

Assessing Seroconversion Rates After Hepatitis B Vaccination in Organ Transplant Candidates

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Problem

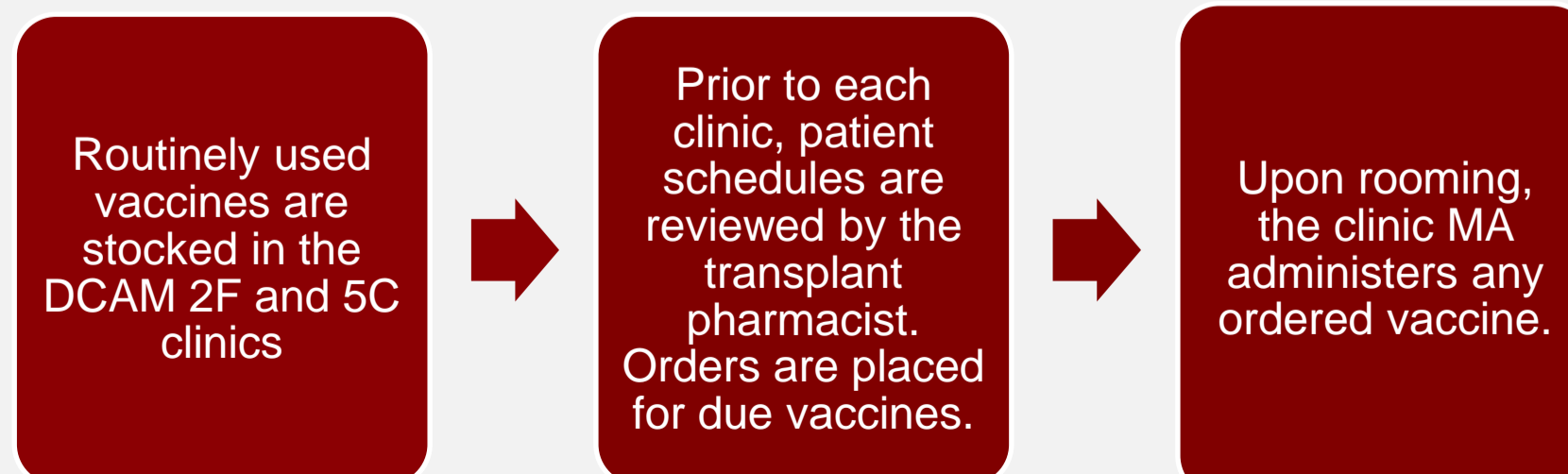
- Completing due vaccines for organ transplant candidates is an important part of the pre-transplant workup. Successful vaccination protects this vulnerable population from vaccine-preventable illnesses, and completing vaccines prior to transplant (and prior to starting immunosuppression) increases response rates.
- Since 2019, hepatitis B recombinant adjuvanted (Heplisav-B®, Dynavax) has been our preferred hepatitis B vaccine in organ transplant candidates due to improved response rates and shortened time to complete vaccination.
- Seroconversion rates after vaccination with two doses of adjuvanted hepatitis B vaccine in organ transplant candidates are unknown.

Goal

- This project aimed to:
 - Identify seroconversion rates after vaccination with 2 doses of adjuvanted hepatitis B vaccine in lung, heart, and liver transplant candidates
 - Evaluate the effectiveness of our current workflow to complete due vaccines in lung, heart, and liver transplant candidates

