

# XCELERATOR TRAINING PROGRAM

How to measure cost.  
How to measure break even.  
How to measure impact.  
How to measure cost effectiveness.

Amy Lockwood, UCSF  
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# HOW TO MEASURE COST

## Fixed costs

*A periodic cost that doesn't change with an increase or decrease in the output volume or sales revenue of a company.*

- Research & development
- Rent
- Staff salary
- Equipment & maintenance

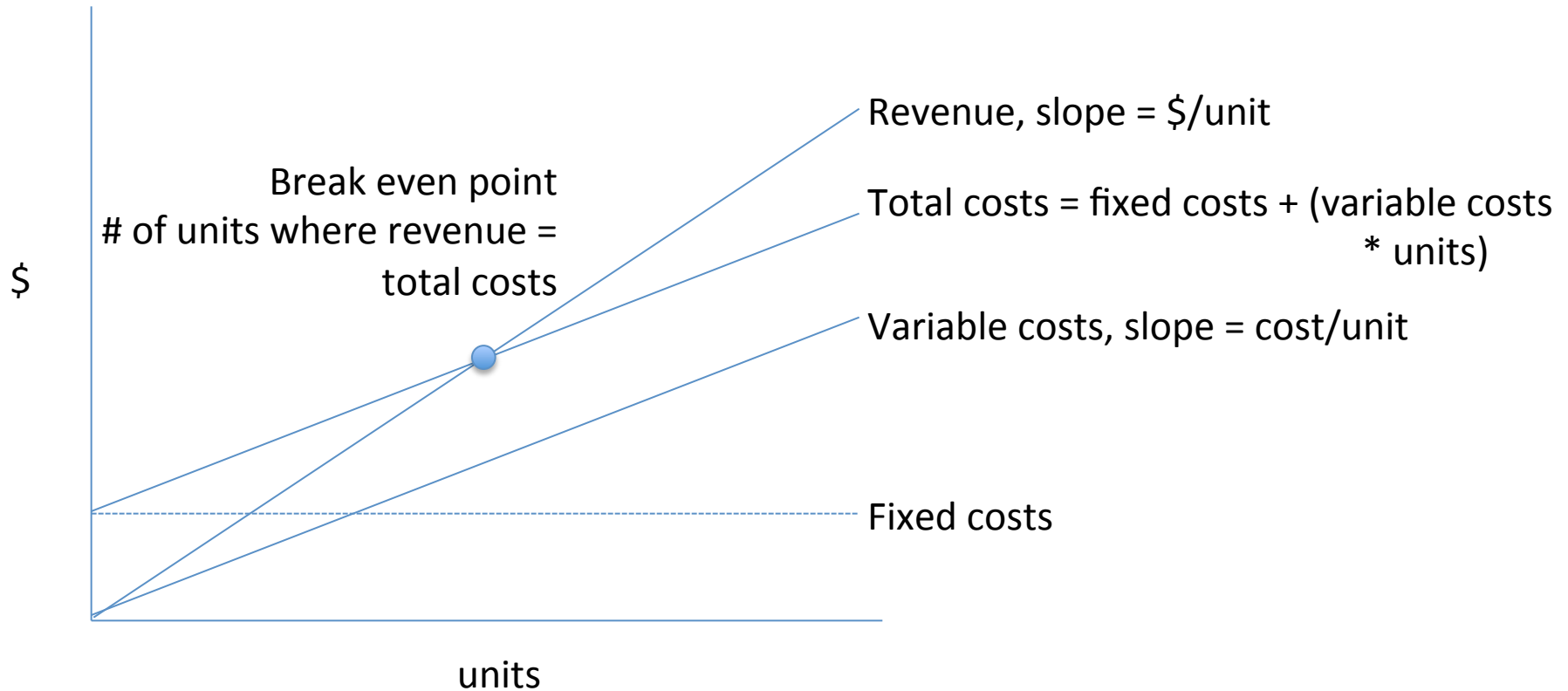
## Variable costs

*A periodic cost that varies with an increase or decrease in the output volume or sales revenue of a company.*

