SCIENCE COMMUNICATION STARTER KIT

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WHAT THIS KIT CONTAINS

- The definition and application of communication sciences, and details to assess how nutrition information influences communication strategies
- Information on how and when to use nutrition communication strategies to influence behavior
- Background on when to apply appropriate theoretical frameworks to inform nutrition and health communications
- Tips to tailor behavior change messages based on attributes of the target population, including factors like health literacy and numeracy
- Details on how to select communication channels that are appropriate and feasible, and deliver communications campaigns that resonate with the target population
- Insight on how to create an evaluation plan that tests process and outcome variables and is both rigorous and feasible
- Background on the factors affecting the effective communication of nutrition research
WHAT IS COMMUNICATION

Communication is simply the act of transferring information from one place, person or group to another. Involves a sender, the message, and the recipient.

Public relations works to secure the endorsement from a source the target audience trusts.

WHAT IS NUTRITION COMMUNICATION

'Nutrition communication' can be defined as the process by which nutrition knowledge is converted into dietary change.

Dietary goals for populations and food-based dietary guidelines for individuals constitute the starting point for nutrition communication.

- Population-based approach
- Group-based approach
- Individualistic approach

MANY APPROACHES TO CHOOSE FROM

• Population-based approach
  • Dietary Guidelines for Americans, TV, Radio, Newspaper, Internet, Printed materials, Direct mailing, Posters
• Group-based approach
  • Lectures, Demonstrations, Grocery store tours
• Individualistic approach
  • Personal contact, Home visits, Personal letters

FACE-TO-FACE OR NOT?

Table 1: Some relative advantages and disadvantages of face-to-face and mass media approaches

<table>
<thead>
<tr>
<th></th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>• Interactive</td>
<td>• Expensive</td>
</tr>
<tr>
<td></td>
<td>• Reliable</td>
<td>• Penetration weak</td>
</tr>
<tr>
<td></td>
<td>• Provides social support</td>
<td>• May encourage dependency</td>
</tr>
<tr>
<td></td>
<td>• Allows for personalising</td>
<td>• May not be acceptable to many people</td>
</tr>
<tr>
<td></td>
<td>• Allows for modelling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Appropriate sequencing easy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Follow-up easy</td>
<td></td>
</tr>
<tr>
<td>Mass media</td>
<td>• Cheap per contact</td>
<td>• Weak engagement of users</td>
</tr>
<tr>
<td></td>
<td>• Large numbers reach</td>
<td>• Unreliable</td>
</tr>
<tr>
<td></td>
<td>• More acceptable for many people</td>
<td>• Dilution of content</td>
</tr>
<tr>
<td></td>
<td>• May stimulate self-initiated change</td>
<td>• Follow-up difficult</td>
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<tr>
<td></td>
<td>• Potential for further development through modern technology</td>
<td></td>
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</tbody>
</table>
WHEN TO USE NUTRITION COMMUNICATION

- Nutrition education
  - Potential benefits of foods and food components
  - Address nutrition-related concerns: heart health, weight, cancer, etc.
- Restricting misinformation about nutrition
  - Seen when patients, clients or consumers want to take an active role in their health – people are learning to question their food and what is in it, but not all sources of information are created equal.
- Improve nutritional status
  - Provide clarification on trending nutrition topics
  - Empower clients and patients to make and stick with behavior change
  - To ensure better use of food and nutrition resources
BEHAVIOR CHANGE FRAMEWORKS FOR NUTRITION COMMUNICATIONS

- Stages of Change (Transtheoretical) Model
- Behavioral Intentions (Theory of Planned Behavior)
- Persuasion Theory
- Health Belief Model
- Social Cognitive Theory

MEMORABILITY AND ACTIONABILITY

- Memorability
  - Memorability is a necessary criterion for an effective guideline because, in order for people to do a newly prescribed action, they must first remember what that recommended action is.

- Actionability
  - Even when remembered, there are still many cognitive and social barriers to action, and effective guideline design needs to work around these barriers. Actionability helps overcome these barriers.

