

# Scientific Registry of the International Society for Heart and Lung Transplantation: Introduction to the 2005 Annual Reports

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We are pleased to present the 2005 annual reports of the Scientific Registry of the International Society for Heart and Lung Transplantation (the Registry). The Registry remains the world's most comprehensive record of heart and lung transplant activity, practices and outcomes. At present, the Registry contains data on 70,201 heart transplants, 3,154 heart-lung transplants and 19,296 lung transplants. During the past year, more than 4,500 transplants reported from over 200 centers were added to the Registry. The Mechanical Circulatory Support Device (MCS) database now includes data on 831 implantations reported from 60 centers worldwide. We extend our continued gratitude to the many cardiothoracic surgeons, physicians, data coordinators and organ-exchange organizations throughout the world, whose timely and accurate submission of data has made these analyses possible.

## NEW DATA ANALYSIS TYPES

In addition to our usual analyses, there are several new features in this year's Registry reports. First, we have expanded the analyses of the use of newer immunosuppressive drugs and drug combinations. In addition, we have included analyses of the influence of induction and maintenance immunosuppressive drugs and combinations on the incidence of acute rejection and survival after transplantation. Finally, we have constructed hypothetical clinical scenarios that graphically illustrate the influence of various clinical parameters on heart and lung transplant outcomes.

## SIMPLIFIED REPORTING OF "TIER 1" DATA

As promised in the Introduction to last year's Registry reports, we have now implemented a simplified, online "Tier 1" data entry process, which requires only 14 data elements to register a patient, and only 3 data elements to complete the annual update for a patient. A new

transplant case can be registered in as little as 2 minutes! By providing this less labor-intensive pathway for data reporting, we hope to improve the Registry's ability to reflect the total number of transplants performed worldwide. Of course, all transplant centers wishing to submit all of the data currently collected by the Registry (now referred to as "Tier 2" data) will continue to be able to do so. Tier II data expand the patient profile to include pre-transplant, transplant and discharge information on the recipient as well as data on the organ donor.

## ACCESS TO REGISTRY DATA

There are many ways to access the Registry data (Table 1). As in past years, all data figures and tables included in the Registry reports are also available for viewing and downloading on the ISHLT website ([www.isHLT.org/registries](http://www.isHLT.org/registries)) in Microsoft PowerPoint format. The website also contains many additional data slides that are not included in the published reports. In addition, those wishing to view the published Heart, Lung and Heart-Lung, Pediatric and MCS reports online may do so by contacting [www.jhltonline.org](http://www.jhltonline.org).

In addition to the information available in the published Registry reports and slide sets, continent- and center-specific data reports can be obtained from the secure section of the ISHLT website ([www.isHLT.org](http://www.isHLT.org)). These include: transplant counts; tabulations of recipient, transplant and donor demographics; and survival rates stratified by demographic parameters. Continent-specific reports are available to everyone and allow comparison of continent-specific transplant and outcome data with those of all transplants submitted to the Registry. Center-specific

**Table 1.** Methods for On-line Access of ISHLT Registry Data

1. Registry slide set
  - Available to all in Microsoft POWERPOINT format ([www.isHLT.org/registries](http://www.isHLT.org/registries))
2. Registry manuscripts
  - Available at [www.jhltonline.org](http://www.jhltonline.org)
3. Online continent-specific reports
  - Available to all at ISHLT website ([www.isHLT.org](http://www.isHLT.org))
4. Online center-specific reports
  - Available at secure section of ISHLT website ([www.isHLT.org](http://www.isHLT.org))
  - Available to all actively participating centers
  - Requires user name and password: contact Kathryn Philibin ([philibka@unos.org](mailto:philibka@unos.org)) for information

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**Table 2.** Summary of the 3 levels of Registry Data Request

	Analysis time required	Usual turnaround time	Requirements
Level 1: Simple inquiries/clarification	<1 hour	<14 days	Available to all
Level 2: New analyses of existing data	<5 hours	4 to 6 weeks	ISHLT members only
Level 3: Complex analyses of existing data/new data collection	>5 hours	Variable	ISHLT members only; reviewed by Executive Committee (Feb., June, Oct.)

reports allow comparison of one's own individual center with that of all transplants submitted to the Registry. These reports are available to all actively participating centers, including those submitting data via organ-exchange organizations. Because we only want staff members affiliated with each center to access center-specific reports from their own center, center-specific reports require a user name and password, which can be obtained from Kathryn Philibin (philibka@unos.org).

