Maine Bureau of Health
Augusta, Maine

PUBLIC HEALTH EMERGENCY PREPAREDNESS

Evaluation Report

July 2002 – June 2005

AUGUST 2005

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EXECUTIVE SUMMARY

A formative evaluation process has been an integral part of the development of an integrated Public Health Emergency Preparedness (PHEP) program for the Maine Bureau of Health (BOH) during the past three years (2002-2005). Indicators based on collaboratively developed logic models in four areas (early detection, response, communication, training) were monitored quarterly.

Implementation progress was assessed along a continuum from 1) planning; to 2) developing systems and processes; 3) obtaining resources; 4) enhancing knowledge, attitudes, beliefs and skills; and 5) achieving practice objectives. Over the past three years BOH has made considerable progress in developing the PHEP infrastructure, in developing collaborative relationships with key partners and stakeholders across Maine, in obtaining necessary legislation and funding, and in developing a knowledgeable, skilled PHEP workforce.

Early Detection—Specific attention was given to developing the infrastructure for early detection activities focusing primarily on epidemiology and laboratory structure, systems and resources. Decentralization of epidemiology functions has been successful and is responsible for promoting enhanced disease reporting. A planning/analysis group of Medical Epidemiologists has been freed to focus on providing expert consultation to healthcare providers, to analyze trends and disseminate information. The state laboratory has increased size and capacity. The multidimensional influenza surveillance in 2004-05 was highly successful and provides a model for future surveillance programs. Maine also has one of the best statutory frameworks in the nation for public health emergencies. Focus on the following areas will enhance continued growth:

- Disease reporting;
- Data management and reports;
- Efficient, effective epidemiology systems and protocols;
- Quality assurance/improvement;
- Intra-BOH communication;
- Integrated Public Health Information System (IPHIS);
- Auxiliary power for State Laboratory (HETL);
- Regular drills to assure adequate mobilization capabilities;
- Enhanced participation in web-based and radio communication;
- Plans for mental health needs of public health personnel in outbreaks; and
- Regional planning and infrastructure for small and large-scale outbreaks.

Response—The results of BOH's planning efforts for adequate response to events of public health significance were realized during the influenza vaccine shortage crisis. The newly formed Office of Public Health Emergency Preparedness played a strong supportive role in a successful response. The value of on-going internal/external communications, regional and local networks, and a clear Incident Management Structure was realized during this event. In

addition, planning for regional health departments has begun in order to achieve a more cost-effective regional approach to provision of public health services. A survey of healthcare capacity is now available to serve as a baseline for future planning. Continued focus should be given to the following areas:

- A formal structure to support regional and local public health capacity;
- Formalized response processes, systems, and controls;
- Strategies to enhance collaboration and increase response capacity;
- Regional response plans for special populations;
- Operationalized Incident Management System;
- SNS implementation (Strategic National Stockpile);
- Current hospital PHEP plans;
- Healthcare network/partner linkages (public/private collaboration); and
- Response capacity in rural areas.

Communication—Adequate risk communication to healthcare providers and the public was an early BOH priority. This effort has resulted in effective media campaigns for West Nile Virus and Influenza, and a well-received and timely system of information "Alerts" during several significant public health events. A well-maintained website and phone banks were major factors in successful communication during the influenza vaccine crisis. The implementation of an integrated public health information system (IPHIS) will greatly facilitate both internal and external communication. The success of the public media campaign during the influenza vaccine shortage is demonstrated through the findings of a BRFSS survey that shows the reduction in influenza vaccination of non-high-risk individuals. Continuation of the exceptional growth in risk communication capabilities will occur with focus on the following areas:

- Accessibility to credible information during a crisis while reducing reliance on personal access to BOH individuals by stakeholders;
- Implementation of IPHIS (Integrated Public Health Information System)
- Increased awareness and use of the BOH website;
- More phone bank capacity and skill including translation services; and
- Reducing the psychological impact of public health emergencies.

Training—The Maine Center for Public Health (MCPH) in collaboration with Harvard School of Public Health subcontracted to provide PHEP training. A train-the-trainer approach was used to assure a sustainable, collaborative system to maintain individual and organizational PHEP competencies. MCPH has developed a comprehensive training program based on assessing needs of different groups. Training programs have been well organized, of high quality, and well received. The Learning Management System is being implemented to track trainers, training data and best practices. The internal evaluation process at MCPH has identified, however, that the number of sessions provided by trainers has not reached expectations, and strategies to address identified barriers are in development. Attention is now needed in the following areas:

- Strategies to promote sustainability of training programs in Maine; and
- Trainer and trainee recruitment, development and productivity.

3-Year Report

PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION REPORT

BACKGROUND

PURPOSE

In 2002, the US Congress allocated funds through the Centers for Disease Control (CDC), Health Resources and Services Administration (HRSA) and the States to enhance preparedness for public health emergencies and bioterrorism. For the State of Maine this involved developing and implementing an integrated public health emergency preparedness (PHEP) program with strategies affecting not only the Maine Bureau of Health (BOH), but a variety of state, regional and local stakeholders as well. As part of this process, the BOH recognized the need to continually assess its progress in establishing a viable PHEP program throughout Maine in order to:

- Obtain actionable data to stimulate continuous progress toward program objectives; and
- Support required reporting (internal and external).

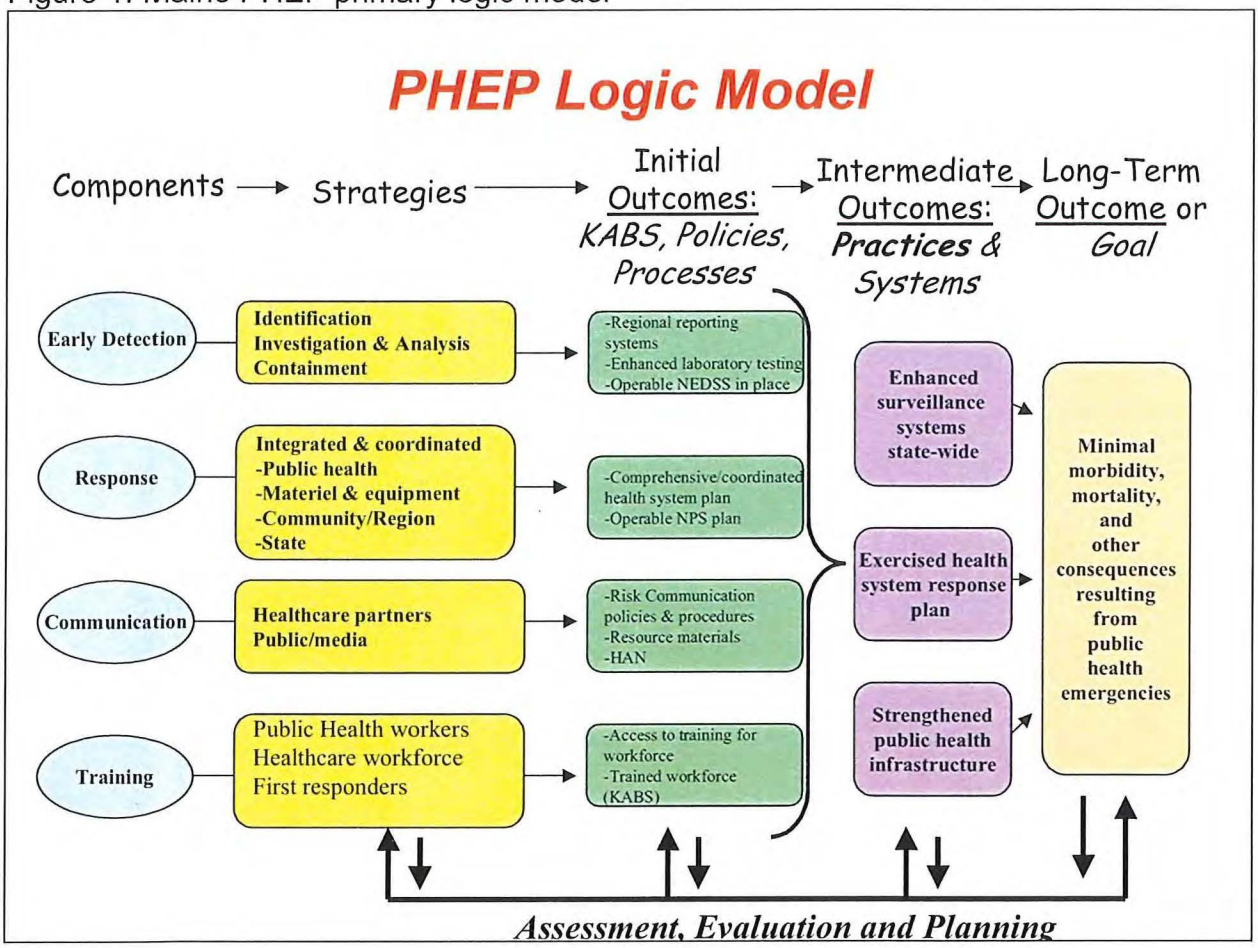
METHODOLOGY

A formative, integrated evaluation process was initiated in July 2002. This approach was used in order for the evaluation process to be relevant, stay current, and most importantly, to inform practice—to be actionable. A logic-model framework was developed based on four key components of Public Health Emergency Preparedness (PHEP) programs identified by the Maine BOH and their stakeholders, designed to address the multiple critical benchmarks developed by the US Department of Health and Human Services (DHHS) and applied jointly by CDC and HRSA to initiatives in Maine:

- Early Detection
- Response
- Communication
- Training

A PHEP logic model was developed in collaboration with BOH staff and other stakeholders that identified these four components (See Figure 1 below). Specific component-specific models were then developed for each area (See Appendix A). Each logic model identified key strategies and initial and intermediate outcomes all leading to the long-term outcome of "Minimal morbidity, mortality and other consequences resulting from public health emergencies" from the primary logic model.

Figure 1: Maine PHEP primary logic model

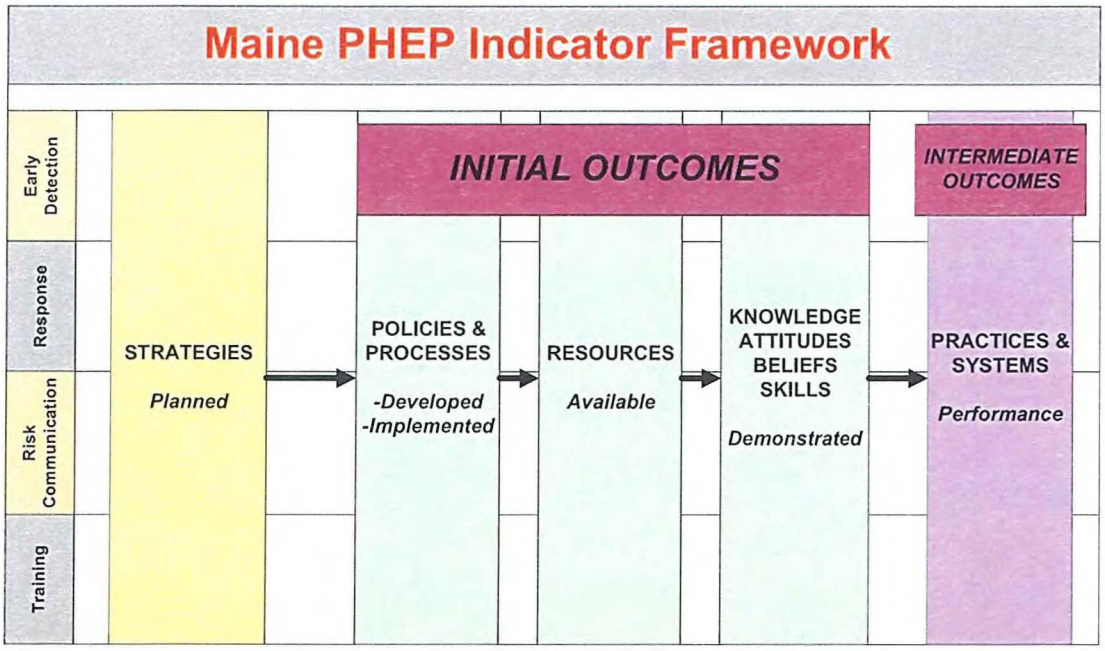


Indicators were developed based federal and state requirements and BOH goals according to each logic models' initial and intermediate outcomes as follows (See Figure 2 below):

- *Initial outcomes:*
  - *Plans* developed
  - *Policies and procedures* developed and implemented (operations)
  - Adequate *resources* available (staff, equipment, supplies, space)
  - Appropriate *knowledge, attitudes, beliefs* and *skills (KABS)*

- Intermediate outcome: Appropriate and adequate *practice and systems.*

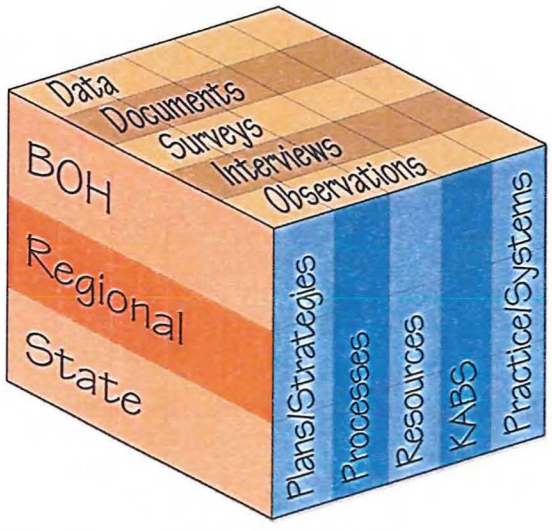
Figure 2: Maine PHEP Indicator Framework



The evaluation process assessed BOH activities as well as related regional and statewide activities. Data sources included (See Figure 3 below):

- Operational data
- Interviews/focus groups,
- Documents and reports,
- Surveys, and
- Observations.

Figure 3: Maine PHEP Evaluation Data Model



REPORTS

Regular Reports

Throughout the past three years the systematic evaluation process was implemented and regular quarterly reports have been provided which included:

- Written report with findings and recommendations
- Report Card for each of the four components
- Verbal report to key BOH stakeholders

Verbal presentations have also made regularly to the PHEP Advisory Group to keep them apprised of implementation progress and issues.

Report Card

A quarterly Report Card was developed based on the key strategies identified in the four subsidiary logic models and using the initial and intermediate outcomes identified in each logic model (plans, operations, resources, KABS, practice). This color-coded report summarized progress made in each of the main strategy areas along the logic model continuum (See Figure 3 below).

Figure 3—Report Card Template (abbreviated example)

Component	Plan	Operations	Resources	KABS	Practice
EARLY DETECTION					
RESPONSE					
COMMUNICATION					
TRAINING					

KEY	
	Indicators Met
	Partially Met
	Not Met
	Not Scheduled yet

Influenza Vaccine Shortage Crisis Report

In Fall 2004, there was an unexpected influenza vaccine shortage that tested most components of Maine's public health emergency preparedness capabilities for the next 5-6 months. This event provided an opportunity to evaluate actual practice indicators rather than relying solely on structure and process indicators. As a result, the BOH requested a focused evaluation of the Early Detection, Response, and Communication components of the PHEP indicators as they related to the influenza vaccine shortage. This was done during the two final

quarters (December 04-May 05). The quarterly reports for those two quarters were summarized in the focused evaluation report on the influenza shortage crisis. This report is included in special reports section of this set of reports.

Summary

The report that follows summarizes the progress made in the planning and implementation of PHEP initiatives in Maine over the past three years (July 2002 through June 2005). It is designed to consolidate the findings and current recommendations from this three-year evaluation project.

