Pandemic Preparedness Summit:
A Meeting with the Business Community and County of San Diego Health and Human Services Agency Public Health Services

Thursday, March 22, 2007
10 A.M. – 3 P.M.
San Diego Mission Valley Marriott Hotel

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Pandemic Preparedness Summit:
A Meeting with the Business Community and
County of San Diego Health and Human Services Agency, Public Health Services

Thursday, March 22, 2007

Agenda

WELCOME AND INTRODUCTION

Carmel Angelo
Assistant Deputy Director, Public Health Services
Acting Director, Emergency Medical Services

Jean Shepard
Director, Health and Human Services Agency

SUMMIT OBJECTIVES AND GOALS

Wilma Wooten, MD, MPH
Interim Public Health Officer

CDC STRATEGY FOR PANDEMIC INFLUENZA MITIGATION IN COMMUNITIES

Clete DiGiovanni, MD
Former Medical and Public Health Advisor
Defense Threat Reduction Agency, Department of Defense

STATE PUBLIC HEALTH PREPAREDNESS

Mark Horton, MD, MSPH
State Public Health Officer
California Department of Health Services

COUNTY OF SAN DIEGO PREPAREDNESS:
Public Health and Emergency Services Activities

Jack Walsh, RN, PHN
QA Specialist

Nikos Gurfield, DVM
County Veterinarian

Ron Lane
Director
Office of Emergency Services

-Working Lunch-

OVERVIEW OF BUSINESS PREPAREDNESS ACTIVITIES

Judi Freyman
V.P., Western Occupational Safety and Health Operations
ORC Worldwide

COMPANY PREPAREDNESS PLANNING EFFORTS

Larry Hofer
V.P., People Services
Cox Communications

Curt Armbruster
Director of Security
Northrop Grumman IT

Jim Turman
Project Manager, Pandemic Business Planning
Sempra Energy Utilities

Carey Storm
Director of Operations
QUALCOMM

THE HEALTHCARE PERSPECTIVE

Chris Van Gorder
President and CEO
Scripps Health

Steven Escoboza
President and CEO
Hospital Association of San Diego and Imperial Counties

ROUNDTABLE DISCUSSION AND NEXT STEPS

-Adjournment-

County of San Diego
Pandemic Preparedness Summit

March 22, 2007

Public Health Attendance List

CA Department of Health Services	Mark Horton, MD, MSPH State Public Health Officer
	Dave Hubbard Region VI Project Officer Emergency Preparedness Office
County of San Diego	Herman Reddick Assistant Director Office of Emergency Services
	Wilma Wooten, MD, MPH Interim Public Health Officer
	Carmel Angelo Assistant Deputy Director PHS, and Interim EMS Director
	Nikos Gurfield, DV County Veterinarian
	Ron Roberts Chairman, County Board of Supervisors
	Jean Shepard Director, HHSA
	Paula Murray Health Services Project Coordinator
	Renee Sherrill Health Services Project Coordinator
	Tamara Bannan Public Health Preparedness Administrator
	Jack Walsh, RN, PHN QA Specialist
	Mayling Naputi QA Specialist

County of San Diego – Con't.	Vielka Daniel Disaster Medical Health Emergency Program County EMS
	Patrick Buttron Bioterrorism Coordinator County EMS
	Diana Francis Deputy Director, HHSA Agency Contract Support
	Michele Ginsberg, MD Chief, Community Epidemiology Branch
	Margarita Brooks Human Services Specialist
	Mary Anne Lacaman Intermediate Clerk
	Martha Garcia Public Health Nurse
	Kay Scavulli Public Health Nurse, EPI/BT
	Maria Theresa Llamado Public Health Nurse, EPI/BT
	Kerry Moriarty Homsy Public Health Nurse, EPI/BT
San Bernardino County	Jennifer Pennell Medical Emergency Planning Specialist Public Health PRP Program
	Matt Baca Medical Emergency Planning Specialist Public Health PRP Program

County of San Diego
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Business and Government Agency
Attendance List

Association of CA Water Agencies, Joint Power Insurance Authority	Peter Kuchinsky II Sr. Risk Management Consultant
Air Products and Chemicals	Carol Maxwell Safety Specialist
American Red Cross	Scott DiPretoro Coordinator, Disaster Response
American Specialty Health	D'Nita Addison IT Coordinator, Systems Operations
Amylin Pharmaceuticals, Inc.	Jane Lenz Manager, Business Continuity
Arrowhead General Insurance Agency	Mary Van Hee Training Manager
AT&T	Deepa Solorzano Sr. EHS Manager
BAE Systems	Ed Langmaid Director of Business Continuity
	Rose Acosta Human Resources Representative
Bank of America	Kimberley Nelson V.P., Regional Emergency Manager
Barney & Barney, LLC	Robert McAlister Director, Risk & Loss Advisors
Barstow Railway Employees Credit Union	Gina Samorajski CEO/Manager
	Sharon Dingman Head Teller
Battelle	Bobbie Walton CBRNE/EM Coordinator

Beckman Coulter, Inc.	Deborah Talbot Sr. EHS Specialist
	Karen Jefferies Registered Nurse
Biosite	Cliff Hanna EHS Manager
Byrum & Metzner/ Health, Family and Civil Law	Mitcheal Alan Metzner Senior Partner
CA Grocers Association	Jill Rulon Senior Vice President
Calolympic Safety	Sherie O'Neill Territory Manager
	Linda Goodrich Sales/Territory Manager
Cardinal Health	Cindy Reyes EHS Quality Engineer
Center for Commercialization of Advanced Technology	Louis Kelly Chairman
Chubb & Son	Michael Rabong Sr. Property & Casualty Risk Engineer
City of San Marcos	Scott McClintock Emergency Preparedness Coordinator
Community Research Foundation	Jim Harden Director, Human Resources
	Lois Kosiba Director of Performance Improvement, Risk Management & Nursing
Constant and Associates	Michelle Constant Consultant
Cox Communications, Inc.	Larry Hofer Vice President, People Services
	Jeff Quarles Risk Specialist

Cox Communications, Inc. – Cont'd.	Tom Brandon Risk Manager
CP Kelco	Daniel Drown Manager, Corporate Safety and Health
	Susan Shean Nurse Practitoner, Health Services Manager
CRASH, Inc.	Barbara Morton Resource Development Director
Crossflo Systems, Inc.	William Mohlenbrock, MD Chairman
	Brook Doty IT Program Manager
Cymer, Inc.	Randy McPheeters Manager, EHS
Dialogic Communications Corporation	Richard Iverson Account Executive
DJO, LLC	Mark Johnson Manager, EHS
Edwards Medical	Pete Jarosz Vice President
Emergency Planning Consultants	Carolyn Harshman President
Fallbrook Public Utility District	Diane Nowotny Safety Technician
Gateway Business Bank	Michael Schnabel Chief Information Officer
	Wayne Wright Senior Application/Platform Engineer
Genentech	Patricia Joan Stella Occupational Health Nurse
Gen-Probe Incorporated	Steve Dickson Chemical Process Engineer Supply Chain

GKN Aerospace Chem-tronics	Laura Garegnani Manager, Safety & Risk Management
	Carol Sheehan Registered Nurse
Goodwin & Associates	Bruce Goodwin President
Grainger Industrial Supply	Jay Werbelow Government Account Manager
Harmonium, Inc.	Rosa Ana Lozada CEO
Hebrew Union College-Jewish Institute of Religion	Joan Spearman Director of Operations
Helix Water District	Susen Doubrava Safety/Risk Administrator
HELP, Inc.	Karen Garman President
Hewlett Packard	Bobbi Sawtelle EHS Specialist
	Mary Beeunas Business Continuity Program Manager
Hospital Association of San Diego & Imperial Counties	Steven Escoboza President and CEO
	Judith Yates Vice President and COO
HSBC	Donald Rhodes Regional Security Manager
ICW Group	Glenda Erdman Business Resiliency Manager
iLink Technology	Alan Korn CEO and Director
	Brian Korn Chief Operating Officer and Sr. Engineer

Intel Corporation	Jeff King Senior Industrial Hygienist
Iron Mountain	Wendy Pack General Manager
Jack in the Box	Carolyn Kunick Business Continuity Coordinator
Johnson & Johnson	Bill Koegel Staff Industrial Hygienist
	Liesel Short Supervisor, Occupational Health
.	Cynthia Chacon Occupational Health Nurse Johnson & Johnson PRD – La Jolla
Jones Lang LaSalle	Wally Smith Facility Manager
L-3 Communications	Sherry Perkins Facilities RCCS
	Lorena Yescas EH&S Coordinator RCCS
	Matt Strickland Manager, Environmental Health and Safety Telemetry West
	Dennis Yard Security Manager Telemetry West
Ligand Pharmaceuticals Incorporated	R. Vilmarie Rodriguez Director, EH&S
Lockheed Martin	Curtman Davis Facility Security Manager
	Chris Midgley Human Resources Manager
.	Walt Buechele Staff Facility Engineer

Loss Prevention Specialists	Oscar Pedraza Safety & Loss Control Consultant
Macy's West	Janice Funo Manager, Health & Safety
	Imelda Ponciano Business Continuity Coordinator
Marriott International	Jim Kelly Regional Director of Loss Prevention
	Thad Parker Director of Loss Prevention
Naval Medical Center, San Diego	David Tam, MD Deputy Commander / Chief Operating Officer
	Philip Smith, CDR Director for Occupational Health and Preventative Medicine
North County Transit District	Anette Dombroske Safety Administrator
Northrop Grumman Corporation	Curt Armbruster Director of Security Information Technology
	Noella Reuter Security Manager, International Security and Crisis Management Information Technology
	Michael Rizzo Security Lead
	Patti Adams Security Manager
	Arthur John Lyle, III Facilities Security Officer, Chief of Security Continental Maritime

Olivenhain Municipal Water District	Melissa Nickell Risk Safety Compliance Coordinator
	Angelito Alfaro Risk Safety Compliance Coordinator
ORC Worldwide	Judi Freyman V.P., Western Occupational Safety & Health Operations
	Amanda Loew Corporate Event Coordinator
	Nicole Mack Executive Administrative Assistant
Padre Dam Municipal Water District	Diane Levin Safety and Risk Manager
Philippine Nurses Association of San Diego County	Marita Ferrer Registered Nurse
QUALCOMM Inc.	Carey Storm Director of Operations
	Katie Wiest Sr. Manager, Operations
Rancho Bernardo Community Council	Dave Hall Community Member
Raytheon	Douglas Fleming Director, EHS / Spectrum Management
Red Lizard Creative	Erica George Account Manager
RJ Safety Supply	Tifani Swink Sales Representative
	Ann Cain Sales Representative
Science Applications International Corporation (SAIC)	Steven Hauser Manager, Business Continuity Services
	Richard Emau Security Manager

Salk Institute	Beverly Toth Manager, Occupational Health
San Diego Association of Nonprofits	Jeanine Politte Administrative & Member Support Services
San Diego Border AHEC/California Preparedness Educations Network	Yvonne Vigil calPen Program Coordinator
San Diego City College	Dorothy Ann Cordell Director of Student Health Services
San Diego County Regional Airport Authority (SDCRRA)	George Condon Manager, Public Safety & Emergency Preparedness
San Diego County Water Authority	Gary Eaton Director of Operations and Maintenance
	Lorrie Teates Management Analyst
San Diego Gas & Electric	James Turman Project Manager, Pandemic Business Planning
	Blanca Ramirez-Brown Occupational Health Nurse
	Timothy Brown Field Safety Advisor / Public Safety
	Terry Ostergard IT Disaster Recovery Lead
	Bobbi Ross Occupational Health Nurse
San Diego Mesa College	Suzanne Khambata Health Center Services Director
San Diego National Bank	Jim Martinez General Services Manager
	Kim Harrison General Services Assistant Manager

San Diego North Chamber of Commerce	Keith Turner Vice President
San Diego Pathologists Medical Group	Carla Stayboldt, MD President
San Diego Red Cross	Darlene Mary Burke Volunteer Nurse and Instructor
Sandra Bobbitt Consulting	Sandra Bobbitt Owner
Santa Fe Irrigation District	Rocky Hughes Safety Officer
Scripps Green Hospital/Scripps Clinics	Rebecca Amundson Security Manager
	Karen Trapane Safety Officer Scripps Green Hospital
	Cindy Nash Operations Supervisor Scripps Clinics
	Lance Ueda Emergency Preparedness Task Force/DECON Scripps Clinics
Scripps Health	Chris Van Gorder President & CEO
	Michael Morris Disaster Preparedness Education Coordinator
	Robert Miller Systemwide Director of Pharmacy
	Patty Skoglund Admin. Director, Systemwide Disaster Preparedness

Scripps Home Health Care	Shelly Lavinsky Safety Officer
	Linda Eminhizer Manager, Patient Care & Infection Control Home Health
Scripps Memorial Hospitals	Tara Steitz Infection Control Coordinator Encinitas
	Robbi Simons, MD Employee Assistance Specialist Encinitas
	Barry Haskins Safety Officer/Interim Director, Emergency Preparedness La Jolla
	Deanna Osargent Radiation Safety Officer/Disaster Preparedness Coordinator La Jolla
Scripps Mercy Hospital	Susie Goeppinger Director, Performance Improvement & Regulatory Readiness
Scripps Whittier Institute for Diabetes	George Hayes Manger, Mobile Medical Unit
SeaWorld California	Buddy Burton Director of Safety and Risk Management
	Joe Stevens Emergency Services Specialist
Securitas Security Services USA Inc.	Kelly Senados Area Vice President
SEMPRA Energy Utilities	Kenneth Fussell Emergency Services Manager

Sharp Health Care	Daniel Gross Executive Vice President
	Anne Davis Vice President, Workforce Support Services
	Liz Outlaw Sr. Safety Management Specialist
Sharp Metropolitan Medical Campus	Janie Kramer Vice President, Clinical Services
Sheraton San Diego Mission Valley	Lucy Gomez Business Travel Manager
Sony Electronics, Inc.	Kerwin Brown Director, Corporate ESH
	Derek Bush Director
	Kenneth Davidson Manager, SH&IH
Southwestern Community College	Grace Cruz Campus Nurse
	Brent Chartier Chief of Police
State Compensation Insurance Fund	Adrienne McCambridge Industrial Hygienist
Symitar	Ron Fauset Business Continuity Planner
The Mithras Group	Jan Spencley Owner
The Security Network	Michael Jones Chair and President

Tri-City Medical Center	Craig Lawyer Environment of Care Officer
	Dorothy Brown, MD Emergency Room Physician
	Susan Trout Infection Control Practitioner
	Sharon Schultz Sr. Director of Patient Care Services
	Linda Schwebke Registered Nurse, Asst. ICP
United Launch Alliance	Elaine Briggs ESH Program Administrator
United States Army	Margaret Cameron Colonel
United States Dept. of Defense	Clete DiGiovanni, MD Medical and Public Health Advisor, Retired Defense Threat Reduction Agency
United States Navy	Raymond Matthew Thompson CBRNE/EM Coordinator (Chem, Bio, Rad, Nuc, Explosives/Emergency Management)
United States Postal Service	Kevin Byrne, MD Assoc. Medical Director
	Art Pardo District Manager, Emergency Preparedness/Security
	Michael Marino Occupational Health Nurse Administrator
United States Public Health Service	Kathy Coiner Sr. Program Manager
United Way of San Diego	Douglas Sawyer President & CEO

University of California, San Diego	Mark Clark EH&S Specialist III
	Jan Kraak EH&S Specialist
UPS Fire Life Safety Services	Richard Patton Corporate Director of Training
	Don Brandt Instructor
Vallecitos Water District	Sean Perdomo Safety Officer
Valley Center Municipal Water District	Gabriela Olson Assistant Safety Officer
Verizon	Stacy Alyse Wieser West Coast Region Control Center Leader
	Michael Birch West Coast Region
Wood Power Group	David Crosby Safety Manager
	Steve Yerbury Safety Specialist
YOH Scientific	Paula Lloyd Occupational Health Nurse

SPEAKERS BIOGRAPHICAL INFORMATION

Carmel Angelo, BSN, RN, PHN

Carmel Angelo worked in healthcare for many years as a nurse, a manager and most recently as a healthcare administrator. Currently, Ms. Angelo is the Assistant Deputy Director of Public Health Services and Acting Director of Emergency Medical Services (EMS) for the County of San Diego's Health and Human Services Agency (HHSA). Public Health Services is a department in HHSA with approximately 370 people, a $70 million budget with close to $35 million in contract services. Ms. Angelo oversees many of the County's most important health programs such as Community Epidemiology, Public Health Emergency Preparedness including Health Resources and Services Administration (HRSA) and Cities Readiness Initiative (CRI), Emergency Medical Services (EMS), Tuberculosis Control, Public Health Nursing, Immunization and Maternal, Child and Family Health Services.

As Acting Director of Emergency Medical Services for the past two years, Ms. Angelo enhanced collaboration between traditional EMS and Public Health Emergency Preparedness. Public Health Emergency Preparedness targets mitigation of public health threats whether naturally occurring such as a pandemic flu outbreak or manmade such as a terrorist release of anthrax. EMS is the response to public health threats. Under Ms. Angelo's leadership, both programs continue to work together to achieve the highest level of preparedness for the three million people in San Diego County. Some of the accomplishments toward overall preparedness are standardized duty officer training, increased number of healthcare providers in the Emergency Medical Alert Network (EMAN, enrollment totaling over 2100), an electronic web-based disease reporting system, and over 500 medically licensed volunteers in the Medical Reserve Corps. Ms. Angelo continues to work with the county's private hospitals and community clinics to increase hospital bed capacity and ensure ongoing service delivery and surge capacity during health emergencies. A current focus of Public Health Emergency Preparedness is the threat of pandemic flu. Ms. Angelo has lead the County in developing a public education and information campaign, planning for the use of alternative care facilities, and educating healthcare professionals on pandemic flu.

Some of Ms. Angelo's efforts in performance improvement are the recently implemented countywide cardiac system of care. EMS identified thirteen hospitals as cardiac care centers equipped to receive patients needing specialized cardiac services. Under the direction of the EMS Medical Director, first responder agencies bring these cardiac patients to those hospitals designated as cardiac care centers by EMS.

In addition, Ms. Angelo developed the Performance Management Committee in Public Health Services to improve overall service delivery in all the public health programs. The Performance Management Committee continues to be instrumental in measuring the success of ongoing and new Public Health initiatives.

Ms. Angelo is active in various professional organizations. She is a member of the American Association of Correctional Health, The Southern California Public Health Association, the American Public Health Association, and Emergency Medical Services Administrators Association of California. Ms. Angelo also services on numerous local and state committees on disaster preparedness and response.

Wilma J. Wooten, M.D., M.P.H. is board-certified in Family Medicine and has a master's degree in public health. She received both professional degrees from the University of North Carolina, Chapel Hill, followed by residency training at the Georgetown/Providence Hospital Family Practice Residency Program in Washington, D.C. Dr. Wooten has been in San Diego for the past 16 years and practiced medicine as a faculty member in the UCSD Department of Family and Preventive Medicine for the first 11 years. She remains a volunteer Associate Clinical Professor in the Department and is an Adjunct Professor at San Diego State University, Graduate School of Public Health. Her research interests have focused on women's health and included studies that assess risk factors and prevalence of cardiovascular disease in African-American women. She is currently a co-investigator on a grant from UCSD Project EXPORT looking at "Adipocytokines and Other Risk Factors for Coronary Heart Disease in African-American Women."

Since March 2001, Dr. Wooten has been the Deputy Health Officer for the County of San Diego Health and Human Services Agency. Current responsibilities include quality assurance, special projects, media spokesperson, and health disparity activities. She functions as the medical director for the County's HIV, STD, and Hepatitis Branch and serves as a County appointee to the HIV Community Planning Prevention Board. She is a member of the State Office of AIDS California African-American HIV/AIDS Coalition and works closely with the local regional constituent to this organization.

Dr. Wooten is President of the San Diego Society of the National Medical Association (NMA), Trustee of NMA Region VI, and Chair of the NMA Women's Health Section. For the past five years, she has accompanied medical missions, organized by the Student National Medical Association (SNMA), to Ghana. Utilizing her public health background, she assisted students with the research and evaluation component of a HIV/AIDS Education and Prevention Program.

Clete DiGiovanni, M.D.

Prior to his retirement at the end of February 2007, Dr. DiGiovanni was the Medical and Public Health Advisor in the Advanced Systems and Concepts Office of the Defense Threat Reduction Agency, U.S. Department of Defense. His research over the past several years has focused on the development of strategies to control or mitigate the spread of infectious disease outbreaks in American communities, whether natural or terrorist in origin. Since 2005, he has worked exclusively on pandemic influenza. He just completed an examination of threats from a severe influenza pandemic to recruit training at the Marine Corps Recruit Depot, San Diego. Prior to that, he initiated and directed a review of non-pharmaceutical interventions employed as protective measures by selected US communities during the 1918-20 influenza pandemic. He also served as the principal investigator of a large-scale study of quarantine as carried out in the Greater Toronto (Canada) area during the 2003 SARS outbreak there, and as the author and director of a multi-agency quarantine exercise in San Diego, California, that incorporated the "lessons learned" from the Toronto experience. Prior to these quarantine studies, he was the principal investigator of a study of public response to a (notional) release of Rift Valley Fever virus in a southern US community. He has also served on the Defense Science Board Quarantine Panel; Bioterrorism Preparedness Committee of the Metropolitan Washington Council of Governments; the Biological Weapons Panel of the Threat Reduction Advisory Committee, and on a National Red Cross Advisory Committee on Disaster Preparation.

