

## **Sample Solutions to Public Health Question Case Examples**

### **Case #1: Food Scarcity and the Elderly**

Care of the aging population in the community is currently provided by a variety of government, for-profit, not-for-profit and religious organizations, as well as individuals. Recent news reports suggest that elders are not getting enough to eat as demands on food pantries and local elder care organizations have increased. What was the baseline on hunger in the elderly in the US before the financial crisis? Are there programs in place to measure and address this issue?

Background questions:

Who is funded to provide meals for seniors? What statistics are they required to report and are statistics available for your area?

P (Population or Patient or Problem): hunger in aging population

I (Intervention): food assistance programs

C (Comparison, if one): no programs

O (Outcome(s)): clear counts of assistance needed; reduction in hunger

Foreground question (searchable):

What are agreed upon mechanisms of measuring hunger in the elderly in terms of whether the problem is growing and also in counting the effectiveness of programs to feed the elderly?

Database(s) or resources that you would search:

AGELINE, PubMed, Sociological Abstracts, Social Work Abstracts, Agricola

Terms that you would use in the searching of AGELINE:

Hunger, Food Insecurity (in other databases add Age related terms)

Look at your relevant results.

Food insecurity, food and nutrition programs, and aging: experiences from Georgia.

Lee JS, Fischer JG, Johnson MA.

J Nutr Elder. 2010 Apr;29(2):116-49.

[Food Insecurity and Hunger in the United States: An Assessment of the Measure \(2006\)](#) (National Academies Press free ebook)

Hunger and food insecurity in the elderly: its nature and measurement.

Wolfe WS, Olson CM, Kendall A, Frongillo EA Jr. J Aging Health. 1998;10(3):327-50.

Meals on Wheels – Senior Hunger State by State

<http://www.mowaa.org/hungerbystate>

## Case #2: **Correctional Health**

You are the recently-hired health administrator at a large urban jail on the West Coast. Inmate suicide is a major problem at your new institution. You've been called into to collaborate with the counseling and guard representatives on a plan to prevent inmate suicides while reducing the costs associated with suicide watches.

Background questions:

Why are suicide watches so expensive?

How is suicidal intent assessed?

P (Population or Patient or Problem): large urban jail inmate suicides

I (Intervention): suicide prevention plan

C (Comparison, if one)

O (Outcome(s)): reduced number of suicides; reduce costs associated with suicide watches

Foreground question (searchable):

What suicide prevention activities can reduce the number of suicides in a large urban jail while reducing the costs associated with suicide watches?

Database(s) or resources that you would search:

National Criminal Justice Reference Service, PubMed, PsycINFO

Terms that you would use in the searching:

Inmate or prisoner or jail; suicide; prevention or costs

Look at your relevant results.

Learning From Near Misses: Interviews with Women who Survived an Incident of Severe Self-Harm in Prison . Jo Borrill ; Louisa Snow ; Diana Medlicott ; Rebecca Teers ; Jo Paton. Howard Journal of Criminal Justice Volume:44 Issue:1 Feb 2005. 57- 69

Suicide and the Jail Environment: An Evaluation of Three Types of Institutions  
Author: Christine Tartaro. Journal: Environment & Behavior Volume:35 Issue:5  
Dated:September 2003 Pages:605 to 620

Supervising Solitude: Keeping an Eye on Inmate Suicide. Sarah Albery ; Jack Gin  
Prison Review International 1; 2001:128 to 130.

### Case #3: **Public Health Dentistry**

Your patron is a practicing dentist in the community who wants to make sure that she and her hygienists detect oral cancer when it is present during cleanings. She wants to know the rates of oral cancer in various populations, the sensitivity and specificity of screening tests and the outcomes of early detected oral cancer.

Background questions:

Current rates of oral cancer in your community (SEER Data)?

Current rates of oral cancer screening

P (Population or Patient or Problem): general population receiving dental care

I (Intervention/Item of Interest): oral cancer screenings by dentists and hygienists

C (Comparison, if one): gold standard oral cancer diagnostic tests

O (Outcome(s)): accurate diagnosis of oral cancer cases to lead to appropriate and successful treatments

Foreground question (searchable):

What are the sensitivity and specificity of oral cancer screenings by dentists and hygienists in a general dentistry population?