EARLY DETECTION

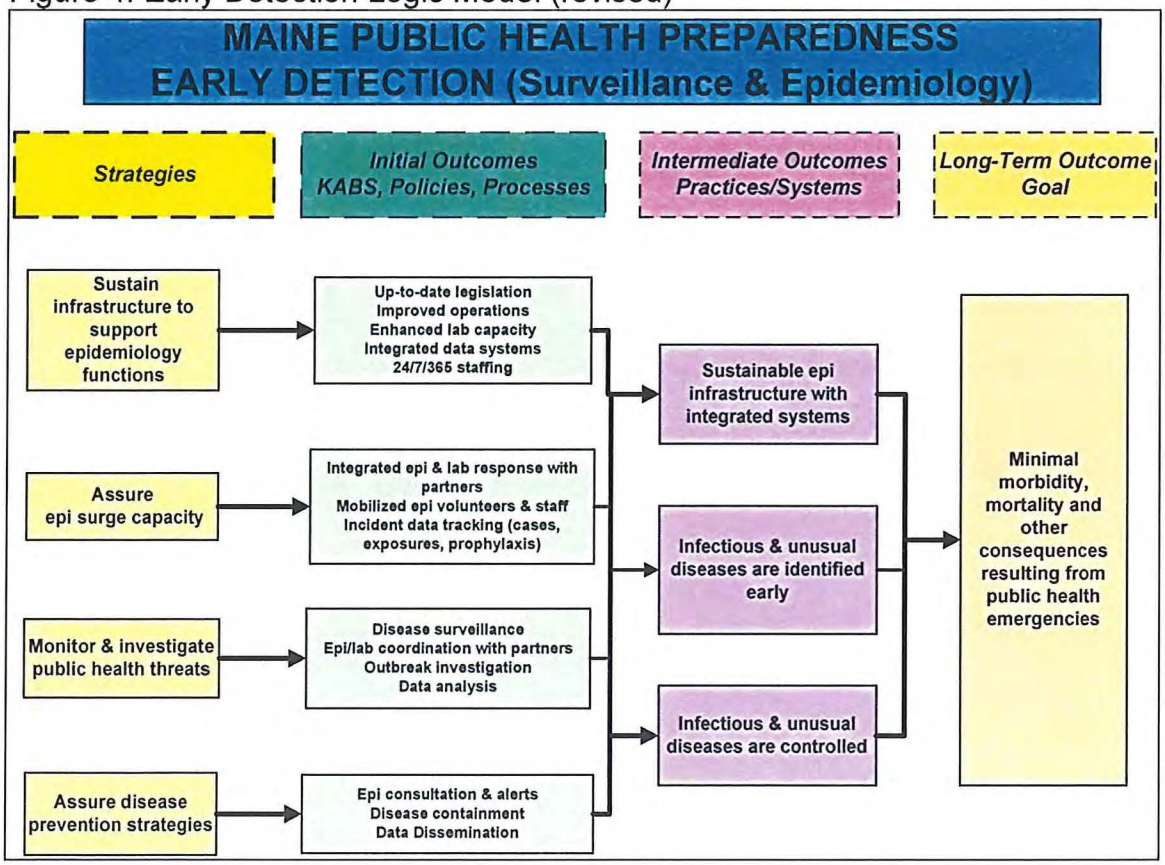
OVERVIEW OF FINDINGS

Emergency preparedness requires that potential public health threats be detected early in order to contain and minimize effects. Based on the Early Detection Logic Model, comprehensive indicators were developed according to four major categories including

- Establishing and sustaining the necessary Epidemiology infrastructure to support early detection,
- Assuring surge capacity for identification and action,
- Monitoring and investigating health threats, and
- Disease prevention strategies.

The Early Detection logic model and related indicators were updated late in 2004 due to changes in CDC and HRSA PHEP requirements and lessons learned through the formative evaluation process (See Figure 4 below). This was accomplished through an interactive process with key BOH stakeholders. The current reporting requirements and future proposed performance goals from CDC and HRSA were incorporated into the logic model framework and resulting indicators.

Figure 4: Early Detection Logic Model (revised)



BOH has focused considerable time and effort in the past 3 years developing the epidemiology infrastructure within the Division of Disease Control (DDC) to support early detection strategies. This expanded infrastructure is beginning to show results as evidenced by performance during the recent influenza vaccine crisis. Plans are developed and are consistent with disease control principles and with CDC and HRSA requirements. Progress is being made towards documenting and streamlining processes and systems. The Regional Epidemiology infrastructure is established and functioning well, which in turn has led to some adjustments in centralized staff responsibilities. Epidemiology staff turnover has been higher than desired, however, which has led to a continual need for orientation and competency development. This is especially true for the Epi data staff resulting in lack of access to data for decision-making. However, in spite of this, Epi staff at all locations were able to mobilize appropriately to establish early detection systems when threatened with widespread influenza as a result of a shortage of vaccine in 2004-05.

Report Card—Early Detection

SPECIFIC INDICATORS:

1. Early Detection Infrastructure

Legislative authority—BOH has completed the first phase of its legal and regulatory agenda and has reviewed proposed changes in Title 22 and Title 26. In response, the Maine Legislature passed LD 1405, An Act to Prepare Maine for Public Health Emergencies addressing quarantine and work force needs, as well as updating disease/laboratory surveillance authority. Maine now has one of the best statutory frameworks in the nation for public health emergencies. The BOH web site is kept current with changes and improvements in reporting and intervention strategies and their basis in law.

Reportable diseases are clearly defined by state statutes and regulations including who is required to report, time frames for notification, and BOH has the legislative authority to receive and investigate disease reports. Of greatest importance now is assuring that those required to report understand and carry out their responsibilities.

Organization and structure—As a result of PHEP strategies, a major reorganization and expansion of epidemiology services was accomplished which included separation of Medical Epidemiology (M.E.) services from epidemiology operations, and the initiation of a regional system of infectious disease epidemiologists (ID Epis) covering the entire state. As a result, Medical Epidemiologists are now able to focus their attention on planning, providing expert consultation to state-wide partners as well as BOH epidemiologists, educating partners, analyzing trends, and disseminating information. At the same time, the Regional ID Epis have been proactive in collaborating with regional healthcare providers to improve the timeliness and completeness of infectious disease reporting, and to respond to disease reports in a timely manner. The previously vacant Veterinary position has now been filled with the potential for increasing collaboration between animal health and human infectious disease issues.

An ID Epidemiology Manager was hired to oversee operations and has begun to develop documented systems and processes for disease reporting and follow-up. This process has been slower than anticipated, but has gained momentum in recent months. Effort needs to continue to assure that guidelines and processes are evidence-based, and to monitor adherence to these guidelines.

The organizational structure and chain of command is documented. Staff Epis have a modified matrix reporting structure, responsible to the Epi Manager for operations while receiving guidance on clinical matters from M.E. This structure fosters flexibility, but reporting practices can become blurred at times. Roles and responsibilities continue to evolve and need to be further clarified and documented. Additionally, the leadership and reporting roles of M.E. and Epi operations during major events and interactions with other epidemiologists (e.g., Immunization Epis) need to be clearly communicated to stakeholders in order to promote coordination and collaboration.

Although BOH is beginning to regionalize some epidemiology functions, epidemiology services in Maine continue to be centralized. A balance between centralization and decentralization is important. Centralization facilitates improved controls and economies of scale for specialized expertise. On the other hand, decentralization can improve response time, promote improved community/local provider involvement and understanding, and thus increase timeliness and appropriateness of reporting and action. Successful decentralization requires increasing standardization of systems and procedures, accountability measures, and improved communication.

Operations—Coordination among epi units and with other BOH entities has improved considerably over the past three years as was evident in the influenza vaccine crisis which involved all epi units, the immunization

program, the state laboratory, public health nursing, school nurses, Office of Public Health Emergency Preparedness (OPHEP) and BOH administration. However, systems for formalized information sharing can still be strengthened (e.g., web site; circulation of reports, policies and guidelines).

Protocols and systems continue to be developed and documented. There is a 24/7/365 telephone line for reporting infectious disease and investigation, and protocols are being developed for specific infectious diseases. An electronic policy/protocol system is also under development. Although a number of systems and processes have been developed and implemented, there is no formalized quality assessment or improvement process. Specifically there is a need to regularly assess:

1. The timeliness and quality of disease reporting and follow-up;
2. The capacity for 24/7/365 response to urgent disease reports,
3. The timeliness and completeness of disease surveillance and response systems (including protocols);
4. Reporting and surveillance systems/ processes/protocols—particularly reporting by sentinel providers;
5. Response preparedness for catastrophic infectious diseases;
6. After-action analyses/reports for urgent cases and/or outbreaks; and
7. The adequacy of specialized epi training of public health and other healthcare professionals.

Improvements and changes to protocols, procedures, legal/regulatory provisions, and/or communication should be made based on the findings of these assessments.

Laboratory capacity—Collaboration between Maine's Health and Environmental Testing Laboratory (HETL) and Epidemiology units has improved considerably. HETLs' capacity and competencies continue to expand, especially in regards to chemical analyses. HETL has demonstrated its ability and capacity to test for the required Category A agents, the biological agents causing disease (e.g. Salmonella, Shigella, E coli 0157:H7), and animal clinical specimens as required, as well as its capacity to apply molecular testing methods. HETL has also expanded collaborative relationships with other state and regional laboratories in order to enhance analysis and referral. HETL is a leader in environmental testing and is more likely to get requests for help from other regions than to receive help from others. Significant laboratory renovations have been completed including upgrading to Biosafety Level 3 and wiring for auxiliary power, however access to auxiliary power is still not adequate.

Integrated Data Systems—HETLs' test results are accessible electronically by ID Epis and the Division of Disease Control. Work continues on upgrading software that will allow for the electronic transfer of case data, lab test orders and lab results with hospitals and other clinical laboratories.

Implementation is also underway for Maine's state-of-the-art Integrated Public Health Information System (IPHIS), which will be integrated with the enhanced Health Alert Network (HAN) system and the NEDSS disease reporting component compatible with CDC. Pre-testing of IPHIS by trained users within BOH will begin in Fall 2005 and continue into the winter. Vendor delays have been resolved. The HAN component, which was delayed more than a year is now back on track. A secure web-based reporting and notification system is in development as part of IPHIS components.

Analysis of infectious disease reports, investigations and surveillance data has been slow to materialize. For instance, although logs are kept of infectious disease reports and follow-up, these have not been analyzed for trends, timeliness, appropriateness, or completeness. Major progress was made, however, in the collection and analysis of flu surveillance data in spite of the fact that data transfer and analysis was labor-intensive, was submitted by diverse sources, and monitored and compiled personally by the Epidemiologist doing the analysis.

Epidemiology staffing—The establishment of Regional Epidemiologists has improved both epidemiology capacity as well as improved response times. BOH has a 24/7/365 system to receive disease reports and after-hours logs indicate that response is within 15 minutes for the majority of calls. As demonstrated by the influenza vaccine shortage, BOH has demonstrated its capacity to respond to increased volumes of disease reports.

However, while all the new epidemiology positions were filled, there has been considerable turnover in some epidemiology and data staff, resulting in increased workloads and additional time requirements to fill positions and orient new staff, which has delayed implementation of new initiatives. However, new epidemiology staff is well qualified and their expertise has enhanced the entire program. Consideration should be given prior to a crisis, to formulate vaccine policies to protect epidemiology, lab and other essential BOH staff needed to manage critical incidents.

2. Surge Capacity

Integrated response—BOH has demonstrated strong linkages across boundaries including state, international, federal and tribal. Because of the size of the state, the State Epidemiologist is able to identify providers with skills in diagnosis and treatment of specific infectious, chemical or radiological diseases. However, the electronic list of provider expertise accessible to many partners through IPHIS and HAN will be useful in decreasing response time.

The three major regional hospitals in Maine are most closely tied to BOH for epidemiology planning, surveillance and investigation; however, these activities are not always integrated with hospital emergency preparedness activities. BOH has provided informational sessions at key professional meetings and at statewide special meetings (e.g., SARS Conference in December 2004).

The current reorganization of Maine's Department of Health and Human Services is addressing factors to improve integration of Maine's public health emergency response planning capacity in its restructuring process.

Mobilization—BOH has demonstrated its capacity to involve an official with authority to activate an immediate response in the decision-making process within 60 minutes of report receipt (see influenza vaccine crisis report). In the influenza vaccine shortage event, BOH officials were involved immediately even though some were traveling out of state. However, BOH needs to operationalize standard procedures and conduct periodic "call downs" to assure continual readiness. This includes finalizing drafts in development for pre-identified tasks, job aids, and action sheets for volunteers and staff. Although the term "Epi Response Coordinator" has not been designated in policy, this role has been assumed either by the Regional Epi Coordinator or an M.E., and response has been timely.

The Maine Center for Public Health (MCPH) is the primary contractor assisting BOH to provide specialized training to public health, clinical and other healthcare professionals. A comprehensive plan for training of key responders that is sustainable exists but has not yet been fully implemented. Education of policy-makers and other key stakeholders has been primarily through personal relationships, speakers at professional meetings, conferences or workshops but has not reached all key stakeholders.

As was demonstrated during the influenza vaccine crises, identification of at-risk healthcare workers and establishing priorities for prophylaxis and/or vaccination should be established prior to an event. A current registry, or an alternative method of reaching large numbers of essential personnel during a major event, along with established criteria should be accessible to BOH decision-makers. These registries are becoming more feasible now with improved statutory protection for the work force and with the development of a pandemic flu response plan and up-dated framework for event preparation.

Incident data tracking—The record-keeping demands of a major event need to be addressed by BOH and templates and databases developed. This is true both for tracking cases and exposures as well as for tracking non-exposed persons seeking acute care treatment. NEDSS will provide a base for this type of data management.

3. Monitor and Investigate

Disease Surveillance—BOH has demonstrated its ability to receive and immediately evaluate notifiable condition reports 24/7/365. It has created increasingly timely contributions to the CDC reporting system and the BOH Annual Reports. The regional epi system has improved feedback to community providers, although there is no formalized feedback process in response to reported cases. Based on the only data available for review, internal epi logs, the majority of infectious disease reports come from laboratories. While labs are an important source, provider-generated reports need to be encouraged. It appears that the providers in Maine rely on labs to comply with public health laws and this behavior impedes direct feedback to the providers handling these cases. As is true for many of the epi processes, the process to receive and evaluate urgent disease reports appears to be performed well, but is documented primarily in staff logs.

A comprehensive surveillance system for an emerging disease (unknown flu potential morbidity in 2004-2005) was implemented during the influenza vaccine shortage crisis and included morbidity and mortality reports. Lessons learned from this process can now be applied to other priority diseases to contribute to preparedness for major though rare events including the database and analysis resources required.

Coordination with partners—Systems and processes for collecting and coordinating information were further established and tested during the influenza vaccine shortage crises that can now be applied to other diseases. A strong pattern of communication emerged during the influenza crisis laying a good foundation for continued communication. Vaccine providers were very effectively reached by frequent blast fax messages. A temporary hotline was used for backup. Personal relationships with diverse leadership partners were largely responsible for effective communication and collaboration during the influenza vaccine crisis. While these relationships are important, it is also essential that complementary access routes are available as well.

Guidance communicated via HAN was widely accepted by providers, although there the key facts were sometimes difficult to discern in the lengthy alerts. One lesson learned was that web-based communication was not accessed by a number of key partners. Therefore, strategies to increase web participation as well as other modes of communication should continue. A public-private partnership with professional organizations to quickly release updates and guidance could be very effective. Once e-lists are established, e-mail guidance to the web site should be considered.

Outbreak investigation—While responding to the influenza vaccine shortage event, BOH staff also completed a full draft of the planning documents for potential pandemic outbreaks of new influenza strains. The dissemination and training needed to operationalize the written plan for large-scale

outbreaks of a serious disease is a priority. This plan should address communication and responsibilities of leaders in both the public and private sectors.

Data analysis—Mechanisms need to be established within BOH for collecting and systematically distributing data about environmental conditions during an event of public health significance (e.g., water, food and soil quality; vector control; environmental decontamination), and the mental health care needs of public health response personnel in order to determine when conditions are acceptable for resuming normal activity. Content experts in these fields are integrated into the Incident Management System (IMS) structure and outbreak planning, however methods of data collection remain to be more fully developed.

4. Assure Disease Prevention Strategies

Epidemiology consultation and alerts—The BOH blast fax system of sending alerts (HANs) worked well during the recent influenza crisis. However, an enhanced redundant messaging system with web-based components is under intense development and will mark Maine as a leader in integrated public health information systems. Radio-operated communication devices have been ordered to reduce reliance on electricity, telephone lines, cellular telephone service or the Internet.

Maine BOH has a strong history of collaboration with border states, Canadian provinces, and tribes, mostly on an ad hoc basis. A more formalized approach of exchanging alerts, information and data about events with border entities during events of public health significance could be beneficial.

Disease containment—CDC and HRSA funding for meeting Critical Capacities requires BOH to develop and exercise large-scale smallpox vaccination response plans. These plans can also contribute to the development of other potential large-scale infectious disease outbreaks. As stated above, a comprehensive pandemic flu plan is nearing completion.

Data dissemination—The timeliness and quality of disease reporting to CDC with resulting data dissemination from BOH has improved during the past year with the input of the CDC Liaison Officer at BOH. However, the staffing and supervision of the Epi Data Unit needs continued attention to assure timely and meaningful data collection, analysis, and dissemination. As of early July 2005, the latest annual infectious disease report posted on the BOH website was for 2003.

RECOMMENDATIONS—EARLY DETECTION

1. Early Detection Infrastructure

1.1 Legislation

- Complete the rule-making process and develop a plan to disseminate revised statutes to diverse stakeholders and train response partners in quick access and application during an emergency

1.2 Organization and Structure

- Continue development, implementation and evaluation of clear, evidence-based policies, procedures and systems for disease reporting and follow-up.
- Institute a quality assurance/improvement process to assure that practices are evidence-based, and are timely and appropriate.
- Expand opportunities for collaboration with veterinary health resources.
- Clarify changing roles and responsibilities of Medical Epidemiology and Epi Operations and communicate leadership and reporting responsibilities to stakeholders before and during major incidents.
- Train key leaders to accept more responsibilities during major public health events in the absence of the BOH Director, or during high demand periods when Director is tied up at MEMA or elsewhere.

1.3 Operations

- Continue the systematic development and implementation of evidence-based Epi policies, protocols, and guidelines with easy accessibility to epi staff in all units.
- Implement a process to assess systems, processes, protocols, and make improvements based on findings (include in quality assurance plan).
- Continue to expand and systematize intra-BOH communication strategies, including the dissemination of critical data and directives during an event.
- Operationalize plans for the gradual phase-in of the new integrated public health information system (IPHIS) over the next 12 months.

1.4 **Laboratory capacity**

- Develop access to auxiliary power for HETL in case of sustained power outage.

- Review plans to effectively distribute needed specimen collection materiel to providers during a large scale emerging disease event.

