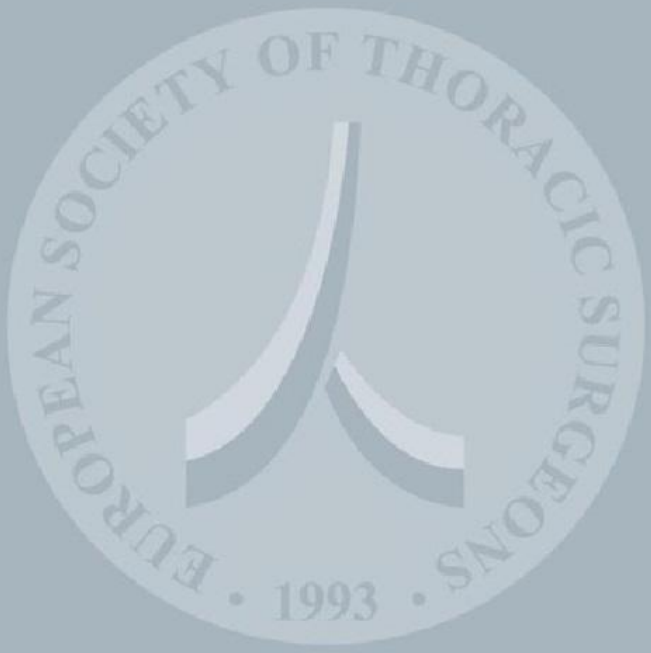


DATABASE ANNUAL REPORT

2020

PRODUCED BY THE ESTS DATABASE COMMITTEE

*Powered by **KData Clinical***

EUROPEAN SOCIETY OF THORACIC SURGEONS DATABASE COMMITTEE

Dr. Pierre-Emmanuel Falcoz (France)
ESTS Director of Audit and Database
pierre-emmanuel.falcoz@wanadoo.fr

Dr. Alessandro Brunelli (UK) *brunellialex@gmail.com*	**Dr. Dirk Van Raemdonck (Belgium)** *dirk.vanraemdonck@uzleuven.be*
Dr. Herbert Decaluwe (Belgium) *herbert.decaluwe@uzleuven.be*	**Dr. Gonzalo Varela (Spain)** gvs@usal.es
Dr. Michele Salati (Italy) *michelesalati@hotmail.com*	**Dr. Enrico Ruffini (Italy)** enrico.ruffini@unito.it
Dr. Pierluigi Filosso (Italy) pierluigi.filosso@unito.it	**Dr. Marco Scarci (UK)** marco.scarci@nhs.net
Dr. Andrea Billè (Italy) andrea_bille@hotmail.it	**Dr. Xavier Benoit D'journo (France)** Xavier.D'JOURNO@ap-hm.fr
Dr Zalan Szanto (Hungary) szantozalan@gmail.com	**Dr Ricardo Terra (Brazil)** rmterra@uol.com.br
Dr. Yaron Shargall (Canada) shargal@mcmaster.ca	**Dr. Luca Bertolaccini (Italy)** luca.bertolaccini@gmail.com

INDEX

Message from the President of ESTS

Dear ESTS members, colleagues and friends,

It is a great privilege and an honour to share with you as ESTS President the 2020 Edition of the legendary ESTS Silver Book, which reports the yearly activity of the ESTS Registry.

2020 will be remembered as not an easy year for mankind, euphemistically speaking. The Covid-19 pandemic which since January has spread to virtually all countries with more than 33 million of confirmed cases and 1 million deaths worldwide (as of the end of September 2020) represents the worst humanitarian crisis that the world has faced since the world wars. And the situation is far from been stabilized, with new outbreaks expected in the coming months. The Covid-19 pandemic has changed the world and the way we have related each other, both physically and socially. Travel restrictions, lockdowns of entire continents and social distancing has changed the way we have communicated and inter-related so far. In our field, all medical conferences have been cancelled in the physical form and new forms of communications have been rapidly adopted using the XXI century technology.

Although the ESTS leadership was forced to cancel the physical meeting in The Hague, The Netherlands, the ESTS Board of Directors thought that the largest general thoracic society in the world could not miss the opportunity to organize a virtual event to give an overview of the latest contributions in our specialty. Similarly, the ESTS Database Committee, led by Prof. Pierre-Emmanuel Falcoz, was also determined to produce the yearly report of the ESTS Registry, which is released yearly at the time of the Annual Meeting. Thanks to an extraordinary collaborative effort involving the ESTS Database Committee, the Clinical Leaders of the Database sections, and the logistic and technical support of Kdata Clinical (led by Stefano Passani), we were able to update the main Registry (Lung Cancer), all the Satellite Databases (Mesothelioma, Thymic, Neuroendocrine tumors, Chest Wall) including the recently added Robotic section inside the Lung and Thymic databases, in order to release the Book in time for the 1st ESTS Virtual Conference.
In this respect, I would like to particularly thank all the contributors of the ESTS Registry and all the contributing centers, who have continued to upload their cases during the dreadful months of the

Covid-19 pandemic. This is a clear sign of the robustness of our Society and of the spirit of service and collaboration inside the ESTS community.

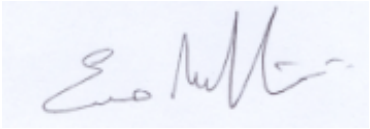
The accreditation process of the eligible Units also continued during this year, a clear sign that a well-designed Registry is a powerful source of quality control for the safety of our patients.

As you will see, all sections of the Registry increased the number of cases. The master section (lung section) still represents the vast majority of registered cases (80%); the thymic section, with more than 2300 cases is by far the largest prospective database in the world; the mesothelioma section and the NET section also include an impressive number of cases, given the relatively rarity of these malignancies. The contribution to the chest wall section was also impressive from the ESTS membership, with more than 1200 cumulative procedures in the 3 subsections (reconstructive, trauma and congenital). A proposal for an infectious section, collecting cases with thoracic infectious diseases, is under way.

Last but not least, I am proud to say that the Registry actively contributes to the International Association for the Study of Lung Cancer (IASLC) Staging Project for the release of the 9th edition of the TNM stage classification.

To conclude, we are facing tough times which require an extraordinary global effort, associated with an attitude free of boundaries, sterile nationalisms and blocking walls. Every organization, including ESTS, can and must do its job for this collaborative effort. The ESTS registry, whose activity is nicely outlined in the present Silver Book, is the perfect example of this: a mutual, global collaboration from the world thoracic surgical community aimed at a greater good, *"in primis"* the safety of our patients and the provision of an optimal, certified and accredited quality of health for them. The continuously improving results which are published every year in the Silver Book bear witness to the most genuine spirit of ESTS.

To all of you, as my ancient ancestors appropriately and wisely used to say, I would like to say: "*Semper at maiora".*



Enrico Ruffini
President of ESTS

enrico.ruffini@unito.it

Message from the Director of ESTS Database

Dear ESTS members,

During this peculiar year, the ESTS database committee - along with the K-Data team worked very hard to produce the 11th edition of the Silver Book.

As you will discover during reading, the collection of data ranges from July 2007 to December 2019, in 300 contributing units throughout Europe, among which 190 are contributing for more than 100 cases. It provides the most current appraisal of the thoracic surgical activity in Europe, in the framework of a comprehensive, European-wide, population dataset. The 2020 Silver Book remains structured in different sub-chapters as in previous years.

I summarize below the 2020 key findings:

1. In the past 12 months the ESTS Registry has grown to 171,713 total procedures from 151,371 in 2019: a remarkable increase!
2. As usual age is creeping up with the 61-70 age group including 57,998 entries (33.8%), and the 71-80 including 39,339 (22.9%) totaling 97,337 case (56.7%) of the overall total of procedures.
3. Lung procedures are the vast majority with 135,350 or 78.8%
4. There were 45,659 procedures performed in the VATS modality with an increase from 32.8% to 35.2% overall; if we look at the period 2014-19 there were 44.2% (31,749) VATS in all procedures.
5. Primary neoplastic lung cancer was found in 70.7% of cases.
6. If we look at significant complications, prolonged airways leak (>5 days) was described in 23.3% of lung reduction procedures, 12.1% of bilobectomies.
7. Unadjusted hospital mortality in primary lung cancer procedures was 5.5% in pneumonectomies, 3.4% in bilobectomies, 1.4% in lobectomies.
8. Cumulative 30 days mortality shows a significant improvement; however with a heavy caveat of the enormous amount of missing data (52%).

Cumulative 30 days mortality is shown in 2 periods:

- 2007-13 = 3.6%
- 2014-19 = 1.6%

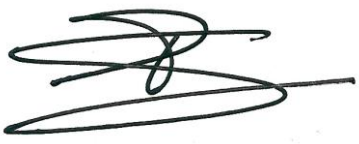
9. Thymic registry: 2560 cumulative cases, 65% of which were thymomas. Significant cumulative number increase from 1750 in 2019. Progress

has been made in data completeness, but it is still a significant issue.

10. Mesothelioma registry: a total of 2373 cases, (2262 in 2019); 17.2% overall data missing (408 cases). There is an overall improvement over 2019 findings.
11. NET registry: currently there are a total of 1505 lung cases (1447 in 2019), with persistent good overall data completeness (average over 86%).
12. Chest Wall registry: overall 1270 cumulative procedures, subdivided in 3 discrete groups; reconstructive (143 cases), trauma (126 cases); congenital (880 cases). Overall data completeness is over 90%!! Dataset will be heavily revised and relaunched in January 2021.

I will be my great pleasure to see you online for the virtual October meeting,

Together we go forward…



Prof. Pierre-Emmanuel Falcoz

Director of ESTS Audit and Database

pierre-emmanuel.falcoz@wanadoo.fr

The European Society of Thoracic Surgeons Database

The European Society of Thoracic Surgeons Database was founded in 2001 by the ESTS Database Committee with the aim to develop risk-adjusted instruments for assessing the performance of thoracic surgery units across Europe. The first version of the Database lead to the publication of the first risk- adjusted multinational risk-score for mortality *(Berrisford R et al. Eur J Cardiothorac Surg 2005; 28:305-311)* which has been already applied to compare the performance of different units *(Brunelli A et al. Eur J Cardiothorac Surg 2008; 33:284-288)*.

The second version of the Database was launched online in July 2007 and has so far accrued approximately 205 general thoracic surgical units.

Data is anonymously reported, independently accessed and encrypted to other users.

Participation to the Database project is **totally free and voluntary**, but strongly recommended by our Society. Infact participation to the ESTS Database with at least 100 Major Lung Resections per year for at least 2 consecutive years is one of the key requirements for the ESTS Accreditation Program. You can access the Database from ESTS website or by using the address: https://ests.kdataclinical.it

To join the Database you need your own personal login account that you can request by downloading and completing an application form from the ESTS homepage (http://www.ests.org).

Once data is being recorded on the System (*powered by KData Clinical software*), you will be able to visualize your up-to-date summary of your surgical activity; called Clinical Care Analysis CCA, it includes a few surgical activity indicators (*Total N Procedures, Types Lung Procedures, VATS, Outcome at discharge, CPS and eligibility for ESTS Accreditation*)

To the benefit of your patients, your practice and your specialty, your data will contribute to the followings:

- Development of European benchmarks of performance through the analysis of outcomes and processes of care indicators.
- Performance assessment by risk-adjusted outcome and/or process indicators, which will allow you to compare your own institutional performance against European benchmarks.
- Analysis and development of new potential outcomes and processes of care indicators that may complement/substitute current quality of care measures.
- Autocalculation of the Composite Performance Score.
- Feedback to document quality efforts and areas for improvement in quality of care.
- Data for research projects, which can be used to assess new technologies/pathways of care that can ultimately lead to improved patient care and outcomes.
- Maintain your own data if data is requested or mandated by third parties.
- Use for local hospital administration resource allocation.
- Use for individual negotiations, public relations and expert witness.
- Opportunity to participate in a European quality improvement effort for general thoracic surgery that has a positive impact at the local, national and international levels.

Participants benefits

- Participation to the ESTS Database is a pre-requisite to participate in the European Institutional Quality Certification Program.
- Participation will be acknowledged and, if requested, local institutional administrations made aware that your unit is enrolled in a European Thoracic Database aimed at implementing quality of care monitoring and improvement programs endorsed by ESTS and pre-requisite for future clinical Institutional European Accreditation.
- Your own data, collected in a standardized ESTS-endorsed Dataset, can be downloaded at local level and used for your internal quality analyses or institutional research purposes.
- Participants can visualize in the CCA (currently it includes: *Total N Procedures, Types Lung Procedures, VATS, Outcome at discharge, CPS and eligibility for ESTS Accreditation*) and be first to know aboutthe quality of their data and their performance against European benchmarks.
- Participants can propose their own research projects based on the total data present in the database.
  Projects should be submitted to the ESTS database Committee for peer review and, if accepted, the requested and anonymized data will be provided to the proponent of the project. ESTS will retain the responsibility for the final analysis and interpretation of results. The proponent of the project will be the first Author of the final manuscript and he/she will be allowed to include, if requested, two additional colleagues, who helped in the elaboration of the manuscript. The members of the Database Committee who contributed to the review process and assisted in the development of the manuscript will be also included in the list of Authors.

As the ESTS Database approached a more mature stage, and more demanding aspects of data management were required, it was been decided to make use of professional expertise in running and managing contents, data flow, data merge and so on of our Registry; in Nov 2009 the ESTS Council awarded this task to Dendrite Clinical System Italia srl, now renamed KData Clinical srl, following a management by-out in July 2015

Since 1993 Dendrite, and now KData Clinical, have established a highly respected track record in setting up and running a variety of International Registries, with an underlying philosophy of long term partnership with numerous Clinical Associations within and outside Europe.

The main reasons for their widespread activity in this field include:

- Bottom-up approach to data management: the range of products and services starts from database and electronic patient records and serves Clinicians daily needs; it escalates to hospital-wide systems, to regional, national and finally to international registries.
- User-friendly inclusion of all who wish to participate: the Import Data process, governed by a Standard Operating Procedure SOP (see Appendix N.4) allows any Contributor to use his chosen type of tool to collect data, and KData will perform the correspondence and data merge required to add their data to the main ESTS Database, if there is clinically correct conformity with the required ESTS dataset.
- Automatically up-dated clinical statistical analysis shown in the CCA screen, integrated in the data collection section of the ESTS Registry.
- Contributors can retain, download and use own data, from the ESTS site, in MS Excel format, which lends itself to be analyzed by any clinical software product.
- Unblemished track record of data handling integrity: not ever lost, leaked or misplaced third Party data to date

Institutions that contributed to the ESTS Registry

Please note that Only units contributing more than 100 patients and consistently (as of December 31th 2019) in the registry are shown

Country	City	Institution
ALBANIA	TIRANA	University Hospital of Lung Diseases "Shefqet Ndroqi"
AUSTRIA	VIENNA	Otto Wagner Hospital
BELGIUM	ANTWERP	University Hospital of Antwerp
BELGIUM	GENK	ZOL St. - Jan Genk
BELGIUM	BRUSSELS	Cliniques Universitaires Saint- Luc
BELGIUM	BRUSSELS	Hopital Academique Erasme
BELGIUM	LEUVEN	University Hospitals Leuven
BELGIUM	GILLY	GHDC Site Gilly, Belgium
CROATIA	ZAGREB	Department of Thoracic Surgery "Jordanovac" University Hospital Centre Zagreb
FRANCE	LA ROCHELLE	Hôpital St Louis
FRANCE	LE HAVRE	Clinique Petit Col Moulin
FRANCE	LE PLESSISROBINSON	Marie Lannelongue Hospital
FRANCE	LILLE	CHU Calmette
FRANCE	LILLE	Clinique de la Louvière
FRANCE	LILLE	Polyclinique du Bois
FRANCE	LYON	CHU Lyon Sud
FRANCE	LYON	Clinique St Louis
FRANCE	LYON	Hôpital privé Jean Mermoz
FRANCE	MARSEILLE	CHU Ste Marguerite
FRANCE	MARSEILLE	HIA Alphonse LAVERAN
FRANCE	MAXEVILLE	Médipole Gentilly
FRANCE	MEAUX	CH - Meaux
FRANCE	METZ	Hôpital Belle-Isle
FRANCE	MONTPELLIER	CHU de Montpellier
FRANCE	MONTPELLIER	Clinique du Millénaire
FRANCE	MORLAIX	CMC de la Baie de Morlaix
FRANCE	NANCY	CHU Central de
FRANCE	NANTES	CHU - Nantes
FRANCE	NANTES	Clinique St Augustin
FRANCE	NANTES	Nouvelle Clinique Nantaise

FRANCE	NICE	CHU Pasteur
FRANCE	NICE	Clinique Saint Georges
FRANCE	NIMES	Clinique les Franciscaines
FRANCE	PARIS	HEGP
FRANCE	PARIS	Hôtel Dieu
FRANCE	PARIS	IMM
FRANCE	PAU	CHG - Pau
FRANCE	POITIERS	CHU - Pointers
FRANCE	QUIMPER	Clinique Quimper sud
FRANCE	REIMS	Clinique Courlancy
FRANCE	ROUEN	CHU Charles Nicolle
FRANCE	SAINT BRIEUC	Hopital Yves le Foll
FRANCE	SAINT CLOUD	Clinique du Val D'or
FRANCE	SAINT ETIENNE	CH Privé de la Loire
FRANCE	SAINT ETIENNE	CHU – Saint Etienne
FRANCE	SAINT GRÉGOIRE	CH Privé Saint Grégoire
FRANCE	STRASBOURG	CHU - Strasbourg
FRANCE	STRASBOURG	Clinique St Odile
FRANCE	TALANT	Clinique Bénigne Joly
FRANCE	TOULOUSE	CHU Larrey
FRANCE	TOULOUSE	Clinique Pasteur
FRANCE	TOURS	CHU Trousseau
FRANCE	VALENCIENNES	Clinique Teissier
FRANCE	VANNES	Clinique Océane
GERMANY	BREMEN	Klinikum Bremen-Ost - Bremen
GERMANY	MONCHENGLADBACH	Maria Hilf Kliniken
GERMANY	DELMENHORST	Klinik f. Thoraxchirurgie, Klinikum Delmenhorst gGmbH
GERMANY	ESSEN	Medical University of Essen, Ruhrlandklinik, Dept. of Thoracic Surgery
GREECE	ATHENS	Evangelismos
GREECE	THESSALONIKI	Ahepa University Hospital
HUNGARY	BUDAPEST	National Institute of Oncology
HUNGARY	BUDAPEST	KORANYI National Institute for Pulmonology and Semmelweis University
HUNGARY	BUDAPEST	Bajcsy-ZsilinszKy Kòrhàz Thoracic surgery
HUNGARY	DEBRECEN	University Of Debrecen
HUNGARY	SZEGED	University of Szeged, Department of Surgery
HUNGARY	PÉCS	University of Pecs, Department of Surgery
HUNGARY	GYŐR	Pamok Györ Hungars
HUNGARY	KECSKEMÉT	Bàcs Kiskun County Hospital

