

Pediatric Liver Transplant Program

Emille M. Reyes-Santiago, MD

Assistant Professor of Pediatric Gastroenterology and Pediatric Transplant Hepatology

Medical Director of Pediatric Liver Transplant

March 21, 2025



University of Nebraska
Medical Center

Disclosures

No disclosures



Pediatric Liver Transplant Program Team

Transplant Surgeons – 5

Pediatric Transplant Hepatologists– 5

Nurse Practitioners – 3

Transplant Coordinators – 3 (3 IRP)

Transplant Dietician – 1 (3 IRP)

Transplant Pharmacist (PharmD) - 2, and 3 peds PharmD that helps with transplant patients.

Social Worker

Nurses

Child Life

PT

Office managers



1958 Francis Moore described the orthotopic liver transplantation technique in dogs.

Roy Calne, in 1979, used cyclosporine for the first time

1963

Thomas Starzl performs the first liver transplant on a child in Denver

1967

Starzl performs a successful series of liver transplants using antilymphocytic serum

1988

The first successful split-liver transplant is performed, allowing two people to receive part of a single liver

1989

The first successful living donor liver transplant is performed

1990

Starzl reports the successful use of tacrolimus in patients who had rejected conventional immunosuppressive treatment

2001

The number of living organ donors for the year exceeds the number of deceased organ donors for the first time

2021

More than 40,000 transplants are performed in a single year for the first time

July 19, 1985

NMC surgeons led by Byers Shaw, M.D., and R. Patrick Wood, M.D. performed the city's first liver transplant

August 25th, 1985

First Pediatric Liver Transplant

She was 3 years old – married and kids

Nowadays we do cadaveric whole organ and split donors, living donor grafts in Pediatrics more than 10 total per year





On Dec. 17, 2021, the U.S. officially surpassed 40,000 transplants in one year, a historic first for the nation.



On Sept. 9, 2022, the U.S. reaches historic milestone of 1 million transplants.

Pediatric Liver Transplant Program

OPTN *Organ Procurement & Transplantation Network*

- U.S. Transplants Performed : January 1, 1988 - January 31, 2025 (37 years). Ages from 0-17 y/o
 - 945 deceased donors of that 84 were from living donor grafts

Organ: Liver State: Nebraska Go

Add Field to Report:

view: full: data: view: full: export: print: download: (download)

		All Donor Types	Deceased Donor	Living Donor
All Centers	All Recipient Ages	4,061	3,911	150
	< 1 Year	293	252	41
	1-5 Years	388	359	29
	6-10 Years	124	118	6
	11-17 Years	140	132	8
	18-34 Years	336	324	12
	35-49 Years	905	883	22
	50-64 Years	1,531	1,507	24
	65 +	344	336	8
NEUN-TX1 The Nebraska Medical Center	All Recipient Ages	4,061	3,911	150



Pediatric Diagnosis

- Biliary Atresia
- TPN-ALD (SBS, Atresias, etc)
- Hepatoblastoma
- Autoimmune Hepatitis
- PALF (toxic, fulminant)
- Alpha 1 Antitrypsin deficiency
- CFRLD
- Alagille's Syndrome
- Metabolic Disorders (MSUD)



Surgical Modalities

We offer a variety of surgical modalities including:

- Deceased- Donor Liver Transplantation
 - Split – Liver Transplantation
 - Left lateral
 - Living – Donor Liver Transplantation
-
- Auxiliary – Liver Transplantation
 - Expanded Donor Criteria



Pediatric Transplant Referrals

- Referrals: locally (NE) and from other States
 - Iowa, Texas, Alabama, Kansas, Dakotas, Washington
 - Complex patients that other Centers denies
- In the past year
 - 15 liver evals
 - 25 bowel evals
- Currently working on
 - 3 liver referrals
 - 10 bowel referrals