2. Surge Capacity

2.1 Integrated data systems

- Resolve problems in the installation of shared electronic databases for laboratory case data, test requests, and test results with other state and regional laboratories (LITS component in the IPHIS project).

- Implement a secure web-based infectious disease reporting and notification system that is PHIN compliant.

- Implement NEDSS within the new system to enhance collaboration with the CDC and all partners in disease detection and reporting.

2.2 **Epi staffing**

- Consider approaches to retain competent epidemiologists and data staff where vacancies have occurred.

- Formally assess, at least annually, BOH's capacity to respond 24/7/365 to urgent case reports through after-action reports, exercises or other QA methods.

- Review vaccination policies for epi, lab and other essential BOH staff to assure that epi capacity is maintained throughout an infectious disease event.

2.3 Integrated response with partners

- Maintain a current, geographic list of providers with skills in diagnosis and treatment of infectious, chemical or radiological diseases.

- Review pre-event strategies to coordinate response-specific planning, surveillance, and disease control with hospital preparedness activities.

- Include public health emergency preparedness factors in DHHS reorganization planning.

- Once partner e-lists are established, e-mail and other guidance to the web site should be considered to overcome barriers to use.

2.4 Mobilization of epi staff and volunteers

- CDC calls for an "Epi Response Coordinator" for major events and the BOH equivalent should be designated in policy and protocol.

- Training and regular "call downs" or drills are needed to assure ability to mobilize staff and volunteers for a declared public health emergency within 60 minutes. The next planned regional tabletop exercises in Fall 2005 should be designed with evaluation in mind so as to benefit from the lessons learned.

- Maintain a registry, or other method of identifying public health personnel, healthcare personnel, security staff, EMS personnel, hospital staff, physicians and their staff occupationally at risk to receive vaccination or prophylaxis in the event of a severe infectious disease event, consistent with BOH emergency response planning documents.

2.5 Incident data tracking

- Data templates and systems for tracking cases, exposures, treatments and prophylaxis as well as tracking non-exposed persons seeking acute care services need to be tested in the planned exercise as part of IPHIS roll-out early next year (2006).

3 Monitor and Investigate

3.1 Disease Surveillance

- Promote infectious disease reporting by providers; track reports according to source and location.

- Use lessons learned from the influenza surveillance process (2004-05) to apply to other priority diseases including data analysis requirements.

3.2 Information coordination with partners

- Develop strategies to increase partner participation in web-based communication as the new HAN is rolled out. Link to e-mail and other alerts and increase the incentive for them to check these sites.

- Consider developing public-private partnerships with professional organizations for distribution of timely updates and guidance.

- While continuing to develop personal relationships with key stakeholders, develop routine communication routes with partners that are not dependent on individual relationships.

3.3 Large-scale outbreak plan

- Dissemination of actionable plans with cross-sector exercises for large-scale disease outbreaks (such as those planned in Fall 2005) is a priority. These plans should include:
  - Roles and responsibilities of stakeholders (public and private)
  - Communication plan
  - Data collection, analysis and communication plan for environmental conditions (e.g., air, water, food and soil quality; vector control; environmental decontamination)
  - Data collection, analysis and communication plan for assessing mental health care needs of public health response personnel.
  - Vaccination and or prophylaxis criteria and strategies
  - Hospital roles and responsibilities
  - Determinants of when conditions are acceptable for resuming normal activity
  - Post-event plans
  - Mechanism to regularly update the outbreak plan

- Finalize the pandemic flu plan, a model exercise for use of the BOH critical incident planning framework. Training for implementation of the pandemic flu plan with partners should be initiated once the plan is finalized.

- The mental health needs of public health response personnel as well as community populations should be evaluated and planned for as a part of all activities.

4 Disease prevention strategies

4.1 Epi consultation and alerts

- Continue plans for implementing a PHIN compliant system to send and receive detailed alerts and information about public health emergencies to response partners.

- Distribute radios to key community and hospital partners and conduct periodic training sessions and exercises to assure adequate coverage and functionality.

- Formalize plan for exchange of data and information with border and tribal entities during a significant public health event.

4.2 Data dissemination

- Obtain adequate staffing, supervision, and integration of the Epi Data Unit. Develop systems to assure timely data collection, data entry, analysis and dissemination of key epi-related databased information.

RESPONSE

OVERVIEW OF FINDINGS

Maine BOH's ability to respond adequately to events of public health significance is critical to the health and survival of its residents. Sustained effort has been applied to planning for adequate response capacity. The regionalization of certain functions was designed to enhance regional and community linkages and response capacity. At the same time overall planning and technical assistance functions were centralized in the newly established Office of Public Health Emergency Preparedness (OPHEP) in the BOH. The 2004-05 influenza vaccine shortage and the well-publicized arsenic poisonings in New Sweden (2004), allowed the state to apply the PHEP system under real circumstances and provided an opportunity to assess the operationalization of plans, systems, and processes. The overall successful response in both incidents is a measure of the collaboration, planning and the individual commitment of BOH staff and partners.

The major lesson learned during these incidents was that success in the event of a public health emergency depends in large part on the mobilization of BOH partners (state and local). The value of regional and local networks was clearly identified and strategies to enhance these collaborations should be explored. Creation of partnerships within the public and private healthcare sectors is an essential component of this.

Most importantly, the centralized leadership and critical decision-making provided by BOH and OPHEP combined with the collaboration of community partners and supported by BOH units such as the Immunization Program, Public Health Nursing Program and the Regional Epidemiologists led to the success in these two events. At the same time roles and functions of the Medical Epidemiologists, the Regional Medical Officers, the Regional Resource Centers (RRCs), and the city health departments were not well planned pre-event, and response initiatives were individualized. Based on lessons learned, BOH has recognized the need to restructure a regional approach to public health in Maine and has been approved to develop formal structures of regional and local public health capacity.

Focus for future response capacity development should include integration of response planning with other state partners (e.g., MEMA, state police, Governor), enhancing public-private partnerships, the further development of a centralized/ decentralized population-based response structure, development of statewide capacity (assuring coverage for rural areas), and continued development of formalized operational systems.

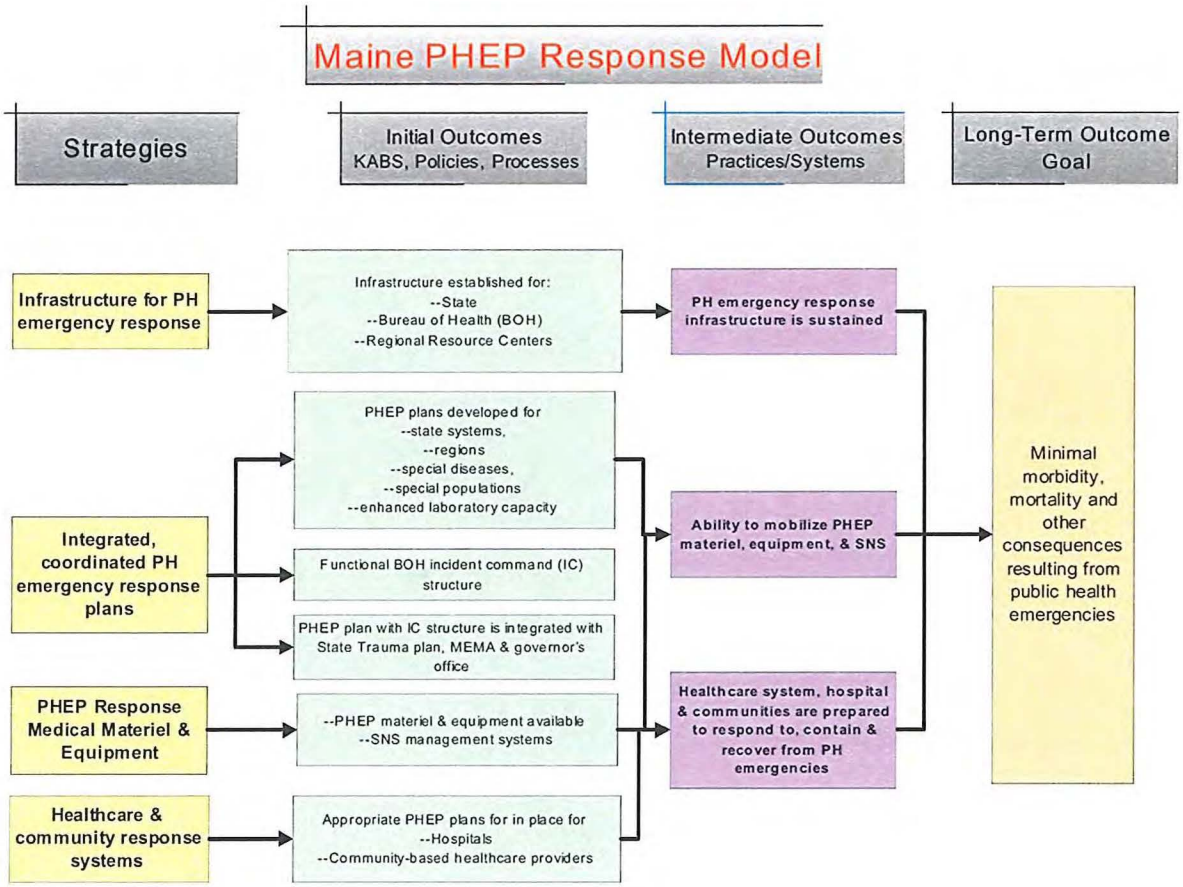
Based on the Response Logic model (See Figure 6 below), evaluation measures are organized around four major strategies:

- PHEP infrastructure;
- PHEP response planning;

- PHEP response medical materiel and equipment; and
- Healthcare system and community response.

Expanded evaluation indicators were also initiated for the RRCs based on their initial contract to conduct regional assessments and develop regional purchasing plans. These assessments and plans were completed and purchasing of emergency equipment implemented. However, these evaluators did not directly assess the RRCs using these indicators because it was determined that conducting a focused evaluation of the BOH response to the influenza vaccine shortage would be more informative.

Figure 6: Maine PHEP Response Logic Model



Report Card—Response

SPECIFIC INDICATORS:

1. Response infrastructure

Strengthening both the statewide and BOH components of the response infrastructure in Maine has been to a large extent successful. Establishing OPHEP and reorganizing the Epidemiology program have been key centralized BOH strategies. BOH regionalization strategies are developing more slowly—starting with the Regional Epidemiologists. The Regional Epis are well qualified, have initiative, and have proved invaluable in facilitating early and effective response. Systems and processes to support the regional epi approach continue to be developed. The Regional Medical Officers (RMOs) have not been as integrated into the response structure as anticipated. Their understanding of their roles is not consistent and BOH's inclusion of the RMOs in response strategies has not been a priority. This may be in part due to an unclear reporting structure. As a result, BOH and OPHEP are planning to restructure these positions and roles.

In the absence of regional health departments, new Regional Resource Centers (RRCs) were subcontracted by BOH to the three trauma center hospital systems. The RRCs have been in operation for nearly a year and have focused on developing plans and purchasing regionally prioritized response materiel. The role of the RRC itself in an actual response had not been addressed yet, so it was not a surprise that when the influenza vaccine shortage occurred, they were not initially included in response planning. The RRC response to the influenza vaccine shortage was varied and with one exception, tended to focus on their parent healthcare institution rather than regionally. This suggests that there is a need to consider how best to establish a regional structure that is committed to facilitating a region-wide response that includes, but is not limited to, the major medical centers in the region, and is not dependent on a loosely connected system of contractual services.

While considerable progress has been made in decentralizing certain PHEP functions, the experiences and cost inefficiencies identified during the past three years, including the influenza vaccine crises, has led BOH to the conclusion that the formal development of regional/local health capacity is

needed. This plan has been approved by both the Governor's Office of Health Policy and Maine DHHS and is in its initial planning stages. Specific planning and implementation will begin in the next year.

Finally, at the State and national levels, Maine's Governor appointed a Homeland Security Council that includes the Director of the BOH. The BOH has functional, exercised, plans to coordinate with MEMA. OPHEP is well coordinated with NNP and NIMS, and a statewide PHEP Advisory Committee has been functioning effectively for nearly three years.

2. Response planning

Statewide and BOH plans—The statewide PHEP plan is currently housed within the Maine Emergency Management Administration (MEMA) but is in the process of being updated largely through the efforts of OPHEP. The BOH plan should be integrated with the State Trauma plan, the MEMA plan and with the Governor's office. The goal is to improve coordination among state, federal and local entities and to incorporate psychological health. The BOH-specific plan should be reviewed and updated at least annually and as experience dictates. Both plans need to include specific protocols, resources, roles, and triggers. Security has been improved at BOH facilities but provision needs to be made for extended stays (e.g., provision of food on-site). The OPHEP Director has joined the State Trauma Advisory Committee that has the revision of the State Trauma Plan on its agenda.

In practice, the response to the influenza vaccine shortage was timely, involved key individuals based on skill and knowledge, and was multifaceted. There was effective collaboration with the Governor's office and a variety of providers. OPHEP and the Director of BOH assumed their assigned leadership roles. Key provider groups became involved in planning and implementation of response initiatives. This experience again demonstrated the need for public-private collaboration, further identification of key partners, clear reporting relationships, and clear systems and processes established before the event.

Additionally, the role of Medical Epidemiologists (ME) as science advisors to managers and leaders during public health emergencies requires additional clarification. ME roles, reporting relationships, and authority during emergencies should be understood by internal and external partners.

Regional plan—A regional assessment has been completed and a procurement plan for materiel implemented. The involvement of the RRCs in the influenza crisis demonstrated the advantage of regional planning and also the tension between public and private priorities. There was also recognition that a stronger public/private collaboration could be beneficial. Since the role of the RRCs in response efforts had not yet been addressed, the influenza

crisis provided an opportunity to engage them in their regions. For the most part, they focused on vaccine needs as it related to their own institutions. One RRC, however, did address needs in its entire region using its established RRC Advisory Committee.

Lessons learned from the influenza experience include the fact that (1) involvement with a major healthcare provider facilitates planning for that entity and its affiliated providers, (2) most RRCs did not respond within their region-wide role, (3) a regional Advisory Committee is an appropriate vehicle for response planning, and (4) there was little or no collaboration between the RRCs and the Regional Medical Officers (RMOs) or in some cases with the Regional Epidemiologists. Since regional planning needs to be community-focused, healthcare facilities need to be included, but planning should not be limited to them. Implementation of regional health departments will benefit from these lessons learned.

Special populations—Specific response plans for special populations are needed (e.g., pediatric, pregnant women, deaf, blind, long-term care, non-English speakers, prisoners, mentally ill, contagious, schools, other special needs groups). All plans should be based on specific needs assessments, and accountabilities and controls should be well defined in all plans.

Incident Management System—The BOH Incident Management System (IMS) has been defined and was applied in part during the influenza crisis. The spirit of unity and flexibility demonstrated during this time contributed greatly to a successful response. However, there were inefficiencies when the usual chain of command and staff roles were altered, leading to some confusion among team responders and their usual supervisors and teammates. The lessons learned included (1) the need to assign IMS roles by individual skill rather than position, (2) to make the IMS structure easily accessible, (3) to clarify changes in reporting relationships while IMS is operational, and (4) to clearly communicate when IMS is instituted. In addition, it was discovered that facility space for command and phone banks was inadequate. BOH has responded by enlarging conference room capacity in its building. In addition, planning workshops held over two days for all relevant BOH staff was held following the influenza event to promote enhanced function of IMS and to develop Incident Action Plans. An updated organizational chart for IMS has been released and coordinated planning documents and a pandemic flu outbreak plan have been developed.

Laboratory response capacity—HETL has enhanced its capacity (equipment and skills) for chemical agent management and is able to do all standard testing. It is seeking funding for DNA Sequencer, LC/MS/MS (for high molecular weight), radiation detection/monitoring equipment, biomonitoring (dual use), and new methods for emerging infectious diseases. HETL is developing an internal Incident Action Plan (IAP) to be integrated into

the BOH plan. In addition, HETL personnel are actively participating in national committees and publications regarding proficiency testing and new methodologies. Electronic report sharing with law enforcement and others is delayed pending a new information system installation that is compatible with the BOH IPHIS system.

3. Medical materiel and equipment

A comprehensive regional assessment has been completed by OPHEP in collaboration with the RRCs, and regional procurement plans have been developed. The assessment survey identified hospitals with PHEP response plans and equipment and those without.

Comprehensive planning for the Strategic National Stockpile in Maine (SNS) has been accomplished via subcontract and ongoing SNS management has been transferred to the Public Health Nursing Division within BOH under the direction of a newly appointed SNS Coordinator. The current focus is on developing (1) a volunteer nurse registry and SNS credentialing system, (2) pharmaceutical cache and chempac housing, dispensing, and triggers, and (3) formalized distribution process to the 53 Points of Distribution (PODS). SNS protocols have been developed (hard copy and electronic) with the exception of the DEA custody chain for controlled substances. MOAs have been completed for pharmaceutical cache (36 hospitals); SNS mobilization—trucking (2 storage sites [RSS], and 53 Points of Distribution [PODs]). Arrangements for an additional RSS site in southern Maine are underway. Distribution training has been done for high-density population areas, and plans are underway for awareness and media training.

The influenza vaccine shortage crises demonstrated the importance of developing rational, consistent priorities for rationing and redistributing scarce commodities. The process for establishing criteria and priorities needs to be established before the next event, as well as clearly establishing the authority for making such decisions and assuring compliance with these decisions.