#### REQUESTS FOR ADDITIONAL DATA AND DATA ANALYSES

ISHLT members and non-members frequently request Registry data that are not readily available in the slide

set or in the continent- or center-specific reports. To facilitate and expedite these data queries, we have developed a uniform process by which they are handled. All requests are first submitted to the ISHLT headquarters office, accompanied by a data request form (available at [www.isHLT.org](http://www.isHLT.org)). ISHLT staff will determine the number of hours each request will require, allowing each request to be assigned to a specific level (Table 2). For approved data requests, ISHLT members may be granted a specific number of hours of data analysis and biostatistical support for publication of new information regarding heart and lung transplantation.

#### APPENDIX

List of Thoracic Transplant Centers Reporting Initial or Annual Update Data to the International Society for Heart and Lung Transplantation (ISHLT) Transplant Registry Between 1/1/2002 and 6/30/2004

Country	Center	Transplants performed in 2002 and reported to ISHLT	Transplants performed 1/2003 to 6/2004 and reported to ISHLT
Argentina	Fundacion Favaloro	x	x
Australia <sup>a</sup>	St Vincent	x	x
	Prince Charles Hospital	x	x
	Royal Children's Hospital	x	x
	Alfred Hospital	x	x
	Royal Perth Hospital	x	x
Austria <sup>b</sup>	Universitätsklinik für Chirurgie, Wien	x	x
	Universitätsklinik für Chirurgie, Innsbruck	x	x
	Universitätsklinik für Chirurgie, Graz	x	x
Belgium <sup>b</sup>	Hôpital Erasme, Bruxelles	x	x
	Universitair Ziekenhuis Gasthuisberg, Leuven	x	x
	Universitair Ziekenhuis Antwerpen, Edegem	x	x
	Onze Lieve Vrouw Ziekenhuis, Aalst	x	x
	Universitair Ziekenhuis, Gent	x	x
	Université Catholique de Louvain, Cliniques Universitaires St Luc, Bruxelles	x	x
	Centre Hospitalier Universitaire, Liège	x	x
Canada	Royal Victoria Hospital	x	x
	Montreal Heart Institute	x	x
	Toronto General Hospital	x	x
	Hospital Notre-Dame	x	x
	Quebec Heart Institute-Laval Hospital	x	x
	Ottawa Heart Institute	x	
	University of Alberta Hospitals/Walter C. Mackenzie Health Sciences	x	x
	St Paul's Hospital	x	x
	Vancouver General Hospital	x	x
	Hospital for Sick Children	x	x

APPENDIX (cont'd)

Country	Center	Transplants performed in 2002 and reported to ISHLT	Transplants performed 1/2003 to 6/2004 and reported to ISHLT
Chile	Hospital DIPRECA	x	
	Clinica Las Condes	x	x
Denmark <sup>c</sup>	Skejby University Hospital	x	x
	Rigshospitalet, National University Hospital	x	x
Finland <sup>c</sup>	Helsinki University Central Hospital	x	x
	Children's Hospital, University of Helsinki	x	x
France	Hopital Cardiologique (Lille)		x
	Hopices Civils Hopital Universitaires de Strasbourg	x	
Germany <sup>b</sup>	Universitätsklinikum des Saarlandes, Homburg-Saar	x	
	Herzzentrum Dresden gmbh, Universitätsklinikum	x	x
	Deutsches Herzzentrum Berlin	x	x
	Universitäts-Krankenhaus Eppendorf, Klinik für Herz-und Gefäßschirurgie, Hamburg	x	x
	Universitätsklinikum Köln	x	x
	Universitätsklinikum Leipzig, Klinik für Abdominal-, Transplantations-und Gefäßschirurgie, Leipzig	x	x
	Klinikum der Universität, Regensburg	x	x
	Herz- & Diabeteszentrum Nordrhein-Westfalen, Bad Oeynhausen	x	x
	Universitätsklinikum Freiburg	x	x
	Universitätsklinikum Essen, Klinik für Thorax- und Kardiovaskuläre Chirurgie	x	x
	Klinikum der Johannes-Gutenberg-Universität, Mainz	x	x
	Heinrich-Heine Universität Düsseldorf	x	
	Westfälischen Wilhelms-Universität, Münster	x	x
	Klinikum Grosshadern der Ludwig-Maximilians Universität, München	x	x
	Klinikum der Ruprecht-Karls-Universität, Chirurgischen Universitätsklinik, Abteilung für Herzchirurgie, Heidelberg	x	x
	Medizinischen Hochschule, Hannover	x	x
	Klinikum der Georg-August-Universität, Göttingen	x	x
	Universitätsklinikum der Rheinisch-Westfälischen TH, Aachen	x	x
	Klinikum Fulda, Thorax-, Herz- und Gefäßschirurgie	x	x
	Universitätsklinikum der Johann Wolfgang Goethe-Universität, Thorax- Herz- und Thorakale Gefäßschirurgie, Frankfurt am Main	x	x
Klinikum der Justus-Liebig Universität, Gießen	x	x	
Universitätsklinikum Kiel, Klinik für Herz- und Gefäßschirurgie	x	x	
Klinikum der Friedrich-Schiller-Universität, Jena	x	x	
Universitätsklinikum Erlangen	x	x	
Deutsches Herzzentrum München	x	x	
Greece	Onassis Cardiac Surgery Center	x	x
Ireland <sup>d</sup>	Mater Hospital	x	x
Israel	Sheba Medical Center	x	x
Italy	Policlinico S. Orsola-Università degli Studi	x	x
	Ospedali Riuniti	x	
	Università Pavia	x	x
Japan	Niguarda CA Granda Hospital		
	Tohoku University, IDAC Hospital	x	
	Osaka University Hospital	x	
The Netherlands <sup>b</sup>	National Cardiovascular Center	x	x
	Universitair Medisch Centrum Utrecht	x	x
	Erasmus MC, Universitair Medisch Centrum, Rotterdam	x	x
	Groningen Universitair Medisch Centrum	x	x
New Zealand <sup>a</sup>	Green Lane Hospital	x	x

