Using Concept Mapping to Understand Multi-State Perspectives on Barriers and Facilitators to HPV Vaccination

The University of Iowa | College of Public Health

Grace Ryan, MPH[1]; Natoshia M. Askelson, PhD, MPH[1]; Annie-Laurie McRee, DrPH[2]; Jessica D. Hanson, PhD[3]; Paige E. Farris, MSW[4]; Jackilen Shannon, PhD[4]; DenYelle Kenyon, PhD[5] ; Lejla Avdic, BA[1]

CPCRN Cancer Prevention and Control Research Network

1. University of Iowa, College of Public Health; 2. University of Minnesota; 3. University of Minnesota Duluth; 4. Oregon Health and Science University; 5. University of South Dakota

Background

- Human papillomavirus (HPV) infection causes about 35,000 cases of cancer annually[1]
- The HPV vaccine is recommended to prevent HPV infection and its associated cancers[2]
- Despite the existence of multiple interventions, HPV vaccination remains below that of other adolescent vaccines[2]
- We conducted a multi-state concept mapping project to elicit feedback from state-level stakeholders about reasons for low HPV vaccination rates

Phase 1 Participants

- We identified state-level stakeholders working in adolescent health, cancer prevention, or immunization in 5 states
- We sent email invitations to 134 stakeholders asking them to participate in an online concept mapping project

State	N	%
Iowa	26	33.3
Oregon	18	23.1
Minnesota	17	21.8
South Dakota	11	14.1
Washington	6	7.7

Expertise	N	%
Public Health	36	46.2
Adolescent	32	41.0
Immunization	27	34.6
Cancer	20	25.6
Medicine	14	17.9
Family planning/ob-gyn/women's health	9	11.5
Oral health	2	2.6
Tribal Community	1	1.3

Methods and Results

The online concept mapping process consisted of two phases.

Phase 1: Brainstorming

- Participants respond to the following:

  What factors do you believe have the greatest influence on HPV vaccination rates in your state? Please provide an exhaustive list and consider both rural and urban regions, as well as both positive and negative influences.

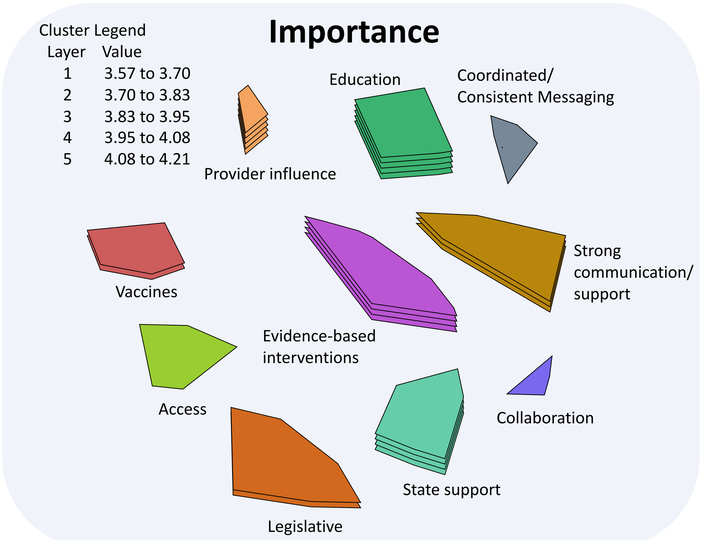
- Participants generated 372 statements.
- Researchers removed duplicate statement , and split statements containing multiple ideas, resulting in 172 statements.
- Researchers then eliminated statements falling outside state-level stakeholders influence, **resulting in 68 statements.**

