

**Development of a Theory-Driven Injury
Prevention Communication Strategy for US
Army Personnel**

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Epidemiology and Disease Surveillance Portfolio Injury Prevention Program

Development of a Theory-Driven Injury Prevention Communication Strategy for US Army Personnel

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14. Abstract The Army Public Health Center- Provisional (APHC (Prov)) Injury Prevention Program (IPP), in support of the public health approach to prevention, develops and distributes communication products to stakeholders (e.g., Soldiers, medical providers) in order to educate them on leading injury causes, risk factors, and evidence-based risk-reduction strategies. Purpose: To apply a strategic communication framework, known as the P Process, to guide the development of the APHC (Prov) IPP's communication strategy targeting Army personnel. Methods: An adaptation of the P Process Step One (Analysis) was used to determine "gaps" in APHC (Prov) injury and physical activity-related communication product development. A list of injury and physical activity-related communication products was collected from the APHC (Prov) Resource Materials Library, APHC (Prov) Health Information Products e-Catalog, APHC (Prov) YouTube channel, and the Defense Video and Imagery Distribution System. Product topics were then compared to the Army's injury prevention priorities and a previously-conducted Injury Prevention Survey of Army personnel communication needs and preferences. Product types and audiences were also analyzed according to the Injury Prevention Survey results. Results: Over two thousand (n=2,233) existing health communication products were identified in searches of four sources. Of the 2,233 products identified, one hundred forty-seven (6.6%) were related to injury, injury prevention, and/or physical activity. Of these, sixty-seven (45.6%) of existing injury/physical activity-related materials matched a topic consistent with previously-identified communication needs and/or Army injury priorities. There were no communication products for seven priority topics. Forty-four of the sixty-seven (65.7%) existing injury/physical activity-related materials matched previously-identified desired product types. Fact sheets (31%) were the most preferred product types by survey respondents and were the second most available APHC (Prov) product type. Posters ranked fourth among preferred product types, but were the leading type among existing injury and physical activity-related materials. The majority of materials (68.7%) were prepared for use with Soldiers, followed by medical personnel (38.8%), beneficiaries (29.9%), and leaders (17.9%). Conclusions: Despite being a leading public health and readiness issue, injury and physical activity-related materials represent a small percentage of all APHC (Prov) communication products. While there were products available for most of the general priority injury topic areas, the amount of detail and quality of evidence-based injury prevention guidance for those priority topics varied substantially, and may need updating or may not satisfy the full breadth of injury prevention information needs. Opportunities also exist to expand on topics for which there were few to no products as well as to add preferred product types, and to focus on audiences such as medical personnel and leaders. Recommendations for next steps included the following: reviewing the content of existing materials to determine if the information accurately addressed the topic or requires updating; prioritizing future material development based on the results of the present analysis and incorporating new types of media into existing dissemination channels. The information obtained as a result of the gap analysis and the previous Injury Prevention Survey completed Step One of the five-step P Process and will be used to inform Step Two, during which strategic communication and program objectives are defined and plans for implementation, monitoring, and evaluation are developed.			

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1 Summary

1.1 Purpose

Injuries are a significant health and readiness issue in the U.S. Army, resulting in over 1.2 million medical encounters among active duty Soldiers in 2012 (Marshall et al. 2014). The Army Public Health Center- Provisional (APHC (Prov)) Injury Prevention Program (IPP), in support of the public health approach to prevention, develops and distributes communication materials to stakeholders (e.g., Army leadership, medical providers, Soldiers) in order to educate them on leading injury causes, risk factors, and evidence-based risk-reduction strategies. Education is regarded as an “essential element of an injury prevention program” (Bullock 2010).

This report applies a strategic communication framework, known as the P Process (Health Communication Capacity Collaborative (HCC) 2013), to guide the development of the APHC (Prov) IPP’s communication strategy targeting Army personnel. The analysis, generally referred to as a gap analysis, documents existing injury and physical activity-related communication products developed by the APHC (Prov) and identifies opportunities for new product development based on Army injury prevention priorities (Ruscio et al. 2010) and a previously-conducted Injury Prevention Survey of Army personnel communication needs and preferences (APHC (Prov) 2015). Gap analysis findings support subsequent steps in strategic communication planning, to include defining scope and objectives, prioritizing product development, identifying dissemination strategies, and planning evaluation.

1.2 Results

Over two thousand (n=2,233) existing health communication products were identified in searches of the APHC (Prov) Resource Materials Library, APHC (Prov) Health Information Products e-Catalog, APHC (Prov) YouTube channel, and the Defense Video and Imagery Distribution System (DVIDS). Of the 2,233 products identified, one hundred forty-seven (6.6%) were related to injury, injury prevention, and/or physical activity. Of these, sixty-seven (45.6%) of existing injury/physical activity-related products matched a topic consistent with previously-identified communication needs and/or Army injury priorities (APHC (Prov) 2015; Ruscio et al. 2010). Communication products were not found for seven priority topics: privately-owned vehicles (POV), military vehicle crashes, non-traffic motor vehicle crashes, guns and explosives, back-belts, body type and injury risk, and fatigue. Very few products (≤ 2) were related to falls, road marching, and re-injury. Forty-four of the 67 (65.7%) existing injury/physical activity-related products matched previously-identified desired product types. Fact sheets (31%) were the most preferred product types by survey respondents, followed by brochures and tip cards (25%), technical guides/reports/articles (18%), and posters (15%) (APHC (Prov) 2015). Posters (22.4%) were the leading product type among existing APHC (Prov) injury and physical activity-related products, followed by fact sheets (20.9%), brochures and tip cards (13.4%), and technical guides (9.0%). The majority of products (68.7%) were prepared for use with Soldiers, medical personnel (38.8%), followed by beneficiaries (29.9%), and leaders (17.9%).

1.3 Conclusions and Recommendations

Despite being a leading public health and readiness issue, injury and physical activity-related products represent a small percentage of all APHC (Prov) communication products. There were products available for most priority injury topics areas, though products matching priority topics may need updating or may not satisfy the full breadth of injury prevention information needs. There were no products related to seven priority areas and few products related to four other priority injury topics. Product types were found primarily in four categories, where the most available type, posters, was among the least preferred products types by Army personnel. Most products were intended for Soldiers, though medical personnel were also a priority audience group for communication products.

Opportunities exist to expand on these topics, as well as to add technical and tip card/brochure products and to focus on audiences such as medical personnel and leaders. Recommendations for next steps include the following: reviewing the existing content to determine if the information accurately addressed the topic or requires updating; prioritizing future material development based on the results of the present study; and incorporating new types of media into existing dissemination channels. The information obtained as a result of the gap analysis and the previous Injury Prevention Survey (APHC (Prov) 2015) completed Step One of the five-step P Process and will be used to inform Step Two, during which strategic communication and program objectives are defined and plans for implementation, monitoring, and evaluation are developed.

2 References

See Appendix A for a listing of references used within this report.

3 Authority

The APHC (Prov) has conducted this work in accordance with its mission under U.S. Army Regulation 40-5, paragraph 2-19a, in which the APHC (Prov) is tasked to provide supportive services and training of Army preventive medicine activities in the area of injury prevention and control (Department of the Army (DA) 2007).

This project was supported in part by an appointment to the Postgraduate Research Participation Program at the APHC (Prov) administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and APHC (Prov).

4 Background

4.1 Injuries in the Army

In 2014, more non-battle fatalities were attributed to unintentional injuries than diseases, suicide, or homicide (Marshall et al. 2014). Nonfatal injuries are also a significant health and readiness issue in the U.S. Army, resulting in over 1.2 million medical encounters among active duty Soldiers in 2012 (Marshall et al. 2014). Injuries are the leading cause of outpatient visits and evacuations from theater (Jones et al. 2010; Hauret et al., 2010). More specifically, both acute and chronic musculoskeletal injuries, such as fractures, sprains and strains, and inflammation/pain contribute to these medical encounters (Marshall et al. 2014; Jones et al. 2010). Physical training/sports, falls, and motor vehicle accidents are ranked among the leading causes of injury (Marshall et al. 2014; Jones et al. 2010; Hauret et al. 2010). These activities are largely preventable given proper instruction and implementation of appropriate safeguards.

High rates of injury in the military bears many ramifications, one of which is healthcare costs (Nindl et al. 2013). Healthcare spending continues to climb each year with estimates of at least \$700 million across the Armed services (Nindl et al. 2013). As the largest branch of the military, the Army spends the most on medical care. Additionally, costs associated with disabilities caused by injury are of concern. Surveillance data found that disability discharge rates increased substantially during a 20-year period (1982-2002) (Gilchrist et al. 2000). This trend directly affects costs incurred by the Department of Veteran Affairs to compensate disabled Veterans. Limited duty days are another consequence of acute and chronic injury. It is estimated that the Army accrues more than 10 million limited duty days each year (Nindl et al. 2013; Ruscio et al. 2010). The cumulative effect of lost duty days and rising healthcare costs is a decline in the population of productive and deployable service members and ultimately the operational strength of the Army.

4.2 Public Health Approach to Injury Prevention

The APHC (Prov) is the Army's public health agency. Its purpose is to promote health and prevent disease and disability in the Soldier and beneficiary populations (APHC (Prov) 2015). The APHC (Prov)'s IPP supports this mission by utilizing a public health approach to injury prevention activities. This approach is a process consisting of (1) surveillance, (2) research and field investigations, (3) intervention research, (4) program and policy implementation, (5) evaluation and monitoring, and (6) dissemination (Mercy et al. 1993; Jones et al 2010; Sleet and Baldwin 2010). Surveillance is used to understand the scope of a particular health problem. Injury-related concerns are assessed by injury incidence and rates acquired through various data collection activities (e.g., medical surveillance data), which yield trend data over time (Knapik et al. 2006). Injury causes and risk factors are identified based on research and field investigations. Intervention strategies are then developed and tested for their effectiveness in reducing risk and/or preventing the adverse health outcome. Once evidence-based strategies are determined, an implementation plan is developed. This plan involves the establishment of programs and policies that execute evidence-based strategies in the field. Programs and policies are then evaluated and monitored using surveillance and other data to determine the effect on injuries and other health outcomes. Finally, information is disseminated to stakeholders (e.g., Army leadership, medical providers, and Soldiers) in order to educate them on leading injury causes, injury risk factors and evidence-based risk-reduction strategies. Education is regarded as an "essential element of an injury prevention program" (Bullock et al. 2010).

In addition to applying the public health approach, a systematic data-driven process is also needed to define injury prevention priorities. This process, described in further detail by Canham-Chervak et al. (2010), facilitates prioritization of injury prevention activities based on the following criteria: reviewing surveillance and survey data indicating the breadth and severity of a particular injury problem, evaluating the quality of evidence to mitigate the problem, and determining the viability of intervention strategies given available resources and constraints (Jones et al. 2010). A similar prioritization process was used by Ruscio et al. (2010) to identify the Army's top 10 injury program and policy priorities. As a result of this work, the following Army injury prevention target mechanisms were identified: (1) physical training, (2) parachuting, (3) falls, (4) sports, (5) nonmilitary vehicle accidents, (6) gun and explosive and military vehicle accidents (tie), (8) twist/turn without fall, (9) tools and machines, and (10) nontraffic vehicle accidents.