HUNGARY	GYÓR	Petz Aladar Teaching Hospital (PAMOK)
HUNGARY	MISKOLC	Semmelweis Teaching Hospital of Miskolc
HUNGARY	SZOLNOK	Hetenyi Geza County Hospital of Szolnok
HUNGARY	SZOMBATHELY	Teaching Hospital Markusovszky
ITALY	NAPLES	National Cancer Institute Pascale Foundation, Napoli
ITALY	ANCONA	Ospedali Riuniti Umberto I - GM Lancisi – G Salesi Ancona
ITALY	MILANO	Fondazione Ospedale Maggiore Policlinico
ITALY	PARMA	University Hospital Parma
ITALY	TORINO	A. O. Universitaria Molinette San Giovanni Battista
ITALY	FOGGIA	A. O. Universitaria Foggia – Dip. Chirurgia Toracica
ITALY	MILANO	Azienda Ospedaliero San Paolo
ITALY	BOLOGNA	Discipline Chirurgiche, Rianimatorie Trapianti Univ.Bologna
ITALY	GENOVA	San Martino - Genoa
ITALY	SIENA	University Hospital Siena
ITALY	LECCE	V. Fazzi Hospital
ITALY	UDINE	AOU S. Maria della Misericordia
ITALY	ROMA	Campus Bio-Medico University Hospital,Thor. Surgery
ITALY	ROMA	University of Rome La Sapienza, Dep. Thoracic Surgery
ITALY	ROMA	Fondazione Policlinico Gemelli, University Cattolica del sacro cuore, IRCCS
ITALY	MONZA	Chirurgia Toracica San Gerardo
NETHERLANDS	AMSTERDAM	VUMC Dept of Surgery
NETHERLANDS	BREDA	Amphia Hospital
NETHERLANDS	HAARLEM	Kennemer Gasthuis
POLAND	POZNAN	Marcinkowski University of Medical Sciences
POLAND	WARSAW	National Institut of Tuberculosis and Lung Disease Warsaw
POLAND	POZNAN	Wielkopolskie Centrum Pulmonologii i Torakochirurgii im. Eugenii i Janusza Zeylandów Szamarzewskiego
PORTUGAL	LISBON	Santa Martha Hospital, Lisbon
PORTUGAL	VILA NOVA DE GAIA	centro Hospitalar de Vila Nova de Gaia Espinho
ROMANIA	BUCHAREST	Institute of Oncology Bucharerst
ROMANIA	BUCHAREST	Marius Nasta Institute of Pneumonology
ROMANIA	DROBETA-TURNU SEVERIN	County Emergency Hospital
ROMANIA	TIMISOARA	Clinical Muncipal Emergency Hospital
SLOVAKIA	BRATISLAVA	University Hospital Bratislava , Slovacchia
SLOVENIA	LJUBLJANA	University Medical Centre Ljubljana

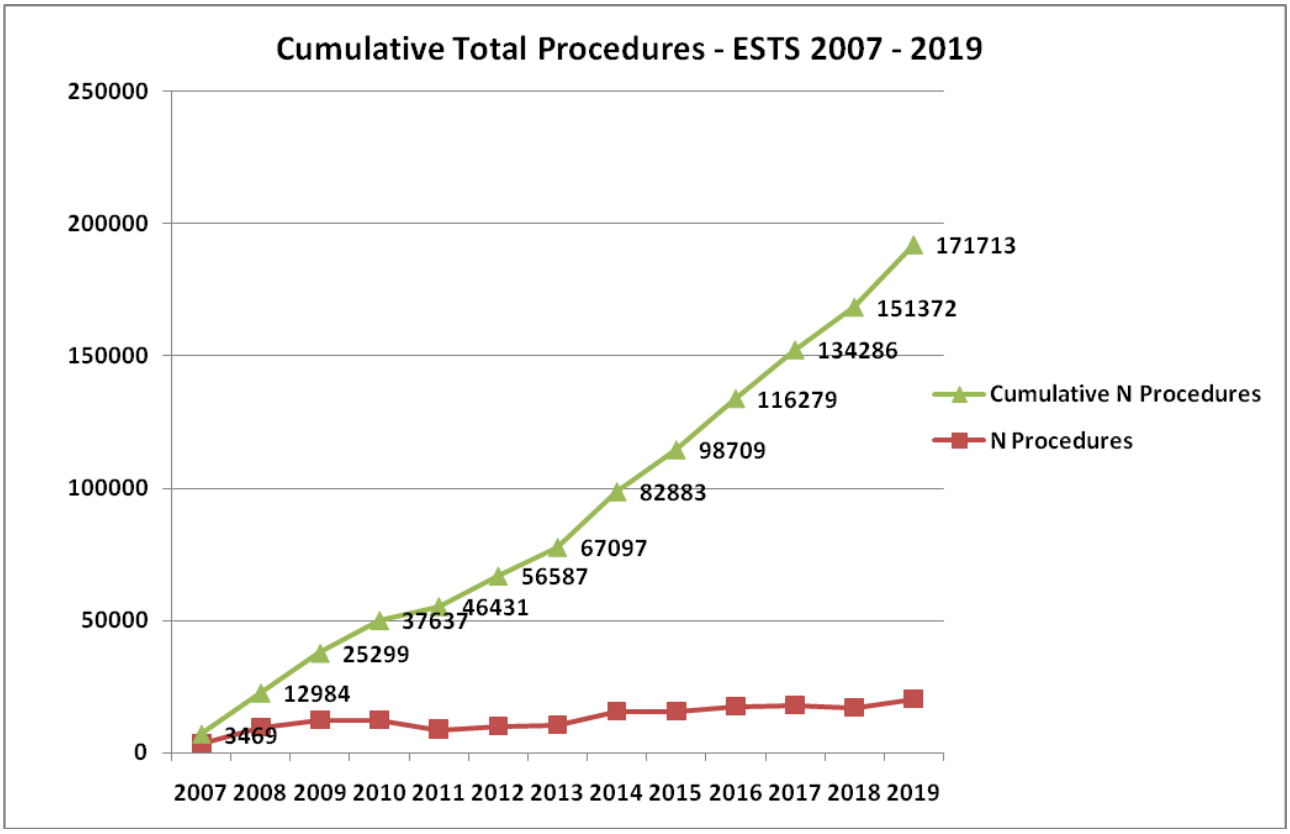
SPAIN	BARCELONA	Hospital Clinic
SPAIN	BARCELONA	Sagrat Cor University Hospital
SPAIN	HEBRON	HG Vall d'Hebron
SPAIN	MADRID	H. Clinico San Carlos
SPAIN	MADRID	Hospital general Universitario Gregorio Maranon
SPAIN	MADRID	Ramon y Cajal University Hospital
SPAIN	NAVARRA	Clinica Universitaria De Navarra
SPAIN	SALAMANCA	University Hospital Salamanca
SPAIN	SEVILLA	HHUU Virgen del Rocio
SPAIN	VALENCIA	General University Hospital Valencia
SPAIN	SEVILLA	Hospital Virgen Macarena
SPAIN	PALMA	Hospital Universitari Son Espases
SPAIN	SAN SEBASTIAN	University Hospital Donostia
SWITZERLAND	ZURICH	UniversitätsSpital Zürich Klinik für Thoraxchirurgie
SWITZERLAND	ST. GALLEN	Klinik fur Thoraxchirurgie Kantonsspital St. Gallen
TURKEY	BURSA	Uludag University, School of Medicine
TURKEY	ISTANBUL	Istanbul School of Medicine
TURKEY	ISTANBUL	Istanbul University, Cerrahpasa Medical Faculty
TURKEY	ISTANBUL	Sureyyapasa Chest Disease & Thoracic Surgery Hospital
UK	EXETER	Royal Devon & Exeter NHS Foundation Trust
UK	LEEDS	St. James's University Hospital
IRELAND	DUBLIN	St. James’s Hospital, Dublin, Republic of Ireland

PART 1

EUROPEAN DATABASE

CUMULATIVE ACTIVITY (2007-2019)
(European units Only)

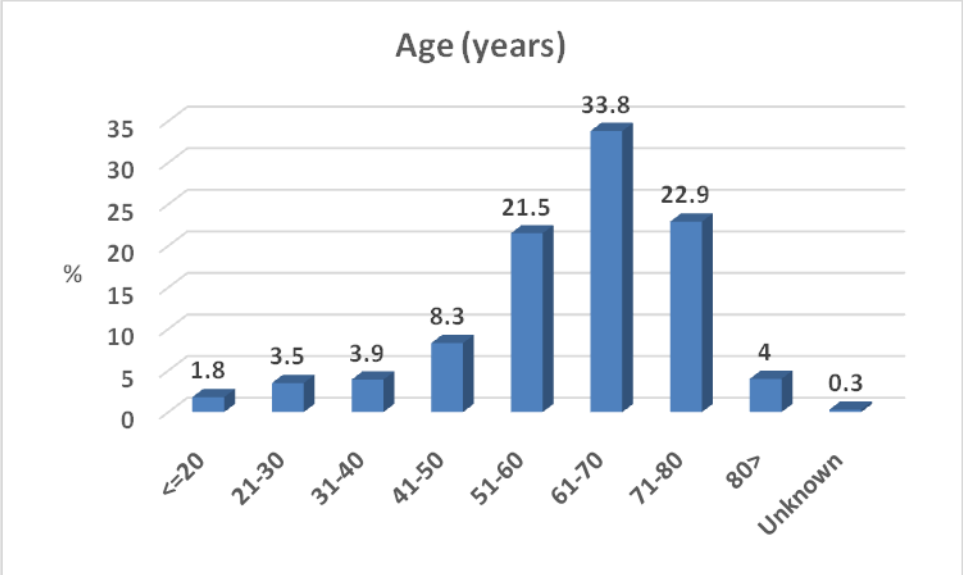
Growth of the ESTS Database 2007-19



Overall age and gender distributions

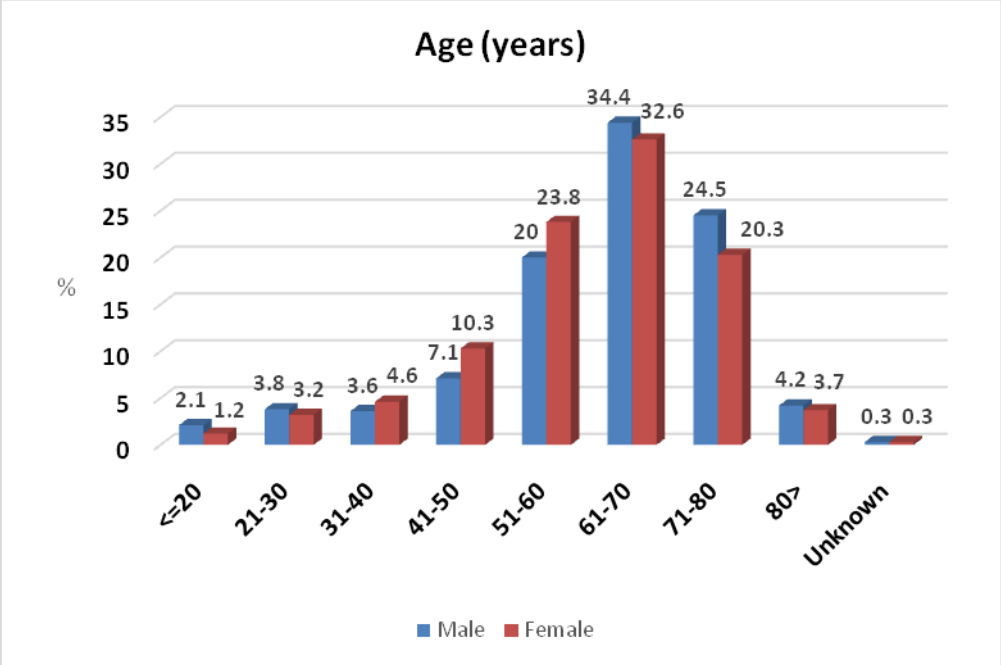
Age (years)

Age (years)	Occurrences	Percentages
<=20	3031	1.8
21-30	6116	3.5
31-40	6771	3.9
41-50	14251	8.3
51-60	36860	21.5
61-70	57998	33.8
71-80	39339	22.9
>80	6846	4
Unknown	501	0.3
Total	171713	100



Gender according to age distribution (years)

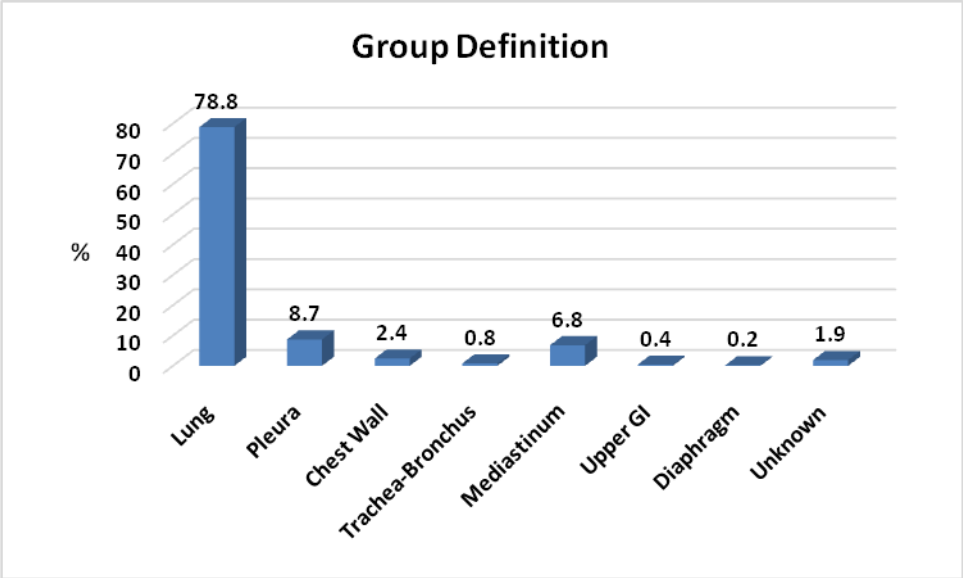
Age (years)	Male (%)	Female (%)
<=20	2.1	1.2
21-30	3.8	3.2
31-40	3.6	4.6
41-50	7.1	10.3
51-60	20	23.8
61-70	34.4	32.6
71-80	24.5	20.3
>80	4.2	3.7
Unknown	0.3	0.3



Total surgical activity within the entire dataset

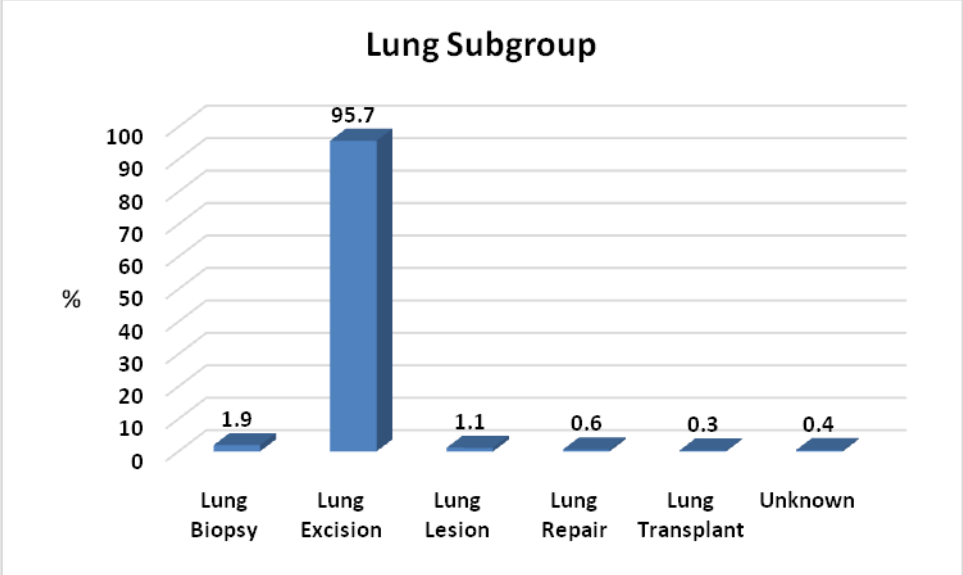
Group Definitions

Group Definition	Occurrences	Percent
Lung	135350	78.8
Pleura	14998	8.7
Chest Wall	4142	2.4
Trachea-Bronchus	1293	0.8
Mediastinum	11709	6.8
Upper GI	661	0.4
Diaphragm	367	0.2
Unknown	3193	1.9
Total	**171713**	**100**



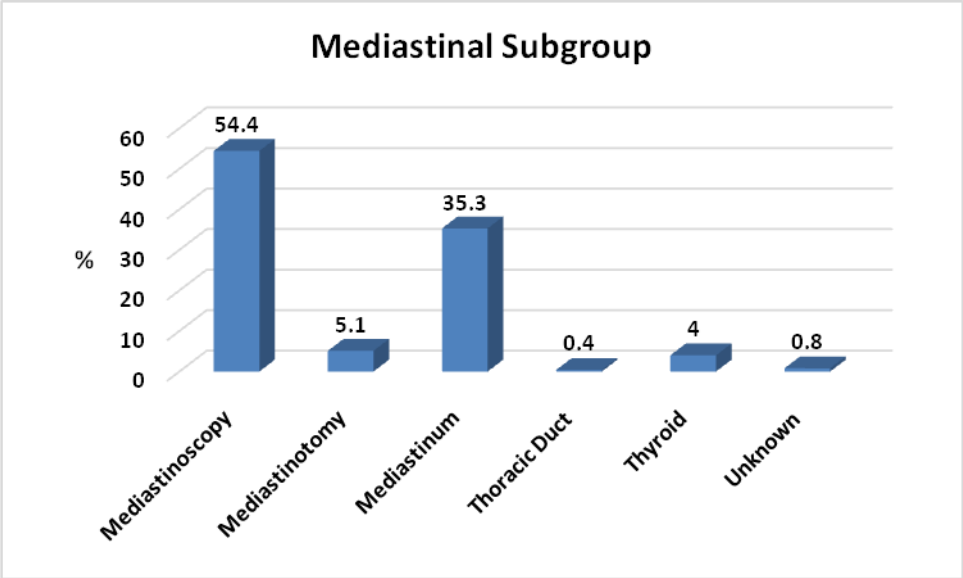
Lung Subgroup

	Occurrences	Percent
Lung Biopsy	2539	1.9
Lung Excision	129507	95.7
Lung Lesion	1544	1.1
Lung Repair	845	0.6
Lung Transplant	335	0.3
Unknown	580	0.4
Total	**135350**	**100**