Dr. DiGiovanni has a long history of service in the Federal Government in the area of national security, beginning with military service in 1964 as the first medical officer for the Studies and Observations Group (Special Operations Group), Military Assistance Command-Vietnam.

He received the A.B. degree from Dartmouth College and the M.D. degree from the University of Michigan Medical School. He trained in virology in the laboratory of Dr. John Enders, at the Harvard Medical School, and completed psychiatric residency at The Johns Hopkins Hospital. He has held appointments to the faculty of The Johns Hopkins Hospital and Medical School in the Department of Psychiatry and Department of Medicine (Division of Infectious Diseases), and to The Clinical Center of the National Institutes of Health as a clinical care consultant . He remains on the adjunct faculty of the Unformed Services University of the Health Sciences, Bethesda, Maryland.

Mark B. Horton, MD, MSPH, State Public Health Officer
CA Department of Health Services

Dr. Mark Horton was appointed by California's Governor Arnold Schwarzenegger to the position of California's State Public Health Officer November 2005. He is a physician and public health official with over ten years' experience directing state and local public health agencies. Dr. Horton served for six years as the Health Officer of Orange County and served as State Public Health Officer for the State of Nebraska for more than five years.

Dr. Horton has a strong background in local public health programs and clinical practice and has been a leader within the public health community. He has served on the executive committees of both the California Conference of Local Health Officers and the National Association of County and City Health Officers.

Dr. Horton received his medical doctorate from St. Louis University and his Master of Public Health from the University of North Carolina. He was a diplomat of the American Board of Pediatrics.

Jack Walsh BSN PHN RN
6255 Mission gorge Road
San Diego, California, 92120

Quality Assurance Specialist with County of San Diego.

Duties include counter bioterrorism programs; BDS,

Biowatch, CRI, SNS, Small Pox, Mass Prophylaxis. BSN

from San Diego State University school of Nursing

Curriculum Vita

Nikos Gurfield, DVM

Address

County Veterinarian, Director
San Diego Animal Disease Diagnostic Laboratory
5555 Overland Ave Bldg 4
San Diego, CA 92123
Phone (858) 694-8973
Fax (858) 571-4268
Email: nikos.gurfield@sdcounty.ca.gov

License

Veterinarian, California

Board Certification

Diplomate, American College of Veterinary Pathologists

Education

Resident, Anatomic Pathology, 1997-1999
North Carolina State University Raleigh, NC

Doctor of Veterinary Medicine, 1994
University of California, Davis Davis, CA

- Regents scholar, 1990-1994
- Achievement Rewards for College Scientists (ARCS) Fellowship, 1992

Bachelor of Science, Microbiology, 1990
University of California, Los Angeles Los Angeles, CA

- Summa cum laud with honors
- Regents scholar, 1986-1990
- Alumni scholar, 1986-1990
- Phi Beta Kappa

Positions

County Veterinarian, Director 2005-present
San Diego County Animal Disease Diagnostic Laboratory, San Diego, CA

- Manage animal, entomology and plant pathology laboratories, including diagnostics, personnel, budgets
- Design and implement emergency response plans for County of San Diego
- Perform necropsies and biopsies
- Serve on bioterrorism, agroterrorism, public health action committees

Veterinary Pathologist, Deputy Director, 1999-2004
San Diego County Animal Disease Diagnostic Laboratory

- Diagnose animal diseases via necropsy and biopsy services of: Laboratory animals, companion animals, avian, exotics, farm animals
- Enhance laboratory services via development of novel programs
- Manage laboratory operations and quality control
- Assist law enforcement agencies in animal abuse cases
- C.L. Davis West Coast study site co-facilitator

Chateaubriand Research Scholar, 1996
L'Ecole Nationale Vétérinaire d'Alfort, Maisons-Alfort, France

- Conducted an epidemiologic study of *Bartonella* sp. infection in French cats. Utilized microbial culture, PCR, DNA sequencing, preformed enzyme analysis, RFLP-PAGE, and statistics to characterize isolates.

Associate Veterinarian, 1994-1996
All Creatures, Castroville, CA

- Managed medical and surgical cases in a semi-rural, 2 doctor, mixed-animal private practice.

Research Assistant, 1987-1994

- School of Veterinary Medicine, UC Davis and School of Medicine, UCLA
- Isolated and characterized novel antimicrobial peptides (defensins) from bovine and rabbit alveolar macrophages. Performed cell purification, subcellular fractionation, gel electrophoresis, protein sequencing and microbicidal activity analysis.

ORC WORLDWIDE®

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Judith S. Freyman

Vice President
Western Occupational Safety and Health (WOSH) Group

Judith S. Freyman joined ORC in 2001 to direct the operations of the Western Occupational Safety and Health Group. She is an attorney with more than 20 years of experience addressing occupational safety and health issues. She identifies health and safety issues of concern to WOSH Group members, initiates contacts with occupational and environmental health state agencies, works with member companies in the regulatory process, and analyzes and comments on proposed regulations.

Judi also develops testimony for presentation to agencies and provides interpretation of existing regulations. In addition, she develops the agenda, selects and secures the speakers, and coordinates the Quarterly Meetings of the WOSH Group and is responsible for member task forces on various safety topics.

NORTHROP GRUMMAN

Biography

Curt E. Armbruster

Director of Security
Northrop Grumman Information Technology

As the Security Director for Northrop Grumman Information Technology (IT), Curt E. Armbruster leads a security program for one of the world's premier providers of advanced IT, engineering, and business solutions for government and commercial clients. With estimated 2006 revenue of approximately $4 billion, Northrop Grumman IT, which is headquartered in McLean, Va., employs more than 18,500 people worldwide with expertise in such areas as homeland security solutions, secure wireless, cyber and physical security, IT and network infrastructure, managed services, knowledge management, modeling and simulation, and geospatial intelligence solutions.

Mr. Armbruster has been a leader in the security field for over 25 years. He has extensive senior management experience in virtually all disciplines of the security field to include, personnel security, asset protection, investigations, and executive protection.

Mr. Armbruster joined Northrop Grumman in 2001 as security director of TASC, Inc., an IT sector business group. He was responsible for directing a security program in support of US government and commercial customers. In addition, Mr. Armbruster managed the Facilities, Real Estate and Administrative services for TASC.

Before joining Northrop Grumman, Mr. Armbruster was the Deputy Director of Security for Booz, Allen, Hamilton. He managed a firm-wide security program and designed a state-of-the-art integrated, access control, closed circuit television, and asset tracking system for the corporate headquarters campus, which received national recognition from various trade publications.

Mr. Armbruster has also taught his security management philosophy to graduate students at Webster University as an adjunct professor. He started his career with the US Secret Service and later served as a Special Agent with the National Security Agency where he conducted background investigations and polygraph examinations.

Mr. Armbruster is a member of the American Society for Industrial Security, the Industrial Security Working Group, the National Classification Management Society, and the Association of Former Intelligence Officers.

He has a bachelor's degree from Indiana University of Pennsylvania, a master's degree from Central Michigan University and has attended executive training to include the Darden Graduate School of Business Administration.

CHRIS D. VAN GORDER, FACHE

Chris Van Gorder is President and Chief Executive Officer of Scripps Health in San Diego, California. Scripps is a not-for-profit, integrated health care delivery system with five acute-care hospitals, Scripps Clinic, ambulatory care network, and more than 2,600 affiliated physicians. Scripps Health has over 11,000 employees. Mr. Van Gorder's responsibilities include all functions of the $1.7 billion corporation.

During the period 2001-2005, Mr. Van Gorder led a $131 million turnaround of Scripps Health, one of the most dramatic successes in the health care industry. During the same time, Scripps Health has been recognized by AARP as one of the nation's best employers for workers over 50, by Working Mothers as one of the nation's Best Companies, and by numerous national and regional organizations for clinical excellence.

Mr. Van Gorder received his Masters of Public Administration/Health Services Administration at the University of Southern California, completed the Wharton System CEO Program at University of Pennsylvania and obtained his Bachelor of Arts at California State University, Los Angeles. He is board certified in healthcare management and a Fellow of the American College of Healthcare Executives (ACHE) and member of the ACHE Board of Governors.

Mr. Van Gorder is a member of the American Hospital Association Regional Policy Board (RPB9) and is immediate past Chair of the Hospital Association of San Diego and Imperial Counties. He is an Assistant Clinical Professor in Health Administration and member of the Healthcare Advisory Board in the School of Policy, Planning, and Development at the University of Southern California, and on the Editorial Board of the Governance Institute. He is also a member of the San Diego Regional Economic Development Corporation Board of Directors, San Diego Urban League President's Circle, San Diego Center for Patient Safety Advisory Board and a member of the Board of The Scripps Research Institute and the Whittier Institute for Diabetes.

In December 2004, the U.S. State Department appointed Mr. Van Gorder to the United States National Commission for the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

In March 2006, California Governor Arnold Schwarzenegger appointed Mr. Van Gorder to the Commission on Emergency Medical Services.

Mr. Van Gorder is also a Nationally Certified Emergency Medical Technician and Reserve Commander with the San Diego Sheriff's Department in command of the Search & Rescue Team.

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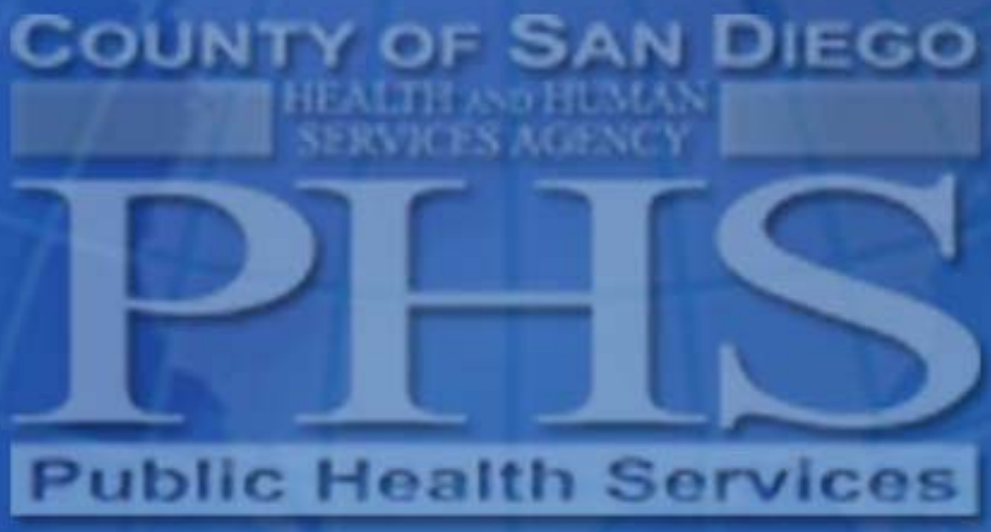
SUMMIT OBJECTIVES & GOALS

Wilma Wooten, MD, MPH
Interim Public Health Officer
County of San Diego

County of San Diego Pandemic Preparedness

March 22, 2007



Wilma Wooten, MD, MPH
Interim Public Health Officer

GOAL and OBJECTIVES

Goal

- To Raise the Awareness of a Potential Influenza Pandemic and the Need to Prepare

Objectives

- To Introduce Public Health Officials and Business Representatives Who Are Key Contacts for Pandemic Preparedness
- To Inform the Business Community about the San Diego County Preparedness Efforts

OBJECTIVES and Goals

- To Provide Best Practices and Guidance for Promoting and Advancing Business Planning Efforts

- To Build a Community-Based Business Networking Model

COUNTY OF SAN DIEGO
HEALTH AND HUMAN SERVICES AGENCY
PHS
Public Health Services

CDC STRATEGY FOR PANDEMIC INFLUENZA MITIGATION IN COMMUNITIES

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Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States—

Early, Targeted, Layered Use of Nonpharmaceutical Interventions

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Executive Summary

Purpose

This document provides interim planning guidance for State, territorial, tribal, and local communities that focuses on several measures other than vaccination and drug treatment that might be useful during an influenza pandemic to reduce its harm. Communities, individuals and families, employers, schools, and other organizations will be asked to plan for the use of these interventions to help limit the spread of a pandemic, prevent disease and death, lessen the impact on the economy, and keep society functioning. This interim guidance introduces a Pandemic Severity Index to characterize the severity of a pandemic, provides planning recommendations for specific interventions that communities may use for a given level of pandemic severity, and suggests when these measures should be started and how long they should be used. The interim guidance will be updated when significant new information about the usefulness and feasibility of these approaches emerges.

Introduction

The Centers for Disease Control and Prevention, U.S. Department of Health and Human Services in collaboration with other Federal agencies and partners in the public health, education, business, healthcare, and private sectors, has developed this interim planning guidance on the use of nonpharmaceutical interventions to mitigate an influenza pandemic. These measures may serve as one component of a comprehensive community mitigation strategy that includes both pharmaceutical and nonpharmaceutical measures, and this interim guidance includes initial discussion of a potential strategy for combining the use of antiviral medications with these interventions. This guidance will be updated as new information becomes available that better defines the epidemiology of influenza transmission, the effectiveness of control measures, and the social, ethical, economic, and logistical costs of mitigation strategies. Over time, exercises at the local, State, regional, and Federal level will help define the feasibility of these recommendations and ways to overcome barriers to successful implementation.

The goals of the Federal Government's response to pandemic influenza are to limit the spread of a pandemic; mitigate disease, suffering, and death; and sustain infrastructure and lessen the impact on the economy and the functioning of society. Without mitigating interventions, even a less severe pandemic would likely result in dramatic increases in the number of hospitalizations and deaths. In addition, an unmitigated severe pandemic would likely overwhelm our nation's critical healthcare services and impose significant stress on our nation's critical infrastructure. This guidance introduces, for the first time, a Pandemic Severity Index in which the case fatality ratio (the proportion of deaths among clinically ill persons) serves as the critical driver for categorizing the severity of a pandemic. The severity index is designed to enable better prediction of the impact of a pandemic and to provide local decision-makers with recommendations that are matched to the severity of future influenza pandemics.

It is highly unlikely that the most effective tool for mitigating a pandemic (i.e., a well-matched pandemic strain vaccine) will be available when a pandemic begins. This means that we must be prepared to face the first wave of the next pandemic without vaccine and potentially without sufficient quantities of influenza antiviral medications. In addition, it is not known if influenza antiviral medications will be effective against a future pandemic strain. During a pandemic, decisions about how to protect the public before an effective vaccine is available need to be based on scientific data, ethical considerations, consideration of the public's perspective of the protective measures and their impact on society, and common sense. Evidence to determine the best strategies for protecting people during a pandemic is very limited. Retrospective data from past influenza pandemics and the conclusions drawn from those data need to be examined and analyzed within the context of modern society. Few of those conclusions may be completely generalizable; however, they can inform contemporary planning assumptions. When these assumptions are integrated into the current mathematical models, the limitations need to be recognized, as they were in a recent Institute of Medicine report (Institute of Medicine. Modeling Community Containment for Pandemic Influenza. A Letter Report. Washington, DC.: The National Academies Press; 2006).

The pandemic mitigation framework that is proposed is based upon an early, targeted, layered application of multiple partially effective nonpharmaceutical measures. It is recommended that the measures be initiated early before explosive growth of the epidemic and, in the case of severe pandemics, that they be maintained consistently during an epidemic wave in a community. The pandemic mitigation interventions described in this document include:

1. Isolation and treatment (as appropriate) with influenza antiviral medications of all persons with confirmed or probable pandemic influenza. Isolation may occur in the home or healthcare setting, depending on the severity of an individual's illness and /or the current capacity of the healthcare infrastructure.

2. Voluntary home quarantine of members of households with confirmed or probable influenza case(s) and consideration of combining this intervention with the prophylactic use of antiviral medications, providing sufficient quantities of effective medications exist and that a feasible means of distributing them is in place.

3. Dismissal of students from school (including public and private schools as well as colleges and universities) and school-based activities and closure of childcare programs, coupled with protecting children and teenagers through social distancing in the community to achieve reductions of out-of-school social contacts and community mixing.

4. Use of social distancing measures to reduce contact between adults in the community and workplace, including, for example, cancellation of large public gatherings and alteration of workplace environments and schedules to decrease social density and preserve a healthy workplace to the greatest extent possible without disrupting essential services. Enable institution of workplace leave policies that align incentives and facilitate adherence with the nonpharmaceutical interventions (NPIs) outlined above.

All such community-based strategies should be used in combination with individual infection control measures, such as hand washing and cough etiquette.

Implementing these interventions in a timely and coordinated fashion will require advance planning. Communities must be prepared for the cascading second- and third-order consequences of the interventions, such as increased workplace absenteeism related to child-minding responsibilities if schools dismiss students and childcare programs close.

Decisions about what tools should be used during a pandemic should be based on the observed severity of the event, its impact on specific subpopulations, the expected benefit of the interventions, the feasibility of success in modern society, the direct and indirect costs, and the consequences on critical infrastructure, healthcare delivery, and society. The most controversial elements (e.g., prolonged dismissal of students from schools and closure of childcare programs) are not likely to be needed in less severe pandemics, but these steps may save lives during severe pandemics. Just as communities plan and prepare for mitigating the effect of severe natural disasters (e.g., hurricanes), they should plan and prepare for mitigating the effect of a severe pandemic.

Rationale for Proposed Nonpharmaceutical Interventions

The use of NPIs for mitigating a community-wide epidemic has three major goals: 1) delay the exponential growth in incident cases and shift the epidemic curve to the right in order to "buy time" for production and distribution of a well-matched pandemic strain vaccine, 2) decrease the epidemic peak, and 3) reduce the total number of incident cases, thus reducing community morbidity and mortality. Ultimately, reducing the number of persons infected is a primary goal of pandemic planning. NPIs may help reduce influenza transmission by reducing contact between sick and uninfected persons, thereby reducing the number of infected persons. Reducing the number of persons infected will, in turn, lessen the need for healthcare services and minimize the impact of a pandemic on the economy and society. The surge of need for medical care that would occur following a poorly mitigated severe pandemic can be addressed only partially by increasing capacity within hospitals and other care settings. Reshaping the demand for healthcare services by using NPIs is an important component of the overall mitigation strategy. In practice, this means reducing the burdens on the medical and public health infrastructure by decreasing demand for medical services at the peak of the epidemic and throughout the epidemic wave; by spreading the aggregate demand over a longer time; and, to the extent possible, by reducing net demand through reduction in patient numbers and case severity.

No intervention short of mass vaccination of the public will dramatically reduce transmission when used in isolation. Mathematical modeling of pandemic influenza scenarios in the United States, however, suggests that pandemic mitigation strategies utilizing multiple NPIs may decrease transmission substantially and that even greater reductions may be achieved when such measures are combined with the targeted use of antiviral medications for treatment and prophylaxis. Recent preliminary analyses of cities affected by the 1918 pandemic show a highly significant association between the early use of multiple NPIs and reductions in peak and overall death rates. The rational targeting and layering of interventions, especially if these can be implemented before local epidemics have demonstrated exponential growth, provide hope that the effects of a severe pandemic can be mitigated. It will be critical to *target* those at the nexus of transmission and to *layer* multiple interventions together to reduce transmission to the greatest extent possible.

Pre-Pandemic Planning: the Pandemic Severity Index

This guidance introduces, for the first time, a Pandemic Severity Index, which uses case fatality ratio as the critical driver for categorizing the severity of a pandemic (Figure A, abstracted and reprinted here from Figure 4 in the main text). The index is designed to enable estimation of the severity of a pandemic on a population level to allow better forecasting of the impact of a pandemic and to enable recommendations to be made on the use of mitigation interventions that are matched to the severity of future influenza pandemics.

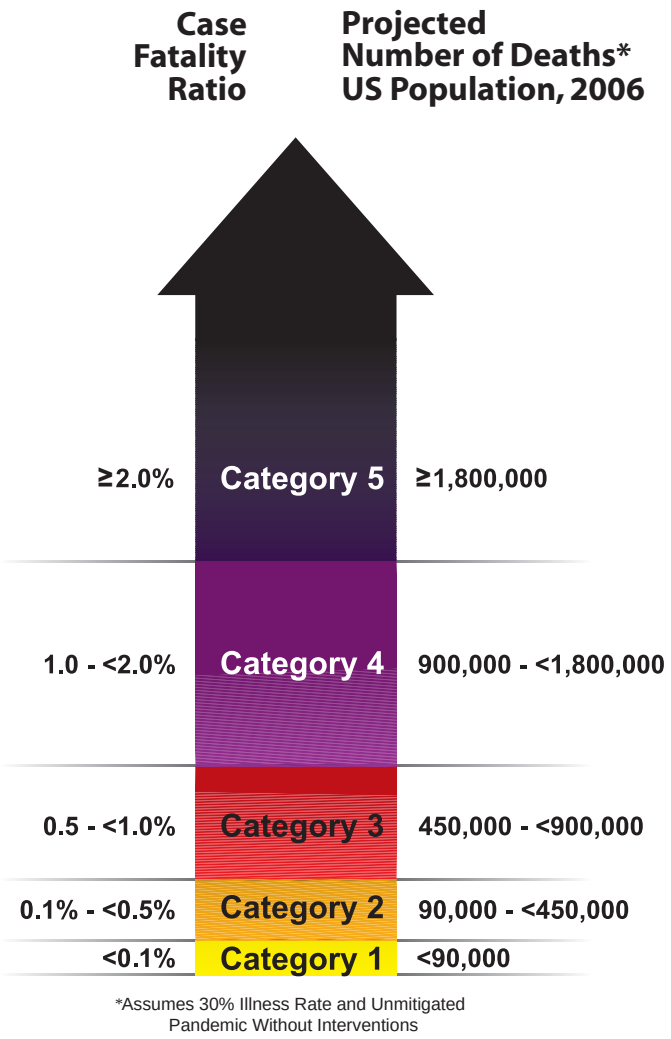
Future pandemics will be assigned to one of five discrete categories of increasing severity (Category 1 to Category 5). The Pandemic Severity Index provides communities a tool for scenario-based contingency planning to guide local pre-pandemic preparedness efforts. Accordingly, communities facing the imminent arrival of pandemic disease will be able to use the pandemic severity assessment to define which pandemic mitigation interventions are indicated for implementation.