4.3 Health Communication and Behavior Change Theory

Health communication is an essential part of any public health program or policy process (Centers for Disease Control and Prevention (CDC) 2012). It is used to disseminate health information to

relevant audiences in a way that influences knowledge, attitudes, perceptions, and (ultimately) actions toward a health-promoting behavior or policy change (National Cancer Institute 2004; CDC 2012). A health communication campaign can take on many forms depending on the audience size and channels used (e.g., mass media, community workshops, and public relations) (McKenzie et al. 2005; Aldoory and Bonzo 2005). Marketing principles may also be applied to influence decision-making toward the intended behavior. This is known as social marketing (McKenzie 2005). Public health practitioners often use behavior change theories and frameworks to guide communication planning efforts. These theories help identify and explain the factors that influence behaviors among individuals and communities. They also give insight into intervention strategies based on the determinants of behavior that are identified (McKenzie 2005). Theories such as the Transtheoretical Model, the Health Belief Model, and Social Cognitive Theory have demonstrated effectiveness in improving behavioral outcomes (e.g., tobacco cessation, and breast cancer screenings) (Prochaska et al. 2008; Champion et al. 2008). From these models have come validated determinants of behavior (such as social support, self-efficacy, and intention), which are applied to interventions in various settings (McAlister et al. 2008; Montaña et al. 2008).

Behavior change theory has traditionally been underutilized in injury prevention programs (Gielen and Sleet 2003). However, subject matter experts in the civilian sector have made appeals to apply theory to injury programs (Gielen and Sleet 2003; Aldoory and Bonzo 2005). Researchers have also recommended an assessment of ecological influences on prevention campaigns and programs (Gielen and Sleet 2003; Sleet and Gielen 2007; CDC 2015). The ecological model describes the relationship between individual, interpersonal, organizational, community, and public policy factors and their influence on health and health behaviors (McLeroy et al. 1988). Adaptations of the model have condensed the categories to intrapersonal, relationship, community, and societal (Sleet and Gielen 2007).

Strategies for influencing behaviors will vary by category or level. For example, interventions targeting the intrapersonal level will focus on modifying personal factors such as knowledge and perceptions toward a given behavior through training, counseling, and skill building (Gielen and Sleet 2003). Interventions targeting populations at the community and societal levels may focus on changes to policies that impact health (e.g., smoking bans) or environmental changes (e.g., bike lanes). As in the civilian sector, Army medical providers serve as gatekeepers of health information, informing patients about their health status, treatment options, and means of preventing disease and illness (U.S. Army 2015). This type of interaction coincides with the intrapersonal and relationship levels of the ecological model. The Transtheoretical Model, Health Belief Model, and Theory of Reasoned Action have been widely applied at these levels. For example, a physician utilizing the Health Belief Model may apply the model's "self-efficacy" concept to promote the practice of regular breast self-exams. Self-efficacy is generally described as the confidence to execute an action to produce a desired outcome (McAlister et al. 2008). Instructing a patient on how to conduct a breast self-exam will help increase the patient's confidence in her ability to practice the preventive behavior. The tools used to influence behavior and affect change often vary based on the level of influence. In general, interventions that take on an ecological focus will use tailored and targeted messaging for individuals and groups and more broad techniques (e.g., social marketing and mass media) as the sphere of influence grows (i.e., community and societal) (Bernhardt 2004).

Evidence has suggested that effective interpersonal communication between providers and patients can positively impact patient health outcomes (Stewart 1995; Street et al. 2009). Specifically, the quality of the interactions between provider and patient (such as the ability to establish rapport) has been shown to affect the understanding of health information, shared decision-making regarding medical care, and treatment adherence (Ong et al. 1995). Street et al.

(2009) identifies these variables and others as intermediate pathways towards outcomes (e.g., trust) that improve physical and psychosocial health (e.g., less pain and anxiety about a diagnosis). Army healthcare providers and health educators are also in a position to affect the behavior and health outcomes of Soldiers under their counsel and care. If armed with evidence-based injury prevention information and skills in patient-provider communication, these individuals can effectively contribute to the intrapersonal and relationship spheres of influence within a multi-layered communication campaign.

4.3.1 Health Communication and Injury Prevention Campaigns

Behavior change theory has been applied to both intentional and unintentional injuries in order to understand facilitators of the desired behavior and to identify an intervention strategy based on these factors. Trifiletti and colleagues (2005) conducted a systematic review of unintentional injury research that applied behavior theories and models. The Theory of Reasoned Action/Theory of Planned Behavior, PRECEDE PROCEED Model, and Health Belief Model were the most used theories/models for injury interventions. The injuries most targeted for intervention involved motor vehicle, pedestrian, and bicycle injuries. The way in which these theories/models were applied was also evaluated, with the majority being used to guide program design and implementation. There were few studies that used a theory to test the validity of its constructs. However, the authors concluded that this type of work should continue as theories used frequently in health education have demonstrated some effectiveness in injury prevention programs.

The Task Force on Community Preventive Services conducts routine systematic reviews and makes recommendations for intervention strategies based on the level of evidence available for various public health topics (The Guide to Community Preventive Services 2015a). Motor vehicle injury is currently the only unintentional injury category that has been addressed by the Task Force. Within this category there were eight recommended interventions and four that yielded insufficient evidence for recommendation (The Guide to Community Preventive Services, 2015b). Of the eight recommended intervention strategies, five focused on policy changes such as setting the legal blood alcohol concentration level below 0.08 percent. The three remaining reviews involved either a multicomponent program or communication-focused components. Use of mass media was a recommended intervention strategy to reduce alcohol-related vehicle crashes and impaired driving (Elder et al. 2004). A recommendation for use of a multicomponent program involving a combination of public education, media, policy, and enforcement changes to affect impaired driving was also issued (Shults 2009).

Prior evidence has demonstrated use of communication principles in injury prevention education. Injury experts are continuing to explore this relationship and best practices for application. Aldoory and Bonzo (2005) proposed a set of guidelines for injury campaigns. These recommendations include:

- using a multichannel, multicomponent approach
- keeping messaging simple and actionable
- emphasizing the benefits of preventive behaviors more than the risks
- addressing audience barriers in the messaging where appropriate (e.g., perceptions of susceptibility or low self-efficacy)
- utilizing opinion leaders within a community to better understand the target audience and generate campaign buy-in

4.4 The P Process Framework

The P Process framework was developed in 1982 (updated in 2013) and is used to guide the planning, implementation, and evaluation of social and behavior change communication programs in response to a particular health problem or behavior (HCC 2013). This 5-step process developed by Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (CCP), integrates behavior change theory, audience engagement, and capacity-building into a program's communication plan. The steps are referred to as analysis, strategic design, development and pretesting, implementation and monitoring, and evaluation (Salem et al. 2008). Program planners typically adapt the process to suit the needs and goals of their organization. Despite the trademarked name, the P Process describes the general steps taken in planning and evaluating a health education program. Health education programs typically begin with a needs assessment and/or some form of investigation about the population, followed by goal setting, program implementation, and evaluation of program outcomes (McKenzie et al. 2005). The CCP has branded the P Process for use specifically in health communication programs and it has been applied successfully (Koenker et al. 2015).

The first step of the P Process employs a type of gap analysis. A gap analysis is an assessment tool used in various industries (e.g., business, health care, and education) to identify gaps between organizational practices and best practices or desired outcomes (Agency for Healthcare Research and Quality (AHRQ) 2015). In general, a gap analysis compares an organization's current capabilities with its ideal end state and identifies opportunities to address those gaps. In health communication program planning, the gap analysis is part of a more comprehensive assessment known as a "situation analysis." The situation analysis is the first step of the P Process framework. The situation analysis generally includes the following:

- identifying and understanding the extent of the health issue
- formative research (e.g., audience; stakeholder identification)
- identifying communication resources

The APHC (Prov) Injury Prevention Program, in partnership with the APHC (Prov)'s Health Communication Science Program, sought to further its efforts to develop a strategic communication plan supporting the dissemination of injury prevention health communication materials to Soldiers, Army leaders, and medical and health education personnel. This effort expands upon the IPP's 2014 Injury Prevention Survey to identify opportunities for health communication product development based on the needs of key audiences (APHC (Prov) 2015), leading Army injury prevention priorities (Ruscio et al. 2010), and materials currently published by the APHC (Prov).

5 Methods

5.1 Gap Analysis Description

For the purpose of this project, an adaptation of the P Process gap and situation analysis (AHRQ 2015) was used to assess unintentional injury and physical activity-related educational products published by the APHC (Prov) in order to determine "gaps" in product development. The IPP's online survey and previously prioritized Army injury prevention priorities were used to determine the desired end-state for injury prevention communication products. The survey conducted by the APHC (Prov) Injury Prevention Program measured knowledge and awareness of the impacts, risk factors, and prevention strategies for musculoskeletal, heat, and cold injuries among Army personnel (APHC (Prov) 2015). Over half (57%) of respondents were affiliated with medical occupational specialties. Respondents identified several topics about which they would like

additional injury prevention information. In addition, the APHC (Prov) IPP reviewed a report by Ruscio et al. (2010), in which authors used a data-driven prioritization process to identify Army injury prevention targets. The Army's top 10 injury prevention targets (Ruscio et al. 2010), combined with the Injury Prevention Survey results (APHC (Prov) 2015) served as the desired end-state for injury prevention- and activity-related health information product topics for Army personnel (in particular medical and health education personnel). Evaluation of the current state of available education materials and the gap analysis were conducted using the following steps:

1. Identified all APHC (Prov) developed products related to musculoskeletal injuries, heat injury/illness, cold weather injury, and physical activity published on the APHC (Prov) website, Health Information Products (HIP) e-Catalog, APHC (Prov) YouTube channel, and the DVIDS U.S. Army Medical Command (MEDCOM) channel through manual and keyword search.
2. Analyzed products identified in step 1 to determine which matched predefined inclusion criteria (described in section 5.3.1).
3. Identified gaps between qualified product and the topics that comprise the ideal end-state.
4. Developed recommendations for new products and/or product updates to address identified gaps.

5.2 Data Collection

APHC (Prov) communication products were identified from four sources: The APHC (Prov) Resource Materials Library, the Health Information Products (HIP) e-Catalog, the APHC (Prov) YouTube channel, and the DVIDS U.S. MEDCOM channel. The search for materials was conducted from April to May 2015. A keyword search using the terms injury, injury prevention, and physical activity was conducted. Physical activity was included as a keyword due to its association with injury and physical performance. The APHC (Prov) IPP also has several exercise physiology and physical activity subject matter experts, who specialize in injury prevention. A health communication analyst reviewed each item in the Resource Materials Library and the DVIDS Army MEDCOM channel to determine its subject matter. The intended audience of the education materials was taken from labels provided in the Resource Materials Library and HIP e-Catalog (when available). The audience groups were determined by the proponent of the material. Each of the four data collection sources is described in additional detail in the subparagraphs that follow.

