	21,400	23,651	25,279
4 Severe systemic disease posing a constant threat to life	1,433	1,748	1,914	2,140
5 Moribund patient not expected to survive longer than 24 hrs without surgery	125	150	163	150
6 Brain stem death and organ donation for transplant	0	0	6	8
9 No documentation on ASA status	80,086	71,752	63,871	55,421
TOTAL	234,441	235,674	232,388	229,776
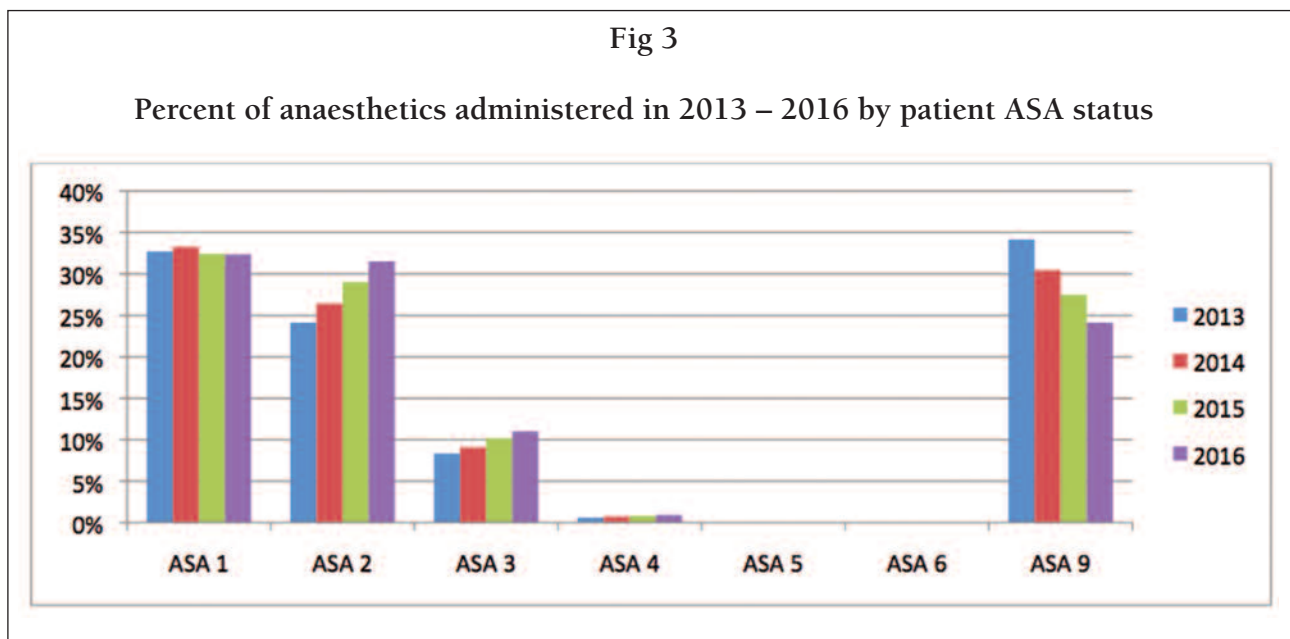
Fig 3

Percent of anaesthetics administered in 2013 – 2016 by patient ASA status

*ASA scores -This information must be documented on the anaesthetic form before assigning these codes. Where there is no documentation of ASA score or the emergency modifier is not indicated, filler digits of '9' should be assigned[1]
See Appendix 3

Table 4 & Figure 4 describe the number of anaesthetics administered in 2013 – 2016 by urgency of procedure as reported to HIPE

11% of procedures were recorded as emergencies on anaesthetic record sheets in 2016 (Table 4 & Fig 4) which is still well below the 38.5% identified in the NAP5 report[2,3]. The failure to improve on this figure is doubly perplexing because not only is the urgency of procedures immensely important to anaesthetists but it is standard practice to combine recording the ASA patient status and the emergency nature of the procedure by simply adding the letter E, eg ASA2^E. Nevertheless it appears that 24% of anaesthetic record sheets fail to indicate the patient ASA status, and failure to record the emergency nature of procedures could be as high as 60%[2,3].

