

Challenge

- High volatility in number of patients that arrive in a given shift

Data

- Identify most predictive patient factors
- Determine number of patients to book based on predictive model

Results

- Potential to reduce patient arrival variation by 32%
- Pooling reduces variance in patient arrivals from 4 to 2

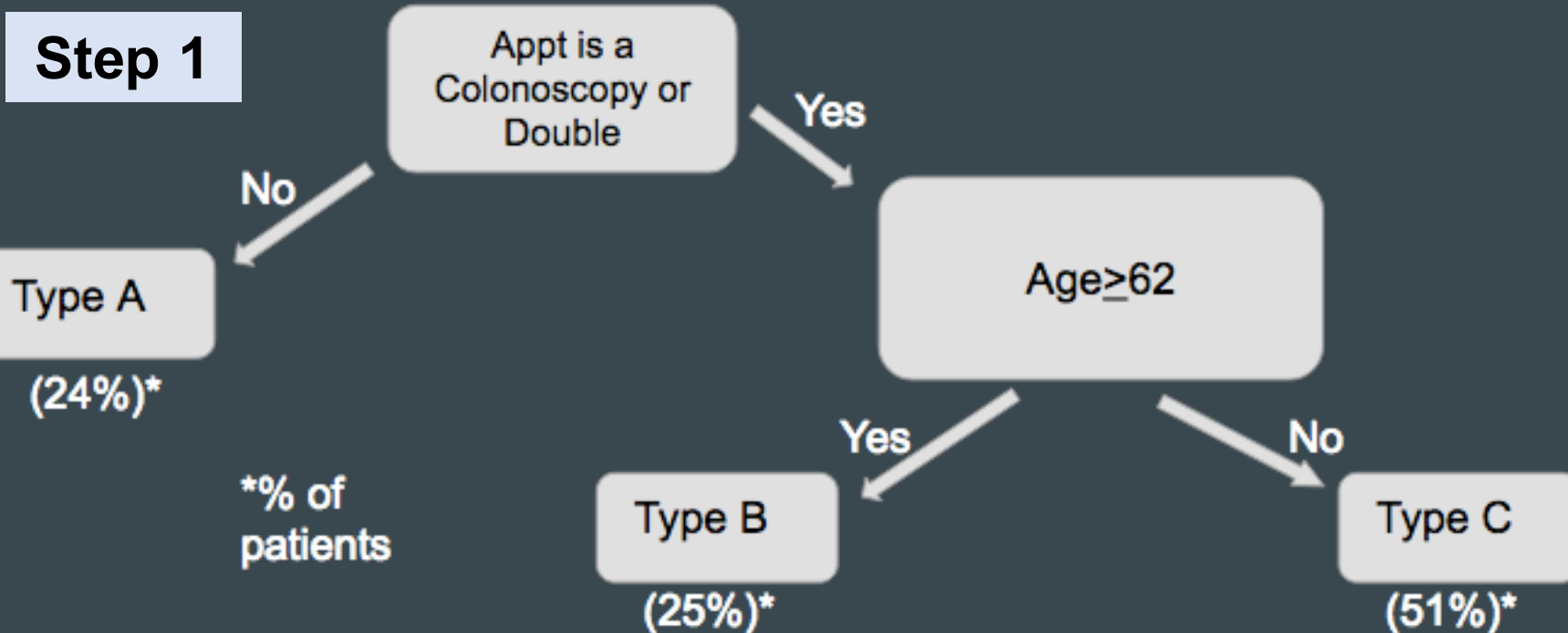
Scheduler assigns patient to a schedule slot

Navigator calls the patient 3 weeks prior to appt; ranks likelihood of showing

Navigator calls the patient 5 days prior to appt; ranks likelihood of showing

Data Analysis:

1. Categorize patients into "Types" based on Age and Appt Type
2. Calculate each Types' probability of arrival
3. Find optimal # of each Type to book during each shift such that *expected # of patients = target # of patients*
4. Ensure # of each Type booked in a shift is about equal to their empirical frequency



Step 2

	P(NOS)	P(Cancel)	P(Arrive)
Type A	7%	12%	80%
Type B	13%	15%	72%
Type C	16%	19%	65%

Steps 3&4

If target # of patients = 8,
How many patients of Type A, B, and C to book?

