1-2-3 Pap: Cost Analysis & Cost-Effectiveness Analysis

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Disclaimer

The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of CDC.

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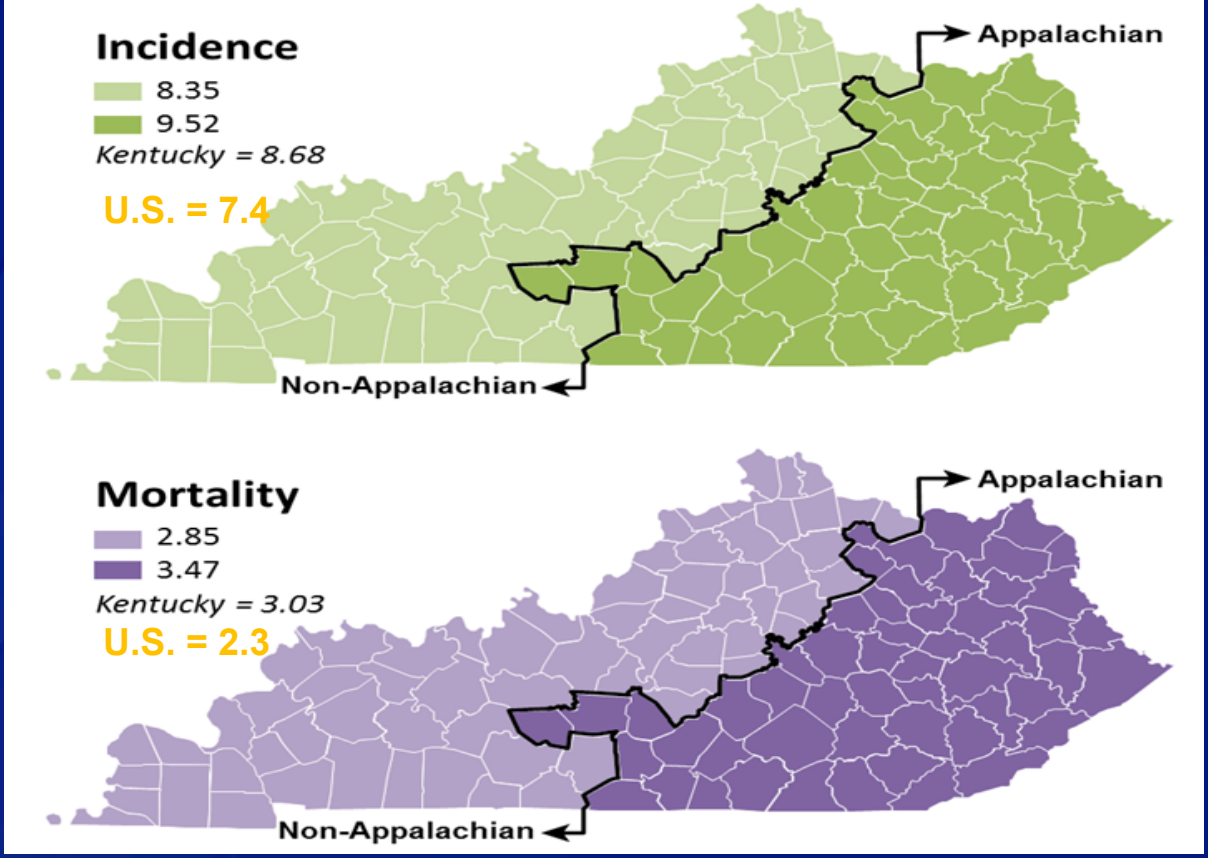
Background – HPV & Cervical Cancer Burdens

In 2011, 12,109 diagnosed and 4,092 died from cervical cancer



Cervical Cancer Statistics. CDC. http://www.cdc.gov/cancer/cervical/statistics/index.htm
2007 – 2011 rates per 100,000 age-adjusted to the 2000 U.S. Standard Million Population
Source: Kentucky Cancer Registry, 2014

HPV and Cervical Cancer Economic Burden

- 91% of cervical cancer is attributable to HPV
- Annual direct medical care cost of HPV-associated diseases is about $8 billion (2010)
- Annual cost of cervical cancer screening and treatment ranges from $30,775 to $52,731 per case
- Three-dose HPV vaccine series is a cost-effective prevention for HPV and resultant cervical cancer

Chesson HW, Ekwueme DU, Saraiya M, Watson M, Lowy DR, Markowitz LE. Estimates of the annual direct medical costs of the prevention and treatment of disease associated with human papillomavirus in the United States. *Vaccine*. 2012;30(42): 6016-6019.