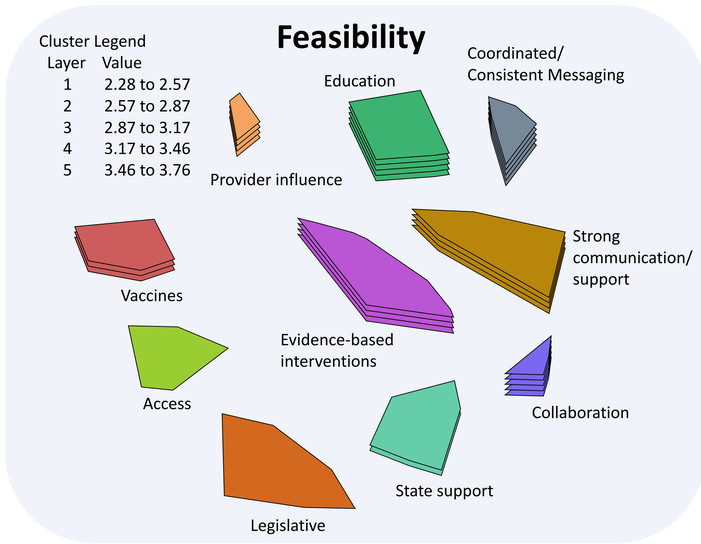
Phase 2 + 3: Pile Sorting and Rating

- Participants grouped statements by how similar in meaning they were and then rated each statement on a 5-point scale:
  - Importance

    How important is addressing this factor for impacting HPV vaccination rates in rural areas of your state?
  - Feasibility

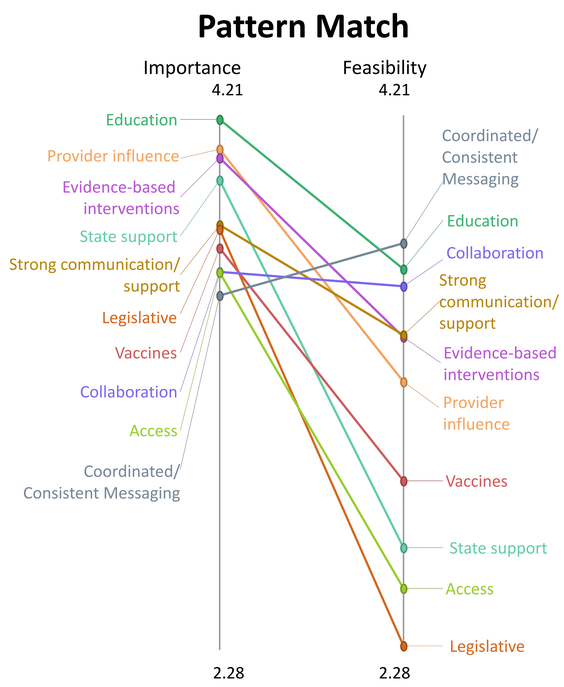
    It would be feasible to address this issue in rural areas of my state within the next 6 months. (agree/disagree)





Interpreting Results

- We created concept maps (i.e., visual depictions of how stakeholders grouped statements) using multi-dimensional scaling and cluster analysis.[3]
- Concepts with **more layers indicates that they were rated as more important** or **feasible**
- The pattern match compares average ratings of statements within clusters



Conclusions

- Results contextualize low HPV vaccination rates and **identify priority areas for improvement**
- Lower feasibility ratings for several of the most important—and possibly most effective—clusters **suggest that stakeholders perceive significant barriers to their work**
- The similarity across states indicates that **pooling resources and ideas across states may increase efficiency and avoid duplication of effort**
- Concept mapping is a useful way to gather information from geographically diverse audiences and could be used to better understand state level efforts for cancer prevention and control

Funding

Funded by Cooperative Agreement 3 U48 DP005021-01S4 from the Centers for Disease Control and Prevention and the National Cancer Institute; University of Iowa Cancer Center Support Grant P30 CA086862 from the National Cancer Institute

1. https://www.cdc.gov/cancer/hpv/statistics/cases.htm
2. https://www.cdc.gov/mmwr/volumes/68/wr/mm6833a2.htm
3. Kane, M. & Trochim, W.T. (2007). Concept mapping for planning and evaluation Sage Publications, Thousand Oaks, CA.