



Opinion

Nationwide marketing as a tool to increase literacy and awareness for living liver donation



Stela Celaj^a, Swaytha Ganesh^{a,b}, Christopher B. Hughes^b, Jessica Weidensall^c,
Christine Caruso^c, Abhinav Humar^{b,*}, Andres Duarte-Rojo^{a,b,*}

^a Division of Gastroenterology, Hepatology and Nutrition, University of Pittsburgh, Pittsburgh School of Medicine, PA, USA

^b Thomas E. Starzl Transplantation Institute and Division of Abdominal Transplant Surgery, University of Pittsburgh School of Medicine and University of Pittsburgh Medical Center, Pittsburgh, PA, USA

^c Marketing Communications, University of Pittsburgh Medical Center, Pittsburgh, PA, USA

ARTICLE INFO

Keywords:

Transplantation
Non-biological anonymous donors
Liver living donation

Liver transplantation remains the sole curative treatment for acute liver failure and end-stage liver disease. Currently, it is estimated that approximately 4.5 million people in the United States suffer from chronic liver disease [1,2]. Due to the obesity epidemic, increased NAFLD prevalence, and the surge of alcoholic liver disease observed during the COVID-19 pandemic, the number of patients suffering from liver disease is estimated to grow rapidly in the next few years, so is cirrhosis-related mortality [3,4]. Though the number of liver transplantations in the US has increased steadily in the past years, there remains a gap between the supply and demand of liver allografts [5]. Dedicated campaigns such as “National Donate Life Month” have been specifically designed to raise national awareness and attention to the need for organ donation. President Biden recently proclaimed April as the “National Donate Life Month” [6]. A recent study showed that living donor liver transplantation (LDLT) is associated with a survival advantage of 13 to 17 years at MELD-Na scores of 11 or higher compared to patients not receiving transplants [7]. Given the above, we sought to evaluate the public’s interest in liver-living donation and the experience of our transplant center by raising awareness through the LDLT campaign.

The University of Pittsburgh Medical Center (UPMC) launched a nationwide educational initiative for its LDLT program, which included TV, digital (online ads and paid search), and print advertising, a robust web presence, and content on social media platforms (Twitter, YouTube and Facebook) the first week of September 2018. Tactics ran at various intervals through October 2021 and were aimed

at changing the public perception about living donation as a viable option, as well as motivating patients on the liver transplant waiting list to explore LDLT. Figure 1a demonstrates the number of calls received at the UPMC call center and online inquiries completed on the campaign website by individuals who expressed interest in becoming a living donor or sought general information about living donation from September 2018 through June 2021. Interestingly, after the first peak of inquiries, a month following the release of the campaign in October, the second wave of increased inquiries was seen starting from March 2020, which coincided with the beginning of the COVID-19 pandemic.

Furthermore, we utilized Google Trends data to gauge the public’s interest in LDLT on a larger, nationwide scale [8]. By holding nearly 90% of the market share, Google remains the dominant search engine, with estimated daily queries of over 3.5 billion, 7% of which are reported to be health-related [9,10]. As such, Google Trends has become a powerful tool to track trends and the population’s interest based on search volumes of specific queries over time and in different locations [11–14]. We performed a Google Trends search using the search terms “living donor liver transplantation” and “liver transplantation” in the USA from January 2017 to February 2022.

As seen in Figure 1b, there is a distinct peak of searches for both “liver transplantation” and “living donor liver transplantation” across the country in early September 2018, which coincides with the same week of UPMC’s campaign release.

In order to assess the efficacy of the campaign beyond internal measures, such as an increase in visits to the transplant sites on UPMC.com, e-mail submissions, phone calls, etc., we looked at the Organ Procurement and Transplantation Network (OPTN) data, the nation’s organ transplant network [15]. We extracted all the data from OPTN pertaining to organ donation and transplantation for

Abbreviations: OPTN, Organ Procurement and Transplantation Network; UPMC, University of Pittsburgh Medical Center; LDLT, Living donor liver transplant

* Corresponding author.

E-mail addresses: humara2@upmc.edu (A. Humar), andres.duarte@northwestern.edu (A. Duarte-Rojo).