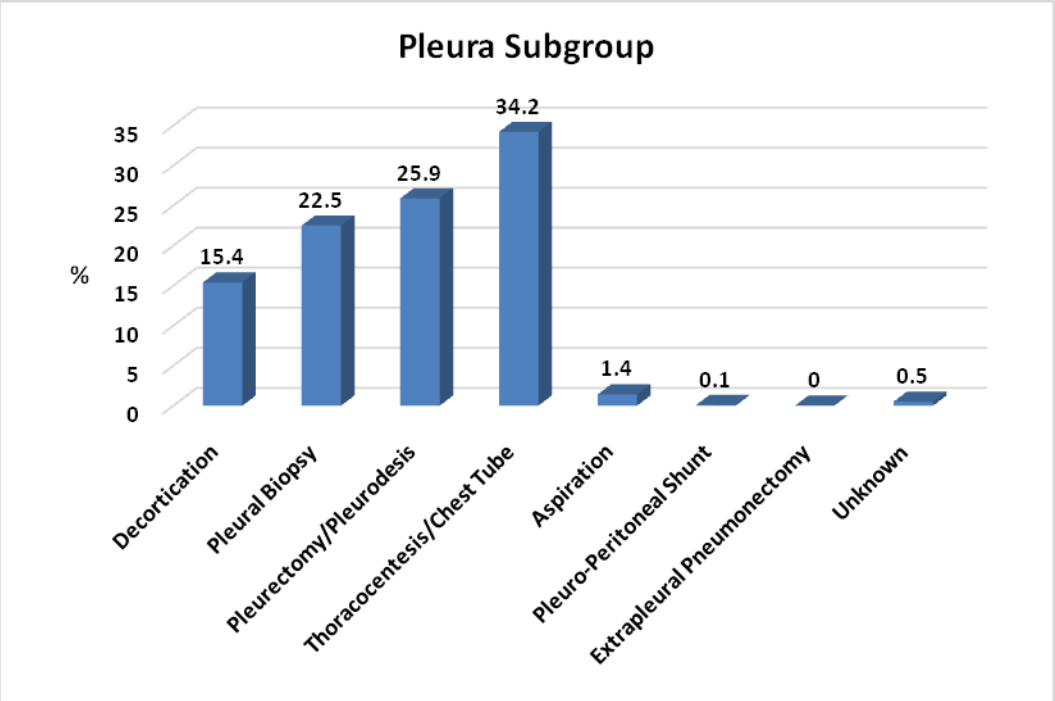
Mediastinum Subgroup

	Occurrences	Percent
Mediastinoscopy	6371	54.4
Mediastinotomy	591	5.1
Mediastinum	4136	35.3
Thoracic Duct	51	0.4
Thyroid	466	4
Unknown	94	0.8
Total	**11709**	**100**



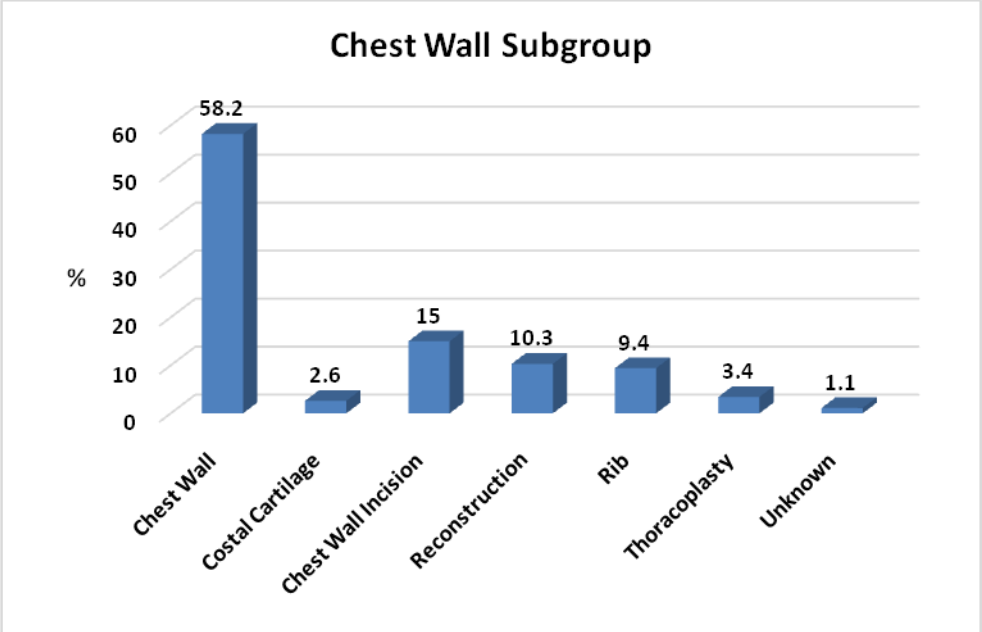
Pleura Subgroup

	Occurrences	Percent
Decortication	2307	15.4
Pleural Biopsy	3368	22.5
Pleurectomy/Pleurodesis	3879	25.9
Thoracocentesis/Chest Tube	5131	34.2
Aspiration	215	1.4
Pleuro-Peritoneal Shunt	9	0.1
Extrapleural Pneumonectomy	8	0
Unknown	81	0.5
Total	**14998**	**100**



Chest Wall Subgroup

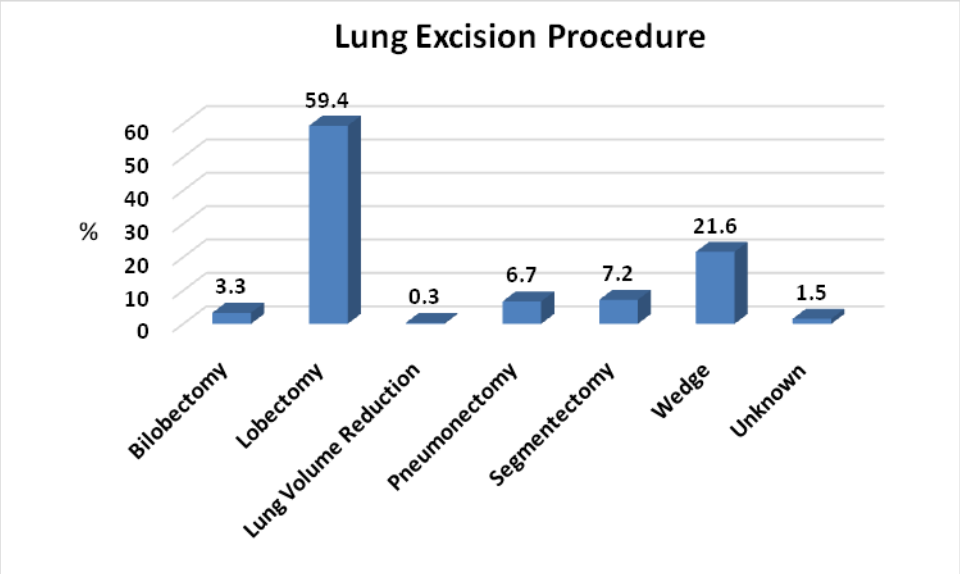
	Occurrences	Percent
Chest Wall	2411	58.2
Costal Cartilage	106	2.6
Chest Wall Incision	622	15
Reconstruction	425	10.3
Rib	389	9.4
Thoracoplasty	141	3.4
Unknown	48	1.1
Total	**4142**	**100**



Lung resections

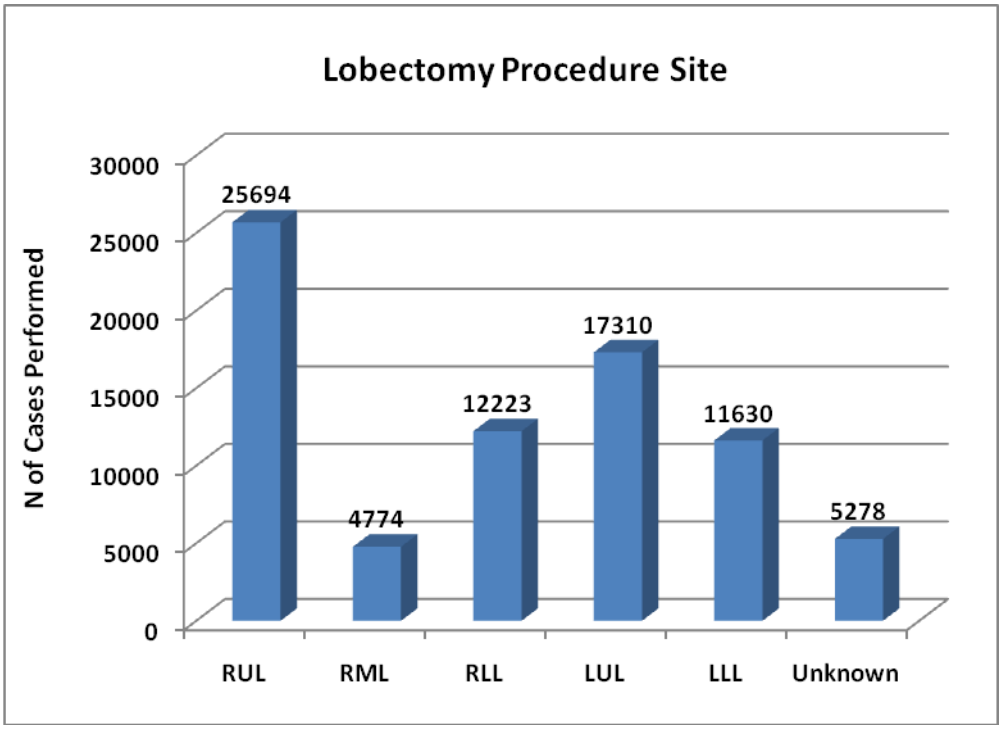
Types of lung resections performed, including all diagnoses

	Occurrences	Percent
Bilobectomy	4205	3.3
Lobectomy	76909	59.4
Lung Volume Reduction	438	0.3
Pneumonectomy	8699	6.7
Segmentectomy	9277	7.2
Wedge	27995	21.6
Unknown	1984	1.5
Total	**129507**	**100**



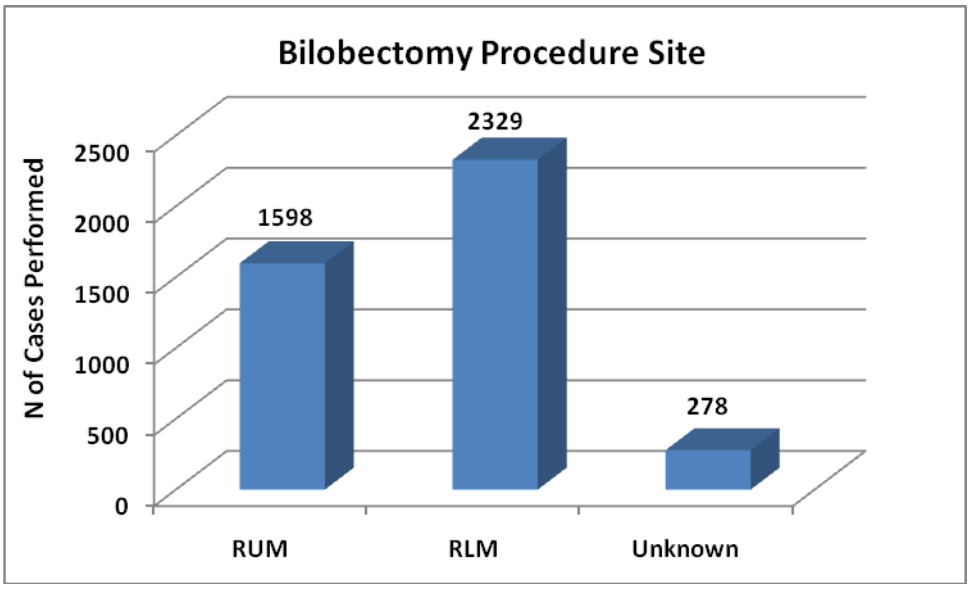
Distribution of lobectomy by site of resection

Lobectomy Procedure Site	Occurrences	Percent
RUL	25694	33.4
RML	4774	6.2
RLL	12223	15.9
LUL	17310	22.5
LLL	11630	15.1
Unknown	5278	6.9
Total	**76909**	**100**



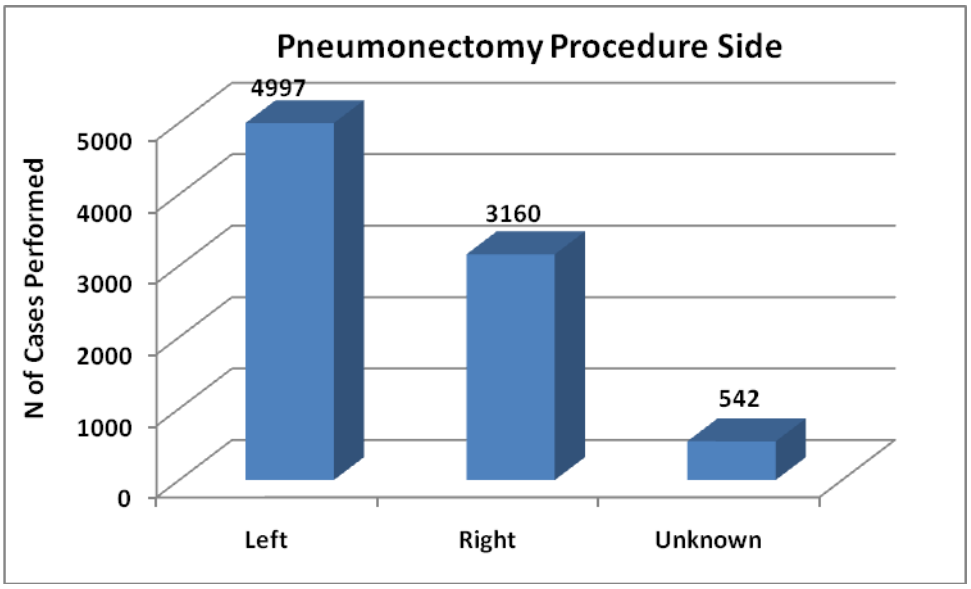
Distribution of bilobectomy by site of resection

Bilobectomy Procedure Site	Occurrences	Percent
RUM	1598	38
RLM	2329	55.4
Unknown	278	6.6
Total	**4205**	**100**



Distribution of pneumonectomy by side

Pneumonectomy Side	Occurrences	Percent
Left	4997	57.5
Right	3160	36.3
Unknown	542	6.2
Total	**8699**	**100**

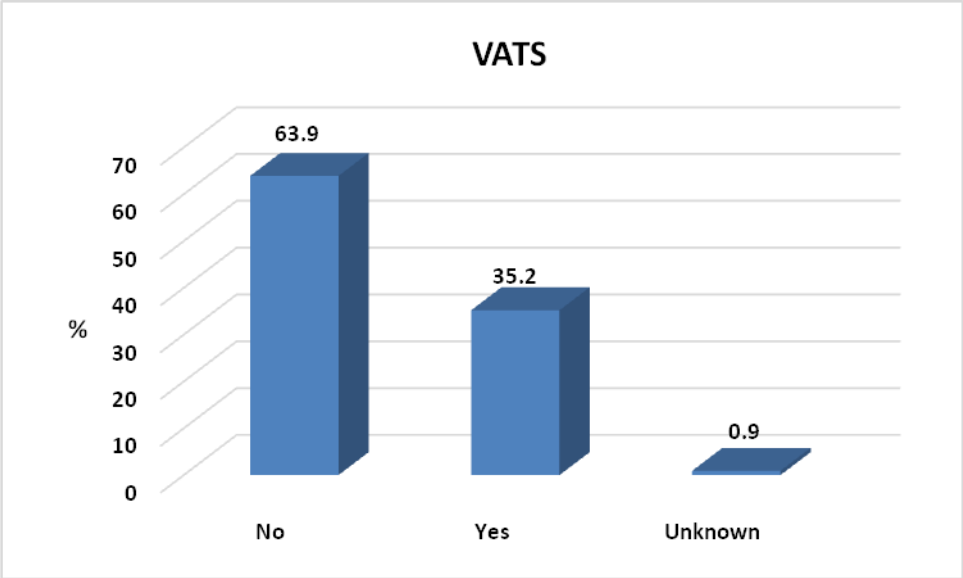


Pneumonectomy Qualifier	Occurrences	Percent
Alone	4897	56.3
Completion	394	4.5
Intrapericardial	767	8.8
Pleuropneumonectomy	229	2.6
Sleeve Resection	100	1.2
Diaphragm Resection	18	0.2
Atrial Resection	107	1.2
SVC Resection/Reconstruction	89	1
Vertebral Resection	162	1.9
Unknown	1936	22.3
Total	**8699**	**100**

VATS as a proportion of all lung resections

VATS	Occurrences	Percent (%)
No	82717	63.9
Yes	45659	35.2
Unknown	1131	0.9
Total	**129507**	**100**

Note the increase from 32.8% to 35.2%!!!! Also a similar % of data completeness



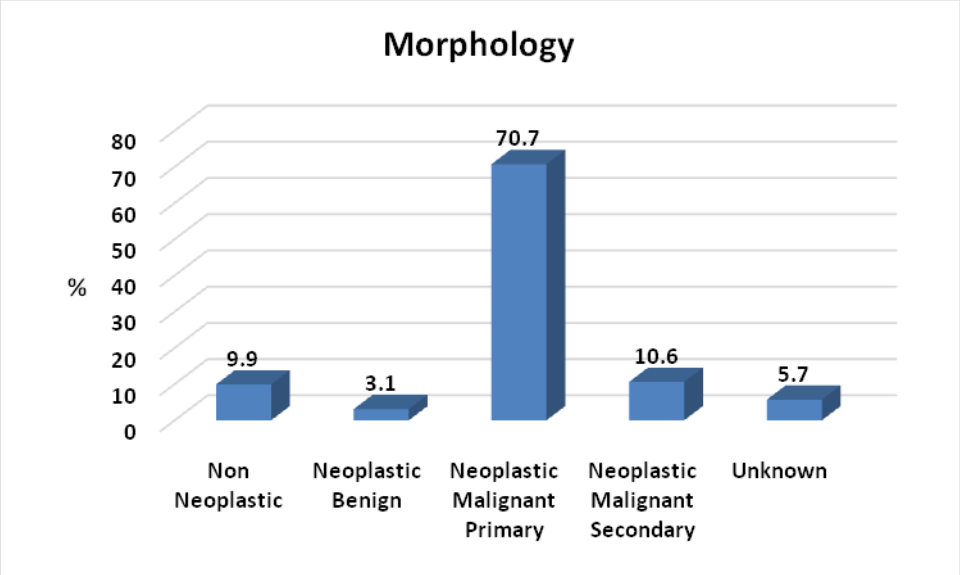
	No	Yes	Yes (%)
2007-2014	42643	13910	24.6
2014-2019	40074	31749	44.2
Total	**82717**	**45659**	**35.6**

