Inflatable Colon: A Valuable Tool for CRC Screening or Simply a Visual Entertainment
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INTRODUCTION
- Colorectal Cancer (CRC) is the third most common cancer in the US.
- CRC cases and death rates have been declining in the past decade.
- This can be attributed to early detection due to screening tests and treatments.
- Various methods such as pamphlets and physician led display tables have been implemented to educate the general population regarding CRC and promote screening.
- The use of an inflatable colon (IC) with depictions of normal colonic tissue advancing to polyps and advanced carcinoma with a walk-through tour has recently become popular.
- We conducted a systematic review to assess the efficacy of the IC as a tool for educating patients about CRC.

METHODS
- We searched PubMed, Embase, and Scopus using the term “inflatable colon” from conception to February 2017 and included any study that assessed the IC and CRC education.
- Two reviewers independently screened the results.
- A third reviewer was utilized to aid in disagreements between the two reviewers.

RESULTS
Table 1. Characteristics of the Studies Employing A Pre-Test/Post-Test Measurement Tool to Assess Knowledge, Behavior Change, and Social Support for Colorectal Cancer Screening

<table>
<thead>
<tr>
<th>Study No.</th>
<th>Study</th>
<th>Sample Characteristics</th>
<th>Pre &amp; Test Tool</th>
<th>Outcome Improvement of Knowledge</th>
<th>Outcome Improvement of Behavior Change</th>
<th>Outcome Improvement of Social Support</th>
<th>Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Redmond et al. (2013)</td>
<td>Female (51%); 18–35 years old (31%); Caucasian (31%); Asian/Pacific Islander (12%); Alaska Native or American Indian (12%); Asian (8%); White (6%); Hispanic (5%); No Health Care (6%)</td>
<td>Pre-test, post-test</td>
<td>All questions had increase in knowledge (p&lt;.05)</td>
<td>No increase in intention to screen</td>
<td>No increase in social engagement</td>
<td>Study involved knowledge increase with the IC compared to the population.</td>
</tr>
<tr>
<td>2</td>
<td>Briant et al. (2013)</td>
<td>Female (71%); 18–35 years old (20.8%); Hispanic (55%); No Health Care (61.5%)</td>
<td>Pre-test, post-test</td>
<td>No improvement in knowledge between inflatable colon vs. pamphlet (p&lt;.05)</td>
<td>No change in intention to screen</td>
<td>No change in social engagement</td>
<td>Study found no statistically significant difference in knowledge and behavior change between the two methods.</td>
</tr>
<tr>
<td>3</td>
<td>Wang et al. (2013)</td>
<td>No demographic data</td>
<td>Pre-test, post-test</td>
<td>Increase in knowledge (p&lt;.05)</td>
<td>No increase in intention to screen</td>
<td>No change in social engagement</td>
<td>Study showed an increase in knowledge with the IC compared to pamphlets.</td>
</tr>
<tr>
<td>4</td>
<td>Gray et al. (2013)</td>
<td>&lt;60 years old</td>
<td>Pre-test, post-test</td>
<td>All survey questions showed improvement in knowledge (p&lt;.05)</td>
<td>No increase in intention to screen</td>
<td>No change in social engagement</td>
<td>Study showed an increase in knowledge with the IC compared to pamphlets.</td>
</tr>
<tr>
<td>5</td>
<td>Sanchez et al. (2014)</td>
<td>Mixture of New Mexico (NM) University employees and Washington (WA) state residents</td>
<td>Pre-test, post-test</td>
<td>NM males with greater gain in knowledge than females (p&lt;.02)</td>
<td>WA Hispanics (p&lt;.0001), younger (p&lt;.01), less educated (p&lt;.01) and uninsured (p&lt;.001) greater gains in knowledge than counterparts</td>
<td>No change in intention to screen</td>
<td>Study found a greater gain in knowledge among male NM residents compared to female WA Hispanics.</td>
</tr>
<tr>
<td>6</td>
<td>Briant et al. (2013)</td>
<td>60–69 years old</td>
<td>Pre-test, post-test</td>
<td>No prior screening (86%)</td>
<td>No change in knowledge (p&lt;.05)</td>
<td>No increase in intention to screen</td>
<td>Study showed no change in knowledge and behavior change with the IC compared to pamphlets.</td>
</tr>
</tbody>
</table>

CONCLUSION
- While varying in demographics and measurement tools, these studies overall illustrate that the IC was a useful tool in educating regarding CRC screening, increasing intention to screen, and social engagement in the community.
- However, larger studies with a generalizable population, standardized assessment tool, follow up for long term retention, and assessment of fruition of screening intention need to be conducted in order to assess if this intervention is superior to other standard educational methods in the community setting.

DISCUSSION
- Multiple studies were performed in areas that incorporated at risk minority subgroups such as Hispanics or Alaska Natives/American Indians.
- Studies with reported demographic data had a female predominance.
- Study 5 involved a university campus which includes a significant population that is younger than the age for routine screening.
- Of the two studies that addressed comparison of this novel method to standard educational pamphlets, there proved to be no significant difference between the two interventions.
- Study 2 showed that whether the inflatable colon was used or the standard pamphlet method was used, there was nearly no retention of the important information a month later.
- Behavioral changes leading to true action would make this data much more valuable and is one of the biggest limitations expressed in all of the included studies.

REFERENCES

Figure 1. Systematic Search Process to Included Titles

Giant Inflatable Colon

110 issues with search “inflatable colon” on PubMed, Embase, and Scopus
2 full text articles and 2 abstracts assessing inflatable colon and CRC education were identified
5 total studies

++ this study included this outcome measure
* this study had improvement in this outcome measure from pre-test to post-test in any adult subgroup of the population
** this study was a comparison between inflatable colon and pamphlet for teaching, both increased knowledge but no significant difference between the two interventions