Applying Communication Principles from the Diffusion of Innovations Theory for Promoting Occupational Sun Protection

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Funding Source

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Occupation and Skin Cancer

- Substantial sun exposure occurs on the job for over 9 million Americans who work outdoors.
  - Spend 4-8 hours per day outdoors
  - Work outdoors for many years
- Skin cancer is associated with outdoor work.
  - RR for NMSC is 2.47 for individuals working primarily outdoors.
  - Melanomas of head, face and neck may be most common in outdoor workers.
- Sun protection is inadequate among many outdoor workers.
Go Sun Smart Project
Ski Industry Partners
The Go Sun Smart Research

GSS I: Effectiveness Trial 2001-2003

GSS II: Dissemination Trial 2004-2008

GSS III: Sustainability Assessment 2011-2013
Program Goals

- To create an occupational sun protection program that could be used by ski areas.
- To reduce workers’ sunburn prevalence and increase their sun protection behavior.
  - Fill knowledge gaps and teach skills.
  - Put knowledge into action.
  - Advocate sun safety to employees and guests
Diffusion of Innovations Theory

Program Materials
Training Program & Brochure
Editions for Ski Patrol, Ski Instructors and General Employees
Always remember your sunglasses, sunscreen & a hat.
Effect of *Go Sun Smart* on Employee Sunburning

OR = 1.63, p < .05 controlling for pretest, gender, age, job type, self-efficacy, and attitudes

# Employee’s Summer Sun Protection Behavior

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Intervention</th>
<th>Control</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunburn in past summer</td>
<td>50%</td>
<td>53%</td>
<td>p=0.01</td>
</tr>
<tr>
<td>Sunscreen</td>
<td>2.19</td>
<td>2.35</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Sunglasses</td>
<td>1.46</td>
<td>1.52</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Composite Sun Protection Behavior</td>
<td>2.57</td>
<td>2.63</td>
<td>p&lt;0.04</td>
</tr>
</tbody>
</table>

Go Sun Smart
Program Dissemination (CA104876)

GSS I: Effectiveness Trial 2001-2003

GSS II: Dissemination Trial 2004-2008

GSS III: Sustainability Assessment 2011-2013
Diffusion of Innovation Theory: Organizational Adoption

INITIATION
- Agenda Setting → Matching → Decision to Adopt
  - Professional Network
  - Mass Media
  - Change Agent Contact
  - Creation of Need/Problem
  - Fit with Problem/Organization

IMPLEMENTATION
- Redefining/Restructuring → Clarifying → Routinizing
  - Internal Champion
  - Adaptation of Innovation/Organization
  - Meaning of Innovation to Workers
  - Cope with Misunderstandings/Resistance/Side Effects
  - Support Continuance
  - Reduce Uncertainty
Enhanced Dissemination Strategy
Enhanced Strategy Features

- Personal visit with senior managers.
- Specialized printed support materials.

Purpose:
- Reduce managers’ uncertainty about GSS.
- Build a relationship of credibility and trust for program staff and GSS.
- Obtain public commitment to use GSS.
- Help managers plan for use of GSS.
- Identify internal champions who could support GSS.
Enhanced Strategy Features (cont.)

- Periodic follow-up contacts by telephone and email throughout ski season.

- Purpose:
  - Maintain support for GSS use.
GSS Use by Dissemination Strategies

Number of GSS Items in Use

<table>
<thead>
<tr>
<th>Basic Strategy</th>
<th>Enhanced Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.17</td>
<td>7.36</td>
</tr>
</tbody>
</table>

p<.01 [1-tailed] adjusted for wave, size of employer, number of female managers, and mean annual number of sunny days

Source: Buller et al. (in press). Enhancing industry-based dissemination of an occupational sun protection program with theory-based strategies employing personal contact. *American Journal of Health Promotion.*
Intermediate-term Sustainability of GSS Use

Observation:  p=0.01
Dissemination Strategy:  p=0.02
Observation x Strategy:  p=0.83
Adjusted for wave, number of employees, proportion of female managers, and mean number of hours of sunshine.

Source: Buller et al. (in press). Sustainability of the dissemination of an occupational sun protection program in a randomized trial. *Health Education and Behavior.*
Employees’ Exposure to GSS and Sun Protection Behavior

<table>
<thead>
<tr>
<th>Number of GSS Items in Use</th>
<th>GSS Awareness</th>
<th>Recalled Sun Safety Message</th>
<th>Composite Sun Protection Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4 items (n=845)</td>
<td>22%</td>
<td>55%</td>
<td>22.4 (4.35)</td>
</tr>
<tr>
<td>4≤ items &lt;9 (n=856)</td>
<td>34%</td>
<td>68%</td>
<td>22.6 (4.67)</td>
</tr>
<tr>
<td>≤9 items (n=527)</td>
<td>53%</td>
<td>82%</td>
<td>23.7 (4.85)</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

On-going Research: Improving *Go Sun Smart* (CA152411)

- **GSS I:** Effectiveness Trial 2001-2003
- **GSS II:** Dissemination Trial 2004-2008
- **GSS III:** Sustainability Assessment 2011-2013

- **Sun Safe Workplaces**
  - Trial 2009-2013

- **Advanced GSS**
  - Trial 2011-2015
New Initiative: Sun Safe Workplaces Project

- To develop and evaluate a campaign promoting environmental and administrative policies for occupational sun protection.
New Initiative: Advanced *Go Sun Smart* Project

- To create an Advanced GSS using Transportation Theory.
  - Narrative message formats
- Evaluate Advanced GSS with summer resort guests to improve vacation sun safety.
Thank you

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