Database(s) or resources that you would search:

PubMed, CINAHL, PDQ (NCI)

Community Guide – Oral Health: Oral and Pharyngeal Cancers

<http://www.thecommunityguide.org/oral/cancers.html>

Terms that you would use in the searching:

Oral cancer      Mouth Neoplasms (MeSH)

[Early Detection of Cancer](#) (MeSH)

Screening      Mass Screening (MeSH)

Sensitivity and specificity

Dentists OR dental hygienists OR Dental care

Look at your relevant results.

Oral Cancer Screening (PDQ®)

<http://www.cancer.gov/cancertopics/pdq/screening/oral/healthprofessional>

Community Guide – [Population-based interventions for early detection](#) Insufficient Evidence

**Outcome following a population screening programme for oral cancer and precancer in Japan.** Nagao T, Ikeda N, Fukano H, Miyazaki H, Yano M, Warnakulasuriya S. Oral Oncol. 2000 Jul;36(4):340-6.

#### Case #4: **Emergency Response**

You are a regional EMS commander attending a state-level emergency preparedness meeting in preparation for the Senior Olympics being held in your state in July. Your workgroup must develop protocol for preventing and handling heat emergencies that might occur during the event for both participants and fans.

Background questions:

What is the typical audience distribution at the Senior Olympics?

What protection from heat and relief mechanisms are already available at the event sites?

P (Population or Patient or Problem) emergency preparedness personnel / pre-hospital care providers [OR P could be the various audiences at the event itself-senior athletes, spectators, grandchildren, etc. ]

I (Intervention): heat emergency prevention and mitigation plan

C (Comparison, if one)

O (Outcome(s)) increase in or effective use of knowledge from previous program development; prevention of heat emergencies

Foreground question (searchable):

What are characteristics of effective protocols for heat-related emergency preparedness and pre-hospital protocols for emergency providers?

Database(s) or resources that you would search:

PubMed, police and fire databases, relevant EP agencies (CDC, FEMA), NYAM/NLM Resource Guide for Public Health Preparedness (<http://www.phpreparedness.info/>), SportDiscus

Terms that you would use in the searching:

Heat in small databases. Heat wave, heat emergencies, heat stroke, extreme heat, hyperthermia

Disaster Planning; Event Planning, Protocols, Guidelines, Staff Development, Education (subheading), Inservice Training, (keywords for training and education)

Look at your relevant results.

Sponsor: American Public Health Association

Title: Public Health Management of Disasters Subtitle: the Pocket Guide

Type: Guidelines/protocol Date: 01/01/2006

CDC Extreme Heat Bibliography

<http://www.bt.cdc.gov/disasters/extremeheat/bibliography.asp>

### Case #5: **Environmental Health**

Local landlords are reporting lots of complaints about bedbugs. As the science librarian at the public library, the tenant's association has asked you to support their building managers with guidance that shows what eradication strategies are successful and what health effects could result from treatments applied.

Background questions:

Scientific name for bedbugs

What strategies are used now to kill bedbugs?

There are many different chemicals that are used for bed bug treatment. Some of the common ones are: Suspend SC, Bedlam, Phantom, Steri-fab, Deltadust, Gentrol, and Eiatomaceous Earth.

P (Population or Patient or Problem): bedbug infestations in rental units

I (Intervention): chemical or biological eradication strategies

C (Comparison, if one): discarding all furniture

O (Outcome(s)): elimination of infestations with least side effects

Foreground question (searchable):

What are the most effective strategies to treat bedbug infestations with the least side effects?

Database(s) or resources that you would search:

PubMed, TOXNET, BIOSIS, Web of Science, National Pesticide Information Center (NPIC), EPA site

Terms that you would use in the searching:

Bedbugs      Cimex lectularius and C. hemipterus.

Pesticides

eradication

Look at your relevant results.