VATS as a proportion of lobectomy

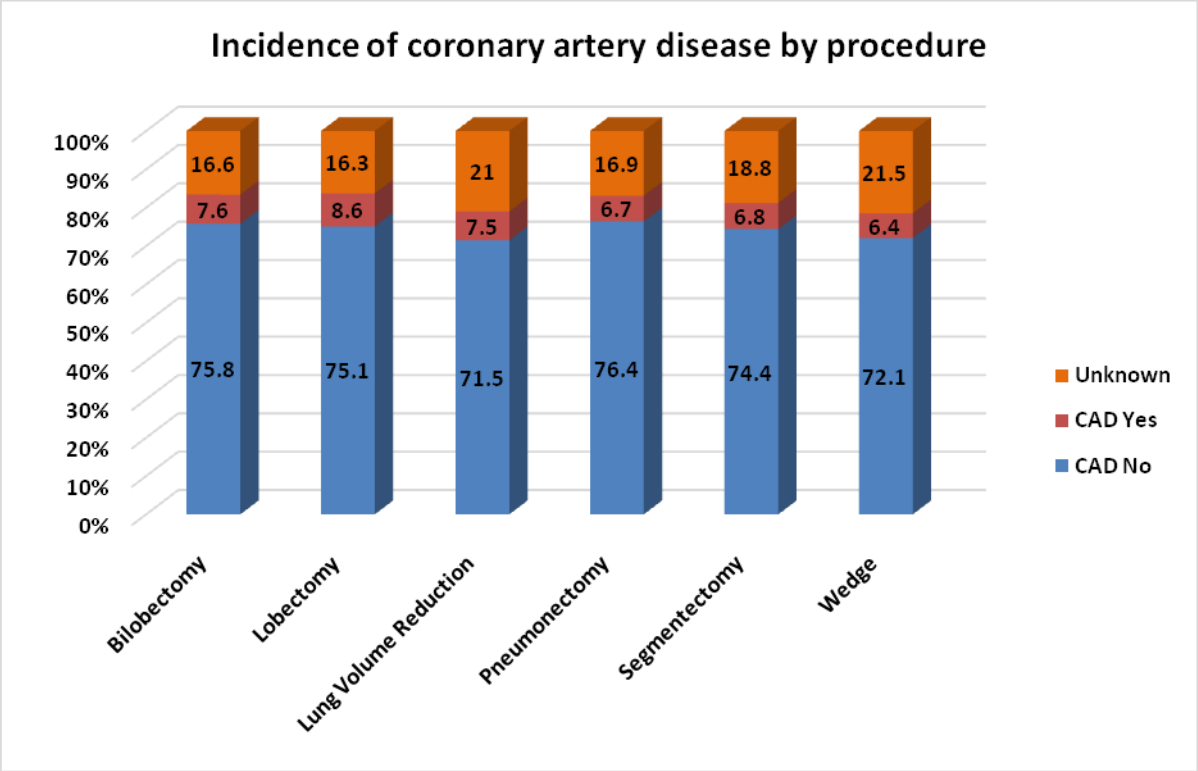
	No	Yes	Yes (%)
2007-2013	27255	6352	18.9
2014-2019	25353	17289	40.5
Total	**52608**	**23641**	**31**

Lung resections pathology

Morphology	Occurrences	Percent (%)
Non Neoplastic	12747	9.9
Neoplastic Benign	4027	3.1
Neoplastic Malignant Primary	91600	70.7
Neoplastic Malignant Secondary	13700	10.6
Unknown	7433	5.7
Total	**129507**	**100**

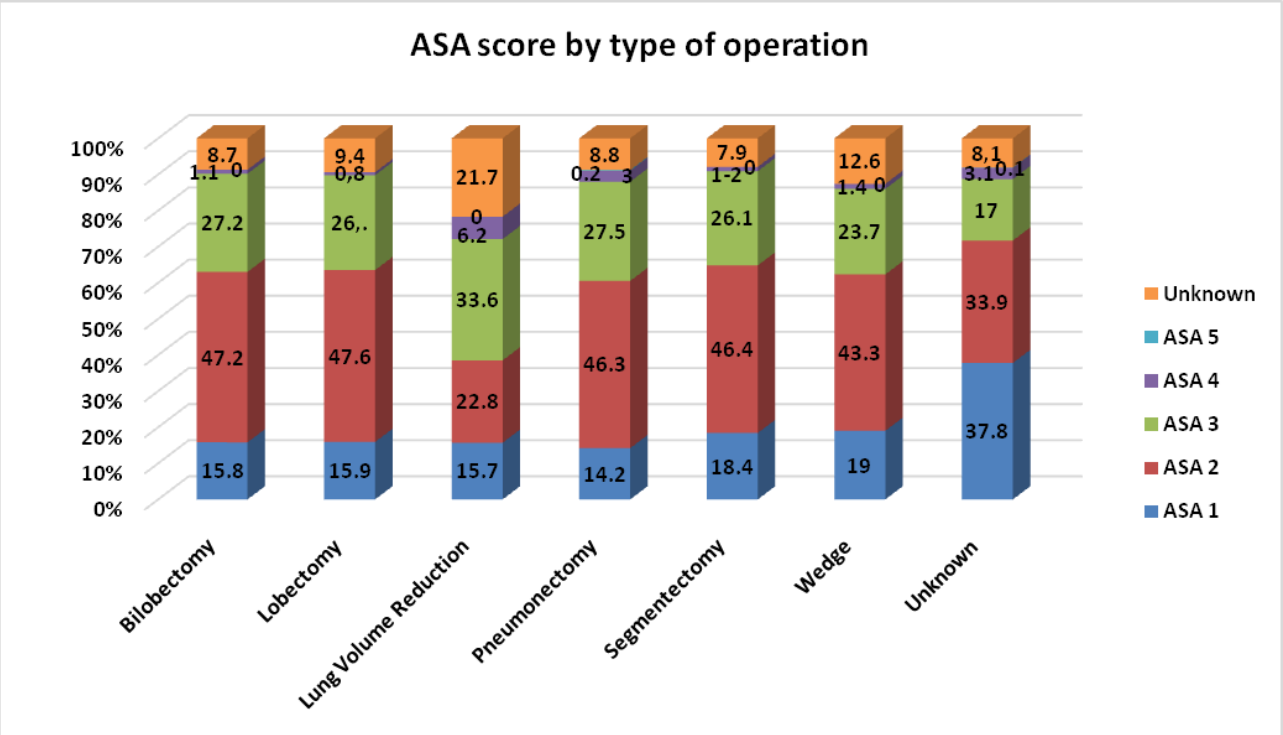


Incidence of coronary artery disease by procedure



Lung Excision Procedure	CAD NO	CAD YES	Unknown	Total
Bilobectomy	3186	319	700	4205
Lobectomy	57762	6592	12555	76909
Lung Volume Reduction	313	33	92	438
Pneumonectomy	6648	582	1469	8699
Segmentectomy	6901	627	1749	9277
Wedge	20182	1784	6029	27995
Unknown	414	57	1513	1984
Total	**95406**	**9994**	**24107**	**129507**

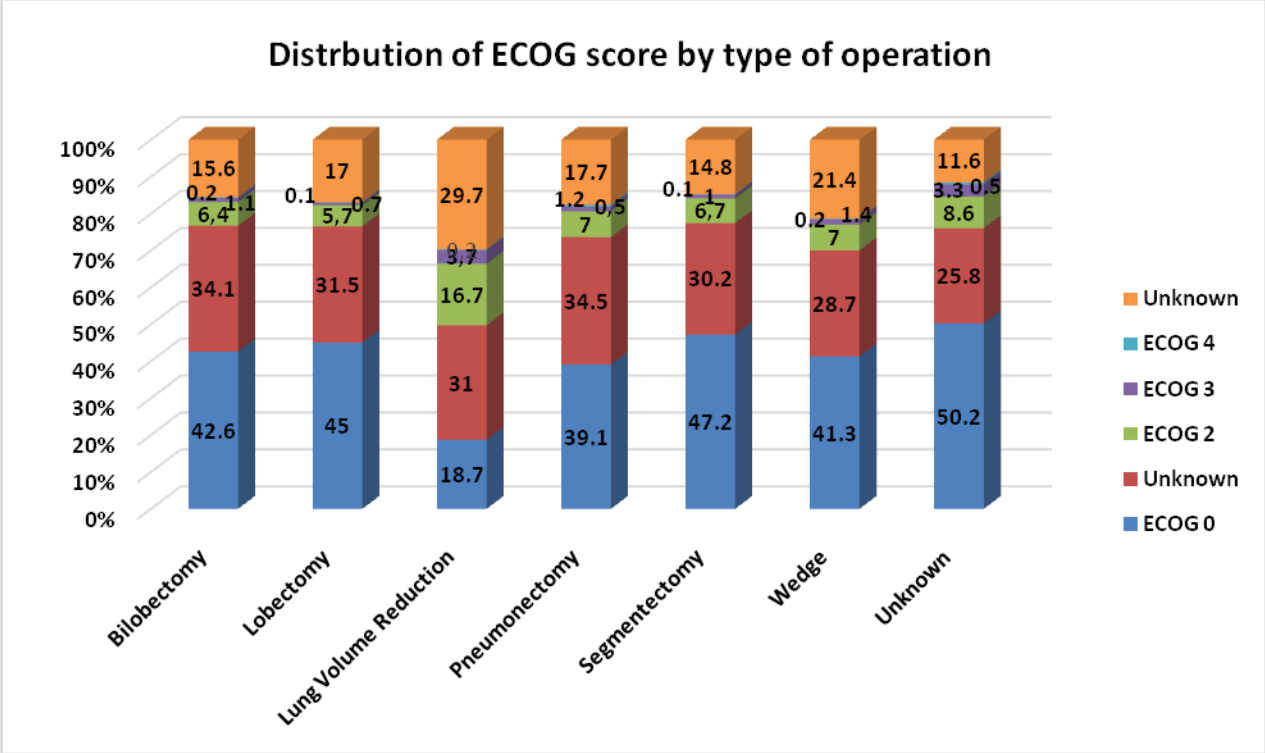
Distribution of ASA score by type of operation



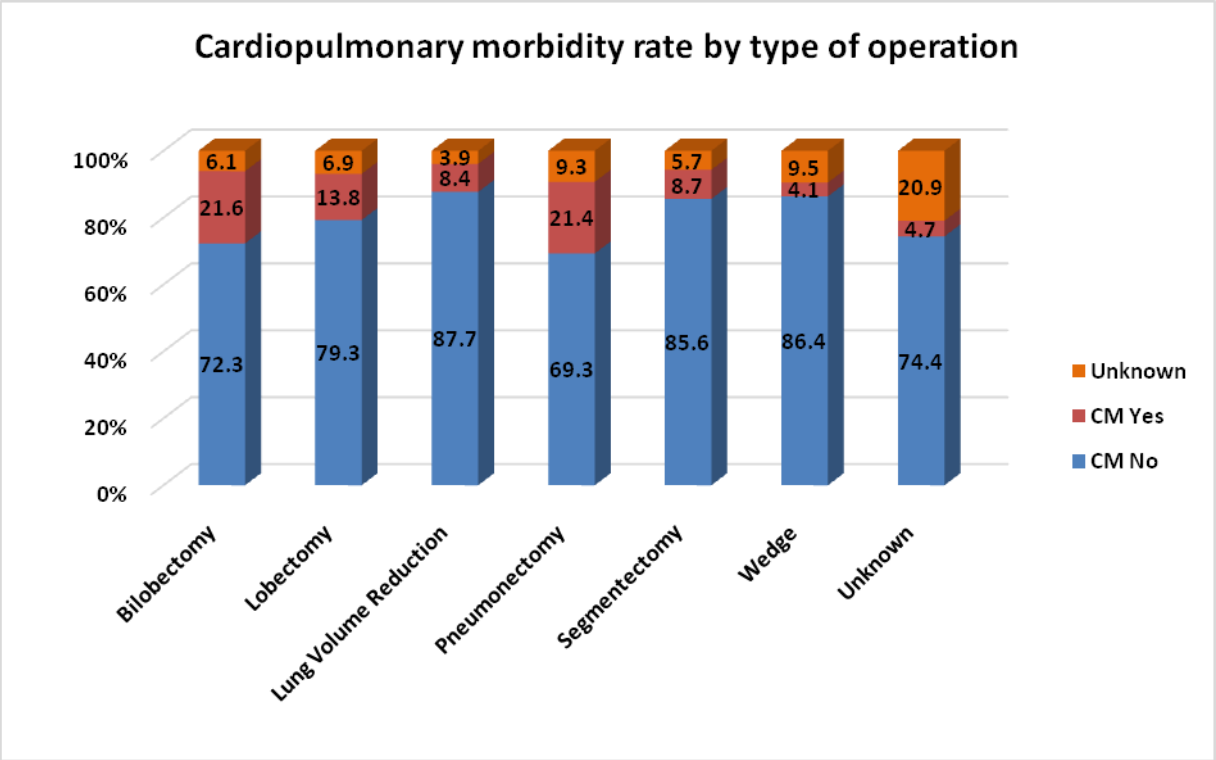
Lung Excision Procedure	ASA 1	ASA 2	ASA 3	ASA 4	ASA 5	Unknown	Total
Bilobectomy	665	1983	1142	45	2	368	4205
Lobectomy	12197	36628	20226	614	29	7215	76909
Lung Volume Reduction	69	100	147	27	0	95	438
Pneumonectomy	1234	4024	2397	258	18	768	8699
Segmentectomy	1708	4307	2425	107	1	729	9277
Wedge	5307	12117	6634	384	15	3538	27995
Unknown	751	672	337	61	2	161	1984
Total	**21931**	**59831**	**33308**	**1496**	**67**	**12874**	**129507**

Distribution of ECOG score by type of operation

Lung Excision Procedure	ECOG 0	ECOG 1	ECOG 2	ECOG 3	ECOG 4	Unknown	Total
Bilobectomy	1791	1434	267	45	10	658	4205
Lobectomy	34596	24236	4362	544	89	13082	76909
Lung Volume Reduction	82	136	73	16	1	130	438
Pneumonectomy	3399	3002	607	106	43	1542	8699
Segmentectomy	4384	2798	620	92	12	1371	9277
Wedge	11555	8025	1956	393	67	5999	27995
Unknown	996	512	170	65	10	231	1984
Total	**56803**	**40143**	**8055**	**1261**	**232**	**23013**	**129507**



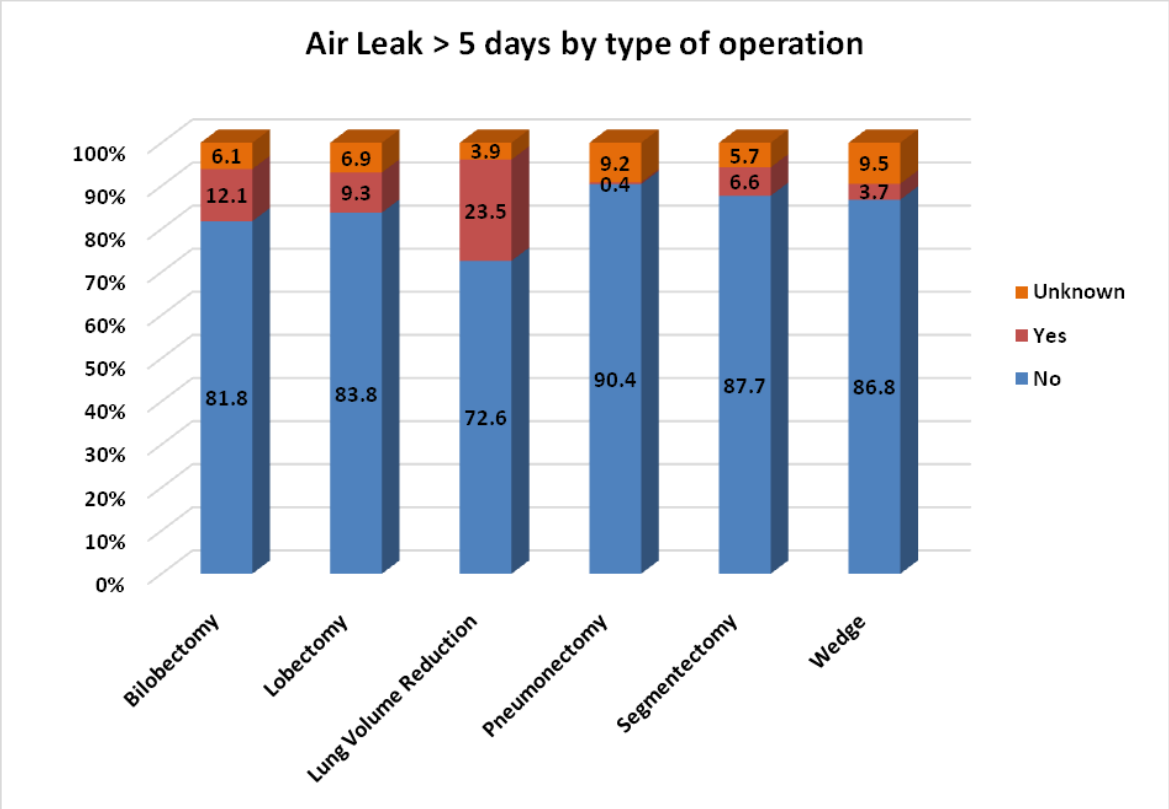
Cardiopulmonary morbidity rate in different types of lung resections



	CM No	CM No (%)	CM Yes	CM Yes(%)	Unknown	Unknown (%)	Total
Bilobectomy	3041	72.3	909	21.6	255	6.1	4205
Lobectomy	60959	79.3	10612	13.8	5338	6.9	76909
Lung Volume Reduction	384	87.7	37	8.4	17	3.9	438
Pneumonectomy	6032	69.3	1863	21.4	804	9.3	8699
Segmentectomy	7940	85.6	812	8.7	525	5.7	9277
Wedge	24182	86.4	1150	4.1	2663	9.5	27995
Unknown	1477	74.4	93	4.7	414	20.9	1984
Total	**104015**		**15476**		**10016**		**129507**

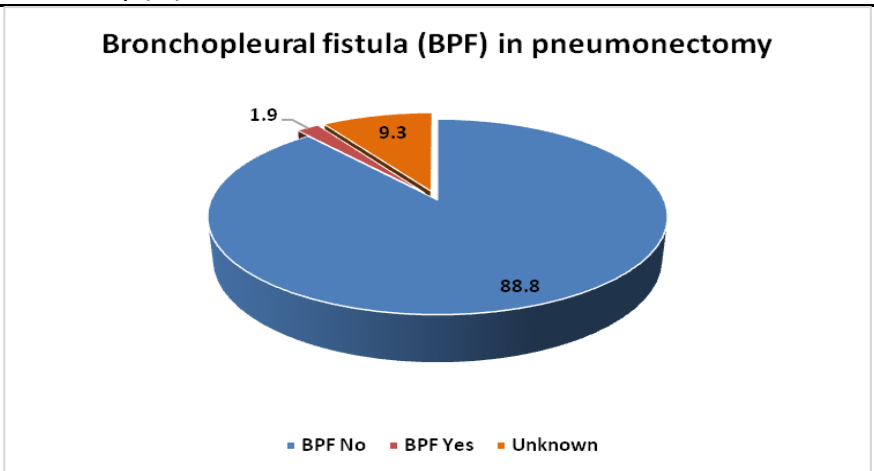
Incidence of prolonged air leak (> 5days) in different types of lung resections

	Air Leak > 5 days		
Lung Excision - PROCEDURE	**No (%)**	**Yes (%)**	**Unknown (%)**
Bilobectomy	81.8	12.1	6.1
Lobectomy	83.8	9.3	6.9
Lung Volume Reduction	72.6	23.5	3.
Pneumonectomy	90.4	0.4	9.2
Segmentectomy	87.7	6.6	5.7
Wedge	86.8	3.7	9.5