5.2.1 APHC (Prov) Resource Materials Library

The APHC (Prov) Resource Materials Library is a repository of documents developed by the APHC (Prov) and its predecessor organizations and made available on the center's website. Users may access the library through the APHC (Prov) home page or by entering key words into the search box provided on the website. Documents found in the library include technical guides, public health information papers, Army policies/doctrine, and fact sheets. Documents published in the library have undergone a formal clearance and approval process known as the "Center Review and Clearance" (CRC). The library also contains links to websites with additional resources such as the APHC (Prov)'s Health Information Products (HIP) e-Catalog, Army Knowledge Online (AKO), YouTube, and websites of other professional organizations (e.g., the U.S. Food and Drug Administration). The library is currently available at the following url:
<http://phc.amedd.army.mil/Pages/Library.aspx>.

All library materials that had been previously categorized or labeled as injury and physical activity-related were identified. A health communication analyst (MS) also performed a filtered search using the keywords injury, injury prevention, and physical activity for all fact sheets in the library. The health communication analyst also conducted a manual search during which each product listed in the library was reviewed to identify its subject matter.

5.2.2 Health Information Products e-Catalog

The Health Information Products (HIP) e-Catalog is a service provided by the APHC (Prov) that allows customers to download and order print copies of health information products (e.g., posters, tip cards, pocket guides, toolkits, etc.). Anyone may download materials from the e-Catalog, and individuals with government e-mail addresses may order print copies free of charge. These products are developed by communication specialists and graphic designers in consultation with subject matter experts both external and internal to the organization. The HIP e-Catalog materials are not submitted through the center's full CRC process prior to release, but are thoroughly vetted by subject matter experts to ensure accuracy of the content. Customers can perform a manual or filtered search for products or utilize the "Hot List" feature, which displays materials grouped by topic. The library is currently available at the following url: <https://usaphcapps.amedd.army.mil/hioshoppingcart/>.

One analyst performed several searches using "injury prevention," "heat injury," "cold injury," and "physical activity" as keywords. The following hot lists were also used to identify products: "Cold Weather Injury Prevention," "Heat Injury Prevention," and the "Performance Triad."

5.2.3 APHC (Prov) YouTube Channel

YouTube is a video sharing social network launched in 2005. In this medium, users can upload and share videos with channel subscribers and the public at large. Videos on YouTube may also be shared on other social networking platforms such as Facebook and Twitter. YouTube promotes social engagement by featuring a comment section below each video and enabling users to e-mail the channel owner. The APHC (Prov) created its channel and uploaded its first video in November 2012. As of May 2015, the channel has 102 subscribers, nearly 70,000 channel views, and 23 videos (YouTube 2015). The channel is currently available at the following url: <https://www.youtube.com/user/usaphc>. Each video on the APHC (Prov) YouTube channel was reviewed for injury/activity-related videos.

5.2.4 DVIDS U.S. Army Medical Command Channel

The DVIDS is a public affairs website operated by the Third Army/U.S. Army Central on behalf of the DA. The DVIDS documents military service across the Department of Defense through imagery, video, audio, and digital publications. The site performs a variety of functions and activities, such as facilitating interviews with subject matter experts, providing newswire services, maintaining an archive of media products, and distributing content via social media. The U.S. Army MEDCOM has its own page on the website where featured news stories, publications, videos, and photos published by organizations within the command are posted. A number of the videos posted by the U.S. Army MEDCOM were developed by the APHC (Prov). As of May 2015, there are 153 videos consisting of interviews, and public service announcements, among other formats. Users can search for relevant media using the search bar located on the homepage (DVIDS, no date). The channel is currently available at the following url: <https://www.dvidshub.net/unit/usamedcom>.

Videos listed on the MEDCOM channel are developed by organizations within the command. However, individual organizations are not named as proponents of the product listed on the channel. One analyst performed a search for APHC (Prov) videos using “U.S. Army Public Health Command” and “U.S. Army Medical Command” as keywords; each video found in the search results was reviewed to identify injury and physical activity-related subject matter. The videos were also compared to those found on the APHC (Prov) YouTube channel to verify that they were published by APHC (Prov).

5.3 Data Analysis

Analysis began with a review of literature on unintentional injuries among Army Soldiers (as described in the ‘Background’ section). Next, data from the Injury Prevention Survey was reviewed (APHC (Prov) 2015). The Injury Prevention Survey identified preferences for education materials and gauged knowledge on injuries, injury risk factors, and potential prevention strategies among Army personnel. Lastly, the Behavior Change Communication Program Cycle checklist was used to conduct a participant and channel analysis (Salem et al. 2008). The participant analysis identified current and potential partner organizations that could assist in developing and disseminating injury prevention information.

5.3.1 Inclusion Criteria

Inclusion criteria were based on an “ideal end-state” determined using information from Army injury prevention priorities (Ruscio et al. 2010) and the previously-conducted Injury Prevention Survey of Army personnel communication needs and preferences (APHC 2015). Each identified product was evaluated for inclusion in the analysis based on the criteria described below:

The product must meet **at least one of the following**:

- describes an unintentional injury prevention intervention
- describes an unintentional injury risk or risk factors for a physical activity
- describes recommendations for safely engaging in job tasks or activities designed to enhance physical performance
- describes methods for reducing unintentional injury risk related to occupational requirements
- describes recommendations for treating or managing an existing injury

AND the product must relate to **at least one of the following** prioritized injury and activity topics identified as an Army injury prevention priority or as recommended in the Injury Prevention Survey (Ruscio et al. 2010; APHC (Prov) 2015).

- a. **Army Unintentional Injury Prevention Priorities.** Prevention of injuries related to-
 - Physical Training
 - Parachuting
 - Falls
 - Sports
 - Privately-owned vehicle crashes
 - Guns and explosives
 - Military vehicles
 - Twist/turn (without fall)

- Tools and machines
- Non-traffic motor vehicle crashes

b. Activities

- Running (e.g., “how to run right,” conditioning and how to avoid overtraining problems, mileage and frequency, and group runs)
- Weight training and extreme conditioning (e.g., form and technique for weight-training and extreme conditioning)
- Agility and calisthenics (e.g., cross-training, warm-up, and stretching)
- Road marching (e.g., common injuries and injury prevention methods)
- Flexibility and stretching (e.g., variables and unknowns- as they relate to injury and dietary supplements)

c. Injury Type

- Back and knee injuries
- Sprains/torn muscles/tendinitis
- Heat/Cold injury risk (e.g., impacts of gender, age, antihistamines, caffeine, injury and prevention)
- Re-injury, rehabilitation, chronic injury (e.g., guidance regarding re-injury and rehabilitation/reconditioning, how to avoid chronic conditions such as joint-degeneration, arthritis)

d. Equipment

- Back-belts (e.g., addresses ineffective benefits and possible risk; addresses current DoD policy, type of belt and different uses)
- Footwear (e.g., risk, impacts of cotton socks, minimalist shoes, and older running shoes)

e. Risk Factors

- Body type and injury risk (e.g., dispel the myth, especially for women, that thinner means healthier)
- Fatigue (e.g., risk implications associated with age, supplements of various kinds, and post work out nutrition)

5.3.2 Summarizing Search Results

A list of qualified products (as determined by the inclusion criteria) was formulated in a Microsoft Excel spreadsheet. The following information was gathered for each product: product type (e.g., fact sheet, tip card, poster), audience, year published, source (e.g., Resource Materials Library, HIP e-Catalog), description, APHC (Prov) proponent, and prioritized topic area. A staff member from the APHC (Prov) IPP (MS) determined the most appropriate category(ies) for each product. The number of product orders, downloads, and views for each material was recorded when available. The number of products from each source was also totaled, followed by totals for products related to injury/physical activity and those matching the inclusion criteria, respectively.

Products located in multiple sources were only counted for the original source. For example, several products listed in the Resource Materials Library were linked to their original location in the HIP e-Catalog and were not counted under the library. Additionally, videos that appeared on both the DVIDS Army MEDCOM channel and the APHC (Prov) YouTube channel were only counted as a YouTube channel product for reasons described in the “Limitations” section of this report.

The total number of eligible products that matched the preferred product types indicated in the Injury Prevention Survey was also calculated (APHC (Prov) 2015). The percentage of qualified materials was determined overall and by each source. Lastly, each product was categorized by the topics listed in part 2 of the inclusion criteria.

Results were summarized separately for communication products that matched (1) an Army injury prevention priority (Ruscio et al. 2010) and (2) a topic of interest identified in the Injury Prevention Survey (APHC (Prov) 2015). Each summary included the following: the total number of APHC (Prov) products by topic area (i.e., injury prevention priority or Injury Prevention Survey recommendation), a list of specific products by product type (e.g., fact sheet, brochure, and technical report), the primary audience (e.g., Soldiers, health professionals, and family members), a list of materials within each topic area, and the total number of products specifically for health professionals in each topic area.

5.4 Documenting Completion of the P Process Steps

The focus of this report is the gap analysis, which is one task in Step One of the P Process. However, additional elements of Step One of the P Process were also completed and are summarized using the Behavior Change Communication Program Cycle checklist (Salem et al. 2008). These included understanding the extent of the particular health issue, learning about those most affected by it, and identifying resources to address the issue among audience members. Details regarding completion of these additional elements are summarized in Appendix C.

6 Results

6.1 Overall Findings

As of May 2015, a total of 2,233 products developed and/or distributed by the APHC (Prov) were in the Resource Materials Library, APHC (Prov) YouTube channel, DVIDS MEDCOM channel, and the APHC (Prov) HIP e-Catalog. One hundred forty-seven (6.6%) of these products were related to injury, injury prevention, and/or physical activity. Nearly half of these (67, 45.6%) met the inclusion criteria. Eighty products were excluded for the following reasons.

- Products provided had very generic information on physical activity and/or physical training.
- The products did not provide any health or educational information (e.g., policy documents).
- The products did not contain topics included in the Injury Prevention Survey, or the Army's injury prevention priorities.
- The products were not developed by the APHC (Prov), although they were found in the data collection sources used for this project.

Of the 67 qualified products, 44 (65.7%) matched the audience preferred product types as determined by the Injury Prevention Survey of Army personnel communication needs and preferences (APHC (Prov) 2015). The majority of the qualified materials were posters (15), followed by fact sheets (14), technical guides/reports/articles (6), and other health information products such as PowerPoint slide sets (2), scientific presentations (1) scientific posters (2), public health notices (1), stickers (1), and flash media (1). For the purpose of counting the number of products for each topic area, it is important to note that some products were counted in multiple categories since they covered more than one topic.

