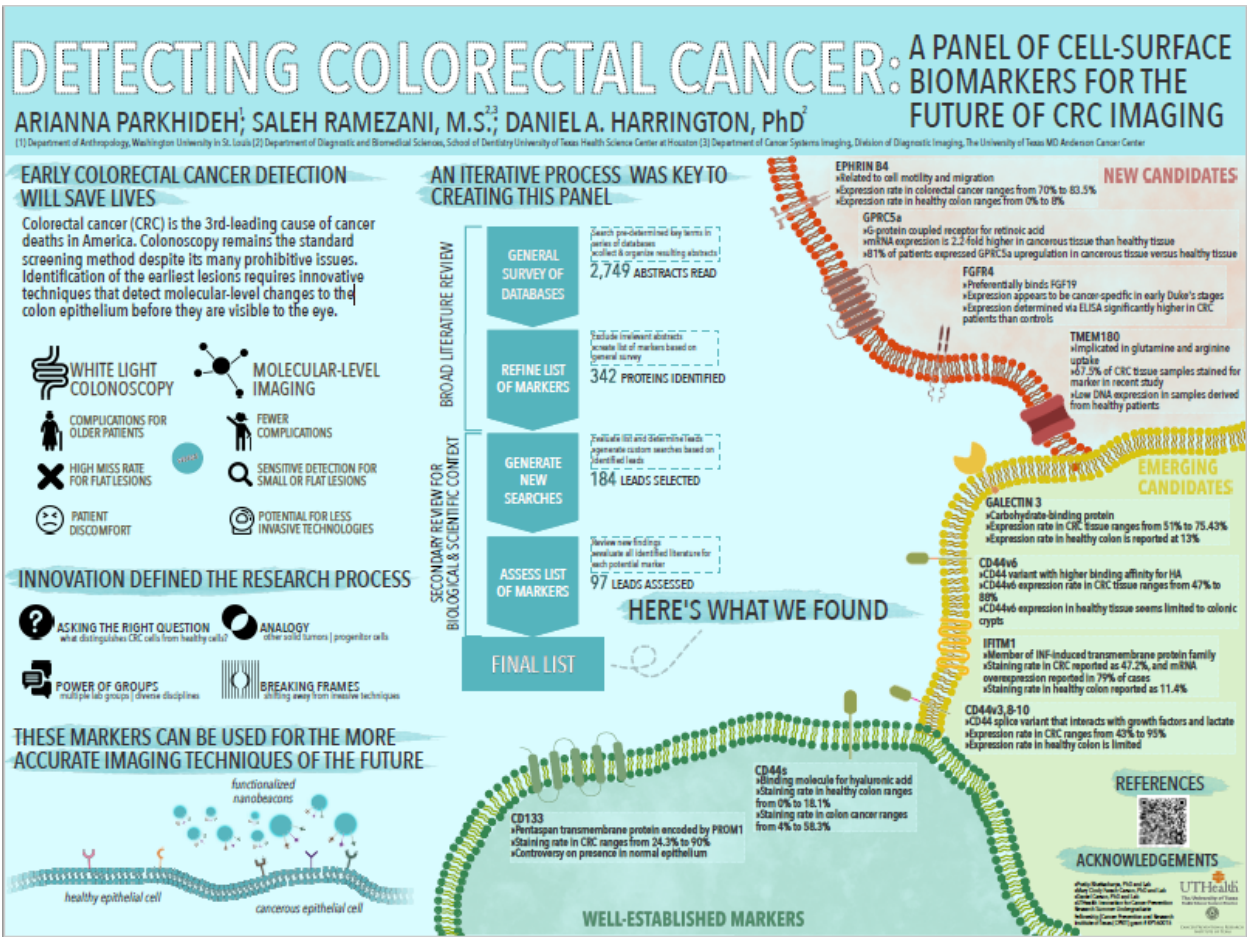


2019 CPRIT Undergraduate Research Experience Poster Presentation Winners

1st Place



Quality Assessment in Meta-analysis on Cervical Cancer Topics

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INTRODUCTION

- Meta-analysis (MA) is the quantitative synthesis of data from >1 individual study¹ and is considered the highest quality evidence for evidence-based medicine
- Challenges of MAs include data heterogeneity and methodological errors because properly conducting MA requires not only domain knowledge but also technical skills
- This team's previous findings determined that reporting quality of MA is lacking, specifically: documenting a reproducible search strategy
- My project's focus is on specifically determining which are the most missed criteria in cervical cancer MA
- The PRISMA reporting guideline (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)² has helped improve reporting
- However, standards of execution for MAs (e.g., AMSTAR 2 – A Measurement Tool to Assess Systematic Reviews) aren't routinely applied to assess quality, making it difficult for physicians to know which MAs to trust³

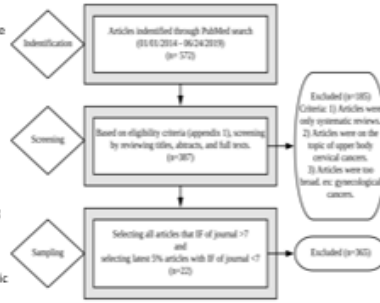
AIMS

- Determine the quality of cervical cancer MAs by assessing their compliance with PRISMA and AMSTAR 2
- Raise awareness of the most missed elements of cervical cancer MA

METHODS

1. 22 cervical cancer MAs published in the last 5 years in high (impact factor ≥ 7 , $k=11$) and low impact factor (<7 , $k=11$) journals were sampled. All high impact factor journals were included and the most recent 5% of low impact factor journals were included.
2. PRISMA and AMSTAR 2 were applied to each MA by two reviewers working independently
3. The most missed criteria were determined by calculating the percentage of MAs in the sample that properly executed a criterion