4. Healthcare system and community response

The 2004 Assessment of Capacity for PHEP had a 97% response rate for hospitals, 50% for long-term care and psychiatric facilities and somewhat less from other provider categories. Purchasing plans based on this data and regional council deliberations have been implemented within each region. All hospitals in Maine have disaster plans. In addition, hospitals are becoming part of a regional system of planning initiated by OPHEP and the RRC's, and capacity is being analyzed by a collaborative planning group. This collaborative effort has laid a foundation for continued preparation of healthcare stakeholders. The training and planning needs of healthcare facilities in Maine can now be determined and plans should be developed to address these needs. Initially, a large SARS training program held in Fall

2004 brought community partners together and provided a forum for learning and collaboration. In addition, the Southern RRC participated in the Cumberland County PHEP exercise. But the major goal of planning at the regional level has not been accomplished yet and the effort has been extended for a year.

The influenza vaccine crisis identified the need for improved linkages between BOH and the healthcare systems and providers in Maine, especially when planning for adequate response to a public health emergency. The positive involvement of major medical centers during the influenza vaccine crisis reinforced the importance of collaborative planning and communication with healthcare systems and providers. Likewise, it also showed the unmet need of areas not covered by these systems. Mechanisms to assure statewide coverage in rural areas are needed, especially areas not within the service area of a major healthcare system.

The importance of developing partnerships with other healthcare providers and organizations was also recognized in the influenza crisis. Long-term care facilities, school nurses, home health agencies, and primary care providers were essential in implementing a comprehensive response. Future planning should consider these community providers as active participants, stakeholders, and partners. The DHHS and BOH can play a larger regional role in assuring public health essential services for all populations and areas in Maine.

RECOMMENDATIONS—Response

1. **Response infrastructure**
   - Continue to formalize systems and processes through regional PHEP plans in order to successfully decentralize response responsibilities. This includes:
     - Establishing clear operational processes and systems
     - Clarifying reporting relationships
     - Instituting controls and accountabilities
   - Train stakeholders and partners in recently updated legislation.
   - Build on the relationships developed during the influenza vaccine shortage to expand public-private collaboration.
   - Assure completion of the regional response plans by June 06 and plan a transition to a more formal structure of regional/local public health capacity.
   - Develop mechanisms to facilitate collaboration between regional stakeholders and Regional Epidemiologists.
   - Facilitate the provision of cost-effective population-based essential public health services and emergency response capacity throughout the state.

2. **Response Planning**
   - Update State and BOH PHEP plans to enhance collaboration, increase response capacity, and incorporate psychological health needs.
   - Build on the recent update of the IMS and the draft of the Public Health Concept of Operations to integrate BOH and OPHEP plans with the State Trauma Plan, MEMA, and with the Governor's office. Plan with the regional/local partners and train together.
   - Further involve statewide professional and healthcare organizations in response planning and implementation (e.g. nursing, residential care and home health organizations)
   - Response plans for special populations are needed within each region as part of the regional response plans (e.g., pediatric, pregnant women, deaf, blind, long-term care, non-English speakers, prisoners, mentally ill, contagious, schools, other special needs groups).
   - Accountabilities and controls should be well defined in all response plans.

- Continue efforts to operationalize the Incident Management System (IMS), to clarify roles, to develop appropriate tools, and to train staff and partners.
- Implement plans for enlarging space for command, control and communication functions during a public health emergency.
- Implement plans for electronic sharing of laboratory reports with law enforcement and other key stakeholders.

3. **Medical Materiel and Equipment**
   - Continue with the rule-making pocess with public, private and legislative leaders to prepare them to collaborate with the public health authority and systems for rationing and redistribution of scarce commodities when mobilization of partnerships and consensus building is not sufficient.
   - Complete the development of the DEA custody chain protocol for SNS.
   - Conduct SNS awareness and media training for appropriate groups/individuals.

4. **Healthcare system**
   - Hospital PHEP plans and protocols need to be updated at hospitals identified in the recent OPHEP Assessment of Capacity Survey.
   - Initiate training programs for healthcare facilities based on assessment findings.
   - Develop improved linkages to diverse healthcare networks for efficient response planning, implementation and communication.
   - Develop mechanisms to assure statewide planning and response coverage in rural areas, especially those not covered by major healthcare systems.
   - Involve non-acute care professional and healthcare organizations and providers in PHEP planning and implementation (e.g., rural health clinics, home health agencies, school nurses, long-term care facilities).

COMMUNICATION

OVERVIEW OF FINDINGS

Effective risk communication to healthcare partners and the public was an early priority for PHEP planning in Maine. Early in this process, BOH utilized West Niles Virus as a surrogate for the development and evaluation of a statewide communication plan—particularly public awareness. Lessons learned proved valuable during the influenza vaccine shortage crisis of 2004-2005. BOH was able to mount an effective early and ongoing media campaign. In addition, equipment and systems were in place to send real-time informational alerts to inform provider partners. A web-based information resource was utilized, as were frequent briefings with key stakeholders. Finally, BOH demonstrated its ability to mobilize a phone bank to respond to questions from consumers and providers alike. Many stakeholders, however, still depended on personal relationships with BOH staff to keep current.

A survey of providers receiving vaccine from BOH during the recent influenza vaccine shortage crisis indicated that a majority (70%) agreed that the BOH had been timely and effective in assisting them to gain access to scarce vaccine and that guidelines from BOH were clear and specific. Nearly half of those responding found the BOH website and hotlines helpful, and an even larger majority agreed that BOH participation in press events helped to inform patients and staff.

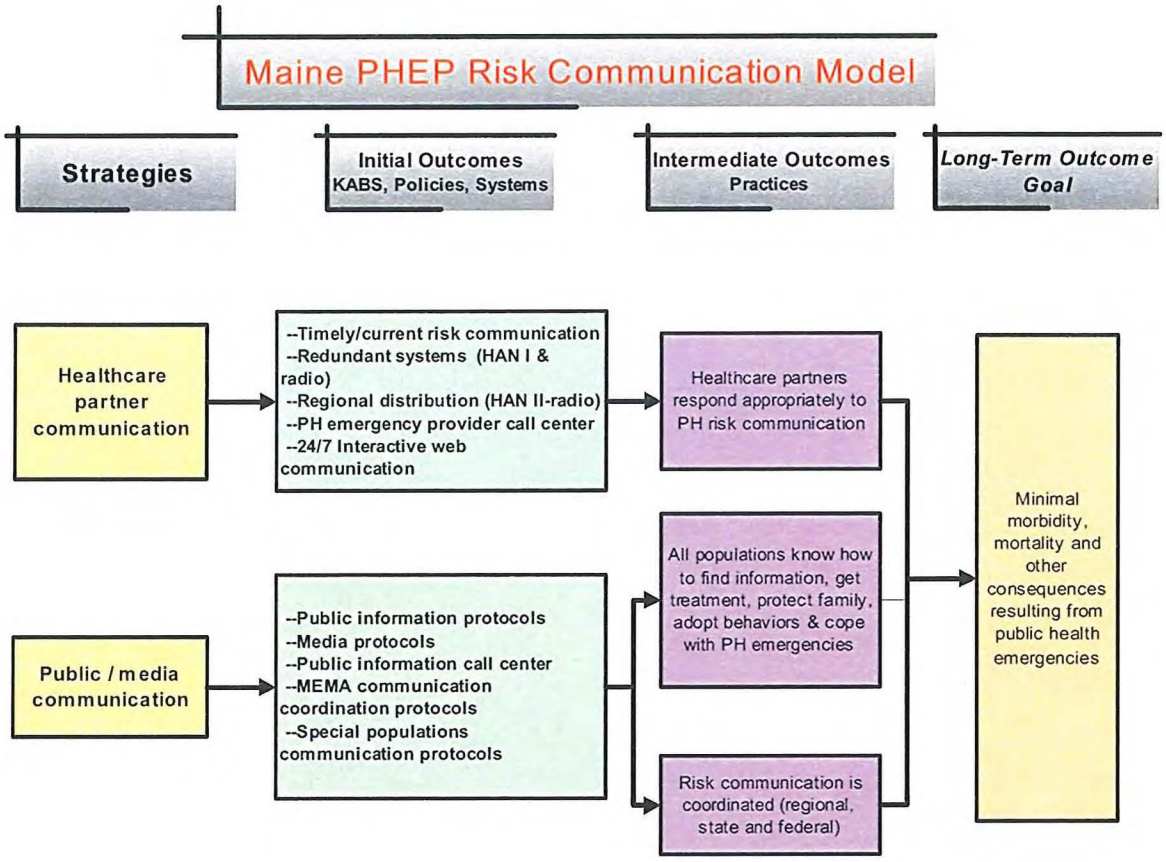
During the past year, the Risk Communication Manual was completely revised and updated and new space for event communication at BOH was renovated and prepared for crisis intervention during emergencies. BOH has two telephone banks available, one for a provider hotline and one for a public hotline.

The next major accomplishment in communication will be the installation and operationalization of Maine's Integrated Public Health Information System (IPHIS), expected to be one of the best in the nation. This will be based on new web applications and will incorporate multiple redundant communication methods.

Based on the communication logic model (See Figure 7 below), the evaluation indicators used are based on the following strategies:

- Adequate communication with Maine healthcare providers regarding events of public health significance; and
- Adequate communication with the public and media.

Figure 7: Maine PHEP Communication Logic Model



Report Card—Communication

SPECIFIC INDICATORS

1. Healthcare provider(s) communication

Several approaches to healthcare provider communication have been successfully implemented including redundant messaging via the Health Alert Network (HAN), *Epigram* articles, training sessions, participation in professional meetings, and individualized consultation. A trend noted in the

recent influenza crisis was that many stakeholders relied on personal relationships to obtain credible information. While it is commendable that these relationships exist, dependence on them for timely and accurate information is inefficient and may not be effective in large-scale emergencies. The current Health Alert Network (HAN) has worked effectively in keeping healthcare providers up-to-date with current developments in emergency situations. The faxed *Alerts* have been well received, although there has been some concern about their wordiness, occasional inconsistencies, and inability to identify key points or changes since the last message.

In addition to HAN, BOH has the capability of using inter-active video communication for planning, training, and updates. However, this technology is seldom used—possibly because of incompatibilities with other systems throughout the state and delays in setting up a session.

Planning continues for the installation and operationalization of a state-of-the-art Integrated Public Health Information System (IPHIS). The Health Alert Network will be based on the new web applications in IPHIS and will coordinate with multiple redundant communication methods. Major components of IPHIS include the new HAN system targeted for deployment in Fall 2005, implementation of the NEDSS based system for disease surveillance data, with connection to LITS at the state laboratory (HETL), connection to the Immpact Immunization Program at BOH, and other public health data and communication systems including vital records. During 2006, other partners will begin to be enrolled as BOH users become familiar with the potential of HAN and the entire IPHIS.

A current Maine BOH user-friendly website has been well maintained for communicating current information to providers. Feedback from those using this medium found it to be current and extremely useful. However, knowledge of the website is still low and efforts are needed to increase awareness. This is true during crises, but also true on a regular basis. The quarterly publication *Epigram* is now published electronically, thus requiring providers to access the web in order to obtain a copy.

New 24/7 web-based sites for providers as part of the HAN is currently in the installation stage. This technology will allow the exchange of case information, lab results, and case coordination information with other providers and labs. Along with obtaining the required technology, HIPPA compliant protocols are being developed for exchange of information and data.

Staffed hotlines using the phone banks were activated for providers and the public during specific high profile events including the influenza vaccine shortage and West Nile Virus outbreaks. Incoming calls were routed to appropriate BOH experts for consultation as necessary.

A primary method of group planning and dissemination of information to key stakeholders has been through individual and conference telephone calls. This was especially true during the influenza vaccine crises when the BOH Medical Director held weekly telephone conference calls to update key internal and external stakeholders.

Finally, a two-way radio system that does not rely on electricity or the Internet is planned for BOH communication with key stakeholders across the state in the case of a public health emergency that affects electricity. The OPHEP Statewide Coordinating Committee led this collaboration with the RRCs, the hospital association and the emergency management agencies which have jointly planned the purchase of these compatible radios through an application to the Maine EMA for sufficient funding.

Following the 2004-2005 influenza season in which half of the flu vaccine became unavailable, providers receiving influenza vaccine from BOH were surveyed by these evaluators (Appendices). The survey found that providers were generally very satisfied with communications from BOH. Respondents agreed that guidelines and communications for prioritizing vaccine recipients (89%), and for obtaining the vaccine (72%) were timely, clear and specific.

When customers who had ordered vaccine prior to the shortage were compared on satisfaction scores to those who had not ordered, those not ordering ahead disagreed at a higher rate that the guidelines for prioritizing patients were clear and specific. Since process of planning the flu vaccine is complex every year and was severely disrupted by the loss of half of the vaccine nationally, it may have been more difficult for new customers to understand and use the system. The BOH may want to evaluate the barriers that new customers face.

Most providers agreed that their facilities can place patients on recall lists for vaccine due to arrive and that they can contact at-risk patients when vaccine becomes available. Interestingly, long-term care facilities were significantly less likely to agree that they could place patients on a recall list. The reasons for this difference could be explored by BOH.

In addition to the blast faxes sent out to all vaccine customers, BOH kept its web site up to date with postings of all information, opened phone banks with a widely advertised hotline number for three periods of peak inquiry from the public and professionals, and held press conferences and media interviews. However one-third to one-half of respondents chose neutral as their response to questions about these activities, suggesting that perhaps the did not use these sources of information, did not know if staff had used them or possibly that they were not especially helpful. But nearly on-half agreed or strongly agreed that each of the communication methods was useful. Interestingly, customers who did not order flu vaccine for this year from BOH or any source

prior to the shortage were significantly more in agreement that the Hotline addressed their questions and concerns. This may indicate that the hotline was especially useful as they were seeking vaccine and trying to enter the system.

BOH's Immunization Program is based on a unique customer relationship rooted in the core mission of public health—disease prevention and control for populations at risk. In 2004-05, it was complicated by the problem of scarce resources. But the uncertainty of the resources is the factor that impacts the relationship with provider customers in special ways. Using the information from these responses, BOH may be able to identify methods of interaction with groups of providers that could open additional channels of communication and access. The full Influenza Vaccine Survey is reported later in this report.

2. Public communication

Due to the early emphasis on public communication and the pilot West Nile Virus project, considerable training and planning has occurred regarding how to reach the general public through the media and other routes. This was tested in the influenza vaccine crisis and results indicate that messages were received and understood by the general public. As a result of public communication efforts, influenza vaccinations to low-priority groups were reduced in favor of high priority groups, according to the CDC's national BRFSS interviews in winter 2005. That data from adult non-institutionalized telephone respondents found that the rate of lower priority adults (18-49) reporting flu vaccination in Maine was appropriately reduced from 32% in previous years to 6.9% in 2004-05. Unfortunately, the rate of adults in high priority groups was also reduced, by only from 52.6% to 35.7%. Seniors age 65+ in the current season still had a good vaccination rate (76.2%), down from 85.7% the previous season (Table 4 in CDC-Maine appendix).

The media has been used effectively on an on-going basis by the BOH to raise awareness and to educate the public. This media recognition has established the credibility of BOH spokespersons to the general public. And, as was the case during the influenza vaccine crisis, when the BOH Director held an early joint news conference with the Governor, credibility also increased.

A public information call center has been mobilized quickly in cases of public health crises. During the influenza crisis of 2004-05, the public call center received 1,200 calls during the 8 days it was open. Lessons learned from this experience included the need for call center staff training, institution of mechanisms to keep call center staff up-to-date with current information, and the need to provide psychological support for anxious and upset callers.

The BOH Risk Communication Plan is currently being updated, and will include additional strategies to collaborate with key partners (e.g., MEMA) for public communication. Plans also need to be developed to address the needs of populations requiring specialized communication plans including non-English speakers, deaf, homebound, homeless, and the uninsured. BOH has demonstrated its ability to collaborate with other entities to quickly develop and distribute written information in a variety of languages. However, the lack of translator availability has been seen to be a barrier to individual communication.

As part of this PHEP evaluation project, six state-added questions were included in Maine's Behavioral Risk Factor Surveillance System (BRFSS) during the 2004 data collection year (report in Appendices). BRFSS is a random telephone survey of adults over 18 years of age. Based on almost 3,300 responses, Maine's households report that they are prepared to respond to a short emergency period in which distribution of food, water and power are reduced. Eighty-two percent have a radio that needs no power, and 92% have food for three days. Perhaps the greatest concern would be the water supply in the 42% of homes that reported they did not have a three-day supply on hand. Most agree that they would get a vaccine or maintain quarantine-related restrictions for a period of time if requested.

Respondents were also asked "If you believed that you were exposed to a new and dangerous disease, and you wanted more information, where would you go first to get that information?" Answers were: doctor's office 42%, hospital 16%, BOH 8%, internet 30%, or other 4%. Senior adults and women were more likely to use the doctor's office and men were more likely to use the hospital. Low income persons and those with less education were less likely to use the Internet and more likely to use the hospital. Their varied use of information resources in such an emergency may offer BOH an opportunity to evaluate local and statewide communication strategies. The full summary of findings for these BRFSS questions can be found later in this report.