Table 4

Number of anaesthetics administered in 2013 - 2016 by Urgency of procedure

Year	2013	2014	2015	2016
Anaesthetic Count				
Emergency	22,188	22,864	23,604	26,048 ←
Non-emergency or not known	212,253	212,810	208,784	203,728
TOTAL	**234,441**	**235,674**	**232,388**	**229,776**

Fig 4

Percent of anaesthetics administered in 2013 - 2016 by Urgency of procedure
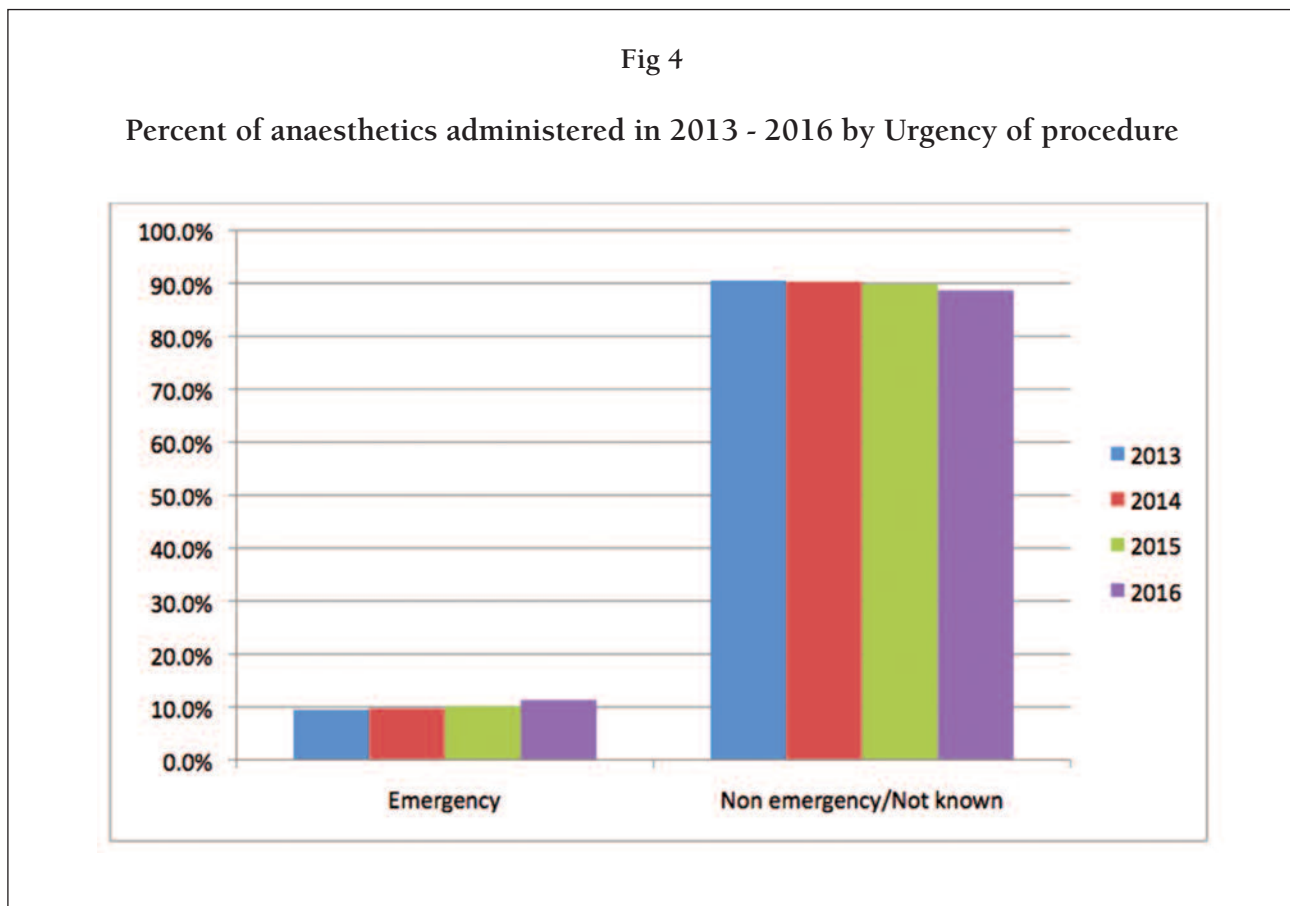
Table 5 & Figure 5 describe the number of patient discharges reporting an anaesthetic procedure(s) in 2013 – 2016 by age as reported to HIPE

