D DONATION FOCUS | THE 2023 ALLIANCE ADVANCEMENT LEARNING SERIES

Honoring the Gift Through Donor Care Units: Exploring the Pros & Cons of Different Models

Tuesday, April 4, 2023
2:00pm – 3:00pm ET | 11:00am – 12:00pm PT

Available Continuing Education Credits: 1 CEPTC Credit, 1 Nursing Contact Hour

SPEAKERS:

Clint Hosteler, BSN, MHA
Chief Operating Officer
LifeShare of Oklahoma

Laura Huckestein
Director, Clinical Operations
OurLegacy

Sherry Quire, BSN, MBA
Director, Organ Services
Indiana Donor Network

THE Alliance

Leadership & Engaged Learning in Organ Donation & Transplantation

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Continuing Education Information
Evaluations & Certificates

Nursing

The Organ Donation and Transplantation Alliance is offering **1.0 hours of continuing education credit** for this offering, approved by The California Board of Registered Nursing, Provider Number CEP17117. No partial credits will be awarded. CE credit will be issued upon request within 30 days post-webinar.

CEPTC

The Organ Donation and Transplantation Alliance will be offering **1.0 Category I CEPTC credits** from the American Board for Transplant Certification. Certified clinical transplant and procurement coordinators and certified clinical transplant nurses seeking CEPTC credit must complete the evaluation form within 30 days of the event.

Certificate of Attendance

Participants desiring CE's that are not being offered, should complete a certificate of attendance.

- Certificates should be claimed within 30 days of this webinar.
- We highly encourage you to provide us with your feedback through completion of the online evaluation tool.
- Detailed instructions will be emailed to you within the next 24 hours.
- You will receive a certificate via email upon completion of a certificate request or an evaluation
- Group leaders, please share the follow-up email with all group participants who attended the webinar.

THE **Alliance** | *Leadership & Engaged Learning in Organ Donation & Transplantation*

Meet Our Moderator

Kevin Cmunt

Former Chief Executive Offier

Deanna Fenton

Senior Manager, Program Development and Operations

Need Assistance?

Contact Us via Zoom Chat, or
info@organdonationalliance.org
786-866-8730

Transplant decision making tools:

A major upside for your transplant program

DonorNet® Predictive Analytics?

What is it?

