How do women of diverse backgrounds value the processes and outcomes of various cervical cancer screening strategies?

Miriam Kuppermann, PhD, MPH Professor and Vice Chair for Clinical Research Department of Obstetrics, Gynecology & Reproductive Sciences University of California, San Francisco





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# Collaborators

Co-authors	Other CERVICCS collaborators
George Sawaya	Shalini Kulasingam
Karen Smith-McCune	Mike Silverberg
Steven Gregorich	Wendy Leyden
Allison O'Leary	Clinic staff
Michelle Moghadassi	Study participants

## Background

• In 2012, the American Cancer Society, ASCCP and ASCP, stated:

"Cervical cancer screening should become an active area of comparative effectiveness and cost-effectiveness analysis..."



# The CERVICCS Study

- Comparative Effectiveness Research to Validate and Improve Cervical Cancer Screening
  - Estimate "range of reasonable options" for cervical cancer screening
    - comparative effectiveness, harms and costs
  - Determine if recommending "personalized" screening regimens would improve health outcomes
    - HPV vaccinated, immunocompromised



# CEAs and QALYs

- "Traditional" cost-effectiveness analyses
  - Cost per life year gained, cost per life saved
- All years are not equivalent
  - Need to "quality-adjust" life years to reflect conditions and treatments that impact quality-of-life
- Quality-adjusted life year (QALY)
  - Standard outcome for the analyses for conditions/situations that affect quality of life

# Utilities and QALYs

- Utilities
  - Measure how patients/others value a year of life in a specific health state.
- Quality-adjusted life year
  - Generated by multiplying each year of life by the "utility" of that year of life.
- Major impediment to estimating QALYs for cervical cancer screening
  - Lack of a comprehensive set of utilities derived from a diverse population of women.



## Objective

 To measure and compare women's utilities for various cervical cancer screening, surveillance and treatment strategies



# Design

- Cross-sectional study, N=451
  - English- or Spanish-speaking women
  - 21-65 years old
  - Recruited from women's health clinics
  - 2014-2016
- One face-to-face interview
  - Sociodemographic questionnaire
  - Educational materials
  - Utility elicitation exercises
    - 27 health states



### Educational materials

# What is cervical cancer?



**Cervical cancer:** a disease in which cancer forms in the cervix

**Cervix:** the lower end of the uterus (the organ where a fetus grows)

## Utility elicitation: Time tradeoff metric

- Assesses how women value health states
- Asks how many years of life they would be willing to give up to avoid an adverse outcome
- Generates scores ranging from 0 to 1



### Example scenario: Pap ASC-US

- You have a Pap smear.
- 2 weeks later you are told that the Pap smear is slightly abnormal.
- You are told to return in one year for another Pap smear.

- Many women feel confused by the "slightly abnormal" Pap smear result.
- Some women feel reassured that the Pap was only slightly abnormal and that they only need a repeat Pap in 1 year.

## Hypothetical ideal

- You spend your life knowing that you will never get cervical cancer.
- You never need to be screened or treated for cervical cancer and you never worry about cervical cancer.

### Time tradeoff metric



Choice A

Pap ASC-US, Live 40 years Choice B

Hypothetical ideal, Live 40 years (give up <u>0</u> years of life)

### Time tradeoff metric



# Both are the same

# Utility calculation

reduced life expectancy with hypothetical ideal (39 years)  $U_{\pi\sigma} =$ 

full life expectancy after with Pap ASC-US (40 years)

= 0.975

### Utility difference score

One way to look at the relative value women assign to various health states

Example: Pap normal versus HPV negative results

#### Utility Pap normal – Utility HPV negative

• A positive difference score suggests a preference for the first scenario over the second one.

### Main outcome measures

 Utility difference scores for pairs of clinically relevant scenarios representing key differences in current screening and treatment options.



### Analyses

- Identified a few utilities to compare how women value:
  - Undergoing a screening test and receiving normal/negative results
    - Pap test, HPV test, co-testing
  - Not having any screening in a given year, after having received normal/negative results in the past
    - Pap test, HPV test, co-testing
  - Treatments
    - Excisional, ablative
- Calculated mean difference scores, 95% Cls



# Sociodemographic characteristics (n=451)



Mean ag	ge	38.2 years
College	grad	64.3%

# Cervical cancer screening history and parity (n=451)

Have you ever had a		
Pap test	99.1%	
Pap test with abnormal results	46.3%	
HPV test	41.3%	
HPV test with positive results	18.0%	
Colposcopy	33.0%	
Colposcopy with abnormal		
results	15.3%	
Prior birth	<b>47.9</b> %	

### Mean difference scores: Pap, HVP tests

Scenario 1	Scenario 2	MDS	95% CI
Pap normal	HPV test;	0 024	0.005, 0.046
	negative	0.024	
Pap normal	Pap, HPV test;		-0.028, 0.007
	both normal	-0.007	
Pap ASC-US	Pap ASC-US,	0 000	-0.20, 0.014
	HPV negative	-0.002	

### Mean difference scores: No testing in current year

Scenario 1	Scenario 2	MDS	95% CI
Normal Pap in the past	Negative HPV test in the past	0.028	0.004, 0.058
Normal Pap in the past	Normal Pap and negative HPV test in the past	0.007	-0.012, 0.026

### Mean difference scores: Treatments

Scenario 1	Scenario 2	MDS	95% CI
Ablative	Excisional	0.044	0.024, 0.067
(cryotherapy	(LEEP or cone		
or laser)	biopsy)		



### Conclusion

 For guidelines to be patientcentered, differences in women's preferences for potential outcomes of differing screening strategies should be considered.



# Thank you!