The small but steady reduction in the number of patients aged less than 36 years and the concomitant increase in the number of patients aged 36 and over was highlighted in the annual report for 2015. This pattern is maintained in 2016 (Table 5 & Fig 5). The number of patients aged less than 36 years has fallen by 9.4% since 2013 while the number of patients aged 36 and over has increased by 4.2%.

Table 5

Number of patient discharges reporting an anaesthetic procedure(s) in 2013 - 2016 by Age

Year	2013	2014	2015	2016
Age categories (yrs)	**Discharge Count**			
Less than 1 yr	2,482	2,430	2,272	2,119
01 – 05 yrs	16,905	15,858	14,833	13,859
06 – 15 yrs	20,058	20,579	20,147	20,028
16 – 25 yrs	20,637	20,428	19,535	18,494
26 – 35 yrs	45,421	44,968	43,222	41,109
36 – 45 yrs	35,252	35,766	36,024	36,243
46 - 55 yrs	23,886	24,135	24,234	24,324
56 – 65 yrs	23,266	23,478	23,606	23,945
66 – 75 yrs	20,333	21,279	21,884	22,415
76 – 85 yrs	11,967	12,497	12,556	12,579
Over 85 yrs	2,968	3,056	3,073	3,163
TOTAL	**223,175**	**224,474**	**221,386**	**218,278**

Fig 5

Percent of patient discharges reporting an anaesthetic procedure(s) in 2013 - 2016 by Age
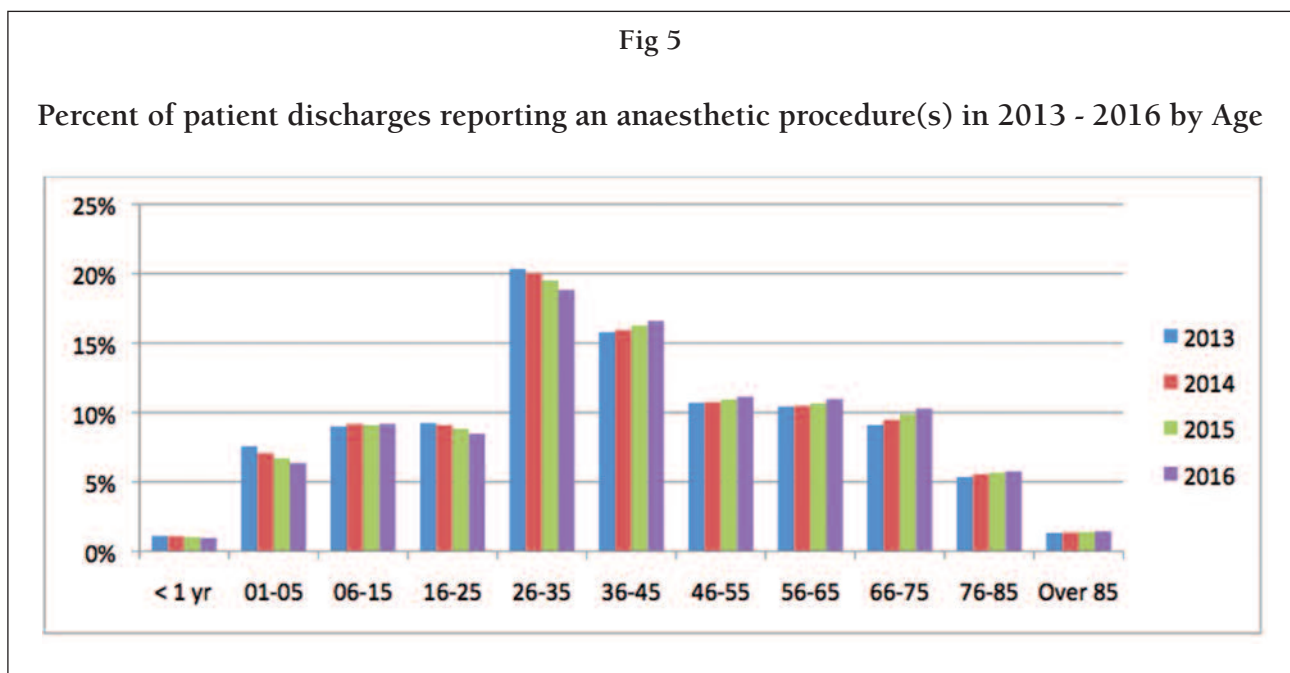
Table 6 describes the number of patient discharges reporting an anaesthetic procedure(s) in 2016 by age and by hospital group as reported to HIPE