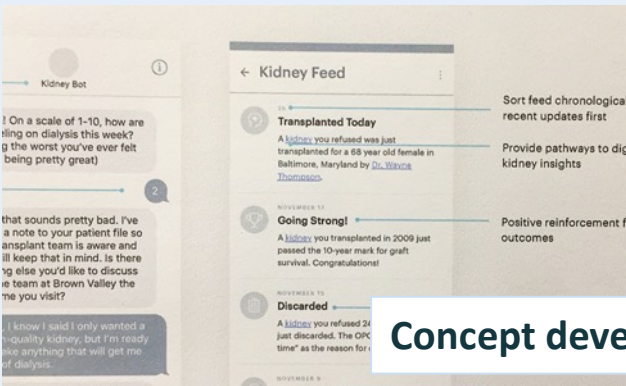Site visits & desk research

Ideation sessions

Concept development

CMS ESRD Research & Concept development

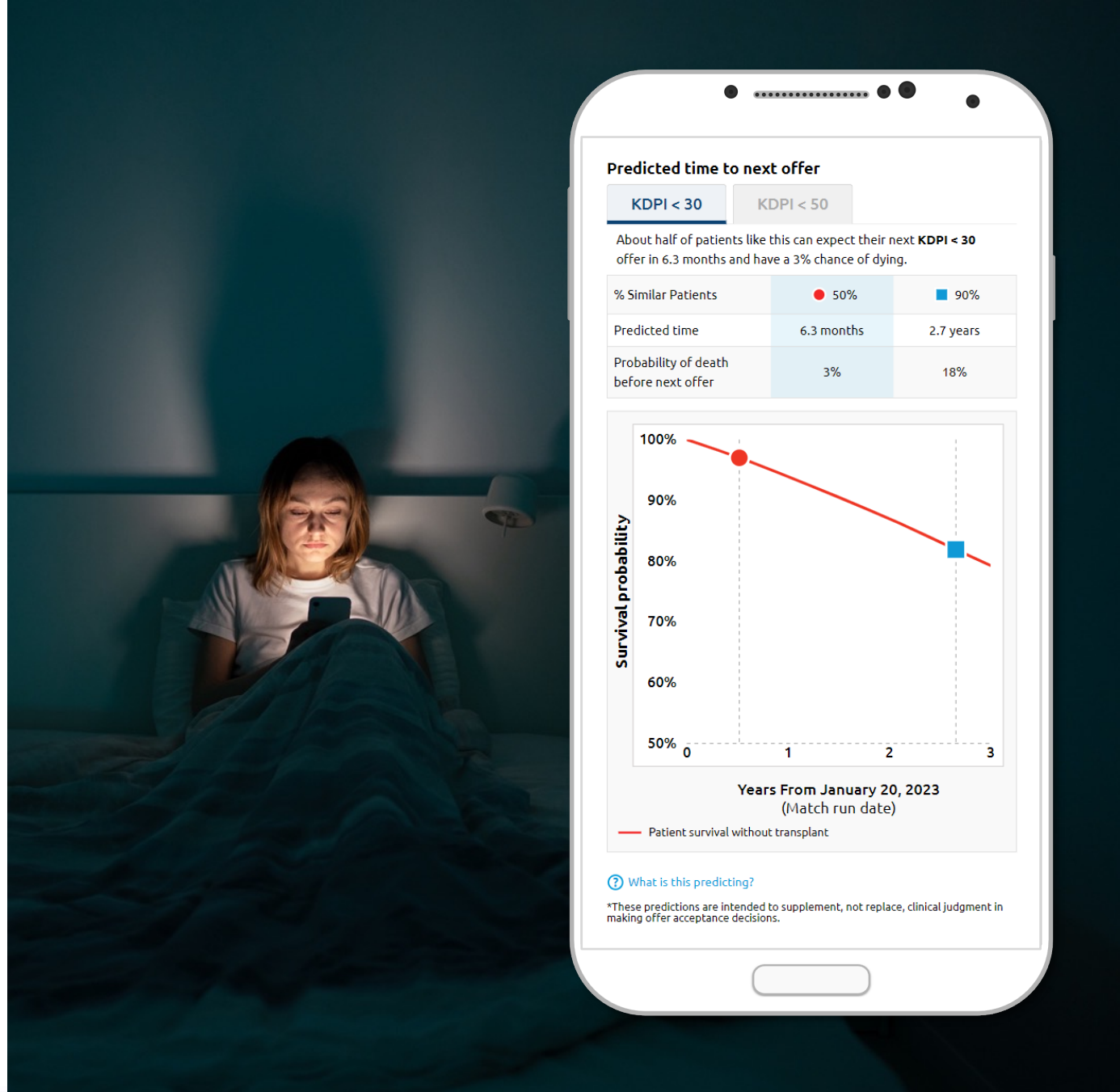**Challenge:** *How might we increase kidney transplants and reduce the non-utilization rate?*

- Conducted literature review

- Conducted field research to OPOs (12) and transplant centers (13)

- Interviewed thought leaders (8)

- Held a two-day ideation session with OPOs, surgeons, transplant center staff, patients, CMS, and HRSA to co-create solutions.

- Identified and prioritized 40+ concepts

Could **predictive analytics** help support your offer acceptance decision?

Predicted time to next offer

| KDPI < 30 | KDPI < 50 |

About half of patients like this can expect their next **KDPI < 30** offer in 6.3 months and have a 3% chance of dying.

% Similar Patients	● 50%	■ 90%
Predicted time	6.3 months	2.7 years
Probability of death before next offer	3%	18%

Years From January 20, 2023
(Match run date)

— Patient survival without transplant

? What is this predicting?

*These predictions are intended to supplement, not replace, clinical judgment in making offer acceptance decisions.

OPTN ORGAN PROCUREMENT AND TRANSPLANTATION NETWORK

Presenters

Chris Zinner
Program Lead

Accenture Federal Services

Michael Ghaffari
Director, Software Engineering

United Network of Organ Sharing

Ian McCulloh
Chief Data Scientist

Accenture Federal Services

Ben Cannon
Design Director

Accenture Federal Services

DonorNet® Predictive Analytics?

How was it developed?