Use of Nonpharmaceutical Interventions by Severity Category

This interim guidance proposes a community mitigation strategy that matches recommendations on planning for use of selected NPIs to categories of severity of an influenza pandemic. These planning recommendations are made on the basis of an assessment of the possible benefit to be derived from implementation of these measures weighed against the cascading second- and third-order consequences that may arise from their use. Cascading second- and third-order consequences are chains of effects that may arise because of the intervention and may require additional planning and intervention to mitigate. The term generally refers to foreseeable unintended consequences of intervention. For example, dismissal of students from school may lead to the second-order effect of workplace absenteeism for child minding. Subsequent workplace absenteeism and loss of household income could be especially problematic for individuals and families living at or near subsistence levels. Workplace absenteeism could also lead to disruption of the delivery of goods and services essential to the viability of the community.

For Category 4 or Category 5 pandemics, a planning recommendation is made for use of all listed NPIs (Table A, abstracted and reprinted here from Table 2. in the main text). In addition, planning for dismissal of students from schools and school-based activities and closure of childcare programs, in combination with means to reduce out-of-school social contacts and community mixing for these children, should encompass up to 12 weeks of intervention in the most severe scenarios. This approach to pre-pandemic planning will provide a baseline of readiness for community response. Recommendations for use of these measures for pandemics of lesser severity may include a subset of these same interventions and potentially for shorter durations, as in the case of social distancing measures for children.

Figure A. Pandemic Severity Index



For Category 2 and Category 3 pandemics, planning for voluntary isolation of ill persons is recommended; however, other mitigation measures (e.g., voluntary quarantine of household members and social distancing measures for children and adults) should be implemented only if local decision-makers determine their use is warranted due to characteristics of the pandemic within their community. Pre-pandemic planning for the use of mitigation strategies within these two Pandemic Severity Index categories should be done with a focus on a duration of 4 weeks or less, distinct from the longer timeframe recommended for the more severe Category 4 and Category 5 pandemics. For Category 1 pandemics, voluntary isolation of ill persons is generally the only community-wide recommendation, although local communities may choose to tailor their response to Category 1-3 pandemics by applying NPIs on the basis of local epidemiologic parameters, risk assessment, availability of countermeasures, and consideration of local healthcare surge capacity. Thus, from a pre-pandemic planning perspective for Category 1, 2, and 3 pandemics, capabilities for both assessing local public health capacity and healthcare surge, delivering countermeasures, and implementing these measures in full and in combination should be assessed.

Triggers for Initiating Use of Nonpharmaceutical Interventions

The timing of initiation of various NPIs will influence their effectiveness. Implementing these measures prior to the pandemic may result in economic and social hardship without public health benefit and over time, may result in "intervention fatigue" and erosion of public adherence. Conversely, implementing these interventions after extensive spread of pandemic influenza illness in a community may limit the public health benefits of employing these measures. Identifying the optimal time for initiation of these interventions will be challenging because implementation needs to be early enough to preclude the initial steep upslope in case numbers and long enough to cover the peak of the anticipated epidemic curve while avoiding intervention fatigue.

This guidance suggests that the primary activation trigger for initiating interventions be the arrival and transmission of pandemic virus. This trigger is best defined by a laboratory-confirmed cluster of infection with a novel influenza virus and evidence of community transmission (i.e., epidemiologically linked cases from more than one household).

Defining the proper geospatial-temporal boundary for this cluster is complex and should recognize that our connectedness as communities goes beyond spatial proximity and includes ease, speed, and volume of travel between geopolitical jurisdictions (e.g., despite the physical distance, Hong Kong, London, and New York City may be more epidemiologically linked to each other than they are to their proximate rural provinces/areas). In order to balance connectedness and optimal timing, it is proposed that the geopolitical trigger be defined as the cluster of cases occurring within a U.S. State or proximate epidemiological region (e.g., a metropolitan area that spans more than one State's boundary). It is acknowledged that this definition of "region" is open to interpretation; however, it offers flexibility to State and local decision-makers while underscoring the need for regional coordination in pre-pandemic planning.

From a pre-pandemic planning perspective, the steps between recognition of a pandemic threat and the decision to activate a response are critical to successful implementation. Thus, a key component is the development of scenario-specific contingency plans for pandemic response that identify key personnel, critical resources, and processes. To emphasize the importance of this concept, the guidance section on triggers introduces the terminology of *Alert*,

Table A. Summary of the Community Mitigation Strategy by Pandemic Severity

	Pandemic Severity Index		
Interventions* by Setting	**1**	**2 and 3**	**4 and 5**
Home **Voluntary isolation** of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	**Recommend†§**	**Recommend†§**	**Recommend†§**
Voluntary quarantine of household members in homes with ill persons¶ (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	**Generally not recommended**	**Consider****	**Recommend****
School **Child social distancing**			
-dismissal of students from schools and school based activities, and closure of child care programs	**Generally not recommended**	**Consider: ≤4 weeks††**	**Recommend: ≤12 weeks§§**
-reduce out-of-school social contacts and community mixing	**Generally not recommended**	**Consider: ≤4 weeks††**	**Recommend: ≤12 weeks§§**
Workplace / Community **Adult social distancing**			
-decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	**Generally not recommended**	**Consider**	**Recommend**
-increase distance between persons (e.g., reduce density in public transit, workplace)	**Generally not recommended**	**Consider**	**Recommend**
-modify postpone, or cancel selected public gatherings to promote social distance (e.g., postpone indoor stadium events, theatre performances)	**Generally not recommended**	**Consider**	**Recommend**
-modify work place schedules and practices (e.g., telework, staggered shifts)	**Generally not recommended**	**Consider**	**Recommend**

Generally Not Recommended = Unless there is a compelling rationale for specific populations or jurisdictions, measures are generally not recommended for entire populations as the consequences may outweigh the benefits.
Consider = Important to consider these alternatives as part of a prudent planning strategy, considering characteristics of the pandemic, such as age-specific illness rate, geographic distribution, and the magnitude of adverse consequences. These factors may vary globally, nationally, and locally.
Recommended = Generally recommended as an important component of the planning strategy.
*All these interventions should be used in combination with other infection control measures, including hand hygiene, cough etiquette, and personal protective equipment such as face masks. Additional information on infection control measures is available at www.pandemicflu.gov.
†This intervention may be combined with the treatment of sick individuals using antiviral medications and with vaccine campaigns, if supplies are available.
§Many sick individuals who are not critically ill may be managed safely at home.
¶The contribution made by contact with asymptomatically infected individuals to disease transmission is unclear. Household members in homes with ill persons may be at increased risk of contracting pandemic disease from an ill household member. These household members may have asymptomatic illness and may be able to shed influenza virus that promotes community disease transmission. Therefore, household members of homes with sick individuals would be advised to stay home.
**To facilitate compliance and decrease risk of household transmission, this intervention may be combined with provision of antiviral medications to household contacts, depending on drug availability, feasibility of distribution, and effectiveness; policy recommendations for antiviral prophylaxis are addressed in a separate guidance document.
††Consider short-term implementation of this measure—that is, less than 4 weeks.
§§Plan for prolonged implementation of this measure—that is, 1 to 3 months; actual duration may vary depending on transmission in the community as the pandemic wave is expected to last 6-8 weeks.

Standby, and *Activate*, which reflect key steps in escalation of response action. *Alert* includes notification of critical systems and personnel of their impending activation, *Standby* includes initiation of decision-making processes for imminent activation, including mobilization of resources and personnel, and *Activate* refers to implementation of the specified pandemic mitigation measures. Pre-pandemic planning for use of these interventions should be directed to lessening the transition time between *Alert*, *Standby*, and *Activate*. The speed of transmission may drive the amount of time decision-makers are allotted in each mode, as does the amount of time it takes to fully implement the intervention once a decision is made to *Activate*.
For the most severe pandemics (Categories 4 and 5), *Alert* is implemented during WHO Phase 5/U.S. Government Stage 2 (confirmed human outbreak overseas), and *Standby* is initiated during WHO Phase 6/ U.S. Government Stage 3 (widespread human outbreaks in multiple locations overseas). *Standby* is maintained through Stage 4 (first human case in North America), with the exception of the State or region in which a cluster of laboratory-confirmed human pandemic influenza cases with evidence of community transmission is identified. The recommendation for that State or region is to *Activate* the appropriate NPIs when identification of a cluster with community transmission is made. Other States or regions *Activate* appropriate interventions when they identify laboratory-confirmed human pandemic influenza case clusters with evidence of community transmission in their jurisdictions.

For Category 1, 2, and 3 pandemics, *Alert* is declared during U.S. Government Stage 3, with step-wise progression by States and regions to *Standby* based on U.S. Government declaration of Stage 4 and the identification of the first human pandemic influenza case(s) in the United States. Progression to *Activate* by a given State or region occurs when that State or region identifies a cluster of laboratory-confirmed human pandemic influenza cases, with evidence of community transmission in their jurisdiction.

Duration of Implementation of Nonpharmaceutical Interventions

It is important to emphasize that as long as susceptible individuals are present in large numbers, disease spread may continue. Immunity to infection with a pandemic strain can only occur after natural infection or immunization with an effective vaccine. Preliminary analysis of historical data from selected U.S. cities during the 1918 pandemic suggests that duration of implementation is significantly associated with overall mortality rates. Stopping or limiting the intensity of interventions while pandemic virus was still circulating within the community was temporally associated with increases in mortality due to pneumonia and influenza in many communities. It is recommended for planning purposes that communities be prepared to maintain interventions for up to 12 weeks, especially in the case of Category 4 or Category 5 pandemics, where recrudescent epidemics may have significant impact. However, for less severe pandemics (Category 2 or 3), a shorter period of implementation may be adequate for achieving public health benefit. This planning recommendation acknowledges the uncertainty around duration of circulation of pandemic virus in a given community and the potential for recrudescent disease when use of NPIs is limited or stopped, unless population immunity is achieved.

Critical Issues for the Use of Nonpharmaceutical Interventions

A number of outstanding issues should be addressed to optimize the planning for use of these measures. These issues include the establishment of sensitive and timely surveillance, the planning and conducting of multi-level exercises to evaluate the feasibility of implementation, and the identification and establishment of appropriate monitoring

and evaluation systems. Policy guidance in development regarding the use of antiviral medications for prophylaxis, community and workplace-specific use of personal protective equipment, and safe home management of ill persons must be prioritized as part of future components of the overall community mitigation strategy. In addition, generating appropriate risk communication content/materials and an effective means for delivery, soliciting active community support and involvement in strategic planning decisions, and assisting individuals and families in addressing their own preparedness needs are critical factors in achieving success.

Assessment of the Public on Feasibility of Implementation and Compliance

A Harvard School of Public Health public opinion poll on community mitigation interventions, conducted with a nationally representative sample of adults over the age of 18 years in the United States in September and October 2006, indicated that most respondents were willing to follow public health recommendations for the use of NPIs, but it also uncovered financial and other concerns. More information on "Pandemic Influenza and the Public: Survey Findings" is available at www.keystone.org/Public_Policy/Pandemic_control.html.

The Public Engagement Project on Community Control Measures for Pandemic Influenza (see link at www.keystone.org/Public_Policy/Pandemic_control.html), carried out in October and November 2006, found that approximately two-thirds of both citizens and stakeholders supported all the nonpharmaceutical measures. Nearly half of the citizens and stakeholders supported implementation when pandemic influenza first strikes the United States, and approximately one-third of the public supported implementation when influenza first strikes in their State.

Although the findings from the poll and public engagement project reported high levels of willingness to follow pandemic mitigation recommendations, it is uncertain how the public might react when a pandemic occurs. These results need to be interpreted with caution in advance of a severe pandemic that could cause prolonged disruption of daily life and widespread illness in a community. Issues such as the ability to stay home if ill, job security, and income protection were repeatedly cited as factors critical to ensuring compliance with these NPI measures.

Planning to Minimize Consequences of Community Mitigation Strategy

It is recognized that implementing certain NPIs will have an impact on the daily activities and lives of individuals and society. For example, some individuals will need to stay home to mind children or because of exposure to ill family members, and for some children, there will be an interruption in their education or their access to school meal programs. These impacts will arise in addition to the direct impacts of the pandemic itself. Communities should undertake appropriate planning to address both the consequences of these interventions and direct effects of the pandemic. In addition, communities should pre-identify those for whom these measures may be most difficult to implement, such as vulnerable populations and persons at risk (e.g., people who live alone or are poor/working poor, elderly [particularly those who are homebound], homeless, recent immigrants, disabled, institutionalized, or incarcerated). To facilitate preparedness and to reduce untoward consequences from these interventions, Pandemic Influenza Community Mitigation Interim Planning Guides have been included (see Appendices 4-9) to provide broad planning guidance tailored for businesses and other employers, childcare programs, elementary and secondary schools, colleges and universities, faith-based and community organizations, and individuals and families. It is also critical

for communities to begin planning their risk communication strategies. This includes public engagement and messages to help individuals, families, employers, and many other stakeholders to prepare.

The U.S. Government recognizes the significant challenges and social costs that would be imposed by the coordinated application of the measures described above. It is important to bear in mind, however, that if the experience of the 1918 pandemic is relevant, social distancing and other NPI strategies would, in all likelihood, be implemented in most communities at some point during a pandemic. The potential exists for such interventions to be implemented in an uncoordinated, untimely, and inconsistent manner that would impose economic and social costs similar to those imposed by strategically implemented interventions but with dramatically reduced effectiveness. The development of clear interim pre-pandemic guidance for planning that outlines a coordinated strategy, based upon the best scientific evidence available, offers communities the best chance to secure the benefits that such strategies may provide. As States and local communities exercise the potential tools for responding to a pandemic, more will be learned about the practical realities of their implementation. Interim recommendations will be updated accordingly.

Testing and Exercising Community Mitigation Interventions

Since few communities have experienced disasters on the scale of a severe pandemic, drills and exercises are critical in testing the efficacy of plans. A severe pandemic would challenge all facets of governmental and community functions. Advance planning is necessary to ensure a coordinated communications strategy and the continuity of essential services. Realistic exercises considering the effect of these proposed interventions and the cascading second- and third-order consequences will identify planning and resource shortfalls.

Research Needs

It is recognized that additional research is needed to validate the proposed interventions, assess their effectiveness, and identify adverse consequences. This research will be conducted as soon as practicable and will be used in providing updated guidance as required. A proposed research agenda is outlined within this document.

Conclusions

Planning and preparedness for implementing mitigation strategies during a pandemic are complex tasks requiring participation by all levels of government and all segments of society. Community-level intervention strategies will call for specific actions by individuals, families, employers, schools, and other organizations. Building a foundation of community and individual and family preparedness and developing and delivering effective risk communication for the public in advance of a pandemic are critical. If embraced earnestly, these efforts will result in enhanced ability to respond not only to pandemic influenza but also to multiple other hazards and threats. While the challenge is formidable, the consequences of facing a severe pandemic unprepared will be intolerable. This interim pre-pandemic planning guidance is put forth as a step in our commitment to address the challenge of mitigating a pandemic by building and enhancing community resiliency.

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COUNTY OF SAN DIEGO PREPAREDNESS:

Public Health and Emergency Services Activities

San Diego County Avian/Pandemic Influenza Preparations

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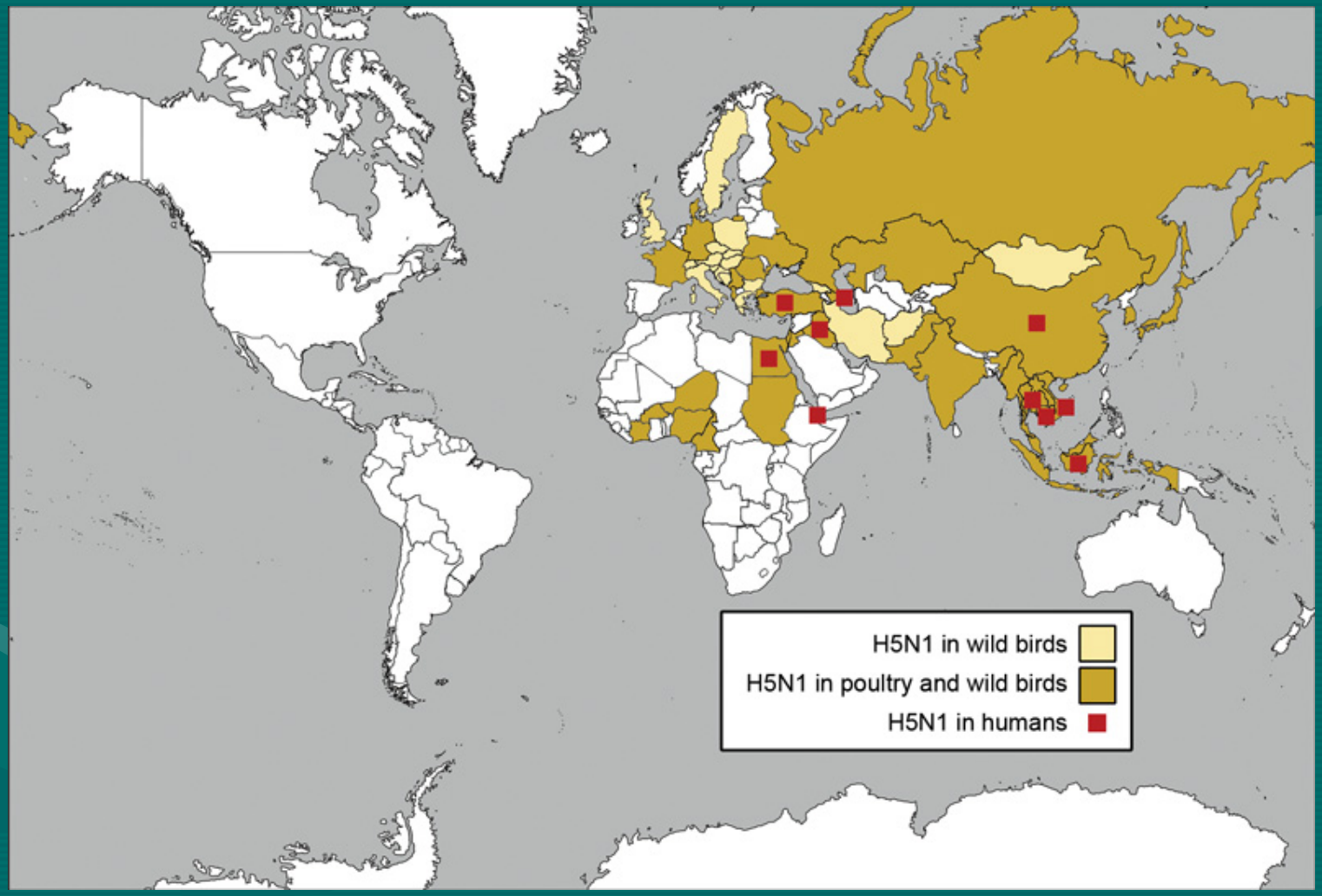
County of San Diego

Avian (Bird) Influenza

- ***H5N1***
- ***Millions of wild and domestic***
- ***High mortality in humans***
- ***No efficient H2H***
- ***Flyways and economic routes***
- ***County Vet***

Avian (Bird) Influenza



Avian (Bird) Influenza Preparations

- ***Restrictions on importation of birds***
- ***Surveillance in birds***
- ***Education of owners***
- ***Public Info campaign***
- ***Response***
  - ***-Quarantine***
  - ***-Depopulation***

Pandemic (Novel) Influenza

- ***Reassortment (morph)***
- ***No cases***
- ***No immunity***
- ***No vaccine***

County Pandemic Flu Preparations

- ***Public Health prep***
- ***Medical care surge prep***

County Pandemic Flu Preparations

- Surveillance for human H5N1 and ILI
- Public Information Avian/Pandemic
  - Problem
  - Compare seasonal, avian and pandemic flu
  - Risks
  - Precautions
  - Worldwide and local efforts

Public Health Preparations

- ***Increased capacity for :***
  - ***Suspect investigation***
  - ***Case and contact management***
- ***Isolation and quarantine/Social Distancing***
  - ***Basic needs***
  - ***Enforcement***
  - ***Planning for public closures***

Public Health Preparations

- ***Promote preparedness for providers of critical infrastructure (food, power, medical care,H2O,law etc)***
- ***Promote preparedness of all businesses, schools and universities, community organizations, essential services, etc***
- ***Preparedness of families and individuals***

Medical Surge

- Hospitals
  - Beds (increase respiratory isolation capacity)
  - Personnel
    - Credentialing/licensing under an emergency
  - Equipment
  - Pharmacists
- Clinics
- Alternative treatment sites

Business Continuity Planning

- ***Reassessment of essential services and prioritization***
- ***Assess telecommuting capabilities***
- ***Planning for projected 30% reduction in work force***
- ***Social distancing techniques***

State and Federal

- Information
- Guidance
- Coordination
- Vaccine
- Anti-virals
- Critical infrastructure state national and worldwide

Suspect Case

- Temp 100.4
- ARDS pneumonia other respiratory illness
- Contact with sick or dying poultry
- Contaminated surfaces
- Consumption of raw or uncooked
- Close contact with Dx case
- Work in a Lab with H5N1 testing

Additional Information

- ***sdeman.org***
- ***CDC http://www.cdc.gov/***
- ***WHO***
- ***DHS***
- ***http://www.pandemicflu.gov/***
- ***Sdpandemicflu.org***
- ***http://www.sdcounty.ca.gov/awm/vet.ai.html***
- ***www.sdbirdflu.org***

Questions?