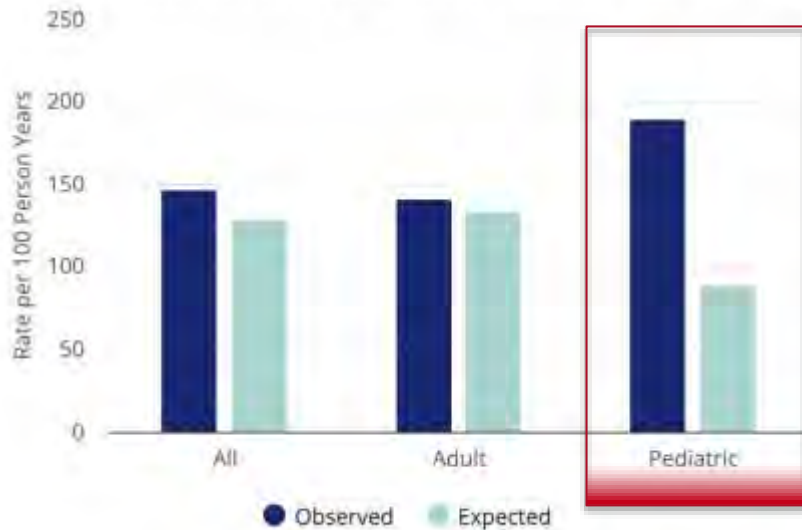


NEUN (Pediatrics)

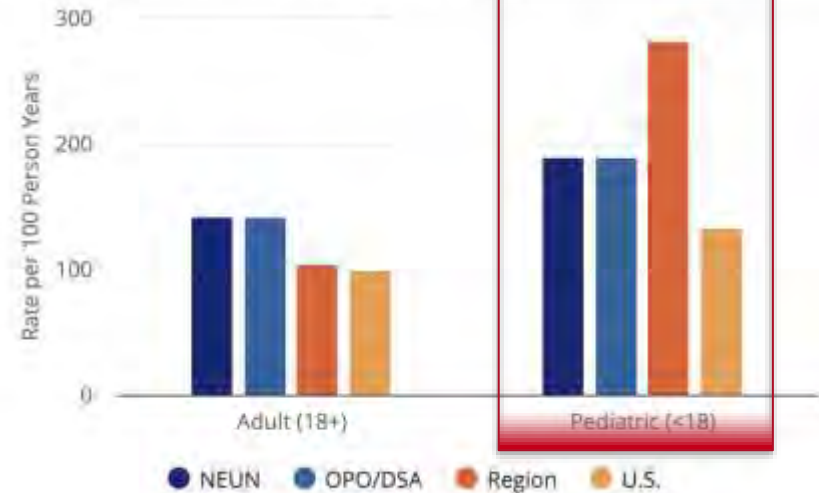
Transplant Rates

07/01/2022 - 06/30/2024

Observed and expected transplant rates



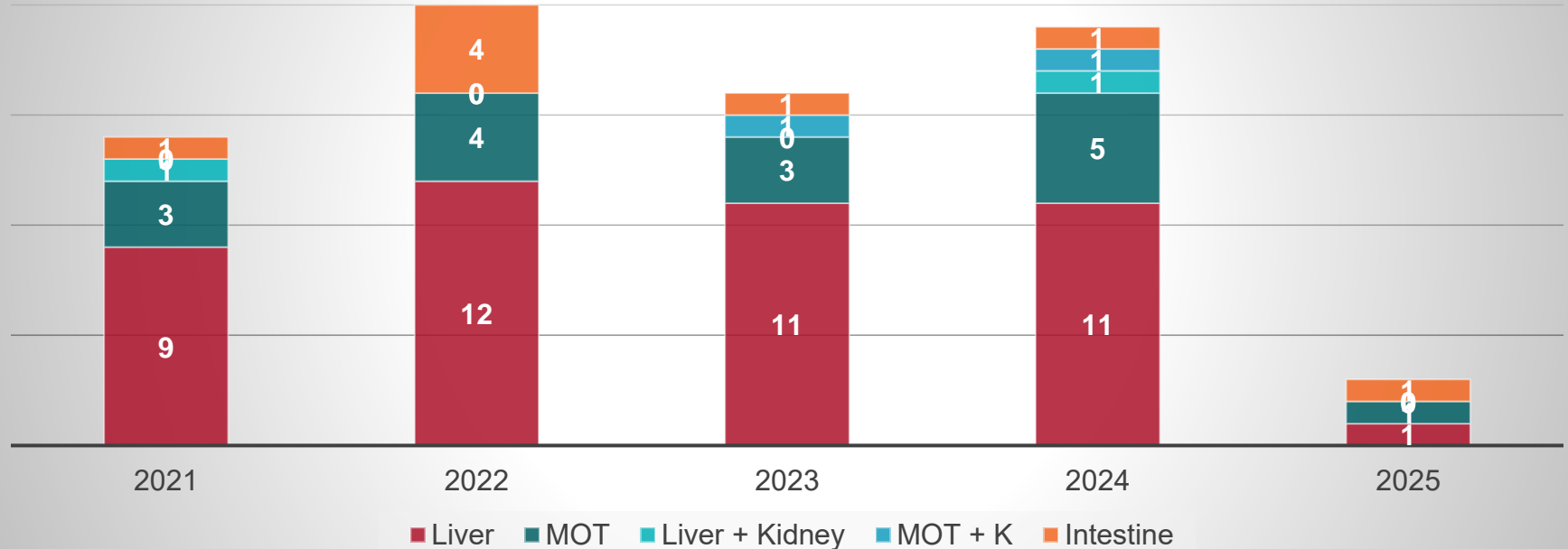
Observed adult (18+) and pediatric (<18) transplant rates