RECOMMENDATIONS—Communication

1. Provider communication

- Reduce reliance on personal access to BOH individuals by stakeholders for credible information during a crisis through preplanning with BOH spokepersons, training of phone answering staff, and an update bulletin that goes out frequently through redundant methods.
- Reduce inconsistencies and improve readability of HAN alerts.
- Continue to develop a redundant system of regional HAN distribution that will be compatible with the new HAN to be rolled out this fall.
- Develop strategies to increase awareness and use of the BOH website.
- Continue to enhance web-based provider information.
- Consider strategies to increase provider utilization of the BOH website.
- Obtain radios for communication during public health emergencies.

2. Public communication

- Develop regional risk communication plans in collaboration with regional and local public health structure.
- Develop systems to assure that future phone bank staff are trained and kept up-to-date with current information.
- Address the need for additional translation resources.
- Develop strategies for reducing the psychological impact of public health emergencies.
- Continue to expand the BOH website as a resource for public information.
- Develop strategies to promote BOH as a resource during public health emergencies.

TRAINING

OVERVIEW OF FINDINGS

The goal of the PHEP training program is to ensure delivery of public health emergency education and training in appropriate and critical areas. Specific objectives include:

- A trained workforce is available to 90% of Maine's population; and
- Maine has a sustainable, collaborative system to maintain individual and organizational PHEP competencies.

Development and implementation of training strategies was subcontracted by BOH to the Maine Center for Public Health (MCPH) in collaboration with Harvard School of Public Health. These evaluators were brought into the evaluation of the PHEP training component late in Year 2 of this 3-year project. A training logic model was jointly developed and indicators identified for planning, operations, resources and practice phases of each strategy. The first evaluation occurred in Quarter 4 (August 2004). Due to a series of MCPH staff turnover and administrative changes since that time, additional formal evaluations were not performed. However, MCPH did conduct internal analyses of specific programs. This report is based on our Quarter 4 (2004) evaluation and documents received from MCPH since that time.

A formal training plan was prepared by MCPH in September 2003 and priority populations were identified. The underlying philosophy of the training program is that it needs to be:

- Competency-based,
- Collaborative,
- Connectivity-based, and
- Multi-disciplinary.

The need for three levels of training was also identified:

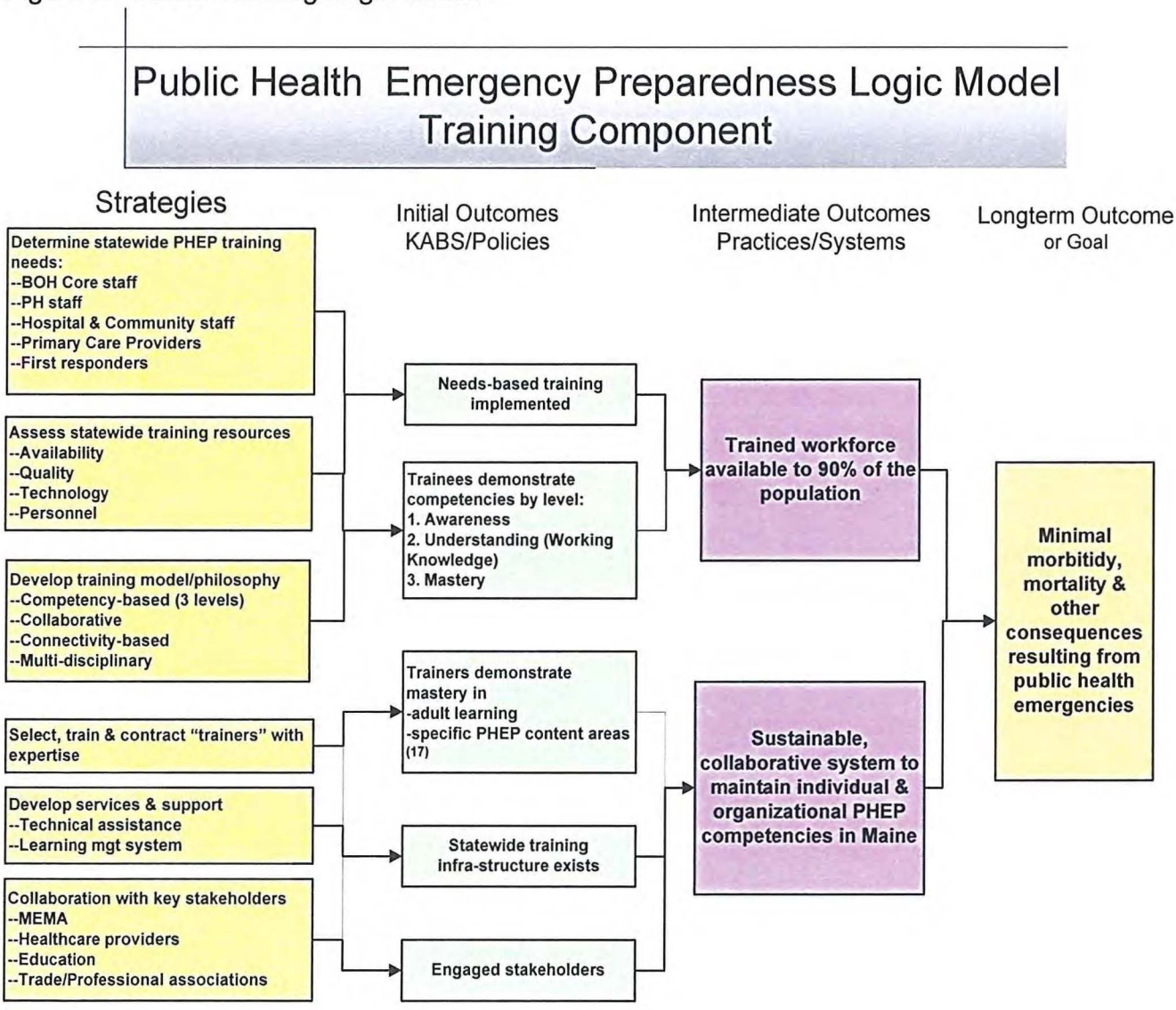
- Awareness (basic knowledge of the topic)
- Understanding/Operational (working knowledge of the topic and ability to apply knowledge)
- Mastery (ability to transfer knowledge of the topic and train others.

A train-the-trainer model was used in order to build expertise, capacity and sustainability within Maine. MCPH began the implementation of this plan with priority groups according to the time table, conducting internal assessments as prescribed in the plan, and using these findings to make adjustments as needed.

According to MCPH's internal assessments, training programs have been well organized, of high quality, and have been well received. However, the anticipated result of the train-the-trainer approach has not been realized, the expected number of training sessions by these trainers has not been achieved.

A recent evaluation done by MCPH identified three barriers: (1) lack of time to market, (2) level of expertise expected, and (3) specificity of lectures. This is a good example of the value of formative evaluation. Strategies to address these barriers were developed in collaboration with BOH and Harvard and the resulting adjustments have been incorporated into the training program. Six strategies to implement were identified in the Training Logic Model for accomplishing the two major training objectives (trained workforce and sustainable training system). See Figure 8 below.

Figure 8: Maine Training Logic Model



Report Card—Training

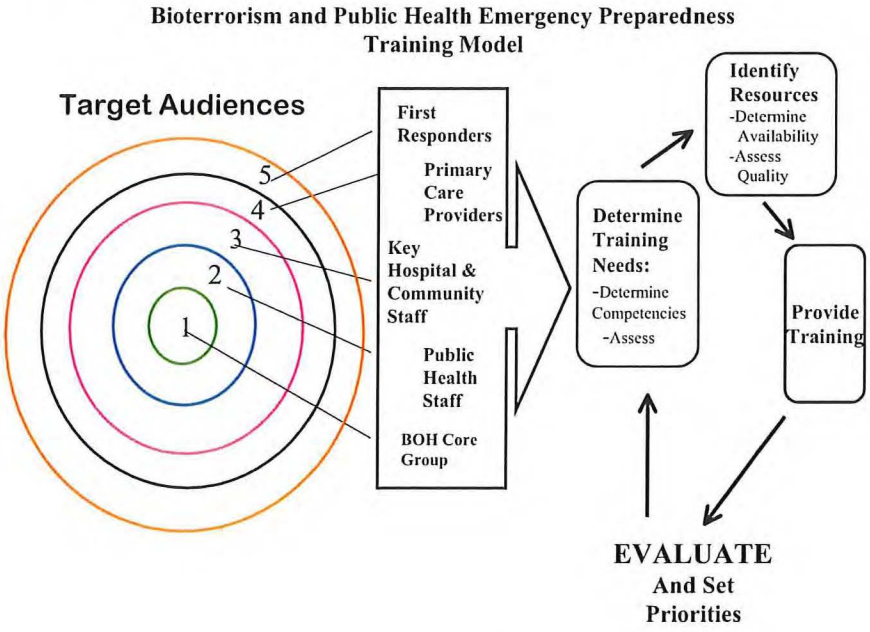
Plan	Operations	Resources	KABS	Practice

SPECIFIC INDICATORS

1. Trained PHEP workforce

The MCPH developed a comprehensive needs-based PHEP training model collaboratively with BOH that incorporated recommendations form the Maine Homeland Security Strategic Plan, Maine Hospital Emergency Preparedness Assessment, County-Based Health System Emergency Preparedness Assessment, and findings from focused interviews with external partners. The training plan identified core content and elements of training, key target audiences, and strategies being deployed to implement the plan including a cyclical training approach that included a comprehensive assessment of needs, identification of resources, provision of training and evaluation (see Figure 9 below). An implementation timeline was also established. This plan was approved by BOH.

Figure 9.



The training curriculum is based on national standards and tailored to meet Maine Needs. Harvard School of Public Health Center for Public Health Emergency Preparedness (HCPHP) provides the core content. The essential concepts (competency-based, collaborative, connectivity-based, and multi-disciplinary) are woven throughout each course. A training matrix was

developed that identified training content by target audience and level of training (awareness, understanding, mastery).

The highest priority target audience, BOH core staff, completed a yearlong series of training sessions using the HCPHP curriculum and distance learning technology. Pre and post evaluations were done including self-report on whether needs were met. However, implementation of the philosophy was not included in the evaluation process.

BOH's emergency preparedness staff training took place in June 2005 and was designed to reach all BOH staff in repeated three-hour sessions developed and conducted by BOH and MCPH. The 350 Augusta staff were trained in June and the Houlton and Bangor staff (n=50) are scheduled for September 2005. The goals of this training are to increase awareness of PHEP activities, learn the importance of preparedness, describe their own roles and responsibilities and those of other BOH staff, and to facilitate discussion of staff concerns.

Another major statewide conference is tentatively planned for September 2005, "Preparing for a Chemical Spill: Lessons Learned from South Carolina" pending funding approval from CDC. This builds on the well attended and highly successful December 2004 conference "SARS in Toronto: It Could Happen Here."

The collaboration with the Harvard School of Public Health has led to the distribution in Maine of a web-based newsletter on Emergency Preparedness that is well tailored to Maine and arrives to targeted partners via e-mail with a link to the website.

Other training programs offered collaboratively with hospitals and MEMA, EMS, Primary Care Association have been sucessful but not sufficient.

2. Sustainable collaborative statewide training system

A train-the-trainer approach was used in order to increase OPHEP's capacity to deliver and sustain emergency preparedness training. Specific goals include:

- Guide training for a larger group at the awareness and understanding/operational level,
- Increase visibility of PHEP throughout Maine;
- Increase ability to reach more of the target audience;
- Begin to develop experts in PHEP at the mastery level; and
- Identify potential leaders within their communities if a public health emergency should occur.

Trainers from all disciplines are "certified" and tracked in the MCPH database. Trainees must agree to facilitate three courses per year and participate in monthly updates.

This program is well organized and follows educational principles. A strong infrastructure has been implemented which includes plans, a tracking system, tools, and systematic evaluations. The training plan is well documented. Curricula, PowerPoint slides, and evaluation forms are available in the MCPH website for each topic. The Learning Management System (LMS) has been implemented to track trainers, training data and best practices. Report formats have been developed and should be available soon.

Results of a comprehensive evaluation (October 2004) were positive overall. In general, the instructor results for all courses were positive (4.5 or higher based on a 5-point Likert-type scale) leaving little room for instructor improvement. Likewise, content, material, audio/visual and facility results were also positive indicating that content met expectations, was presented in an organized manner, and was applicable to the participants' current job. In addition, most participants found the workbook to be useful, audio visual aids to be effective, materials well organized, and facilities appropriate. Finally, trainees indicated that course objectives were met, and that there was a high level of participant involvement during the course.

Only 20 trainers had been certified by March 2005. Semi-annual reports indicate the number of trainers trained in each quarter, but not a cumulative total, specific expertise or geographic location. However, in spite of a well prepared and organized training program, attendance at recent facilitator trainings has been very low and sessions were suspended in November in order to assess the situation. While a number of trainers have been actively training audiences since the initial train-the-trainer sessions, several trainers have not done any trainings and it was clear that the expected number of trainings would not be reached. Staff from HCPHP interviewed 16 of the 20 trainers and identified three barriers:

- Lack of time to market the program;
- Level of expertise expected of the trainers; and
- Specificity of the lectures.

Strategies to address each of these barriers were developed in consultation with MCPH, BOH and HCPHP staff. These include:

- Marketing—MCPH staff will make initial contacts with organizations expressing interest and coordinate with current trainers;
- Expertise—Future train-the-trainer programs will be tailored to the expertise of specific trainers and/or will pair trainers with other expert trainers.
- Specificity—Trainings will be adapted to specific audiences.

The use of evaluation information and the program flexibility are critical to achieving the training program goals by meeting the needs of both trainers and trainees. Ongoing formative evaluation should continue.

RECOMMENDATIONS—Training

Trained Workforce

1. Determine whether the key concepts the training program philosophy have been successfully implemented (competency-based, collaborative, connectivity-based, multi-disciplinary).

2. Continue to evaluate the quality of the training programs.

3. Review the impact of the training project given the small numbers reached with partners.

Training Sustainability

1. Update the strategic plan in collaboration with the and focus on strategies to promote impact and sustainability of the Maine training program.

2. Continue implementation of the Learning Management System.

3. Track the impact of strategies to increase the number of trainers and to increase their productivity (number of sessions taught).

4. Broaden and deepen the training of hospital, home care and primary care care stakeholders.

5. Continue training with EMS partners.

6. Evaluate the need for mental health and substance abuse training.

REPORT CARDS

The Report Cards that follow have been developed for each of the four evaluation components based on the indicators for the specific component:

- Early Detection
- Response
- Communication
- Training

Due to the large number of indicators for Early Detection, a summary Report Card has also been prepared for that component as well.

These Report Cards are a visual representation of progress made as of May 2005 for indicators along the continuum of:

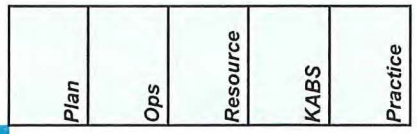
- Planning;
- Operations (policies and procedures);
- Resource availability;
- Knowledge, attitude, behavior and skills; and
- Practice.