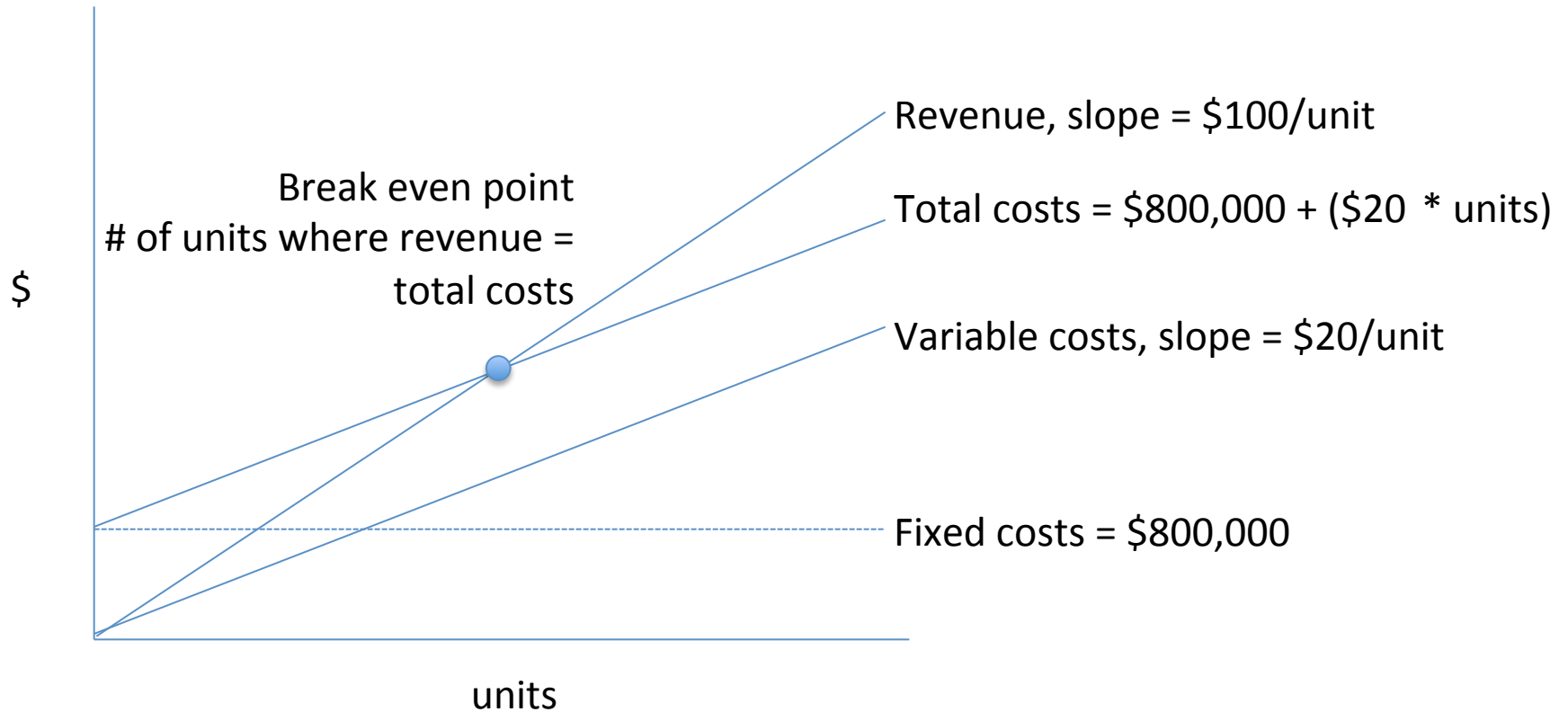
- Raw materials
- Energy usage
- Labor
- Distribution costs

**Total costs = Fixed Costs + (Variable Costs \* Output)**

# BREAK EVEN



# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS



# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS

Revenue = Total Costs

Price \* Volume = Fixed Costs + (Variable Costs \* Volume)