<table>
<thead>
<tr>
<th>Memorability</th>
<th>Actionability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplicity</td>
<td>Simplicity</td>
</tr>
<tr>
<td>Ease of Visualization</td>
<td>Ease of Visualization</td>
</tr>
<tr>
<td>Chunking</td>
<td>Embedding Triggers</td>
</tr>
<tr>
<td>Embedding Triggers</td>
<td>Specifying When to Act</td>
</tr>
<tr>
<td></td>
<td>Subjective Norms</td>
</tr>
</tbody>
</table>

MEMORABILITY AND ACTIONABILITY

USA Food Guide Comparison Through the Years

- Fats, Oils, & Sweets have a surprisingly large visual portion compared to later food guides
- Specific food categories, highly descriptive
- Exercise Added to Food Guide
- Oils became smaller visual representation
- Simplified Graphic Approach
- No Exercise in graphic
- Meat & Beans change to a more generic "protein" category
- Milk became "dairy"
- Elimination of serving size in exchange for proportion compared to other items on plate

MEMORABILITY AND ACTIONABILITY

OLD LABEL

NEW LABEL

Nutrition Facts

Nutrition Facts

Calories

Amount per serving

Calories

Amount per serving

230

230

10%

10%

5%

5%

0%

0%

8%

8%

10%

10%

10%

10%

5%

5%

10%

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TOOLS FOR NUTRITION COMMUNICATION - MESSAGE

- **Message**
  - Formulation of an idea or concept
  - There are four elements involved in designing an effective single message:
    - **Good content** - the message supports changes, beliefs or activities already present in the community.
    - **Good message** - the message is characterized by high technical quality.
    - **Good channel use** - the selected channel has a broad reach and is accessible to the audience.
    - **Good audience knowledge** - the message is relevant to, and well accepted by the audience – use of hashtags.

TOOLS FOR NUTRITION COMMUNICATION - CHANNEL

- **Channel of communication**
  - Use all available channels
  - Address a single problem or behavior
  - Communicate a single well-focused message
  - Are specific and relevant to the target audience
Communication Channels

Social media — for short messages, snippets of content, graphic-heavy content, two-way communication
*Examples: Facebook, Twitter, Pinterest, Instagram*

Print materials — for static content, visual content, reproducible content
*Examples: handouts, brochures, posters*

Digital content — for dynamic content, how-to tutorials, information available on-the-go
*Examples: websites, blog posts, videos, apps*

Mass media — for large-scale public health campaigns
*Examples: radio, TV, newspapers, news websites*

Supporting Materials

- Elements used in message transmission
- Examples are endless…
- Posters
- Infographics
- Social tiles
- PowerPoint
- Handouts
- Recipe books
- Social media post
- Shopping guide
- Blog
DEVELOP AN ACTION PLAN

1. What is your subject of interest?
2. What is the medium of your choice? – Videos/Film, Science Art, Social Media, Writing/ Blogging, Other?
3. Establish a target audience.
4. Chose a platform to voice your action – Instagram, YouTube, Facebook etc.
5. What are the skills you are proficient in, what are the skills you need to work on, what are the resources you have access to?

Content adapted from conference: Wonder Women in STEM, 2019
CREATING NUTRITION EDUCATION MATERIALS THAT SUPPORT COMMUNICATION OBJECTIVES

1. Know your audience
   - To best tailor your communications materials, first define your audience with as much detail as possible.
   - What are the demographics characteristics?
   - What is their primary language?
   - What is their reading ability, education level and level of health literacy?
   - Are there relevant cultural practices to keep in mind?
   - Do they have specific nutritional or health concerns?
   - What are barriers to behavior change?
   - What are motivators for behavior change?
   - Through which types of media do they receive health messages?

THE ROLE OF HEALTH LITERACY

- Most health information is not understood by the people for whom it was intended.
- A growing body of evidence is linking limited health literacy to poor health knowledge, behaviors, and outcomes.
- Addressing health literacy is increasingly seen as a way to improve preventive care and reduce health disparities.

WHAT IS HEALTH LITERACY

• “...the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions and services needed to prevent or treat illness.”

• 90 million Americans have inadequate health literacy.

• 36% of the adult participants had basic or below basic health literacy skill - National Assessment of Adult Literacy (NAAL).

WHY DOES HEALTH LITERACY MATTER FOR NUTRITION COMMUNICATIONS

• Understanding nutrition information often requires understanding complex scientific concepts.

• Patients have trouble interpreting and acting on nutrition information.