## APPENDIX (cont'd)

Country	Center	Transplants performed in 2002 and reported to ISHLT	Transplants performed 1/2003 to 6/2004 and reported to ISHLT
Norway <sup>c</sup>	Rikshospitalet–National Hospital of Norway	x	x
Slovenia <sup>b</sup>	University Medical Center, Ljubljana	x	x
Spain	Hospital Clinic–Barcelona	x	x
	Hospital Central DE Asturias, Oviedo	x	x
Sweden <sup>c</sup>	University Hospital of Lund	x	x
	Sahlgrenska University Hospital	x	x
	University Hospital Zurich		x
	University Clinic for Cardio Thoracic Surgery, Basel		x
Taiwan	China Medical College Hospital		x
United Kingdom <sup>d</sup>	Great Ormand Street Hospital for Children	x	x
	University of Glasgow/Glasgow Royal Infirmary	x	X
	Northern General Hospital	x	
	Freeman Hospital	x	x
	Harefield Hospital	x	x
	Wythenshawe Hospital	x	x
	Queen Elizabeth Hospital	x	x
	Papworth Hospital	x	x
United States <sup>e</sup>	University of Alabama Hospital	x	x
	Baptist Medical Center, Little Rock	x	x
	Arkansas Children's Hospital	x	x
	University Hospital of Arkansas	x	x
	University Medical Center, University of Arizona	x	x
	Children's Hospital Los Angeles	x	x
	Cedars Sinai Medical Center	x	x
	Loma Linda University Medical Center	x	x
	California Pacific Medical Center	x	x
	UCSD Medical Center	x	x
	University of California San Francisco Medical Center	x	x
	Sutter Memorial Hospital	x	x
	Sharp Memorial Hospital	x	x
	Stanford University Medical Center	x	x
	St Vincent Medical Center	x	x
	UCLA Medical Center	x	x
	USC University Hospital	x	x
	Children's Hospital, Denver	x	x
	University Hospital, Denver	x	x
	Hartford Hospital	x	x
	Yale New Haven Hospital	x	x
	Children's National Medical Center		x
	Washington Hospital Center	x	x
	All Children's Hospital	x	x
	Jackson Memorial Hospital	x	x
	St Luke's Hospital, Jacksonville		x
	Tampa General Hospital	x	x
	Tallahassee Memorial Hospital	x	x
	Shands Hospital at University of Florida	x	x
	Children's Healthcare of Atlanta	x	x
	Emory University Hospital	x	x
	St Joseph Hospital of Atlanta	x	x
	St Francis Medical Center, Honolulu	x	x
	University of Iowa Hospital and Clinics	x	x
	Children's Memorial Hospital	x	x
	Loyola University Medical Center	x	x
	OSF St Francis Medical Center	x	x

APPENDIX (cont'd)

