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The monthly update on Emergency Department Management

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Reports say diversion on the rise: Use technology to overhaul patient flow

Make smart use of cutting-edge tracking systems

Diversion rates. Patient and staff satisfaction. Patient safety. What do these three things have in common? They all hinge on the efficiency of your ED's patient flow.

Research shows that diversion and overcrowding are an increasing problem for many EDs. A recent report from Rep. Henry Waxman (D-CA) identified 22 states where hospital officials have stated they cannot safely accept ambulances, causing delays in patient care.[1] Another report from the Washington State Hospital Association and the Association of Washington Public Hospital Districts, both in Seattle, revealed that more than half of the state's EDs went on divert status during the past year.[2]

To boost efficiency in the face of these ominous statistics, progressive ED managers are making smart use of cutting-edge technology, which gives you up-to-the-minute information about your ED. "That can result in *real-time* interventions taking place," emphasizes **Linda Kosnik**, RN, MSN, CS, chief nursing officer at Overlook Hospital in Summit, NJ. "This avoids system stress and, ultimately, overload."

With increased volume and less reimbursement, your ED *must* run as efficiently as possible, urges **Larry A. Nathanson**, MD, an attending ED physician at Beth Israel Deaconess Medical Center in Boston. "By using the right technology, you can keep tabs on your patients and identify bottlenecks in the system," he says.

Delays in admission and X-ray cycle times result in increases in ED occupancy,

Executive Summary

Your patient flow can be dramatically improved with electronic patient tracking systems that give information in real time.

- If ED staff can spot delays at a glance, steps can be taken to correct the root of the problem before backlog occurs.
- If specific time goals aren't met, an immediate intervention should occur.
- An "ED dashboard" system gives immediate information about lab results, which can reduce overall length of stay significantly.

says **James Espinosa**, MD, FACEP, FAAFP, medical director and chairman of the ED at Overlook Hospital. "The goal is to prevent [when possible], identify, and mitigate such a scenario," he explains.

Although Espinosa acknowledges that the ED alone can't solve the patient flow problem, he estimates that your admission cycle times can be reduced by 15%-20% with specific interventions.

"If even a limited number of beds are continuously freed up in the right place, at the right time, that might be all you need to stay one step ahead of the crunch," he says.

Here are some effective ways to use technology for better patient flow in the ED:

• Identify delays for "hold" patients with a computer tracking system. When patients are being held in the ED, it reduces your capacity, stresses Espinosa. "An ED with 25 beds holding five patients is now a 20-bed department," he says.

Patient safety issues are also a concern, Espinosa adds. "When patients who would be best served by the expertise of a specialty bed area are held in the ED, there is potential for errors that can lead to something more significant," he says. "This can also be a cause of dissatisfaction for ED staff, who may feel pulled from other tasks to care for these patients."

The ED has set a goal of fewer than 60 minutes, from the time the decision is made to admit a patient to transferring that patient to a bed. "We are currently at 76 minutes, and we are still improving the process," reports Kosnik. **(See list of steps the ED has taken to reduce delays, p. 27, and sample computer screen, p. 28.)**

A patient tracking system is used to identify delays and take action as soon as they occur. On a single computer screen, staff can see the status of the following eight steps in the admitting and treatment process, updated every 15 minutes:

— arrivals;
— occupancy;
— arrival to bed (goal = 15 minutes);
— bed to treatment by nurse (goal = 15 minutes);
— bed to treatment by physician (goal = 15 minutes);
— arrival to physician (goal = 20 minutes);
— X-ray cycle time (goal = 30 minutes);
— admission cycle time (goal = 60 minutes).

If a goal isn't met, a specific intervention kicks in, says Kosnik. "For example, if three 15-minute bars are over the limit for X-ray cycle times, the radiology tech calls another tech over to the ED or sends patients over to the main X-ray department," she explains.

Progress quickly can disappear without continuous monitoring, warns Kosnik. "You need to review, provide feedback, adjust the process, and repeat, repeat, repeat," she says. "Unwatched, the new system will return to the old system."

• Implement an "ED dashboard" system.

Before staff at Beth Israel Deaconess Medical Center moved to a new ED, the previous ED had two centrally located "whiteboards" that could be seen throughout most of the department, says Nathanson.