CDC Parasites and Health <http://www.dpd.cdc.gov/dpdx/HTML/Bedbugs.htm>

[6th International IPM Symposium. Bed Bugs and Public Health: Establishing the Connections program](http://www.ipmcenters.org/ipmsymposium09/IPM%20Program%2009%20to%20print.pdf)

<http://www.ipmcenters.org/ipmsymposium09/IPM%20Program%2009%20to%20print.pdf>

Preventing and Getting Rid of Bed Bugs Safely – NYC DOHMH

<http://www.nyc.gov/html/doh/downloads/pdf/vector/bed-bug-guide.pdf>

What should we know about bed bugs? Clinical Correlations - NYU Internal Medicine

Blog with citations to articles. <http://www.clinicalcorrelations.org/?p=2327>

### Case #6: **Epidemiology - Counting the Homeless**

The Assembly is trying to address the issue of how many homeless are in the communities. One particular concern is accurately counting the number of homeless who die each year. You are the director of the state Vital Statistics program who is being asked to report this data on homelessness and you want to find best practice examples of the most accurate method(s) of obtaining this data.

Background questions:

What strategies are used now to come up with this number?

P (Population or Patient or Problem): homeless who die

I (Intervention): data collection strategies

C (Comparison, if one)

O (Outcome(s)): more accurate enumeration of homeless deaths

Foreground question (searchable):

What are the most effective strategies to identify people who are homeless at time of death?

Database(s) or resources that you would search:

PubMed, FORS (forensics database), social science and demographic databases

Terms that you would use in the searching:

Homeless Persons/statistics & numerical data, Mortality

Look at your relevant results.

National Health Care for the Homeless Council

<http://www.nhchc.org/PrematureMortalityFinal.pdf>

Enumerating deaths among homeless persons: comparison of medical examiner data and shelter-based reports--Fulton County, Georgia, 1991.

MMWR Morb Mortal Wkly Rep. 1993 Sep 24;42(37):719, 725-6.

Hanzlick R, Parrish RG. Deaths among the homeless in Fulton County, GA, 1988-90.

Public Health Rep. 1993 Jul-Aug;108(4):488-91.

### Case #7: **Public Health Laboratories**

You are a toxicologist at a large public health reference laboratory. In the event of a large chemical terrorism event involving nerve agents like sarin, you need to be able to handle a large number of samples quickly. Are there tests with decent sensitivity and specificity than can be done using urine samples?

Background questions:

What are the nerve agents that you can use urine samples to test for exposure?

P (Population or Patient or Problem): people or settings exposed to sarin or other nerve agents

I (Intervention): tests that use urine samples

C (Comparison, if one)

O (Outcome(s)): accurate diagnoses (sensitivity and specificity) of nerve agent exposure

Foreground question (searchable):

What are the sensitivity and specificity of urine sample based tests for sarin and other nerve agents?

Database(s) or resources that you would search:

PubMed, BIOSIS, NYAM/NLM Resource Guide for Public Health Preparedness (<http://www.phppreparedness.info/>), CDC Site

Terms that you would use in the searching:

Urine [also subheading in PubMed]

Sensitivity and Specificity

Nerve agents, chemical terrorism, sarin

Look at your relevant results.

CDC Laboratory Information for Chemical Emergencies

<http://emergency.cdc.gov/chemical/lab.asp>

The determination of organophosphonate nerve agent metabolites in human urine by hydrophilic interaction liquid chromatography tandem mass spectrometry.

Mawhinney DB, Hamelin EI, Fraser R, Silva SS, Pavlopoulos AJ, Kobelski RJ.  
J Chromatogr B Analyt Technol Biomed Life Sci. 2007 Jun 1;852(1-2):235-43.

Isotope dilution LC/MS/MS for the detection of nerve agent exposure in urine.

Ciner FL, McCord CE, Plunkett RW Jr, Martin MF, Croley TR.

J Chromatogr B Analyt Technol Biomed Life Sci. 2007 Feb 1;846(1-2):42-50.

### Case #8: **Public Health Law**

Many city and states public health laws include a provision for detention of people with infectious disease, such as tuberculosis, if necessary to ensure treatment or halt further spread of a condition. You hope to find evidence that detention is an effective public health practice or case law supporting detention that can be used to justify your agency's policy.

