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A LIFE OF SCIENCE

Cost Effectiveness of a Program to Promote Screening for Cervical Cancer in the Vietnamese– American Population

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Background

- ▶ The American Cancer Society recommends a Pap test once every 3 years
- ▶ Fewer Vietnamese–American women adhere to this regimen than other ethnic groups
- ▶ Cervical cancer incidence rate among Vietnamese women in the US is over twice the cervical cancer incidence rate among non–Latina white women (16.8 versus 8.1 per 100,000)
- ▶ Data from Lay Health Worker intervention trial
- ▶ During 2008, 234 non–compliant Seattle–area Vietnamese women were selected to participate in a randomized trial

Lay Health Worker Trial Results

Ever Screened	Arm		Diff.	p-value
	Inter.	Control		
Yes	20.3%	6.3%	14.06%	0.04
No	9.3%	7.7%	1.57%	1.00
All	15.3%	6.9%	8.36%	0.07

Objective of Our Study

- ▶ To measure the cost effectiveness of the lay health worker intervention

Cost Effectiveness

- ▶ Incremental Cost Effectiveness Ratio (ICER)
- ▶ Ratio of Δcost and $\Delta\text{effectiveness}$
- ▶ Pap ICER:

$\Delta\text{PapCost} / \Delta\text{Quality Adjusted Life Year}$

- ▶ Intervention ICER:

$$\frac{\text{cost of intervention} + (\Delta\text{PapFreq} \times \Delta\text{PapCost})}{\Delta\text{PapFreq} \times \Delta\text{QALY}}$$

ICER Component Values

ICER Component	Mean	SE
Cost of intervention	\$94.35	\$6.00
Δ PapFreq	8.36%	4.59%
Δ PapCost	\$146.52	?
Δ QALY	17 days	?

Pap ICER

- ▶ $\Delta\text{PapCost}/\Delta\text{QALY} = \$3,155$ per QALY
- ▶ Eddy (1990): \$13,300 per Life Year Saved
- ▶ Marle (2002): \$6,700 per LYS
- ▶ Maxwell (2002): \$4,017 per LYS
- ▶ Goldie (2004): \$9,950 per QALY

Intervention ICER

$$\begin{aligned} \text{ICER} &\equiv \frac{\text{cost of intervention} + (\Delta\text{PapFreq} \times \Delta\text{PapCost})}{\Delta\text{PapFreq} \times \Delta\text{QALY}} \\ &= \frac{\$94.35 + 0.0836 \times \$146.52}{0.0836 \times 16.95 \text{ QAL days}} \\ &= \frac{\$94.35 + \$12.25}{0.00388 \text{ QALY}} \\ &= \$27,457 \text{ per QALY} \end{aligned}$$

Comparisons of Lay Health Worker Interventions

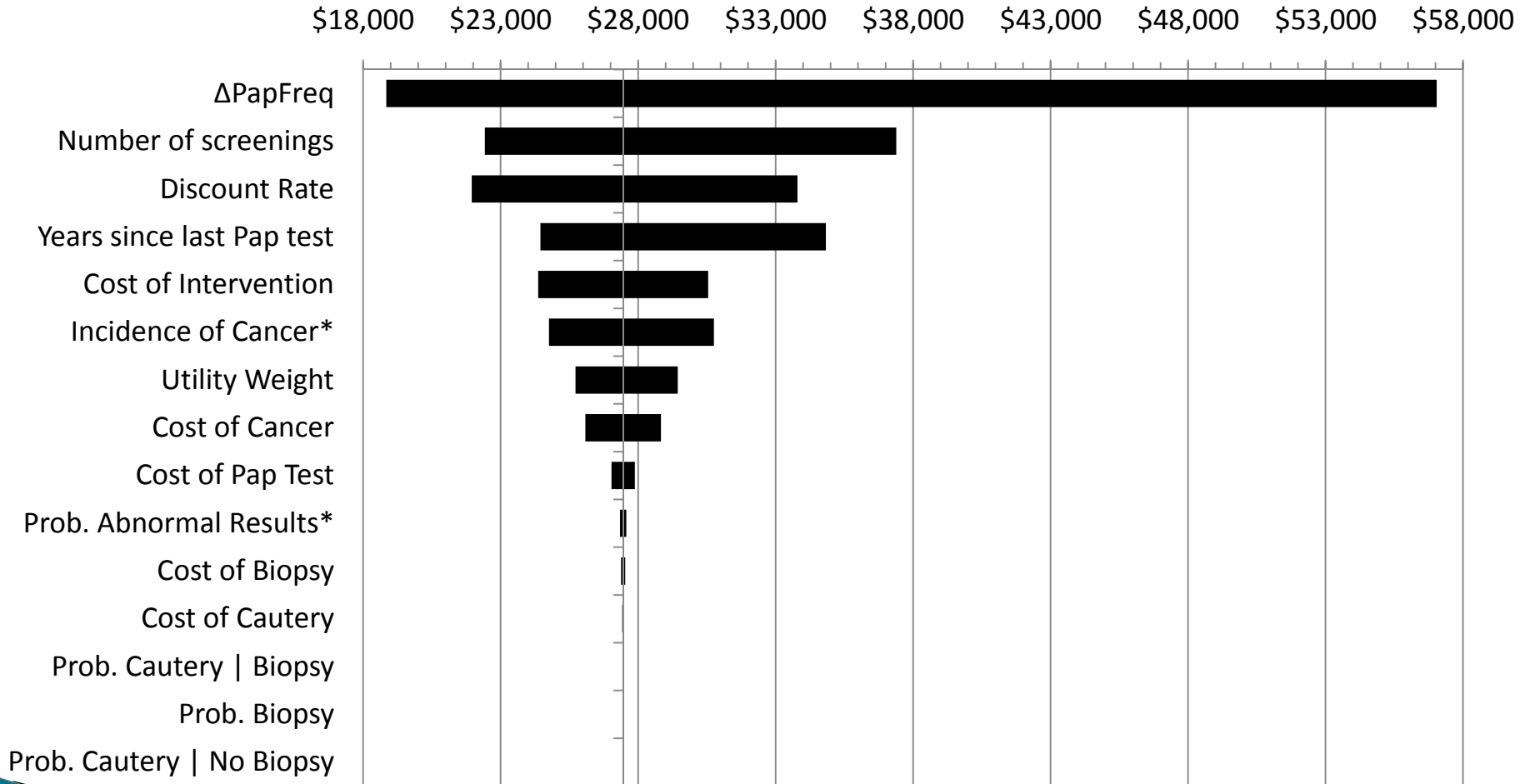
- ▶ \$27,457 per QALY
- ▶ Mandelblatt (2004) study of breast cancer screening for AA women: \$89,539 per QALY
- ▶ Thompson (2007) study of cervical cancer screening for Chinese North Americans:

Cost of intervention/ Δ PapFreq

= \$414.86 vs. \$1,129 in our study

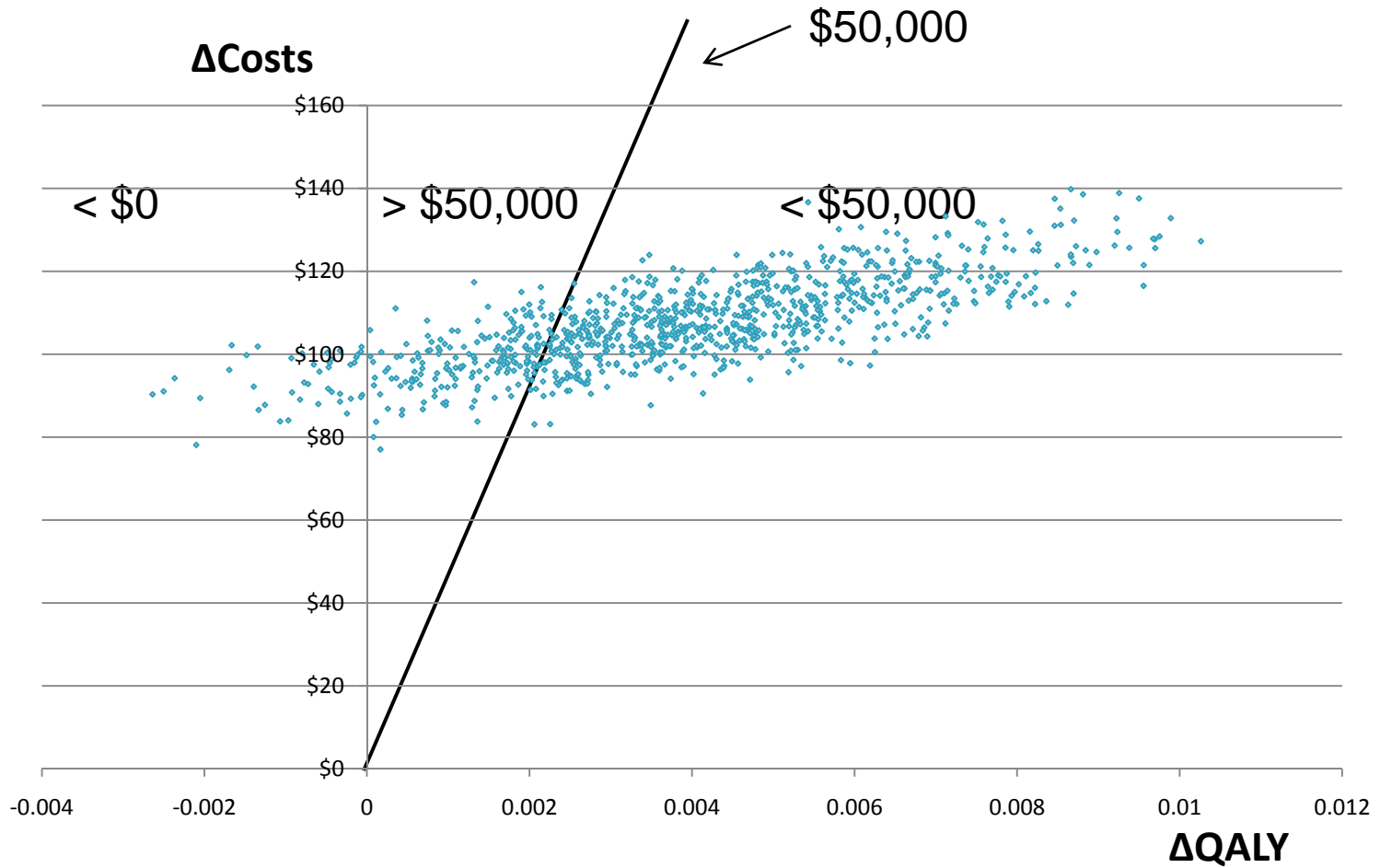
(\$12,088 vs. \$27,247).

Tornado Diagram



*+/- 10% from mean

N-way Uncertainty Analysis



Conclusion

- ▶ Compared to a strategy of no interventions the incremental cost-effectiveness of a lay-health-worker program to improve adherence to cervical cancer screening in Vietnamese women is \$27,457/QALY
- ▶ 80% probability that ICER < \$50,000
- ▶ Results are sensitive to patient history and duration of effect