The new ED is larger and has seven zones, he says. "It is very difficult to view the 'lay of the land' from any one position," adds Nathanson. To address this, he developed an electronic tracking system known as the "ED dashboard," which is visible on a 4-foot screen in a centrally located area and on several other computers throughout the department. At a glance, staff now can view key information, including the number of patients in the waiting room, their status, bed availability, test results, and current volume. **(See sample screen from the "ED dashboard," p. 29.)**

"Just from this summary screen, the providers and administrators have all the information they need at

Sources

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COMING IN FUTURE MONTHS

- Effective ways to assess ED staffing
- Increase payment for observation
- New regulations for safer needle devices
- Reduce LWBS patients with an acute care unit

Resources

A report titled *National Preparedness: Ambulance diversions impede access to emergency rooms* was released on Oct. 16, 2001, by Rep. Henry Waxman (D-CA). The report can be downloaded at no charge at: www.house.gov/reform/min/maj/maj_terrorism_diversions.htm.

A report released Oct. 9, 2001, by the Washington State Hospital Association and the Association of Washington Public Hospital Districts details growing shortages of nurses and presents solutions. The 79-page report can be downloaded free of charge at www.wsha.org. (Click on "Publications" and then "Who Will Care for You? WA Hospitals Face a Personnel Crisis.")

their fingertips to get the pulse of the department and to drive patient flow," says Nathanson.

The hospital's own secure medical-record system, CareWeb (developed by the hospital's chief information officer), provides the lab, radiology, and electrocardiogram results, he adds.

Here are key benefits of the system, according to Nathanson:

• Nurses can more efficiently triage patients to less busy zones.

• Administrators can monitor patient flow from their offices.

• All providers instantly can see a color-coded summary as to whether their patients' labs and X-rays are ordered or complete, if an inpatient bed has been assigned or if a patient has a prior electrocardiogram in the system.

Registration clerks, who have mobile wireless laptops, have a color-coded message telling them what beds need registration and with what priority.

When a patient is moved out of a bed, the screen shows "requires cleaning" for the support staff.

Although the system was custom written by Nathanson to interface with the hospital's clinical system (developed internally), it possibly could be used at other EDs, he says. "The interface might be a challenge, depending on what systems you are running," he notes. Most of the major expenses of the system, such as computers in the ED and the hospital mainframe, already exist, says Nathanson. He estimates that the current system costs approximately $100,000, including staff for development, implementation and training, and hardware, including a 42-inch plasma monitor.

"A more expensive system may be more cost-effective than cheaper software that does not support patient flow and pulls providers from the bedside," he argues.

Nathanson notes that an effective system does not operate in isolation. "The closer the integration with registration, lab, radiology, cardiology, and the inpatient bedboard, the more effective the system will be," he says.

The system often saves 30 minutes or more during an eight-hour shift, because staff don't have to continually check the computer for information about lab tests or wait to be informed about results, says Nathanson.

"At times it has even saved a few hours in a single visit, since at a single glance, a provider could see that a test was not ordered correctly or the blood hadn't made it to the lab," he adds.

References

1. Minority Staff Special Investigations Division, U.S. House of Representatives. *National Preparedness: Ambulance Diversions Impede Access to Emergency Rooms.* Washington, DC: Committee on Government Reform; 2001.

2. The Washington State Hospital Association and the Association of Washington Public Hospital Districts. *Who Will Care For You? Washington Hospitals Face a Personnel Crisis.* Washington DC: Washington State Hospital Association; 2001. ■

Goal: Patient upstairs in fewer than 60 minutes

At Overlook Hospital in Summit, NJ, ED staff set an ambitious goal: to reduce admission cycle time to fewer than 60 minutes.

According to **Linda Kosnik**, RN, MSN, CS, the ED's chief nursing officer, the following steps were taken to achieve this goal:

• A multidisciplinary team was created with all areas related to admission cycle time including nursing staff, secretaries, technicians, transporters, registration, and bed control.

• Before the first meeting, data were collected on turnaround time from the time the decision was made to admit the patient to the time the patient actually left for the unit.

• Bed control was put under ED leadership.

• Senior administrative support was obtained.

• A "czarina of bed control" role was added, so that someone on a high management level was able to intervene if needed.

• A data collection process was created.

