Impact of Introducing Full-time In-house Coordinators on Referral and Organ Donation Rates in Rio de Janeiro Public Hospitals: A Health Care Innovation Practice

R. Sarlo\textsuperscript{a,b,*}, G. Pereira\textsuperscript{a}, M. Surica\textsuperscript{a}, D. Almeida\textsuperscript{a}, C. Araújo\textsuperscript{b}, O. Figueiredo\textsuperscript{b}, E. Rocha\textsuperscript{c}, and E. Vargas\textsuperscript{b}

\textsuperscript{a}Programa Estadual de Transplantes, Rio de Janeiro, Brazil; \textsuperscript{b}COPPEAD Business School, Universidade Federal do Rio de Janeiro, Brazil; \textsuperscript{c}Hospital Universitário Clementino Fraga Filho, Universidade Federal do Rio de Janeiro, Brazil

ABSTRACT

Establishing an organization to promote organ donation and a good organ procurement team assure quality and improve performance on organ donation rates. Brazil’s organ procurement structure is based on 2 models disseminated worldwide: the “Spanish model,” based on in-house coordinators, and the “American organ procurement organization (OPO) model,” with extra-hospital coordinators. In 2006, Brazil’s Federal Government had formally introduced the in-house coordination model for every hospital equipped with a mechanical ventilator bed. In January 2012, the Rio de Janeiro State OPO, Programa Estadual de Transplantes, introduced an innovation in the organization of the in-house coordination model in 4 selected public hospitals with high organ donation potential. It consisted in launching full-time in-house coordination teams, with \geq 1\textsuperscript{st} physician and 2 nurses per hospital fully dedicated to organ procurement. The objectives were to observe the impact of this innovation in referral and organ donor conversion rates and to analyze the importance of middle managers in health care innovation implementation. Comparing the year before implementation (2011) and the year of 2014 showed that this innovation led to an overall increase in referrals—from 131 to 305 per year (+132%) and conversion rates—from 20\% to 42\% per year—resulting in an increase in number of donors from 26 to 128 per year (+390\%). Despite wide variations among hospitals in the outcomes, our results seem very encouraging and express a positive impact of this model, suggesting that dissemination to other hospitals may increase the number of donors and transplants in our region.

ORGAN shortage is a worldwide issue, and the pursuit for maximization of the number of organ donors is an effort that every country should do, according to the World Health Assembly \cite{1}. For many years, countries have adopted different strategies to achieve this goal, but whether a strategy is ethical and acceptable is also an important concern.

For this reason, worldwide specialists and different members of society gathered in a meeting at Istanbul from April 30 to May 2, 2008, according to the World Health Organization Guiding Principles on Human Cell, Tissue, and Organ Transplantation \cite{2}, “to address the urgent and growing problems of organ sales, transplant tourism, and trafficking in organ donors in the context of the global shortage of organs” \cite{3}.

According to these principles established, most countries have focused their attention on increasing organ transplants through obtaining more deceased donors. For this purpose, 2 models became more frequently adopted worldwide: 1) the “Spanish model,” based on in-house transplant coordinators (IHCs) where the donation staff is located directly within the donor hospitals \cite{4-6}; and 2) “the American model,” based on organ procurement organizations (OPOs) where the coordinators are located in facilities outside of the hospitals \cite{7}.

Whether one model is more efficient than the other is a matter of deep analysis and discussion, owing to different

\textsuperscript{*}Address correspondence to Dr. Rodrigo Sarlo, Programa Estadual de Transplantes, Directors Board, Rua Elpidio BotaMorte S/N Praça da Bandeira, Rio de Janeiro 20270170, Brazil. E-mail: rodrigosarlo.transplante@gmail.com

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230 Park Avenue, New York, NY 10169

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characteristics among countries and regions resulting in wide variation in organ donation rates [8].

In Brazil, a developing country, both models have been accepted since October 2009, when new regulation was approved from the National Transplant System, applying the current National Transplant Law [9]. At that time, despite the possibility of implementation of any of these models, most State OPOs were presenting low organ donation rates [10].

In 2010, the State of Rio de Janeiro adopted a new organizational model for organ donation, combining strategies and design of both models in a more efficient way [11] through innovation practices after launching the remodeled State OPO, Programa Estadual de Transplantes (PET). Some reports have shown that this practice had a positive impact on donor detection, through OPO referral and conversion rates when the OPO model was already established [12,13]. The aim of the present study was to analyze the impact of IHCs working as middle managers on referrals, conversion rates, and number of donors.

