

Trend in lung transplantation in Europe 2015 – 2019, type of transplant and organ source.

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Introduction and Objective

Lung transplantation (LTX) evolves in Europe in terms of number of organs transplanted. This may go along with different type of transplants, single versus double transplantation and organ sources, Donor Brain Death (DBD) versus Donors after Cardiac Death (DCD). The analysis aims to review the trends in volumes, single versus double LTX and the impact of DCD on transplant volume for the time-period 2015 – 2019. The focus was put on European countries.

Materials and Methods

Systematic review of lung transplant data for the 5-year time-period 2015 – 2019 for Europe defined as EU 27 countries plus Norway, Switzerland and United Kingdom was performed. Data was collected on-country level for overall transplant, differentiated according to single lung transplantation (SLTX) and double lung transplantation (DLTX). Countries allowing use of DCD organs were identified and the contribution to overall transplantation assessed.

Results

LTX cases increased from 1901 in 2015 to 2208 in 2019. This represents an increase of 307 lung transplantations (16%). 16 out of 27 EU countries had active LTX programs in 2015. Further countries including Bulgaria, Hungary, Romania, and Slovenia started their own lung transplant program in the time-period considered and reported their cases.

Most countries ruled for the opt-out system, recently the UK, except for Northern Ireland and The Netherlands. Four countries still have an opt-in ruling and Slovenia a mixed system.

Table 1. Trend in Lung transplantation in European countries

Year / EU + Norway, CH, UK	Total LTX (n)	SLTX (n)	DLTX (n)	DCD (n)	SLTX (%)	DLTX (%)	DCD (%)
2015	1901	296	1604	138	15.6%	84.4%	7.3%
2016	1998	304	1694	128	15.2%	84.8%	6.4%
2017	2080	302	1778	161	14.5%	85.5%	7.7%
2018	2137	293	1844	186	13.7%	86.3%	8.7%
2019	2208	260	1945	239	11.8%	88.1%	10.8%

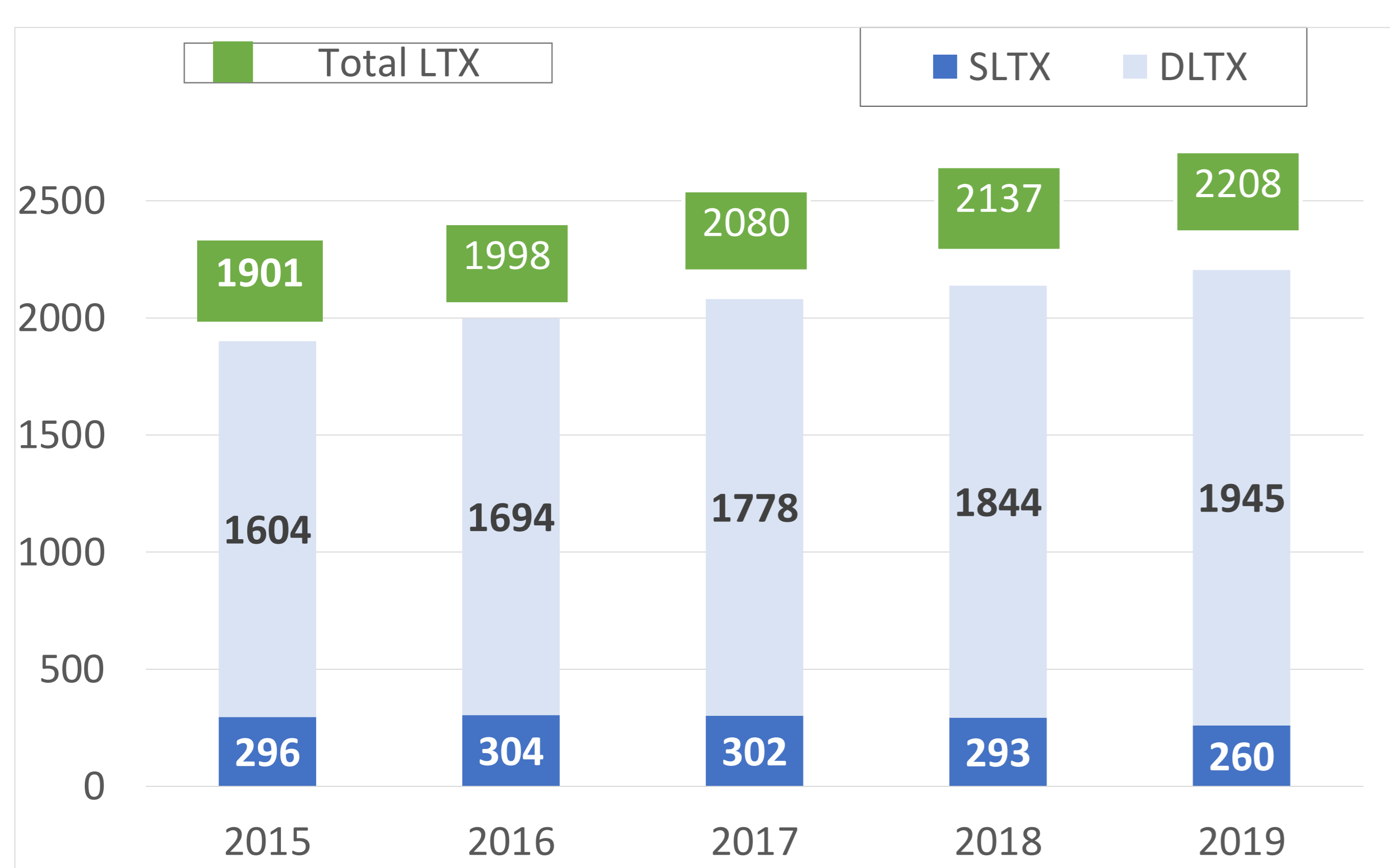
Table 2. European countries with DCD programs and DCD share in total lung transplantation

2019	DCD (n)	Total (n)	DCD (%)
Austria	5	100	5.0%
Belgium	32	113	28.3%
France	24	393	6.1%
Ireland	1	38	2.6%
Italy	13	153	8.5%
Netherlands	46	105	43.8%
Spain	76	419	18.1%
UK	38	167	22.8%

SLTX rates are permanently-decreasing, from 296 cases to 260, accounting for only 11.8% of total LTX. Most single lung transplantations are being performed in Spain and Ireland. Overall growth is relying on DLTX expanding from 1604 to 1945 cases in Europe.

DCD organs account for 239 transplantations or 10.8% of total LTX in 2019 compared to 7.3% in 2015. Eight out of 23 countries report transplantation of DCD organs in 2019. The contribution of DCD to total lung transplantations in these eight countries varies from 2.6% to 43.8%. It is particularly high in The Netherlands with 44%, Belgium 28%, the United Kingdom 23%, and Spain 18%.

Figure 1. Distribution SLTX - DLTX – Total Trend 2015 - 2019



Conclusion

Europe has seen a substantial increase in lung transplantation between 2015 and 2019. Most countries have adopted the opt-out system. Eight countries reported the use of DCD organs, which have largely contributed to the overall growth and may have a future impact.

Overall growth is based only on DLTX whereas SLTX is decreasing. New countries have joined the transplanting community.

Disclosure

Emilie Hofstetter received honorary fees from Breath Therapeutics GmbH, a Zambon company
Gerhard Boerner, PhD, is employee of Breath Therapeutics GmbH, a Zambon company



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