• Admission and discharge criteria was created for all units so that no single unit becomes overloaded while the others are not. Each unit was "capped" at a certain number so that it must only take "its" population, or diagnoses specific to that unit, says Kosnik.

"This prevents patient transfers later and supports better patient outcomes," she adds.

• A "demand capacity" management system was developed. "The system is based on the premise that divert or bypass is the end result of a meltdown in the inpatient services," says Kosnik. "The management of inpatient flow is therefore paramount to avoiding ED flow breakdown."

• Delays are continuously monitored via a computer screen, which are displayed for the previous three hours in 15-minute blocks of time. **(See sample screen, enclosed in this issue.)** Algorithms are in place so the system can adapt to current demand, based on specific thresholds. ■

Here's what ED staff can see at a glance

At Beth Israel Deaconess Medical Center in Boston, an ED "dashboard" **(see example, p. 29)** is visible to all staff responsible for patient flow. Here is an explanation of what the screen depicts:

• TID = length of time the patient has been in the ED;

• Rm = the room the patient is in. Color of room number indicates the team caring for the patient;

• AS = age and sex of patient (blue for male, pink for female);

• Name = patient's initials (for patient confidentiality);

• CC = chief complaint. The color indicates triage acuity (red = 2, green = 3, blue = 4);

• XR = status of X-rays are pending. Color turns green when X-rays are complete (C = CT scan, M = MRI, U = Ultrasound);

• L: status of lab tests. Color turns green when all tests are complete and turns red if there is a critical value;

• Att = the attending caring for the patient;

• Res = resident caring for the patient;

• Nur = the nurse caring for the patient;

• Dsp: disposition. A yellow "R" means a bed was requested, a green "A" means a bed was assigned, and the "A" turns red if a bed has been assigned for too long; some of the beds show "available," others "require cleaning."

Other possibilities include "blocked" if a bed is held for trauma, "expect" if a bed is being held for an ambulance call, or "requires registration" if an unregistered patient is present in the room. (Registration can prioritize by acuity and come to the room with a wireless cart.)

At the bottom, there is the time, the number of patients in the waiting room (color coded to turn green at less than 5, yellow at 5-10, and red at more than 10), the number of patients in the department (26), the number in observation (0), number admitted (0) and number waiting for beds (3) as well as the volume since midnight (58). ■

Improve care of kids with pediatric coordinator

Do you have the appropriate equipment and medication to care for a critically ill child? Is it easy to access? Has your staff completed a formal pediatric resuscitation course? Are staff adequately trained in pediatric assessment?

If you're like many ED managers, the answer to the above questions is "no." Research shows that a significant number of EDs lack what is needed to give children appropriate care.[1,2]

According to joint guidelines by the Elk Grove Village, IL-American Academy of Pediatrics and the Dallas-based American College of Emergency Physicians, you should have pediatric coordinators to ensure that the needs of children are met in your ED.[3]

"While there are various ways to implement this, the critical feature is that specific individuals are responsible and accountable for pediatric care," says **Emory Petrack**, MD, FAAP, FACEP, chief of the division of pediatric emergency medicine at Rainbow Babies and Children's Hospital in Cleveland.

For EDs who don't see many children, it is absolutely essential to "consciously" focus on improving pediatric care, stresses Petrack, who is the physician coordinator for pediatric care at his ED. "Identification of specific physician and nurse pediatric coordinators is an excellent mechanism for creating this focus," he says.

This ensures that the entire ED staff are prepared to handle pediatric emergencies, that appropriate

Executive Summary

New guidelines from the American Academy of Pediatrics and the American College of Emergency Physicians recommend having physician and nurse pediatric coordinators to improve the care of children in the ED.

- The role of pediatric coordinator doesn't need to be a full-time or newly added position.
- Physician and nurse coordinators should work together to develop policies for improved care.
- Coordinators should routinely audit patient charts as part of a quality improvement program.