*Solve for Volume*

$$\$100V = \$800,000 + \$20V$$

$$\$80V = \$800,000$$

$$V = 100,000 \text{ units}$$

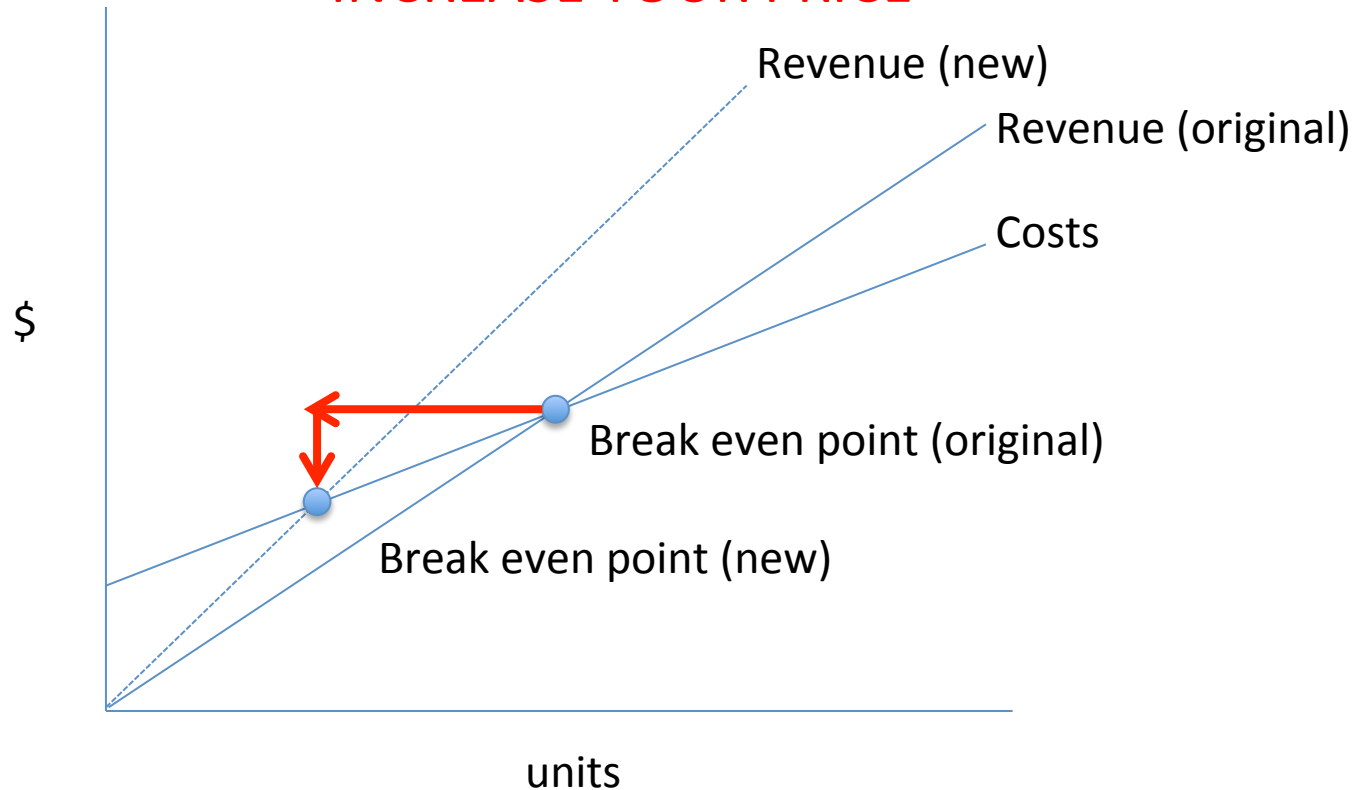
# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS

Can you sell 100,000 units?  
If not...