The legend for interpreting the Report Cards follows:

LEGEND	
	Indicators Met
	Partially Met
	Not Met
	Not Evaluated

MAINE PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION
Quarter 3 PY3, (Q#7) Summary (June 30, 2005)

Based on evaluation of influenza surveillance



I. EARLY DETECTION

1A Sustain infrastructure to support Epi functions

1A1 Up-to-date legislation

1A1a	Regulation for immediately notifiable conditions
1A1b	Legal authority to receive/investigate disease reports
1A1c	Legal/regulatory provisions obtained based on assessments

1A2 Improved Epi operations

1A2a	NIMS compliant Epi structure
1A2b	Clear Epi roles and responsibilities
1A2c	Coordination among Epi units & BOH
1A2d	Statewide call tracking system
1A2e	State & local Epi response coordinators
1A2f	Assess 24/7/365 capacity for ID response
1A2g	Assess timeliness/completeness of response/response
1A2h	Reporting/response systems enhanced regularly
1A2i	Veterinary resource available to staff & partners
1A2j	Evaluate specialized Epi training (PH/healthcare professionals)
1A2k	Assess adequacy of PH response to catastrophic ID
1A2l	Enhance protocols/legal/regulatory based on assessment

1A3 Enhanced state lab capacity (HETL)

1A3a	Able to retrieve Sentinel lab information
1A3b	Proficient in testing Category A agents
1A3c	Proficient in testing for Salmonella/Shigella, E coli 0157:H7
1A3d	Able to test animal clinical specimens
1A3e	HETL able to deliver specs to reference lab during off hours
1A3f	HETL transport system compliant with federal regs
1A3g	HETL competent to advise on transport to chemical ref lab
1A3h	Chain of custody tracking compliant with PHIN
1A3i	Ensure rapid or specific confirmation of urgent reports (even if no power)
1A3j	Capacity to apply molecular epi methods
1A3k	Maintain relationship with veterinary diagnostic lab

1A4 Integrated data systems

1A4a	Electronic transfer of lab & case data (PH, hosp, clinical labs)
1A4b	NEDSS or NEDSS-based system
1A4c	Produce/analyze epi data
1A4d	Web-based reporting & notification system
1A4e	Use IT to enhance response capability

1A5 Staffing

1A5a	Able to receive statewide ID reports 24/7/365
1A5b	Designated PH professional responds to ID report within 15 min
1A5c	Capacity to manage reportable disease system
1A5d	Epi skills current
1A5e	Annual eval of 24/7/365 response capacity
1A5f	Epi capacity to investigate/respond to urgent ID cases

1B Assure epidemiology surge capacity

1B1 Integrated Epi & lab response with partners

1B1a	Lab/Epi data exchanged across borders
1B1b	Resources shared among partners & across borders
1B1c	List of skilled providers (infectious, chemical, radiological disease)
1B1d	Response planning with hospital preparedness activities

		Plan	Ops	Resource	KABS	Practice
1B1e	BT sessions at key meetings					
1B1f	Capacity to respond to food, water, airborne threat					
1B1g	Identify number/type smallpox response team personnel					
1B2	**Mobilized Epi volunteers & staff**					
1B2a	Person in authority available within 60 minutes					
1B2b	1st personnel call-down within 60 minutes of declared emergency					
1B2c	Mobilized volunteers & staff proficient during call-down					
1B2d	Ongoing training provided to PH, clinical, healthcare professionals					
1B2e	Designated Epi Response Coordinator					
1B2f	Educate key policy makers, partners, stakeholders					
1B2g	Identify #/type personnel on smallpox response teams					
1B2h	Maintain registry of at-risk staff for priority vaccination					
1B3	**Incident data tracking**					
1B3a	PHIN compliant patient tracking system					
1b3b	Capacity to track non-exposed seeking acute care					
1C	**Monitor and investigate health threats**					
1C1	**Disease surveillance**					
1C1a	Statewide system to receive & evaluate disease reports					
1C1b	Feedback/training to reporting sources					
1C1c	Integrated statewide veterinary surveillance					
1C1d	Develop/acquire information & response sheets					
1C1e	Adequate statewide smallpox surveillance & reporting					
1C1f	Strengthen links with animal surveillance systems					
1C1g	Monitor other surveillance systems					
1C1h	Monitor other data sets & new sentinel surveillance activities					
1C2	**Epi/Lab coordination with partners**					
1C2a	Collect/manage/coordinate event & response information					
1C2b	Guidance to protect health issues during & after events					
1C2c	Educate policy-makers, partners, stakeholders re real-life events					
1C2d	Strengthen links with animal health community					
1C2e	Assure capacity to respond to food, water, air-borne threat					
1C2f	Develop/acquire information & fact sheets					
1C2g	Maintain list of chemical & radiological disease providers					
1C2h	Conduct BT sessions for involved outside organizations					
1C3	**Outbreak investigation**					
1c3a	Large-scale outbreak plan in place					
1C4	**Data analysis**					
1C4a	BOH monitors environmental conditions					
1D	**Assure disease prevention strategies**					
1D1	**Epi consultation and alerts**					
1D1a	Exchange health alerts with border entities					
1D1b	PHIN (federal) compliant system to send/receive detailed alerts & data					
1D1c	Voice transmit/receive response with partner without electricity					
1D2	**Disease containment**					
1D2a	Large-scale smallpox vaccination plan					
1D2b	Smallpox response plan incorporating hospital post-event plans					
1D3	**Data dissemination**					
1D3a	Participate in Epidemic Information Exchange Program					

KEY

- Indicators Met
- Partially Met
- Not Met
- Not Scheduled yet

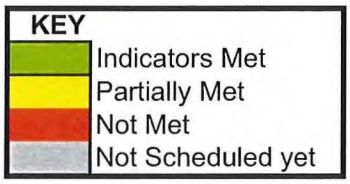
MAINE PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION

0

Based on evaluation of influenza surveillance

		Plan	Ops	Resource	KABS	Practice
I. EARLY DETECTION						
1A	**Sustain infrastructure to support Epi functions**					
1A1	Up-to-date legislation					
1A2	Improved Epi operations					
1A3	Enhanced state lab capacity (HETL)					
1A4	Integrated data systems					
1A5	Staffing					
1B	**Assure epidemiology surge capacity**					
1B1	Integrated Epi & lab surge response with partners					
1B2	Mobilized Epi volunteers & staff					
1B3	Incident data tracking					
1C	**Monitor and investigate health threats**					
1C1	Disease surveillance					
1C2	Epi/Lab coordination with partners					
1C3	Large-scale outbreak plan					
1C4	Data analysis					
1D	**Assure disease prevention strategies**					
1D1	Epi consultation and alerts system					
1D2	Disease containment category A agents					
1D3	Data dissemination					

Plan Ops Resource KABS Practice



MAINE PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION

Quarter 3 PY3, (Q#7) Summary (June 30, 2005)

		Plan	Ops	Resource	KABS	Practice
2. RESPONSE						
2A	**Public health emergency response infrastructure**					
2A1	Statewide					
2A2	BOH					
2A3	Regional					
2B	**Statewide PHEP plan collaborated with MEMA**					
2B1	Statewide coordinated, comprehensive plan					
2B2	Special disease plan					
2B3	Special populations plan					
2B4	Integrate PHEP plan with state Trauma Plan, state Emergency Management Plan, & Governor's Office					
2B5	Incident command structure at BOH					
2B6	Enhanced lab capacity for emergency response-HETL					
2C	**PHEP response medical materiel & equipment**					
2C1	Adequate material/equipment available					
2C2	Effective management of SNS					
2D	**Healthcare system & community response**					
2D1	Hospital & community stakeholders prepared					

Plan Ops Resource KABS Practice

KEY

- Indicators Met
- Partially Met
- Not Met
- Not Scheduled yet

MAINE PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION
Quarter 3 PY3, (Q#7) Summary (June 30, 2005)

		Plan	Ops	Resource	KABS	Practice
3. COMMUNICATION						
3A	**Healthcare providers**					
3A1	Plan for risk communication with healthcare providers					
3A2	HAN-Phase 1 and select the vendor					
3A3	HAN-Phase 2-Regional Plan					
3A4	Provider phone center-Phase 1					
3A5	24/7 Interactive web portal/PH Information Center					
3B	**Public**					
3B1	Public education re PH emergencies					
3B2	Media (phase 1)					
3B3	PH Information Center/Public call center (phase 2)					
3B4	MEMA communication coordination (even if no power)					
3B5	Special populations					
		Plan	Ops	Resource	KABS	Practice

KEY

- Indicators Met
- Partially Met
- Not Met
- Not Scheduled yet

MAINE PUBLIC HEALTH EMERGENCY PREPAREDNESS EVALUATION

Quarter 3 PY3, (Q#7) Summary (June 30, 2005)

		Plan	Ops	Resource	KABS	Practice
4. TRAINING						
4A	**Trained work force available to 90% of pop**					
4A1	Training based on identified needs by group					
4A2	Assess and assure resources (tech and personnel)					
4A3	Philosophy implemented					
4A4	Maintain training based on philosophy, needs, resources					
4B	**Sustainable, collaborative system to maintain PHEP competencies**					
4B1	Train the trainer model					
4B2	Develop support for training programs					
4B2a	Technical assistance					
4B2b	Learning Management system					
4B2c	Evaluation program					
4B3	Collaboration with stakeholders					
		Plan	Ops	Resource	KABS	Practice

KEY

- Indicators Met
- Partially Met
- Not Met
- Not Scheduled yet

BRFSS Study (2004)

Using BRFSS Methodology to Evaluate Householder Preparedness for Public Health Emergencies.

Preliminary Report July 2005

Brief Introduction

As part of the Maine Bureau of Health's evaluation project for the public health preparedness program (PHEP), six state-added questions were included in Maine's Behavioral Risk Factor Surveillance System (BRFSS) during the 2004 data collection year. The BRFSS is a random telephone survey of adults over 18 years of age.

The intent of these added questions was to measure the possible risk from lack of preparedness for public health emergencies in Maine households. The questions, summarized, were:

- Radio that works if no power?
- 3 day supply of food?
- 3-day supply of water?
- If exposed to a dangerous disease, where would you first get information?
- If advised by your health care provider, would you get a free vaccine?
- If health officials asked, would you stay at home for a week without outside visitors?

To evaluate past and guide future preparedness strategies, responses to these questions were compared for population groups that vary by demographic characteristics including age, race, gender, education level and location (rural/suburban/urban), as well as by a number of health outcomes and risk behaviors. Implications for a rural state's prevention, response and recovery strategies based on this novel use of the BRFSS can be identified.

Summary of Results

- **Does your household have a radio that would work if the power went out?**
  82% of the sample said yes, but lower income and uninsured persons were significantly more likely to answer no.

- **Does your household have a 3-day supply of food for everyone who lives there?**
  92% answered yes to this question.

- **Does your household have a 3-day supply of water for everyone who lives there?**
  Only 58% answered yes to this question.

- **If my doctor or health care provider advised me to, I would get a free vaccine to prevent the disease.** 90% agreed with this statement, with little variation in the different population segments, except for a slight trend toward more disagreement by the uninsured.

- **If health officials asked me to, I would stay at home for a week, without outside visitors, to avoid spreading the disease or catching it.** 93% agreed with this statement. But certain groups, possibly those more intent on working, disagreed, including younger and/or male respondents.

- **If you believed that you were exposed to a new or dangerous disease, and you wanted more information, where would you go first to get that information?** Answers were classified as doctor's office (42%), hospital (16%), Bureau of Health (8%), internet (30.3%), or other (4%). Senior adults and women were more likely to use the doctor's office and men were more likely to use the hospital. Low income persons and those with less education were less likely to use the internet and more likely to use the hospital.

Conclusions

Based on these responses, Maine's households seem reasonably well prepared to respond to a short emergency period in which distribution of food, water and power were reduced. Most agree that they would get a vaccine or maintain quarantine related restrictions for a period of time. Perhaps the greatest concern would be the water supply in the 42% of households that did not have a 3 day supply of water should the pumps go down. Some households have generators but we didn't ask this question. Others live near lakes or rivers, and some perhaps thought of winter snow as a supply. Finally, the varied use of information resources in such an emergency may offer the Bureau an opportunity to evaluate their communication strategies locally and statewide. Health providers, hospitals, the health officials, the internet and other resources will all be used to seek information, but by different segments of the population.

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Judith Graber, MS
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Budget

Brief Summary of Maine's Use of Federal Funds for Bioterrorism and Other Public Health Emergency Preparedness

December, 2004

I. Maine Public Health Emergency Preparedness Expenditures by Priority Area

	Year 1 2001 - 2003	Year 2 2003 - 2004	Year 3 2004 - 2005	Total To Date
Early Detection	$3,131,492.00	$2,777,086.89	$2,942,981.00	$8,851,559.89
Response Planning	$1,763,124.30	$4,039,726.38	$4,126,473.00	$9,929,323.68
Communication	$3,607,965.66	$6,081,225.85	$2,643,379.23	$12,332,570.74
Education/Training	$534,547.88	$509,668.65	$401,316.13	$1,445,532.66
GRAND TOTALS	$9,037,129.84	$13,407,707.77	$10,114,149.36	$32,558,986.97

Years 1 and 2 are actual expenditures, Year 3 is as currently budgeted. Program years are August 31 to August 30.

II. Current Year Public Health Emergency Preparedness Budget Detail

CDC: $7,170,501*
HRSA: $2,943,648
Grand Total: $10,114,149

*Does not include $378,246 in direct assistance to the Health and Environmental Testing Laboratory for GC-MSD chemical agent instrument.

Current Federal Program year: August 31, 2004-August 30, 2005

A. Coordination and Health Systems Planning

$4.126 million

(CDC Focus A; HRSA Hospital Preparedness; Maine 2002 Homeland Security Objective VII, Projects 1, 3 and 4)

- The Office of Public Health Emergency Preparedness (OPHEP) has been established in the Bureau of Health Administration with the hiring of an Executive Director, a Medical Director and a staff of seven.
- Regional Resource Centers for Public Health Emergency Preparedness have been established at the state's three largest tertiary care centers, leveraging the existing Emergency Medical Services Trauma System. Their primary focus is on

developing coordinated, comprehensive, regional and statewide health systems response and recovery planning.

- Approximately $3 million of this years' funds will be used by the Regional Resource Centers to address high priority health care systems needs for emergency preparedness, including such items as communications equipment such as multi-channel radios, personal protective equipment for health workers and capital improvements or purchases to assure medical isolation capacity for EMS and hospitals

B. Early Detection: Disease Monitoring, Detection and Analysis
$2.942 million

(CDC Focus B, C and D; Maine 2002 Homeland Security Objective VII – Prime Initiative, and Projects 3 and 4)

- Six Regional Epidemiology Teams have been established to cover the entire State. Each team consists of a fulltime nurse epidemiologist and a part time physician. A part-time nurse practitioner provides these epidemiology and medical consultation services to Maine's five federally recognized Native American Tribes on a statewide basis. These teams will improve early detection of diseases; and provide a liaison with local medical personnel, emergency management agencies, public health organizations, and other pertinent community groups. Positions are contracted.
- Support for critical, central office epidemiology staff continues to include two full time staff epidemiologists, a public health veterinarian, a senior program manager and two FTE program support staff.
- Continuing safety and operational support renovations to the lab building have been implemented to assure its safety and security for lab staff to test for all chemical and biological terrorist agents
- Microbiology and chemistry staff and instruments to test for Class A chemical and biological terrorist agents, as well as unknown or emerging infectious disease threats.

C. Communications Systems
$2.643 million

(CDC Focus E and F; HRSA Hospital Preparedness; Maine 2002 Homeland Security Objective VII, Project 3; Objective II, Project 3; Objective III, Projects 2, 3 and 4; Objective IX, Projects 1, 2 and 3.)

- Part of these funds are being used to implement phase I of IPHIS, Maine's Integrated Public Health Information System. This web-based system will provide a two-way communication network for the automated exchange of data between public health and its partners in health care and emergency preparedness. Phase I includes the full implementation of a new public health laboratory

information system, infectious disease reporting and monitoring system, and the new Health Alert Network (HAN) system. All will be fully implemented statewide during this year.

- Part of these funds are being combined with other funding sources to develop and implement the Emergency Medical Services new web-based run-time reporting system statewide.
- Part of these funds are being combined with funding from Dirigo's Maine Quality Forum and the Maine Health Access Foundation for determination of the feasibility of a statewide system for real-time access to critical medical information, the Maine Health Network Information Technology Project.
- Risk communication training to senior public health officials and communications officials at the Regional Resource Centers will be provided.
- The Risk Communication Plan for Public Health Emergencies developed last year will be maintained and updated
- Continuation of work to assure adequate planning for reaching special populations (e.g., deaf and hard of hearing, elderly, the mentally ill or disabled, those who do not speak English) with risk communications during an emergency will be done jointly with the Regional Resource Centers

D. Education and training of the health workforce
$0.401 million

(CDC Focus G; HRSA Hospital Preparedness; Maine 2002 Homeland Security Objective VII, Project 2; Objective II, Project 2)

- The Maine Center for Public Health (MCPH) is funded to convene and staff a statewide emergency preparedness training coordinating committee that includes all state agency and private sector partners involved in training health professionals for public health emergencies. A training strategic plan has been developed and will be updated annually.
- MCPH and its partner, the Harvard School of Public Health, to continue to provide focused education and training of Maine's health workforce, to include first responders.
- Maine EMS and the Maine Primary Care Association and funded to provide focused outreach and coordination of educational efforts with their respective workforce constituencies.
- Emphasis will continue this year on building the capacity of Maine institutions to develop and maintain capacity to provide this training on an ongoing basis to the health care workforce.

12/29/04
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Brief Summary of Maine's Use of Federal Funds for Bioterrorism and Other Public Health Emergency Preparedness

June, 2005

New Five-Year Period
Fiscal Years 2005-2009

I. Maine Public Health Emergency Preparedness Planned Expenditures by Goals

2005-2006 figures are estimated only. Budget approval process in underway with US Department of Health and Human Services

Years 2002-2004 Priority Areas		Years 2005-2009 Priority Areas	Year 1 8.31.05 - 8.30.06	YR 2	YR 3	YR 4	YR 5	Total To Date
Early Detection	$8,851,559.89	Early Detection	$ 5,000,000.00					
Response Planning	$9,929,323.68	Response Planning	$ 2,500,000.00					
Communication	$12,332,570.74	Communication	$ 2,000,000.00					
Education and Training	$1,445,532.66	Education and Training	$ 600,000.00					
GRAND TOTALS	$32,558,986.97		$9,086,934					

II. Current Year Public Health Emergency Preparedness Budget Detail

CDC: **$6,606,543***
HRSA: **$2,480,391**
Grand Total: $9,086,934

*Does not include $378,246 in direct assistance to the Health and Environmental Testing Laboratory for GC-MSD chemical agent instrument.

Brief Summary of Maine's Use of Funds for Regional Resource Centers

Regional Resource Center support is provided by the US Department of Health and Human Services

The mission of the National Bioterrorism Hospital Preparedness Program is to ready hospitals and supporting healthcare systems to deliver coordinated and effective care to victims of terrorism and other public health emergencies.

Regional Resource Centers for Public Health Emergency Preparedness were established at the state's three largest tertiary care centers, with the intent of leveraging the existing Emergency Medical Services Trauma System. Their primary focus has been on assessment and reporting of regional healthcare system infrastructure and capacity for public health emergency response, healthcare systems planning, improving regional capacity for communication infrastructure, and training of health professionals.