RESULTS



1. Journals should require registration of protocols, reporting of search strategy, and ask authors to submit the AMSTAR2 checklist with their manuscripts.
2. There was no difference in compliance between low and high impact factor journals.

RECOMMENDATIONS

1. MAs should be reviewed before publishing using both standards of reporting and execution
2. MA protocols should be registered using PRISMA for Protocols
3. The search strategy for all databases should be available in supplemental materials

INNOVATION TOOLS

Breaking Frames: Original frame: MAs are the highest quality of evidence but may sometimes be conducted improperly and should be interpreted with caution. **New perspective:** Readers should be able to trust that the MAs they are reading are of high quality and that journals enforce reporting and execution standards.

Dissecting the Question: We questioned not only the overall quality of MAs, but wanted to know specifically which aspects of MA were improperly conducted. We wanted to know what contributes to the prevalence of low quality MAs so that we could give explicit recommendations to improve quality of MAs in cervical cancer.

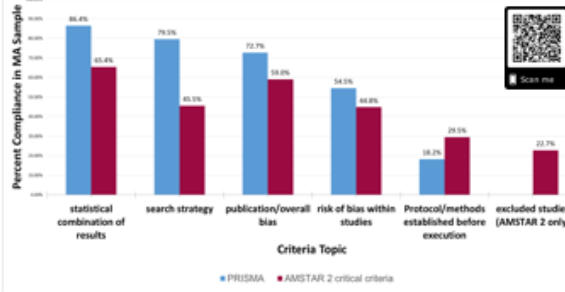
ACKNOWLEDGEMENTS

UTHealth Innovation for Cancer Prevention Research Summer Undergraduate Fellowship [Cancer Prevention and Research Institute of Texas (CPRIT) grant # RP160015]

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Assessment of Meta-analysis Compliance with PRISMA and AMSTAR 2



3rd Place

Development of a Vaccine Education Program for Middle School Youth

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CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS



UTHealth
The University of Texas
School of Public Health

Introduction

Background on HPV:

- Human papillomavirus (HPV) is linked to 33,700 new cases annually of cervical, vaginal, vulvar, penis, anal, and mouth/throat cancers in the U.S.¹
- ACIP recommends adolescents receive a two-dose series of HPV vaccine between the ages of 11-13.²
- As of 2017, 49% of adolescents ages 13-17 in the U.S. have completed the HPV vaccination series.¹

Overview of All for Them:

- The main objective of **All for Them** is to increase the rates of HPV vaccination among middle school youth in medically underserved areas in Houston, TX. **All for Them** addresses this through two main approaches:
- 1) A parent-focused social marketing campaign aims to normalize HPV vaccine as part of routine health care for adolescents.
 - 2) Annual mobile school-based vaccination clinics provide students in 20 public middle schools the opportunity to receive all recommended adolescent vaccines for free.

Project Aim

- To design a vaccine education program to inform middle school youth about the importance of adolescent vaccines, including HPV vaccine.
- This educational program is designed to:
 - 1) Educate middle school-aged audiences on a number of vaccine-related topics such as immunology, adolescent vaccines, and adolescent health self-advocacy.
 - 2) Demonstrate the importance of adolescent vaccines, with an emphasis on the HPV vaccine
 - 3) Complement **All for Them**'s current parent-targeted educational strategies.

Methods

- 1) Conducted a literature review to assess the effects of education on HPV vaccination rates, prevalence of HPV infection in low income areas, as well as adolescent awareness and attitudes about HPV vaccine.
- 2) Used Texas Essential Knowledge & Skills objectives to inform intervention development.
- 3) Mapped matrix of change objectives to intervention components.

Acknowledgements

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Disclaimer: The content is solely the responsibility of the authors and does not necessarily represent the official views of the Cancer Prevention and Research Institute of Texas.

Results

Curriculum Development

The objective of the curriculum is to educate 6th-grade audiences on immunology and health, including adolescent vaccines and health self-advocacy.

- The curriculum consists of two 45-minute-long modules designed to be taught to 6th-grade students in a classroom environment.
- The materials and activities used within the modules can be used within a classroom lesson plan or as stand-alone activities.

Module 1: Immunity and You!

GOAL: To facilitate mastery of the concept of immunology and the benefits of vaccination.

- Learning materials and strategies include a Fact vs. Myth activity, a worksheet on herd immunity, take-home handouts, and a TED Talk-style video.
- Active participation is encouraged and incentivized with prizes.

Module 2: Teens and Vaccines

GOAL: To provide students with in-depth knowledge about adolescent vaccines and promote health self-advocacy skills.

- Topics include the definition of adolescent vaccines, explanations of Tdap, HPV, Meningitis, and health self-advocacy.
- Learning materials and strategies include a Fact vs. Myth activity, classroom discussion, intermittent knowledge checks and a take-home adolescent vaccine schedule.

TED Talk-style Video: Planet You

GOAL: To introduce the concept of immunology in a simple, relatable, humorous way to engage middle school students on a complex topic.

- The video consists of combined teaching methodologies of a live speaker and animations to depict the metaphor of a planet under alien attack in order to communicate how a body's immune system defends itself from outside pathogens.

Sample Activities

Fact vs. Myth	Herd Immunity																																		
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Innovation

Identify Frame

Parent-targeted HPV educational programs as the primary method used to create awareness and acceptance of HPV vaccine to increase rates of HPV vaccination among adolescents.

Break Frame

HPV educational programs as intervention methods to increase rates of HPV vaccination through increased awareness and acceptance of HPV vaccine should target adolescents in addition to parents.

Innovative Frame

A comprehensive vaccine education program targeting a 6th grade audience aimed at increasing awareness and understanding of immunology, adolescent vaccines, with a particular emphasis on HPV vaccine, and health self-advocacy.

Conclusion

The developed curriculum serves as a prototype for later expansion of the vaccine education program. Focus groups and additional consultation are required before final implementation to ensure that the educational program adheres to **All for Them**'s current educational strategies.

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