Strategy

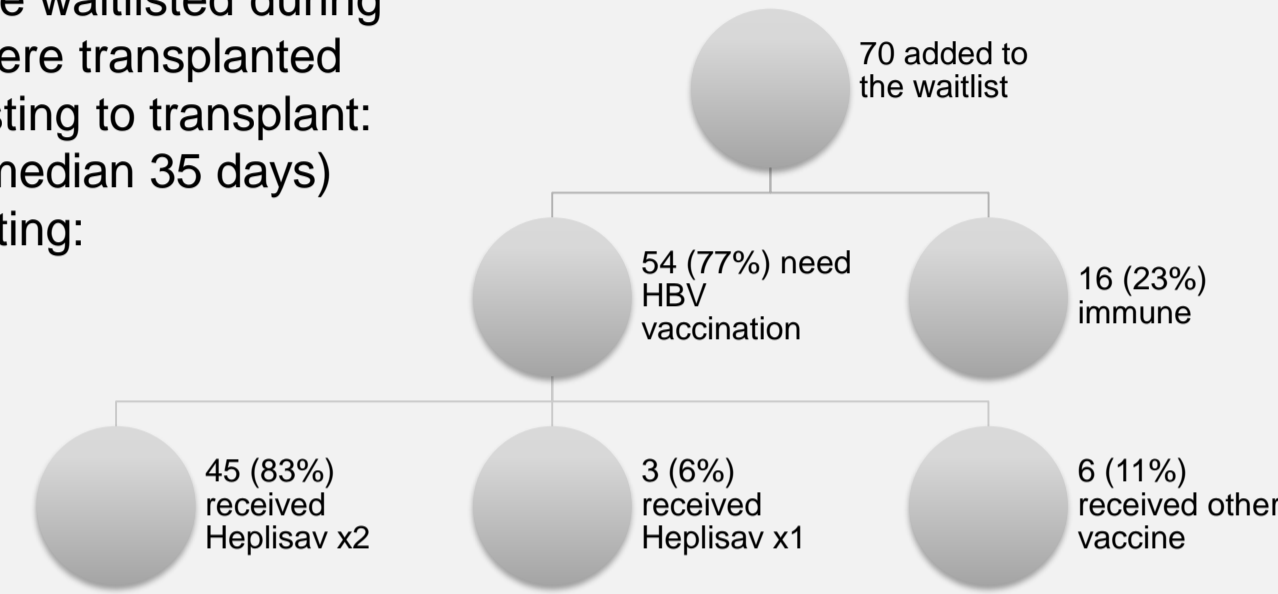
- Population to evaluate**
Patients added to the UChicago lung, heart, or liver transplant waitlist between Jan 2019 and Oct 2022
- Endpoints**
Primary: identify the proportion of transplant candidates who seroconvert (hepatitis B sAb serostatus at baseline and ≥ 1 month after completing two doses of adjuvanted hepatitis B vaccine)
Secondary: identify proportion needing vaccination (the “vaccination need”) identify the waitlist time (the “vaccination opportunity”)
- Current workflow**



Results

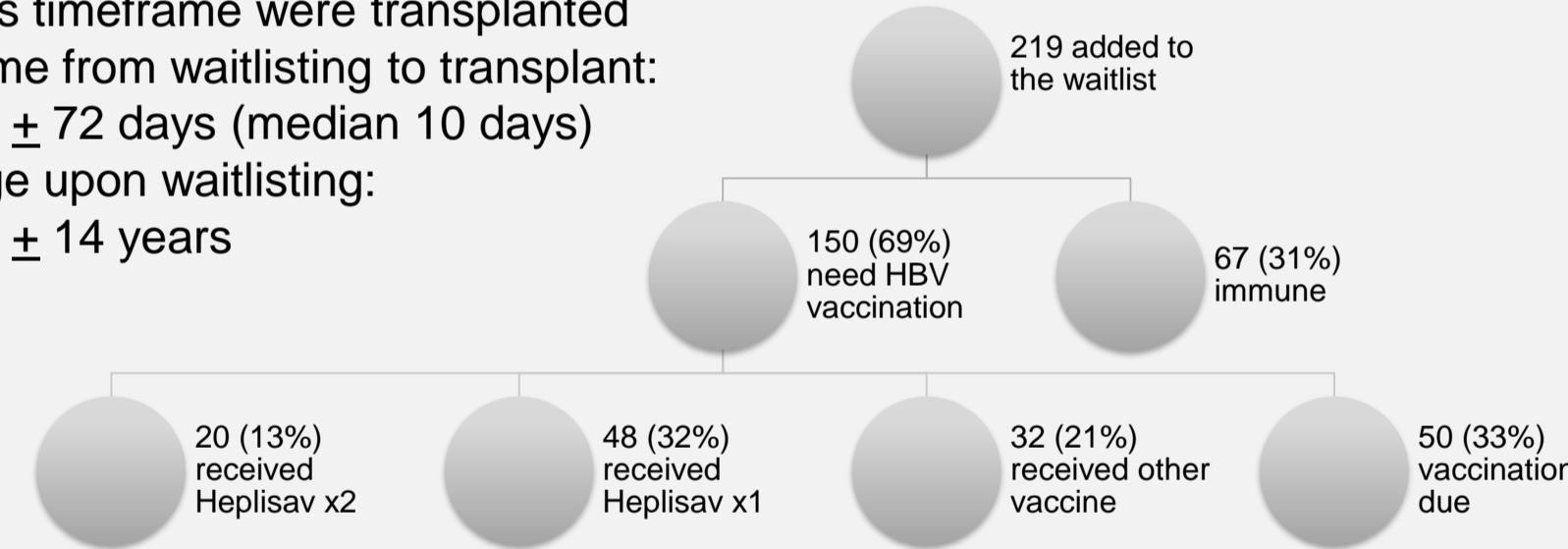
Lung Transplant Candidates

- 52 (74%) of those waitlisted during this timeframe were transplanted
- Time from waitlisting to transplant: 93 ± 140 days (median 35 days)
- Age upon waitlisting: 57 ± 14 years