OPTN / Accenture collaboration phases

Phase I	Phase II	Phase III
May – Aug. 2021	Sept. – Nov. 2021	Dec. 2021 – 2022
Plan, develop • concept and behavioral testing • analyze	Design, build, and test	Implement • beta and pilot testing on real offers in DonorNet® Mobile

OPTN / Accenture collaboration phases

Phase I

Concept testing

Resonance Testing Interviews (n=8)

- 6 Kidney Transplant Surgeons
- 1 Transplant Nephrologist
- 1 Transplant Center Administrator

Concept testing

Predictions:

- **Time to Next Offer**
  - How many months or years until next offer?
  - For this patient, relative to all Kidneys < 30 KDPI

Concept testing

Predictions:

- ## Time to Next Offer
  - How many months or years until next offer?
  - For this patient, relative to all Kidneys < 30 KDPI

- ## **Waitlist Mortality**
  - How probable is patient death before the predicted Time to Next Offer?
  - For this patient, relative to Time to Next Offer prediction

Text within the app mockup image:

Male | 15 Years   DONOR ABO

Offer by: **OPT1**   Offer to: **Your Center**

View Donor Information

Clinical Decision Support

1.1 Predicted years to better* offer
(90% certainty within 0.6-1.7 years)

94.7% Probability of Survival Until Better Offer

— Patient Survival Without Transplant
○ Time to meaningfully better offer

(Chart: Overall Survival Probability vs Years from Today, 0 to 5)

*A better offer is one with a meaningfully better KDPI score (e.g. 20+ points lower). For very low KDPI offers (e.g. KDPI < 20%) assume the time to an equivalent or better offer is displayed.

Patient Information

Refuse   Interested

Order	VD Visualization Displayed	TD Time to Better Offer Displayed	ED Ease of Decision	FE Frame Effect
1	–	–	–	–
2	+	–	–	–
3	–	+	–	–
4	+	+	–	–
5	–	–	+	–
6	+	–	+	–
7	–	+	+	–
8	+	+	+	–
9	–	–	–	+
10	+	–	–	+
11	–	+	–	+
12	+	+	–	+
13	–	–	+	+
14	+	–	+	+
15	–	+	+	+
16	+	+	+	+

Concept testing

Behavioral Study: 16 Simulated Offers (n=53)

- 21 Kidney Transplant Surgeons
- 4 Transplant Nephrologists
- 25 Transplant Coordinator/Administrators
- 5 Other

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Concept testing
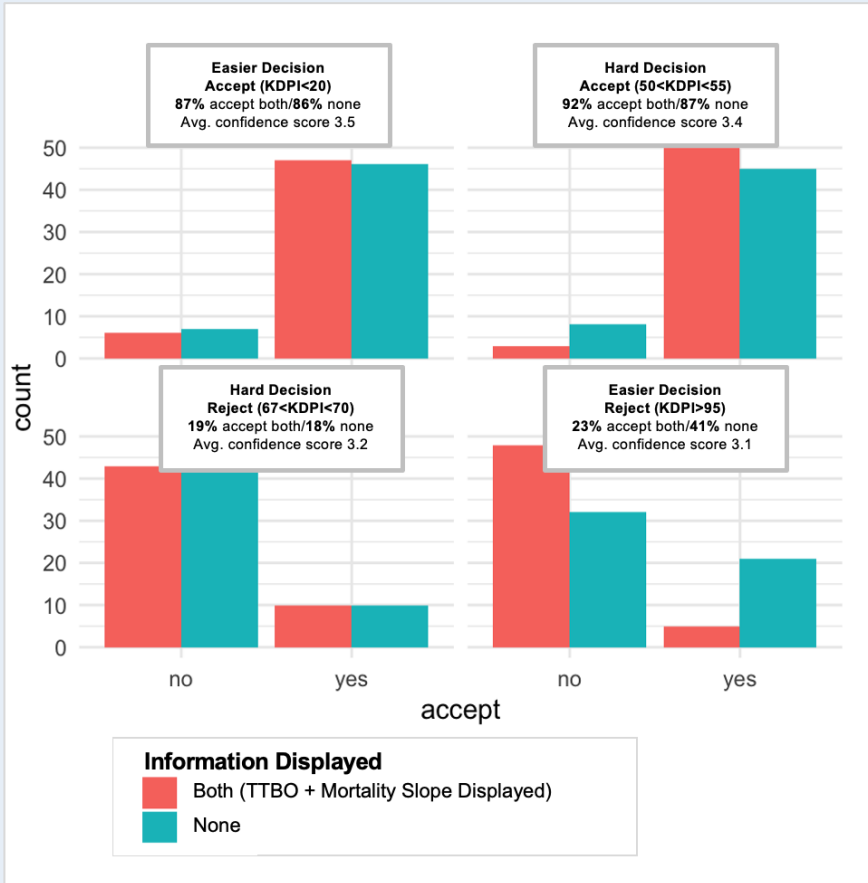
Behavioral Study Results