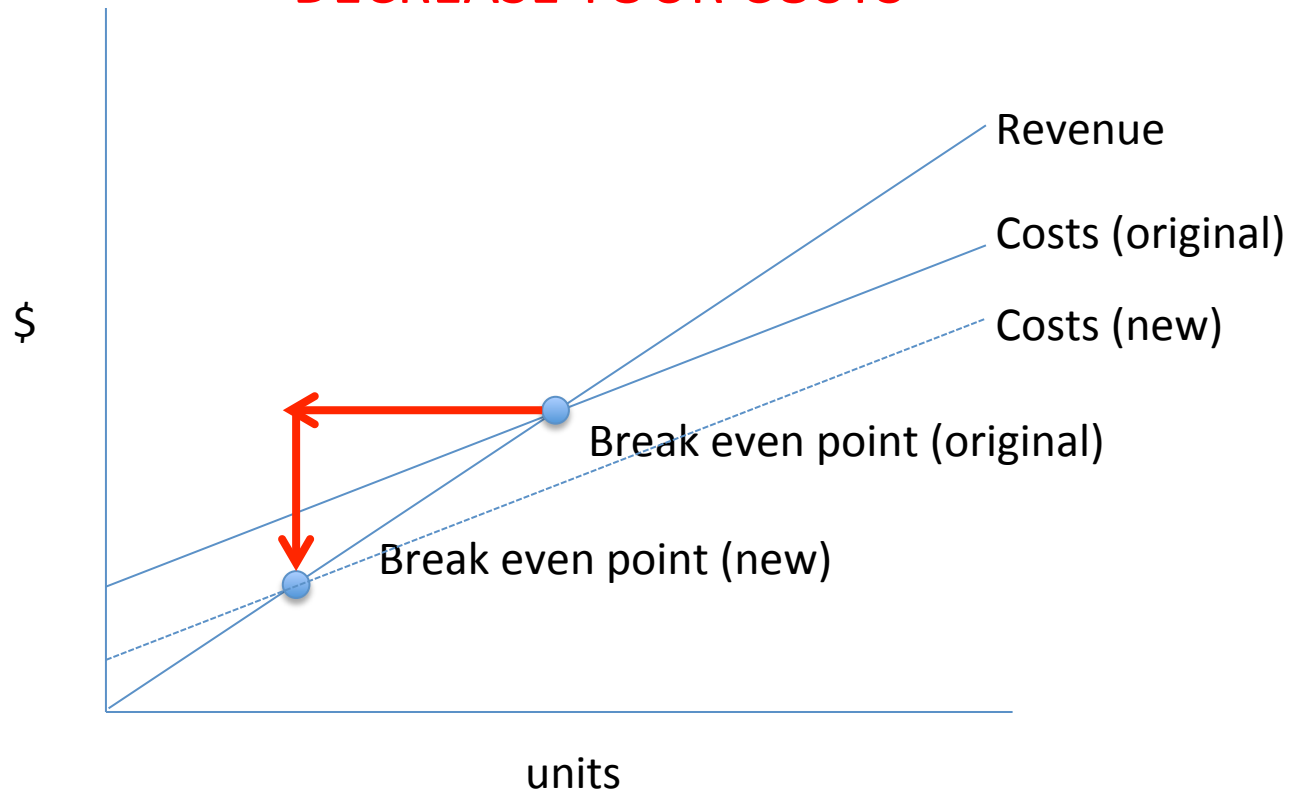
# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS

**INCREASE YOUR PRICE**



# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS

DECREASE YOUR COSTS





# BREAK EVEN: PEDS FIXED DOSE COMBINATION ARVS

Revenue = Total Costs

Price \* Volume = Fixed Costs + (Variable Costs \* Volume)