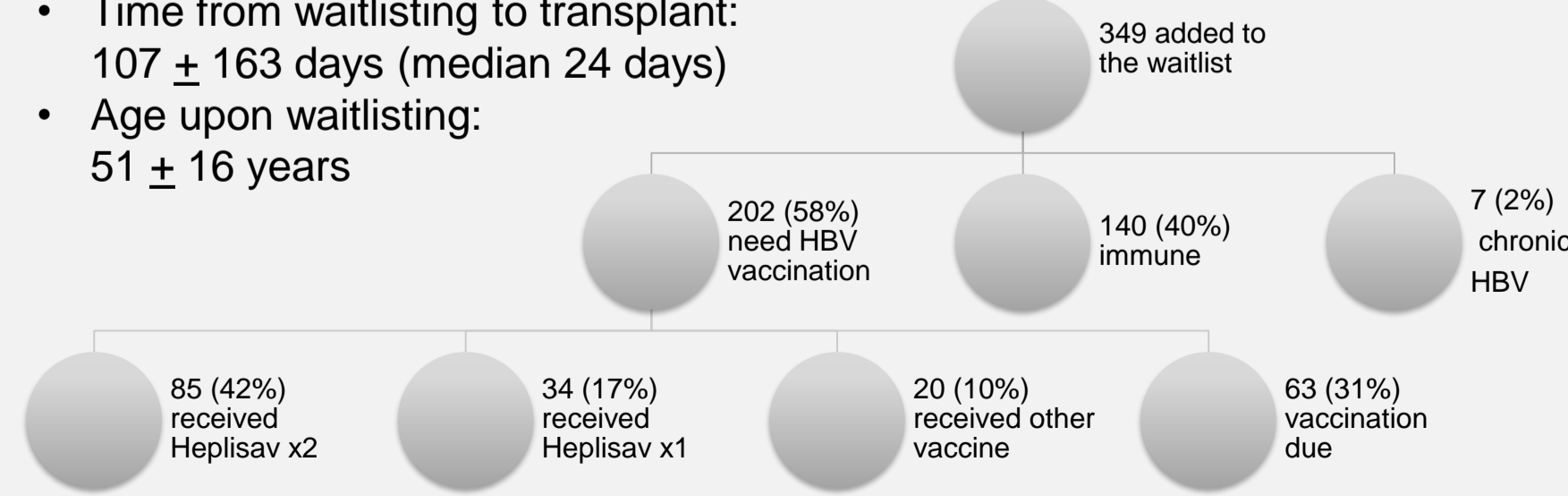
Heart Transplant Candidates

- 199 (91%) of those waitlisted during this timeframe were transplanted
- Time from waitlisting to transplant: 30 ± 72 days (median 10 days)
- Age upon waitlisting: 52 ± 14 years



Liver Transplant Candidates

- 261 (75%) of those waitlisted during this timeframe were transplanted
- Time from waitlisting to transplant: 107 ± 163 days (median 24 days)
- Age upon waitlisting: 51 ± 16 years



	Lung N=45	Heart N=12	Liver N=47
Seroconversion			
Overall	32/45 (71%)	9/11 (82%)	29/47 (62%)
Both doses pre	29/36 (81%)	8/9 (89%)	27/39 (69%)
One pre, one post	3/7 (43%)	1/2 (50%)	1/4 (25%)
Both doses post	0/2 (0%)	n/a	1/4 (25%)
Time between dose 1 and dose 2	77 days (28-387)	247 days (29-431)	70 days (28-321)
Time between dose 2 and follow-up testing	53 days (17-239)	46 days (21-250)	99 days (20-435)

Conclusions and Lessons Learned

After vaccination with adjuvanted hepatitis B vaccine:

- HBV sAb seroconversion rates in lung and liver transplant candidates appear to be lower versus the general population
- HBV sAb seroconversion rates are severely reduced when vaccination is completed (in whole or in part) after transplant

The “vaccination window” between waitlisting and transplant is short for lung, heart, and liver candidates.

We are missing opportunities to complete vaccination, as well as to complete the post-vaccination hepatitis B sAb testing.

Next Steps

- Address hepatitis B vaccination promptly upon waitlisting in order to:
 - Complete the course during the waitlist period, and
 - Preserve time for additional doses or repeat courses where needed
- Utilize vaccine-only visits to expedite completion
- Manage non-responders by giving a third dose of adjuvanted hepatitis B vaccine (preferred) or a series of an alternate hepatitis B vaccine
- Become more attentive to those who do not complete vaccination during their pre-transplant time, and complete it once able post-transplant.
- Become more attentive to ensure post-vaccination serologic testing is completed.

Acknowledgements

We wish to acknowledge all of the medical assistants in the DCAM 2F and 5C clinics who partner with us on this endeavor to ensure vaccinations are complete. We wish to give special recognition to Tonika Mathews and Taftla Nellums. .