Let P_x = probability Type X arrives
Let X = number of Type X to book

Steps 3&4

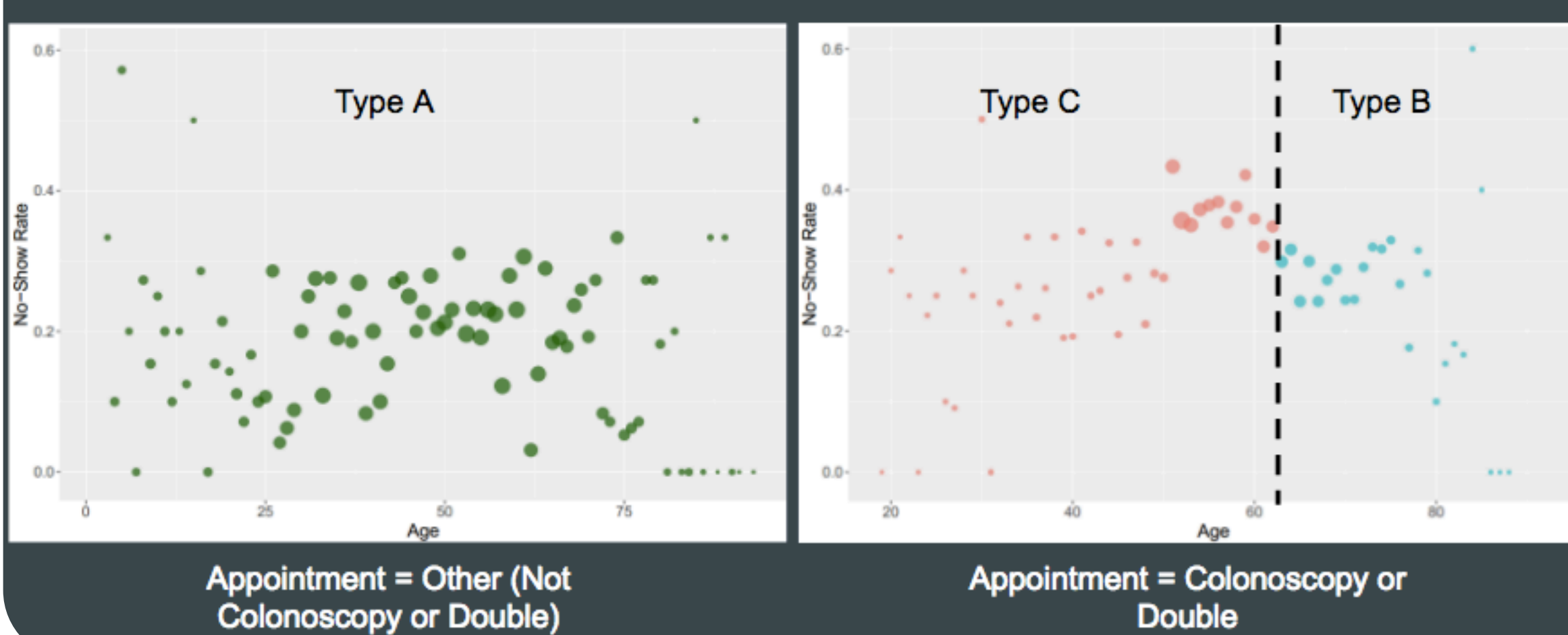
$$E[Arrivals] = P_A A + P_B B + P_C C$$