Pediatric Liver Transplant Summary (SRTR)



Pediatric Transplant Volume (NEUN)



Living Donor Program

- 1/1/2020-12/31/2023
 - 6 pediatric patients received a living donor liver transplant
 - 5/6 of the donors were related to the recipients
- Since 2022: 3 living donor livers

Goals:

- To increase awareness in the community about this option
- To increase the volume of donors
- To get known around the country



Pediatric Transplant Wait List

- NEUN pediatric liver program (region 8) is within the HIGH Vol: 4-32 quartile of liver registrations on the waiting list as of 12/31/24
- There are 8 pediatric patients currently listed as of December 31, 2024 (National media = 4). 5 MOT and 3 isolated livers
 - In 2024 we had 17 active and 3 inactive



Pediatric Liver Transplant Survival Rates

SRTR data for 7/1/2021-12/31/2023. This includes both living and deceased donors.

- Pediatric Liver Graft Survival

- 90 Day: 100% (US: 95%)
- 1 Year: 100% (US:93%)
- 3 Year: 93% (US 89%) – living donor 100% (US:91%)

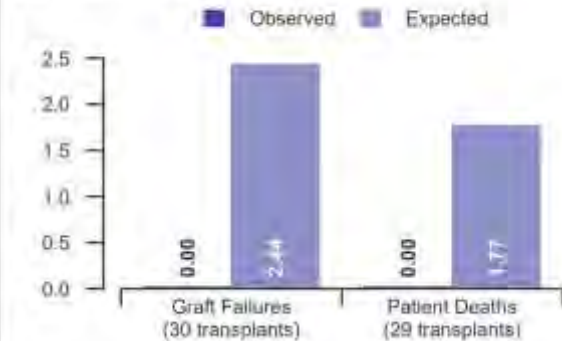
- Pediatric Liver Patient Survival (previous dates of 2019-2021)

- 1 Year: 100% (US: 95%)
- 3 Year: 100% (US 93%) – living donor 100% (US:91%)

- Prior data

- Pediatric Liver Graft Survival
 - 90 Day: 100%
 - 1 Year: 100%
 - 3 Year: 86.15%
- Pediatric Liver Patient Survival
 - 1 Year: 100%
 - 3 Year: 92.31%

Figure A5. First-year pediatric graft and patient survival: 07/01/2021 - 12/31/2023



Working with Pediatric Subspecialties



Nephrology

We have done 2 LSBPK and 2 L-K transplants in the past 4 years



Cardiology

Evaluations and recommendations



Metabolic/Genetics

One patient with MSUD (metabolic)

Forming New Pediatrics Transplant Hepatologists

Pediatric Gastroenterology Fellows

- 5 fellows – 3 years of training

Pediatric Transplant Hepatology Fellow

- 1 fellow – 1 year of training

Trainees from other countries

- Colombia
- Panama
- Mexico
- Canada (Faculty)



Future of the Program

- Become one of the most recognized programs in the country
- Increase the number of Transplant per year
- Give a care of excellence to our patients
- Work in Collaboration with other Centers around Nebraska (Iowa, South and North Dakota, Kansas, Missouri), and continue to grow relationship with existing referral centers

- Participate in Research programs:
 - Pediatric Acute Liver Failure (PALF)
 - Childhood Liver Disease Research and Education Network (CHILDREN)
 - Biliary Atresia Research & Education (BARE)
 - Study of Pediatric Liver Transplantation (SPLIT)



Thank you!!

Kacie McIntoch, BSN, RN
Taylor Cidlik, MA
Patricia Turner, RN





University of Nebraska
Medical Center

UNIVERSITY OF
Nebraska
Medical Center