ED Dashboard

TID	Rm	AS	Name	CC	XR	L	Att	Res	Nur	Dsp
31m	1	63	Y.R.	R Leg Lac					Sally M	
9h	2	72	M.Y.	Fever	XC	L	Larry N	Paymon	Sally M	A
11h	3	40	M.C.	Abd Pain	XC	L	Larry N	Paymon	Sally M	R
35m	4	87	M.I.	Foot Ulcer					Sally M	
1h	5	40	D.P.	Near Synco		L		Paymon	Colleen	
4h	6	89	B.F.	L Weakness	MC	L	J L B	—	Colleen	A
59m	7	66	B.Y.	Weakness		L		clewis	Colleen	
	8		**Available**							
	9		**Available**							
1h	10	61	C.B.	Abd Pain				vasudev	Rob R	
50m	11	34	B.P.	Dyspnea	X		J L B	Paymon		
2h	12	54	M.S.	Abd Pain	X	L	J L B	vasudev	Rob R	
4h	14	50	J.P.	Chest Pain	X	L	J L B	clewis	j fahey	
1h	15	19	E.D.	Bilat Abd					j fahey	
	16		**Available**							
3h	6-7	80	B.K.	Abd Pain	X	L	J L B	clewis	Sally M	
	17		**Available**							
	18		**Available**							
27m	19	91	L.R.	Ms Δ's					Yole	
	20		**Available**							
	21		**Blocked --** *Trauma*							
	22		**Req Cleaning**							
	23		**Req Registration (2) --** Dyspnea							
46m	24	74	G.T.	Nose Inj					dave	

TID	Rm	AS	Name	CC	XR	L	Att	Res	Nur	Dsp
6h	25	19	N.P.	Eval		L	Larry N	—	Dave	
3h	26	51	E.C	Neck Cramp	C	L	Cio	kevin	Dave	
2h	27	81	A.K.	Bleeding		L	Cio	kevin	Dave	
	28		**Reg Cleaning**							
	29		**Available**							
	30		**Available**							
1h	31	89	F.L.	Leg Pain/S		L	Cio	kevin	Kim G	
5h	32	46	C.J.	Fever,Ha,M	X		Larry N	Micah	Collen	
2h	37	68	A.G.	Leg Pain			Cio	Daly,J	Neal	
2h	38	49	L.T.	Bilat Knee	X		Cio		Neal	
1h	39	36	G.P.	Vag Bleed			Cio		Kim G	
43m	33	28	I.B.	Back Pain					Neal	
9m	34	18	S.S.	L Ankle In			Cio		Kim G	
	35		**Reg Cleaning**							
37m	36	44	B.A.	Back Pain					Neal	
	40		**Available**							
	41		**Available**							
	42		**Expect --** *Chest Pain*							
	43		**Available**							
	44		**Available**							
	45		**Available**							
	46		**Available**							
	47		**Available**							
	T1		**Available**							
	T2		**Available**							
	T3		**Available**							

12:24 | 3 patients in WR | In Dept=26 CDU=0 Adm=0 Req=3 MN=58

Source: Larry A. Nathanson, MD, Beth Israel Deaconess Medical Center, Boston.

equipment is available and staff know how to use it, that appropriate policies and procedures are established, and that a pediatric quality improvement (QI) plan is developed, says Petrack.

Here are effective ways to utilize pediatric coordinators:

• Choose the appropriate individuals for this role.

The nursing and physician coordinators should have a background in pediatrics and emergency medicine and a strong interest in providing high-quality care to children in the ED, says Petrack.

The physician coordinator role can be assumed by the medical director or may be taken by another physician with the requisite skills and interest, he says. "It is essential to have individuals with the focus and passion to make sure that pediatric issues are addressed," he says.

In Los Angeles County, the 55 hospitals designated as Emergency Department Approved for Pediatrics (EDAP) are required to have a pediatric liaison nurse.

All nurses are required to have eight hours of pediatric emergency education every two years, says **Nancy McGrath**, RN, MN, CPNP, CEN, pediatric nurse practitioner and pediatric liaison nurse for the department of emergency medicine at Harbor — University of California at Los Angeles Medical Center in Torrance, CA. "In addition, the nurse should have at least two years' experience in pediatrics and have completed a two-day postgraduate course on pediatric emergencies," she adds.

• Understand that the position doesn't need to be full time.