This is the first NCPA/HPO Annual Report to include data on patient discharges by age and hospital group, (Table 6). Paediatric anaesthetic workload in general hospitals has always generated considerable interest and the figures for infants and children under the age of 16 years are highlighted. Children up to the eve of their 16th birthday are admitted to the three children's hospitals, however there is flexibility for admission of a young person aged 16 or over depending on clinical need[4], hence the small number of patients in the Children's hospital group in the age category 16 – 25.

The full list of hospitals in each hospital group is given in Appendix 1

Table 6							
Number of patient discharges reporting an anaesthetic procedure(s) in 2016 by Age and Hospital Grouping							
Discharge Count by Age and Hospital Grouping							
Age	**Ireland East**	**RCSI**	**Dublin Midlands**	**South S/West**	**UH Limerick**	**Saolta**	**Children**
Less than 1 yr	~	6	0	125	50	70	1,866
01 – 05yrs	*	563	609	2,128	1,252	1,688	7,155
06 – 15yrs	1,142	1,438	1,153	3,732	1,937	2,782	7,844
16 – 25yrs	3,647	3,192	3,226	3,865	1,402	2,725	437
26 – 35yrs	9,796	7,959	6,834	7,996	2,743	5,780	±
36 – 45yrs	8,260	6,606	5,973	7,226	2,837	5,341	±
46 – 55yrs	5,677	3,694	3,958	5,332	2,016	3,646	±
56 – 65yrs	5,514	2,862	3,723	5,880	1,989	3,977	±
66 – 75yrs	4,916	2,495	3,406	5,654	1,889	4,055	±
76 – 85yrs	2,706	1,448	1,709	3,191	888	2,637	±
Over 85yrs	621	394	415	828	214	691	±
Sub totals	42,745	30,657	31,006	45,957	17,217	33,392	17,304
Total							**218,278**

~ The Healthcare Pricing Office (HPO) does not report cells where the number of discharges is between one and five inclusive. In the table above such cells have been replaced by ~. Where further suppression is necessary to ensure that such cells are not disclosed it is necessary to suppress the cell with the next lowest discharges with *.

For reporting purposes, discharges aged 17 years and older from Tallaght Hospital are included in the Dublin Midlands Hospital Group, while discharges aged less than 17 years from Tallaght Hospital are included in the Children's Hospital Group.

± is used to denote where the age group breakdown for a particular hospital group has not been provided, as the numbers reported would result in suppression across the majority of categories.

Table 7 describes the number of anaesthetics administered in 2013 – 2016 by Australian Classification of Health Interventions (ACHI) as reported to HIPE

Procedures on the digestive system, the musculoskeletal system, obstetric procedures and gynaecological procedures remain the four largest categories for which anaesthesia is administered.