• Prevalence of nutrition-related chronic diseases and necessity for patients to be empowered to interpret and apply nutrition information.

CREATING NUTRITION EDUCATION MATERIALS THAT SUPPORT COMMUNICATION OBJECTIVES

2. Tailor messages and materials to your audience

- Determine the best method of delivery
  - When choosing a delivery method, it can be helpful to consider the following three questions:
    - What communication channels does my audience already use?
    - What communication channels do they trust?
    - What communication channels might they be most receptive to?

- Define communication objectives
- Determine best method of delivery
- Draft key messages and content
- Review/test and revise

Consider partnering with another organization to help you reach your audience through the optimal communication channel.

- There are no more than 3-4 key messages
- Content is clear and concise
- Does not include unnecessary (or “nice to know”) information
- Most important information is first
- Includes visuals to help explain the messages
- Information is segmented using headings, subheadings, and bulleted lists
- Action steps/takes behavior for the audience are clearly stated
CREATING NUTRITION EDUCATION MATERIALS THAT SUPPORT COMMUNICATION OBJECTIVES

3. Use plain language
   - Plain language is language your audience can understand the first time they read or hear it. Plain language is written using words, sentences, and phrasing that your audience understands and feels comfortable with. No single technique defines plain language. Plain language is defined by results — it is easy to read, understand, and use.
   - Organize materials with the reader in mind
   - Address separate audiences individually
   - Use simple headings
   - Use pronouns such as “you”
   - Write in the active voice
   - Use short sentences
   - Include examples
   - Choose common everyday words
   - Use an appropriate reading level
   - Create simple lists and tables
   - Focus on positive actions
   - Use visuals
   - Test your materials

<table>
<thead>
<tr>
<th>Instead of</th>
<th>Try</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consume</td>
<td>Eat or drink</td>
</tr>
<tr>
<td>Overconsume</td>
<td>Eat too much</td>
</tr>
<tr>
<td>Adequate</td>
<td>Enough</td>
</tr>
<tr>
<td>Lipids</td>
<td>Fat</td>
</tr>
<tr>
<td>Hypertension</td>
<td>High blood pressure</td>
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<tr>
<td>Cardiovascular</td>
<td>Heart</td>
</tr>
<tr>
<td>Mortality</td>
<td>Death</td>
</tr>
</tbody>
</table>

4. Maximize impact through partnerships
   - Communication partnerships are important because they bring organizations together to communicate a shared message. By speaking with one voice on a topic, professionals and organizations can maximize their message output and increase the chances of their message getting to its intended audience.
CREATING NUTRITION EDUCATION MATERIALS THAT SUPPORT COMMUNICATION OBJECTIVES

5. Evaluate

Convey the big picture.
Be inclusive.
Encourage personalization.
One size does not fit all.
Empower change.
Harmonize efforts.
CHALLENGING, HARD, MESSY, INDECISIVE...

EVOLUTIONARY – WITH MANY VOICES

- Scientists
- Non-profit and advocacy organizations
- The food and beverage industries
- Academic institutions/organizations
- The US Government
- Journals
- Media

Why changing behavior is so difficult: *Nutrition science is evolutionary not revolutionary.*

Talking to consumers about nutrition: *Many voices, many perspectives.*

BIAS AND CONFLICTS OF INTEREST EXIST EVERYWHERE

Dx with a chronic disease, personally or a family member?
Follow a specific eating pattern at home?

PRESS RELEASES AND HEADLINES

• The power and the problem of press releases
• The media: headlines v. content

NEWS RELEASE 28-FEB-2020
High sugar diet may impair metabolic health & maternal care after pregnancy
SOCIETY FOR ENDOCRINOLOGY

NEWS RELEASE 18-JUN-2019
One change can make diet more planet friendly
Using simulation and diets of 16,000 people, scientists discover how to cut your diet’s climate impact in half
AMERICAN SOCIETY FOR NUTRITION

I Fooled Millions Into Thinking Chocolate Helps Weight Loss. Here’s How.
IN MICE

America's most widely consumed oil causes genetic changes in the brain
Soybean oil linked to metabolic and neurological changes in mice
UNIVERSITY OF CALIFORNIA - RIVERSIDE

WHY SO MESSY?