Bird Flu: Preventing a Pandemic

Office of the County Veterinarian

Nikos Gurfield, DVM, Dipl ACVP

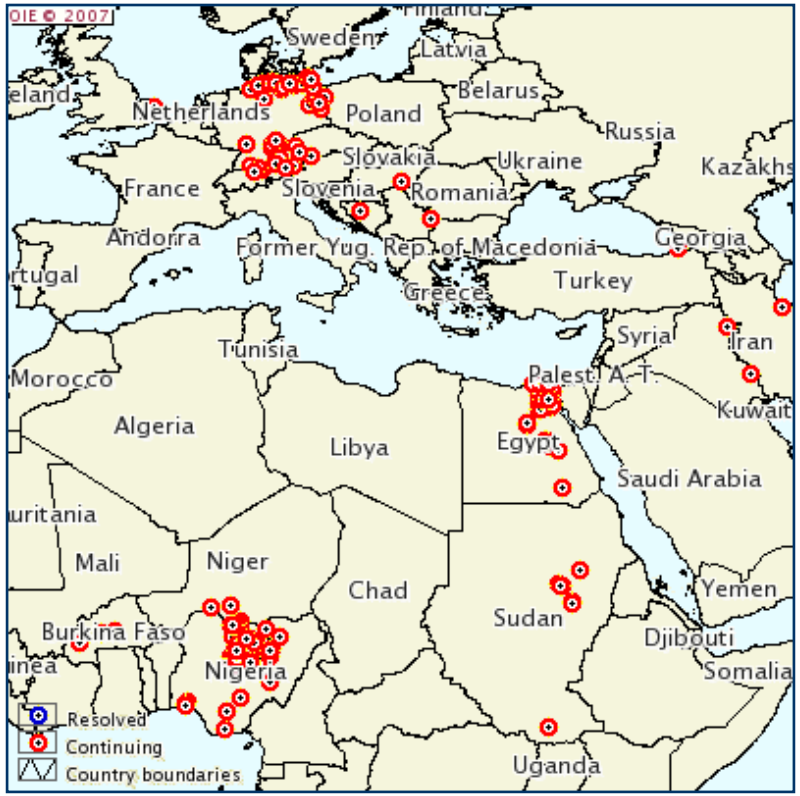
County Veterinarian

Bird Flu “H5N1”

- **Agent**
  - Virus
  - Orthomyxoviridae, type A
  - Mutates easily
  - 1878 Italy “Fowl Plague”
- **Natural hosts**
  - Wild waterbirds, ducks, geese, turkeys, and domestic fowl
  - Most birds susceptible
- **Symptoms**
  - Varies from mild to death
  - Lethal for domestic poultry
- **Transmission**
  - Shed in secretions and feces
  - Inhaled or ingested
  - High bird densities facilitate transmission

Highly Pathogenic Bird Flu Outbreaks 2003-2007

- >4447 outbreaks
- Asia
- Middle East
- Africa
- Europe



North America Bird Flu Risk

Business Risks

- Food safety concerns
- Drop in consumer demand
- Food industry losses
- Quarantine
- Bird movement restrictions
- International trade restrictions

Food Risk Facts

- Extremely unlikely that infected bird or egg will enter food chain
- Properly cooked poultry and eggs = NO RISK!
- Virus easily killed w/detergents and disinfectants

- But refrigeration and freezing *won't* kill virus

County Strategic Response Plan

- Detect and contain Bird Flu *BEFORE* it jumps to poultry, pet birds, or humans
  - Monitor
  - Prevent
  - Contain/eliminate
  - Educate

Monitor

- Animal Disease Diagnostic Laboratory
- All birds tested for avian influenza
- 400 birds tested in 2005/2006
- Last positive *low pathogenic* bird flu 2003
- Dead Bird Reporting and Bird Flu Information Line: **1-888-551-INFO** (4636)

Partners

- County San Diego
- CA Dept Food Ag
- USDA
- US Fish & Wildlife
- US Navy
- US Marine Corps
- US Army
- SDC Water Authority
- Lifeguard Assoc
- Dept. Health Services Bi-national and Border Health
- Avian Research Assoc
- UC Extension
- CA State Parks
- Port of San Diego
- Project Wildlife
- SD Zoological Society
- SeaWorld
- City Emergency Planner
- CA Dept Forestry
- WIFSS

Prevent

- Education
  - Bird Flu Education Campaign
  - Biosecurity
  - Safe bird husbandry
  - Prevent bird to human transmission
  - Prevent other diseases
- Law enforcement

Contain/Eliminate

- Bird Flu Response Teams
- County, State, Fed
  - Quarantine
  - Euthanasia
  - Epidemiology
  - Disinfection
  - Recovery

Educate

- Dept. Media and Public Relations
  - News releases
- www.SDBirdFlu.com
- Public Information Officer Meetings

Summary

- The Office of the County Veterinarian is a key resource and responder
- County efforts focus on monitoring, prevention, containment, and education
- Bird flu prevention translates into efforts that will maintain animal and human health

Office of Emergency Services

Karen Parker
Emergency Services Coordinator
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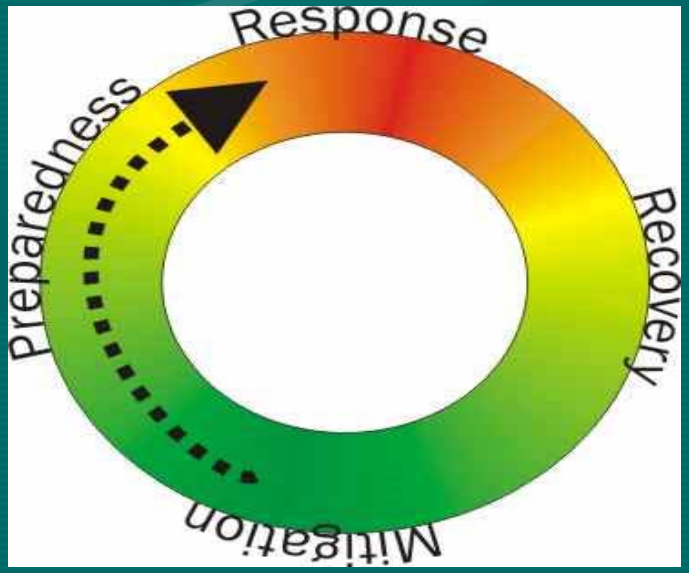
858-715-2339

- *Regional Approach to Emergency Response*
- *Management, Coordination within the Operational Area*
- *Consistency with the Standardized Emergency Management System and National Incident Management System*

- ***Four Traditional Areas:***
  - ***Preparedness***
  - ***Response***
  - ***Recovery***
  - ***Mitigation***



OES, HHSA and the Public Interface

- *Emergency Operations Center*

  Liaisons

  - *HHSA*
  - *Agency*
- *Medical Operations Center*
  - *Hospitals*
- *Joint Information Center*

Local, State & Federal Communications

- OES serves as conduit to State and Federal Governments via State OES
  - Health
  - Veterinary
  - Law Enforcement
  - Fire
  - Military

Response

- ***Emergency Operations Center and the National Incident Management System***
- ***Avian and Pandemic Influenza***

  EOC activated to support efforts of all affected agencies

  Damage Assessment and Recovery

  Joint Information Center

Business Continuity Planning

- ***Reassessment of essential services and prioritization***
- ***Assess telecommuting capabilities***
- ***Planning for projected 30% reduction in work force***
- ***Social distancing techniques***

BUSINESS PREPAREDNESS OVERVIEW

Judi Freyman
ORC Worldwide

Business Preparedness Overview

County of San Diego
Pandemic Preparedness Summit

March 22, 2007

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What Is The ORC Western OSH Group?

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Pandemic Planning Information Sources

- **Center for Disease Control Checklists**

- **OSHA Guidance: February 2007**

  "Preparing Workplaces for an Influenza Pandemic"

  - Classifying employee exposures
  - Maintaining operations
  - Protecting employees
  - Respiratory protection

Pandemic Planning Information Sources

- **Cal / OSHA Interim Guidelines: January 2007 "Use of Personal Protective Equipment in Settings Where Workers May be Exposed to Birds Infected With Zoonotic Avian Influenza"**
  - PPE Matrix
  - Gloves, goggles, respiratory protection, coveralls, boots, head coverings

- **Proposed Rule Pending for Prevention of Aerosol Transmissible Diseases in Healthcare Settings**

Pandemic Planning Information Sources

- **ORC Preparedness Meetings in California**
  - 24 Public health departments
  - Coordination and collaboration between private and public sector at the community level is critical
  - 200 Businesses
- **ORC Pandemic Planning Guide**
  (http://www.orc-dc.com/SHAREDOSHWOSH/Pandemic.Preparedness/Management.Aspects.pdf)
  - Infection Prevention and Control
  - Human Resources Issues
  - Business Continuity
  - Communications
  - Drills and Exercises

Communications

- **Pre-Pandemic Messaging to Employees**
  - Personal hygiene
  - Personal and family preparedness
  - Become a trusted source of information for employees
- **Dedicated Websites and Email Updates**
  - Communication with upper management
  - Share summaries of plans with suppliers and vendors
  - Explore alternate means of communication

Infection Control

- Purchase of Antivirals
- Masks vs. Respirators
- Medical Screening Procedures
- Social Distancing

Human Resources

- **Staffing**
  - Needs assessment
  - Identify additional / alternative sources of manpower
- **Payroll Continuity**
  - How long will employees be paid and under what circumstances?
- **Absence/Layoff/ Separation Policies**
  - Analyze and modify
- **Third Party Providers**
  - Determine capacity

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Business Continuity

- **Identify Essential Jobs**
  - Develop contingency plans
- **Analyze Supply Chain**
  - Develop contingency plans
- **Disruptions to Telephone, Internet and IT Services**
- **Set Criteria for Reduction, Shutdown and Resumption of Operations**

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Outreach

- **Contact and Collaborate with Local Public Health Departments**
  - Include other organizations to build
- **Network with Other Businesses in the Community**
  - Include other organizations to build community preparedness network

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Western Occupational Safety and Health Group

The premier professional peer network of corporate safety and health leaders in the western United States

The Western Occupational Safety and Health Group brings together senior-level managers responsible for health, safety and/or environmental programs at companies based or operating in the western United States. The cross-industry group of 50+ companies offers members the opportunity to network and communicate with their professional peers on critical issues regarding health, safety and the environment, sharing information and practical expertise in order to learn and stay abreast of recent developments and best practices. The group focuses on strategies, tools, and initiatives that improve safety and health performance.

The Western OSH Group meets quarterly to discuss current and emerging topics, with a focus on high-level discussion, networking, sharing best practices, informal benchmarking, and exchanging critical information about safety and health and environmental management practice. Three meetings are held in prime western state locations, and one is a joint meeting with ORC's Washington, D.C.-based Occupational Health and Safety Group held in D.C.

Throughout the year, members maintain contact and continue their exchanges with each other on the members-only Web site, where an online bulletin board allows for immediate input and dialogue on "hot" issues. Members also receive frequent e-mail updates and analyses on EHS developments, and interact with other members through conference calls, mini-surveys, and one-on-one discussions.

Members benefit from meeting with peers who face the same challenges in similarly large, complex organizations: maintaining appropriate health, safety and environmental programs; keeping abreast of current legislative and regulatory actions; developing performance measures; participating on cross functional teams to improve employee wellness; planning for emergencies; and assessing enterprise-wide risks. Discussions are frank and strictly confidential, allowing members to speak openly about their challenges, accomplishments, successes, and difficulties.

Meeting agendas are developed collegially to address the members' most pressing EHS issues and concerns. Sessions include presentations by members and guest speakers, with an emphasis on confidential interaction among participants. Participants hear

Recent Agenda Topics

- Nanomaterials Health and Safety
- Contractor Scorecard for Safety Performance
- Avian Influenza Pandemic Preparedness: The Corporate Planning Process
- The Components of Effective Health-Related Productivity Programs
- Alternative Safety and Health Performance Metrics
- Leveraging Six Sigma Tools to Improve EHS Performance
- Developing EHS "Champions" in Senior Leadership
- Improving Driver Performance Through Technology
- Holistic Ergonomics: Program Development at the Business Unit Level
- Managing Risk in Complex Supply Chains
- The California Green Chemistry Roadmap: Chemicals Policy to Promote Sustainability
- Extended Hours Operation: Developing a Fatigue Management Plan
- Achieving a Competitive Edge Through Workplace Wellness

firsthand from key EHS regulatory agencies and other noted experts about pending regulatory issues that may impact their companies' operations in the western U.S. as well as throughout the U.S. and globally. The meetings are interactive, allowing the opportunity to ask questions or share company experiences with peers.

Members companies represent a wide range of industries operating in the western U.S.—biotech, technology, consumer products, pharmaceuticals, utilities, manufacturing, defense, telecommunications, petroleum, and others. Typically holding the title of Vice President, Corporate Director or Manager, members are responsible for leading HSE efforts in the Western U.S. region of large U.S. and global companies.

Current Members of the Western Occupational Safety & Health Group

AT&T
Allergan, Inc.
Amgen Inc.
Anheuser-Busch Companies, Inc.
Applied Materials
BP America Inc.
Baxter Corporation
BAE Systems
Bayer Pharmaceutical Corporation
The Boeing Company
Chevron Corporation
Cingular Wireless
Clorox Services Company
Colgate-Palmolive Company
ConAgra Foods, Inc.
Constellation Energy
Cytek Industries Inc.
Dade Behring, Inc.
Disneyland Resort
The Dow Chemical Company
Edwards Lifesciences LLC
ExxonMobil Corporation
GenCorp Aerojet
Genentech, Inc.
General Electric Company
Gilead Sciences
Hewlett-Packard Company
Intel Corporation
Johnson & Johnson
Lockheed Martin Corporation
Masco Corporation
Masterfoods U.S.A.
Metropolitan Water District of So. CA
Nektar Therapeutics
New United Motor Manufacturing, Inc.
Northrop Grumman Corporation
Novartis Consumer Health
Occidental Petroleum Company
Pacific Gas & Electric Company
Raytheon Company
Rio Tinto Services
Seagate Technologies, Inc.
Sony Corporation of America
Southern California Edison
Vishay Siliconix
W. L. Gore & Associates
Wood Group Power Products
W. W. Grainger, Inc.

Contact Us

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Membership Benefits

- Four two-day meetings per year in a confidential, interactive format
- Regulatory, legislative, and policy updates for California, the Western States, and the U.S.
- Leading expert speakers
- Open sharing of best practices
- Access to experienced peers
- Members-only Web site
- Unlimited telephone and email consultation
- Access to ORC consultants nationwide
- Ad hoc member surveys

Breakthrough Initiatives

- Development of a new performance measurement and benchmarking tool by member companies that combines traditional trailing indicators (injury and illness rates) with leading indicators using selected management system elements
- Development by member companies of a highly successful program to demonstrate the financial return on proposed safety and health investments
- A member company task force dedicated to benchmarking and networking on integrated approaches to improving the total health and productivity of the workforce

About ORC Worldwide

ORC Worldwide is an international consulting company specializing in compensation and HR peer networking. Our Occupational Safety and Health and Environmental practice started in 1972 and today provides unique forums for discussion and interaction among member companies, organized by experienced professionals in various safety, health, and environmental disciplines, with access to administrators of relevant federal agencies.

ORC WORLDWIDE®

Revised 1/24/07

Guidance on

Preparing Workplaces for an Influenza Pandemic

OSHA 3327-02N 2007

Employers are responsible for providing a safe and healthful workplace for their employees. OSHA's role is to assure the safety and health of America's employees by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This handbook provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts for additional guidance on OSHA compliance requirements.

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This information is available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

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Guidance on

Preparing Workplaces for an Influenza Pandemic

U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3327-02N
2007

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Introduction

A pandemic is a global disease outbreak. An influenza pandemic occurs when a new influenza virus emerges for which there is little or no immunity in the human population, begins to cause serious illness and then spreads easily person-to-person worldwide. A worldwide influenza pandemic could have a major effect on the global economy, including travel, trade, tourism, food, consumption and eventually, investment and financial markets. Planning for pandemic influenza by business and industry is essential to minimize a pandemic's impact. Companies that provide critical infrastructure services, such as power and telecommunications, also have a special responsibility to plan for continued operation in a crisis and should plan accordingly. As with any catastrophe, having a contingency plan is essential.

This guidance is advisory in nature and informational in content. It is not a standard or a regulation, and it neither creates new legal obligations nor alters existing obligations created by OSHA standards or the *Occupational Safety and Health Act* (OSH Act). Pursuant to the OSH Act, employers must comply with hazard-specific safety and health standards as issued and enforced either by OSHA or by an OSHA-approved State Plan. In addition, Section 5(a)(1) of the OSH Act, the General Duty Clause, requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any recommendations in this guidance is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, or the General Duty Clause.

In the event of an influenza pandemic, employers will play a key role in protecting employees' health and safety as well as in limiting the impact on the economy and society. Employers will likely experience employee absences, changes in patterns of commerce and interrupted supply and delivery schedules. Proper planning will allow employers in the public and private sectors to better protect their employees and lessen the impact of a pandemic on society and the economy. As stated in the President's *National Strategy for Pandemic Influenza*, all stakeholders must plan and be prepared.

The Occupational Safety and Health Administration (OSHA) developed this pandemic influenza planning guidance based upon traditional infection control and industrial hygiene practices. It is important to note that there is currently no pandemic; thus, this guidance is intended for planning purposes and is not specific to a particular viral strain. Additional guidance may be needed as an actual pandemic unfolds and more is known about the characteristics of the virulence of the virus, disease transmissibility, clinical manifestation, drug susceptibility, and risks to different age groups and subpopulations. Employers and employees should use this planning guidance to help identify risk levels in workplace settings and appropriate control measures that include good hygiene, cough etiquette, social distancing, the use of personal protective equipment, and staying home from work when ill. Up-to-date information and guidance is available to the public through the www.pandemicflu.gov website.

The Difference Between Seasonal, Pandemic Influenza and Avian Influenza

Seasonal influenza refers to the periodic outbreaks of respiratory illness in the fall and winter in the United States. Outbreaks are typically limited; most people have some immunity to the circulating strain of the virus. A vaccine is prepared in advance of the seasonal influenza; it is designed to match the influenza viruses most likely to be circulating in the community. Employees living abroad and international business travelers should note that other geographic areas (for example, the Southern Hemisphere) have different influenza seasons which may require different vaccines.

Pandemic influenza refers to a worldwide outbreak of influenza among people when a new strain of the virus emerges that has the ability to infect humans and to spread from person to person. During the early phases of an influenza pandemic, people might not have any natural immunity to the new strain; so the disease would spread rapidly among the population. A vaccine to protect people against illness from a pandemic influenza virus may not be widely available until many months after an influenza pandemic begins. It is important to emphasize that there currently is no influenza pandemic. However, pandemics have occurred throughout history and many scientists believe that it is only a matter of time before another one occurs. Pandemics can vary in severity from something that seems simply like a bad flu season to an especially severe influenza pandemic that could lead to high levels of illness, death, social disruption and economic loss. It is impossible to predict when the next pandemic will occur or whether it will be mild or severe.

Avian influenza (AI) – also known as the bird flu – is caused by virus that infects wild birds and domestic poultry. Some forms of the avian influenza are worse than others. Avian influenza viruses are generally divided into two groups: low pathogenic

avian influenza and highly pathogenic avian influenza. Low pathogenic avian influenza naturally occurs in wild birds and can spread to domestic birds. In most cases, it causes no signs of infection or only minor symptoms in birds. In general, these low path strains of the virus pose little threat to human health. Low pathogenic avian influenza virus H5 and H7 strains have the potential to mutate into highly pathogenic avian influenza and are, therefore, closely monitored. Highly pathogenic avian influenza spreads rapidly and has a high death rate in birds. Highly pathogenic avian influenza of the H5N1 strain is rapidly spreading in birds in some parts of the world.

Highly pathogenic H5N1 is one of the few avian influenza viruses to have crossed the species barrier to infect humans and it is the most deadly of those that have crossed the barrier. Most cases of H5N1 influenza infection in humans have resulted from contact with infected poultry or surfaces contaminated with secretions/excretions from infected birds.

As of February 2007, the spread of H5N1 virus from person to person has been limited to rare, sporadic cases. Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to sustain human to human transmission. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If H5N1 virus were to gain the capacity to sustain transmission from person to person, a pandemic could begin.

An update on what is currently known about avian flu can be found at www.pandemicflu.gov.