6.2 Results by Data Source

6.2.1 APHC (Prov) Resource Materials Library

There were 1,760 materials of varying types listed in the Resource Materials Library. Products were accessible via direct download or through a link to the original source (e.g., the HIP e-Catalog). Of these products, 105 were identified as related to injury, injury prevention, and physical activity. However, 71 of those products were excluded from the analysis due to inactive links, inclusion in the HIP e-Catalog (counted below), being developed by other organizations, and not containing health education information (e.g., policy documents). As a result, there were 34 total injury/physical activity-related products that met the inclusion criteria to include: fact sheets (14), technical guides and reports (6), PowerPoint slide sets (2), scientific posters (2), public health notices (1), scientific presentations (1), and flash media (1). The format of seven (7) products could not be identified.

6.2.2 HIP e-Catalog

A total of 297 products were available for ordering and/or downloading on the HIP e-Catalog. Of those, 36 were injury and physical activity-related. Application of the inclusion criteria yielded 31 qualified materials, comprising posters (15), cards/tip cards (6), pocket guides/guide books (5), brochures (3), stickers (1), and table tents (1).

6.2.3 APHC (Prov) YouTube Channel

Twenty-three (23) videos were uploaded to the APHC (Prov) YouTube channel, four of which were injury/physical activity-related. Only one video met the inclusion criteria.

6.2.4 DVIDS U.S. Army MEDCOM Channel

A total of 153 videos were published by MEDCOM on DVIDS. Six videos were associated with injury/physical activity, however, through further verification it was determined that two of those videos were not developed by APHC (Prov). Four additional videos matched the inclusion criteria, but were ultimately excluded from the DVIDS count as they were also posted to the APHC (Prov) YouTube channel. Only 1 of the 153 videos met the inclusion criteria.

6.3 Summary of Product Topics, Types, and Intended Audiences

Table 1 presents details on the product topics, types, and intended audiences by Army injury prevention priority. Table 2 presents details on the product topics, type, and intended audiences by Injury Prevention Survey topic. Figure 1 compares the percentage of the preferred types among Injury Prevention Survey respondents to the percentage of product types identified in the gap analysis. Figure 2 summarizes the intended audiences of APHC (Prov) injury and physical activity-related products, according to labels provided by the data collection source.

6.3.1 Product Topics

Of the 67 injury and physical activity-related products identified, there were fewer than 6 products for 7 out of 10 Army injury prevention priorities (Table 1). Physical training, the top Army injury prevention priority (Ruscio et al. 2010), had the greatest number of products available (n=27).

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Following physical training, sports (n=9), tools and machines (n=5), twist/turn/slip (without fall) (n=3), parachuting (n=3), and falls (n=1) were the most available product topics. No products were available for the following Army injury prevention priorities: guns and explosives, military vehicles, non-traffic motor vehicle crashes, and crashes involving privately-owned vehicles.

Injury Prevention Survey respondents ranked running, agility and calisthenics, weight training, extreme conditioning, and road marching among the top five most preferred product topics (APHC (Prov) 2015). Gap analysis findings (Table 2) determined heat/cold injury risk had the greatest number of products available (n=18). Weight training (n=16), agility and calisthenics (n=16), footwear (n=11), running, (n=7), flexibility and stretching (n=7), back and knee injuries (n=6), sprains/torn muscles/tendinitis (n=4), extreme conditioning (n=3), and road marching (n=1) were the next most available product topics. No products were available for the following topics (as recommended by the Injury Prevention Survey): back-belts, body type and injury risk, and fatigue.

Table 1. Number and type of communication products by Army injury prevention (IP) priority

	Army IP priority ‡	Total # of APHC (Prov) products	Communication product type (number of each), title, and date published ^{††}	Primary Audience(s)	Total # of Products for Health Professionals ^{†††}
1.	Physical training ^a	27	Fact sheets (3)		
			A. Injury Prevention with Mouthguards (2010) B. Pregnancy/Postpartum Physical Training Program (2010) C. Use an Exercise Ball for Exercise Not as a Desk Chair (2011)	A. Health Professionals B. Health Professionals, Soldiers, and Beneficiaries C. Health Professionals	3
			Brochures/tip cards (6)		
			A. Don't Get Sideline...Train Smart (2011) B. Triad: Take Steps Toward Healthy Living (2014) C. Triad: Optimize Your Performance Activity (2013) D. Triad: Performance Triad: Sleep, Activity, and Nutrition for the Soldier Athlete (2013) E. Triad: Stay Active for Healthy Living (2014) F. Triad: Stay Fit for Life! (2014)	A. All Service Members B. Family Members C. Soldiers D. Soldiers E. Retirees F. Pre-Retirees	0
			Technical reports/articles/guides (4)		
			A. TG 245 Healthy Weight- Owner's Manual for Managing Your Weight (2008) B. TG 281 A Guide to Female Soldier Readiness (2010) C. TG 358 Army Weight Management Guide (2013) D. Prevention of Physical Training-Related Injuries. Recommendations for the Military and Other Active Populations Based on Expedited Systematic Reviews (2010; journal article)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries B. Health Professionals, Leaders, Soldiers, and Beneficiaries C. Health Professionals D. Health Professionals	4
			Other health information product (14)		

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			A. Don't Get Sidelined...Train Smart (2012; poster) B. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media) C. Triad: Make Activity a Family Affair (2014; poster) D. Performance Triad- Activity (2014; video) E. Performance Triad (2014; video) F. The Performance Triad Challenge (2015; guide book) G. The Performance Triad Text Book (2015; guide book) H. Triad: The Total Army Family Challenge (2015; guide book) I. Triad: Don't Get Sidelined...Train Smart (2013; poster) J. Triad; Get Fit, Not Injured! (2013; poster) K. Triad: Sit Less, Move More (2013; poster) L. Triad: Sit Less, Move More (2013; table tent) M. Triad: The Total Army Family Guide (2015; guide book) N. Physical Activity and Risks of Injuries in Civilian and Military Populations (2012; scientific presentation)	A. All Service Members B. Health Professionals, Leaders C. Family Members D. Family Members, Pre-Retirees, and Retirees E. Family Members, Pre-Retirees, and Retirees F. Soldiers and Leaders G. Soldiers and Leaders H. Family Members, Pre-Retirees, and Retirees I. Soldiers J. Family Members, Pre-Retirees, and Retirees K. Family Members, Pre-Retirees, and Retirees L. Family Members, Pre-Retirees, and Retirees M. Family Members, Pre-Retirees, and Retirees N. Health Professionals	2
2.	Parachuting	3	Fact sheet (0) Brochures/tip cards (0)		

			Technical reports/articles/guides (3)		
			A. Lower Extremity Assistance for Parachutist (LEAP) Program: Quantification of the Biomechanics of the Parachute Landing Fall and Implications for a Device to Prevent Injuries (1995)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries	3
			B. Prevention of Physical Training-Related Injuries. Recommendations for the Military and Other Active Populations Based on Expedited Systematic Reviews (2010; journal article)	B. Health Professionals	
			C. Systematic Review of the Parachute Ankle Brace. Injury Risk Reduction and Cost Effectiveness (2010; journal article)	C. Health Professionals	
			Other health information product (0)		
3.	Falls	1	Fact sheet (0)		
			Brochures/tip cards (0)		
			Technical reports/articles/guides (0)		
			Other health information product (1)		
			A. Get a Grip! (2010; poster)	A. Service members	0
4.	Sports	9	Fact sheet (2)		
			A. Injury Prevention with Mouthguards (2010)	A. Health Professionals	1
			B. Youth Sports Injuries (2011)	B. Soldiers and Beneficiaries	
			Brochures/tip cards (1)		
			A. Don't Get Sidelined...Train Smart (2011)	A. All Service Members	
			Technical reports/articles/guides (0)		
			Other health information product (6)		
			A. Don't Get Sidelined...Train Smart (2012; poster)	A. All Service Members	2
			B. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media)	B. Health Professionals, Leaders	
			C. Performance Triad- Activity (2014; video)	C. Family Members, Pre-Retirees, and Retirees	
			D. Performance Triad (2014; video)		

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			E. Triad: Don't Get Sidelined...Train Smart (2013; poster) F. Physical Activity and Risks of Injuries in Civilian and Military Populations (2012; scientific presentation)	D. Family Members, Pre-Retirees, and Retirees E. Soldiers F. Health Professionals, Leaders	
5.	Privately-owned vehicle crashes	0			
6.	Guns and explosives (tie) Military vehicle crashes (tie)	0 0			
8.	Twist/turn/slip (without fall)	3	Fact sheet (3) A. How to Safely Perform Lifting and Lowering Tasks (2011) B. How to Safely Perform Pushing and Pulling Tasks (2011) C. Know How to Safely Carry Heavy Loads (2011)	A. Health Professionals B. Health Professionals C. Health Professionals	3
			Brochures/tip cards (0)		
			Technical reports/articles/guides (0)		
			Other health information product (0)		
9.	Tools and machines	5	Fact sheet (5) A. Choose the Proper Hand Tools for You (2011) B. How to Safely Perform Lifting and Lowering Tasks (2011) C. How to Safely Perform Pushing and Pulling Tasks (2011) D. Know How to Safely Carry Heavy Loads (2011) E. Selecting the Proper Powered Hand Tool Can Make Your Work Safer and Easier (2011)	A. Health Professionals, Soldiers, and Beneficiaries B. Health Professionals C. Health Professionals D. Health Professionals E. Health Professionals	5
			Brochures/tip cards (0)		
			Technical reports/articles/guides (0)		
			Other health information product (0)		
10.	Non-traffic motor	0			

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vehicles crashes				
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Legend:

[†] Reference: Ruscio et al. (2010)

^{##} Product types listed are based on the top three responses from the Injury Prevention Survey. The “Other health information products” category contains the remaining product types identified in the gap analysis (e.g., videos, posters, etc.).

⁺⁺⁺ Some products were intended for multiple audiences and were thus counted in each group identified.

^a Physical training category also includes content related to exercise/general physical activity.