Therefore, solve

$$P_A A + P_B B + P_C C = 8$$

for A, B, and C

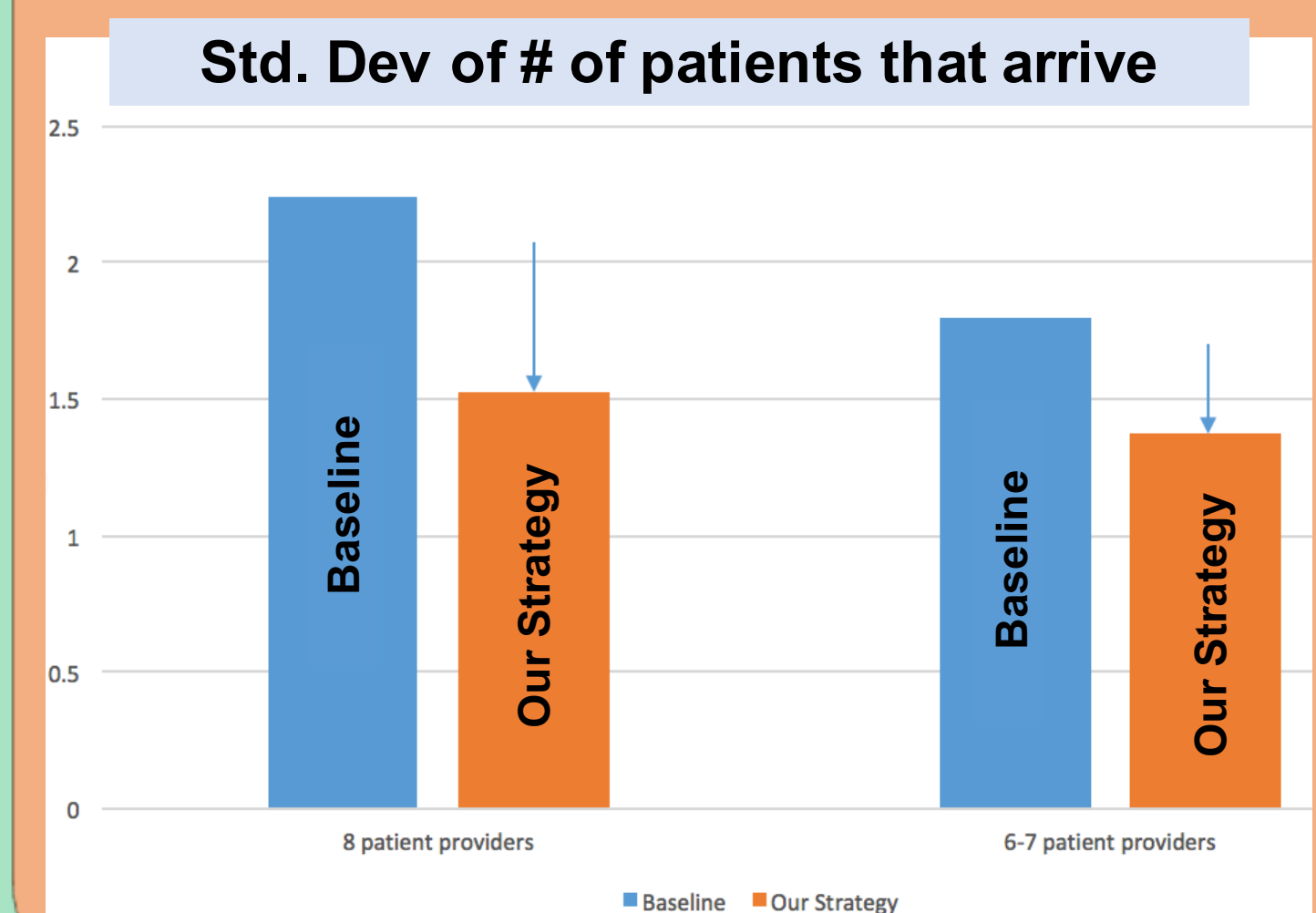
Visualizing the Model



Results w/o Pooling:

For an 8-patient provider with 4 hours to schedule, book:

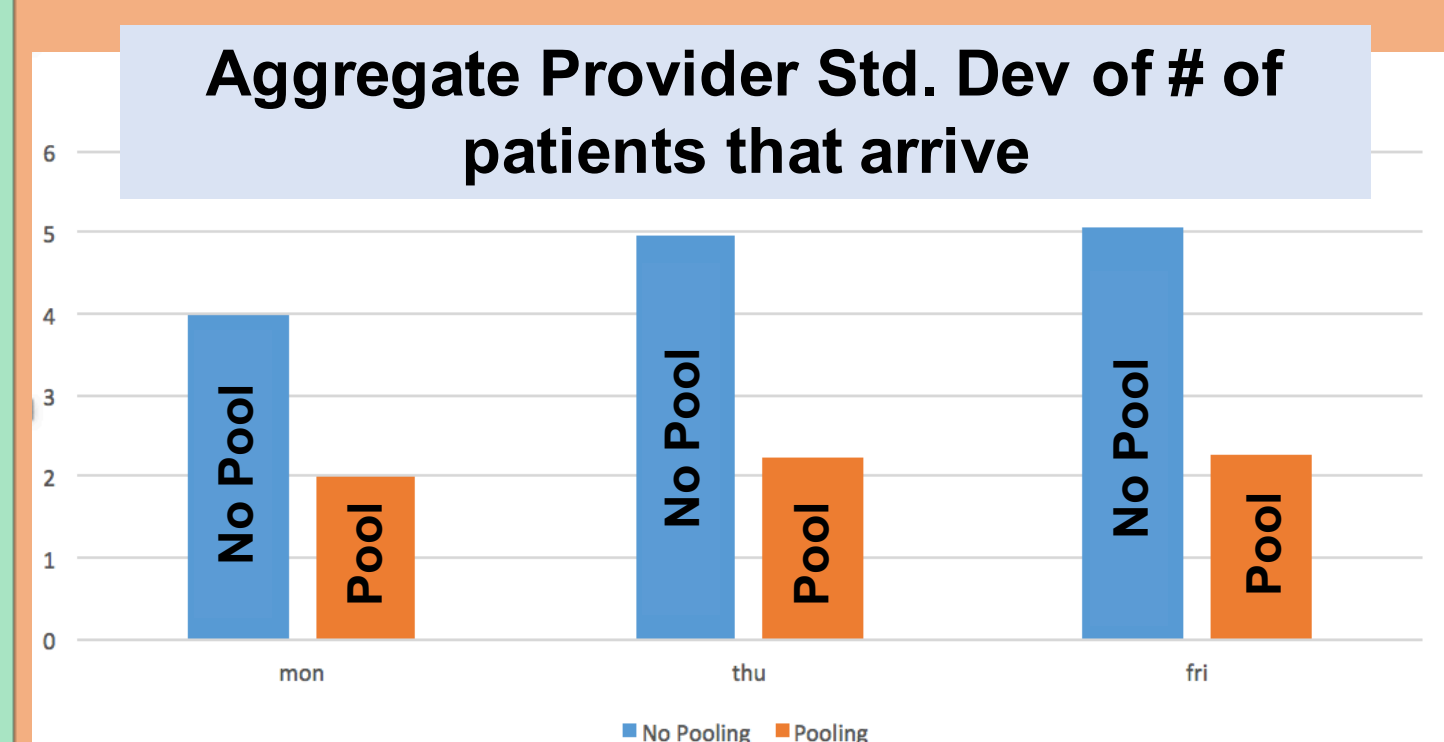
- 3 Type A patients
- 3 Type B patients
- 5 Type C patients



Results w/ Pooling:

For an 8-patient provider with 4 hours to schedule, book:

- 6 Type A patients
- 6 Type B patients
- 13 Type C patients



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