Background questions:

What is the current legal standing of detention in your area?

P (Population or Patient or Problem): spread of infectious disease by people who are not treatment-compliant or otherwise putting others at risk

I (Intervention): detention

C (Comparison, if one)

O (Outcome(s)) reduce spread of infectious disease; balance between individual rights and safety of population

Foreground question (searchable):

In what cases has detention been found an effective and legally supportable way to prevent disease transmission?

Database(s) or resources that you would search:

PubMed, LexisNexis or Westlaw or HEIN online, Bioethics resources (LocatorPlus)

Terms that you would use in the searching:

Quarantine/legislation & jurisprudence

Communicable Disease Control/legislation & jurisprudence or Communicable Diseases Transmission (subheading)

Look at your relevant results.

Lacey C. Abuse of quarantine authority. The case for a federal approach to infectious disease containment. J Leg Med. 2003 Jun;24(2):199-214.

Lerner BH. Catching patients: tuberculosis and detention in the 1990s. Chest. 1999 Jan;115(1):236-41.

Mindes P. Tuberculosis quarantine: a review of legal issues in Ohio and other states. J Law Health. 1995-1996;10(2):403-28.



**Case #9: Maternal, Infant and Reproductive Health**

You are the head of the Maternal, Infant and Reproductive Health program in a city with a high rate of adolescent pregnancy. Many teenagers do not get prenatal care until late in the pregnancy. You are working with community-based organizations that serve teens to increase the uptake of prenatal care. Your group wants to look into the role of the male partner and whether his involvement affects prenatal care.

Background questions:

What are the issues that drive male involvement with their pregnant teenage partners?

P (Population or Patient or Problem): pregnant teenagers

I (Intervention): male involvement

C (Comparison, if one): no male involvement

O (Outcome(s)): increased and earlier uptake of prenatal care

Foreground question (searchable):

Does increased involvement of the male partner result in increased or earlier usage of prenatal care in teenage pregnancies?

Database(s) or resources that you would search:

POPLINE, PsycINFO, ERIC, PubMed

Terms that you would use in the searching:

Adolescent pregnancy, male, prenatal care

Look at your relevant results.

Rickert VI; Wiemann CM; Berenson AB. Health risk behaviors among pregnant adolescents with older partners. ARCHIVES OF PEDIATRICS AND ADOLESCENT MEDICINE. 1997 Mar;151(3):276-80.

Title: Adolescent fathers: the under studied side of adolescent pregnancy.

Author: Elster AB; Lamb ME

Source: : 177-90. New York, New York, Aldine de Gruyter, 1986. In: School-age pregnancy and parenthood: biosocial dimensions, edited by Jane B. Lancaster and Beatrix A. Hamburg.

**Title:** Attitudes of adolescent males toward adolescent pregnancy and fatherhood.

**Author:** Redmond MA

**Source:** Family Relations. 1985 Jul; 34(3): 337-42.

### Case #10: **Restaurant Inspections and Foodborne Illness**

The question of whether restaurant inspections actually curtail foodborne illness outbreaks has been raised in your local press. The restaurant inspection program is one of the largest and most visible components of your county health department. You want to find out what inspection strategies are most predictive of outbreaks and how you might ensure that your program reflects these practices.

Background questions:

What strategies does your program currently use?

P (Population or Patient or Problem): foodborne illness outbreaks

I (Intervention): restaurant inspection strategies (treatment)  
risk factors for outbreaks (prognostic factors)

C (Comparison, if one)

O (Outcome(s)): inspection programs incorporates strategies most predictive of outbreaks

Foreground question (searchable):

Which food safety risk factors are the most predictive of foodborne illness outbreaks and how have strategies to address these been integrated into inspection programs?

Database(s) or resources that you would search:

AGRICOLA, PubMed, Food Science & Technology Abstracts, health-evidence.ca

Terms that you would use in the searching:

Risk assessment (risk); Foodborne illness, Inspection (Food inspection); food safety; food poisoning prevention

Look at your relevant results.

