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## Letter to the Editor in Response to Manla et al

### Reply to Manla Et Al, Re: Global Impact of the COVID-19 Pandemic on Solid Organ Transplant

WE read with interest the reply from Manla et al [1] for our paper [2] and give valuable comments and suggestions. We have now performed an analysis of global observatory on donation and transplantation (GODT) [3] with per million population as a parameter rather than absolute numbers. This would correct the analysis for each country's population in that year, and isolate the effect of a country's population on the total number of transplant activities (Table 1).

Manla et al [1] have described that Chile, Mexico, and Turkey had greater decline in heart transplantation, which is true, but here we have analyzed and selected a few nations only that are having higher COVID-19 burden and are the largest sufferers of the pandemic overall. Of course, we have included geographic regions as well.

Regarding the comparison of countries with World Health Organization (WHO) regions, we must emphasize here that the rationale behind this was the reason that countries like the United States and India had the highest COVID-19 burden in the world. We selected nations with the highest number of

cumulative cases from the WHO data. We agree that comparing a nation with a WHO geographic region looks bizarre, if we look from the area covered in the map, but here we were concerned with COVID-19 impact and transplant volume of the places. For example, the Africa region is far behind nations like United States in terms of transplant volume, which is grossly discrepant, in comparison to their areas in the world map.

Another important point is the fact that the GODT data represent data from all over the world, but we know this may not reflect the true transplant numbers, as many parts of the world don't have systematic prospective national registries for the transplant numbers. In fact, from the Indian scenario, which has one of the largest living donor organ transplantation programs, there is the possibility that the transplant numbers reported in GODT would be lesser in number, as incomplete data could be limitations of any retrospective registry. Hence, there would always be a crude assessment of global impact of transplant numbers. Despite all these limitations, the primary and unanimous observation from our report is that the developing world with limited resources, such as low- and middle-income countries, were not able to recover as rapidly as the developed world, such as high-income countries, so despite highest transmission rate, nations like the United States had the least overall cumulative impact of pandemic. Thus, our report shows the discrepancy in coping capacity of different regions in a crude but an important way, which is a learning lesson for better preparedness in potential future waves.

**Table 1. The Global Observatory on Donation and Transplantation Data: Percentage (%) Decline in Donation and Transplantation Activities per Million Population in 2019 vs 2020**

	India	SEAR	Global	UK	Europe	EM	WP	USA	Americas	China	Brazil
Actual DD	51.92	25.40	15.18	25.50	24.64	43.17	11.11	-5.43	4.46	11.30	19.73
DBD	51.92	26.98	15.92	16.68	24.27	43.17	-10.30	-1.73	9.54	-20.30	19.73
DCD			13.25	37.84	26.20		26.41	-17.92	-24.73	26.64	
Total KT	44.10	38.52	24.33	30.57	26.69	56.84	10.70	3.16	17.39	10.13	23.37
DDKT	55.42	31.13	17.40	24.53	25.94	43.50	10.73	-5.16	8.69	10.73	16.17
LDKT	42.77	39.93	35.93	46.10	28.66	62.16	10.03	24.25	38.62	6.61	58.53
Total LT	31.75	30.77	14.94	16.36	19.51	45.30	6.03	0.44	6.49	6.48	8.44
DDLT	52.27	44.19	13.98	16.61	20.57	40.91	8.07	0.08	6.65	8.31	8.09
LDLT	25.52	25.60	16.41	3.03	13.90	54.84	0.75	6.37	3.30	-3.45	9.59
Heart transplants	57.14	50.00	12.16	6.05	17.27	47.50	13.11	-2.74	2.81	20.83	19.44
Lung transplants	37.50	42.86	16.67	41.37	24.23	54.55	3.77	6.32	10.40	-2.94	38.00
Pancreas transplants	50.00	50.00	17.95	38.04	27.08	25.00	33.33	5.52	10.07		15.66
Small bowel transplants			-50.00	7.41	0.00	50.00		-8.00	0.00		N/A
Total organ transplants	41.73	37.05	21.03	27.56	24.22	53.93	9.24	2.30	13.48	9.02	19.65

DBD, donation after brain death; DCD, donation after circulatory death; DD, deceased donors; EM, Eastern Mediterranean; KT, kidney transplants; LD, living donor; LT, liver transplants; SEAR, South East Asia; UK, United Kingdom; USA, United States of America; WP, Western Pacific.

**Vivek B. Kute<sup>a,\*</sup>**  
**Hemant Rane<sup>b</sup>**  
**Sanshriti Chauhan<sup>a</sup>**  
**Vineet Mishra<sup>c</sup>**  
**Hari Shankar Meshram<sup>a</sup>**

*<sup>a</sup>Department of Nephrology and Transplantation Sciences, Institute of Kidney Diseases and Research Center, Dr HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), Ahmedabad, India; <sup>b</sup>Department of Anaesthesia, IKDRC-ITS, Ahmedabad, India; <sup>c</sup>Department of Gynaecology, IKDRC-ITS, Ahmedabad, India*

*\*Address correspondence to Vivek Kute, Department of Nephrology and Transplantation, Institute of kidney disease and research center, institute of transplantation sciences, Ahmedabad, Pin code: 380016 Gujarat, India.*

E-mail: drvivekkute@rediffmail.com

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[1] Manla Y, Albadarin F, Bader F. Letter to the editor on global impact of the COVID-19 pandemic on solid organ transplantation [e-pub ahead of print]. *Transplant Proc.* doi:[10.1016/j.transproceed.2022.06.003](https://doi.org/10.1016/j.transproceed.2022.06.003), accessed March 28, 2022.

[2] Kute VB, Tullius SG, Rane H, Chauhan S, Mishra V, Meshram HS. Global impact of the COVID-19 pandemic on solid organ transplant [e-pub ahead of print]. *Transplant Proc* doi:[10.1016/j.transproceed.2022.02.009](https://doi.org/10.1016/j.transproceed.2022.02.009), accessed March 28, 2022.

[3] Global Observatory on Donation and Transplantation. Summary, <<http://www.transplant-observatory.org/summary/>>; 2021 [accessed 20.03.22].