Table 7

Number of anaesthetics administered in 2013 - 2016 categorised by Australian Classification of Health Interventions (ACHI)

Intervention Chapter	Anaesthetic Count			
	Year 2013	Year 2014	Year 2015	Year 2016
1 Procedures on the nervous system	5,278	5,469	5,244	5,374
2 Procedures on endocrine system	1,367	1,393	1,267	1,135
3 Procedures on eye and adnexa	7,230	7,610	7,472	7,749
4 Procedures on ear and mastoid process	4,643	4,500	4,472	4,263
5 Procedures on nose, mouth and pharynx	9,302	8,737	8,413	7,946
6 Dental services	5,595	6,154	5,646	5,328
7 Procedures on respiratory system	4,148	4,114	4,172	4,269
8 Procedures on cardiovascular system	8,672	8,294	8,422	8,357
9 Procedures on blood and blood forming organs	1,294	1,226	1,196	1,220
10 Procedures on digestive system	**35,713**	**36,399**	**35,958**	**35,872**
11 Procedures on urinary system	9,367	9,543	9,539	9,819
12 Procedures on male genital organs	7,536	7,335	7,003	6,773
13 Gynaecological procedures	**24,236**	**24,584**	**23,911**	**23,511**
14 Obstetric procedures	**40,141**	**40,023**	**39,445**	**38,103**
15 Procedures on musculoskeletal system	**46,834**	**46,157**	**46,519**	**46,608**
16 Dermatological and plastic procedures	12,121	12,820	12,305	12,088
17 Procedures on breast	4,559	4,816	4,855	4,892
18 Radiation oncology procedures	839	629	464	418
19 Non-invasive, cognitive and other interventions not elsewhere classified	3,027	3,123	3,291	3,270
20 Imaging services	1,740	1,870	1,798	1,754
No procedure on same date as anaesthetic procedure	790	938	996	1,027
TOTAL	**234,441**	**235,674**	**232,388**	**229,776**

Part 2:
Supplementary data

ASA 6 Patient status

ASA 6 denotes a patient with a diagnosis of brain stem death who is donating organs for transplant.
Data from ODTI indicate that 74 patients donated organs following a diagnosis of brain stem death in 2016.

Deceased Organ Donors

Year	2013	2014	2015	2016
Heart beating	80	59	77	74
Non heart beating	6	4	4	3
TOTAL	**86**	**63**	**81**	**77**

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ODTI Annual Report for 2016 is available at www.odti.ie

Organ Donation and Transplant Ireland has been delegated the regulatory functions assigned to the Health Service Executive (HSE) in Statutory Instrument (SI) 325 (2012), European Union (Quality and Safety of Human Organs Intended for Transplantation) Regulations 2012. This annual ODTI report has been produced in compliance with part 5, SI 325 (2012)

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Part 3:
Audit Project

The NCPA/HPO Annual reports have drawn attention to the fact that up to 24% of anaesthetic record sheets which HIPE coders examine do not appear to indicate the ASA status of the patient. Also, only 10% of procedures are described as emergencies while there is evidence to indicate that the true figure is closer to 40%[2,3].

The reasons for these omissions are not clear and although there has been a steady improvement nationally since 2013, the NCPA is of the view that individual departments participating in a review of the audit results for their hospital offers the best chance of identifying the underlying problems and rectifying them.

To do this the following audit protocol has been drawn up.

NCPA/HPO ASA 99 Pilot study Protocol

Individual anaesthetic departments and HIPE offices will be invited to take part in a pilot study which will be a collaborative effort between the anaesthetic department, the local HIPE office and the Healthcare Pricing Office (HPO). To begin with the HPO will provide a report describing the total number of general anaesthetics, neuraxial blocks and region blocks administered in the participating hospital for a study period of three months.

The HPO will also provide a list of cases for the study period where HIPE recorded the patients' ASA status as ASA 99, that is, no indication of the patients' ASA status or the urgency of the procedure (emergency/elective) could be found by HIPE coders on the anaesthetic record sheet. This list will be sent from the HPO to the HIPE office of the participating hospital for review at chart level. The percent of ASA 99 cases for the study period can be calculated and compared with the national figure which is given in the NCPA/HPO Annual report. The list of ASA 99 cases will allow the relevant anaesthetic record sheets to be recovered from the patients' hospital records for review.