OSHA
www.osha.gov

How a Severe Pandemic Influenza Could Affect Workplaces

Unlike natural disasters or terrorist events, an influenza pandemic will be widespread, affecting multiple areas of the United States and other countries at the same time. A pandemic will also be an extended event, with multiple waves of outbreaks in the same geographic area; each outbreak could last from 6 to 8 weeks. Waves of outbreaks may occur over a year or more. Your workplace will likely experience:

- **Absenteeism** - A pandemic could affect as many as 40 percent of the workforce during periods of peak influenza illness. Employees could be absent because they are sick, must care for sick family members or for children if schools or day care centers are closed, are afraid to come to work, or the employer might not be notified that the employee has died.
- **Change in patterns of commerce** - During a pandemic, consumer demand for items related to infection control is likely to increase dramatically, while consumer interest in other goods may decline. Consumers may also change the ways in which they shop as a result of the pandemic. Consumers may try to shop at off-peak hours to reduce contact with other people, show increased interest in home delivery services, or prefer other options, such as drive-through service, to reduce person-to-person contact.
- **Interrupted supply/delivery** - Shipments of items from those geographic areas severely affected by the pandemic may be delayed or cancelled.

OSHA
www.osha.gov

Who Should Plan for a Pandemic

To reduce the impact of a pandemic on your operations, employees, customers and the general public, it is important for all businesses and organizations to begin continuity planning for a pandemic now. Lack of continuity planning can result in a cascade of failures as employers attempt to address challenges of a pandemic with insufficient resources and employees who might not be adequately trained in the jobs they will be asked to perform. Proper planning will allow employers to better protect their employees and prepare for changing patterns of commerce and potential disruptions in supplies or services. Important tools for pandemic planning for employers are located at www.pandemicflu.gov.

The U.S. government has placed a special emphasis on supporting pandemic influenza planning for public and private sector businesses deemed to be critical industries and key resources (CI/KR). Critical infrastructure are the thirteen sectors that provide the production of essential goods and services, interconnectedness and operability, public safety, and security that contribute to a strong national defense and thriving economy. Key resources are facilities, sites, and groups of organized people whose destruction could cause large-scale injury, death, or destruction of property and/or profoundly damage our national prestige and confidence. With 85 percent of the nation's critical infrastructure in the hands of the private sector, the business community plays a vital role in ensuring national pandemic preparedness and response. Additional guidance for CI/KR business is available at: www.pandemicflu.gov/plan/pdf/CIKRpandemicInfluenzaGuide.pdf.

Critical Infrastructure and Key Resources

Key Resources

- Government Facilities
- Dams
- Commercial Facilities
- Nuclear Power Plants

Critical Infrastructure

- Food and Agriculture
- Public Health and Healthcare
- Banking and Finance
- Chemical and Hazardous Materials
- Defense Industrial Base
- Water
- Energy
- Emergency Services
- Information Technology
- Telecommunications
- Postal and Shipping
- Transportation
- National Monuments and Icons

How Influenza Can Spread Between People

Influenza is thought to be primarily spread through large droplets (droplet transmission) that directly contact the nose, mouth or eyes. These droplets are produced when infected people cough, sneeze or talk, sending the relatively large infectious droplets and very small sprays (aerosols) into the nearby air and into contact with other people. Large droplets can only travel a limited range; therefore, people should limit close contact (within 6 feet) with others when possible. To a lesser degree, human influenza is spread by touching objects contaminated with influenza viruses and then transferring the infected material from the hands to the nose, mouth or eyes. Influenza may also be spread by very small infectious particles (aerosols) traveling in the air. The contribution of each route of exposure to influenza transmission is uncertain at this time and may vary based upon the characteristics of the influenza strain.

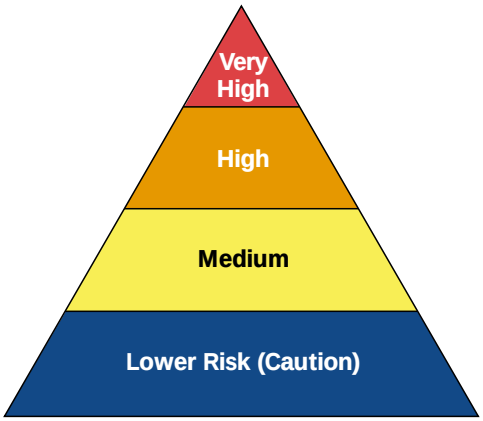
Classifying Employee Exposure to Pandemic Influenza at Work

Employee risks of occupational exposure to influenza during a pandemic may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on whether or not jobs require close proximity to people potentially infected with the pandemic influenza virus, or whether they are required to have either repeated or extended contact with known or suspected sources of pandemic influenza virus such as coworkers, the general public, outpatients, school children or other such individuals or groups.

- *Very high exposure risk* occupations are those with high potential exposure to high concentrations of known or suspected sources of pandemic influenza during specific medical or laboratory procedures.
- *High exposure risk* occupations are those with high potential for exposure to known or suspected sources of pandemic influenza virus.
- *Medium exposure risk* occupations include jobs that require frequent, close contact (within 6 feet) exposures to known or

(continued on page 12)

Occupational Risk Pyramid for Pandemic Influenza



Very High Exposure Risk:

- Healthcare employees (for example, doctors, nurses, dentists) performing aerosol-generating procedures on known or suspected pandemic patients (for example, cough induction procedures, bronchoscopies, some dental procedures, or invasive specimen collection).
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected pandemic patients (for example, manipulating cultures from known or suspected pandemic influenza patients).

High Exposure Risk:

- Healthcare delivery and support staff exposed to known or suspected pandemic patients (for example, doctors, nurses, and other hospital staff that must enter patients' rooms).
- Medical transport of known or suspected pandemic patients in enclosed vehicles (for example, emergency medical technicians).
- Performing autopsies on known or suspected pandemic patients (for example, morgue and mortuary employees).

Medium Exposure Risk:

- Employees with high-frequency contact with the general population (such as schools, high population density work environments, and some high volume retail).

Lower Exposure Risk (Caution):

- Employees who have minimal occupational contact with the general public and other coworkers (for example, office employees).

suspected sources of pandemic influenza virus such as coworkers, the general public, outpatients, school children or other such individuals or groups.

- *Lower exposure risk (caution)* occupations are those that do not require contact with people known to be infected with the pandemic virus, nor frequent close contact (within 6 feet) with the public. Even at lower risk levels, however, employers should be cautious and develop preparedness plans to minimize employee infections.

Employers of critical infrastructure and key resource employees (such as law enforcement, emergency response, or public utility employees) may consider upgrading protective measures for these employees beyond what would be suggested by their exposure risk due to the necessity of such services for the functioning of society as well as the potential difficulties in replacing them during a pandemic (for example, due to extensive training or licensing requirements).

To help employers determine appropriate work practices and precautions, OSHA has divided workplaces and work operations into four risk zones, according to the likelihood of employees' occupational exposure to pandemic influenza. We show these zones in the shape of a pyramid to represent how the risk will likely be distributed (see page 11). The vast majority of American workplaces are likely to be in the medium exposure risk or lower exposure risk (caution) groups.

How to Maintain Operations During a Pandemic

As an employer, you have an important role in protecting employee health and safety, and limiting the impact of an influenza pandemic. It is important to work with community planners to integrate your pandemic plan into local and state planning, particularly if your operations are part of the nation's critical infrastructure or key resources. Integration with local community planners will allow

you to access resources and information promptly to maintain operations and keep your employees safe.

Develop a Disaster Plan

Develop a disaster plan that includes pandemic preparedness (See www.pandemicflu.gov/plan/businesschecklist.html) and review it and conduct drills regularly.

- Be aware of and review federal, state and local health department pandemic influenza plans. Incorporate appropriate actions from these plans into workplace disaster plans.
- Prepare and plan for operations with a reduced workforce.
- Work with your suppliers to ensure that you can continue to operate and provide services.
- Develop a sick leave policy that does not penalize sick employees, thereby encouraging employees who have influenza-related symptoms (e.g., fever, headache, cough, sore throat, runny or stuffy nose, muscle aches, or upset stomach) to stay home so that they do not infect other employees. Recognize that employees with ill family members may need to stay home to care for them.
- Identify possible exposure and health risks to your employees. Are employees potentially in contact with people with influenza such as in a hospital or clinic? Are your employees expected to have a lot of contact with the general public?
- Minimize exposure to fellow employees or the public. For example, will more of your employees work from home? This may require enhancement of technology and communications equipment.
- Identify business-essential positions and people required to sustain business-necessary functions and operations. Prepare to cross-train or develop ways to function in the absence of these positions. It is recommended that employers train three or more employees to be able to sustain business-necessary functions and operations, and communicate the expectation for available employees to perform these functions if needed during a pandemic.

- Plan for downsizing services but also anticipate any scenario which may require a surge in your services.
- Recognize that, in the course of normal daily life, all employees will have non-occupational risk factors at home and in community settings that should be reduced to the extent possible. Some employees will also have individual risk factors that should be considered by employers as they plan how the organization will respond to a potential pandemic (e.g., immuno-compromised individuals and pregnant women).
- Stockpile items such as soap, tissue, hand sanitizer, cleaning supplies and recommended personal protective equipment. When stockpiling items, be aware of each product's shelf life and storage conditions (e.g., avoid areas that are damp or have temperature extremes) and incorporate product rotation (e.g., consume oldest supplies first) into your stockpile management program.

Make sure that your disaster plan protects and supports your employees, customers and the general public. Be aware of your employees' concerns about pay, leave, safety and health. Informed employees who feel safe at work are less likely to be absent.

- Develop policies and practices that distance employees from each other, customers and the general public. Consider practices to minimize face-to-face contact between employees such as e-mail, websites and teleconferences. Policies and practices that allow employees to work from home or to stagger their work shifts may be important as absenteeism rises.
- Organize and identify a central team of people or focal point to serve as a communication source so that your employees and customers can have accurate information during the crisis.
- Work with your employees and their union(s) to address leave, pay, transportation, travel, childcare, absence and other human resource issues.
- Provide your employees and customers in your workplace with easy access to infection control supplies, such as soap, hand sanitizers, personal protective equipment (such as gloves or surgical masks), tissues, and office cleaning supplies.

- Provide training, education and informational material about business-essential job functions and employee health and safety, including proper hygiene practices and the use of any personal protective equipment to be used in the workplace. Be sure that informational material is available in a usable format for individuals with sensory disabilities and/or limited English proficiency. Encourage employees to take care of their health by eating right, getting plenty of rest and getting a seasonal flu vaccination.
- Work with your insurance companies, and state and local health agencies to provide information to employees and customers about medical care in the event of a pandemic.
- Assist employees in managing additional stressors related to the pandemic. These are likely to include distress related to personal or family illness, life disruption, grief related to loss of family, friends or coworkers, loss of routine support systems, and similar challenges. Assuring timely and accurate communication will also be important throughout the duration of the pandemic in decreasing fear or worry. Employers should provide opportunities for support, counseling, and mental health assessment and referral should these be necessary. If present, Employee Assistance Programs can offer training and provide resources and other guidance on mental health and resiliency before and during a pandemic.

Protect Employees and Customers

Educate and train employees in proper hand hygiene, cough etiquette and social distancing techniques. Understand and develop work practice and engineering controls that could provide additional protection to your employees and customers, such as: drive-through service windows, clear plastic sneeze barriers, ventilation, and the proper selection, use and disposal of personal protective equipment.

These are not comprehensive recommendations. The most important part of pandemic planning is to work with your employees, local and state agencies and other employers to develop cooperative pandemic plans to maintain your operations

and keep your employees and the public safe. Share what you know, be open to ideas from your employees, then identify and share effective health practices with other employers in your community and with your local chamber of commerce.

How Organizations Can Protect Their Employees

For most employers, protecting their employees will depend on emphasizing proper hygiene (disinfecting hands and surfaces) and practicing social distancing (see page 26 for more information). Social distancing means reducing the frequency, proximity, and duration of contact between people (both employees and customers) to reduce the chances of spreading pandemic influenza from person-to-person. All employers should implement good hygiene and infection control practices.

Occupational safety and health professionals use a framework called the "hierarchy of controls" to select ways of dealing with workplace hazards. The hierarchy of controls prioritizes intervention strategies based on the premise that the best way to control a hazard is to systematically remove it from the workplace, rather than relying on employees to reduce their exposure. In the setting of a pandemic, this hierarchy should be used in concert with current public health recommendations. The types of measures that may be used to protect yourself, your employees, and your customers (listed from most effective to least effective) are: engineering controls, administrative controls, work practices, and personal protective equipment (PPE). Most employers will use a combination of control methods. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. For example, hygiene and social distancing can be implemented relatively easily and with little expense, but this control method requires employees to modify and maintain their behavior, which may be difficult to sustain. On the other hand, installing clear plastic barriers or a drive-through window will be more expensive and take a longer time to implement,

although in the long run may be more effective at preventing transmission during a pandemic. Employers must evaluate their particular workplace to develop a plan for protecting their employees that may combine both immediate actions as well as longer term solutions.

Here is a description of each type of control:

Work Practice and Engineering Controls - Historically, infection control professionals have relied on personal protective equipment (for example, surgical masks and gloves) to serve as a physical barrier in order to prevent the transmission of an infectious disease from one person to another. This reflects the fact that close interactions with infectious patients is an unavoidable part of many healthcare occupations. The principles of industrial hygiene demonstrate that work practice controls and engineering controls can also serve as barriers to transmission and are less reliant on employee behavior to provide protection. Work practice controls are procedures for safe and proper work that are used to reduce the duration, frequency or intensity of exposure to a hazard. When defining safe work practice controls, it is a good idea to ask your employees for their suggestions, since they have firsthand experience with the tasks. These controls should be understood and followed by managers, supervisors and employees. When work practice controls are insufficient to protect employees, some employers may also need engineering controls.

Engineering controls involve making changes to the work environment to reduce work-related hazards. These types of controls are preferred over all others because they make permanent changes that reduce exposure to hazards and do not rely on employee or customer behavior. By reducing a hazard in the workplace, engineering controls can be the most cost-effective solutions for employers to implement.

During a pandemic, engineering controls may be effective in reducing exposure to some sources of pandemic influenza and not others. For example, installing sneeze guards between customers and employees would provide a barrier to transmission. The use of barrier protections, such as sneeze guards, is common practice for both infection control and industrial hygiene. However, while the

installation of sneeze guards may reduce or prevent transmission between customers and employees, transmission may still occur between coworkers. Therefore, administrative controls and public health measures should be implemented along with engineering controls.

Examples of work practice controls include:

- Providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, hand sanitizer, disinfectants and disposable towels for employees to clean their work surfaces.

- Encouraging employees to obtain a seasonal influenza vaccine (this helps to prevent illness from seasonal influenza strains that may continue to circulate).
- Providing employees with up-to-date education and training on influenza risk factors, protective behaviors, and instruction on proper behaviors (for example, cough ettiquette and care of personal protective equipment).

- Developing policies to minimize contacts between employees and between employees and clients or customers.

More information about protecting yourself, your coworkers and employees, and your family can be found at www.pandemicflu.gov.

Examples of engineering controls include:

- Installing physical barriers, such as clear plastic sneeze guards.
- Installing a drive-through window for customer service.
- In some limited healthcare settings, for aerosol generating procedures, specialized negative pressure ventilation may be indicated.

This photo shows a clear plastic barrier between employees and customers that can reduce occupational exposure to the general public.

Administrative Controls - Administrative controls include controlling employees' exposure by scheduling their work tasks in ways that minimize their exposure levels. Examples of administrative controls include:

- Developing policies that encourage ill employees to stay at home without fear of any reprisals.
- The discontinuation of unessential travel to locations with high illness transmission rates.
- Consider practices to minimize face-to-face contact between employees such as e-mail, websites and teleconferences. Where possible, encourage flexible work arrangements such as telecommuting or flexible work hours to reduce the number of your employees who must be at work at one time or in one specific location.
- Consider home delivery of goods and services to reduce the number of clients or customers who must visit your workplace.
- Developing emergency communications plans. Maintain a forum for answering employees' concerns. Develop internet-based communications if feasible.

Personal Protective Equipment (PPE) - While administrative and engineering controls and proper work practices are considered to be more effective in minimizing exposure to the influenza virus, the use of PPE may also be indicated during certain exposures. If used correctly, PPE can help prevent some exposures; however, they

should not take the place of other prevention interventions, such as engineering controls, cough etiquette, and hand hygiene (see www.cdc.gov/flu/protect/stopgerms.htm). Examples of personal protective equipment are gloves, goggles, face shields, surgical masks, and respirators (for example, N-95). It is important that personal protective equipment be:

- Selected based upon the hazard to the employee;
- Properly fitted and some must be periodically refitted (e.g., respirators);
- Conscientiously and properly worn;
- Regularly maintained and replaced, as necessary;
- Properly removed and disposed of to avoid contamination of self, others or the environment.

Employers are obligated to provide their employees with protective gear needed to keep them safe while performing their jobs. The types of PPE recommended for pandemic influenza will be based on the risk of contracting influenza while working and the availability of PPE. Check the www.pandemicflu.gov website for the latest guidance.

The Difference Between a Surgical Mask and a Respirator

It is important that employers and employees understand the significant differences between these types of personal protective equipment. The decision on whether or not to require employees to use either surgical/procedure masks or respirators must be based upon a hazard analysis of the employees' specific work environment and the differing protective properties of each type of personal protective equipment. The use of surgical masks or respirators is one component of infection control practices that may reduce transmission between infected and non-infected persons.

It should be noted that there is limited information on the use of surgical masks for the control of a pandemic in settings where there is no identified source of infection. There is no information on

respirator use in such scenarios since modern respirators did not exist during the last pandemic. However, respirators are now routinely used to protect employees against occupational hazards, including biological hazards such as tuberculosis, anthrax, and hantavirus. The effectiveness of surgical masks and respirators has been inferred on the basis of the mode of influenza transmission, particle size, and professional judgment.

To offer protection, both surgical masks and respirators must be worn correctly and consistently throughout the time they are being used. If used properly, surgical masks and respirators both have a role in preventing different types of exposures. During an influenza pandemic, surgical masks and respirators should be used in conjunction with interventions that are known to prevent the spread of infection, such as respiratory etiquette, hand hygiene, and avoidance of large gatherings.

Surgical Masks - Surgical masks are used as a physical barrier to protect employees from hazards such as splashes of large droplets of blood or body fluids. Surgical masks also prevent contamination by trapping large particles of body fluids that may contain bacteria or viruses when they are expelled by the wearer, thus protecting other people against infection from the person wearing the surgical mask.

Surgical/procedure masks are used for several different purposes, including the following:

- Placed on sick people to limit the spread of infectious respiratory secretions to others.
- Worn by healthcare providers to prevent accidental contamination of patients' wounds by the organisms normally present in mucus and saliva.
- Worn by employees to protect themselves from splashes or sprays of blood or body fluids; they may also have the effect of keeping contaminated fingers/hands away from the mouth and nose.

Surgical masks are not designed or certified to prevent the inhalation of small airborne contaminants. These small airborne contaminants are too little to see with the naked eye but may still be capable of causing infection. Surgical/procedure masks are not

designed to seal tightly against the user's face. During inhalation, much of the potentially contaminated air passes through gaps between the face and the surgical mask, thus avoiding being pulled through the material of the mask and losing any filtration that it may provide. Their ability to filter small particles varies significantly based upon the type of material used to make the surgical mask, and so they cannot be relied upon to protect employees against airborne infectious agents. Only surgical masks that are cleared by the U.S. Food and Drug Administration and legally marketed in the United States have been tested for their ability to resist blood and body fluids.

Respirators - Respirators are designed to reduce an employee's exposure to airborne contaminants. Respirators are designed to fit the face and to provide a tight seal between the respirator's edge and the face. A proper seal between the user's face and the respirator forces inhaled air to be pulled through the respirator's filter material and not through gaps between the face and respirator. Respirators must be used in the context of a comprehensive respiratory protection program, (see OSHA standard 29 CFR 1910.134, or www.osha.gov/SLTC/respiratoryprotection/index.html). It is important to medically evaluate employees to assure that they can perform work tasks while wearing a respirator. Medical evaluation can be as simple as a questionnaire (found in Appendix C of OSHA's Respiratory Protection standard, 29 CFR 1910.134). Employers who have never before needed to consider a respiratory protection plan should note that it can take time to choose a respirator to provide to employees and to arrange for a qualified trainer and provide training, fit testing, and medical evaluation for their employees. If employers wait until an influenza pandemic actually arrives, they may be unable to provide an adequate respiratory protection program in a timely manner.

Types of Respirators

Respirators can be air supplying (e.g., the self-contained breathing apparatus worn by firefighters) or air purifying (e.g., a gas mask that filters hazards from the air). Most employees affected by pandemic influenza who are deemed to need a respirator to minimize the likelihood of exposure to the pandemic influenza virus

in the workplace will use some type of air purifying respirator. They are also known as "particulate respirators" because they protect by filtering particles out of the air as you breathe. These respirators protect only against particles—not gases or vapors. Since airborne biological agents such as bacteria or viruses are particles, they can be filtered by particulate respirators.

Air purifying respirators can be divided into several types:

- *Disposable or filtering facepiece* respirators, where the entire respirator facepiece is comprised of filter material. This type of respirator is also commonly referred to as an "N95" respirator. It is discarded when it becomes unsuitable for further use due to excessive breathing resistance (e.g., particulate clogging the filter), unacceptable contamination/soiling, or physical damage.
  - *Surgical respirators* are a type of respiratory protection that offers the combined protective properties of both a filtering facepiece respirator and a surgical mask. Surgical N95 respirators are certified by NIOSH as respirators and also cleared by FDA as medical devices which have been designed and tested and shown to be equivalent to surgical masks in certain performance characteristics (resistance to blood penetration, biocompatibility) which are not examined by NIOSH during its certification of N95 respirators.
- *Reusable or elastomeric respirators*, where the facepiece can be cleaned, repaired and reused, but the filter cartridges are discarded and replaced when they become unsuitable for further use. These respirators come in half-mask (covering the mouth and nose) and full-mask (covering mouth, nose, and eyes) types. These respirators can be used with a variety of different cartridges to protect against different hazards. These respirators can also be used with canisters or cartridges that will filter out gases and vapors.
- *Powered air purifying respirators*, (PAPRs) where a battery-powered blower pulls contaminated air through filters, then moves the filtered air to the wearer's facepiece. PAPRs are significantly more expensive than other air purifying respirators but they provide higher levels of protection and may also increase the comfort for some users by reducing the physiologic burden

associated with negative pressure respirators and providing a constant flow of air on the face. These respirators can also be used with canisters or cartridges that will filter out gases and vapors. It should also be noted that there are hooded PAPRs that do not require employees to be fit tested in order to use them.