[The evaluation of the effectiveness of routine restaurant inspections and education of food handlers: Critical appraisal of the literature](http://health-evidence.ca/categories/list_article/16)

[http://health-evidence.ca/categories/list\\_article/16](http://health-evidence.ca/categories/list_article/16)

A risk-based restaurant inspection system in Los Angeles County.

Buchholz, U. et al.

Journal of food protection. Feb 2002. v. 65 (2)p. 367-372.

How indicators can perform for hazard and risk management in risk assessments of food premises. Phillips, B. et al. British food journal. 1994. v. 96 (11) p. 26-35.

### Case #11: **School Obesity Prevention**

You are a member of the school board for an inner city middle school where the children are mostly overweight. The school barely offers gym classes and there are vending machines everywhere. You want evidence about what works to prevent obesity and at what cost in order to prepare for a meeting with the principal.

Background questions:

What gym classes are currently offered?

What is the nature of the vending machine contract? Does the provider offer non-sugar beverages?

P (Population or Patient or Problem): overweight children at an inner city middle school

I (Intervention): increased gym classes

C (Comparison, if one)

O (Outcome(s)): Reduce overweight in children while not costing the school money

Foreground question (searchable):

Will changes in gym class content and scheduling reduce the amount of overweight children at an inner city middle-school without increasing costs?

Database(s) or resources that you would search:

ERIC, PubMed, [RTIPS –Research-Tested Intervention Programs](http://rtips.cancer.gov/rtips/index.do)  
(<http://rtips.cancer.gov/rtips/index.do>)

Terms that you would use in the searching:

Body weight or overweight or obesity, Physical Education or gym class (ERIC descriptors are case sensitive)

Look at all programs in Physical Activity for Child or Adolescent.

Look at your relevant results.

#### **Trim Kids**

Designed to increase physical activity and promote healthy dietary habits. (2002)  
NHLBI (Grant number: U01HL66855) , NIDDK (Grant number: R01DK063453) , State of Louisiana (Grant number not available.)

**Criteria Matched:** Adolescents (11-18 years), Children (0-10 years), Physical Activity

ERIC #: ED491592

Status of Physical Education in the USA. Shape of the Nation Report, 2006  
American Alliance for Health, Physical Education, Recreation and Dance (NJ3)

Murray, Barbara A. ; Murray, Kenneth T. Title: A Nation Out of Shape. American School Board Journal v186 n8 p29-30 Aug 1999

## Case #12: **Sexual Education Programs**

You are the school librarian in a rural Southern high school. The school nurse and counselors are getting lots of questions about the cervical cancer vaccine. They want to get permission from the superintendent to offer an educational session about HPV and the vaccine. They ask for information about rates of sexual activity and cervical cancer cases in the area as well as unbiased evidence on whether Gardasil is effective.

Background questions:

What is the rate of HPV at the school or in the teen population in the community served by the school?

What is the rate of sexual activity and condom use by adolescents in the community?

P (Population or Patient or Problem) rural Southern high school students

I (Intervention) Gardasil

C (Comparison, if one) no vaccine

O (Outcome(s)) decrease in HPV, decrease in cervical cancer

Foreground question (searchable):

Will vaccination with Gardasil be effective in preventing HPV and future cervical cancer in a rural Southern high school population?

Database(s) or resources that you would search:

POPLINE, ERIC, PubMed

Terms that you would use in the searching:

Gardasil (quadrivalent human papillomavirus (types 6, 11, 16, and 18) recombinant vaccine)

HPV infection prevention

Cervical cancer prevention

Look at your relevant results.

Information from the FDA including clinical trials

<http://www.cancer.gov/cancertopics/druginfo/fda-recombinant-hpv-quadrivalent-vaccine>

School-based vaccinations delivered by general practice in rural north Queensland: an evaluation of a new human papilloma virus vaccination program.

Reeve C, De La Rue S, Pashen D, Culpan M, Cheffins T.

Commun Dis Intell. 2008 Mar;32(1):94-8.

Quadrivalent vaccine against human papillomavirus to prevent anogenital diseases.