These ASA 99 anaesthetic record sheets will then be examined jointly by the hospital's anaesthetic department and the local HIPE office to try to discover why HIPE could not identify the patient ASA status or the urgency of the procedure. A standard data collection sheet (see Appendix 2) will be used for this part of the audit. The number of anaesthetic record sheets with an ASA 99 coding will vary from hospital to hospital and could be large, but details from a subset of about 100 cases should be sufficient to allow us to draw meaningful conclusions. A standard report format will be used to describe the results.

While the outcome of the audit in any particular hospital will be for internal use only, any general conclusions which might be applicable to other hospitals will be publicised to promote data quality improvement across the system.

To date three anaesthetic departments and their HIPE offices have completed the audit and a further three are about to start.
Even at this early stage of audit, three important points have been identified.

1. Anaesthetic departments may have multiple non-uniform anaesthetic record sheets
2. Anaesthetic record sheets of day case patient's may be placed in a separate folder within the patient's general records and easily overlooked.
3. There should be ongoing collaboration between the anaesthetic department and the HIPE office in every hospital.

Discussion & Conclusion

This annual report presents the data for 2016 and sets it out alongside some of the data contained in previous annual reports. By so doing, the year to year changes can be tracked and any emerging patterns easily seen. There are also some new elements included in the report.

For the first time the Annual report contains data on patient age categories for the seven hospital groupings. The inclusion of the children's hospital group is of particular interest not just in its own right but especially when it is set alongside the paediatric workload in the general hospitals. The subject of paediatric anaesthesia workload in general hospitals has always attracted great interest and over the years various reports have attempted to quantify the number of infants and children anaesthetised outside the three specialist hospitals[5,6,7]. Unfortunately no two reports have used the same age range and some reports refer to patient numbers while others refer to anaesthetic numbers. The value of individual reports is not in question but unfortunately the non-uniform nature of these reports means that their ability to describe changing clinical patterns over time is weakened. It is anticipated that future NCPA/HPO annual reports will continue to include data on age categories in the seven hospital groupings and this will undoubtedly provide a consistent and reliable source of information on paediatric anaesthetic practice.

Audit of anaesthetic record completion in relation to patient ASA status and the urgency of the procedure continues, and is now being conducted in individual anaesthetic departments. Three departments have completed the audit, one is about to re audit having introduced a number of changes to their record keeping practices, and three more departments will commence the audit in early 2018. The audit protocol has already been described in this report and involves the HPO, the local HIPE office and the participating anaesthetic department. A close working relationship between the anaesthetic department and the local HIPE office is absolutely essential to the success of the audit and to improving the quality of reporting of the ASA. Establishing this relationship can be seen as a hugely positive outcome in itself. The three audits completed to date have highlighted interesting and unanticipated problems such as multiple non-uniform anaesthetic record sheets in the same department and separate areas within patients' medical records for storing information on day case and in patient procedures. The lack of a signature or Medical Council number on the anaesthetic record has been highlighted. We are also aware that difficulties may arise when electronic patient records are introduced into hospitals where there is no electronic anaesthetic record. Many of the solutions to these problems are to be found within the individual anaesthetic departments working closely with their HIPE office. To facilitate this work the NCPA is determined to continue the audit project and to engage with as many anaesthetic departments and local HIPE offices as possible.

APPENDIX 1

Hospital Groups

Ireland East

Mater Misericordiae University Hospital,
St Vincent's University Hospital,
Midland Regional Hospital Mullingar,
St Luke's Hospital Kilkenny,
Wexford General Hospital,
Our Lady's Hospital Navan,
St Columcille's Hospital,
St Michael's Hospital Dun Laoghaire,
National Maternity hospital,
Cappagh National Orthopaedic Hospital,
The Royal Victoria Eye and Ear Hospital, Dublin

RCSI

Beaumont Hospital,
Our Lady of Lourdes Hospital Drogheda,
Connolly Hospital,
St Joseph's Hospital, Raheny,
Cavan General Hospital,
Rotunda Hospital,
Louth County Hospital,
Monaghan Hospital