Incidence of bronchopleural fistula (BPF) in pneumonectomy

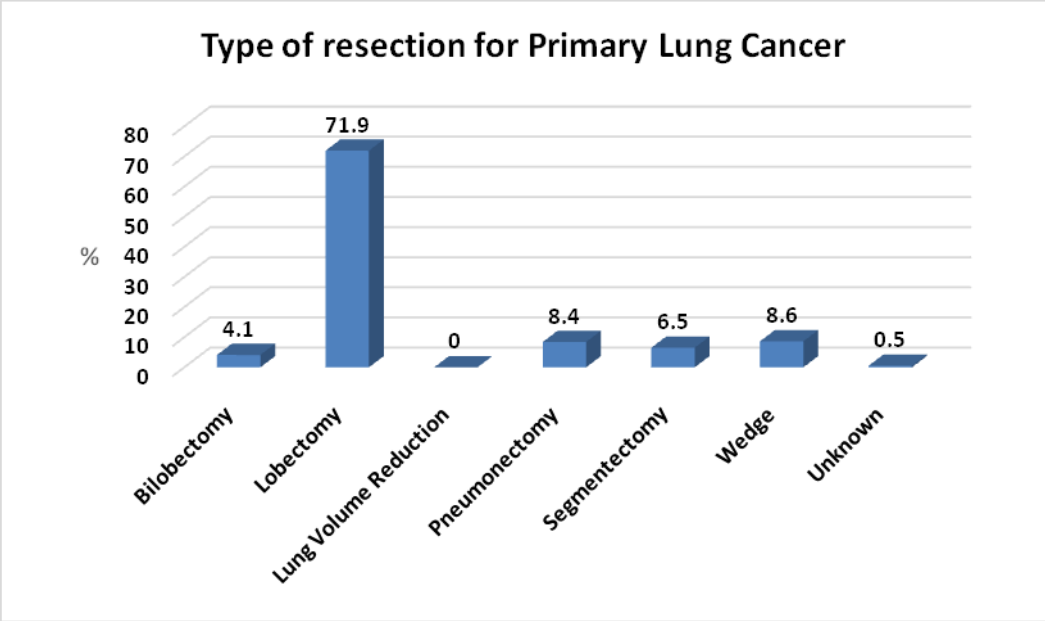
Bronchopleural fistula	**BPF No**	**BPF Yes**	**Unknown**	**Total**
Pneumonectomy (N)	7728	167	804	8699
Pneumonectomy (%)	88.8	1.9	9.3	100



Primary lung cancer

Lung resection for primary lung cancer: Types of procedures

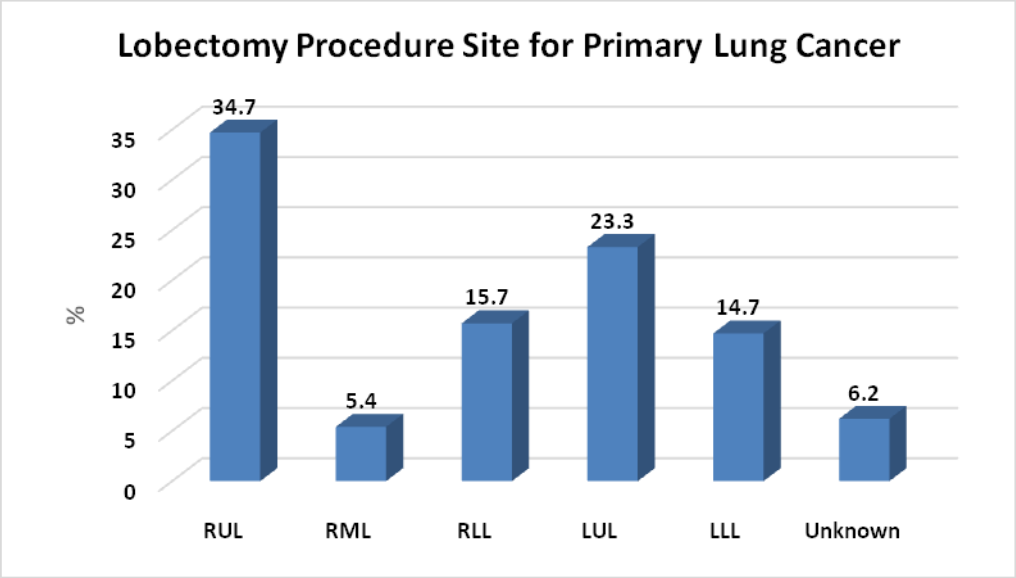
	Occurrences	Percent
Bilobectomy	3711	4.1
Lobectomy	65888	71.9
Lung Volume Reduction	11	0
Pneumonectomy	7713	8.4
Segmentectomy	5964	6.5
Wedge	7856	8.6
Unknown	457	0.5
Total	**91600**	**100**



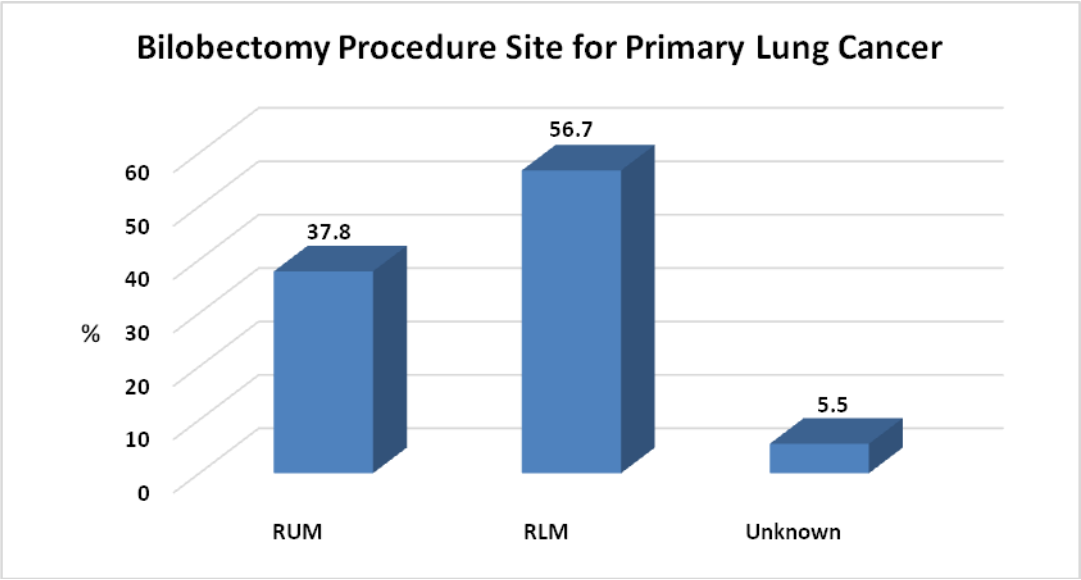
Bilobectomy – Lobectomy qualifier	Occurrences	Percent
Alone	49160	70.6
Chest Wall	2940	4.2
Superior Sulcus Tumor	466	0.7
Sleeve	2496	3.6
Diaphragm Resection	70	0.1
Atrial Resection	69	0.1
SVC Resection/Reconstruction	68	0.1
Vertebral Resection	372	0.5
Unknown	13958	20.1
Total	**69599**	**100**

Distribution of lobectomy/bilobectomy by site of resection

Lobectomy procedure site	Occurrences	Percent
RUL	22863	34.7
RML	3581	5.4
RLL	10340	15.7
LUL	15355	23.3
LLL	9644	14.7
Unknown	4105	6.2
Total	**65888**	**100**



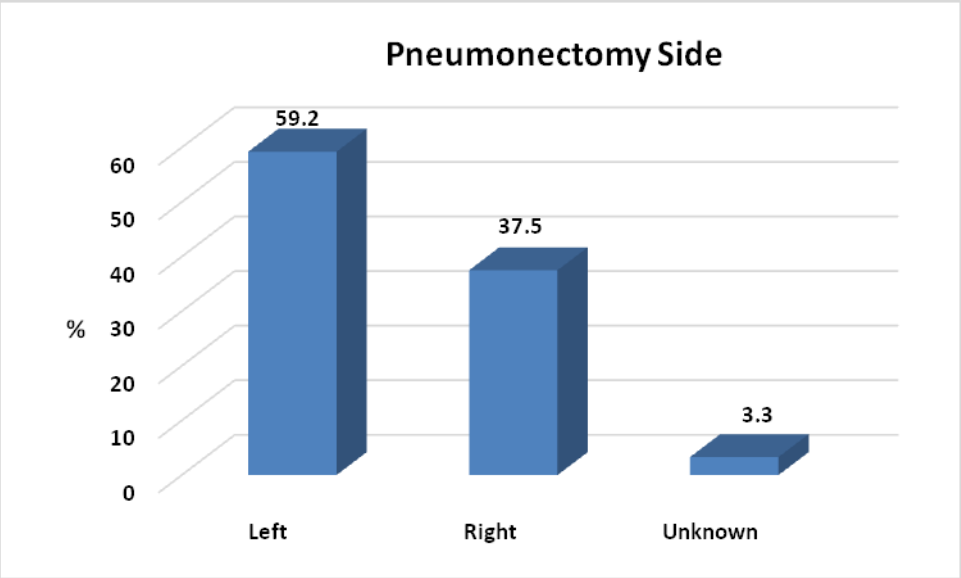
Bilobectomy procedure site	Occurrences	Percent
RUM	1402	37.8
RLM	2104	56.7
Unknown	205	5.5
Total	**3711**	**100**



Distributions of pneumonectomy

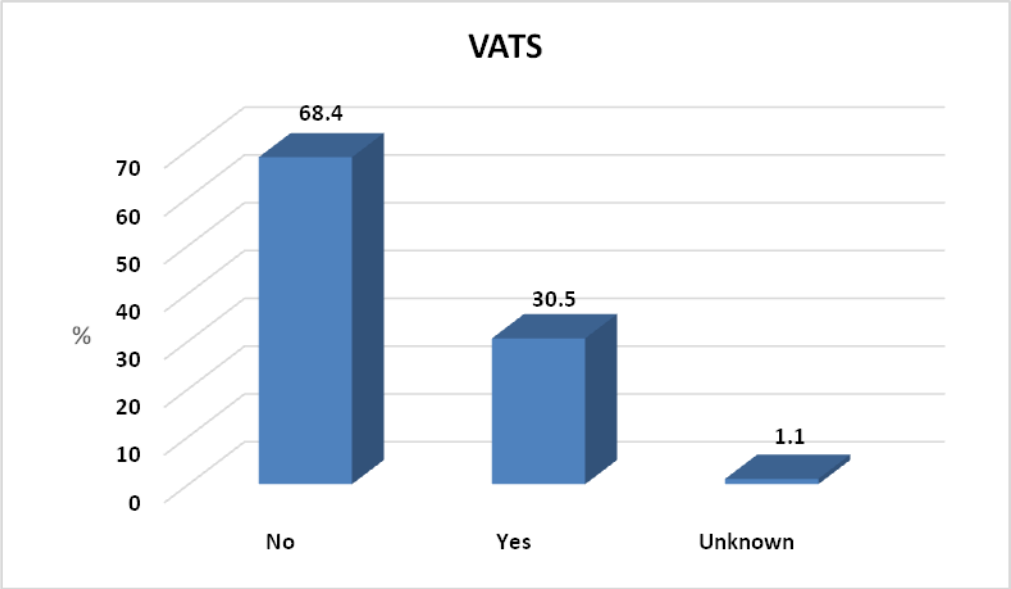
Pneumonectomy Qualifier	Occurrences	Percent
Alone	4386	56.9
Completion	312	4
Intrapericardial	678	8.8
Pleuropneumonectomy	182	2.4
Sleeve Resection	97	1.3
Diaphragm Resection	9	0.1
Atrial Resection	104	1.3
SVC Resection/Reconstruction	89	1.2
Vertebral Resection	158	2
Unknown	1698	22
Total	**7713**	**100**

Pneumonectomy side	Occurrences	Percent
Left	4563	59.2
Right	2891	37.5
Unknown	259	3.3
Total	**7713**	**100**



Distribution of VATS procedures in total lung resections

VATS	Occurrences	Percent
No	62672	68.4
Yes	27961	30.5
Unknown	967	1.1
Total	**91600**	**100**



Distributions of VATS procedures in lobectomy/bilobectomy

VATS	Occurrences	Percent
No	48258	69.3
Yes	20732	29.8
Unknown	609	0.9
Total	**69599**	**100**

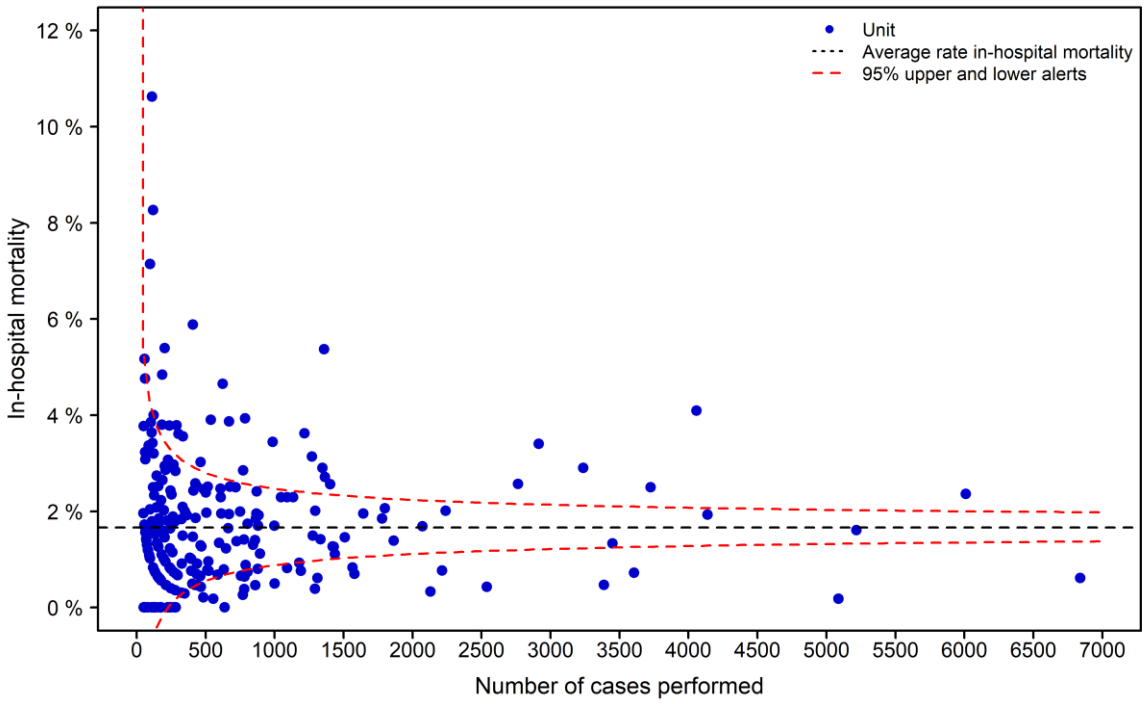
Unadjusted in-hospital mortality rates in primary lung cancer resections

Outcome at Discharge - Died in Hospital	N	Died in Hospital	Percent(%)
Bilobectomy	3516	119	3.4
Lobectomy	61782	879	1.4
Pneumonectomy	7353	407	5.5
Segmentectomy	5417	59	1.1
Wedge	7474	74	1
Total	**85542**	**1538**	**1.8**

Overall unadjusted in-hospital mortality calculated in the total dataset

(Only centres with at least N>50 procedures were included)

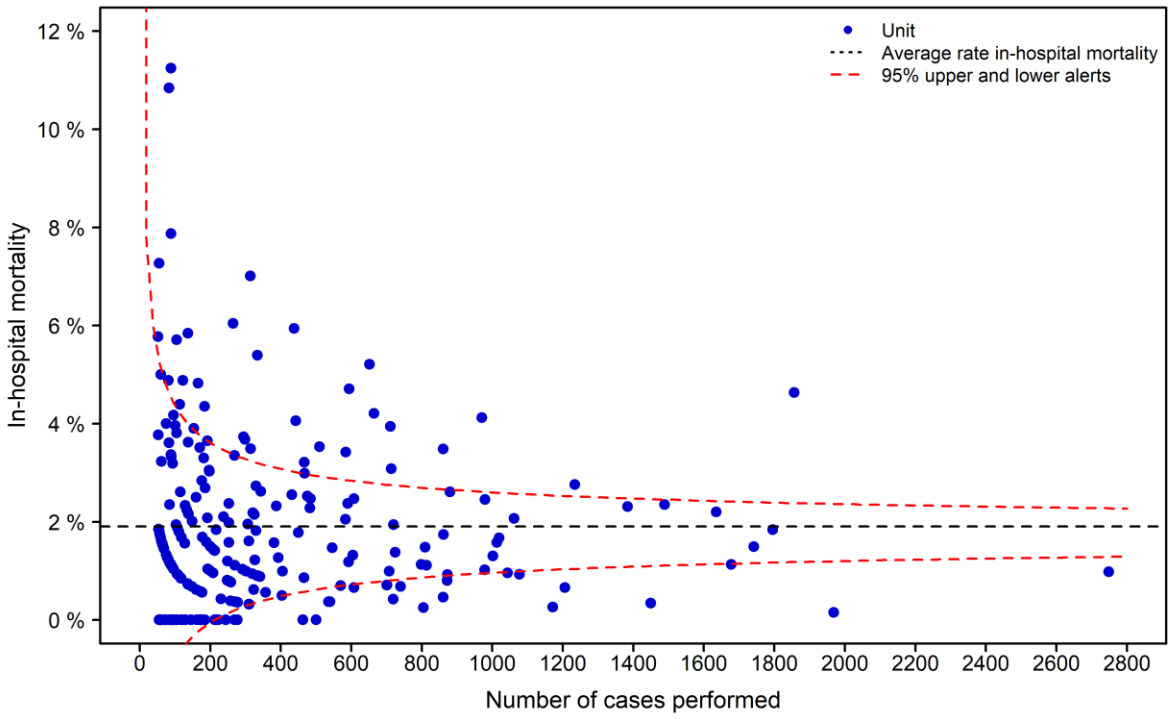
Please note that most of the units are within the limits. Only 12% of the Units are above the 95% upper limit whereas the 10% are below the 95% lower limit



Overall unadjusted in-hospital mortality calculated for the major lung resections

(Only centres with at least N>50 major lung resections were included)

Please note that most of the units are within the limits. Around 15% of the Units are above the 95% upper limit whereas the 8% are below the 95% lower limit