*Solve for Volume*

$$\$100V = \$800,000 + \$20V$$

$$\$80V = \$800,000$$

$$V = 100,000 \text{ units}$$

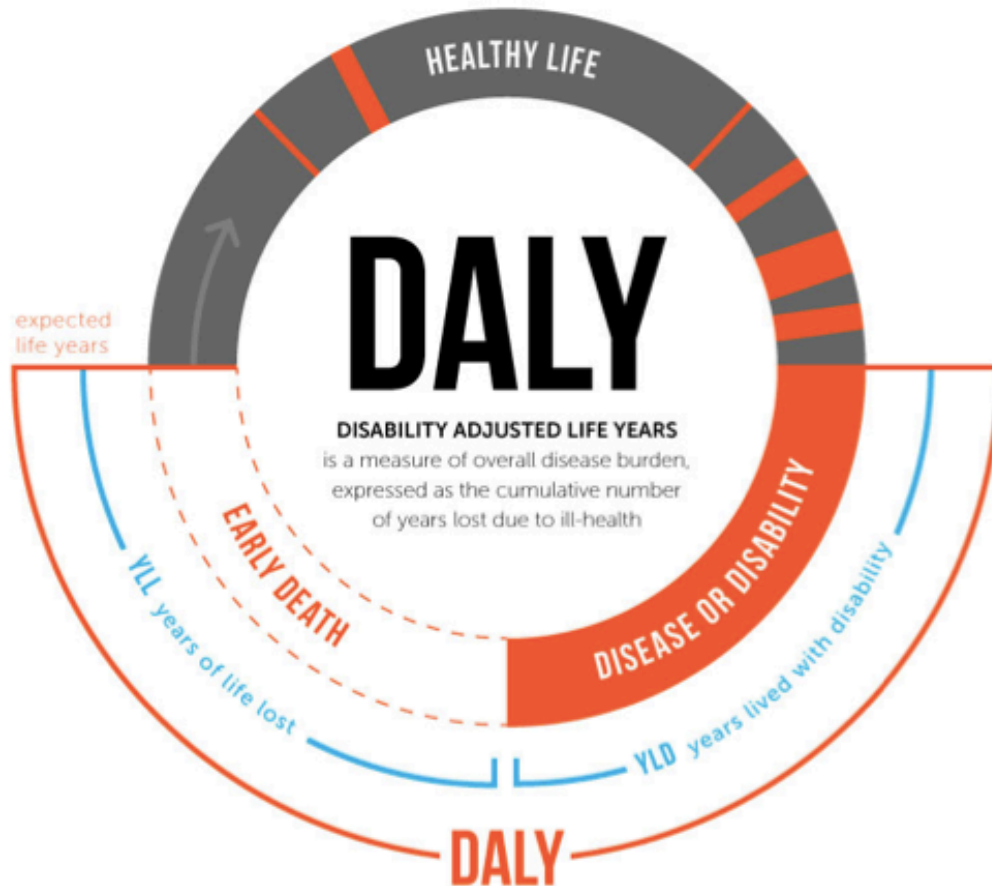
# IMPACT

- Remember your success statement.
- If you could measure one thing, what would it be?
- To have a meaningful impact, you need to
  1. Measure a change (against a baseline)
  2. Have confidence it's real
  3. Show that it's due to your product or intervention



Source: Mulago Foundation

# IMPACT: DISABILITY ADJUSTED LIFE YEARS



## The DALY Show

James G Kahn MD MPH,  
Professor of Health Policy, Epidemiology,  
and Global Health at UCSF

<https://www.youtube.com/watch?v=Exce4gy7aOk>



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Source: D-REV Blog

# COST EFFECTIVENESS

Cost Effectiveness = Total Costs / Impact

Pediatric FDC ARVs

$$\text{Cost Effectiveness} = \frac{\$800,000 + (\$80 * 100,000)}{100,000} = \$88$$

BUT IS THAT GOOD?



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# COST EFFECTIVENESS COMPARISONS



Rank	Solution
1	Bundled Interventions to Reduce Undernutrition in Pre-Schoolers
2	Subsidy for Malaria Combination Treatment
3	Expanded Childhood Immunization Coverage
4	Deworming of Schoolchildren
5	Expanding Tuberculosis Treatment
6	R&D to Increase Crop Yield Enhancements
7	Investing in Effective Early Warning Systems for Natural Disasters
8	Strengthening Surgical Capacity
9	Hepatitis B Immunization
10	Acute Heart Attack Low-Cost Drugs



Source: 2015 Copenhagen Consensus