- Time-to-better-offer (TTBO) **improves consensus**

- Loss frame **improves consensus**

- Loss frame improves **decision confidence**

- TTBO improves **decision confidence**

- Mortality slope improves **time to decide**

- Impact on Acceptance - TTBO and mortality slope **improves hard acceptance and easier rejection decisions**, reducing error rate.

OPTN / Accenture collaboration phases

Phase II: Design

Predicted time to next offer
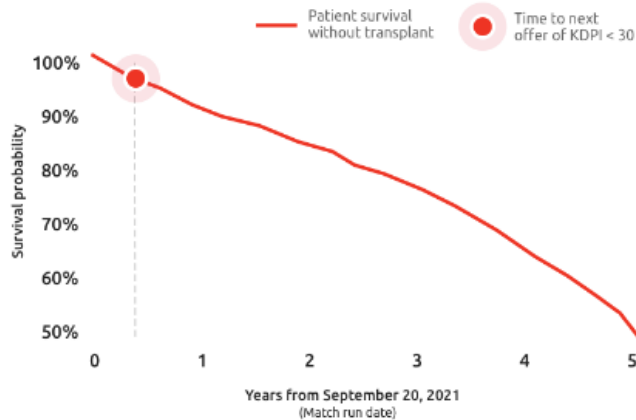
| KDPI < 30 | KDPI < 50 |

4.1 months — Predicted time to next **KDPI < 30** offer (90% certainty within 1.3 years)

3% — Probability of death before next **KDPI < 30** offer

Patient survival without transplant — Time to next offer of KDPI < 30

Survival probability: 100%, 90%, 80%, 70%, 60%, 50%

Years from September 20, 2021 (Match run date): 0, 1, 2, 3, 4, 5

(?) Learn more about how these numbers are calculated

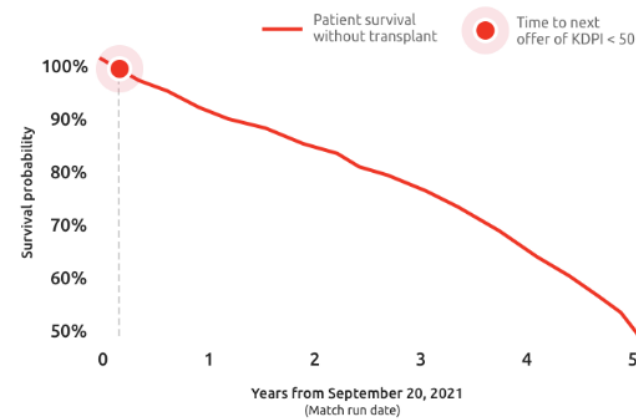**Predicted time to next offer**

| KDPI < 30 | KDPI < 50 |

1.4 months — Predicted time to next **KDPI < 50** offer (90% certainty within 6.6 months)

2% — Probability of death before next **KDPI < 50** offer

Patient survival without transplant — Time to next offer of KDPI < 50

Survival probability: 100%, 90%, 80%, 70%, 60%, 50%

Years from September 20, 2021 (Match run date): 0, 1, 2, 3, 4, 5

(?) Learn more about how these numbers are calculated

Design

Time to next offer
- At <30 KDPI and <50 KDPI

Probability of death before next offer
- At <30 KDPI and <50 KDPI

Survival curve for candidate without transplant
- Circle indicates when **next offer** (<30 or <50) is predicted