Dublin Midlands

St James's Hospital,
AMNCH-Tallaght Hospital**,
St Luke's Hospital, Rathgar,
Midlands Regional Hospital Tullamore,
Naas General Hospital,
Midland Regional Hospital Portlaoise,
Coombe Women & Infant University Hospital

South/South West

Bantry General Hospital,
Cork University Hospital,
University Hospital Kerry,
Mallow General Hospital,
Mercy University Hospital,
South Infirmary Victoria University Hospital,
South Tipperary General Hospital Clonmel,
University Hospital Waterford,
Kilcreen Orthopaedic Hospital.

University Hospital, Limerick

University Hospital Limerick,
University Maternity Hospital, Limerick,
Croom Orthopaedic Hospital, Limerick,
Ennis General Hospital,
Nenagh General Hospital,
St John's Hospital Limerick

Saolta

University Hospitals Galway including Merlin Park Hospital,
Sligo University Hospital,
Letterkenny University Hospital,
Mayo University Hospital,
Portiuncula University Hospital,
Roscommon University Hospital

Children

Our Lady's Children's Hospital Crumlin,
The Children's University Hospital Temple Street,
AMNCH-Tallaght Hospital Paediatrics

**For reporting purposes, discharges aged 17 years and older from Tallaght Hospital are included in the Dublin Midlands Hospital Group, while discharges aged less than 17 years from Tallaght Hospital are included in the Children's Hospital Group.

APPENDIX 2

NCPA/HPO ASA 99 Pilot study data collection sheet

Name of Hospital _____

Patient MRN _____

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1. Does the patient anaesthetic record sheet clearly indicate

    (a) Patient ASA score? _____ Yes ☐   No ☐

    (b) Urgency of procedure (elective or Emergency)? _____ Yes ☐   No ☐

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2. Age of Patient (yrs) _____

3. Gender _____

4. Patient ASA score (auditors assessment if not given on anaesthetic record) _____

5. Urgency of Procedure (auditors assessment if not given on anaesthetic record) _____

6. Date of procedure_____

7. Time of procedure (24hr clock) _____

8. Signature on anaesthetic record sheet

    Consultant? _____ Yes ☐   No ☐

    Trainee? _____ Yes ☐   No ☐

Comments:

_____

_____

_____

APPENDIX 3

Coding Notes is a quarterly bulletin distributed from the Healthcare Pricing Office to all HIPE coders nationally. It contains important updates on coding queries, changes in coding practice, schedule of training courses and any other relevant information for coders.

Coding Notes

Number 77
July 2017

HEALTHCARE PRICING OFFICE

Use of Emergency Code in ASA Scores

ASA scores - This information must be documented on the anaesthetic form before assigning these codes.

ACS 0031 *Anaesthesia* contains definitions and guidelines for code assignment and sequencing of anaesthesia codes.

Where there is no documentation of ASA score or the emergency modifier is not indicated, filler digits of '9' should be assigned.

Emergency Modifier – 0 can only be assigned based on the information on the Anaesthetic form. Information elsewhere in the chart cannot be used to determine the use of '0' e.g. if the patient was admitted through ED and requires surgery, and there is no information regarding the Emergency Modifier on the Anaesthetic form, then '9' *nonemergency or not known* is assigned.

Just because a patient is admitted as an emergency does not mean that the ASA would be '0' Emergency.

Example
Patient admitted through ED with acute appendicitis on the 01/01 and Laparoscopic Appendicectomy was performed under GA ASA 1 on 01/01

| Procedure codes: | 30572-00 [926] | *Laparoscopic appendicectomy* |
| | 92514-19 [1910] | *General anaesthesia, ASA 19* |

Note: as there was no information about the Emergency Modifier, so '9' *nonemergency or not known* is assigned.

No. 77, July 2017. Healthcare Pricing Office

Coding Notes 7

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	Dr. Jeremy Smith, NCPA National Clinical Lead
	Dr. Margaret Bourke
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	Dr. James Shannon
	Dr. John Cahill

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