Females United to Unilaterally Reduce Endo/Ectocervical Disease (FUTURE) I

Investigators. N Engl J Med. 2007 May 10;356(19):1928-43. (ACP Journal Club)

### Case #13: **Substance Abuse Programs**

You are part of the utilization oversight team for a mid-sized city's state-funded substance abuse programs. There has been a lot of press about the use of spice. Your team wants to come up with some guidance for the social marketing group about the addictiveness and side effects of this substance.

Background questions:

What are other names for spice?

Smokable herbal blends, herbal incense, "legal marijuana"

What is really in spice?

P (Population or Patient or Problem): populations at risk for trying spice or other drugs

I (Intervention): spice

C (Comparison, if one): marijuana

O (Outcome(s)): knowledge of addictiveness and side effects to better target anti-spice strategies

Foreground question (searchable):

What are the effects of using spice and is it as addictive as marijuana?

Database(s) or resources that you would search:

PubMed, PsycInfo, SAMHSA, NIDA, NCJRS, Web of Science

Terms that you would use in the searching:

spice synthetic cannabinoids chemical names from DEA report

Limit web searching to .gov or other non-commercial sites.

Look at your relevant results.

Drug Enforcement Administration Annual Report 2008 (pg. 5)

[http://www.deadiversion.usdoj.gov/nflis/2008annual\\_rpt.pdf](http://www.deadiversion.usdoj.gov/nflis/2008annual_rpt.pdf)

JWH018, a common constituent of 'Spice' herbal blends, is a potent and efficacious cannabinoid CB(1) receptor agonist. Br J Pharmacol. 2010 Jan 22. [Epub ahead of print]

Atwood BK, Huffman J, Straiker A, Mackie K.

Spice up your life: screening the illegal components of Spice herbal products. Analytical Methods, 2010

[http://www.rsc.org/delivery/\\_ArticleLinking/DisplayHTMLArticleforfree.cfm?JournalCode=AY&Year=2010&ManuscriptID=c0ay00200c&Iss=Advance\\_Article](http://www.rsc.org/delivery/_ArticleLinking/DisplayHTMLArticleforfree.cfm?JournalCode=AY&Year=2010&ManuscriptID=c0ay00200c&Iss=Advance_Article)

The synthetic cannabinoid Spice as a trigger for an acute exacerbation of cannabis induced recurrent psychotic episodes. Schizophr Res. 2010 May;118(1-3):309-10.

#### Case #14: **Workplace Health**

You are a part-time health educator on contract to a customer service center in the suburban Midwest. You were hired to develop ergonomic and stress reduction interventions to create a healthier work environment for the mostly middle-aged, white, overweight employees. You've been asked to justify the continued funding of your position by providing data that workplace wellness interventions like the ones you're developing increase productivity or reduce absenteeism and turnover.

Background questions: What are some possible health promotion interventions?

P (Population or Patient or Problem) mostly middle-aged, white, overweight co-workers at suburban customer service center

I (Intervention) ergonomics, health promotion activities

C (Comparison, if one)

O (Outcome(s)) increase productivity and reduce absenteeism and turnover, improved working conditions, increased morale.

Foreground question (searchable):

In a population of mostly middle-aged, white, overweight customer service workers, will ergonomic and health promotion activities increase productivity and reduce absenteeism and turnover, improved working conditions, increased morale?

Database(s) or resources that you would search: Business databases, PubMed, CINAHL, National Institute for Health and Clinical Excellence ([www.nice.org.uk](http://www.nice.org.uk)), CDC Community Guide, Lean Works

Terms that you would use in the searching: Health promotion, workplace, ergonomics, employees, workforce, wellness, productivity, absenteeism, sickness absence, turnover, morale, workplace health

Look at your relevant results.

Shephard, R.J. Worksite health promotion and the older worker. *International Journal of Industrial Ergonomics* 2000 25 (5): 465-475

Aldana, S.G., Pronk, N.P. Health promotion programs, modifiable health risks and employee absenteeism. *J Occup Environ Med*, 2001 43 (1): 36-46

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