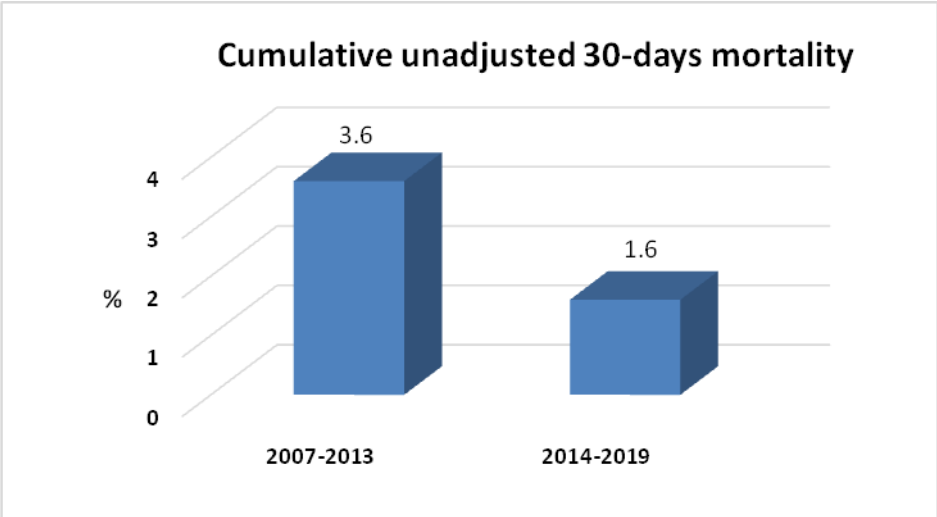


Comparisons of outcomes between 2007-2013 *vs* 2014-2019 in the total dataset

** Due to missing data, the 30-day mortality was only evaluated in 81.904 patients, leaving 89809 patients out*

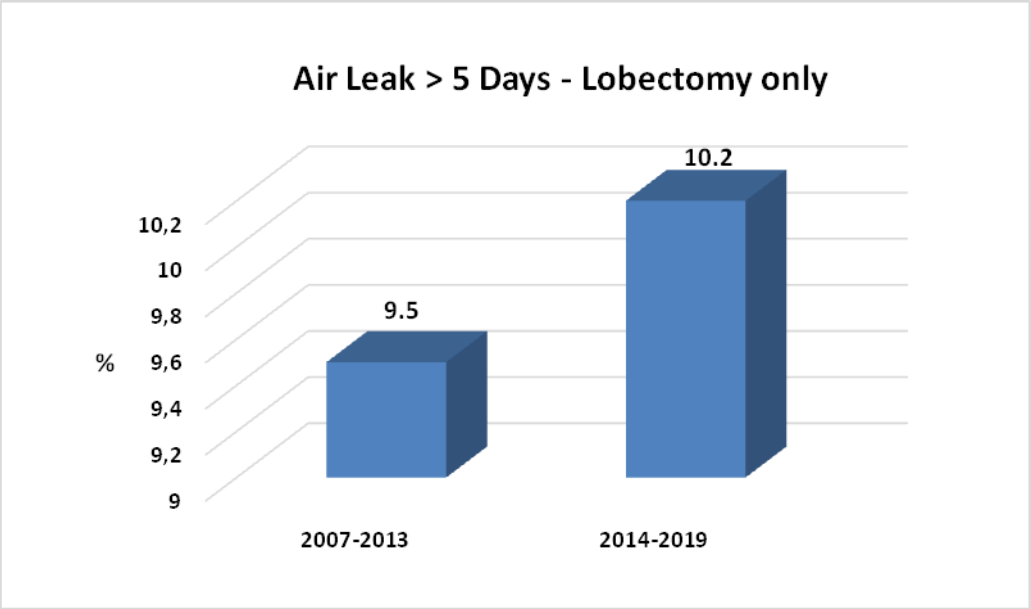
Cumulative non-adjusted 30-day mortality

Cumulative non-adjusted 30-day mortality	Alive	Died	Died Percent
2007-2013	27770	1033	3.6
2014-2019	52264	837	1.6
Total	**80034**	**1870**	**2.3**



Prolonged air leak (*LOBECTOMY ONLY*)

Air leak > 5 Days	No	Yes	Yes(%)
2007-2013	24765	2607	9.5
2014-2019	39695	4504	10.2
Total	**64460**	**7111**	**9.9**

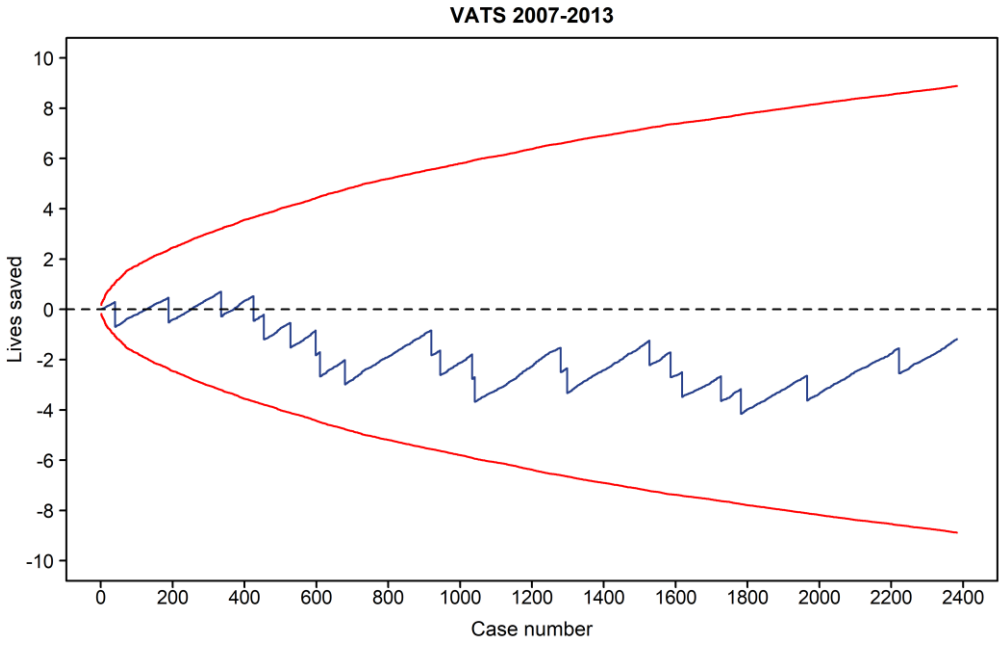


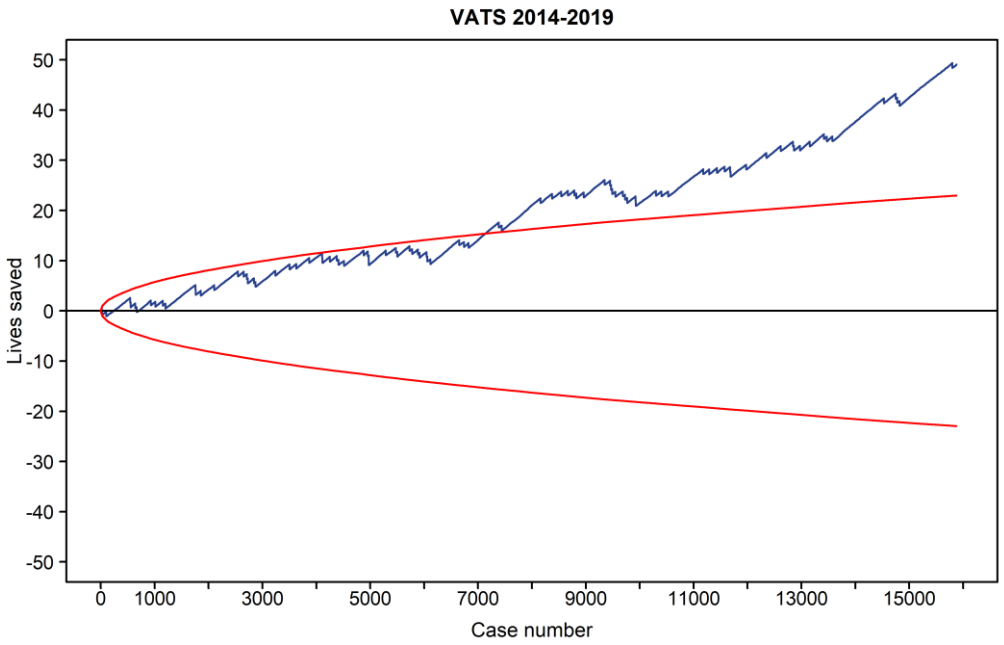
Hospital Mortality trending presented as CUSUM plots

Cumulative sum (CUSUM) techniques offer the possibility of checking a process along time and knowing if its quality is kept constant, improves or deteriorates. In the last case, corrective measures can be implemented and their efficacy investigated. We have used risk-adjusted expected minus observed CUSUM charts in this report. The results of the analysis are presented in graphs, were the horizontal axis represents the cases over time and the vertical axis shown the difference between the calculated risk of the outcome for a single individual and its occurrence.

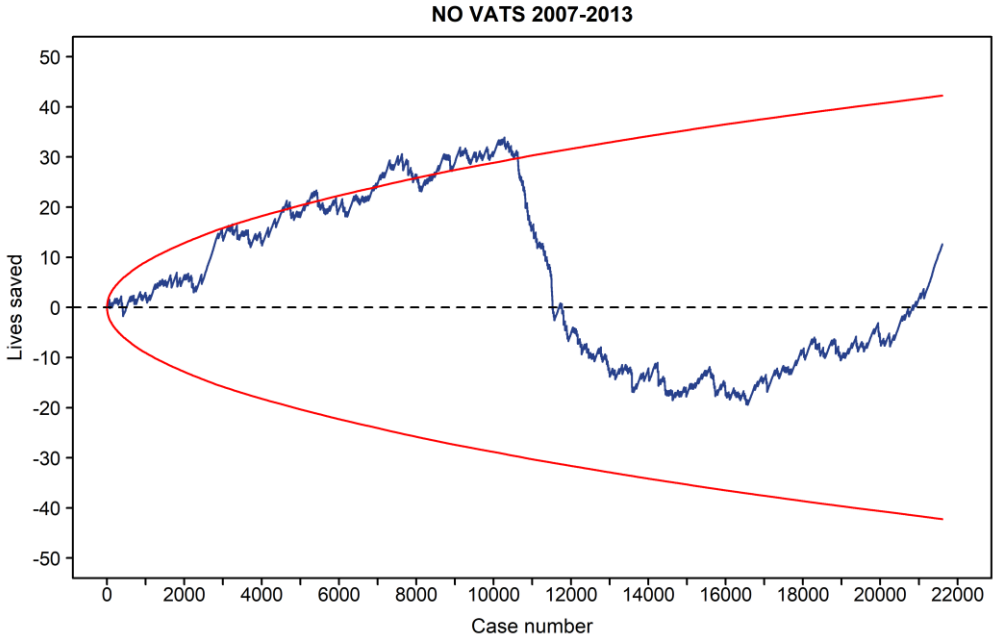
In the next figures, risk-adjusted CUSUM graphs for hospital mortality are presented for non-extended lobectomy performed through VATS or open approach in two different periods of time: 2007-2013 and 2014-2019.

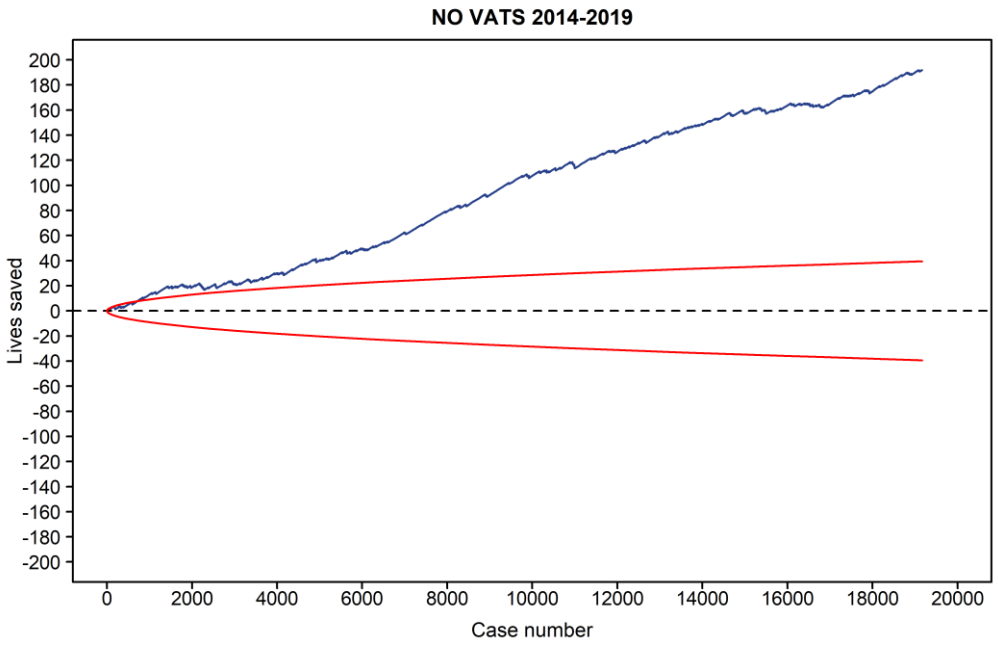
In the case of VATS, the first timeframe shows some variation around the zero for the first 400 cases and a slight mortality raise in the following cases. In the period 2014-2019, a steady decrease in mortality is detected, especially after the first 6000 procedures.





For cases not approached by VATS in the first time period, the graph shows a sharpdecrease in mortality for the first 11000 procedures followed byadrop in lives saved for the following 5000 procedures, probably meaning that the easiest cases were shifted to VATS in most institutions. Between 2013 and 2019, no VATS procedures resulted in a continuous and gradual improve of hospital mortality.




NO VATS 2014-2019
Lives saved
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Case number

PART 2

UNITS-SPECIFIC ACTIVITY

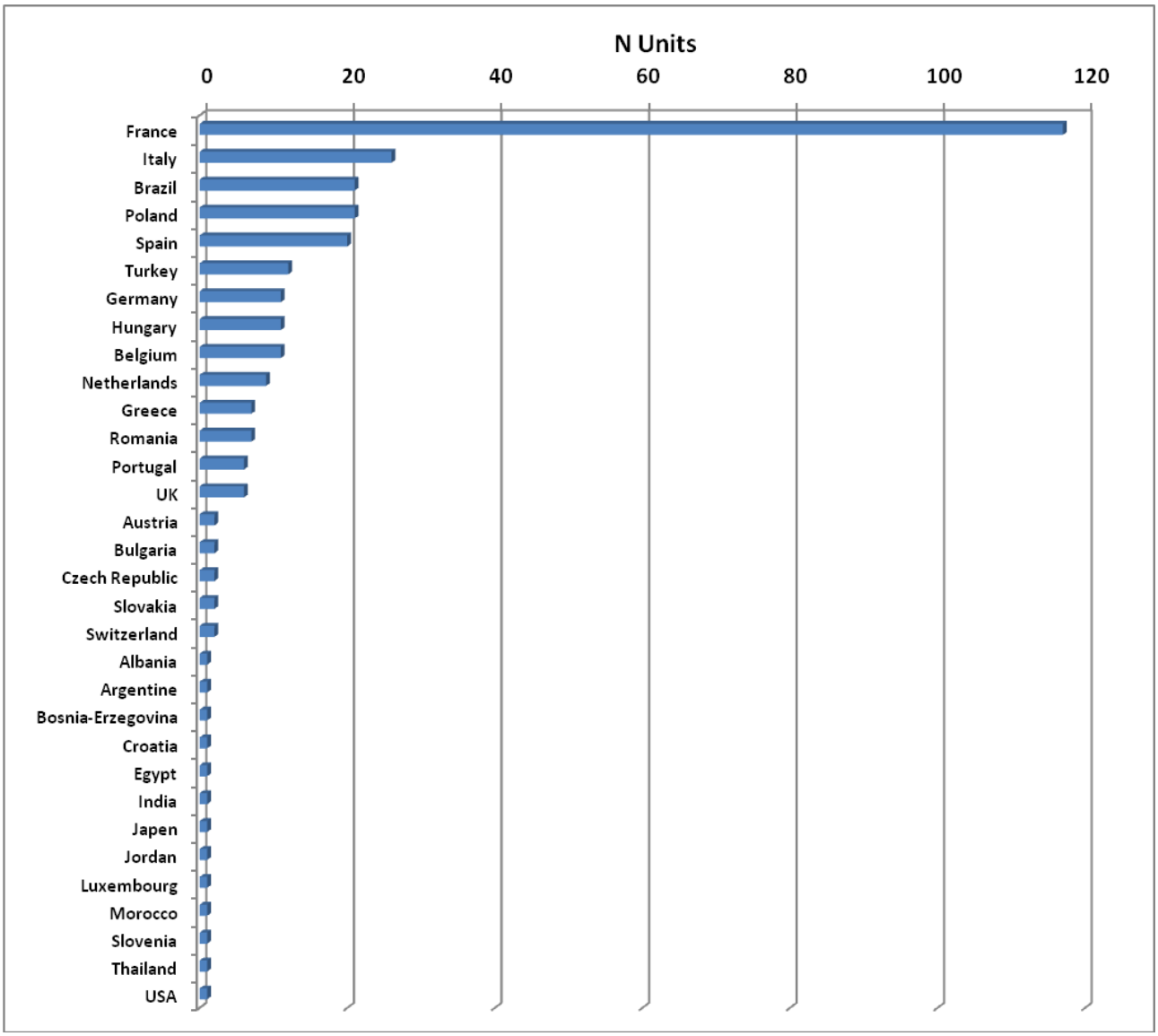
&

COMPARATIVE ANALYSIS

BETWEEN CONTRIBUTING UNITS
(2007-2019)
(European units Only)

Only units contributing more than 150 lung resections ***performed in the last three*** years *were included*

Number of Units enrolled in the ESTS database as of December 2019, by Country



Epidemiologic data

Proportion of elderly patients (older than 70 years of age) operated on in different European countries

Unit	Percent
Bm02dl	28.64
Bm05dl	33.06
Ch10dl	27
Fr130780521	35.84
Fr140000209	30.09
Fr170000087	39
Fr210987558	34.75
Fr290000215°	29.29
Fr310019351	29.3
Fr330780479°	36.36
Fr330783648	30.58
Fr340015502°	41.62
Fr340796663°	37.26
Fr350000741°	31.4
Fr370004467°	36.61
Fr380000067°	39.57
Fr380786442°	42.25
Fr440017598°	29.73
Fr440024982°	35.23
Fr540000486	34.11
Fr540001138°	25
Fr560002511°	37.19
Fr570001057°	32.71
Fr590000618°	25.27
Fr590780383°	26.72
Fr620100750°	27.78
Fr630000479°	34.53
Fr670000025	32.86
Fr690000880	29.47
Fr690784186°	32.99
Fr730000031°	36.63
Fr750100273	33.97
Fr750150104	35.84
Fr750712184°	40.63
Fr750803447	35.57
Fr760000158	28.2
Fr760021329°	32.28
Fr800006124°	30.81
Fr830100574°	39.84
Fr840001861°	38.66

Unit	Percent
Fr860000223	31.36
Fr920000650°	38.25
Fr920000684°	29.44
Fr920300043°	41.73
Fr930100037°	39
Gr02d0°	38.63
Gy18dl	38.11
Gy23dl	28.74
Hu01dl	20.19
Hu02dl	22.11
Hu03dl	21.77
Hu04dl	21.3
Hu05dl	18.1
Hu06dl	19.81
Hu07dl	23.28
Hu08dl	20.84
Hu09dl	21.16
Hu10dl°	14.56
Hu12dl	15.59
It03d0	38.07
It19d0	37.66
It21d0	43.4
It26dl	43.83
It32dl	37.3
It38dl°	46.37
It40dl°	49.29
It44dl	41.81
Pl08dl	24.73
Plndb	25.19
Sk01dl	18.69
Sp01dl	36.09
Sp07d0	37.98
Sp17dl	37.61
Sp28dl	30.14
Sp31dl	39.74
Sw03d0°	39.52

(°): Units with less than 500 patients included, results must be interpreted with caution

Percentage of patients submitted to major anatomic lung resections with preoperative measurement of DLCO in different European Countries.