<https://doi.org/10.1016/j.aohep.2022.100768>

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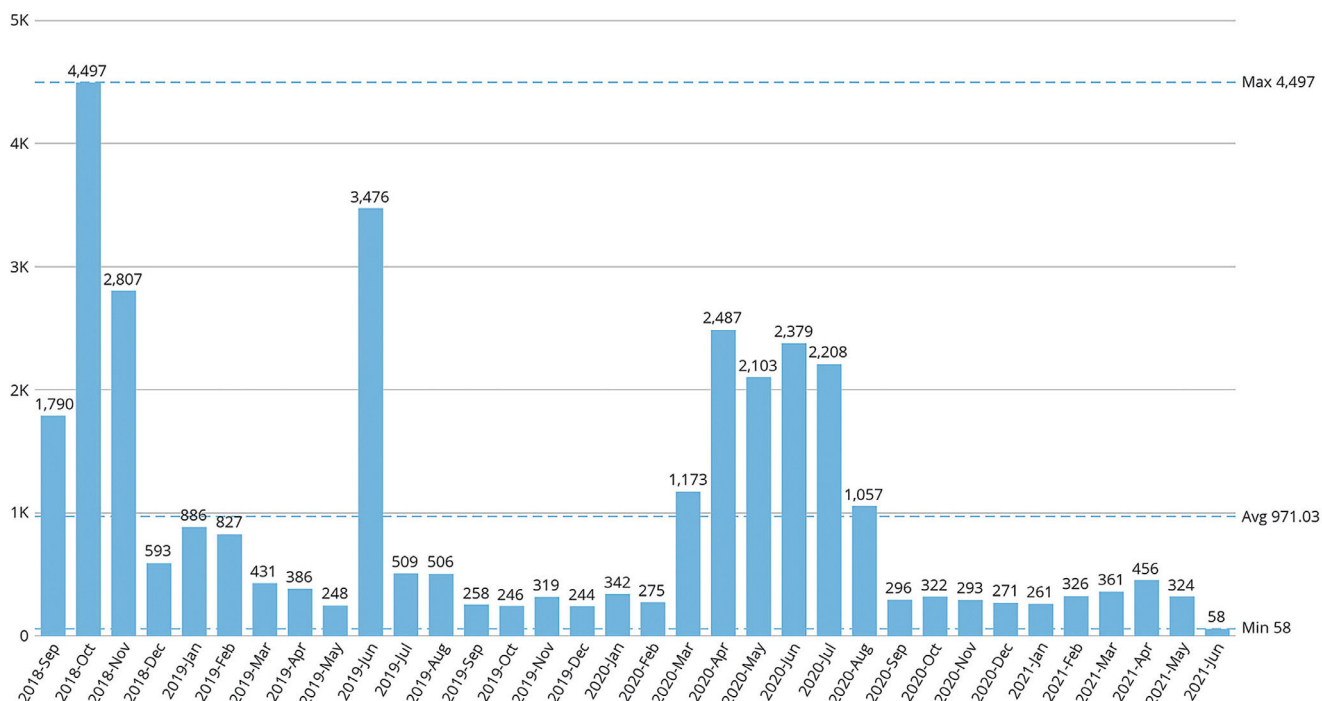


Fig 1a. Total number of contacts, including inbound calls from TV, digital channels, and online inquiries from individuals who expressed interest in becoming a living donor (or sought general information about living donation) received at University Pittsburgh Medical Center

living liver donors for all available years (1988–2021) in our transplant center and nationwide. **Figure 1c** shows the number of non-biological anonymous liver donations at UPMC starting from 2000, with the highest number of donations prior to the campaign launch being 6 in 2017. After the campaign release in 2018, there was a drastic increase from 3 to 13 non-biological anonymous liver donations in 2019, 16 in 2020 and 14 in 2021.

Figure 1c also depicts OPTN data on non-biological anonymous liver donations nationwide over the past decade, which did not exceed nine living donations/per year up until 2018. Remarkably, after 2018 the number of anonymous donors almost quadrupled to

31 in 2019 and continued to grow to 39 in 2020 and 50 in 2021. Considering that the COVID-19 pandemic has had such a profound effect across many aspects of healthcare, it is encouraging that the number of non-biological anonymous donations has continued to be higher than prior to the campaign release both at UPMC and across the nation. Cumulatively, **Figure 1c** demonstrates that, on average, since 2019, UPMC performed 28–42% of all non-biological anonymous liver donations across approximately 50 active adult LDLT centers in the United States. This is a disproportionate increase considering that UPMC performed 15–21% of all LDLT nationwide during the same period. Though a causative relationship cannot be certainly