Even if you can't afford to hire a full-time pediatric coordinator, you still should implement this role, stresses McGrath. She points to a 2001 survey by the Los Angeles County Pediatric Liaison Nurse Board of Directors, which found the average time commitment allotted by the pediatric liaison nurses was only four to eight hours a week. "More time is needed to fully perform this role, but staffing issues and budgetary concerns often make it impossible," McGrath says. "To compensate for time, the nurse must be creative to be

Pediatric Liaison Nurse Job Description

Pediatric Specific Policies/Procedures
• Develop, implement, evaluate, and report.

Pediatric Specific Quality Improvement Program
• Develop, implement, evaluate and report.

Pediatric Liaison Meetings
• Attend monthly meetings.
• Report/share info with peers at work.

Act as liaison for the following areas:
The pediatric liaison nurse interacts with each of these on issues related to care of the pediatric population:
Base Station (for prehospital transport issues and paramedic education).
2. Area Pediatric Critical Care Center (PCC). This is a separate designation from the Emergency Department Approved for Pediatrics (EDAP). Requirements for PCC designation include a trauma station, pediatric intensive care unit, a suspected child abuse and neglect team, pediatric surgeon, and in-house specialists.
3. Area Trauma Center (for specific pediatric trauma related issues, education, etc.).
4. Prehospital Care Providers (as above for base station).
5. Emergency Medical Services Agency (administrative assistance or identifying issues in care of kids, deficiencies in system/facility/prehospital).

Pediatric Continuing Education
The pediatric liaison nurse is responsible for ensuring that staff are certified and have access to pediatric emergency care education.
• Monitor pediatric continuing education and pediatric advanced life support certification of ED staff nurses.
• Ensure that staff attend a two-day postgraduate pediatric emergency course every four years.
• Ensure that staff receive eight hours of pediatric-specific continuing education every two years.

In-house Committee Participation
• Participate with any committee that will affect pediatric care in the ED.

Intradepartmental Communication
• ED nursing staff
• EDAP medical director
• ED nurse manager
• EDAP Pediatric Consultant
• ED physicians

Interdepartmental Communication
• Pediatric nurse manager
• Pharmacy manager
• Pediatric intensive care unit nurse manager
• Neonatal intensive care unit nurse manager
• Labor and delivery nurse manager
• Newborn nursery nurse manager
• Social services
• Quality improvement department

Communication
• Share information and identify new information that will affect the care of pediatric patients in the ED.
• Maintain good working relationship with other departments.

EDAP survey
The pediatric liaison nurse is responsible for coordinating the EDAP survey. This includes compiling policies and procedures, MD and RN credentials, mandatory education certifications, continuing education, license numbers, education given in the ED, clinical competencies, and the quality improvement program. All this information is collated in a binder for the survey.

Source: Pediatric Liaison Nurses of Los Angeles, Torrance, CA.

successful in the role." **(See job description for pediatric liaison nurse, above.)**

For example, McGrath advises pediatric liaison nurses to find ways to collaborate with ED staff in order to fulfill the responsibilities of the role. She suggests the following:

• Have the ED clinical nurse specialist or educator assist the pediatric liaison nurse with quality improvement, educational offerings, monitoring of continuing education, orientation of new staff, and daily equipment checks of pediatric supplies.

• Have the prehospital care coordinator alert the pediatric liaison nurse to transport issues and educational needs of prehospital providers.

Resources

The American College of Emergency Physicians (ACEP)/ American Academy of Pediatrics (AAP) policy statement, Care of Children in the Emergency Department: Guidelines for Preparedness (published in the April 2001 issues of Annals of Emergency Medicine and Pediatrics) can be downloaded free of charge at the AAP web site (www.aap.org). Click on "Policy Statements." Under heading "C," click on "Care of Children in the Emergency Department: Guidelines for Preparedness" The policy statement also can be purchased for $1.95 a copy, including shipping and handling. (Credit cards are not accepted for orders under $20.) To order, contact:

• **AAP Publications Department**, P.O. Box 747, Elk Grove Village, IL 60009-0747. Telephone: (800) 433-9016 or (847) 981-7924. E-mail: pubs@aap.org.

• Have the ED medical director work closely with the pediatric liaison nurse to facilitate optimum pediatric emergency care.

• Ensure the physician and nursing coordinators function as a team.

Petrack's ED has bimonthly "RN-MD" meetings in which issues related to care for children are discussed in a multidisciplinary fashion. "The agenda for these meetings is created through collaboration between a nursing coordinator and myself," says Petrack.