HPV-Associated Cervical Cancer Rates by Race and Ethnicity. CDC. 2014; http://cdc.gov/cancer/hpv/statsitics/cevical.htm

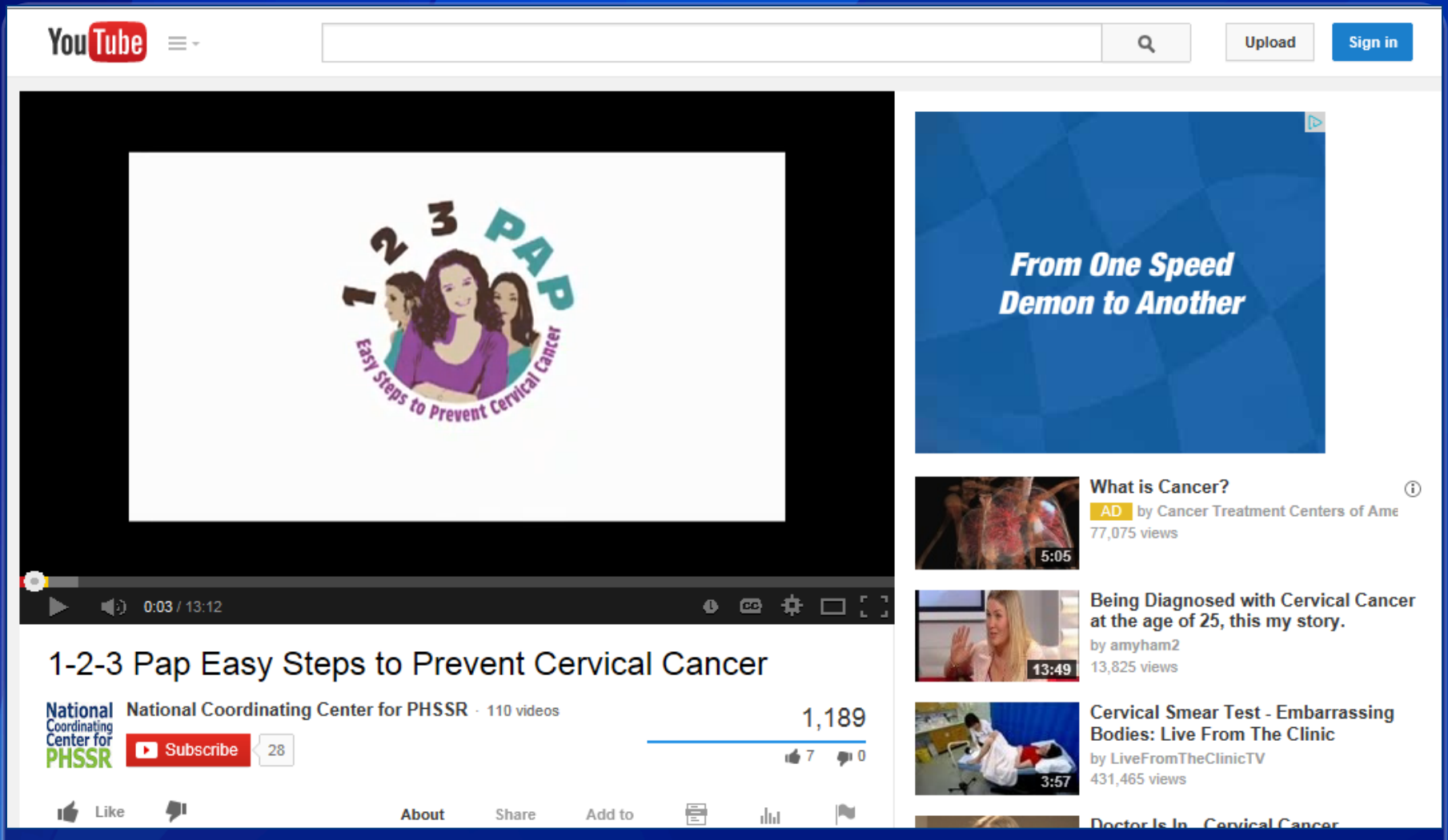
1-2-3 Pap Intervention

- Informational and instructional video created and tested to increase HPV vaccine series completion rates

- Target population: 18 to 26 year old women, living in the Kentucky River Area Development District (KRADD) region, in Appalachian Kentucky

- Trial study finding: women randomized to the intervention group were 2.44 times more likely to finish the three-dose HPV vaccine series than those in the control group

Source: Vanderpool, et al., *Journal of Communication*, 2013



http://www.youtube.com/watch?v=lMxOazGYvYE

Or search: “1-2-3 Pap”