Table 2. Number and type of communication products by Injury Prevention (IP) Survey recommendation

IP Survey recommendation [†]	Total # of APHC (Prov) products	Communication product type (number of each), title, and date published ^{##}	Primary Audience(s)	Total # of Products for Health Professionals ⁺⁺⁺
Weight Training	16	Fact sheet (0)		
		Brochures/tip cards (5)		
		A. Don't Get Sidelined...Train Smart (2011) B. Triad: Take Steps Toward Healthy Living (2014) C. Triad: Optimize Your Performance Activity (2013) D. Triad: Stay Active for Healthy Living (2014) E. Triad: Stay Fit for Life! (2014)	A. All Service Members B. Family Members C. Soldiers D. Retirees E. Pre-Retirees	0
		Technical reports/articles/guides (3)		
		A. TG 245 Healthy Weight- Owner's Manual for Managing Your Weight (2008) B. TG 281 A Guide to Female Soldier Readiness (2010) C. TG 358 Army Weight Management Guide (2013)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries B. Health Professionals, Leaders, Soldiers, and Beneficiaries C. Health Professionals	3
		Other health information product (8)		

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		A. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media) B. Performance Triad- Activity (2014; video) C. Performance Triad (2014; video) D. Triad: Sit Less, Move More (2013; table tent) E. The Performance Triad Challenge (2015; guide book) F. The Performance Triad Text Book (2015; guide book) G. Triad: The Total Army Family Challenge (2015; guide book) H. Triad: The Total Army Family Guide (2015; guide book)	A. Health Professionals, Leaders B. Family Members, Pre-Retirees, and Retirees C. Family Members, Pre-Retirees, and Retirees D. Family Members, Pre-Retirees, and Retirees E. Soldiers and Leaders F. Soldiers and Leaders G. Family Members, Pre-Retirees, and Retirees H. Family Members, Pre-Retirees, and Retirees	1
Agility and calisthenics ^a	16	Fact sheet (2)		
		A. The Debate on Stretching (2010) B. Youth Sports Injuries (2011)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries B. Soldiers and Beneficiaries	1
		Brochures/tip cards (4)		
		A. MRS (Minimalist Running Shoes) (2012) B. Triad: Optimize Your Performance Activity (2013) C. Triad: Performance Triad: Sleep, Activity, and Nutrition for the Soldier Athlete (2013) D. Triad: Stay Fit for Life! (2014)	A. All Service Members B. Soldiers C. Soldiers D. Pre-Retirees	0
		Technical reports/articles/guides (1)		
		A. Prevention of Physical Training-Related Injuries. Recommendations for the Military and Other Active Populations Based on	A. Health Professionals	1

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		Expedited Systematic Reviews (2010; journal article)		
		Other health information product (9)		
		A. Don't Get Sidelined...Train Smart (2012; poster) B. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media) C. Performance Triad- Activity (2014; video) D. Performance Triad (2014; video) E. Triad: Don't Get Sidelined...Train Smart (2013; poster) F. The Performance Triad Challenge (2015; guide book) G. The Performance Triad Text Book (2015; guide book) H. Triad: The Total Army Family Challenge (2015; guide book) I. Triad: The Total Army Family Guide (2015; guide book)	A. All Service Members B. Health Professionals, Leaders C. Family Members, Pre-Retirees, and Retirees D. Family Members, Pre-Retirees, and Retirees E. Soldiers F. Soldiers and Leaders G. Soldiers and Leaders H. Family Members, Pre-Retirees, and Retirees I. Family Members, Pre-Retirees, and Retirees	1
Running	7	Fact sheet (0)		
		Brochures/tip cards (2)		
		A. MRS (Minimalist Running Shoes) (2012) B. Triad: Optimize Your Performance Activity (2013)	A. All Service Members B. Soldiers	0
		Technical reports/articles/guides (0)		
		Other health information product (5)		
		A. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media) B. Performance Triad- Activity (2014; video) C. Performance Triad (2014; video)	A. Health Professionals, Leaders B. Family Members, Pre-Retirees, and Retirees C. Family Members, Pre-Retirees, and Retirees	2

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		D. Physical Activity and Risks of Injuries in Civilian and Military Populations (2012; scientific presentation) E. The Performance Triad Text Book (2015; guide book)	D. Health Professionals, Leaders E. Soldiers and Leaders	
Flexibility and stretching	7	Fact sheet (1)		
		A. The Debate on Stretching (2010)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries	1
		Brochures/tip cards (1)		
		A. MRS (Minimalist Running Shoes) (2012)	A. All Service Members	0
		Technical reports/articles/guides (1)		
		A. TG 358 Army Weight Management Guide (2013)	A. Health Professionals	1
		Other health information product (4)		
		A. Injury Prevention Through Leadership Course-Impact and Burden of Musculoskeletal Injuries (no date; flash media) B. Take Time to Stretch (2007; poster) C. Physical Activity and Risks of Injuries in Civilian and Military Populations (2012; scientific presentation) D. The Performance Triad Text Book (2015; guide book)	A. Health Professionals, Leaders B. All Personnel C. Health Professionals, Leaders D. Soldiers and Leaders	2
Extreme Conditioning	3	Fact sheet (0)		
		Brochures/tip cards (0)		
		Technical reports/articles/guides (0)		
		Other health information product (3)		
		A. The Performance Triad Text Book (2015; guide book) B. Triad: The Total Army Family Guide (2015; guide book) C. PHN No. 0312-01, What Army Leaders	A. Family Members, Pre-Retirees, and Retirees B. Family Members, Pre-Retirees, and Retirees C. Health Professionals,	1

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		Should Know about Extreme Conditioning Programs (2012; public health notice)	Leaders, Soldiers, and Beneficiaries	
Road marching	1	Fact sheet (0)		
		Brochures/tip cards (0)		
		Technical reports/articles/guides (0)		
		Other health information product (1)		
		A. The Performance Triad Text Book (2015; guide book)	A. Family Members, Pre-Retirees, and Retirees	0
Heat/cold injury risk	18	Fact sheet (2)		
		A. Guidance on the Use of Heaters Inside Tent and Other Enclosed Shelters (2014) B. Wearing Army Combat Boots in Cold Weather (2006)	A. Health Professionals, Leaders B. Health Professionals, Leaders, Soldiers, and Beneficiaries	2
		Brochures/tip cards (2)		
		A. Cold: Cold Weather Casualties & Injuries (2010) B. Heat: Are You Hydrated? Take the Urine Color Test (2014; card)	A. All Service members B. All Service members	0
		Technical reports/articles/guides* (1)		
		A. Heat: HIP Pocket Guide (Heat Injury Prevention) (2011)	A. All Service members	0
		Other health information product (13)		
		A. Heat Illness Prevention Slide Set (2013; PowerPoint slide set) B. Heat: Heat Can Kill (deployed) (2009; poster) C. Heat: Heat Can Kill (for trainees) (2009; poster) D. Heat: Heat Injury Controls (2008; poster) E. Heat: Work/Rest and Water Consumption Table (2011; poster) F. Self-care Instructions for Hot Weather Symptoms (2012)	A. Health Professionals B. All Service members C. All Service members D. Health Professionals E. Leaders F. Soldiers and Beneficiaries G. All Service members H. Trainees; All Service members I. All Service members	3

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		G. Heat: Are You Hydrated? Take the Urine Color Test (2010; card) H. Heat: Heat Can Kill (2005; sticker) I. Cold Weather Injuries: Prevention, Identification, and Treatment (2014; PowerPoint presentation) J. Cold: Cold Weather Casualties and Injuries (2010; poster) K. Cold: Cold Weather Casualties Trainees (2013; poster) L. Self-care Instructions for Cold Weather Symptoms (2012) M. Extremity Cooling Reduces Exertional Heat Injury Severity During Military Training (2013; scientific poster)	J. All Service members K. All Service members L. Soldiers and Beneficiaries M. Health Professionals	
Sprains/torn muscles/tendinitis	4	Fact sheet (2)		
		A. Troubleshoot Pain and Discomfort in Your Office (2012) B. Work-related Musculoskeletal Disorders (2012)	A. Health Professionals B. Health Professionals	2
		Brochures/tip cards (0)		
		Technical reports/articles/guides (0)		
		Other health information product (2)		
		A. Self-care Instructions for Joint Pain (2011) B. Self-care Instructions for Muscle Pain and Bruises (2011)	A. Soldiers and Beneficiaries B. Soldiers and Beneficiaries	0
Back and knee injuries	6	Fact sheet (5)		
		A. How to Safely Perform Lifting and Lowering Tasks (2011) B. How to Safely Perform Pushing and Pulling Tasks (2011) C. Know How to Safely Carry Heavy Loads (2011)	A. Health Professionals B. Health Professionals C. Health Professionals D. Health Professionals E. Health Professionals F. Health Professionals	6

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		D. Troubleshoot Pain and Discomfort in Your Office (2011)		
		E. Use an Exercise Ball for Exercise Not as a Desk Chair (2011)		
		Brochures/tip cards (0)		
		Technical reports/articles/guides (0)		
		Other health information product (1)		
		A. Self-care Instructions for Back Pain (2012)	A. Soldiers and Beneficiaries	0
Re-injury, rehabilitation, chronic injury	1	Fact sheet (1)		
		A. Work-related Musculoskeletal Disorders (2011)	A. Health Professionals	1
		Brochures/tip cards (0)		
		Technical reports/articles/guides (0)		
		Other health information product (0)		
Footwear	11	Fact sheet (1)		
		A. Wearing Army Combat Boots in Cold Weather (2006)	A. Health Professionals, Leaders, Soldiers, and Beneficiaries	1
		Brochures/tip cards (1)		
		A. MRS (Minimalist Running Shoes) (2012)	A. All Service members	0
		Technical reports/articles/guides* (0)		
		Other health information product (9)		
		A. Don't Get Sidelined...Train Smart (2012; poster) B. MRS (Minimalist Running Shoes) (2012; brochure) C. Self-care Instructions for Foot Problems-Blisters (2012) D. Self-care Instructions for Foot Problems-Other (2012)	A. All Service members B. All Service members C. Soldiers and Beneficiaries D. Soldiers and Beneficiaries E. Soldiers F. Health Professionals	2

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		E. Triad: Don't Get Sidelined...Train Smart (2013; poster) F. Injury Risk and Performance among Soldiers Wearing Minimalist Running Shoes (2013; scientific poster) G. Prevention of Physical Training-Related Injuries. Recommendations for the Military and Other Active Populations Based on Expedited Systematic Reviews (2010; journal article) H. The Performance Triad Text Book (2015; guide book) I. Triad: The Total Army Family Guide (2015; guide book)	G. Health Professionals H. Soldiers and Leaders I. Family Members, Pre-Retirees, and Retirees	
Back-belts	0			
Body type (e.g. myths about the relationship between thin body type and health) and injury risk	0			
Fatigue	0			

Legend:

‡ Reference: APHC (Prov) (2015)

‡‡ Product types listed are based on the top three responses from the Injury Prevention Survey (APHC (Prov) 2015). The "Other health information products" category contains the remaining product types identified in the gap analysis (e.g., videos, posters, etc.).

‡‡‡ Some products were intended for multiple audiences and were thus counted in each group identified.

