Allocation of Livers from Pediatric Donors - Should Pediatric Patients Have Priority?

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I have no disclosures
Learning Objectives

• Infer how the Final Rule and ethical considerations might inform policy allocation of pediatric organs

• Appraise current outcomes as they relate to the goals of organ allocation policy

• Apply counterfactual reasoning to allocation of pediatric organs
SOME CONTEXT
Because of the gap between supply and demand, deceased organs are a valuable commodity and are rationed.
Final Rule

• Shall be based on sound medical judgment;
• Shall seek to achieve the best use of donated organs
• **Shall preserve the ability of a transplant program to decline an offer of an organ or not to use the organ for the potential recipient**
• Shall be specific for each organ type or combination of organ types to be transplanted into a transplant candidate
• **Shall be designed to avoid wasting organs, to avoid futile transplants, to promote patient access to transplantation, and to promote the efficient management of organ placement**
• Shall be reviewed periodically and revised as appropriate
• Shall include appropriate procedures to promote and review compliance
• **Shall not be based on the candidate's place of residence or listing**
WHY SHOULD CHILDREN WHO ARE LIVER TRANSPLANT CANDIDATES HAVE PRIORITY FOR ORGANS FROM PEDIATRIC DONORS?
THE CASE FOR CHILDREN
Declaration of the Rights of the Child

Whereas the child, by reason of their physical and mental immaturity, needs special safeguards and care, including legal protection ...

Whereas mankind owes to the child the best it has to give ...

The child shall enjoy special protection, and shall be given opportunities and facilities, by law and by other means, to enable the child to develop physically, mentally, morally, spiritually, and socially in a healthy and normal manner ...

In the enactment of laws for this purpose, the best interests of the child shall be the paramount consideration.

1959, United Nations General Assembly
Prudential Lifespan

Draws attention to the universality of age; it makes sense to preferentially allocate resources to children and young people in order to maximize the potential for these individuals to thrive in early and later stages of life.
Liver Transplant Challenges the Concept of Fair Innings

- Children have time-limited opportunity for growth and development
- If children die prematurely, they are denied opportunities to complete education, establish career, have a family

Barber et al 2007

<table>
<thead>
<tr>
<th>Age at TX</th>
<th>Life Years Lost</th>
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<tbody>
<tr>
<td>17-34</td>
<td>25</td>
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<tr>
<td>35-44</td>
<td>15</td>
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<td>45-54</td>
<td>5</td>
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<td>55-64</td>
<td>1</td>
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<td>&gt;65</td>
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ETHICAL ARGUMENT
IS VALID

Decrease risk for children

Fair Innings

Prudential Lifespan

United Nations Declaration
PATH OF THE PATIENT
Timely Listing
Waitlist
Peri-Op
Early Graft Function
Sustainable Health
Timely Listing
Waitlist
Peri-Op
Early Graft Function
Sustainable Health
Infants have increased risk on the wait list

Kim, et al. AJT February 2019: 183-283
Organ Acceptance

Technical Variants

Organ Allocation

Recipient Prioritization

Variation in NSER request and approvals as a function of region

Wait list mortality was increased for those candidates without approved non-standard exception requests.
¼ of organs from pediatric donors are transplanted into adult recipients without being offered to children

55% of those who died/were delisted received a liver offer subsequently accepted for TX into another child, while 45% died or were delisted with no offers at all.
Transplant centers vary with respect to use of technical variant allografts.
Primary splits benefit children, while secondary splits benefit adults.

Deceased Pediatric Donor Livers..
Ge et al; Hepatology 2019
Number of patients added to the liver waitlist per year

UNOS OPTN Data
Simon Horslen, 2014
Summary

• PELD underestimates risk
• Organ acceptance patterns vary among centers
• Children account for vast majority of primary split transplants
• Increasing demand for livers from deceased organs for adult population dwarfs the pediatric population
The Counterfactual

What would have happened if pediatric organs were not directed towards children and nothing else changed?
Increased demand for deceased donor organs

Disincentive to SPLIT

PELD Score

Risk Increased
BUT WE ARE IN A DYNAMIC SYSTEM
Opportunities exist

- Organ Acceptance
- Technical Variants
- Recipient Prioritization
- Abortion
WHY SHOULD CHILDREN WHO ARE LIVER TRANSPLANT CANDIDATES HAVE PRIORITY FOR ORGANS FROM PEDIATRIC DONORS?
SHOULD CHILDREN WHO ARE LIVER TRANSPLANT CANDIDATES HAVE PRIORITY?
Risk decreased

Yes, but there are options

Demand for deceased donor organs

Incentivize Split organs

PELD Score