• Have the coordinator develop a pediatric QI program.

The pediatric liaison nurse should audit a sample of pediatric charts on a regular basis from the following categories, says McGrath: deaths, arrests and intubations, suspected child abuse or neglect, transfers to and/or from another facility, admissions from the ED to an adult ward or intensive care unit, selected return visits to the ED, and pediatric transports via the emergency medical services system.

ED policies and procedures often have been revised as a result of the chart reviews, she says. For example, a checklist was developed by the pediatric liaison nurses for suspected child abuse to facilitate the paperwork required in this sensitive situation, says McGrath. **(See checklist for suspected child abuse, inserted in this issue.)** "The implementation of this checklist has streamlined the process in EDs throughout Los Angeles County," she reports.

References

1. McGillivray D, Nijssen-Jordan C, Kramer MS, et al. Critical pediatric equipment available in Canadian hospital emergency departments. *Ann Emerg Med* 2001; 37:371-376.

2. Illinois Department of Public Health. Illinois EMSC Needs Assessment Summary 1994-1995. Springfield, IL; 1996.

3. American College of Emergency Physicians and the American Academy of Pediatrics. Care of children in the emergency department: Guidelines for preparedness. *Ann Emerg Med* 2001; 37:423-427. ■

ED's disaster plan uses incident command system

[Editor's note: This is the first in an ongoing series profiling EDs that have updated their disaster plans in response to the Sept. 11 terrorist attacks. If you'd like to share the changes that you've made to your disaster plan, contact: Staci Kusterbeck, Editor, ED Management*, 280 Nassau Road, Huntington, NY 11743. Telephone: (631) 425-9760. Fax: (631) 271-1603. E-mail: StaciKusterbeck@aol.com.]*

Before Sept. 11, Waterbury (CT) Hospital's disaster plan was geared toward small-scale events such as motor vehicle accidents — but that has changed dramatically, reports **Betty Karas-Bartolini**, RN, the facility's emergency preparedness coordinator.

"Now we are forced to think in terms of thousands of victims instead of busloads," she says. The hospital's completely revamped plan is based on an incident command structure, which has been used successfully for years in the military and prehospital community, says **Ralph A. Miro**, REMTP, the hospital's EMS coordinator.

The basic idea is to assign one individual as "CEO of the entire operation," he explains. "If you don't use the incident command system, you have chaos," Miro adds. "That has been proven over and over again." ***(For more information, see* Use this proven system for disaster communications *in* ED Management*, December 2001, p. 136.)***

Sources

For more information about pediatric coordinators, contact:

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Only the incident command system effectively can manage small and large-scale mass casualty disasters, says Miro. "This is a new paradigm for the ED," he adds. **(See chart depicting the hospital's Incident Command System for Disaster Management, p. 33.)**

The new plan satisfies current recommendations from the Oakbrook Terrace, IL-based Joint Commission on Accreditation of Healthcare Organizations, says Bartolini. She points to standard EC 1.4, which requires "alternate roles and responsibilities of personnel during emergencies, including who they report to within a command structure that is consistent with that used by the local community."

She says, "We chose to mirror the command structure used at every emergency by our town government municipalities simply because it works. Each member of the team of first responders knows who is in charge, and that person controls the scene."

So far, the costs of revamping the plan have been mostly staff time and minor equipment expenses totaling under $500, according to **Craig Mittleman**, MD, FACEP, director of emergency services. Here are key changes in the new disaster plan:

• Each individual is responsible for specific tasks.

A predesignated individual is assigned as "incident commander" for each area, Miro explains. "For easy identification, these individuals wear vests clearly marked with the area of assignment, such as triage," he says.

• Clinical staff report to specific areas instead of the ED.

The plan instructs all clinical staff to meet in the hospital lobby, says Miro. "During a disaster, everyone tends to inundate the ED, and you've got a traffic jam," he says. "Now all clinical staff meet outside of the ED, and we pull them in as needed." Individuals from the respiratory and anesthesia departments are the only clinical staff who automatically report to the ED, notes Miro.

• Nonurgent patients bypass the ED.

Patents with minor injuries are brought directly to a conference room for treatment instead of the ED. "The area is very close to a bank of elevators, so patients can be quickly moved to a critical care unit if it becomes necessary," says Miro.