OPTN / Accenture collaboration phases

Phase III: Implementation

Implementation

Advisory panel
Nov. 2021 – Present

- Advisory panel of clinical experts to advise on monitoring plan

- Panel will review monitoring reports

Beta testing
Dec. 2021 – Feb. 2022

- Implement Predictive Analytics for a small number (5-10) of users to gather information about technical and user concerns on a smaller scale

Pilot
Feb. – Dec. 2022

- Implement Predictive Analytics for deceased donor kidney offers to adult candidates to a group of 15 programs

National deployment
Jan. 2023

- National roll out will be informed by the findings from the Pilot Phase

We are here

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Pilot design

15 kidney transplant programs using Predictive Analytics

Each participating program = Predictive Analytics (PA) group

Paired Predictive Analytics group is matched 1:1 into pairs

Based on program characteristics
- *Geographic location*
- *Racial diversity of waiting list*
- *Transplant volume*

2 Treatment groups

PA group (n=15 programs) **Receives PA on offers***

Control group (n=15 programs) **Does not receive PA on offers***
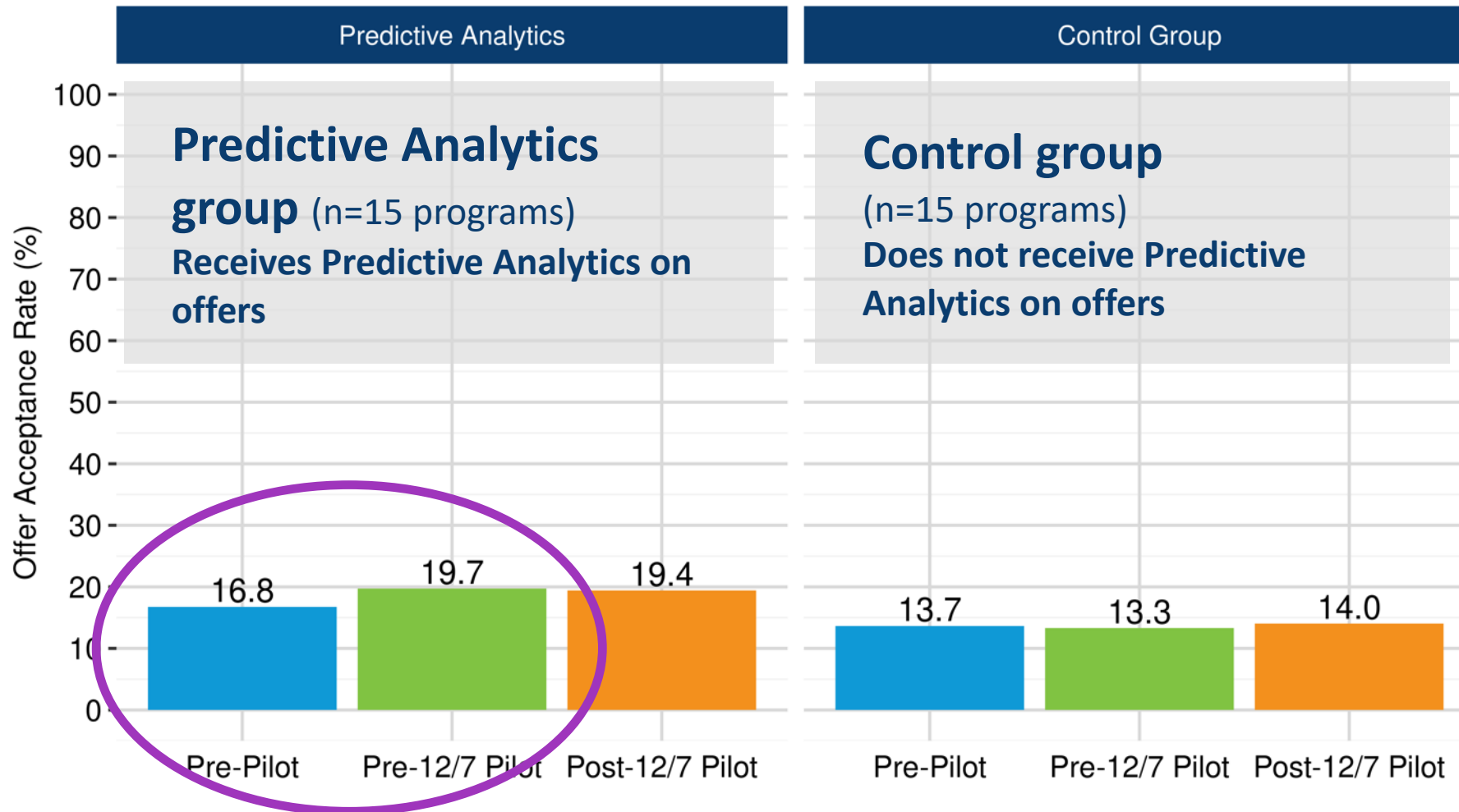
*Offers viewed on DonorNet® Mobile