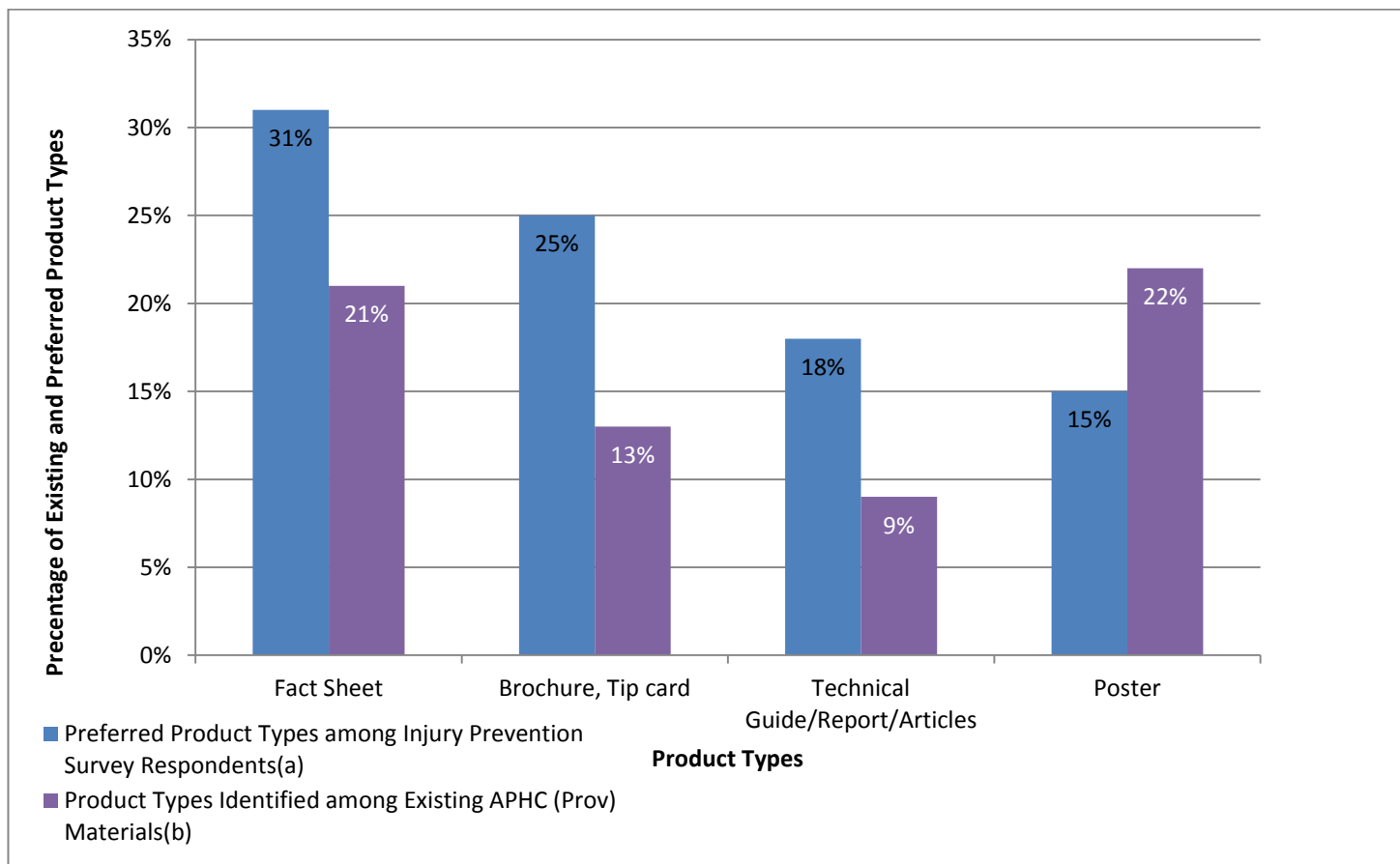
^a Agility and Calisthenics category includes warm-ups, mobility, and agility content.

6.3.2 Product Types

Figure 1 further summarizes the details provided in Tables 1 and 2. Figure 1 depicts percentage of votes for the top 4 preferred product types among Injury Prevention Survey respondents (APHC (Prov) 2015) compared to the percentage of existing APHC (Prov) injury and physical-activity-related product types. Fact sheets (31%), brochures/tip cards (25%), and technical guides/reports/articles (18%), and posters (15%) were the leading preferred product types among Injury Prevention Survey respondents (APHC (Prov) 2015). Posters (22%), fact sheets (21%), brochures/tip cards (13%), and technical guides/reports/articles (9%) were the most available types among existing APHC (Prov) products.

6.3.3 Intended Audiences

Figure 2 depicts the intended audiences of products identified in the gap analysis. Some products were intended for multiple audiences and were counted for each audience identified. Nearly 40% (39%, n=26) of products were specifically developed for medical personnel professionals (labeled as “health professional” by the data collection source), while 69% (n=46) were intended for Soldiers. Products for beneficiaries (n=20) and leaders (n=12) represented 30% and 18% of existing materials, respectively

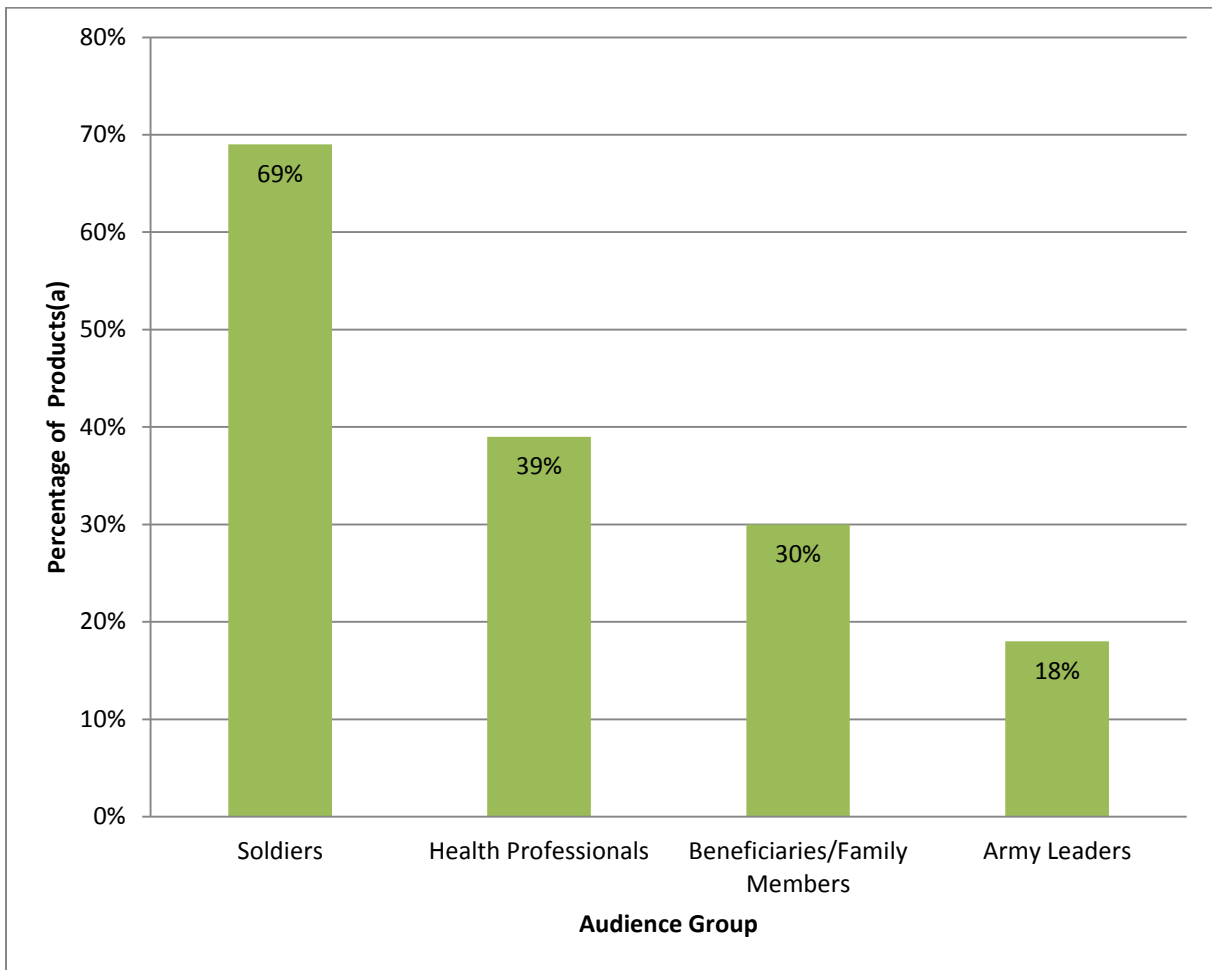


^a n=67 injury and physical activity-related products identified

^b n=1595 votes from Injury Prevention Survey respondents (APHC (Prov) 2015)

Note: The quality of evidence-based injury prevention guidance was not evaluated

Figure 1. Top 4 preferred product type identified by Injury Prevention Survey respondents and the gap analysis



^a n=67 injury and physical training-related products identified

Note: The amount and quality of specific evidence-based injury prevention guidance that a particular product provided on a given topic was not addressed in this analysis.

Figure 2. Intended audiences of products identified in the gap analysis

7 Discussion

This analysis documented existing injury and physical activity-related communication products developed by the APHC (Prov) and identified opportunities for new material development based on Army injury prevention priorities (Ruscio et al. 2010) and a previously conducted Injury Prevention Survey of Army personnel communication needs and preferences (APHC (Prov) 2015). The P Process, a theory-driven framework used to define strategic behavior change communication programs goals, guided the assessment.

Search results determined that a small proportion (6.6%, n= 147) of all materials found in the APHC (Prov) Resource Materials Library, the HIP e-Catalog, the APHC (Prov) YouTube channel, and the DVIDS U.S. Army MEDCOM channel were related to injury, injury prevention, and/or physical activity. A total of 67 products addressed priority injury and physical activity-related topics. While APHC (Prov) has developed one or more materials for nearly half of the priority topics (45.6%), there were no products related to seven prioritized topics. Communication products should be developed for these topics which include privately-owned vehicles (POV), military vehicle crashes, non-traffic motor vehicle crashes, guns and explosives, back-belts, body type and injury risk, and fatigue. Furthermore, few (≤ 2) communication products related to three other priority topics were found. These included falls, road marching, and re-injury/rehabilitation/chronic injury. While some of these topics, such as POV injury prevention, are addressed on an ongoing basis by other Army agencies such as the Army Combat Readiness/Safety Center, there is still a need for materials that summarize current public health knowledge and lessons learned for all of the priority topics.

The Injury Prevention Survey of Army personnel communication needs and preferences also indicated that fact sheets, brochures/tip cards, and technical reports/articles were the most preferred product types among all respondents (APHC (Prov) 2015). Gap analysis outcomes determined that posters, fact sheets, and brochure/tip cards were the most developed product types among current APHC (Prov) materials. Consequently, there is a need to reconcile the gaps in product types preferred by APHC (Prov) customers, perhaps by focusing on development of technical fact sheets and tip card/brochure products.