1. It’s not practical to run randomized trials for most big nutrition questions.
2. Instead, nutrition researchers have to rely on observational studies — which are rife with uncertainty.
3. Another difficulty: Many nutrition studies rely on (wildly imprecise) food surveys.
4. More complications: People and food are diverse.
5. Conflict of interest is a huge problem in nutrition research.
6. Even with all those faults, nutrition science isn’t futile.
IS ALL HOPE FOR COMMUNICATING NUTRITION RESEARCH LOST?

- Not a delivery mechanism for scientific messages – own views and agendas.
- Respond to the media’s desire for simplicity and not reject it.
- Both want the same thing, ethical and professional obligations.
- Beneficial for the scientific community.
- Not communicating to media – using media to communicate with a variety of audiences.
- Take the time to explain research in language that journalists can understand, including all press releases that are issued.
- Work together to spread accurate messages that are reliable and return trust to nutrition science.


QUESTIONS TO ASK

TABLE 1

Key questions to assist in translating science for consumers

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will this communication enhance public understanding of diet and health?</td>
</tr>
<tr>
<td>Have I put the study findings into context regarding those to whom the findings apply and the way they fit in with previous research?</td>
</tr>
<tr>
<td>Has the study or have the findings been peer-reviewed?</td>
</tr>
<tr>
<td>Have I disclosed the important facts about the study, including the study design and any limitations?</td>
</tr>
<tr>
<td>Have I disclosed all key information about the study's funding?</td>
</tr>
<tr>
<td>Have I clarified dietary risks and benefits?</td>
</tr>
<tr>
<td>Have I communicated about the study in simple, understandable language?</td>
</tr>
<tr>
<td>Have I met the needs of the media by responding to inquiries in a prepared and timely fashion?</td>
</tr>
</tbody>
</table>

## QUESTIONS TO ASK

**Box 5**

**PR News Release Review Criteria**

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Does the news release adequately discuss the costs of the intervention?</td>
</tr>
<tr>
<td>2.</td>
<td>Does the news release adequately quantify the benefits of the treatment?</td>
</tr>
<tr>
<td>3.</td>
<td>Does the news release adequately explain the potential harms of the intervention?</td>
</tr>
<tr>
<td>4.</td>
<td>Does the news release evaluate the quality of the evidence?</td>
</tr>
<tr>
<td>5.</td>
<td>Does the news release commit disease-mongering (e.g., exaggeration of a condition)?</td>
</tr>
<tr>
<td>6.</td>
<td>Does the news release identify funding sources and disclose potential conflicts of interest?</td>
</tr>
<tr>
<td>7.</td>
<td>Does the news release compare the new approach with existing alternatives?</td>
</tr>
<tr>
<td>8.</td>
<td>Does the news release establish the availability of the treatment?</td>
</tr>
<tr>
<td>9.</td>
<td>Does the news release establish the true novelty of the approach?</td>
</tr>
<tr>
<td>10.</td>
<td>Does the news release include unjustifiable, sensational language, including in the quotes of researchers?</td>
</tr>
</tbody>
</table>

**News Story Review Criteria**

Identical to the list above, except for criterion 6 and 10:

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Does the story use independent sources and identify conflicts of interest?</td>
</tr>
<tr>
<td>10.</td>
<td>Does the story appear solely on a news release?</td>
</tr>
</tbody>
</table>

**SOURCE:** HealthNewsReview, https://www.healthnewsreview.org/about/news-review/

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## TRANSLATING NUTRITION RESEARCH FOR PATIENTS, CLIENTS AND CONSUMERS