Pilot results

DonorNet® Mobile acceptance by treatment group and period

Predictive Analytics group (n=15 programs)
Receives Predictive Analytics on offers

Control group (n=15 programs)
Does not receive Predictive Analytics on offers

Predictive Analytics — Pre-Pilot: 16.8, Pre-12/7 Pilot: 19.7, Post-12/7 Pilot: 19.4

Control Group — Pre-Pilot: 13.7, Pre-12/7 Pilot: 13.3, Post-12/7 Pilot: 14.0

Offer Acceptance Rate (%)

Revised model deployed on Dec. 7, 2022

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Modeling Experience

Summary of Modeling Experience in Pilot

- ## Monitoring results are consistent over pilot period
  - Models are monitored closely and will be retrained as needed
    - Always check user documentation for current model build-time performance
  - Program-level reporting of model results is in the works
    - We welcome feedback on what would be useful!

- ## Modeling team will continue to improve methodology

  - Evaluating new modeling approaches to better address current limitations
  - Researching alternated definitions of "next offer"
  - Developing and utilizing improved calibration measures
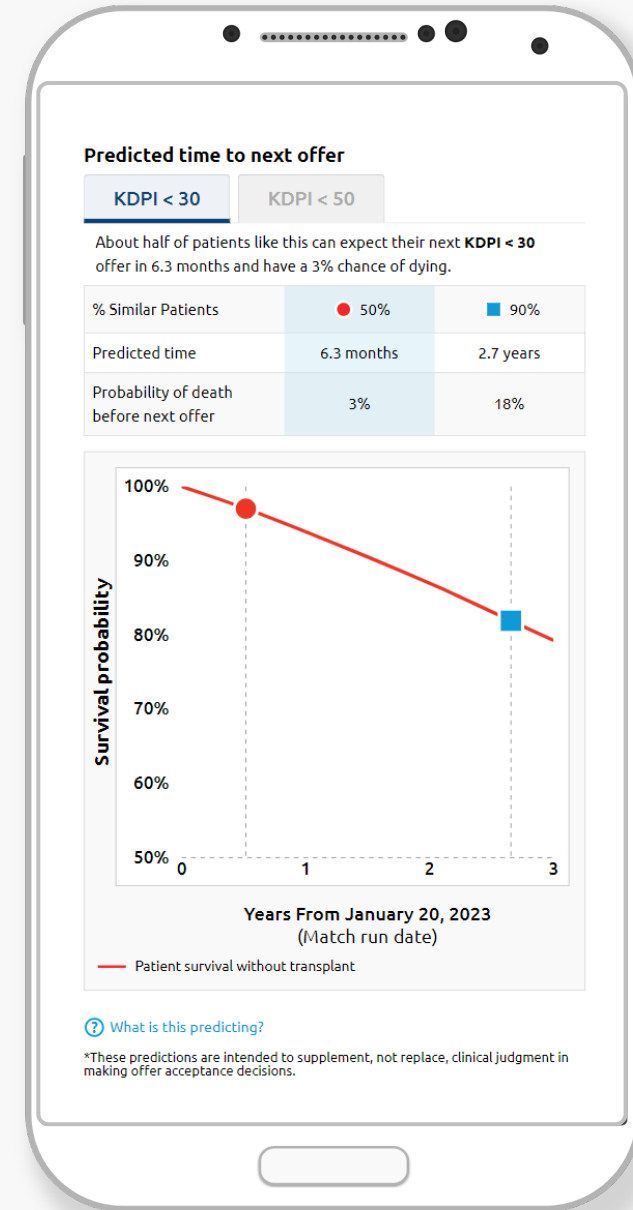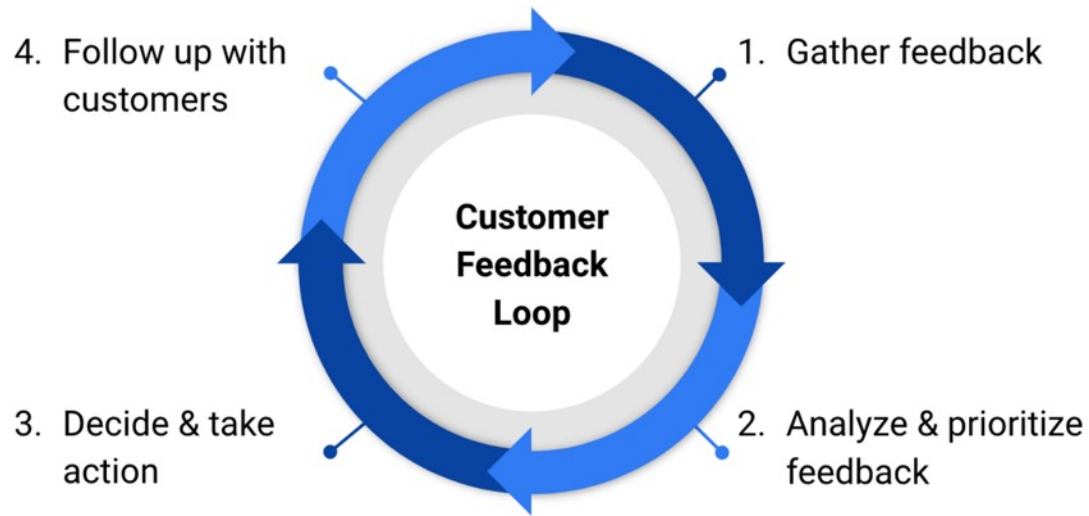
Understanding the Current Models