Approximately $3 million of the funding has been used by the Regional Resource Centers to address high priority healthcare systems needs for emergency preparedness - including such items as communications equipment, personal protective equipment for health workers, and capital improvements or purchases to assure medical isolation capacity for EMS and hospitals.

As public health preparedness funding to Maine has declined, and the focus of healthcare system activities have been prioritized at the federal level, the scope of work for the Regional Resource Centers has shifted. The current focal point is on maintenance activities as well as exercise and training rather than purchase.

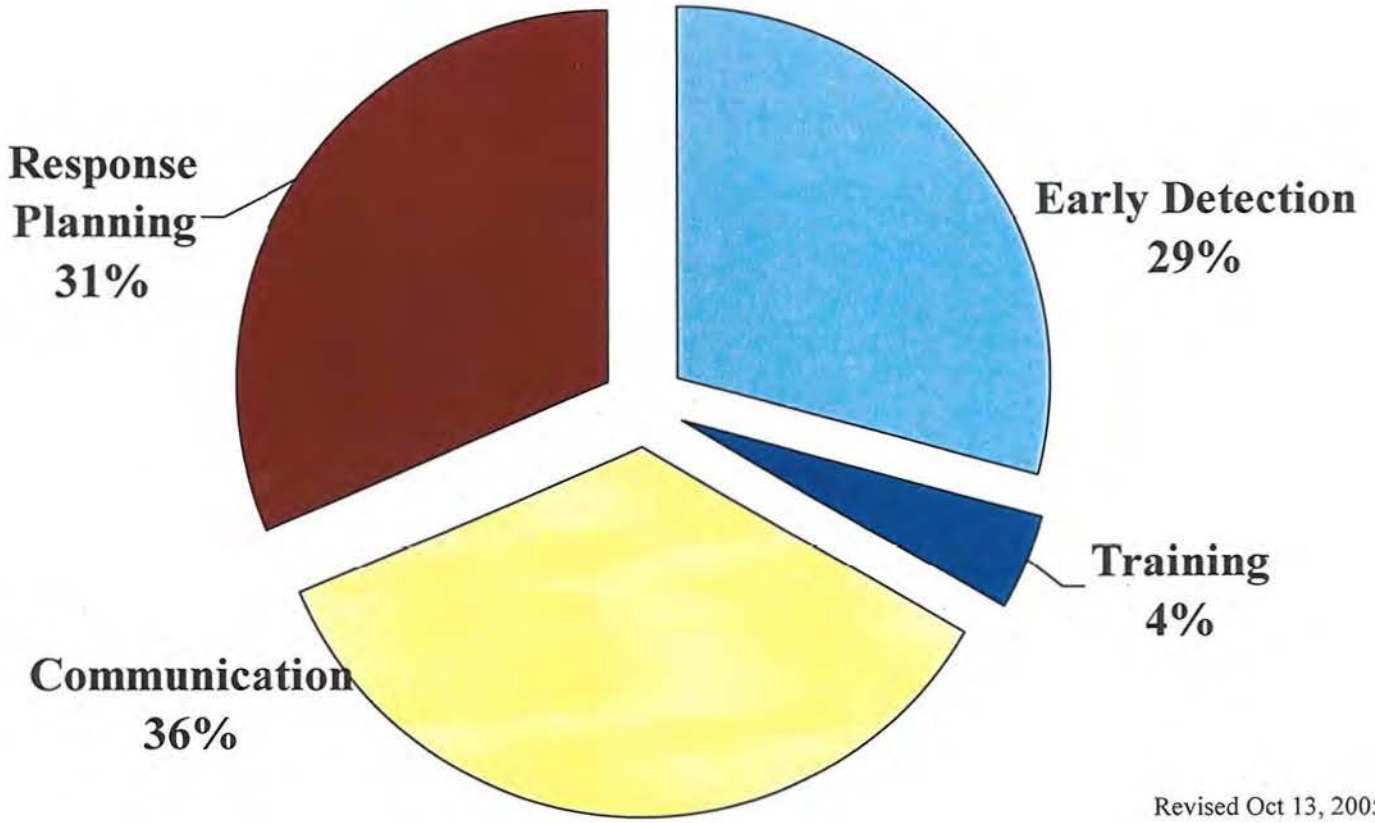
Eastern Maine Regional Resource Center Eastern Maine Medical Center	**Contract Period** 2/1/04 – 6/30/05		**Contract Period** 11/1/05 6/30/06
	Contract Amount 2,002,176.00		**Contract Amount**
Personnel			
Infectious Disease Specialist	50%	35,507.00	
Personnel Benefits		14,739.00	
Total		**50,246.00**	
Consultants - EMMC			
Director	65%	46,351.00	
Project Coordinator	100%	38,774.00	
Administrative Assistant	85%	23,664.00	
Project Administrator	5%	3,328.00	
Project Accountant	5%	1,884.00	
Health Risk Communication	7.5%	5,643.00	
Database Manager	90%	32,089.00	
Communications Specialist	5%	2,274.00	
System Conductivity Programmer	25%	9,579.00	
Fringe		69,933.00	
Total		**233,519.00**	
Consultants – Affiliated Laboratory		**8,567.00**	
Ishakanian Communications		**31,138.00**	
Needs assessment/ emergency response communication plan			
Regional Representative Planning Reimbursement		**82,600.00**	
Expenses		**39,660.00**	
Operating Costs			
Telephone, pagers, radios, remote access, supplies, office furniture and rental, travel, education		**84,602.00**	
Capital Expense Pool Communications, Decontamination, Isolation, Personal Protective Equipment		**1,289,828.00**	
Indirect Cost		**182,016.00**	
GRAND TOTAL		**2.002176.00**	

1/8/06

Southern Maine Regional Resource Center Maine Medical Center	Contract Period 2/1/04 – 6/30/05		Contract Period 11/1/05 6/30/06	
	Contract Amount $ 2,000,000.00		Contract Amount	
Personnel				
Director	100 %	65,000.00	100%	59,096.25
Research Associate	100%	33,045.83	100%	30,336.00
Information Specialist	100%	49,757.50	100%	44,799.00
Administrative Secretary	100%	24,822.50	100%	23,914.50
Infectious Disease Specialist	50%	29,218.28	50%	29,0110.13
Medical Director	12%	19,800.00	12%	18,532.80
Trauma Specialist	12%	30,000.00	12%	27,000.00
Personnel Benefits		55,718.20		65,176.38
Total		**307,362.31**		**297,866.06**
Consultants				
Laboratory		12,500.00		
Risk Communication		12,500.00		
Total		**25,000.00**		
Operating Costs				
Telephone, pagers, radios, remote access, supplies, office furniture and rental, travel, education		**74,583.33**	**38,787.50**	
Indirect Cost		**40,694.56**		**33,664.36**
Other				
Office rental, laboratory, communication planning				
Capital Costs				
Computers, AV equipment		**6,000.00**		**4,600.00**
Capital Purchases and Supplies				
Communications, Decontamination, Isolation, Personal Protective Equipment		**1,408,793.57**		
GRAND TOTALS		**1,862,433.78**		**374,918.91**

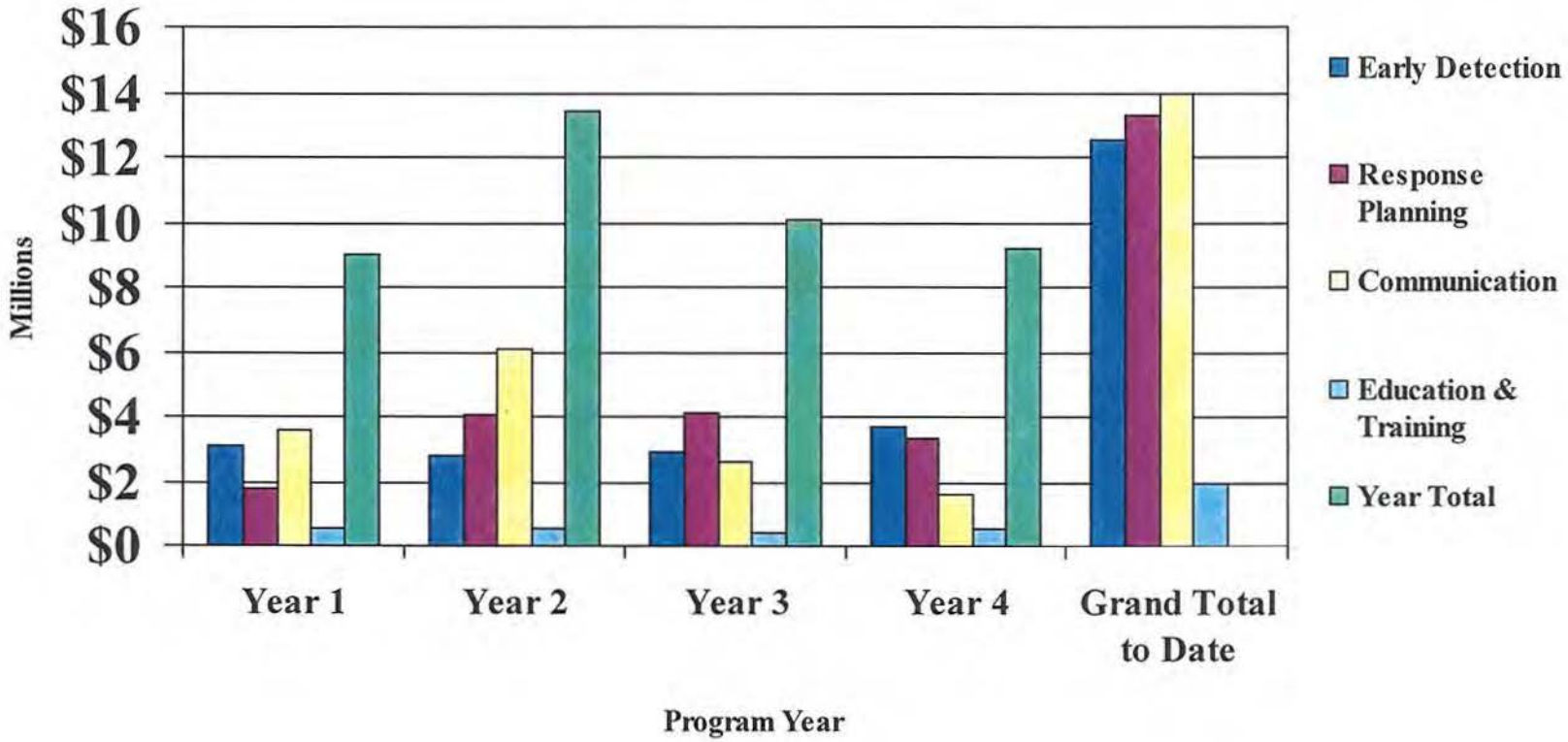
Central Maine Regional Resource Center Central Maine Medical Center	Contract Period 2/1/04 – 6/30/05		Contract Period 11/1/05 6/30/06	
	Contract Amount 2,000,000.00		Contract Amount	
Personnel				
Medical Director	10%	16,667.00		
Director	100%	120,416.00	50%	45,762.75
Communications Coordinator	100%	45,500.00	100%	45,500.00
Administrative Assistant	100%	34,210.00	100%	34,210.00
Education Assistant			Per diem	1,125.00
Personnel Benefits		54,198.00		42,808.00
Total		**270,991.00**		**169,405.75**
Operating Costs				
Supplies, telephone, postage, travel, references, educational		**35,300.00**		**26,315.00**
Training				**25,000.00**
Office Equipment		**20,709.00**		
Focused Grant Expenses				
Laboratory services		25,000.00		
Infectious Disease		65,000.00		
Health Risk		10,000.00		
Health Alert		10,000.00		
Training		4,000.00		
Capital Oversight		9,000.00		
Total		**123,000.00**		
Capital Purchases and Supplies				
Communications, Decontamination, Isolation, Personal Protective Equipment		**1,550,000.00**		
GRAND TOTAL		**2,000,000.00**		**220,720.75**

Maine Public Health Emergency Preparedness Expenditures 2001-2006 $41.5 million



Revised Oct 13, 2005

Maine Public Health Emergency Preparedness Expenditures 2001 - 2006 Total = $41.5



Executive Summary

Influenza is a highly infectious viral illness that causes yearly seasonal epidemics reported since at least the early 1500's. In the U.S., complications of influenza cause an average of 36,000 deaths each year, primarily among the elderly. Influenza virus is transmitted in most cases by droplets through the coughing and sneezing of infected persons, but it can be transmitted by direct contact. Typical symptoms include abrupt onset of fever (101°F to 102°F), headache, chills, fatigue, muscular pain or tenderness, sore throat, and nonproductive cough, and may include runny or stuffy nose. An annual influenza vaccination is the best method of protection against influenza. Other measures, such as frequent hand washing, staying home when sick, and the institution of public health measures for universal respiratory hygiene and cough etiquette, will help stop the spread of influenza.

Influenza viruses are unique in their ability to cause sudden infection in all age groups on a global scale. A pandemic – or global epidemic occurs when there is a major change in the influenza virus so that most or all of the world's population has never been exposed previously and is thus vulnerable to the virus. Three pandemics occurred during the 20th century. The Spanish Flu, in 1918 caused over 500,000 U.S. deaths and more than 20 million deaths worldwide. The Asian Flu Pandemic of 1957-58 and the Hong Flu Pandemic in 1968-69 also had a significant impact causing widespread illness and death. Recent outbreaks of human disease caused by avian influenza strains in Asia and Europe have highlighted the potential for new influenza strains to be introduced into the population.

An influenza pandemic has a greater potential to cause rapid increases in illness and death than virtually any other natural health threat. The impact of the next pandemic could have a devastating effect on the health and well being of the American public. The Centers for Disease Control and Prevention (CDC) estimates that, in the United States alone, up to 200 million people will be infected, 50 million people will require outpatient care, two million people will be hospitalized, and between 100,000 and 500,000 persons will die. Using software provided by the Centers for Disease Control and Prevention (CDC), it was estimated that in Maine, there would be approximately 165,000 outpatient visits, 4,000 hospital admissions, and 900 deaths during an influenza pandemic. Effective preventive and therapeutic measures including vaccines and antiviral agents will likely be in short supply, as may some antibiotics to treat secondary infections. Health-care workers and other first responders will likely be at even higher risk of exposure and illness than the general population, further impeding the care of victims. Widespread illness in the community will also increase the likelihood of sudden and potentially significant shortages of personnel who provide other essential community services.

Unlike many other public health emergencies, an influenza epidemic will impact multiple communities cross Maine simultaneously. Therefore, contingency planning is required to moderate the impact through a coordinated effort at all levels of government, and in collaboration with local partners. Advanced planning for a large scale and widespread public health emergency is required to optimize health care delivery through a pandemic.

This planning document has been designed to ensure that Maine is prepared to implement an effective response before a pandemic arrives and throughout a response if an outbreak occurs. The plan is intended to be dynamic and interactive; it consists of preparedness and response components that are consistent with international and federal guidelines as well as general principles of emergency response.

The Maine Pandemic Influenza Draft Plan is based on guidelines provided by:

Draft Pandemic Influenza Preparedness and Response Plan. Washington, DC: U. S. Department of Health and Human Services; August 2004.

WHO global influenza preparedness plan: The role of WHO and recommendations for national measures before and during pandemics. Switzerland, World Health Organization, Department of Communicable Disease Surveillance and Response Global Influenza Programme: 2005.

Pre-pandemic (WHO Phase 1,2)
No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals, or a circulating animal influenza poses a substantial risk of human disease.

LEVEL I (WHO Phase 3)
Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.

LEVEL II (WHO Phase 4)
Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.

LEVEL III (WHO Phase 5)
Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible.

LEVEL IV (WHO Phase 6)
Pandemic Phase: Increased and sustained transmission in the general population.

LEVEL V Post-Pandemic
Indices of influenza activity have returned to pre-pandemic levels.

The Draft Maine Pandemic Influenza Plan with annexed guidelines, resources, and other documents was developed to assist with the main components of planning, including:

- Command and Control
- Surveillance
- Vaccine Delivery
- Antiviral Medication Use
- Community-based Containment Measures
- Emergency Response: Health and Medical Maintenance of Critical Services
- Communications

This plan outlines roles, responsibilities and key activities before, during, and following a pandemic influenza. It is a work in progress that will be updated and added to as situations arise and dictate.

The overall goal of pandemic preparedness and response is to minimize serious illness and overall deaths, and to minimize societal and infrastructure disruption among Maine citizens during and following an influenza pandemic.