All respirators used in the workplace are required to be tested and certified by the National Institute for Occupational Safety and Health (NIOSH). NIOSH-approved respirators are marked with the manufacturer's name, the part number, the protection provided by the filter (e.g., N95), and "NIOSH." This information is printed on the facepiece, exhalation valve cover, or head straps. If a respirator does not have these markings it has not been certified by NIOSH. Those respirators that are surgical N95 respirators are also cleared by the FDA and, therefore, are appropriate for circumstances in which protection from airborne and body fluid contaminants is needed.

When choosing between disposable and reusable respirators, employers should consider their work environment, the nature of pandemics, and the potential for supply chain disruptions. Each pandemic influenza outbreak could last from 6 to 8 weeks and waves of outbreaks may occur over a year or more. While disposable respirators may be more convenient and cheaper on a per unit basis, a reusable respirator may be more economical on a long-term basis and reduce the impact of disruption in supply chains or shortages of respirators.

Classifying Particulate Respirators and Particulate Filters

An N95 respirator is one of nine types of particulate respirators. Respirator filters that remove at least 95 percent of airborne particles during "worst case" testing using the "most-penetrating" size of particle are given a 95 rating. Those that filter out at least 99 percent of the particles under the same conditions receive a 99 rating, and those that filter at least 99.97 percent (essentially 100 percent) receive a 100 rating.

In addition, filters in this family are given a designation of N, R, or P to convey their ability to function in the presence of oils that are found in some work environments.

"N" if they are Not resistant to oil. (e.g., N95, N99, N100)

"R" if they are somewhat Resistant to oil. (e.g., R95, R99, R100)

"P" if they are strongly resistant (i.e., oil Proof). (e.g., P95, P99, P100)

This rating is important in work settings where oils may be present because some industrial oils can degrade the filter performance to the point that it does not filter adequately. Thus, the three filter efficiencies combined with the three oil designations lead to nine types of particulate respirator filter materials. It should be noted that any of the various types of filters listed here would be acceptable for protection against pandemic influenza in workplaces that do not contain oils, particularly if the N95 filter type was unavailable due to shortages.

Replacing Disposable Respirators

Disposable respirators are designed to be used once and are then to be properly disposed of. Once worn in the presence of an infectious patient, the respirator should be considered potentially contaminated with infectious material, and touching the outside of the device should be avoided to prevent self-inoculation (touching the contaminated respirator and then touching one's eyes, nose, or mouth). It should be noted that a once-worn respirator will also be contaminated on its inner surface by the microorganisms present in the exhaled air and oral secretions of the wearer.

If a sufficient supply of respirators is not available during a pandemic, employers and employees may consider reuse as long as the device has not been obviously soiled or damaged (e.g., creased or torn), and it retains its ability to function properly. This practice is not acceptable under normal circumstances and should only be considered under the most dire of conditions. Data on decontamination and/or reuse of respirators for infectious diseases are not available. Reuse may increase the potential for contamination; however, this risk must be balanced against the need to provide respiratory protection. When preparing for a pandemic, employers who anticipate providing respiratory protection to employees for the duration of the pandemic should consider using reusable or elastomeric respirators that are designed to be cleaned, repaired and reused.

Dust or Comfort Masks

Employers and employees should be aware that there are "dust" or "comfort" masks sold at home improvement stores that look very similar to respirators. Some dust masks may even be made by a manufacturer that also produces NIOSH-certified respirators. Unless a mask has been tested and certified by NIOSH, employers do not know if the device will filter very small airborne particles. The occupational use of respirators, including those purchased at home improvement or convenience stores, are still covered by OSHA's Respiratory Protection standard.

Note: Some respirators have an exhalation valve to make it easier for the wearer to breathe. While these respirators provide the same level of particle filtration protection to the wearer, they should not be used by healthcare providers who are concerned about contaminating a sterile field, or provided to known or suspected pandemic patients as a means of limiting the spread of their body fluids to others.

Note: Additional respirator and surgical mask guidance for healthcare workers has been developed and is available at www.pandemicflu.gov/plan/healthcare/maskguidancehc.html. This document, "Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza Pandemic," provides details on the differences between a surgical mask and a respirator, the state of science regarding influenza transmission, and the rationale for determining the appropriate protective device.

Steps Every Employer Can Take to Reduce the Risk of Exposure to Pandemic Influenza in Their Workplace

The best strategy to reduce the risk of becoming infected with influenza during a pandemic is to avoid crowded settings and other situations that increase the risk of exposure to someone who may be infected. If it is absolutely necessary to be in a crowded setting,

the time spent in a crowd should be as short as possible. Some basic hygiene (see www.cdc.gov/flu/protct/stopgerms.htm) and social distancing precautions that can be implemented in every workplace include the following:

- Encourage sick employees to stay at home.
- Encourage your employees to wash their hands frequently with soap and water or with hand sanitizer if there is no soap or water available. Also, encourage your employees to avoid touching their noses, mouths, and eyes.

- Encourage your employees to cover their coughs and sneezes with a tissue, or to cough and sneeze into their upper sleeves if tissues are not available. All employees should wash their hands or use a hand sanitizer after they cough, sneeze or blow their noses.
- Employees should avoid close contact with their coworkers and customers (maintain a separation of at least 6 feet). They should avoid shaking hands and always wash their hands after contact with others. Even if employees wear gloves, they should wash their hands upon removal of the gloves in case their hand(s) became contaminated during the removal process.
- Provide customers and the public with tissues and trash receptacles, and with a place to wash or disinfect their hands.
- Keep work surfaces, telephones, computer equipment and other frequently touched surfaces and office equipment clean. Be sure that any cleaner used is safe and will not harm your employees or your office equipment. Use only disinfectants registered by the U.S. Environmental Protection Agency (EPA), and follow all directions and safety precautions indicated on the label.
- Discourage your employees from using other employees' phones, desks, offices or other work tools and equipment.
- Minimize situations where groups of people are crowded together, such as in a meeting. Use e-mail, phones and text messages to communicate with each other. When meetings are

necessary, avoid close contact by keeping a separation of at least 6 feet, where possible, and assure that there is proper ventilation in the meeting room.

- Reducing or eliminating unnecessary social interactions can be very effective in controlling the spread of infectious diseases. Reconsider all situations that permit or require employees, customers, and visitors (including family members) to enter the workplace. Workplaces which permit family visitors on site should consider restricting/eliminating that option during an influenza pandemic. Work sites with on-site day care should consider in advance whether these facilities will remain open or will be closed, and the impact of such decisions on employees and the business.
- Promote healthy lifestyles, including good nutrition, exercise, and smoking cessation. A person's overall health impacts their body's immune system and can affect their ability to fight off, or recover from, an infectious disease.

Workplaces Classified at Lower Exposure Risk (Caution) for Pandemic Influenza: What to Do to Protect Employees

If your workplace does not require employees to have frequent contact with the general public, basic personal hygiene practices and social distancing can help protect employees at work. Follow the general hygiene and social distancing practices previously recommended for all workplaces (see page 26). Also, try the following:

- Communicate to employees what options may be available to them for working from home.
- Communicate the office leave policies, policies for getting paid, transportation issues, and day care concerns.
- Make sure that your employees know where supplies for hand hygiene are located.

- Monitor public health communications about pandemic flu recommendations and ensure that your employees also have access to that information.
- Work with your employees to designate a person(s), website, bulletin board or other means of communicating important pandemic flu information.

More information about protecting employees and their families can be found at: www.pandemicflu.gov.

Workplaces Classified at Medium Exposure Risk for Pandemic Influenza: What to Do to Protect Employees

Medium risk workplaces require frequent close contact between employees or with the general public (such as high-volume retail stores). If this contact cannot be avoided, there are practices to reduce the risk of infection. In addition to the basic work practices that every workplace should adopt (see page 26), medium risk occupations require employers to address enhanced safety and health precautions. Below are some of the issues that employers should address when developing plans for workplace safety and health during a pandemic.

Work Practice and Engineering Controls

- Instruct employees to avoid close contact (within 6 feet) with other employees and the general public. This can be accomplished by simply increasing the distance between the employee and the general public in order to avoid contact with large droplets from people talking, coughing or sneezing.
- Some organizations can expand internet, phone-based, drive-through window, or home delivery customer service strategies to minimize face-to-face contact. Work with your employees to identify new ways to do business that can also help to keep employees and customers safe and healthy.

- Communicate the availability of medical screening or other employee health resources (e.g., on-site nurse or employee wellness program to check for flu-like symptoms before employees enter the workplace).
- Employers also should consider installing physical barriers, such as clear plastic sneeze guards, to protect employees where possible (such as cashier stations).

Administrative Controls

- Work with your employees so that they understand the office leave policies, policies for getting paid, transportation issues, and day care concerns.
- Make sure that employees know where supplies for hand and surface hygiene are located.
- Work with your employees to designate a person(s), website, bulletin board or other means of communicating important pandemic flu information.
- Use signs to keep customers informed about symptoms of the flu, and ask sick customers to minimize contact with your employees until they are well.
- Your workplace may consider limiting access to customers and the general public, or ensuring that they can only enter certain areas of your workplace.

Personal Protective Equipment (PPE)

Employees who have high-frequency, close contact with the general population that cannot be eliminated using administrative or engineering controls, and where contact with symptomatic ill persons is not expected should use personal protective equipment to prevent sprays of potentially infected liquid droplets (from talking, coughing, or sneezing) from contacting their nose or mouth. A surgical mask will provide such barrier protection. Use of a respirator may be considered if there is an expectation of close contact with persons who have symptomatic influenza infection or if employers choose to provide protection against a risk of airborne transmission. It should be noted that wearing a respirator may be

physically burdensome to employees, particularly when the use of PPE is not common practice for the work task. In the event of a shortage of surgical masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission of an infectious disease but will not protect against airborne transmission, to the extent that disease may spread in that manner.

Eye protection generally is not recommended to prevent influenza infection although there are limited examples where strains of influenza have caused eye infection (conjunctivitis). At the time of a pandemic, health officials will assess whether risk of conjunctival infection or transmission exists for the specific pandemic viral strain.

Employees should wash hands frequently with soap or sanitizing solutions to prevent hands from transferring potentially infectious material from surfaces to their mouths or noses. While employers and employees may choose to wear gloves, the exposure of concern is touching the mouth and nose with a contaminated hand and not exposure to the virus through non-intact skin (for example, cuts or scrapes). While the use of gloves may make employees more aware of potential hand contamination, there is no difference between intentional or unintentional touching of the mouth, nose or eyes with either a contaminated glove or a contaminated hand. If an employee does wear gloves, they should always wash their hands with soap or sanitizing solution immediately after removal to ensure that they did not contaminate their hand(s) while removing them.

When selecting PPE, employers should consider factors such as function, fit, ability to be decontaminated, disposal, and cost. Sometimes, when a piece of PPE will have to be used repeatedly for a long period of time, a more expensive and durable piece of PPE may be less expensive in the long run than a disposable piece of PPE. For example, in the event of a pandemic, there may be shortages of surgical masks. A reusable face shield that can be decontaminated may become the preferred method of protecting against droplet transmission in some workplaces. It should be noted that barrier protection, such as a surgical mask or face shield, will protect against droplet transmission of an infectious disease

but will not protect against airborne transmission, to the extent that the disease may be spread in that manner. Each employer should select the combination of PPE that protects employees in their particular workplace. It should also be noted that wearing PPE may be physically burdensome to employees, particularly when the use of PPE is not common practice for the work task.

Educate and train employees about the protective clothing and equipment appropriate to their current duties and the duties which they may be asked to assume when others are absent. Employees may need to be fit tested and trained in the proper use and care of a respirator. Also, it is important to train employees to put on (don) and take off (doff) PPE in the proper order to avoid inadvertent self-contamination (www.osha.gov/SLTC/respiratoryprotection/index.html). During a pandemic, recommendations for PPE use in particular occupations may change, depending on geographic proximity to active cases, updated risk assessments for particular employees, and information on PPE effectiveness in preventing the spread of influenza.

Workplaces Classified at Very High or High Exposure Risk for Pandemic Influenza: What to Do to Protect Employees

If your workplace requires your employees to have contact with people that are known or suspected to be infected with the pandemic virus, there are many practices that can be used to reduce the risk of infection and to protect your employees. Additional guidance for very high and high exposure risk workplaces, such as health care facilities, can be found at: www.pandemicflu.gov and www.osha.gov.

Very high and high exposure risk occupations require employers to address enhanced safety and health precautions in addition to the basic work practices that every workplace should adopt (see page 26). Employers should also be aware that working in a high

risk occupation can be stressful to both employees and their families. Employees in high risk occupations may have heightened concern about their own safety and possible implications for their family. Such workplaces may experience greater employee absenteeism than other lower risk workplaces. Talk to your employees about resources that can help them in the event of a pandemic crisis. Keeping the workplace safe is everyone's priority. More information about protecting employees and their families can be found at: www.pandemicflu.gov.

Work Practice and Engineering Controls

Employers should ensure that employees have adequate training and supplies to practice proper hygiene. Emergency responders and other essential personnel who may be exposed while working away from fixed facilities should be provided with hand sanitizers that do not require water so that they can decontaminate themselves in the field. Employers should work with employees to identify ways to modify work practices to promote social distancing and prevent close contact (within 6 feet), where possible. Employers should also consider offering enhanced medical monitoring of employees in very high and high risk work environments.

In certain limited circumstances ventilation is recommended for high and very high risk work environments. While proper ventilation can reduce the risk of transmission for healthcare workers in the same room as infectious patients, it cannot be relied upon as the sole protective measure. Thus, a combination of engineering controls and personal protective equipment will be needed.

- When possible, health care facilities equipped with isolation rooms should use them when performing aerosol generating procedures for patients with known or suspected pandemic influenza.
- Laboratory facilities that handle specimens for known or suspected pandemic patients will also require special precautions associated with a Bio-Safety Level 3 facility. Some recommendations can be found at: www.cdc.gov/flu/h2n2bs13.htm.

Employers should also consider installing physical barriers, such as clear plastic sneeze guards, to protect employees where possible (for example, reception or intake areas). The use of barrier protections,

such as sneeze guards, is common practice for both infection control and industrial hygiene.

Administrative Controls (Isolation Precautions)

If working in a health care facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting employees. See the U.S. Department of Health and Human Services' pandemic influenza plan for health care facilities at: www.hhs.gov/pandemicflu/plan/sup4.html.

Personal Protective Equipment (PPE)

Those who work closely with (either in contact with or within 6 feet) people known or suspected to be infected with pandemic influenza should wear:

- Respiratory protection for protection against small droplets from talking, coughing or sneezing and also from small airborne particles of infectious material.
  - N95 or higher rated filter for most situations.
  - Supplied air respirator (SAR) or powered air purifying respirator (PAPR) for certain high risk medical or dental procedures likely to generate bioaerosols.
  - Use a surgical respirator when both respiratory protection and resistance to blood and body fluids is necessary.
- Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.
- Medical/surgical gowns or other disposable/decontaminable protective clothing.
- Gloves to reduce transfer of infectious material from one patient to another.
- Eye protection if splashes are anticipated.

The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of the particular strain of

influenza. See the National Institute for Occupational Safety and Health (NIOSH) Respirator Selection Logic at: www.cdc.gov/niosh/docs/2005-100.

Educate and train employees about the protective clothing and equipment appropriate to their current duties and the duties which they may be asked to assume when others are absent. Education and training material should be easy to understand and available in the appropriate language and literacy level for all employees. Employees need to be fit tested and trained in the proper use and care of a respirator. It is also important to train employees to put on (don) and take off (doff) PPE in the proper order to avoid inadvertent self-contamination (www.osha.gov/SLTC/respiratoryprotection/index.html). Employees who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

During a pandemic, recommendations for PPE use in particular occupations may change depending on geographic location, updated risk assessments for particular employees, and information on PPE effectiveness in preventing the spread of influenza. Additional respirator and surgical mask guidance for healthcare workers has been developed and is available at www.pandemicflu.gov/plan/healthcare/maskguidancehc.html. This document, *Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza Pandemic*, provides details on the differences between a surgical mask and a respirator, the state of science regarding influenza transmission, and the rationale for determining the appropriate protective device.

What Employees Living Abroad or Who Travel Internationally for Work Should Know

Employees living abroad and international business travelers should note that other geographic areas have different influenza seasons and will likely be affected by a pandemic at different times than the United States. The U.S. Department of State emphasizes that, in the event of a pandemic, its ability to assist Americans traveling and

residing abroad may be severely limited by restrictions on local and international movement imposed for public health reasons, either by foreign governments and/or the United States. Furthermore, American citizens should take note that the Department of State cannot provide Americans traveling or living abroad with medications or supplies even in the event of a pandemic.

In addition, the Department of State has asked its embassies and consulates to consider preparedness measures that take into consideration the fact that travel into or out of a country may not be possible, safe, or medically advisable during a pandemic. Guidance on how private citizens can prepare to shelter in place, including stocking food, water, and medical supplies, is available at the www.pandemicflu.gov website. Embassy stocks cannot be made available to private American citizens abroad, therefore, employers and employees are encouraged to prepare appropriately. It is also likely that governments will respond to a pandemic by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government's ability to assist Americans in these countries. As it is possible that these measures may be implemented very quickly, it is important that employers and employees plan appropriately.

More information on pandemic influenza planning for employees living and traveling abroad can be found at:

www.pandemicflu.gov/travel/index.html

www.cdc.gov/travel

www.state.gov/travelandbusiness

For More Information

Federal, state and local government agencies are your best source of information should an influenza pandemic take place. It is important to stay informed about the latest developments and recommendations since specific guidance may change based upon the characteristics of the eventual pandemic influenza strain, (for example, severity of disease, importance of various modes of transmission).

Below are several recommended websites that you can rely on for the most current and accurate information:

www.pandemicflu.gov
(Managed by the Department of Health and Human Services; offers one-stop access, including toll-free phone numbers, to U.S. government avian and pandemic flu information.)

www.osha.gov
(Occupational Safety and Health Administration website)

www.cdc.gov/niosh
(National Institute for Occupational Safety and Health website)

www.cdc.gov
(Centers for Disease Control and Prevention website)

www.fda.gov/cdrh/ppe/fluoutbreaks.html
(U.S. Food and Drug Administration website)

OSHA
www.osha.gov

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace and to your life.

Safety and Health Program Management Guidelines

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection and can save time and money (about $4 for every dollar spent) and increase productivity and reduce employee injuries, illnesses and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (54 *Federal Register* (16): 3904-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management program:

- Management leadership and employee involvement.
- Work analysis.
- Hazard prevention and control.
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice is available online at www.osha.gov.

State Programs

The Occupational Safety and Health Act of 1970 (OSH Act) encourages states to develop and operate their own job safety and

health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of one year. For more information concerning consultation assistance, see the OSHA website at www.osha.gov.

Voluntary Protection Programs (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The three levels of VPP are Star, Merit, and Star Demonstration designed to recognize outstanding achievements by companies that have successfully incorporated comprehensive safety and health programs into their total management system. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

Strategic Partnership Program

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives and others (e.g., trade unions, trade and professional associations, universities and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

Alliance Programs

The Alliance Program enables organizations committed to workplace safety and health to collaborate with OSHA to prevent injuries and illnesses in the workplace. OSHA and the Alliance participants work together to reach out to, educate and lead the nation's employers and their employees in improving and advancing workplace safety and health.

Groups that can form an Alliance with OSHA include employers, labor unions, trade or professional groups, educational institutions and government agencies. In some cases, organizations may be building on existing relationships with OSHA that were developed through other cooperative programs.

There are few formal program requirements for Alliances and the agreements do not include an enforcement component. However, OSHA and the participating organizations must define, implement and meet a set of short- and long-term goals that fall into three categories: training and education; outreach and communication; and promoting the national dialogue on workplace safety and health.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other Federal agencies. These centers are nonprofit colleges, universities and other organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training and education, contact the OSHA Training Institute, Office of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL 60005, (847) 297-4810 or see "Outreach" on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

OSHA
www.osha.gov

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include *eTools* such as *Expert Advisors, Electronic Compliance Assistance Tools (e-cats), Technical Links*; regulations, directives and publications; videos and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more, can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, phone toll-free (866) 512-1800.

OSHA Publications

OSHA has an extensive publications program. For a listing of free or sales items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210. Telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional or Area office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- file a complaint online,
- submit general inquiries about workplace safety and health electronically, and
- find more information about OSHA and occupational safety and health.

OSHA Regional Offices

Region I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

Region II
(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

Region III
(DE, DC, MD,* PA, VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

Region IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(214) 767-4731 or 4736 x224

Region VII
(IA,* KS, MO, NE)
City Center Square
1100 Main Street, Suite 800
Kansas City, MO 64105
(816) 426-5861

Region VIII
(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-5716
(720) 264-6550

Region IX
(American Samoa, AZ,* CA,* HI,* NV,* Northern Mariana Islands)
71 Stevenson Street, Room 420
San Francisco, CA 94105
(415) 975-4310

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs (Connecticut, New Jersey, New York and the Virgin Islands plans cover public employees only). States with approved programs must adopt standards identical to, or at least as effective as, the Federal standards.

Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-OSHA.

OSHA

www.osha.gov

OSHA

Occupational Safety
and Health Administration

U.S. Department of Labor

www.osha.gov

COMPANY PREPAREDNESS PLANNING MATERIALS

CoxCom San Diego

Contingency Planning for Avian Flu Pandemic

Larry Hofer VP People Services
Cox Communications

March 22, 2007
Pandemic Preparedness Summit
San Diego Marriott

COX COMMUNICATIONS

About CoxCom San Diego

- 2,250 Employees in San Diego County
- Trusted in-home service providers
- 350 Field Service Technicians
- 100 Network Operations Technicians
- 150 Field Contractors
- Over 545,000 households have at least one Cox product.
- Over 11,715 Cox Business Services customers.
- 7/24 Service
- 12-16 House calls per person

COX COMMUNICATIONS

Avian Flu Timeline

Pre-Pandemic Period

- Stage I & II -Today

Alert Period

- Stage III, IV & V -First Cases in US

Pandemic Period 6-8

- Stage VI -Communities take steps to mitigate impact

COX COMMUNICATIONS

COX ALERT

Cox Enterprises Crisis Management Site

Contact Us

GET PREPARED

PLAN AHEAD

- Family Plan

BE READY

- Disaster Kit
- First Aid
- Go Bag
- Food & Water

IN THE EVENT OF A CRISIS

WHAT TO DO

- Evacuation
- Utilities
- Shelter in Place
- Commun-ications

NATURAL DISASTERS

- Hurricane
- Pandemic
- Tornado
- Earth-quake
- Wildfires

MAN-MADE DISASTERS

- Nuclear
- Chemical
- Biological
- Structure Fire

ACTS OF TERRORISM

- General Info
- Bomb Threat

HOW COX PREPARES

- Crisis Management
- Disaster Relief & Support

RESOURCES

- FEMA
- Center for Disease Control
- American Red Cross

CRISIS ALERT

Printer-Friendly Version

TSA Holiday Travel Advisory

Passengers can greatly affect their experience at the airport by preparing in advance. This includes packing liquids, gels, and aerosols in checked baggage whenever possible. Use the 3-1-1 for carry-ons, arriving early and ensuring they are not traveling with prohibited items. For detail information, click here.

Tips for a Safer Holiday Shopping Season

"Black Friday," the day after Thanksgiving, is historically one of the busiest retail shopping days of the year and many consider it the "official" beginning to the holiday season. But, as the holiday season gets into full swing, so do the crooks and predators whose idea of "holiday cheer" features mayhem, misdeeds and misdemeanors. Please click here for some simple rules for a safer shopping experience that will help to ensure a joyous holiday season for all.

Pandemic Avian Influenza (bird flu)

Pandemic News

- A New Survey on Public Attitude, please **click here** for the full report.
- CDC Weekly United States **Influenza Map**.

COX COMMUNICATIONS

Today

- Phase I
  - All CCI Locations have active **Business Continuity Plans.**
  - Coordinating with other Association of Contingency Planners (ACP) members in San Diego.
  - CCI Employees have received **preparation materials** from CCI Corporate & locally.
  - **Toll Free Catastrophic Event** line.
  - **CoxAlert.com**
- Phase II
  - Increased awareness, contact with key vendors
  - Distribution of masks, disinfectants,
  - Employee communications

COX COMMUNICATIONS

Pandemic Alert Period through Pandemic Period

Phase III- VI

- Crisis Management Team activates
- Contingency Plans Activated
  - Plan for reduced work force
  - Expand “HomeStart” program
  - Work-from-home expansion
  - “Cyber Agent”---Customer Care Center maximized
  - Non-customer contact repair work rescheduled
  - Retail store closure

COX COMMUNICATIONS

Prioritizing *work*...

RED	Dial tone...Cox Telephone
	Cox High Speed Internet
YELLOW	Network Maintenance vs Installation Services
GREEN	Video
	Disconnects

COX COMMUNICATIONS

Prioritizing *customers*...

RED	Telephone, Cox HSI
	Emergency Services
	Law Enforcement
	Hospitals
YELLOW	Government Agencies, Businesses, Schools
GREEN	Residential

COX COMMUNICATIONS

Challenges

- Coordinating response
- 30% Absenteeism
- “Fear Factor”
- Cross-training, former field technicians
- Full strength staffing
- Fuel, vendor support, coordinate with other service providers

COX COMMUNICATIONS

Cox Crisis Experience...

- Firestorm 2003
  - Prepared
  - BCP activated, drill 3 months earlier
  - Network restoration during the fire
- Katrina
  - Cox the major telecommunications provider in New Orleans
  - Nationwide Cox response
  - “Cable” now critical infrastructure

COX COMMUNICATIONS

Cox Core Values

Who we are	What it means
Exceed expectations	We'll be ready
Strong, Ethical Competitor	We'll compete in all but safety
Improve Quality of life	We are committed to our community
Cause Above Self	Cedar Fire, Katrina
Technological Superiority	Robust, Ring-in-Ring Architecture Redundancy Redundancy

COX COMMUNICATIONS

Take Aways…

- All businesses need to be prepared
  - "When" not "If"
- Cox Has Special Considerations.
  - Public Contact
  - Critical Infrastructure
- Employee Education, Preparation is key
- Business Continuity Planning
  - Plan, publish, practice
- Learning opportunities
  - Cedar fire, Katrina, "rolling blackouts."

COX COMMUNICATIONS

Larry Hofer, VP HR CoxCom:

(619) 266-5264 larry.hofer@cox.com

Tom Brandon, Risk Manager CoxCom

(619) 266-5581 tom.brandon@cox.com

Jeff Quarles, Environmental Safety & HAZMAT Coordinator CoxCom

(619) 266-5404 jeff.quarles@cox.com

www.CoxAlert.com

COX COMMUNICATIONS

NORTHROP GRUMMAN

DEFINING THE FUTURE

Northrop Grumman Corporation

Pandemic Planning

Pandemic Preparedness Summit
San Diego, CA

March 22, 2007

Curt Armbruster
Director, Security Information Technology
Northrop Grumman Corporation

Northrop Grumman Corporation

- $30 billion
- 50 states
- 29 countries
- 120,000 employees
- 4,000 employees in San Diego county
- One of top three defense contractors
- One of two top IT providers to the U.S. government
- One of three major contractors in military and civil space, missile defense

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How are we preparing?

- **Non-traditional Contingency Planning Approach**
  - Pandemic impacts people – not infrastructure
- **Following WHO phased plan**
  - Currently experiencing Phase 3
  - Planning for Phase 4
- **Corporate led initiative to develop plans for 8 sectors**
  - Final drafts submitted late ’06
  - Gap Analysis Review in Jan ’07
- **Partnering with Government**
  - Corp Security VP met with State of CA, Los Angeles County, CA and Federal Homeland Security
  - All Sectors met with respective state and local health representatives
- **Director of Health for Fairfax County briefed Corporate Security Council**
- **Conducted table top exercises**

NORTHROP GRUMMAN

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Planning Assumptions

- 2 or 3 waves of disease outbreak over period of a year or more
- Possibly as many as 35% of the population affected, a large number of deaths
- Enormous demands on the health care system
- Delays and shortages of available vaccines and antiviral drugs
- Potential disruption of national and community critical infrastructure (transportation, commerce, utilities and public safety)
- Simultaneous outbreaks will limit the ability of any jurisdiction to provide mutual aid
- Uninfected employees may be absent to care for family

NORTHROP GRUMMAN

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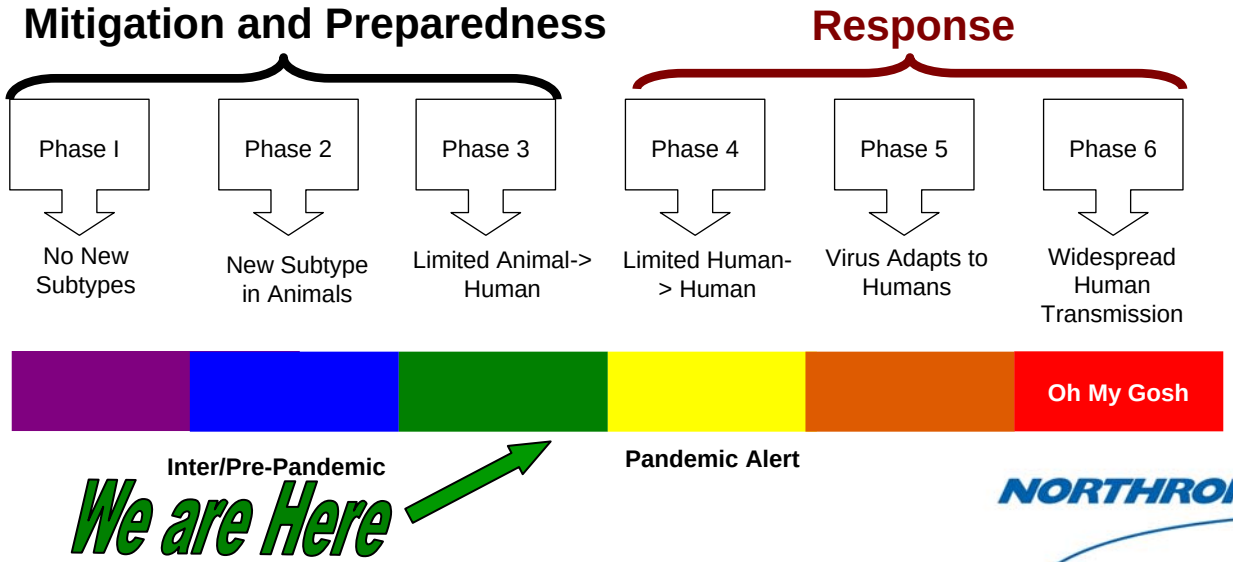
Table Top Exercise

- **Scenarios focused on Phases 3 and 4**
  - Participants - all organization disciplines with each sector (i.e. Facilities, Security, Communications, etc.) as well as local state and government health representative
  - Crisis Management Teams were presented with Scenario

Growth of a Pandemic (World Health Organization)



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Lessons Learned and Challenges

- **Coordinated communications is vital**
  - Communication is different in a catastrophic event and is also processed differently by the employee
  - Communicating with your employees at the time of the crisis is too late
- **Education and Awareness should focus on hygiene and social distancing**
- **Screening Programs may be ineffective**
- **Masks may even assist in the spread of illness**
- **Information Technology support plays a big role in planning**
  - Alternate work locations
  - Hoteling/Tele-work
  - Remote access resources
- **Critical personnel/functions identification**
  - Needs to be 3-4 levels deep
- **Cost estimation is difficult to capture**
- **Pandemic planning = competitive advantage**
- **Managing the fear**
  - Pre-planning is key here
- **Federal, State and Local coordination is key**
  - Relationship based – Open, continuous dialog
  - Can governments and businesses work together to integrate pandemic plans?
  - Consider adjustments to your plans and influencing adjustments in theirs

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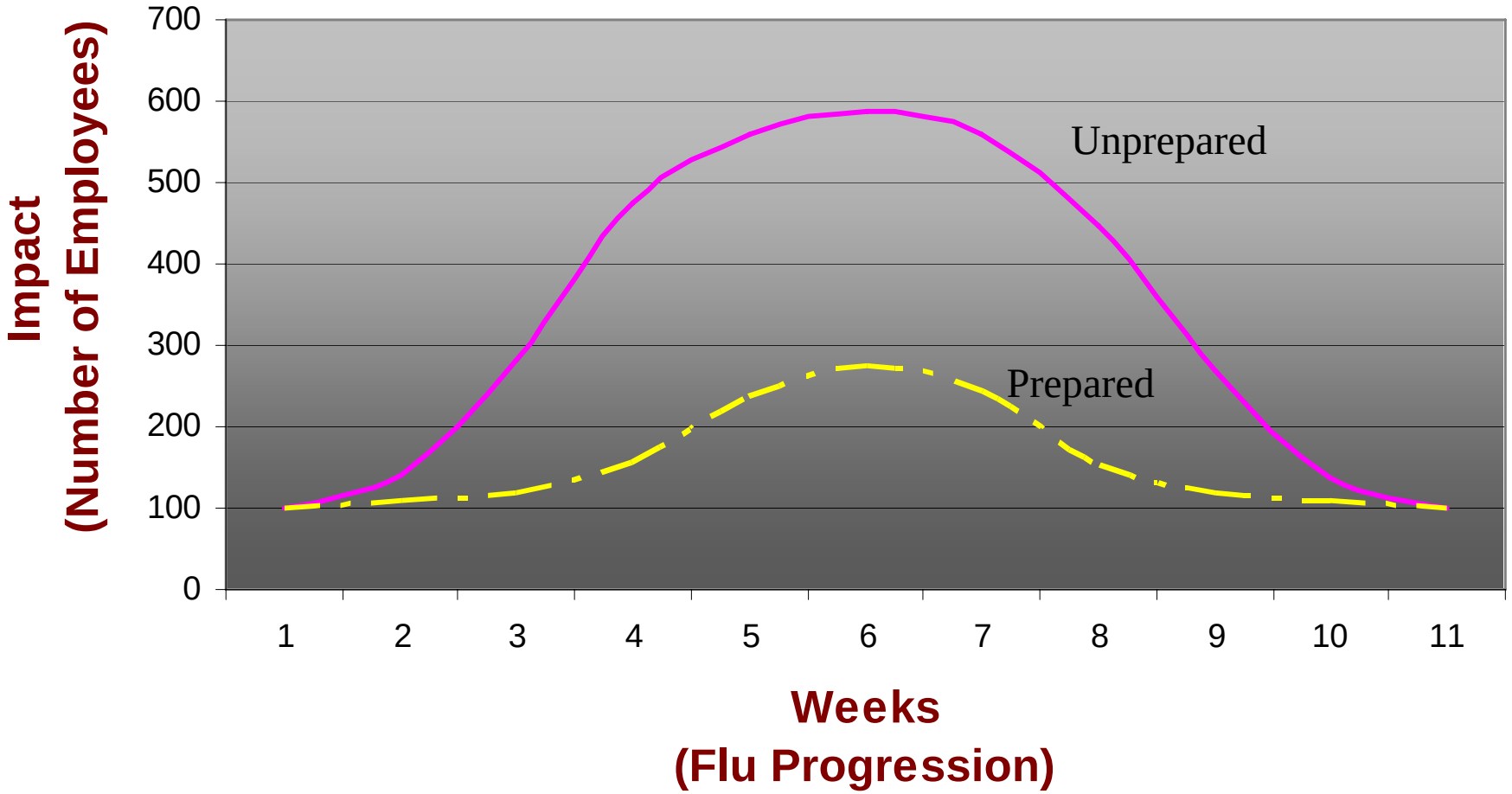
Impact of Planning



*Dr. Gloria Addo-Ayensu, MD – 11/08/2006

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Northrop Grumman Customer Support

- **Global Disease Surveillance Platform (GDSP™) IR&D**
  - PI: Taha A. Kass-Hout, MD (Taha.Kass-Hout@ngc.com)
- **Pandemic Community of Interest**
  - Moderator: W. John Page (John.Page@ngc.com)
- **CDC Support**
  - BioSense, Outbreak Management System, VODS
- **Monitoring Influenza Symptoms among Military Population**
- **Varied support for the Intelligence Community**

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SDGE

A Sempra Energy utility®

Pandemic Influenza Business Planning for San Diego Gas & Electric

County of San Diego
Pandemic Preparedness Summit
March 22, 2007

San Diego Gas & Electric (SDG&E)

- Serving San Diego County and southern Orange County
- 4,100 square miles
- 3,500 employees
- 3.4M consumers
- 1.3M electric meters
- >825K natural gas meters

Responsibility

- SDG&E has responded to the Federal Government's December, 2005 *Pandemic Flu Business Letter* that states:

  "Companies that provide **critical infrastructure services, such as power** and telecommunications, also **have a special responsibility to plan for continued operation in a crisis** and should plan accordingly. As with any catastrophe, having a contingency plan is essential." [Emphasis added.]

Objectives

- Continue any essential, non-deferrable work
- Protect the physical and mental health of employees
- Provide for continuation of the chain of command
- Provide for knowledge transfer during prolonged absences of employees
- In making operating decisions err on the side of employee and customer safety
- Protect the companies from liability and loss

Planning Assumptions*

- The disease outbreak will be worldwide
- 25% of the workforce will be infected
- 40% absenteeism
- 2% mortality rate
- The sick can be contagious 2 days before visible symptoms and up to 5 days after becoming sick
- Three 8- to 12-week disease cycles extending over as long as 18 months
- Insufficient antivirals, vaccines and other medical supplies

**Sources: Department of Health and Human Services - National Strategy Pandemic Flu Plan May 2006; North American Electric Reliability Council – Critical Infrastructure Protection Committee, February 2006*

Pandemic Response Plans

- In 2005, SDG&E updated departmental “all-hazard” Business Recovery Plans (BRP)
- BRP assessments include:
  - Critical infrastructure and essential business functions
  - Key resources, including:
    - Employees, contractors and vendors
    - Equipment, materials and supplies
  - Alternate work methods, processes and locations
  - Supply-chain alternatives
  - Records storage and back-up

Pandemic Response Plans

- Incorporate Pandemic assumptions and key findings of BRPs
- Identify essential, non-deferrable work
- Identify personnel involved in essential and non-essential work
- Identify workplace and facility issues and challenges
- Assess supply-chain strengths and weaknesses, including vendor and supplier pandemic planning

Key External Resources

- World Health Organization
- Centers for Disease Control
- U.S. Department of Health and Human Services
- California Department of Health Services
- County departments of public health
- Governor’s Office of Emergency Services
- North America Electric Reliability Council
- U.S. Department of Energy
- California Public Utilities Commission

Plan Development

- Steering Committee
  - Oversight
- Utility Health Team
  - Occupational health nurses, industrial hygienists
  - Review of corporate medical policies
  - Liaison with health authorities, health care industry, health insurance companies
  - Monitor public health response and responsibilities
  - Training notices, informational programs

Plan Development Focuses on

- People Issues
  - Absence, leave, return-to-work policies
  - Telecommuting
  - Compensation and benefits
  - Case management and reporting
  - Employee hygiene, quarantine and inoculation
  - Deployment of workers to essential work
- Communications Issues
  - Planning and execution of employee and external communications
  - Health information and publications
  - Presentations

Plan Development Focuses on

- Technology Issues
  - IT infrastructure for decentralized work
  - Network resources, capacities and system continuity
  - Telecommuting and device availability
  - CITRIX
  - Level of service
  - Vendor support
- Emergency Operations Issues
  - Appendices to BRPs based on pandemic assumptions
  - Liaison and interaction with emergency agencies
  - Readiness to activate EOC as strategy hub

Plan Development Focuses on

- Facilities Issues
  - Work space configuration
  - Air handling and filtration
  - Disinfection of work spaces and housekeeping
  - Alternative clean-space locations
  - Control of entry to work locations
- Material and Supply Issues
  - Development of appropriate stores of equipment and supplies
  - Preparation for mobile delivery

Implementation Framework

- Plan
  - Develop and implement comprehensive pandemic response plans
- Monitor
  - Maintain awareness of situation; insure senior management awareness of developments
- React
  - Activate plans
- Manage
  - Maintain continuity of critical business functions
- Recover
  - Return to normal operations; debrief performance; adjust; return to monitoring.

QREF

QUALCOMM REAL ESTATE & FACILITIES

Pandemic Preparedness Summit

Carey Storm
Director of Operations

Sorrento Valley Task Force

County Dept. of Public Health

SD Hotel / Motel Association

Amylin Pharmaceuticals

Biosite

Quintiles

Gen-Probe

Scripps Health

SAIC

Kyocera Wireless

Quidel

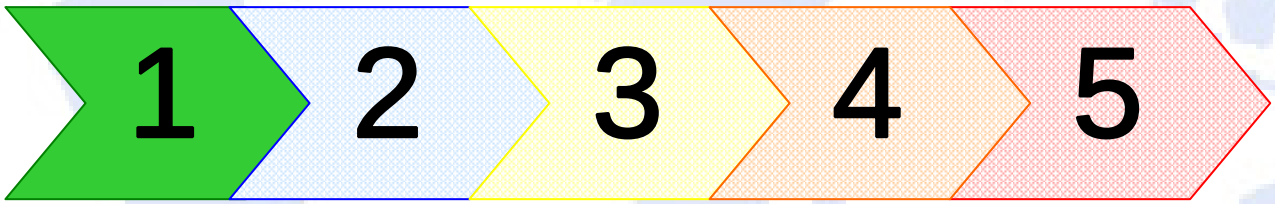
Goals

- **Communication**
- **Support**
- **Mutual Aid**
- **Shared Learning**
- **Leverage Tools**

Accomplishments

- Sharing of ideas and resources
- Established communication method
- Team participation in state wide drill
- Observation of County Drills
- Monthly group meetings

QUALCOMM PANDEMIC RESPONSE PLAN



1 Low Risk

- Annual worldwide flu prevention program includes: posters, brochures, anti-viral hand gel.
- Increase cleaning of public areas to include: wipe down of conference tables, spray public phones and keyboards
- Increased number of conference bridges available.
- Enhanced remote access infrastructure.
- Prepared Company Wide Avian Flu information campaign.