Unit	Percent
Bm02dl	92.24
Bm05dl	92.54
Ch10dl	78.97
Fr130780521	96.48
Fr140000209	92.49
Fr170000087°	61.14
Fr210987558	55.08
Fr290000215°	63.82
Fr310019351	52.02
Fr330780479°	23.11
Fr330783648	55.59
Fr340015502°	15.81
Fr340796663°	77.14
Fr350000741°	72.83
Fr370004467°	83.33
Fr380000067°	55.51
Fr380786442°	67.5
Fr440017598°	40.31
Fr440024982°	57.26
Fr540000486°	25.54
Fr540001138°	70.5
Fr560002511°	37.22
Fr570001057°	42.69
Fr590000618°	18.85
Fr590780383°	63.55
Fr620100750°	57.14
Fr630000479°	91.29
Fr670000025	34.15
Fr690000880°	98.19
Fr690784186°	76.98
Fr730000031°	86.36
Fr750100273	85.63
Fr750150104	67.54
Fr750712184°	62.7
Fr750803447°	41.04
Fr760000158	70.52
Fr760021329°	81.88
Fr800006124°	82.5
Fr830100574°	96.24
Fr840001861°	84.92
Fr860000223°	73.84
Fr920000650°	88.27

Fr920000684°	75.99
Fr920300043°	21.6
Fr930100037°	42
Gr02d0°	5.92
Gy18dl°	54.72
Gy23dl	89.32
Hu01dl	7.77
Hu02dl	36.76
Hu03dl	1.24
Hu04dl°	0.31
Hu05dl°	0.56
Hu06dl	1.32
Hu07dl°	0.26
Hu08dl	0
Hu09dl	0.05
Hu10dl°	1.11
Hu12dl	50.54
It03d0	71.89
It19d0°	83.72
It21d0	58.22
It26dl°	83.27
It32dl	94.29
It38dl°	99.12
It40dl°	77.78
It44dl	47.45
Pl08dl	9.53
Plndb	0
Sk01dl	92.17
Sp01dl	88.57
Sp07d0	72.84
Sp17dl	82.35
Sp28dl°	83.78
Sp31dl°	88.18
Sw03d0°	91.43

(°): Units with less than 500 patients included, results must be interpreted with caution

Percentage of patients with primary neoplastic disease and suspicious clinical N2 stage (enlarged >1cm mediastinal nodes at CT scan or PET positive mediastinal nodes) who underwent at least one preoperative invasive mediastinal staging procedure (EBUS, EUS, mediastinoscopy, mediastinotomy, VATS, TEMLA etc.)

Unit	Percent
Bm02dl°	86.9
Bm05dl°	90.56
Ch10dl°	71.43
Fr130780521°	85.06
Fr140000209°	60.53
Fr170000087°	3.09
Fr210987558°	27.71
Fr290000215°	8.57
Fr310019351°	56.47
Fr330780479°	71.43
Fr330783648°	27.78
Fr340015502°	60
Fr340796663°	39.29
Fr350000741°	66.67
Fr370004467°	28.57
Fr380000067°	27.78
Fr380786442°	38.46
Fr440017598°	5
Fr440024982°	49.06
Fr540000486°	8.89
Fr540001138°	43.24
Fr560002511°	54.55
Fr570001057°	22.73
Fr590000618°	28.57
Fr590780383°	17.39
Fr620100750°	75
Fr630000479°	72
Fr670000025°	22.56
Fr690000880°	72.73
Fr690784186°	27.78
Fr730000031°	70
Fr750100273°	37.35
Fr750150104°	70.27
Fr750712184°	37.5
Fr750803447°	11.39
Fr760000158°	36.73
Fr760021329°	13.33
Fr800006124°	65.71
Fr830100574°	78.57
Fr840001861°	33.33
Fr860000223°	13.73
Fr920000650°	37.5
Fr920000684°	34.21
Fr920300043°	33.33
Fr930100037°	50
Gr02d0°	3.03
Gy18dl°	50
Gy23dl°	44.19
Hu01dl°	3.28
Hu02dl°	12.63
Hu03dl	7.16
Hu04dl°	11.76
Hu05dl°	2.44
Hu06dl°	2.76
Hu07dl°	27.27
Hu08dl°	65.52
Hu09dl°	14.29
Hu10dl°	0
Hu12dl°	74.76
It03d0°	36.22
It19d0°	5.63
It21d0°	29.21
It26dl°	41.86
It32dl°	9.93
It38dl°	0
It40dl°	39.29
Pl08dl°	52.94
Plndb°	52.94
Sk01dl°	35.87
Sp01dl°	72.29
Sp07d0°	42.77
Sp17dl°	78.41
Sp28dl°	65.91
Sp31dl°	65.52
Sw03d0°	39.02

(°): Units with less than 500 patients included, results must be interpreted with caution

Percentage of patients submitted to lymph node dissection during major lung resection for malignant primary neoplastic disease grouped by Countries

Lymph node dissection more extended than sampling alone or selected biopsy (as defined and recommended by the ESTS guidelines for intra-operative mediastinal staging) in lung cancer patients was a frequent procedure in all countries.
This variable will be included in the composite performance score (CPS) used for the ESTS quality certification program.

Unit	Percent
Bm02dl	91.7
Bm05dl	94.63
Ch10dl	98.11
Fr130780521	95.66
Fr140000209	94.32
Fr170000087°	94.18
Fr210987558	99.57
Fr290000215°	98.99
Fr310019351	97.77
Fr330780479°	99.14
Fr330783648	98.89
Fr340015502°	98.06
Fr340796663°	93.06
Fr350000741°	94.12
Fr370004467°	89.88
Fr380000067°	71.43
Fr380786442°	96
Fr440017598°	94.84
Fr440024982°	98.38
Fr540000486°	98.28
Fr540001138°	99.28
Fr560002511°	96.83
Fr570001057°	97.58
Fr590000618°	77.59
Fr590780383°	99.68
Fr620100750°	100
Fr630000479°	97.3
Fr670000025	96.14
Fr690000880°	95.31
Fr690784186°	100
Fr730000031°	99.43
Fr750100273°	99.03
Fr750150104	94.76
Fr750712184°	93.89
Fr750803447°	97.76
Fr760000158	74.15
Fr760021329°	95.6
Fr800006124°	99.37
Fr830100574°	90.11
Fr840001861°	100
Fr860000223°	96.99
Fr920000650°	91.25
Fr920000684°	95.19
Fr920300043°	99.06
Fr930100037°	98.99
Gr02d0°	77.52
Gy18dl°	100
Gy23dl	96.59
Hu01dl	94.52
Hu02dl	89.37
Hu03dl	56.98
Hu04dl°	97.15
Hu05dl°	56.72
Hu06dl°	95.1
Hu07dl°	99.15
Hu08dl°	36.52
Hu09dl	90.93
Hu10dl°	41.67
Hu12dl	98.11
It03d0	94.63
It19d0°	64.05
It21d0	83.41
It26dl°	55.23
It32dl	86.14
It38dl°	96.84
It40dl°	94.41
Pl08dl	100
Plndb	100
Sk01dl	53.18
Sp01dl	91.78
Sp07d0	92.93
Sp17dl	97.61
Sp28dl°	8.64
Sp31dl°	92.17
Sw03d0°	95.42

Primary lung cancer per contributing Units

Percentage of lung excision procedures

Unit	Bilobectomy	Lobectomy	Lung Volume Reduction	Pneumonectomy	Segmentectomy	Wedge	Unknown
Bm02dl	3.9	62.1	0	12	5.6	16.4	0
Bm05dl	7	71	0	11.6	5.1	5.3	0
Ch10dl	4.6	79.5	0	11.8	3.7	0.4	0
Fr130780521	2.2	71	0	5.4	14	7.4	0
Fr140000209	4.9	75.5	0	5.2	1.7	12.7	0
Fr170000087°	2	83.5	0	11	1.5	2	0
Fr210987558	2.7	71.7	0	7.1	16.1	2.4	0
Fr290000215°	6.3	70.3	0	6.7	2.9	13.8	0
Fr310019351	3	85.6	0	5.9	2.9	2.6	0
Fr330780479°	2.3	82.2	0	5.7	3.8	6	0
Fr330783648	2.5	77.3	0	2.3	14.2	3.7	0
Fr340015502°	4.3	81.8	0	3.5	9.8	0.6	0
Fr340796663°	5.2	74.1	0	3.3	12.7	4.7	0
Fr350000741°	3.3	65.3	0	2.9	6.6	21.9	0
Fr370004467°	3.9	74	0	3.2	1.7	17.2	0
Fr380000067°	3.6	69.8	0	4	18.9	3.7	0
Fr380786442°	2.7	71.7	0	3.1	20.9	1.6	0
Fr440017598°	7.1	72.3	0	7.8	4.7	8.1	0
Fr440024982°	2.5	80.8	0	5	6.4	5.3	0
Fr540000486	3.3	76.5	0	10.5	3.1	6.6	0
Fr540001138°	2.5	74.5	0	9.7	9.3	4	0
Fr560002511°	9.1	76.4	0	6.6	1.7	6.2	0
Fr570001057°	1.6	71.8	0	4.7	5.1	16.8	0
Fr590000618°	1.8	82.7	0	3.6	1.4	10.5	0
Fr590780383°	4.3	77.9	0	6.9	6	4.9	0
Fr620100750°	3.3	57.2	0	5.6	9.5	24.4	0
Fr630000479°	3.6	77.2	0	4.3	7.2	7.7	0
Fr670000025	2.8	75.8	0	8.4	8	5	0
Fr690000880°	5.6	74	0	7.2	8.5	4.7	0
Fr690784186°	4.5	78.5	0	4.5	9	3.5	0
Fr730000031°	5.9	77.7	0	3.5	6.9	6	0
Fr750100273	2.8	68.6	0.2	7.7	17.5	3.2	0
Fr750150104	2.7	61.7	0.1	2.5	29.9	3.1	0
Fr750712184°	3.4	55.3	0.2	6.5	27	7.6	0
Fr750803447	5.6	72.9	0	5.2	6.7	9.6	0
Fr760000158	2.2	60.7	0	7.1	19.6	10.4	0
Fr760021329°	3.2	71.4	0	10.1	9	6.3	0
Fr800006124°	2.6	75.3	0	5.5	8.3	8.3	0

Unit	Bilobectomy	Lobectomy	Lung Volume Reduction	Pneumonectomy	Segmentectomy	Wedge	Unknown
Fr830100574°	2.8	67.9	0	4.9	8.9	15.5	0
Fr840001861°	1.4	56.4	0	2.2	27.4	12.6	0
Fr860000223	4.5	74.4	0	6.3	7.5	7.3	0
Fr920000650°	3	74.3	0	3.7	13	6	0
Fr920000684°	3.9	78.2	0	5.2	5.2	7.5	0
Fr920300043°	3.4	74.9	0	1.5	17.2	3	0
Fr930100037°	4.6	75.1	0.4	3.3	6.2	10.4	0
Gr02d0°	3.9	57.4	0	17.7	3	5	13
Gy18dl°	5.9	60.7	0	8.4	21	4	0
Gy23dl	3.3	70.5	0	5.6	5.7	14.8	0.1
Hu01dl	3.6	66.5	0	5.8	8.6	15.5	0
Hu02dl	3.2	76.4	0	4.6	6.2	9.4	0.2
Hu03dl	2.7	67	0	9.6	2.9	16.5	1.3
Hu04dl°	2.9	69.4	1.4	4.6	12.8	6.6	2.3
Hu05dl°	0.6	70.9	0	8.9	14.6	4.4	0.6
Hu06dl	1.6	73.7	0	5.7	1.4	17.4	0.2
Hu07dl°	1.4	76.2	0	2.8	1.8	17.8	0
Hu08dl	1.7	54.8	0	12.4	10.4	20.4	0.3
Hu09dl	3.5	70.2	0	9.9	3.1	12.4	0.9
Hu10dl°	1.2	78.3	0	6	0	13.3	1.2
Hu12dl	2.1	73.5	0.1	7.4	6.8	10	0.1
It03d0	3.8	74.9	0	5.2	6.9	9.1	0.1
It19d0°	6.2	77	0	6.1	0.5	10.2	0
It21d0	3.5	76	0	6.3	2.7	10.9	0.6
It26dl°	1.1	58.3	0	5.1	4.3	29.3	1.9
It32dl	3.4	74.9	0	7.6	5.1	8.8	0.2
It38dl°	4.2	83.3	0	3	1.8	7.7	0
It40dl°	2.3	82.1	0	2.3	4.6	8.7	0
Pl08dl	5.2	78.3	0	9.9	3.4	3.2	0
Plndb	4.6	79.7	0	10.2	2.9	2.6	0
Sk01dl	4.6	85.3	0	8	2.1	0	0
Sp01dl	4.4	82.3	0	6.1	5.7	1.4	0.1
Sp07d0	3.2	58.6	0	3.8	9.3	24.9	0.2
Sp17dl	4	73.3	0	6.3	9	7.4	0
Sp28dl°	3.7	74.2	0	7.3	12.6	2.2	0
Sp31dl°	3.3	69.2	0	4.1	11.3	12.1	0
Sw03d0°	4.2	71.9	0.5	5.7	2.6	14.6	0.5

(°): Units with less than 500 patients included, results must be interpreted with caution

Proportion and type of estended resections amongst lobectomy and bilobectomy

Unit	Alone	Chest Wall	Superior Sulcus Tumor	Sleeve	Diaphragm Resection	Atrial Resection	SVC Resection/Reconstruction	Vertebral Resection	Unknown
Bm02dl	90.5	1.5	1.5	5.5	0.3	0.3	0	0	0.4
Bm05dl	79.6	4	1.8	13.8	0.2	0.3	0.1	0.1	0.1
Ch10dl°	71.2	9.3	0	17.4	0.2	1.7	0.2	0	0
Fr130780521	39	7.9	1	3.8	0	0	0	0	48.3
Fr140000209	33.5	8.6	0	1.4	0	0	0	0	56.5
Fr170000087°	36.2	0.6	0	0	0	0	0	0	63.2
Fr210987558	37.8	9.4	0	3.3	0.3	0	0	0	49.2
Fr290000215°	26.2	16.4	0	2.2	0	0	0	0	55.2
Fr310019351	34.4	10.7	0.3	1.9	0.2	0	0	0	52.5
Fr330780479°	50.7	2.2	0	0	0	0	0	0	47.1
Fr330783648	31.3	7.7	0.4	3.7	0	0	0	0	56.9
Fr340015502°	37.6	4.4	0.3	2	0	0	0	0	55.7
Fr340796663°	1.2	3.6	0.6	5.9	0	0	0	0	88.7
Fr350000741°	39.8	10.2	0.6	3	0	0	0	0	46.4
Fr370004467°	45.4	6.3	0	0.6	0	0	0	0	47.7
Fr380000067°	38.6	14.1	0	3.7	0	0	0	0	43.6
Fr380786442°	14.1	24.5	0.5	2.6	0	0	0	0	58.3
Fr440017598°	34.1	20	0.4	2.1	0.4	0	0	0	43
Fr440024982°	29.9	17.5	0.5	8.1	0	0	0	0	44
Fr540000486°	37.4	2.9	0	1.5	0	0	0	0	58.2
Fr540001138°	36	10.5	1.6	2.9	0	0	0	0	49
Fr560002511°	28	17.9	0	3.9	0	0	0	0	50.2
Fr570001057°	47.6	5.4	0	0.3	0	0	0	0	46.7
Fr590000618°	41.9	6.4	0.4	0.9	0	0	0	0	50.4
Fr590780383°	30.8	17.5	0.3	1	0	0	0	0	50.4
Fr620100750°	22	8.3	0	2.7	0	0	0	0	67
Fr630000479°	39.9	3.5	0.3	3.5	0	0	0	0	52.8
Fr670000025	36.6	10.6	0.4	3.7	0	0	0	0	48.7
Fr690000880°	32.3	5.5	0.8	9.4	0	0	0	0	52
Fr690784186°	10.5	14.6	2.1	2.9	0	0	0	0	69.9
Fr730000031°	37.9	5.9	0	1.2	0	0	0	0	55
Fr750100273°	31.9	3.1	0.4	1.8	0	0	0	0	62.8
Fr750150104	33.2	4.6	0.7	1.6	0	0	0	0	59.9
Fr750712184°	17.1	7.8	0.4	3.6	0	0	0	0	71.1
Fr750803447°	28.8	12.7	0.7	2.3	0	0	0	0	55.5
Fr760000158°	23.6	13.3	0	2.1	0	0	0	0	61
Fr760021329°	31.2	9.9	0	0	0	0	0	0	58.9
Fr800006124°	21.4	24.4	1	1.3	0	0	0	0	51.9
Fr830100574°	13.2	10.3	0	5.2	0	0	0	0	71.3
Fr840001861°	42.4	6.6	0	0.8	0	0	0	0	50.2
Fr860000223°	38	4.5	1.3	2.7	0	0	0	0	53.5
Fr920000650°	16.2	2.9	1	11	0	0	0	0	68.9
Fr920000684°	17.6	7.9	2.1	6.9	0	0	0	0	65.5

Unit	Alone	Chest Wall	Superior Sulcus Tumor	Sleeve	Diaphragm Resection	Atrial Resection	SVC Resection/Reconstruction	Vertebral Resection	Unknown
Fr920300043°	32.1	19.1	0	0	0	0	0	0	48.8
Fr930100037°	33.9	12	0	6.2	0	0	0	0	47.9
Gr02d0°	92.3	3.2	1.4	1.8	0	0.9	0	0	0.4
Gy18dl°	79	6.6	1.1	11.6	0	1.1	0.6	0	0
Gy23dl	85.4	3.2	1.8	8.6	0.3	0.2	0.4	0.1	0
Hu01dl°	78.1	2.6	0	2	0	0.2	0	0	17.1
Hu02dl	25.2	1.6	0.1	7.6	0.2	0	0.2	0.2	64.9
Hu03dl	39.3	1.6	0.1	6.9	0.7	0.2	0.1	0	51.1
Hu04dl°	15.8	5.1	0.8	1.6	0.8	0	0.8	0	75.1
Hu05dl°	0.9	0	6.2	0	0	0	0	0	92.9
Hu06dl°	96.4	0	0	0.2	0.3	0	0	0	3.1
Hu07dl°	98.8	0	0	0.9	0	0.3	0	0	0
Hu08dl	30.6	0.3	0.2	0.1	0.2	0.2	0	0.2	68.2
Hu09dl	36.2	1.3	0.2	1.2	0.3	0.2	0.3	0	60.3
Hu10dl°	1.5	1.5	0	0	0	0	0	0	97
Hu12dl	90.2	1.5	0	1	0.1	0	0	0	7.2
It03d0	94.1	1.4	0	3.8	0.1	0.2	0	0	0.4
It19d0°	96.5	2.9	0	0	0.3	0	0	0.3	0
It21d0	94.2	2.6	0.6	2.2	0	0.1	0	0	0.3
It26dl°	96.4	2.7	0	0	0	0	0	0	0.9
It32dl	88.1	2.8	0.3	1.2	0	0	0	0.2	7.4
It38dl°	98.6	0.7	0	0.7	0	0	0	0	0
It40dl°	95.9	2	0	0.7	0	0	0	0	1.4
Pl08dl	93.2	1.2	0	5.3	0.1	0.1	0.1	0	0
Plndb	93.5	0.9	0	5.2	0	0.1	0.3	0	0
Sk01dl°	95.1	1.7	0.2	3	0	0	0	0	0
Sp01dl	76.9	5.5	0.8	3.9	0	0.2	0	0	12.7
Sp07d0	93	2.8	0.5	0.3	0.3	0	0	0.1	3
Sp17dl°	84.9	3.5	1.7	8.1	0.2	0.8	0.2	0.4	0.2
Sp28dl°	96	1.4	0.6	1.4	0.6	0	0	0	0
Sp31dl°	91.4	3.3	0.8	3.3	0	0.4	0	0.4	0.4
Sw03d0°	89.7	0	0	4.8	0.7	0	0.7	0.7	3.4