Study Objectives

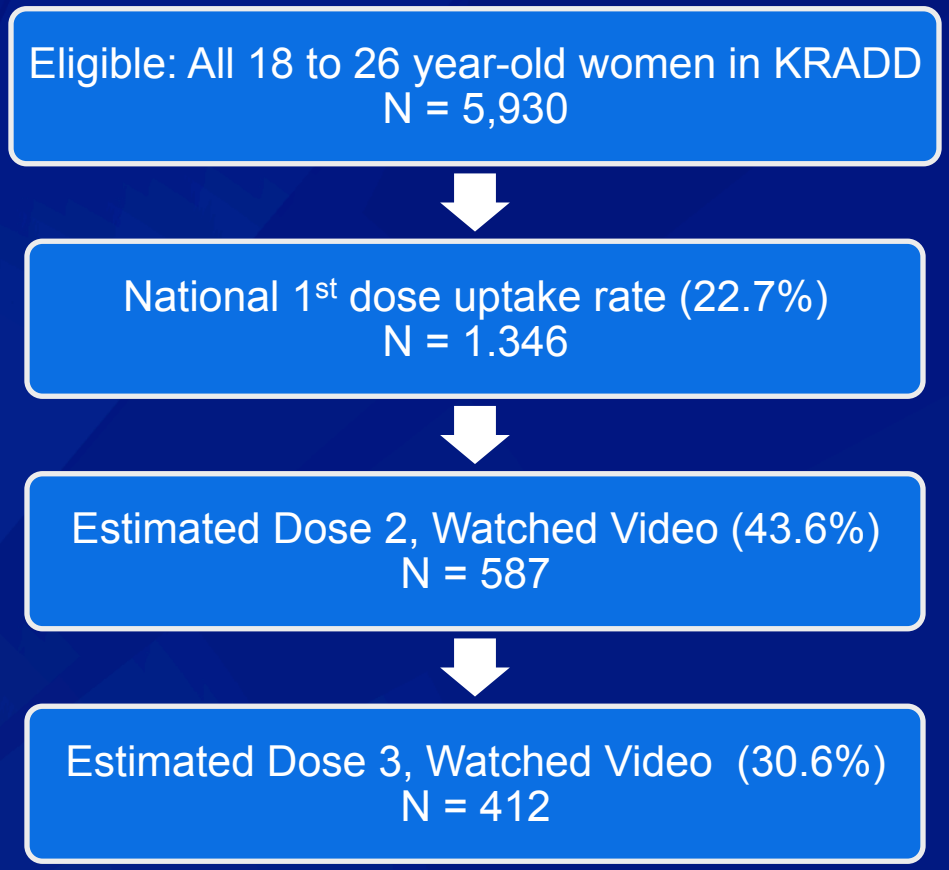
- **Determining implementation costs is important for program expansion**
- **To provide practitioners measures of cost and scalability:**
  - Calculated the cost of the 1-2-3 Pap Trial Study
  - Estimated the implementation cost the of 1-2-3 Pap video through a hypothetical adaptation scenario in the KRADD region

1-2-3 Pap Trial - Cost Analysis

- **Perspective: provider (implementer) perspective**
  - Direct costs only
- **Direct costs:**
  - Trial participant recruitment
  - Video creation (production + local talent fees)
  - Video dissemination (Laptops + Community Health Nurse)
  - Clinical costs associated with administering resultant HPV vaccine doses

Trial Cost, N = 344			
	Cost/Unit (A)	**Number of Units (B)**	**Total Cost (C = A x B)**
Trial Participant Incentives			
Gift Cards	$26	344 cards	$8,944
Food - Used to Recruit Participants	$5	350 services	$1,750
Video Creation			
Studio, Editing, and Production Services	$27,428	1 production	$27,428
Local Talent Fees	$67	6 actors	$402
Video Dissemination			
Community Health Nurse	$48	201 hrs.	$9,648
Laptops (1/4 value)	$278	4 laptops	$1,112
Clinical			
Adherence Dose (Dose 2)	$137	229 doses	$31,373
Completion Dose (Dose 3)	$137	130 doses	$17,810
Office Visit - Medicaid	$39	127 visits	$4,953
Office Visit - Private Insurance	$52	230 visits	$11,948
Total Intervention Cost			**$115,368**
Intervention Cost per Three-Dose Completed Series			**$887**