<table>
<thead>
<tr>
<th>Specify the information's source and legitimacy.</th>
<th>Clarify the audience(s) to whom results apply.</th>
<th>Distinguish between correlation and causation.</th>
<th>Quantify the true size of the benefits (or harms) of the intervention or exposure of interest.</th>
<th>Identify strengths and limitations, including potential biases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputable peer-reviewed journals and major scientific and professional health or medical organizations typically are sound sources. Findings presented at professional conferences may be solid, but aren't yet peer-reviewed and should be identified as preliminary.</td>
<td>Results of cell and animal studies aren't guaranteed to translate to free-living human subjects, and results of human studies in specific populations (for example, young, overweight men with diabetes) may not apply to other populations.</td>
<td>Epidemiologic (i.e., observational) studies aren't designed to support cause-and-effect conclusions as randomized controlled trials are. Avoid language suggesting a cause-and-effect relationship the study design doesn't warrant. This can help prevent audiences from overestimating a study's meaning.</td>
<td>It may be accurate to say that a particular behavior intervention led to a three-fold increase in weight loss compared with the control (relative difference). But it may be less impressive if the difference between the groups was a 3-lb vs a 1-lb loss (absolute difference).</td>
<td>Strengths and limitations often are outlined in the discussion section of a research article. As discussed earlier, these include things such as sample size or adjustment for other (confounding) variables that could influence results.</td>
</tr>
</tbody>
</table>
# TRANSLATING NUTRITION RESEARCH FOR PATIENTS, CLIENTS AND CONSUMERS

<table>
<thead>
<tr>
<th>Interpret results from a neutral point of view</th>
<th>Put findings in the context of the broader literature</th>
<th>Stay within a comfort level of expertise.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal ideology, ethnicity, or political orientation can lead to promoting or downplaying research results that are more or less consistent, respectively, with one's views. Health professionals need to guard against a natural tendency to reduce cognitive dissonance, whereby one disregards information incompatible with an existing perception.</td>
<td>Population recommendations are derived from a body of evidence, and single studies rarely stand alone as conclusive. Explain how a new study fits with previous work. If results are contrary to what the weight of the literature shows, offer a possible explanation (for example, poor adherence to the intervention) and evaluate the significance of the different results.</td>
<td>If the topic is less familiar, consult or refer to a more knowledgeable source. Avoiding an uncertain or weak response can help preserve professional credibility.</td>
</tr>
</tbody>
</table>

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# COUNTERING NUTRITION MISINFORMATION - DIETITIANS

- Keep tips consistent, positive, short, and simple.
- Avoid speaking in nutrition jargon.
- Be careful when using buzzwords the consumers might relate with but imprecisely understand.
- React continually to misinformation, but do not be an alarmist. If you constantly proclaim danger about food, people will soon believe that nothing is really dangerous.
- Debates about inconclusive research findings should be minimized.
- Stay inside your area of expertise.
- Emphasize improvement, not perfection.
- Make the benefit to the consumer clear.
- Be specific; describe an action (eg, “eat more broccoli”).
- Show how all foods fit into a healthful lifestyle. Do not perpetuate the “good foods/bad foods” myth.
- Do not make unrealistic promises; describe realistic outcomes.
- Provide examples of foods and activities that reflect the lifestyle, preferences, and culture of your audience.

COUNTERING NUTRITION MISINFORMATION – NUTRITION SCIENTISTS

- Put the study’s findings into context.
- Communicate the study’s findings in simple language.
- Discuss study limitations or contradictions with other studies.
- Disclose all key information about the study’s findings.
- State that scientific research is evolutionary, not revolutionary.

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

General SciComm Training
- ComSciCon
- SciComm Camp
- Science Talk Conference
- Inclusive SciComm Symposium

SciComm Writing
- Natl. Assoc. Sci. Writers
- NPR SciCommers
- Massive Science Consortium
- SAI Stories in Science

Entrepreneurship Training
- Student Entrepreneur Program
- Chaifetz Center for Entrep.
- Global Student Entrepreneur Award
- NSF Innovation Corps

SciComm Writing
- Jackson Wild Media Lab
- HASTAC Fellowships
- Imagine Science Films
- Nat'l Wildlife Film Fest Lab
- AAS Mass Media Fellowship

RECOMMENDED ACCOUNTS

- Twitter
  - @PhutureDoctors
  - @heysciencesam
  - @Also_Ascientist
  - @geniuslabgear
  - @SusannaHarris
  - @jenheemstra
  - @ComSciCon
  - @ScienceTalkOrg

- Instagram
  - @andytherd
  - @the.nanotechgirl
  - @the_daily_biolgist
  - @the.hormone.dietician
  - @science.sam
  - @prasha_dutra
  - @beyond.the.ivory.tower
  - @jesshoffman_phd
  - @rogernutritionist
  - @scientist_rhi
  - @onemorebite.nutrition

Content adapted from conference: Wonder Women in STEM, 2019
NUTRITION COMMUNICATION – A TOOL IN THE TOOLBOX