AGENDA

A Maine Summit on Sub-State Planning for Pandemic Influenza Preparedness

Augusta Civic Center
December 14, 2005

Sponsored by: Maine Center for Disease Control & Prevention (formerly Bureau of Health), Maine Emergency Management Agency and Maine Emergency Medical Services

♦8:00 - 8:30 — **REGISTRATION & COFFEE**

♦8:30 - 10:15 — **MORNING PLENARY**
(Ft. Western/Howard/Arnold Room, 1st floor North Wing)
"Dora's Office Meeting" - October, 2005
"Pandemic in Maine" - March, 2006 – 2007

♦10:15 - 10:30 — **BREAK**

♦10:30 - 12:15 — **BREAKOUTS**
York/Cumberland/Sagadahoc Counties
(Washington/York Room, 2nd floor)
Kennebec/Somerset
(Hancock Room, 1st floor)
Aroostook
(Aroostook Room, 1st floor)
Androscoggin/Franklin/Oxford
(Lincoln/Oxford, 1st floor)
Hancock/Penobscot/Piscataquis/Washington
(Cumberland, 1st floor)
Lincoln/Waldo/Knox
(Androscoggin, 1st floor)
Statewide Agencies/Associations
(Kennebec/Penobscot, 1st floor)

♦12:15 - 1:15 — **LUNCH**
Brian M. Cresta, Region One Representative
U.S. Department of Health & Human Services

♦1:15 - 3:00 — **AFTERNOON PLENARY**
(Ft. Western/Howard/Arnold Room, 1st floor North Wing)
Q & A on Pandemic Influenza
Town Meeting on Sub-State Pandemic Influenza Planning

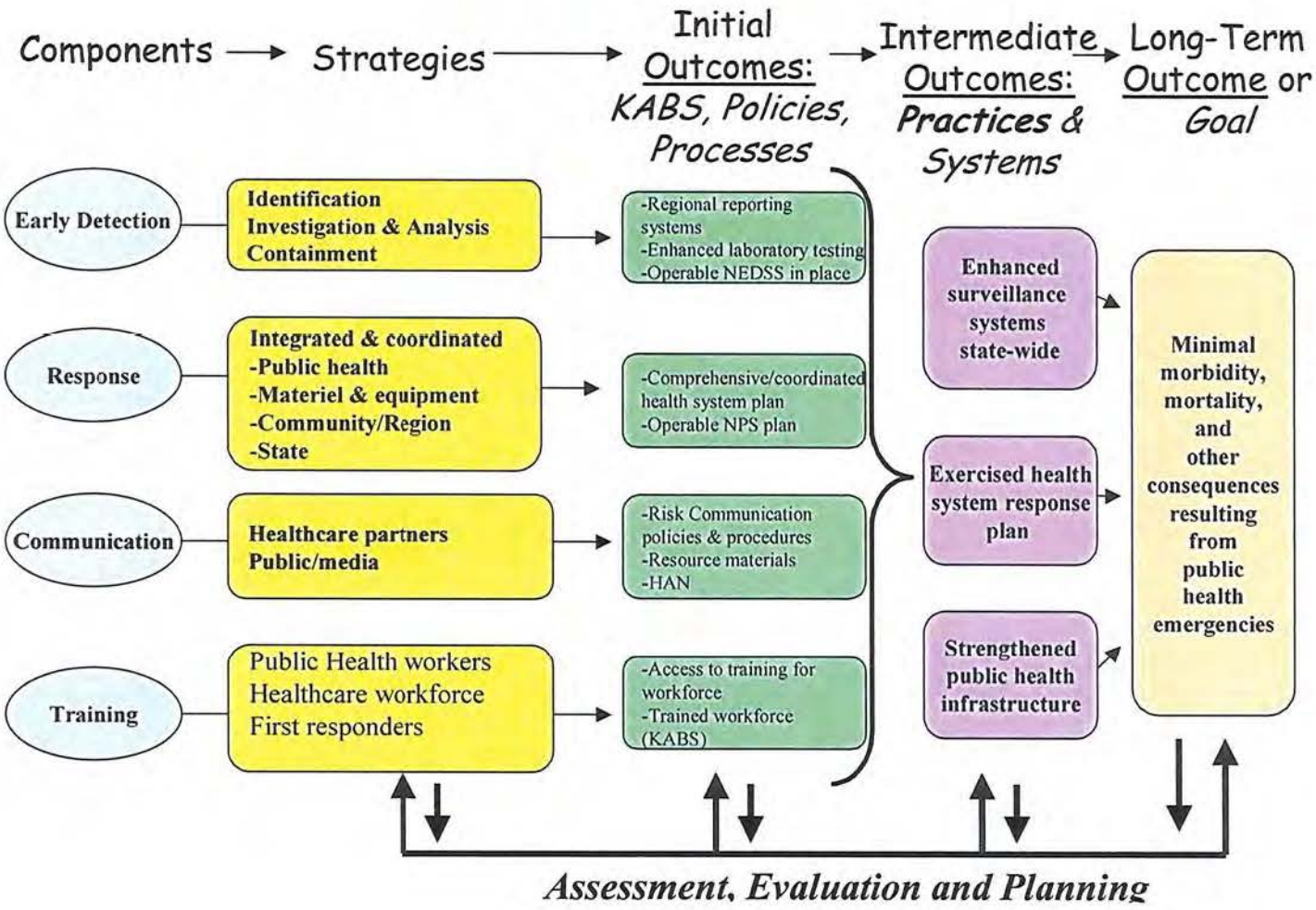
♦3:15 — **ADJOURNMENT**

APPENDIX A

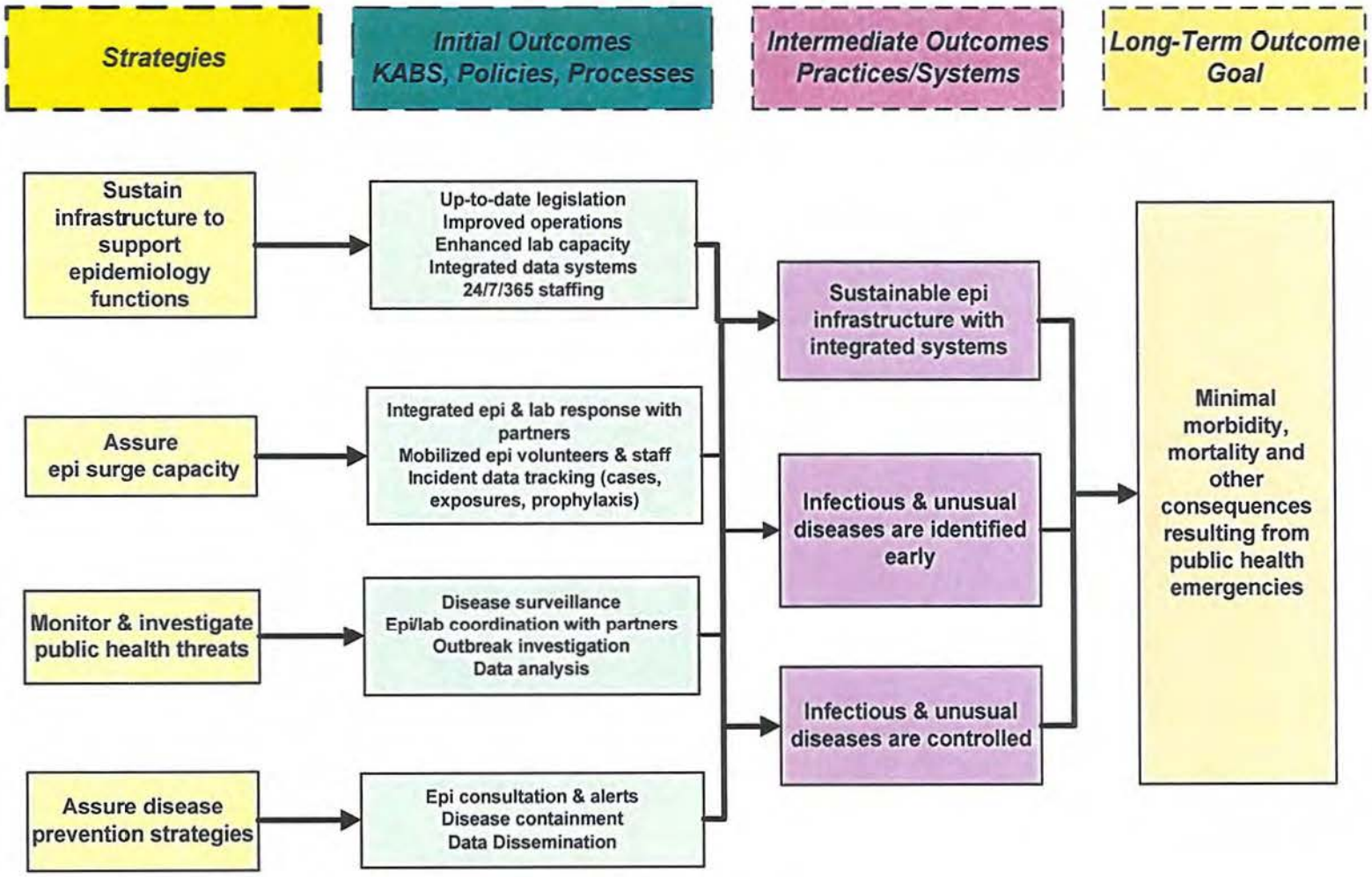
MAINE PUBLIC HEALTH EMERGENCY LOGIC MODELS

- PHEP Logic Model
- Early Detection Logic Model
- Response Logic Model
- Communication Logic Model
- Training Logic Model
- Regional Resource Centers Logic Model

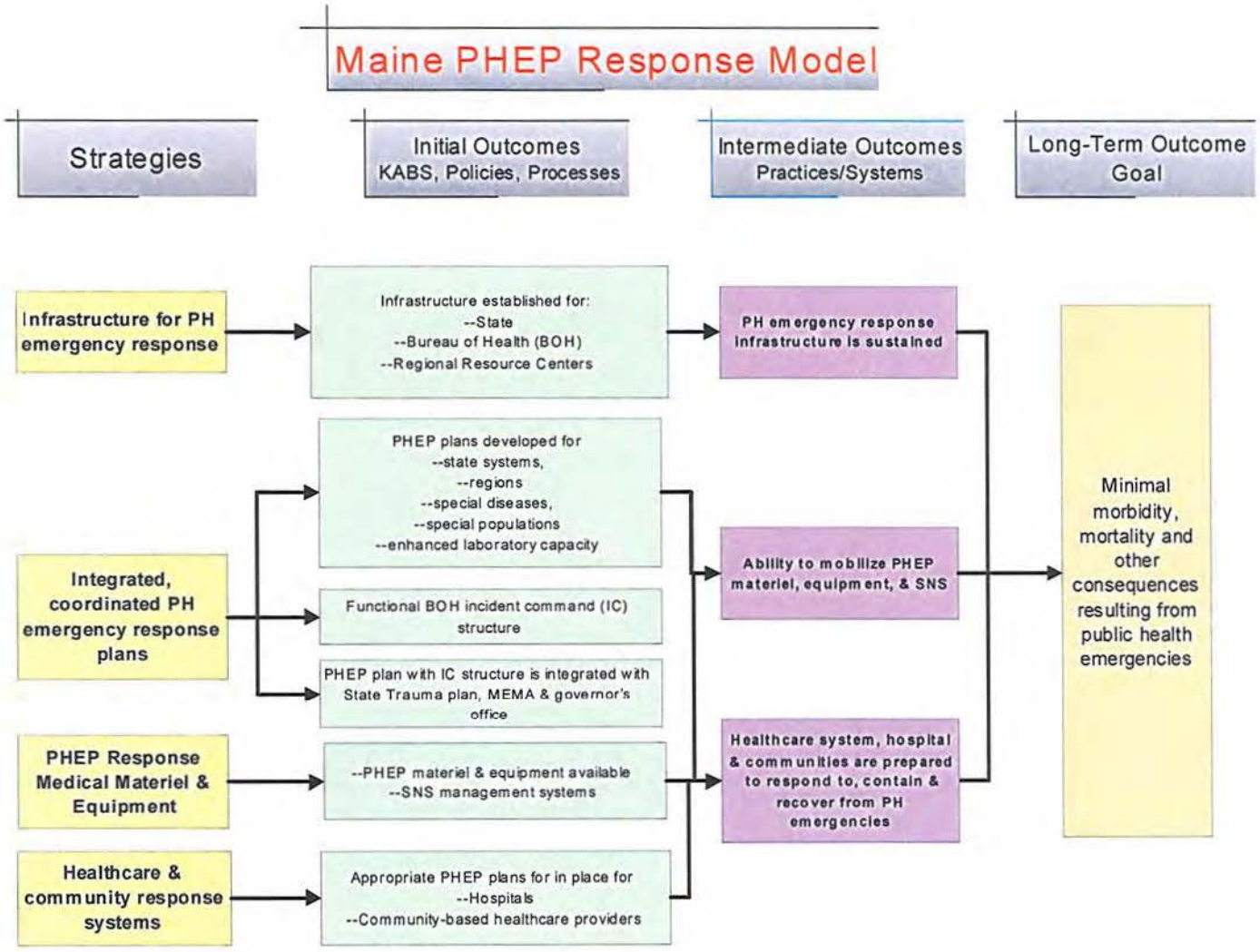
PHEP Logic Model

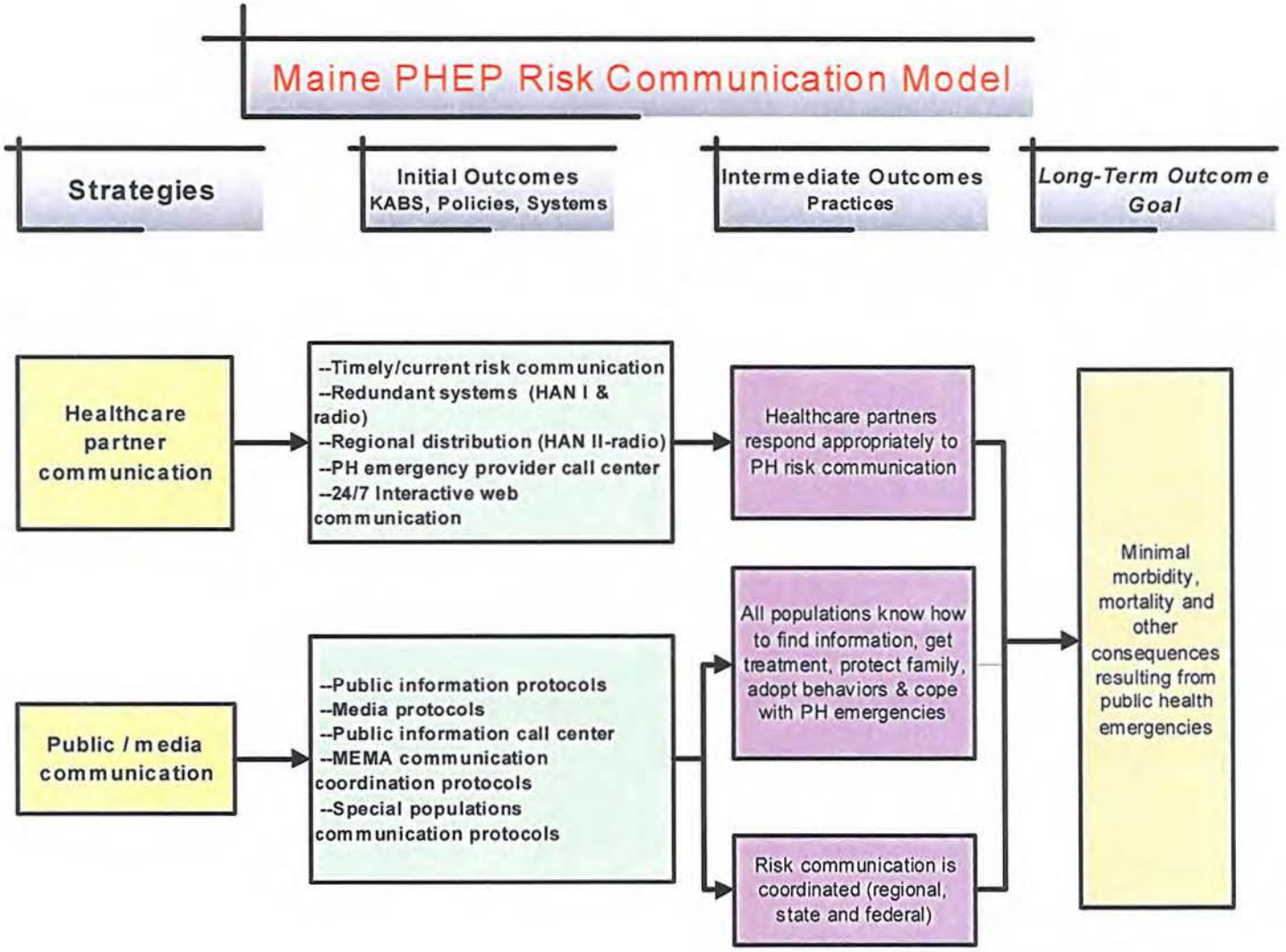


MAINE PUBLIC HEALTH PREPAREDNESS
EARLY DETECTION (Surveillance & Epidemiology)



Maine PHEP Response Model




Maine PHEP Risk Communication Model
Strategies
Initial Outcomes
KABS, Policies, Systems
Intermediate Outcomes
Practices
Long-Term Outcome
Goal
Healthcare partner communication
Public / media communication
--Timely/current risk communication
--Redundant systems (HAN I & radio)
--Regional distribution (HAN II-radio)
--PH emergency provider call center
--24/7 Interactive web communication
--Public information protocols
--Media protocols
--Public information call center
--MEMA communication coordination protocols
--Special populations communication protocols
Healthcare partners respond appropriately to PH risk communication
All populations know how to find information, get treatment, protect family, adopt behaviors & cope with PH emergencies
Risk communication is coordinated (regional, state and federal)
Minimal morbidity, mortality and other consequences resulting from public health emergencies

Public Health Emergency Preparedness Logic Model
Regional Resource Centers