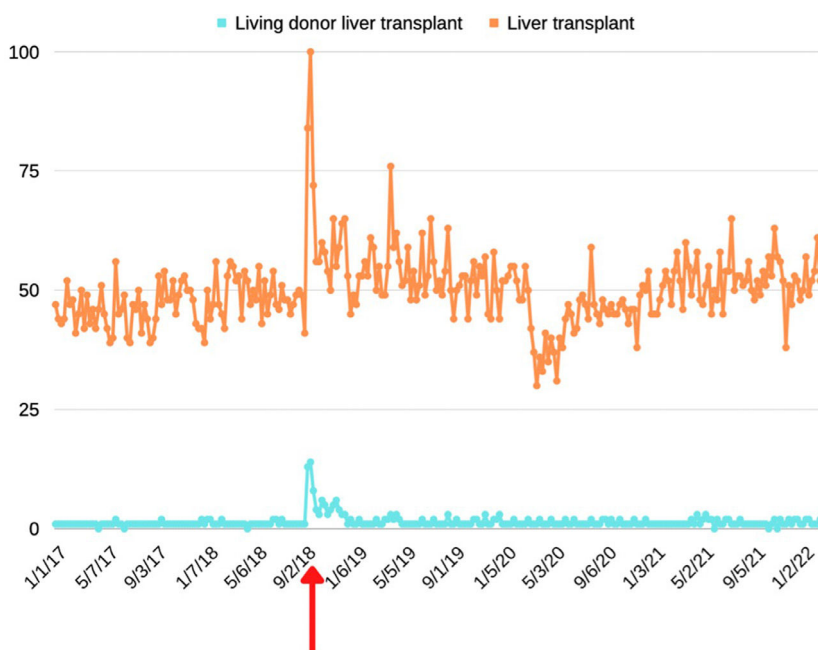


Fig 1b. Google Trends searches for “liver transplant” and “living donor liver transplant” from 2017–2022

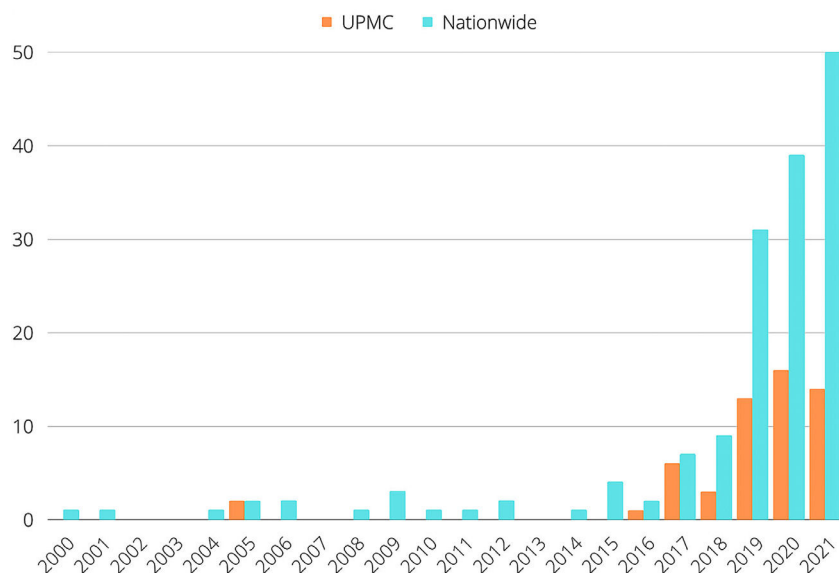


Fig 1c. Non-biological anonymous living liver donations at the University of Pittsburgh Medical Center and in the USA (based on OPTN data)

established, the data overall suggest that increased awareness through the living liver donor campaign, as measured by both internal measures and Google Trends data, has at least partly contributed to the exponential increase in the number of liver living donations - particularly non-biological anonymous donors - seen at our transplant center and across the country in the past three years.

Similar efforts for increasing organ donation awareness through social media have been promising in the past. A significant increase was seen in online organ registration rates in the USA following a Facebook campaign launched in 2012 [16]. Though the study had encouraging results, it was limited in capturing only the immediate impact of the intervention during a short time following the campaign and measuring registration rates only as opposed to actual organ donations. We followed longitudinally and correlated the increased interest in the living liver donor program to exponentially higher living organ donations, both locally and nationally, for three consecutive years.

In conclusion, the experience from our transplant center has yielded a positive and hopefully long-lasting impact in increasing literacy and awareness regarding LDLT. Based on this experience, we propose deploying unbranded nationwide marketing initiatives as a strategy to expand LDLT and help close the gap between the need and availability of liver grafts.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of interest

None

Acknowledgments

The authors thank Gina O'Malley from the UPMC Marketing Department for her assistance with the UPMC campaign data

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