- Does not represent certain sub-populations well
  - Pediatric patients and non-serviceable cohorts do not receive predictions
  - Models do not include prediction adjustment for smaller hospitals
  - Certain factors contributing to match points are not represented by models, e.g. prior living donors

- Does not handle certain modifications over time
  - Certain patient-level changes that may occur over time, e.g. BMI, previous TX status
  - System-wide changes that occur over time will require rebuilding models, e.g. KAS to KAS250

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What's Next?

National view for Predictive Analytics

4. Follow up with customers

1. Gather feedback

Customer Feedback Loop

3. Decide & take action

2. Analyze & prioritize feedback

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Continuous Improvement

- Feedback captured indicated that decision makers wanted to see a probability range

- Incorporated a range of increased prediction confidence

Predicted time to next offer

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Survival probability vs. Years From January 20, 2023 (Match run date)
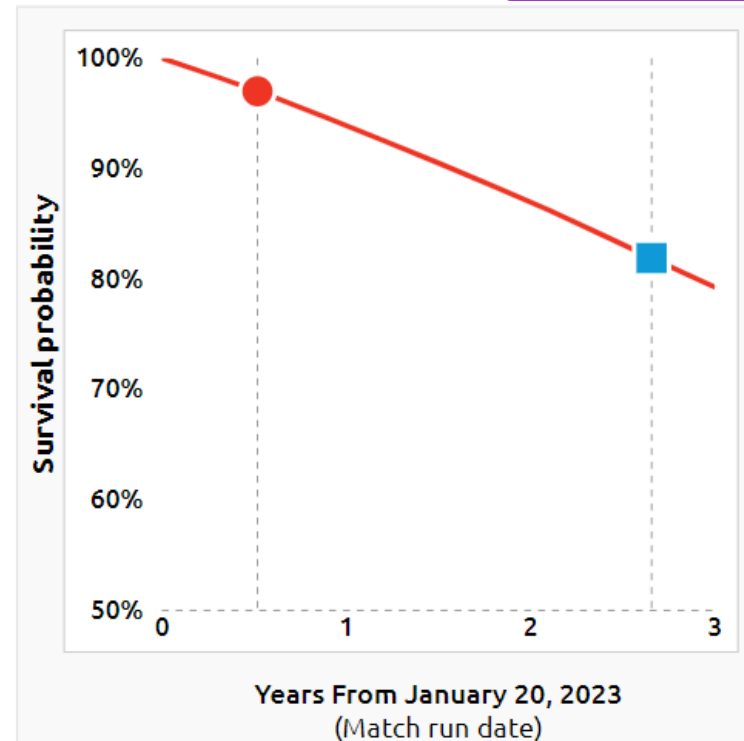
Post-national rollout timeline
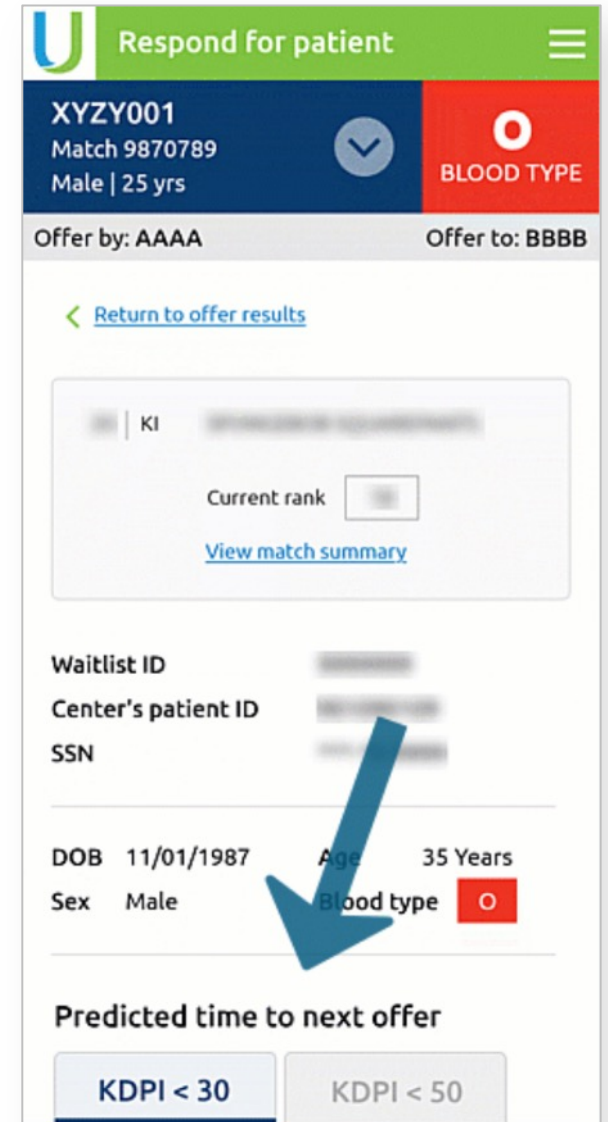
- Attending All Regional Meetings

- Offer Acceptance Collaborative Conference – January 2023

- Transplant Management Forum (TMF) – May 2023

- Next Monitoring Report – Summer 2023

Pathway to get to DNM/Predictive Analytics

https://donornetmobile.unos.org