METHODS

As part of an isolated initiative, in January 2012, one of the 160 hospitals in the OPO area, Hospital Estadual Adão Pereira Nunes (HEAPN) placed 1 nurse as full-time IHC. This innovation, a new organizational practice, led to an 88% increase in the number of brain-death referrals and a 200% increase in the number of organ donors in the 1st year in that facility.

In February 2013, the OPO directors met the Secretary of Health of the State of Rio de Janeiro to set up a program of IHCs in 4 public trauma hospitals that appeared to have high potential for organ donation, with more than 150 beds and neurosurgical service. As part of these 4 hospitals, HEAPN would improve the IHC service in the following years with 1 physician and 3 nurses, as well as the other 3 selected facilities (Hospital Estadual Getúlio Vargas, Hospital Estadual Albert Schweitzer, and Hospital Estadual Alberto Torres).

Evaluation of the IHC performance was made comparing the year before its implementation (2011), when no intervention was made, and the year of 2014, when all hospitals had the IHC implemented. All data were obtained from the PET database.

RESULTS

Table 1 summarizes results obtained after the implementation of IHCs at the 4 hospitals selected since 2011, when none of these units had IHCs implemented and the OPO (PET) assisted all cases of potential organ donors.

Comparing the year 2011, the sum of brain-death referrals in the 4 hospitals accounted for 131 potential organ donors and 26 effective donors. At the end of 2014, all hospitals together accounted for 305 brain-death referrals and 128 effective donors, an increase of 132% and 390%, respectively. The conversion rate also increased from 20% to 42%.

DISCUSSION

For the organization, set-up, and management of an organ procurement system, multiple aspects must be evaluated in terms of successful existent models and tools available. No less important, local and cultural characteristics must be understood and analyzed, owing to the peculiarities of each country and region.

In fact, innovation is defined as “an idea, practice, or object that is perceived as new by an individual or another unit of adoption” [14]. After 2010, PET implemented a few innovations in the State of Rio de Janeiro considering variables listed above, including a benchmarking strategy with others states in Brazil and other countries.

Because education and training are 2 of the most common interventions for obtaining an efficient organ procurement model [6,11,15], PET adopted the Transplant Procurement Model (TPM) training for its 1st 4 years, when 200 transplant coordinators where trained.

Because a local experience resulted in an increase in brain-death referrals, conversion rates, and number of organ donors in a single hospital, when in 2012 HEAPN had placed a nurse as fully dedicated procurement staff, and with evidence already shown that combining both the Spanish and the American models could be successful [12,13], a strategic plan was set to place IHCs in hospitals with high potential for organ donation, where ≥1 physician and 2 nurses, with advanced training (TPM) and full dedication, would be part of the procurement staff.

Because scientific data suggests that hospitals with more than 150 beds and the presence of a neurosurgical service are correlated with the number of potential donors [16], 4 public hospitals were selected with these characteristics with the use of data obtained from Hospital Development at PET.

Considering the importance and need for rapid change in the scenario of organ donation in the state, the implementation of this innovation needed to be efficient. The strategic plan and goals planned by the Secretary of Health

Table 1. Performance of Hospitals from 2011 to 2014

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Donors</th>
<th>CONV (%)</th>
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</thead>
<tbody>
<tr>
<td>2011</td>
<td>14</td>
<td>19</td>
<td>9</td>
<td>29</td>
<td>1</td>
<td>17</td>
<td>2</td>
<td>66</td>
<td>26</td>
<td>20</td>
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<tr>
<td>2012</td>
<td>21</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>3</td>
<td>33</td>
<td>1</td>
<td>17</td>
<td>52</td>
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<td>2013</td>
<td>26</td>
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<td>8</td>
<td>20</td>
<td>128</td>
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Abbreviations: HEGV, Hospital Estadual Getúlio Vargas; HEAPN, Hospital Estadual Adão Pereira Nunes; HEAT, Hospital Estadual Alberto Torres; HEAS, Hospital Estadual Albert Schweitzer.
and the OPO directors would be implemented by the IHCs, acting as middle managers and disseminating all over each hospital. Besides, it was also important for the IHC to bring value to all brain-death patient families and hospital employees.

Observing the impact of an IHC on referrals, conversion rates, and number of donors, we concluded that this hybrid model should be considered for regions where high-potential hospitals are located and low performing.

In addition, we wanted to analyze the implementation period, where these professionals, classified as middle managers, would help the diffusion of the information and mediation between strategy and day-to-day activities, and selling innovation implementation, as shown by theory [17]. We assumed that this level of management was related to the fast results obtained.

REFERENCES