Injury Prevention Survey respondents also indicated a preference to receive educational materials via the computer, printed copies, and mobile device (APHC (Prov) 2015). All of the products included in the analysis are accessible by computer, with some available for downloading and local printing by the user. The HIP e-Catalog was the only source that allowed customers to order a number of professionally printed versions of products (free of charge with a government e-mail address). Approximately 8% of current materials were developed for electronic distribution only (e.g., videos, PowerPoint slides). Materials located in the APHC (Prov) Resource Materials Library, HIP e-Catalog, and the DVIDS U.S. Army MEDCOM Channel are accessible on a mobile device, but are not formatted specifically for these devices. Videos uploaded to the APHC (Prov) YouTube channel are mobile device-friendly through use of the YouTube application (i.e., app). Expansion to digital media may be advantageous, given that Soldiers have indicated a preference to receive information via electronic channels (e.g., websites, social media, smartphone applications) over printed materials in previous studies (USAPHC 2014).

Internet, social media, and mobile device use have steadily increased among adults over the past decade (Pew Research Center 2015). Additional data indicates that 59% of adult internet users in the U.S. seek health information online (Fox 2011). APHC (Prov) social media was not analyzed for this project, however posts from the APHC (Prov) Facebook and Twitter pages generally contain public health messaging on various topics (e.g., food safety), links to health-related news articles, or announcements about events going on around the APHC (Prov). Injury Prevention Program communication efforts should consider increasing the use of APHC (Prov) social media and digital

technology (e.g., videos, and digital publishing software) as an additional dissemination strategy for injury prevention information.

The Community Preventive Services Task Force (2015a) maintains that there is sufficient evidence to recommend a multiple channel approach to health communication campaigns. Mass media in combination with some form of product distribution (e.g., brochures, posters, and social media) has demonstrated overall effectiveness in improving certain health behaviors (such as condom use, smoking cessation, physical activity, and reducing alcohol-impaired driving) (The Guide to Community Preventive Services 2015c). Using a multiple channel approach increases opportunities for campaign awareness and message dissemination as individual behavior is often influenced by several personal and environmental factors (Sallis, Owen, and Fisher 2008). The ecological model conceptualizes this into four general levels of influence (intrapersonal, relationship, community, and societal) which function independently and interdependently to affect behavior (Sleet and Gielen 2007). As a result, behavioral interventions that target multiple levels should prove more effective than utilizing a single level approach (Sallis, Owen, and Fisher 2008). This strategy has been applied to injury campaigns in the civilian sector (Elder et al. 2004) and is recommended as a best practice by civilian injury experts (Aldoory and Bonzo 2005). Although the APHC (Prov) has a variety of injury prevention products future communication efforts may be better served by pursuit of a multiple channel approach.

The present study also determined that the majority of APHC (Prov) injury and physical activity-related products were intended for Soldiers, followed by health professionals, beneficiaries, and leaders. Based on these results, there is an opportunity to develop more products for additional Army audiences, in particular medical and health education personnel and leaders. However, products intended for Soldiers can also be utilized by medical and health education personnel and leaders. Medical providers and health education personnel have high visibility with Soldiers and are valuable conduits through which to dispense injury prevention information. Evidence suggests that healthcare providers are viewed as trusted sources for health information (Hesse et al. 2005) and have influence on the health behaviors of their patients (Stewart 1995; Street et al. 2009). As a result, recommendations in the Injury Prevention Survey report (APHC (Prov) 2015) identify this group as a primary audience for communication material development. Technical materials aimed at medical providers are needed, in addition to materials that providers can distribute to their patients. Leaders, like medical providers, have daily contact with Soldiers; such contact offers valuable opportunities for education. Future injury and physical activity-related product development should also focus on leaders.

This gap analysis contributes an essential element of Step One of the P Process. The outcomes of Step One provide a situation analysis that is foundational to the transition into Step Two ("Strategic Design"). Step Two will define a communication strategy through activities such as goal/objective setting, selecting a behavior change theoretical framework, timeline development, prioritizing communication channels, and developing monitoring and evaluation plans (HCC 2013; Salem et al. 2008). Systematic, strategic development of a dissemination plan for APHC (Prov) injury prevention communication and other technical topics is needed. Completion of the P Process should be pursued.

7.1 Limitations

There were a few limitations regarding the data collection and analysis process. First, it should be noted that the findings reported in this document are counts of the number of communication products that relate to injury, injury prevention, and physical activity from the aforementioned data collection sources. Products matching the topics determined by the Injury Prevention Survey (APHC (Prov) 2015) and the Army top ten injury prevention priorities (Ruscio et al. 2010) in the gap analysis should not be interpreted as having adequately addressed the given topic from an injury

prevention standpoint. Products were reviewed to determine their subject matter and to match it with an appropriate topic area. A thorough review of content for each product included in the gap analysis is required to determine whether the product satisfies prevention information needs for its designated topic area.

The categorization of qualified products based on part 2 of the inclusion criteria was subjective and based on professional opinion. An APHC (Prov) Injury Prevention Program/ Health Communication Science Program staff member (MS) reviewed the content of each product solely to determine its topic and to assign it to at least one topic area. The extent to which a particular product provided “enough” content to relate to a given topic was variable. For example, the Performance Triad “Sit Less, Move More” poster provides generalized physical-activity information (e.g., walk 10,000 steps during your everyday routine) and was placed in the “Physical Training” category. However, the “Performance Triad Textbook” guide, which contains more than 20 pages of content devoted to physical activity-related information (including injury prevention), was also placed in this category. The degree that either of these products addressed evidence-based injury prevention guidance was also not addressed by this analysis. Also, the product type and intended audience may account for the level of content found in each product (i.e., a poster versus a fact sheet).

Totals for all injury and physical activity-related products were manually counted by an APHC (Prov) analyst (MS) based on search results. As a result, there is potential for error in identifying these materials from the data sources, in particular the APHC (Prov) Resource Materials Library, DVIDS U.S. Medical Command channel, and the HIP e-Catalog, as these data sources were very large (i.e. ≥ 100 products). Although materials from the Resource Materials Library, YouTube, and the HIP e-Catalog were confirmed as published and/or distributed by APHC (Prov), this distinction cannot be confirmed in DVIDS. Videos developed by APHC (Prov) are listed in DVIDS under the MEDCOM name. Therefore, the total number of videos recorded in this analysis reflects those published by all organizations within MEDCOM. Some products recently developed by the APHC (Prov), but not publicly available in the data sources used for this project during the data collection period (i.e., April-May 2015), were not included in this analysis. The APHC (Prov) also provides subject matter expertise in consultation for products developed by other organizations within the Department of Defense (e.g., Army Safety Center, Department of Defense (DoD) Ergonomics Working Group). Products that resulted from collaborative efforts with other organizations were also not included in this analysis. Lastly, injury and physical activity-related posts and tweets from the APHC (Prov) Facebook and Twitter accounts were not counted as daily messaging was not tracked during the data collection period.

This project relies on the preferences of the Injury Prevention Survey respondents, which may not be representative of all Army Soldiers (APHC (Prov) 2015). However, the survey outcomes provided evidence of preferred topics, product types, and methods of dissemination for Army personnel. Further work is needed to capture a more comprehensive view of gaps in injury and physical activity-related communication materials among target audiences.

8 Conclusions and Recommendations

The P Process framework, a theory-driven framework used to define strategic behavior change communication program goals, can help ensure that audience needs as well as data-driven priorities are addressed in public health communication product development and planning. This report describes results of a gap analysis, an essential element of Step one of the P Process. Overall, existing injury-related materials account for a small percentage of the products developed by the APHC (Prov). The gap analysis revealed several discrepancies between the injury prevention material needs and preferences of Army personnel and products currently available

from the APHC (Prov). These findings serve as a starting point for strategic communication planning and product development prioritization.

8.1 Recommendations Based on Project Outcomes

Recommended next steps are as follows:

- Continue the development of communication products related to injury, a leading Army health and readiness issue.
- Review the content of existing APHC (Prov) communication products on the prioritized topics identified in the Injury Prevention Survey and the Army's injury prevention priorities, to determine if the products accurately address the topic at hand or require updating.
- Update the current analysis by identifying new injury prevention products that match the priority injury topics created since the initial data were collected for this project.
- Develop a prioritized list of updated and new product needs that describes the specific topic, level of detail, and format (e.g., fact sheet, video) and will more clearly identify additional gaps.
- Expand injury and physical activity communication product development to include the priority injury topics not yet covered (e.g., privately-owned vehicles, military vehicle crashes, non-traffic motor vehicle crashes, guns and explosives, back-belts, body type and injury risk, and fatigue) or those topics with few materials (e.g., falls, road marching, and re-injury).
- Collaborate with both internal and external organizations to fill gaps and/or update existing materials.
- Focus product development toward more technical products and tip cards/brochures.
- Develop additional materials for medical and health education personnel and leaders.

8.2 Additional Recommendations

- Utilize a behavior change theory or model to help frame injury messaging.
- Incorporate new media into existing dissemination channels (e.g., APHC (Prov) social media, videos) and make materials accessible on mobile devices.
- Utilize a multiple channel approach (e.g., print, web, etc.) to disseminate messaging to segmented audiences.
- Evaluate the customer feedback received regarding current products (i.e., via customer reviews) and use feedback as part of the broad criteria for development of future injury prevention products.
- Conduct a follow on needs assessment to reach additional military audiences (such as younger enlisted Soldiers, Army leaders, and beneficiaries).
- Review and discuss the results of the P Process Step One communication channel analysis presented in Appendix C. Continue the strategic planning process by completing Step Two (Strategic Design) of the P Process framework.
- Apply the P Process to other topics areas (e.g., infectious disease, environmental hazards).

9 Point of Contact

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Appendix A

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Appendix B

Behavior Change Communication Program Cycle Publication



INFO Project
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Programs

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Family planning program managers can use this checklist to help plan, carry out, and evaluate BCC programs.

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This model can help the BCC program team to create an audience profile. The profile helps in developing messages and materials that will move the audience.

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Good-Quality Materials...p. 5

This checklist can help program managers determine whether the creative team is developing good-quality messages and materials.

Checklist: Working With

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This checklist can help program managers work with the news media to reach the public.

Types of Evaluation: Purpose,

Questions Answered, and

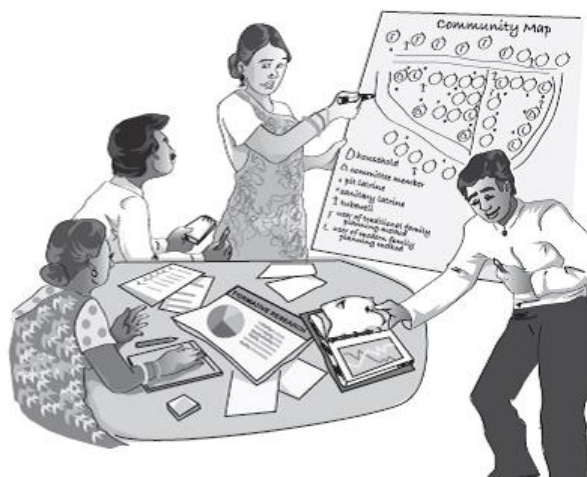
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Tools for Behavior Change Communication



Many health and development programs use behavior change communication (BCC) to improve people's health and wellbeing, including family planning and reproductive health, maternal and child health, and prevention of infectious diseases. BCC is a process that motivates people to adopt and sustain healthy behaviors and lifestyles. Sustaining healthy behavior usually requires a continuing investment in BCC as part of an overall health program.