- You can access the link (or scan the QR code) on both mobile phones and desktop

- The predictive analytics appear directly below the candidate's date of birth, age, sex, and blood type

In summary:

DonorNet® Predictive Analytics

It's a free decision-making support tool that:

- Aims to increase offer acceptance and kidney utilization, to better honor the gift of life

- Shows transplant teams the potential impact on a patient when accepting or declining an organ offer by using cutting-edge statistical modeling

- Displays a predicted Time-to-next-offer and gives a mortality prediction over that time

- Built on a highly secure, reliable technology foundation

- Monitored by an advisory group and regularly updated by researchers with community feedback

- ***Available now*** for adult kidney offers

Further Detail in Documentation

Full documentation includes:

- A walkthrough of visualization elements and definitions

- Model definitions, features, and details

- Model performance and limitations

Available in UNOSConnect course SYS180 "Predictive Analytics in DonorNet® Mobile"

Predictive Analytics in DonorNet Mobile

RESUME

OPTN

The predictive analytics feature in DonorNet Mobile[SM] leverages historical data to improve offer acceptance by providing the predicted time to the next offer and probability of waitlist mortality if the current kidney offer is refused. This course reviews how to locate and interpret this data when reviewing offers for kidney

Q&A

Contact us at
PredictiveAnalytics@unos.org

Thank You.

QUESTIONS & ANSWERS