2 Guarded Risk

TRIGGER: If one country at stage 3, entire company follows stage 2 procedures

- All travelers to countries with Avian Flu outbreak must complete online questionnaire before returning to office.
- All travelers to spend a number days at home upon return.
- If employee has any symptoms, a doctor review and exam before returning to office.
- All visitors to be screened via questionnaire.

3 Elevated Risk

TRIGGER: Multiple cases of Avian Flu in one area.

- All travel to affected countries must be pre-approved by department head based on business and other considerations.
- All travelers are required to have a doctor's exam before returning to company offices.
- If employee is experiencing any symptoms they are not allowed to return to the office for 14 days.
- All visitors will be screened via questionnaire.

4 High Risk

TRIGGER: Wide spread cases of Avian Flu in multiple countries.

- Complete recommended steps above.
- Close public areas such as cafeterias, work out facilities and coffee bars.
- Stop face to face meetings in conference rooms.
- Stop visitor traffic to all facilities, convert all to conference bridges.

5 Severe Risk

TRIGGER: Wide spread cases of Avian Flu within QUALCOMM facility

- Complete recommended steps above.
- In affected QC facility, send employees home to work remotely as much as possible until crisis is over.
- Recommend all employees stay away from affected facility.

THE HEALTHCARE PERSPECTIVE

JOURNAL OF

Healthcare Management

Foundation of the
AmericanCollege *of*
HealthcareExecutives
for leaders who care®

Volume 52, Number 2
March/April 2007

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PERSPECTIVE

Healthcare Executives' Role in Preparing for the Pandemic Influenza 'Gap': A New Paradigm for Disaster Planning?

Nancy A. Thompson, Ph.D., FACHE, president, HealthCare Insights, LLC, Falls Church, Virginia, and Christopher D. Van Gorder, FACHE, president and chief executive officer, Scripps Health, San Diego, California

Pandemic influenza, by its nature, is a healthcare disaster. Healthcare organizations are the unique reservoirs of the essential knowledge and tools for handling such a pandemic; they have infection-control procedures, universal precautions, and personal protective equipment for virus protection. Because of this, healthcare organizations run the risk of being the scapegoat if this pandemic is mishandled, just as the Federal Emergency Management Agency was blamed for providing too-little help and too-late response to victims of Hurricanes Katrina and Rita.

It is not an option for hospitals to merely *plan to respond* to an influenza disaster that could drain resources all across the country, leaving each community to address the disaster as best it can, without outside help, until the vaccine is available. In this case, the public will demand accountability and look for someone to blame for death rates that could be unheard of in history. Healthcare organizations have the unique obligation *to act* in advance, not just plan to respond.

This article discusses a paradigm shift in disaster preparation that is aimed at saving lives and enabling healthcare organizations to be heroes, not villains, in the event of a pandemic influenza disaster.

THE HEALTHCARE IMPACT

Pandemic influenzas recur every 10 to 42 years, and the past three pandemics were all from avian viruses mutating to a human virus (see Table 1). If the next anticipated pandemic influenza, from the avian flu virus H5N1, is of comparable lethality to the 1918 pandemic influenza, the U.S. Department of Health and Human Services (HHS 2006a) estimates that 90 million, or 30 percent of the population in the United States, will be sick and 209,000 to 1.9 million of the affected will die (see Table 2), and the World Health Organization (WHO 2005) estimates up to 7.4 million deaths worldwide. The British journal *The Lancet* recently published a story that calculated the anticipated deaths to be between 51 million and 81 million, a more lethal scenario (Murray et al. 2007).

According to HHS (2006b), people who contract the pandemic flu are typically contagious for one to four days even before symptoms appear, as well as while symptoms are present; peak viral shedding happens at two days and extends up

TABLE 1
Death Tolls of Pandemic Influenza

Year	1918–1919	1957–1958	1968–1969
Flu type	Spanish flu	Asian flu	Hong Kong flu
Likely origin	Uncertain	China	China
Estimated deaths—Global	50 million+	1 million–2 million	700,000+
Estimated deaths—United States	700,000+ (2.5%)	70,000+	34,000+

Sources: World Health Organization. "Why Are Pandemics Such Dreaded Events?" Frequently Asked Questions. [Online information; retrieved 1/6/07.] www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html; PandemicFlu.gov. "Pandemics and Pandemic Threats Since 1900." [Online information; retrieved 1/6/07.] www.pandemicflu.gov/general/historicaloverview.html; U.S. Department of Health and Human Services, Centers for Disease Control. "What Would Be the Impact of a Pandemic?" [Online information; retrieved 1/6/07.] www.pandemicflu.gov/general/index.html.

TABLE 2
Estimated Impact of Pandemic Influenza on U.S. Healthcare, from Moderate to Severe

	Moderate (1958)	Severe (1918)
Deaths	209,000	1,903,000
Mechanical ventilation	64,975	745,500
ICU care	128,750	1,485,000
Hospitalizations	865,000	9,900,000
Outpatient medical care (50%)	45,000,000	45,000,000
Illness (30%)	90,000,000	90,000,000

Source: U.S. Department of Health and Human Services. 2006. "Pandemic Planning Assumptions," Table 1. [Online information; retrieved 1/6/07.] www.pandemicflu.gov/plan/pandplan.html.

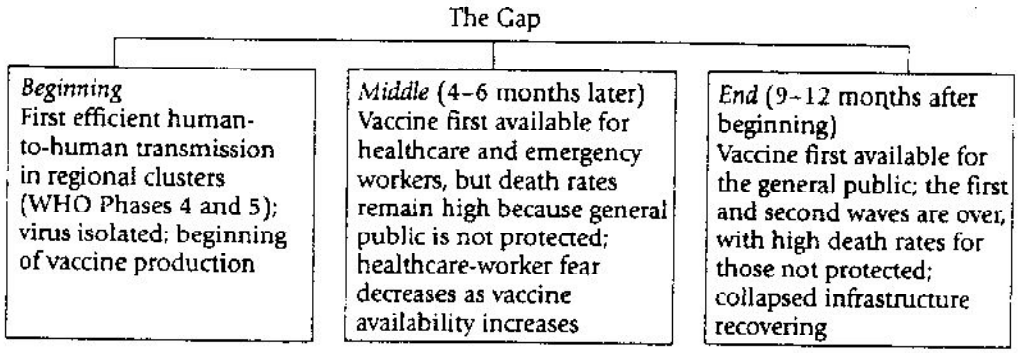
to seven days. Initial outbreaks likely last several weeks to several months, and additional waves of the flu come and go over an 18-month time frame. WHO experts expect that this type of flu will spread to all parts of the world within three months. Historically, the second wave of the pandemic flu is much more deadly than the first, and viral mutations may threaten the effectiveness of the antivirals and vaccines that have been developed to date. Health authorities agree that it is a matter of *when*, not *if*, there will be another pandemic influenza.

THE GAP

Current national plans to battle the pandemic flu focus on a time line, which starts with distribution of the vaccine. 'The Gap' is the time between the first efficient human-to-human transmission of the virus and the availability of the vaccine

FIGURE 1
Definition of the Gap

This time line shows the time between the first human-to-human transmission of the pandemic flu and the time when the vaccine can be manufactured, be disseminated, and become effective. The time line also includes the potential impact on lives.



to the public 9 to 12 months later (see Figure 1). The Gap is viewed two ways—either it is accepted as a time when high death rates could occur or it is not addressed directly. HHS (2006a) has been up-front with states, making it clear that each state is responsible for using local resources to address the initial months of a pandemic and that currently there is no known way to produce the vaccine any faster than four to six months. HHS is supporting the development of new technologies that may expedite the development of the vaccine, but it is a race against the clock that the public and the healthcare system cannot afford to lose.

Alternatives to Vaccines

By the end of 2006, the U.S. government has targeted to stockpile 26 million courses of Tamiflu, with plans for a total of 50 million courses by the end of 2008 (Leavitt 2006). However, it is not known if such antivirals will be effective against a novel pandemic flu. The United States alone will need 300 million doses, although currently we have only 3 million doses on hand against the H5N1 clade 1 virus, and we have the capacity to produce only an additional 5 million doses for clade 1 and 2 forms by the end of 2007 (Leavitt 2006). We cannot plan for these antivirals to be available in sufficient numbers and to be effective against the mutated virus, given that the actual strain of the virus is required for optimal protection.

Healthcare System Capacity

Despite current national efforts to prepare for patient surge during disasters, healthcare organizations will likely be overwhelmed quickly during the pandemic Gap. Some estimate that during the Gap, it may take as little as 12 hours from

the time symptoms peak in one area to the time ventilator beds are filled at the local hospital, and this demand may be complicated by decreased capacity due to lack of staff. Estimates of employee absenteeism in healthcare, at 20 percent to 30 percent, are somewhat lower than in the business industry, at 40 percent (HHS 2006c). As a result, the burden of caring for those infected by the flu will fall to families who do not have the equipment and expertise to treat their loved ones, who now suffer from severe respiratory conditions or multiorgan system failure. This healthcare impact will be occurring simultaneously with what the World Bank anticipates as an $800 billion worldwide financial impact during the first year of the pandemic (WHO 2006).

Not an Ordinary Disaster

Hospitals and healthcare organizations are relatively well prepared for disasters that happen within their local service areas, such as hurricanes, earthquakes, tornados, crashes, explosions, hazardous chemical releases, and terrorist acts. They are used to rallying their expertise and equipment and going into a specific disaster area to assist. Unlike ordinary, localized disasters, however, an influenza pandemic will quickly spread throughout the country and beyond; as such, local hospitals cannot count on healthcare organizations in other parts of the country or the world to be available to help in their communities.

There are two ways to avert the impact of the Gap (see Figures 2 and 3). First, the federal government can minimize the length of the Gap by expediting vaccine development, production, and dissemination, something that is underway. Second, healthcare executives should take on a leadership role with local health departments and other providers to educate their communities on how to protect their health during the Gap; this is a critical step that is not being addressed in any concerted and consistent way across the country.

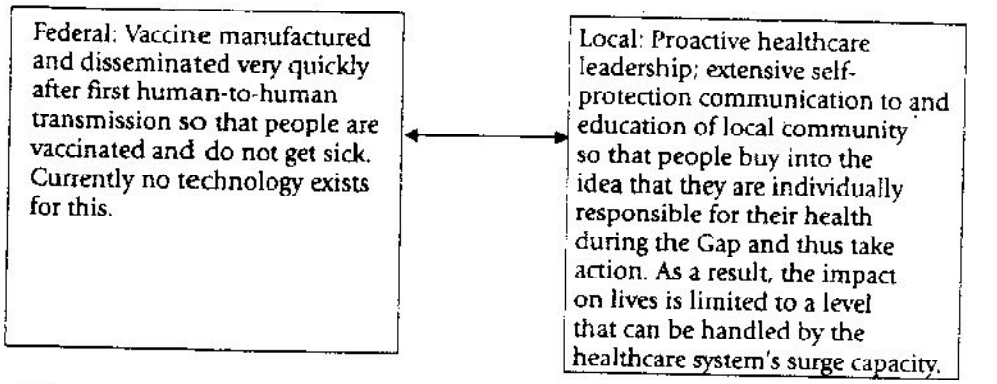
THE NECESSITY FOR A PARADIGM SHIFT IN DISASTER PLANNING

Taking extensive preparedness actions well *in advance* of a pandemic is essential to save lives during the Gap. Failure to proactively educate the public and to address the Gap leaves healthcare organizations vulnerable to public criticism. Traditional disaster planning, based on an all-hazards approach, to respond at the time of an event remains absolutely necessary, but it is *not sufficient* for a pandemic influenza. People need to understand how to protect themselves from the virus when they leave their house, how to care for a sick family member at home, and how to bring items into their home virus free.

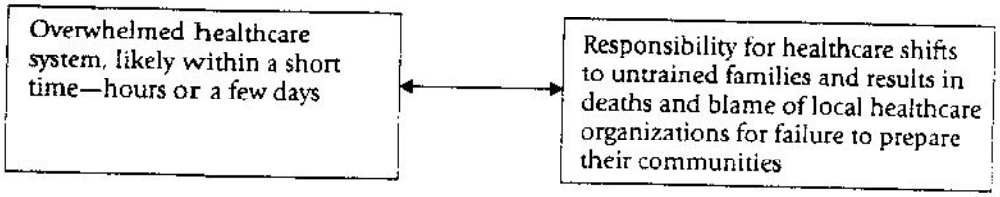
If the public's expectations are not proactively set to align with the reality of the Gap, there will be potential for uprising, violence, and major shutdowns of the nations' healthcare systems (and possibly of other infrastructure) because of extensive illnesses and the overwhelming demands on hospitals and health delivery organizations. The blame may fall squarely on the shoulders of healthcare

FIGURE 2
Ways to Avert the Impact of the Gap

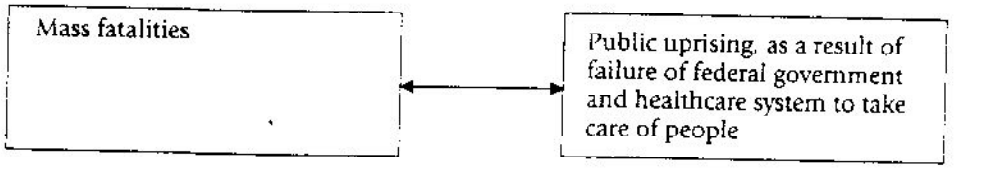
If the following two actions are successful, the impact of the pandemic influenza is minimized:



Failure or delay in the above two actions results in:



Ultimate outcomes:



organizations for not being there when people needed them most. However, the healthcare community has the unique opportunity to provide the public with the knowledge necessary to survive. Individuals must understand the Gap and their own responsibility for staying well during this period.

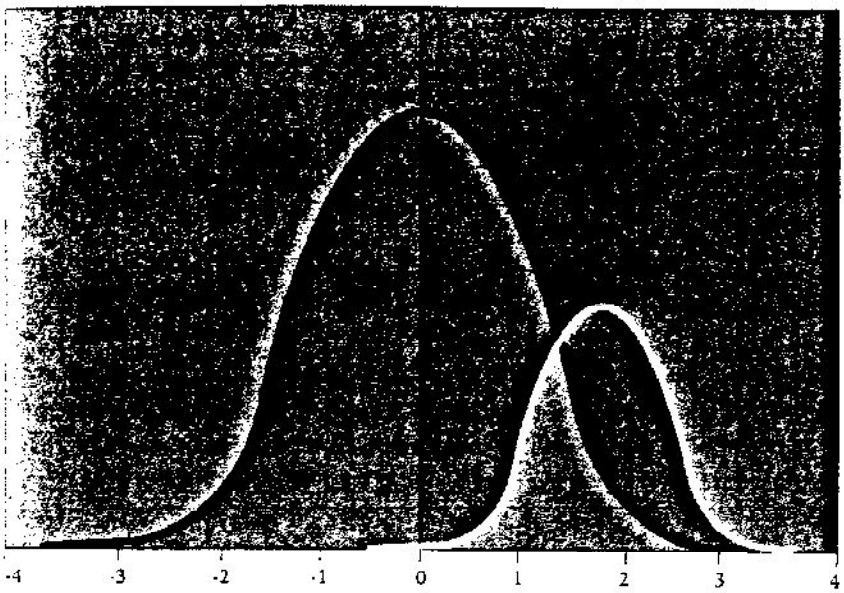
In this situation, the goal of healthcare leadership, in collaboration with community partners, should be to raise the public's level of curiosity about pandemic influenza. This will result in maximum action on the part of individuals to learn new skills in infection control and in personal protective equipment.

Public Education and Awareness

In raising awareness and educating the public, healthcare leaders must keep the following in mind:

FIGURE 3

Decreasing and Delaying the Impact of the Gap Through Proactive Education



The curve to the right shows fewer deaths and delayed onset when public is educated in advance of the pandemic. The curve to the left shows the pandemic death rate and early onset without education and knowledge of preventive measures.

- *Sharing best knowledge as opposed to perfect knowledge.* We will not always know what will protect the public, but we must always give the public the best information we have. We should recognize that waiting to provide the perfect advice on personal protective equipment (PPE) and the perfect set of universal precautions will result in no PPE use and will yield no universal precautions, the lack of which will result in deaths. Advice that is *likely* to be protective has to be presented in that context and is better than advice not given because we were waiting for the perfect protection. If hospitals wait to share information until they can absolutely ensure that PPE will be 100 percent effective, they will never share information because PPE is never 100 percent effective. It is critical that, to limit liability, a healthcare organization's legal counsel guide the facility's policy wording; this will ensure that the public understands that the healthcare organization is sharing its best knowledge.
- *Education on infection control, universal precautions, and PPE.* As mentioned, healthcare organizations must provide basic and simplified information on infection control, universal precautions, and PPE. This education helps people understand what preparation is necessary to stay at home for prolonged periods of time or to venture out safely, and it also prevents the collapse of the nation's

infrastructure. Healthcare providers need to share their healthcare knowledge and information about products that will and will not protect the public. As the reservoirs of knowledge in health and wellness, healthcare systems have an obligation to provide quality educational materials and to coordinate with their respective communities in making venues of education available.

- *Timely and early communications.* Initial communications with the local community about the Gap should begin immediately, as should information about basic protective measures outlined here. Waiting creates the potential for shortages of PPE and inadequate time to educate. Healthcare executives are very familiar with the Joint Commission's "Standards for Emergency Management Planning" (EC 4.10)—in particular, the requirement to coordinate planning and preparation with the community's emergency management program. Healthcare providers should coordinate their efforts with public health, safety, and private organizations and should support government roles and responsibilities wherever possible. If there is a delay in local efforts, however, healthcare providers and organizations must take the lead.

CONCLUSION

Healthcare leaders in the United States have a unique opportunity to show the nation that they are truly "leaders who care," by stepping up to and taking on the challenge of a pandemic influenza. They can do this by sharing the knowledge that now resides uniquely in the healthcare arena—that is, infection control and personal protective equipment. Such leaders can greatly decrease the number of individuals who can become ill and die from this illness. In addition, these leaders simultaneously position their organizations to be seen as the one that gave the community the skills to save their own and their families' lives, rather than as the one that had the necessary information but did not share that knowledge.

References

Leavitt, M. O. 2006. "Pandemic Planning Update III." [Online information; retrieved 1/6/07.] www.pandemicflu.gov/plan/pdf/panflureport3.pdf.

Murray, C. J., A. D. Lopez, B. Chin, D. Feehan, and K. H. Hill. 2007. "Estimation of Potential Global Pandemic Influenza Mortality on the Basis of Vital Registry Data from the 1918–20 Pandemic: A Quantitative Analysis." *The Lancet* 368 (9554): 2211–18.

U.S. Department of Health and Human Services. 2006a. [Online information on pandemic influenza; retrieved 1/6/07.] www.pandemicflu.gov/news/birdfluinamerica.html.

———. 2006b. "Pandemic Planning Assumptions." [Online information; retrieved 1/6/07.] www.pandemicflu.gov plan/pandplan.html.

———. 2006c. "Key Elements of Departmental Pandemic Influenza Operational Plans." [Online information; retrieved 1/6/07.] www.pandemicflu.gov plan/federal/progresschecklist.PDF.

World Health Organization. 2005. "Ten Things You Need to Know About Pandemic Influenza." [Online information; retrieved 1/6/07.] www.who.int/csr/disease/influenza/pandemic10things/en/

———. 2006. "WHO Strategic Action Plan for Pandemic Influenza 2006–2007." [Online information; retrieved 1/6/07.] www.who.int/csr/resources/publications/influenza/WHO_CDS_EPR_GIP_2006_2c.pdf.

ROUNDTABLE DISCUSSION & NEXT STEPS

Next steps…

Community Based Business Networks

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San Diego County Business Networking

Business Clusters	Zip Codes
❖ Downtown	92101
❖ Sorrento Valley	92121
Mira Mesa UC San Diego	92122
➢ Carey Storm, QUALCOMM	
❖ Mission Valley	92108
❖ La Jolla	92037

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San Diego County
Business Networking

Business Clusters	Zip Codes
❖ Carlsbad	92008
❖ Rancho Bernardo	
Rancho Penasquitos	
Poway	92127
	92128

➢ Mary Beeunas, Hewlett Packard

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Pandemic Preparedness Summit:
A Meeting with the Business Community and County of San Diego
Health and Human Services Agency
Public Health Services

March 22, 2007
San Diego Marriott, Mission Valley

Meeting Comment Sheet

1. Did this event meet your overall expectations? Y N
   Why or why not?

   _____

   _____

   _____

2. Did this event help you identify the appropriate contacts on pandemic preparedness within the County of San Diego? Y N

3. Did this event broaden your knowledge on avian influenza and pandemic preparedness? Y N

4. Will you participate in a community-based business network, if one is developed in your zip code? Y N

5. Would you attend future pandemic related events? Y N

6. Comments:

   _____

   _____

   _____

   _____

Contact Information:

Name: _____

Title: _____

Company: _____

Zip Code: _____ **Phone:** _____

Email: _____

County of San Diego
Pandemic Preparedness Summit
San Diego Marriott Hotel, Mission Valley

March 22, 2007

Summit Attendee Directory Opt Out

In order to facilitate networking amongst the attendees of the Pandemic Preparedness Summit, we will be distributing an electronic directory, which will include all information gathered at the time of registration. *This information will not be sold nor distributed to anyone other than meeting attendees.*

If you would like to opt out of being included in this Summit Attendee Directory, please contact Amanda Loew at aloew@orc-sac.com no later than **March 30, 2007**. Please include your full name and address as previously submitted for event registration, so that we are sure to accurately delete you from the directory.

Thank you.