Country	Center	Transplants performed in 2002 and reported to ISHLT	Transplants performed 1/2003 to 6/2004 and reported to ISHLT
	St. John's Hospital	x	
	University of Chicago Medical Center	x	x
	University of Illinois Hospital	x	x
	Clarian Health–Methodist/IU/Riley	x	x
	Lutheran Hospital of Ft Wayne	x	x
	St Vincent Hospital and Health Care Center	x	x
	Via Christi Regional Medical Center	x	x
	Jewish Hospital	x	x
	Kosair Children's Hospital		x
	University of Kentucky Medical Center	x	x
	Ochsner Foundation Hospital	x	x
	Tulane University Medical Center	x	x
	Willis Knighton Medical Center	x	x
	Children's Hospital, Boston	x	x
	Massachusetts General Hospital	x	x
	New England Medical Center	x	x
	Brigham and Women's Hospital	x	x
	UMass Memorial Medical Center	x	
	Johns Hopkins Hospital	x	x
	University of Maryland Medical System	x	x
	Children's Hospital of Michigan	x	x
	Henry Ford Hospital	x	x
	University of Michigan Medical Center	x	x
	Abbott Northwestern Hospital	x	x
	St Mary's Hospital (Mayo Clinic)	x	x
	Fairview University Medical Center	x	x
	Barnes–Jewish Hospital	x	x
	Cardinal Glennon Children's Hospital	x	x
	St Louis Children's Hospital	x	x
	St Luke's Hospital of Kansas City	x	x
	St Louis University Hospital	x	x
	University of Missouri Hospital and Clinic	x	x
	University of Mississippi Medical Center	x	x
	North Carolina Baptist Hospital	x	x
	Carolinas Medical Center	x	x
	Duke University Medical Center	x	x
	University of North Carolina Hospitals	x	x
	Bryan LGH Medical Center East	x	x
	Newark Beth Israel Medical Center	x	x
	Robert Wood Johnson Univ. Hosp	x	x
	Presbyterian Hospital, Albuquerque	x	x
	Albany Medical Center Hospital	x	x
	Presbyterian Hospital, New York City	x	x
	Strong Memorial Hospital	x	x
	Montefiore Medical Center	x	x
	Mt Sinai Medical Center	x	x
	New York University Medical Center	x	
	Westchester County Medical Center	x	x
	Cleveland Clinic Foundation	x	x
	Children's Hospital Dayton		x
	Children's Hospital Medical Center, Cincinnati	x	x
	Medical College Hospital, Toledo	x	x
	Ohio State University Hospital	x	x
	University of Cincinnati Medical Center	x	x

## APPENDIX (cont'd)

Country	Center	Transplants performed in 2002 and reported to ISHLT	Transplants performed 1/2003 to 6/2004 and reported to ISHLT
	University Hospital of Cleveland	x	x
	Integrus Baptist Medical Center	x	x
	St Francis Hospital, Tulsa	x	x
	Providence Portland Medical Center	x	x
	Oregon Health Sciences University Hospital	x	x
	Allegheny General Hospital	x	x
	Children's Hospital of Pittsburgh	x	x
	Children's Hospital of Philadelphia	x	x
	Penn State Milton S. Hershey Medical Center	x	x
	Hahnemann University Hospital Tenet	x	x
	University of Pittsburgh Medical Center	x	x
	Temple University Hospital	x	x
	Hospital of the University of Pennsylvania	x	x
	Cardiovascular Center of PR	x	x
	Medical University of South Carolina	x	x
	Baptist Memorial Hosp, Memphis	x	x
	St Thomas Hospital	x	x
	Vanderbilt University Medical Center	x	x
	Brooke Army Medical Center	x	
	University Hospital, San Antonio	x	x
	Children's Medical Center of Dallas	x	x
	Seton Medical Center	x	x
	Columbia Hospital at Medical City Dallas	x	x
	St Luke's Episcopal Hospital	x	x
	Methodist Specialty & Transplant Hospital	x	x
	University of Texas Medical Branch	x	x
	Methodist Hospital, Houston	x	x
	Christus Santa Rosa Medical Center	x	x
	St Paul University Hospital	x	x
	Texas Children's Hospital Dallas		x
	Baylor University Medical Center	x	x
	LDS Hospital	x	x
	University of Utah Medical Center	x	x
	Primary Children's Medical Center	x	x
	Inova Fairfax Hospital	x	x
	Henrico Doctors Hospital	x	x
	MCV Hospitals	x	x
	McGuire VA Medical Center	x	x
	Sentara Norfolk General Hospital	x	x
	University of Virginia HSC	x	x
	Children's Hospital Medical Center, Seattle	x	x
	Sacred Heart Medical Center	x	x
	University of Washington Medical Center	x	x
	Children's Hospital of Wisconsin	x	x
	Froedtert Memorial Lutheran Hospital	x	x
	St Luke's Medical Center	x	x
	University of Wisconsin Hospital and Clinics	x	x

<sup>a</sup>Data provided via Australia and New Zealand Cardiothoracic Transplant Registry (ANZCTR).

<sup>b</sup>Data provided via Eurotransplant.

<sup>c</sup>Data provided via Scandiatransplant.

<sup>d</sup>Data provided via UK Transplant.

<sup>e</sup>Data provided via United Network for Organ Sharing (UNOS).