The tools in this issue of *INFO Reports* are meant to help with planning and developing a BCC component in family planning programs. The same tools can be used, however, for any health- or development-related BCC program. This report is part of a set of publications on behavior change communication. Other publications in the set are *Population Reports*, "Communication for Better Health," and *INFO Reports*, "Entertainment-Education for Better Health."

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See companion *Population Reports*,
"Communication for Better Health,"
Also see companion *INFO Reports*,
"Entertainment-Education
for Better Health."

Figure B-1. Behavior Change Communication Program Cycle Page 1



Behavior Change Communication Program Cycle

How to use this tool: Family planning program managers can use this checklist to help plan, carry out, and evaluate BCC programs. The checklist reflects the communication program processes of several organizations (see list of sources at end of checklist). Each organization's process has different names for the steps, but they include common elements.

Each step highlights, in a colored box, tips for engaging the participation of members of the intended audience and other key stakeholders.

STEP 1: Analysis

Understand Dynamics of the Health Issue

- ☐ Determine severity and causes of the health issue, noting differences by audience characteristics such as gender and ethnicity.
- ☐ Identify possible health-related behaviors that could be encouraged or discouraged.
- ☐ Identify social, economic, and political factors blocking or facilitating desired behavior changes.
- ☐ Develop problem statement that summarizes the above points to help identify what aspects of the health issue can be addressed through communication.

Understand Audience and Other Potential Participants in the Program (Formative Research)

- ☐ Identify primary audience (people who are at risk of or are suffering from the health problem) and secondary audiences (people who influence health behaviors of primary audience).
 - Collect in-depth information about the audience: What are their knowledge, attitudes, and beliefs about health? What factors affect their health behaviors? What are their media habits? What access do they have to information, services, and other resources? Where do they currently stand in the stages of behavior change?

- Are there different groups of people who have similar needs, preferences, and characteristics (audience segments)? Will the BCC program need customized messages and materials to suit audience segments?
- Develop a profile, or description, of each audience segment to help the creative team develop effective messages and materials later (see p. 5 for a tool).

☐ Conduct participant analysis.

- What other people or groups can participate in the BCC program (partners, stakeholders, allies, and gatekeepers)? These may include nongovernmental organizations, professional associations, schools, faith-based groups, and the media. What skills or resources can they offer? What would motivate their participation?

☐ Conduct channel analysis.

- What communication channels are available?
- What are the strengths and weaknesses of each channel? For example, how effective are the channels in reaching the audience? How many people can they reach?

Engage community participation

- Be open and public about the program's objectives. Respond to the audience's expressed needs.
- Involve audience members and other key stakeholders in the analysis of their own concerns. Participatory techniques include scoring and preference ranking (community members weigh different problems or program options as to how well they meet various criteria) and community mapping and modeling. In this process community members draw a map of their community to identify what programs are available and where they may be needed most.

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Appendix C

Outcomes of P Process Step One

The table below documents the tasks found in step one of the P Process, which was adapted from the Behavioral Change Communication Program Cycle checklist (see Appendix B) (Salem et al. 2008). Some items from the original checklist were omitted where they did not apply to the Injury Prevention Program or this project.

Table C-1. Outcomes of P Process Step One

Understand the Dynamics of the Health Issues	
Determine severity and causes of the health issue, noting difference by audience characteristics such as gender and ethnicity.	Unintentional nonfatal injuries are a significant problem in the U.S. Army, resulting in over 1.2 million medical encounters among active duty soldiers in 2012 (Marshall, Canham-Chervak, Dada, and Jones 2014). They account for the largest number of medical encounters among the active duty component of the Armed Services (Jones et al. 2010). Army surveillance studies find that musculoskeletal injuries (e.g. sprains, stress fractures, dislocations, etc.) caused predominately by sports/physical training, motor vehicle accidents, or falls pose the greatest threat to military readiness (Hauret et al. 2010). These injuries are largely preventable, yet yield millions of dollars in health care costs and lost duty days each year (Jones et al. 2000). Higher risk for injury has been most consistently demonstrated among Soldiers with lower aerobic fitness levels, cigarette smokers, and those with lower levels of physical activity prior to Army basic combat training (Knapik et al., 2006). The severity of injuries and their impact on military operations are well documented and can be reviewed elsewhere (Marshall et al. 2014; Zambraski and Yancosek 2012; Roy et al. 2014).
Identify possible health-related behaviors that could be encouraged or discouraged.	Current educational materials describe preventive measures for musculoskeletal injuries. These topics include cold weather injuries, extreme conditioning programs, and running. The materials also raise awareness of ways to safely enhance physical performance (e.g., weight training, cross training, etc.). Examples of behaviors that reduce the risk of injury include (Bullock et al. 2010): • wearing a mouthguard during high risk physical training, sport, and recreation activities • performing agility training (e.g., shuttle run, plyometrics) • following proper guidelines for resistance/weight training • using only Army-approved heaters in sleep areas
Identify social, economic, and political factors blocking or facilitating desired behavior changes.	Responses from the Injury Prevention Survey revealed concern for the lack of knowledge and/or support for injury prevention efforts by unit leadership (APHC (Prov) 2015). Gaps in knowledge or negative perceptions regarding unfamiliar physical training techniques among this group may serve as a barrier to the adoption of risk reduction strategies. In addition, depending on the level of leadership, the authority to institute and enforce policies that advance injury prevention initiatives is an important facilitator to behavior change. Medical providers and health educators are widely viewed as credible sources of health information and therefore can help facilitate risk-reducing behaviors among Soldiers.

	Leadership buy-in is crucial in any campaign or program initiative, as it can yield policy changes and add credibility to new information among junior soldiers. As a result, communication activities should leverage opportunities to educate leadership on injury-related issues and foster support for policy changes.
Develop problem statement that summarizes the above points to help identify what aspects of the health issue can be addressed through communication.	Unintentional injuries sustained through physical training, falls, and/or motor vehicle accidents are largely preventable based on known risk factors and evidence-based preventive measures. Soldiers, leaders, and other key stakeholders require education on injury types, risk factors, and preventive methods.
Understand Audience and Other Potential Participants in the Program (Formative Research)	
Identify primary audience (people who are at risk of or are suffering from the health problem) and secondary audiences (people who influence health behaviors of primary audience). - Collect in-depth information about the audience: What are their knowledge, attitudes, and beliefs about health? What factors affect their health behaviors? What are their media habits? What access do they have to information, services, and other resources? - Are there different groups of people who have similar needs, preferences, and characteristics (audience segments)? Will the behavior change communication (BCC) program need customized messages and materials to suit audience segments?	<u>Primary audience</u>: Soldiers <u>Secondary audiences</u>: Medical providers, health educators, Army leaders, beneficiaries, and DA civilians. The Injury Prevention Survey describes the awareness of injury-related topics (e.g. causes, risk factors, interventions, common injuries in the Army) among military personnel (APHC (Prov) 2015). The survey respondents worked primarily in medical-related fields as physical therapists and physician assistants among other occupations. This demographic served as the target audience for educational material development. Their preferences regarding topics in which to receive more information, product type, and methods of distribution were gathered to inform recommendations for future material development. The outcomes of the assessment are documented in detail in Injury Prevention Survey Public Health Report No. S.0023151 (APHC (Prov) 2015). Although, Soldiers are the primary audience (as they are directly impacted by unintentional injury), medical providers and health educators are an important group in which to direct injury prevention efforts. Medical providers serve as gatekeepers of health information, informing patients about their health status, treatment options, and methods of prevention (Street et al. 2009). Evidence suggests that effective communication between providers and patients can positively impact patient health behaviors (Haskard and DiMatteo 2009). Educational materials developed for this demographic will contain more technical information than materials intended for Soldiers or non-medical personnel.

Conduct participant analysis What other people or groups can participate in the behavior change communication program (partners, stakeholders, allies, and gatekeepers)? These may include nongovernmental organizations, professional associations, schools, and the media. What skills or resources do they offer? What would motivate their participation?	Current/Potential Partner Organizations - Consortium for Health and Military Performance/Human Performance Resource Center - US Army Research Institute of Environmental Medicine - Army Safety Center - Office of the Surgeon General, Rehabilitation and Reintegration Division - Programs within APHC (Prov) (Ergonomics, Industrial Hygiene, Occupational Medicine, Army Wellness Centers Operation) - Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health These organizations/programs offer expertise on various public health and safety issues. They offer a variety of resources to include educational materials, web sites, technical documents, and access to community members. Partnering organizations have a vested interest in information dissemination and improving health outcomes. Therefore, they are likely to find a mutual benefit from partnering with the IPP on communication activities.		
Conduct channel analysis. - What communication channels are available? - What are the strengths and weaknesses of each channel? For example, how effective are the channels in reaching the audience? How many people can they reach?	Communication channels	Strengths	Weaknesses
	- APHC (Prov) website - APHC (Prov) Physical Training, Sports, & Accident Injury Prevention web page	- Widely accessible to the public - Stores documents in resource materials library - Serves as the IPP website - Hosts links to technical and non-technical documents; resources from partnering organizations - Creates subpages by audience - IPP staff have ability to manage content - Websites from partnering organizations link to the Physical Training, Sports, & Accident Injury Prevention web page (e.g.,	- Requires resources for updating - Hosted on SharePoint which has limited functional capability (e.g., drop down menus)

		Human Performance Resource Center)	
	• APHC (Prov) social media (YouTube, Facebook, Twitter)	• Engages social media users daily (Facebook page has over 3,000 likes and Twitter account has over 1,200 followers as of May 2015) • Disseminates information quickly • Utilizes video, infographics, articles, or other formats to relay information • Communicates directly with target audiences	• YouTube channel is not very active (last video posted in Dec 2014 as of May 2015) • YouTube has 105 subscribers (as of May 2015)
	• Army Medicine 2020 Research to Practice Education Series (online training seminars)	• Serves as a cost-efficient opportunity to present latest research findings from experts in the injury prevention/physical performance field • Collaborates with subject matter experts from partnering organizations • Offers attendees continuing education credits • Average attendance from 2012-2014 was 36.2 attendees	• Hosted on a quarterly basis (about every 2-3 months) • Targeted audience (medical providers and health promotion personnel)
	• HIP e-Catalog	• Allows users to download or order communication products • Products can searched by topic area or placed on	• Longer wait time for products ordered in hard copy

		'hot lists'	
	• APHC (Prov) and Army-affiliated news publications (e.g., Army Knowledge)	• Has wide reach to multiple audiences • Increases awareness of current IP initiatives • Available as print and digital publications	
	• Army Wellness Centers	• Currently offers in-person health education opportunities to Soldier, beneficiary, DA civilian populations	