(°): Units with less than 500 patients included, results must be interpreted with caution

Proportion of estended and type of resection amongts pneumonectomies

Unit	Alone	Completion	Intrapericardial	Pleuropneumonectomy	Sleeve Resection	Diaphragm Resection	Atrial Resection	SVC Resection Reconstruction	Vertebral Resection	Unknown
Bm02dl°	32.5	17.9	32.5	0.8	1.7	0	0	0	0.8	13.8
Bm05dl°	62.3	5.8	29.1	0.5	0.5	0	0	0.4	0.9	0.5
Ch10dl°	31.8	4.5	22.7	28.8	6.1	6.1	0	0	0	0
Fr130780521°	38.3	0	0	0	1.7	0	0	0	0	60
Fr140000209°	15.2	0	0	0	0	0	0	0	0	84.8
Fr170000087°	31.8	0	0	0	0	0	0	0	0	68.2
Fr210987558°	37.1	0	0	0	4.8	0	0	0	0	58.1
Fr290000215°	18.8	0	0	0	0	0	0	0	0	81.2
Fr310019351°	26.7	0	0	0	0	0	0	0	0	73.3
Fr330780479°	66.7	0	0	0	0	0	0	0	0	33.3
Fr330783648°	20	0	0	0	0	0	0	0	0	80
Fr340015502°	33.3	0	0	0	0	0	0	0	0	66.7
Fr340796663°	0	0	0	0	0	0	0	0	0	100
Fr350000741°	57.1	0	0	0	0	0	0	0	0	42.9
Fr370004467°	61.5	0	0	0	0	0	0	0	0	38.5
Fr380000067°	53.8	0	0	0	0	0	0	0	0	46.2
Fr380786442°	37.5	0	0	0	0	0	0	0	0	62.5
Fr440017598°	56.5	0	0	0	4.4	0	0	0	0	39.1
Fr440024982°	7.2	0	0	0	7.1	0	0	0	0	85.7
Fr540000486°	31.5	0	0	0	1.8	0	0	0	0	66.7
Fr540001138°	38.7	0	0	0	0	0	0	0	0	61.3
Fr560002511°	31.2	0	0	0	0	0	0	0	0	68.8
Fr570001057°	45	0	0	0	0	0	0	0	0	55
Fr590000618°	60	0	0	0	0	0	0	0	0	40
Fr590780383°	29.2	0	0	0	0	0	0	0	0	70.8
Fr620100750°	10	0	0	0	0	0	0	0	0	90
Fr630000479°	35.3	0	0	0	5.9	0	0	0	0	58.8
Fr670000025°	31.3	0	0	0	1.2	0	0	0	0	67.5
Fr690000880°	30.4	0	0	0	0	0	0	0	0	69.6
Fr690784186°	7.7	0	0	0	0	0	0	0	0	92.3
Fr730000031°	28.6	0	0	0	0	0	0	0	0	71.4
Fr750100273°	38.8	0	0	0	0	0	0	0	0	61.2
Fr750150104°	23.8	0	0	0	0	0	0	0	0	76.2
Fr750712184°	3.2	0	0	0	0	0	0	0	0	96.8
Fr750803447°	20.7	0	0	0	0	0	0	0	0	79.3
Fr760000158°	37	0	0	0	1.9	0	0	0	0	61.1
Fr760021329°	10.5	0	0	0	0	0	0	0	0	89.5
Fr800006124°	14.3	0	0	0	4.8	0	0	0	0	80.9
Fr830100574°	16.7	0	0	0	0	0	0	0	0	83.3
Fr840001861°	44.4	0	0	0	0	0	0	0	0	55.6
Fr860000223°	40.6	0	0	0	0	0	0	0	0	59.4
Fr920000650°	13.3	0	0	0	6.7	0	0	0	0	80

Unit	Alone	Completion	Intrapericardial	Pleuropneumonectomy	Sleeve Resection	Diaphragm Resection	Atrial Resection	SVC Resection Reconstruction	Vertebral Resection	Unknown
Fr920000684°	12.5	0	0	0	8.3	0	0	0	0	79.2
Fr920300043°	25	0	0	0	0	0	0	0	0	75
Fr930100037°	25	0	0	0	0	0	0	0	0	75
Gr02d0°	21.9	15.6	28.1	4.7	0	0	1.6	0	0	28.1
Gy18dl°	21.7	0	56.5	17.4	0	0	4.4	0	0	0
Gy23dl°	41.4	2.3	36.8	8	5.7	2.3	3.5	0	0	0
Hu01dl°	70.7	4.9	14.6	2.5	0	0	0	0	0	7.3
Hu02dl°	19.7	24.3	3	0	0	0	0	1.5	0	51.5
Hu03dl°	34.7	24.4	13	2.7	1.9	0.4	0	0	0	22.9
Hu04dl°	25	50	0	0	0	6.2	0	0	0	18.8
Hu05dl°	10.7	25	0	0	0	0	0	0	0	64.3
Hu06dl°	40.6	0	18.8	0	0	0	0	0	0	40.6
Hu07dl°	66.7	0	33.3	0	0	0	0	0	0	0
Hu08dl°	12.4	14.7	6.2	0	0	0	0	0	0	66.7
Hu09dl°	32.9	15.2	25.3	0	0	0	1.3	0	0	25.3
Hu10dl°	20	0	20	0	0	0	0	0	0	60
Hu12dl°	83.2	3.8	8.4	0	0	0	0	0	0	4.6
It03d0°	46.3	8.9	23.9	0	3	0	1.5	0	0	16.4
It19d0°	47.8	4.4	34.8	0	0	0	0	0	0	13
It21d0°	54.7	9.4	20.3	3.1	0	0	0	1.6	0	10.9
It26dl°	73.7	5.3	10.5	0	0	0	0	0	0	10.5
It32dl°	63.5	4.7	27	0	1.6	0	1.6	0	0	1.6
It38dl°	0	0	0	0	0	0	0	0	0	100
It40dl°	75	0	25	0	0	0	0	0	0	0
Pl08dl°	73.9	0	18.5	0	0.6	0	5.4	1.6	0	0
Plndb°	66.2	0	25	0	0	0	5	3.8	0	0
Sk01dl°	78.6	0	21.4	0	0	0	0	0	0	0
Sp01dl°	47.1	10.3	13.2	7.4	2.9	0	1.5	0	0	17.6
Sp07d0°	48.7	10.2	17.9	2.6	2.6	0	2.6	2.6	0	12.8
Sp17dl°	89.7	7.7	0	0	2.6	0	0	0	0	0
Sp28dl°	72.7	15.2	9.1	0	0	0	0	0	0	3
Sp31dl°	35.7	14.3	42.9	7.1	0	0	0	0	0	0
Sw03d0°	36.4	0	54.5	0	0	0	0	0	0	9.1

(°): Units with less than 500 patients included, results must be interpreted with caution

Percentage of VATS (LOBECTOMIES)

Unit	No(%)	Yes(%)	Unknown(%)
Bm02dl	68.3	31.5	0.2
Bm05dl	46.6	53.4	0
Ch10dl°	57.6	42.4	0
Fr130780521	50.7	48.5	0.8
Fr140000209°	77.4	22.6	0
Fr170000087°	82.6	17.4	0
Fr210987558	69.2	21.2	9.6
Fr290000215°	61.3	38.7	0
Fr310019351	67.3	32.4	0.3
Fr330780479°	71	29	0
Fr330783648	45.5	54	0.5
Fr340015502°	38.9	60.8	0.3
Fr340796663°	23.6	76.4	0
Fr350000741°	18.4	81.6	0
Fr370004467°	76.7	23.3	0
Fr380000067°	74.2	25.3	0.5
Fr380786442°	56.8	43.2	0
Fr440017598°	38.8	60.3	0.9
Fr440024982°	28.2	71.8	0
Fr540000486°	83	17	0
Fr540001138°	74.1	25.9	0
Fr560002511°	45.4	54.6	0
Fr570001057°	54.9	45.1	0
Fr590000618°	82.5	17.5	0
Fr590780383°	89.3	10.7	0
Fr620100750°	100	0	0
Fr630000479°	48.7	50.7	0.6
Fr670000025	48.5	51.2	0.3
Fr690000880°	32.2	67	0.8
Fr690784186°	48.2	50.9	0.9
Fr730000031°	61.8	38.2	0
Fr750100273°	59.7	35.5	4.8
Fr750150104	27.2	72.4	0.4
Fr750712184°	85.6	14	0.4
Fr750803447°	76.9	21.1	2
Fr760000158°	30.6	69	0.4
Fr760021329°	65.9	34.1	0
Fr800006124°	21.8	77.9	0.3
Fr830100574°	43.7	55.7	0.6
Fr840001861°	86.9	13.1	0
Fr860000223°	82.5	17.5	0
Fr920000650°	50.5	49.2	0.3
Fr920000684°	33.2	63.8	3
Fr920300043°	51	48.5	0.5

Unit	No(%)	Yes(%)	Unknown(%)
Fr930100037°	76.8	22.1	1.1
Gr02d0°	100	0	0
Gy18dl°	97	3	0
Gy23dl	55.5	44.5	0
Hu01dl°	42.4	57.6	0
Hu02dl	51	48.8	0.2
Hu03dl	37.2	62.7	0.1
Hu04dl°	50.2	45.7	4.1
Hu05dl°	48.2	51.8	0
Hu06dl°	76.6	23.4	0
Hu07dl°	21.3	78.7	0
Hu08dl	74.2	25.8	0
Hu09dl	66	34	0
Hu10dl°	87.7	12.3	0
Hu12dl	62.7	36.9	0.4
It03d0	57.8	41.5	0.7
It19d0°	50.7	17.7	31.6
It21d0	74.1	25.9	0
It26dl°	69.3	30.7	0
It32dl	73.6	26.4	0
It38dl°	47.1	52.9	0
It40dl°	12.7	87.3	0
Pl08dl	53.9	46.1	0
Plndb	46.8	53.2	0
Sk01dl°	53	47	0
Sp01dl	66.7	33.3	0
Sp07d0	89.8	10.2	0
Sp17dl°	71.8	28.2	0
Sp28dl°	29.4	70.6	0
Sp31dl°	11.5	88.5	0
Sw03d0°	79	21	0

(°): Units with less than 500 patients included, results must be interpreted with caution

Observed versus predicted in-hospital mortality rates of major lung resections in different European Units

(risk adjustment according to Brunelli A et al. please see Appendix for details of applied risk models EUROLUNG2)

	Observed	Predicted
Bm02dl	1.79	2.84
Bm05dl	1.64	2.21
Ch10dl°	1.03	2.08
Fr130780521	2.64	1.73
Fr140000209	1.48	2.14
Fr170000087°	1.54	2.88
Fr210987558°	1.42	2.41
Fr290000215°	1.19	2.13
Fr310019351	0.36	1.89
Fr330780479°	2.49	2.21
Fr330783648°	1.69	1.53
Fr340015502°	1.59	1.51
Fr340796663°	0.75	1.4
Fr370004467°	2.46	1.94
Fr380000067°	0.56	2.38
Fr380786442°	1.76	2.1
Fr440017598°	0.47	1.81
Fr440024982°	1.06	1.6
Fr540000486°	1	2.66
Fr540001138°	0.49	2.51
Fr560002511°	0	1.88
Fr570001057°	0.53	1.65
Fr590000618°	0	2.22
Fr590780383°	0.34	2.49
Fr630000479°	1.22	1.74
Fr670000025	0.44	1.95
Fr690000880°	0	1.72
Fr690784186°	0.47	1.85
Fr730000031°	2.45	1.59
Fr750150104°	1.32	1.6
Fr750712184°	0.37	2.64
Fr750803447°	0	2.17
Fr760000158°	0.24	1.6
Fr760021329°	1.97	2.34
Fr800006124°	1.13	1.84
Fr830100574°	3.38	2.11
Fr840001861°	0.91	2.1
Fr860000223°	2.74	2.4
Fr920000650°	0.6	1.85
Fr920000684°	0.88	1.58
Fr920300043°	1.49	1.09

	Observed	Predicted
Fr930100037°	2.29	2.32
Gr02d0°	0.51	3.43
Gy18dl°	5.1	2.86
Gy23dl	1.7	2.13
Hu01dl°	1.58	1.39
Hu02dl	0	1.41
Hu03dl	0.86	1.75
Hu04dl°	1.16	1.43
Hu05dl°	0.57	1.84
Hu06dl°	0.54	1.71
Hu07dl°	2.48	1.26
Hu12dl	1.19	1.85
It03d0	0.58	2.14
It19d0°	1.58	2.74
It21d0	1.15	2.58
It26dl°	0	2.79
It32dl	0.15	2.65
It38dl°	2.11	2.27
It40dl°	1.9	1.39
Pl08dl	1.19	1.72
Plndb	0.58	2.09
Sk01dl°	0.61	1.72
Sp01dl	0.47	2.49
Sp07d0°	0.83	2.38
Sp17dl°	2.06	2.7
Sp28dl°	1.13	1.88
Sp31dl°	1.26	1.48
Sw03d0°	0	2.25

Only units with at least 100 patients

(°): Units with less than 500 patients included, results must be interpreted with caution

Appendix 1 : General Data Protection Regulation - UE 2016/679

STUDIO LEGALE MAGLIO & PARTNERS
LUCERNA IURIS – INTERNATIONAL LEGAL NETWORK

***

In collaborazione con

Siegert & Kollegen – Frieburg
Alan Bensoussan Avocats – Paris
Pinsent Masons Law Firm – London
PLMJ Sociedade de Advogados – Lisboa
Landwell Global Abogados – Barcelona
Singewald Consultants Group – Amsterdam
Guilmot – Bassine Avocats – Bruxelles
Engstorm Advokats – Stockolm
Procopé & Hornborg Law Offices Ltd – Helsinki
Traple Konarski Podrecki Kancelaria Prawna – Kraków
Spohn Richter & Partners Rechtsanwälte OEG – Wien
VJT & Partners – Budapest
A. & K. Metaxopoulos & Partners Law Firm -Athens

CMS von Erlach Henrici AG Rechtsanwalt - Zürich
Randa Havel Legal advocátní kancelár s.r.o.- Praha
A&L Goodbody - Dublin
Alrud Law Firm -Moscow
Angela Wang & Co. Sollicitors – Honk Kong – Shanghai
Holding Redlich Law Firm – Sydney
Russell McVeagh Law Firm – Auckland
Avish Kalicharan & Associates - Pretoria
Veirano Advogados – São Paulo
Marval O'Farrell Mairal – Buenos Aires
Portilla Ruy-Diaz y Aguilar, S.C. -México D.F.
Stikeman Elliott LLP - Montréal
Prescott Law Firm – New York

Avvocato Marco Maglio
Presidente del Giurì di Autodisciplina
per direct marketing, telemarketing, vendite a distanza e dirette

K Data Clinical S.r.l.
Via Orazio, 31
00193 Roma

Milan, 23th May 2018

RE: assessment of the legal compliance of the personal data processing management procedures pursuant to the current legislation on the protection of personal data and certification of the correct implementation of EU Regulation 2016/679 (General Data Protection regulation - GDPR).

To K Data Klinical

with reference to the requirements established by the current legislation on personal data, as of today I have been able to carry out the necessary checks on the procedures and documentation used by you for the management of the charges imposed on the data controller to allow the adjustment of the processing of personal data to the EU Regulation 2016/679 (General regulation for the protection of personal data - the so-called GDPR).

This verification involved all the activities of data processing of your company.

The plan allowed to develop the following activities:

1) mapping of personal data processed
2) definition of the first version of the treatment register

1

Piazza Sant'Agostino, 24 – 20123 Milano – tel. +39.02.43510840 – fax + 39.02.45075007
e.mail: avvocato@maglio.eu – www.lucernairis.eu

3) evaluation of the review of the roles of data processing, including the decision to proceed with the appointment of a data protection officer (Data Protection Officer) and definition of the document appointing the parties authorized to process data
4) review of the information to be provided to data subjects for data processing
5) review of data processing activities against suppliers and definition of treatment processes
6) preliminary assessment of the treatments and risk analysis in relation to the need to carry out the impact assessment in the processing of personal data
7) analysis of the evaluation processes of the adequacy of the technical and organizational security measures adopted for data processing
8) definition of the processes necessary to guarantee the adoption of data protection processes through design (privacy by design) and protection by default (privacy by default)
9) definition of processes for handling the notification obligation for data breaches (data breach notification)
10) definition of the criteria for the conservation of personal data

By carrying out these checks, I have been able to review the treatment procedures already adopted by you and verify the minimum IT security measures with the subjects you use for the provision of IT services. This verification required the implementation of an adjustment plan that is described in the document attached to this declaration (Annex 1).

As a result of this verification I can acknowledge that the Holder, in order to prepare the documentation useful to certify the adoption of security measures suitable to prevent the illegal processing of personal data to be placed, has correctly carried out the adjustment activity to the EU Regulation 2016/679 and to proceed with updating the formalities required by the aforementioned legislation.

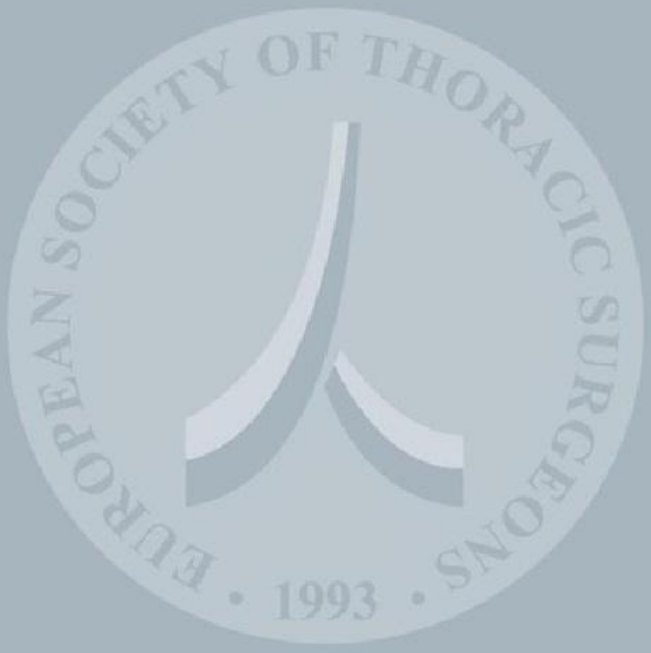
At the end of this review I can issue an opinion of full compliance of the processing processes with respect to the rules of the current legislation on the processing of personal data in the framework of EU Regulation 2016/679 for all companies in your Group.

Feel free to contact me to ensure the continuation of the adaptation and updating process and of your organizational procedures with respect to the frequent innovations that characterize this delicate subject, taking into account in particular the new rules introduced by the General Regulations for the protection of personal data (2016 / 679) will require a further implementation process after the date of full application of the same Regulation with effect from 25 May 2018.

Best regards.

Avv. Marco Maglio

Attachment– GDPR How to approach the change


EUROPEAN SOCIETY OF THORACIC SURGEONS
1993