Estimating the Prevalence of Donor-Exclusion Factors in the United States

Advisory Committee on Blood Safety
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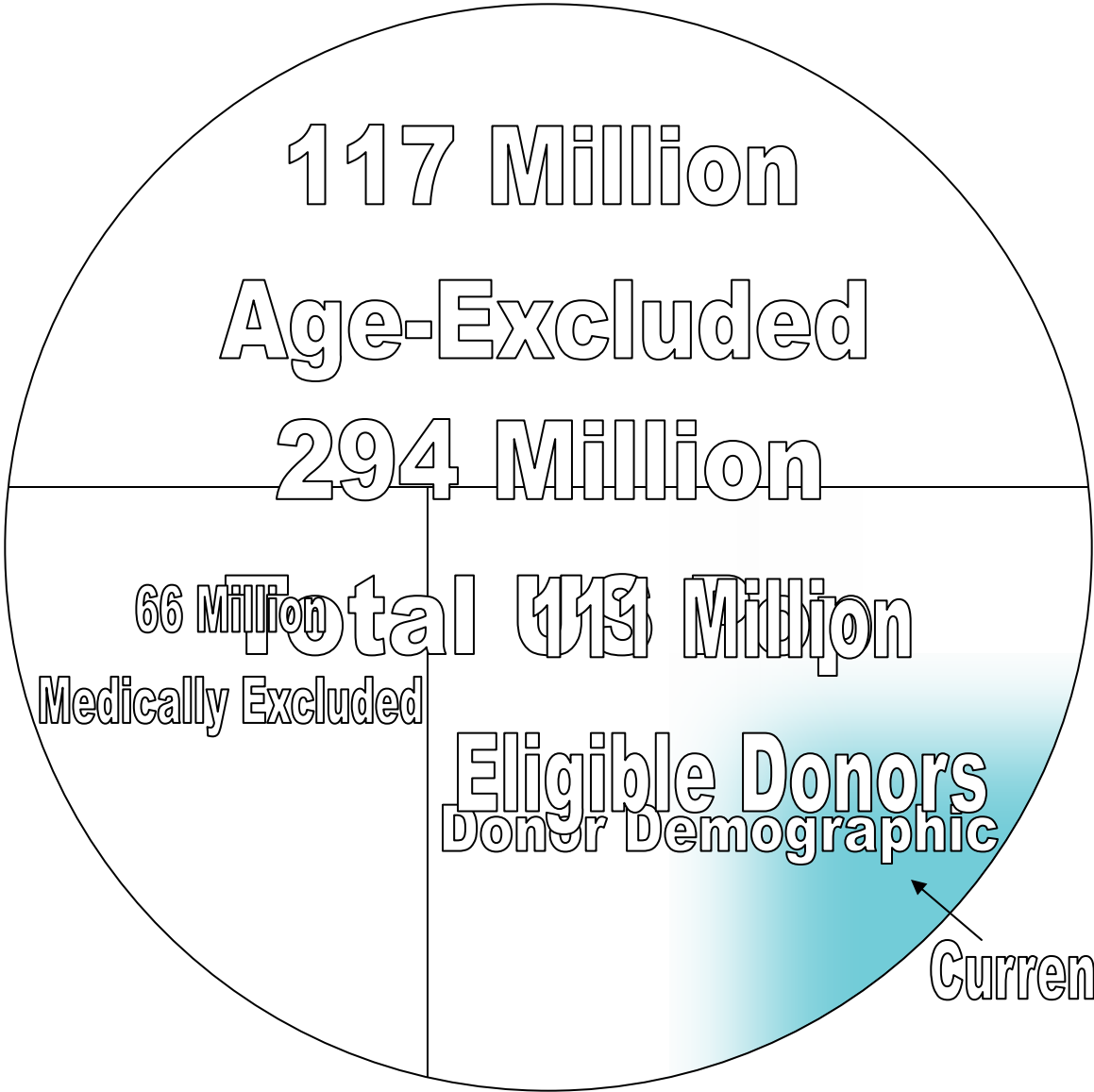University of Minnesota

AGENDA

- Review Model.
- Present Findings.
- Methods.
- Implications.
- Discussion.

BACKGROUND

- Current method for estimating eligible blood donors using only age as the criteria factor for excluding donors poorly reflects effect of known factors that cause donor deferrals.

Model

- Identified and prioritized the 31 main deferral factors according to prevalence, corresponding to AABB Standards.

- Selected data bases for each deferral factor.

- Adjusted the prevalence data for age, duration of exclusion and co-morbidities.

117 Million

Age-Excluded

294 Million

66 Million

Total 111 Million

Medically Excluded

Eligible Donors

Donor Demographic

Current Donors

METHODS

1.   Identify and categorize donor exclusion factors: Permanent (n = 18); Long Term (n = 9); Short Term (n = 5)

2.   Define measurement criteria for each factor.

3.   Select an appropriate data base for each factor.

4.   Determine the population prevalence for each exclusionary factor.

5.   Adjust the prevalence for each factor by age and temporary deferral.

6.   Estimate and adjust for overlapping conditions.

1.   (Total population – Age exclusion) – (Total population – Age exclusion) x (Adjusted prevalence – overlap adjustment).

2.   (294 – 117) – ((294 – 117) * (0.478 – 0.1056)).

3.   177 – (177 * 0.3723).

4.   177 – 66.

5.   111 million persons eligible to donate blood.

Total Eligible Donor Population

Table 5. Comparison of Conventional Model and Exclusion-adjusted Estimating Eligible Blood Donors

Method	Conventional Method	Exclusion-Adjusted Method	
US Population	293,665,000	293,665,000	
Age Exclusion	116,816,803	116,816,803	
Exclusion Adjustment		65,858,269	
Eligible Blood Donors	176,848,197.00	110,989,928.44	
Percent Eligible	60.2	37.24	47.8 prevalence of age-eligible excluded individuals. 10.56 percent of age-eligible donors with at least two exclusion factors.

Implications

- A more precise measure of blood donor collection rates is needed based on accurate estimate of eligible blood donors in a catchment area.
    - Conventional model is 81 units per 1000 eligible donors
    - This model suggests 129 units per 1000 eligible donors

- An extensive amount is known about donors; much less is known about the total pool of potential donors.

- Not known the extent that changes in eligible donors vary and contribute to the blood shortage.

- Strategies and policies should be developed based on more accurate understanding of donor population

Discussion

- An empirical model of eligible donors will supplement what is known about donors with respect to socio-demographic factors and motivation triggers.
  - Is the impact of donor exclusions increasing or decreasing over time?
  - What is the eligible donor pool size between regions?
- Model can better predict the impact of a major event that effects demand for blood,supply of blood donors, or both.
- The interaction between known donor profiles and the eligible donor pool is not know.
  - To what extent could the interaction constitute a "tapped out" donor pool?

Discussion (Cont)

- What is the relationship between the aging population and exclusionary factors with the donor pool <u>and</u> the demand for blood.

- What is the relationship between the exclusionary factors,new donor exclusions (including emerging infectious diseases) emergency response conditions with the donor pool and the demand for blood.

- To what extend would the increased demand for blood effect the diminishing pool of those who can supply blood.

Limitations

- Prevalence data bases were adopted and/or estimated.

- Co-morbidities are probability based rather than epidemiological derived.

- Some measurement criteria are arbitrary, and temporary exclusions are estimates

Questions and Discussion