1-2-3 Pap Adaptation Scenario - Sample



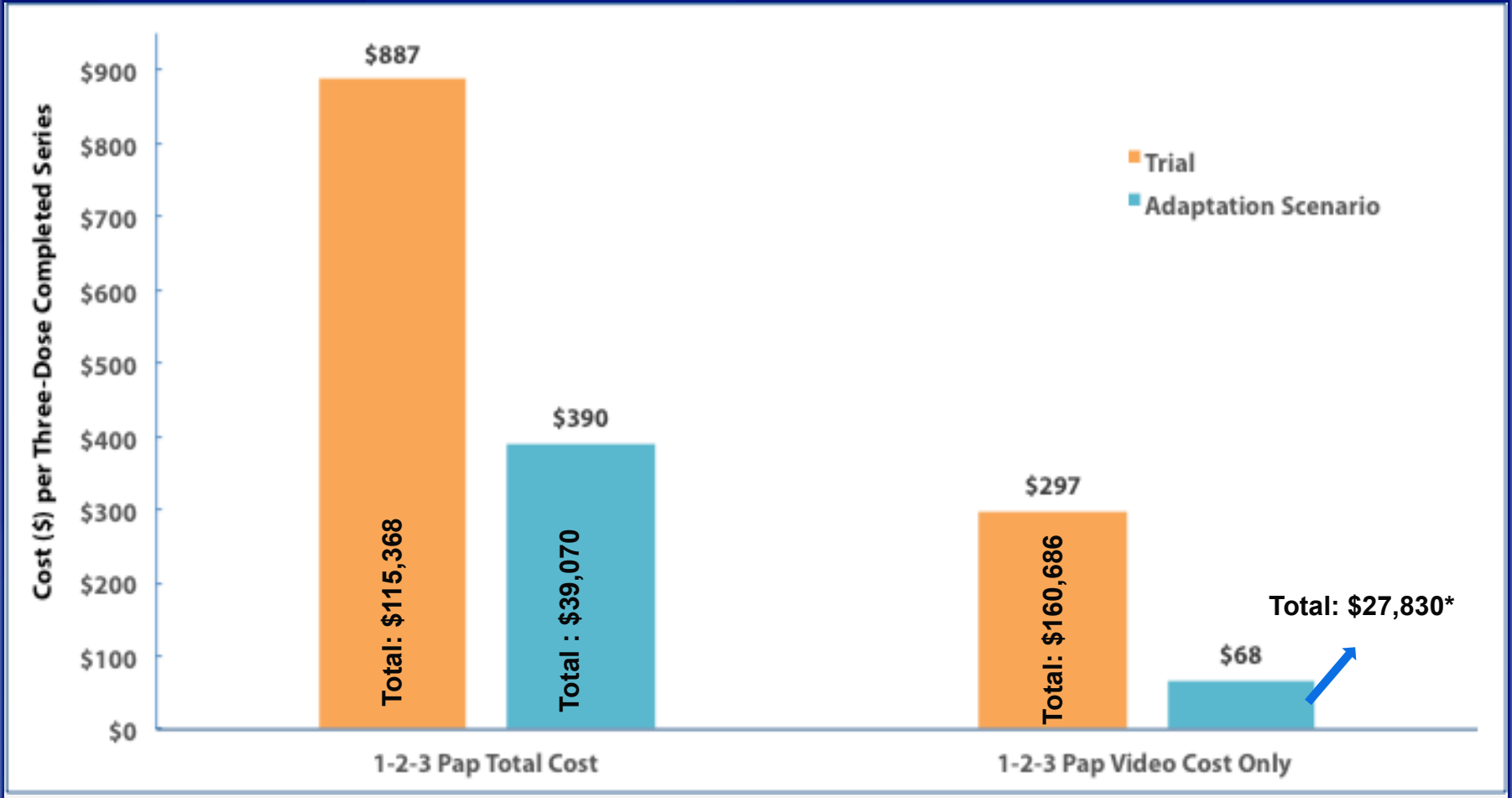
2010 Decennial Census – KRADD Region
Laz & Berenson. Cancer, 2013.
Vanderpool RC et al. Journal of Communication., 2013

1-2-3 Pap Adaptation - Cost Analysis

- **Perspective: provider (implementer) perspective**
  - Direct costs only
- **Direct costs:**
  - Video cost – a new video is not needed
  - Video dissemination – provider's office during 1st dose administration.
  - Clinical costs associated with administering resultant HPV vaccine doses

Estimated Adaptation Cost, N = 1,346			
	Cost/Unit (A)	**Number of Units (B)**	**Total Cost (C = A x B)**
Clinical			
Adherence Dose (Dose 2)	$137	587 doses	$80,419
Completion Dose (Dose 3)	$137	412 doses	$56,444
Office Visit - Medicaid	$20	360 visits	$7,200
Office Visit - Private Insurance	$26	639 visits	$16,623
Total Intervention Cost			**$160,686**
Intervention Cost per Three-Dose Completed Series			**$390**

Results



* Value of trial video creation applied because a new video is not needed

Conclusion

- Cost decreases when the 1-2-3 Pap video is offered to more women
- Shows practitioners an approach to estimate implementation costs for their given target population

Next Steps

- Adaptation scenario for a large urban county in Kentucky, and the entire state of Kentucky
- Complete the cost-effectiveness analysis to assess healthcare costs avoided from preventing cervical cancer
- Sensitivity Analyses

THANK YOU!

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