Ambulances can transport patients directly to the conference room, since it's easily accessed from the hospital parking lot, he adds. "The goal is to have patients with minor injuries bypass the ED, so staff can focus on those who are critically injured," he explains.

• Alternate modes of communication are available.

When a disaster drill was held based on the new plan (using an explosion scenario and 20 patients) Miro discovered a glitch with the phone communication within the hospital itself. "One of the phone lines was not working properly, which was a malfunction we didn't anticipate," he says.

This underscored the need for alternate ways to communicate in case land-based or cell phone lines go down during a disaster, says Miro. "We hope to mitigate or eliminate that with the purchase of phones that function as two-way radios and cell phones, so there is dual capability," he adds. ***(For more information on communication during a disaster, see* Here are options for communicating *in* ED Management, *December 2001, p. 138.)***

• A color-coded concept is used.

Every area involved in the disaster response is assigned a color, and color-coded boxes are designated for specific tasks, such as green for triage of the "walking wounded" and white for security.

A colored box is brought to each location when a disaster is called. The box contains the necessary documents, equipment, arm bands, and color-coded vests so staff can be identified easily, Mittleman explains.

"Education about the color-coded plan was presented to ED staff in a [computer] presentation developed by our EMS and trauma coordinators," he says.

• Key personnel from police, fire, and ambulance services were contacted to educate staff.

Community leaders, including the fire chief, were invited to participate in the facility's disaster planning, says Mittleman. In a disaster, your ED must be able to communicate effectively with these groups, he notes.

He reports that the ED is planning disaster drills that will include police and fire agencies. "The goal is to effectively coordinate all the available resources," says Mittleman. ■

Sources

For more information on the hospital's revised disaster plan, contact:

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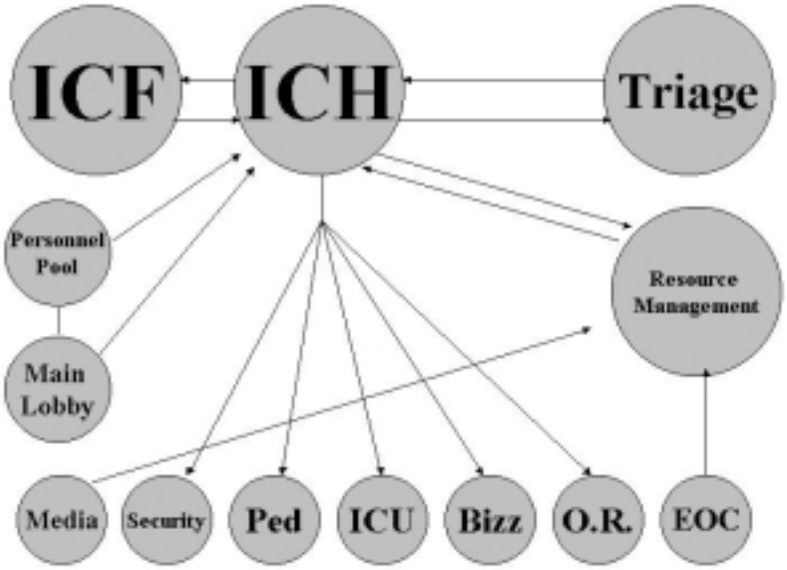
Incident Command System for Disaster Management

This chart depicts the Incident Command structure for the Disaster Management plan at Waterbury (CT) Hospital as follows:

- **INCIDENT COMMAND FIELD (ICF):** ICF is first on the scene, evaluates scene safety, determines the number of patients, and declares a disaster. ICF consists of the fire chief, EMS command, police command, primary and secondary triage officers, treatment officer, and loading officer, and other individuals as assigned. ICF will be in constant communication with Incident Command Hospital (ICH) via the field communications officer.
- **ICH:** IHC consists of the director of emergency services or designee, nursing supervisor, EMS coordinator, and security management. Within the hospital, this is the only area that communicates with the ICF directly.
- **PERSONNEL POOL:** Incoming non-clinical employees will report to the CT scan corridor. Incident Command will pull staff as needed for tasks such as transport of patients and equipment.
- **MAIN LOBBY:** Clinical staff report to the main lobby, where instructions are disseminated. For example, ICH would contact the lobby, speak to the person in charge, and ask for a physician or respiratory therapist to report to the triage officer in the ED.
- **MEDIA:** Reporters are guided to the day care center (an area away from the ED but on the hospital grounds) with a representative from the hospital acting as the conduit for information.
- **SECURITY:** The hospital is locked down and can be accessed only through security staff, who are situated throughout the hospital and on the perimeter. Security is also stationed at the entrance of the ED to facilitate the receiving of patients.
- **PEDIATRICS:** This department was selected as the first admitting unit to receive patients who come through the ED, because it has the lowest census. Staff consists of the medical attending, available medical residents, 8-10 nurses, one unit clerk, and two runners.
- **ICU:** Staff consists of the ICU team and designated physician.
- **CONFERENCE ROOM:** This is a receiving room for patients with minor injuries, and it can accommodate up to 100 patients. Materials management brings in beds, crash carts, and oxygen as needed. The area is staffed with the medical attending, available medical residents, 8-10 nurses, one unit clerk, and two runners.
- **OR:** This area is for patients who will receive surgical care, staffed with operating room personnel, anesthesia coordinator, and the surgical attending. .
- **EMERGENCY OPERATIONS CENTER:** This is located in the Waterbury Police Department training room. The chief engineer (or designee) from the hospital reports to this location.
- **RESOURCE MANAGEMENT:** This area is staffed by the administrator in charge, the bed control or admissions supervisor, the nurse administrator, and a runner. Availability of beds and notification of staff are managed. In terms of the command structure, priority communication takes place between Resource Management and ICH.
- **TRIAGE:** The designated ED physician, ED nurse, and ED registrar will handle triage. As patients are received, most already will have received initial triage in field and will have an attached tag. Personnel will ensure that the patient's condition has not changed and make a decision as to what treatment area or room they will go to.



Source: Waterbury (CT) Hospital.

EMTALA Q & A

[Editor's note: This column is part of an ongoing series that will address reader questions about the Emergency Medical Treatment and Labor Act (EMTALA). If you have a question you'd like answered, contact Staci Kusterbeck, Editor, ED Management, 280 Nassau Road, Huntington, NY 11743. Telephone: (631) 425-9760. Fax: (631) 271-1603. E-mail: StaciKusterbeck@aol.com.]

Question: If direct admit patients are held in the ED because inpatient beds aren't available, must the ED physician see the patient?

Answer: This is a definite gray area, warns **Gloria Frank**, JD, former lead enforcement official on EMTALA for the Centers for Medicaid & Medicare Services (CMS) and former owner of EMTALA Solutions, an Ellicott City, MD-based consulting firm.

"This is risky if the patient waits a long time," Frank says. "It's better to have the doctor look at the patient right away." However, there are exceptions to this rule, according to **Mary Kay Boyle**, RN, JD, risk manager at North Penn Hospital in Lansdale, PA.

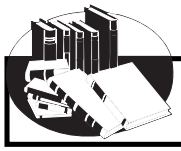
"For instance, persons presenting for collection of forensic evidence do not necessarily trigger EMTALA," she says.

Boyle adds that the key to this question is what is the purpose for the visit to the ED. "If there is a request for a medical screening exam or treatment of an emergency medical condition, then EMTALA does apply," she says.

In this particular case, the patient is presenting to the ED because of a bed shortage, she notes. If the patient has been screened by the admitting physician, the condition is stabilized and orders generated, the patient need not be seen by the ED physician, says Boyle.

"The admitting physician already has performed that function, and it is just like any other admission to the hospital," she explains. "If the patient has not been screened or is unstable, the patient would either need to be seen by the ED physician or the admitting physician, and in a timely manner," says Boyle.

Further, if the admitting physician does not respond in a timely manner, the ED physician will be held accountable for the screening and care of the patient, Boyle says. ■



JOURNAL REVIEW

Eckle N, MacLean SL. **Assessment of family-centered care policies and practices for pediatric patients in nine U.S. emergency departments.** *J Emerg Nurs* 2001; 27:238-245.

Although all EDs assessed in this survey demonstrated some integration of family-centered care principles, staff knowledge about family-centered care varied, says this study from the Emergency Nurses Association in Des Plaines, IL. Researchers conducted site visits and interviewed staff at nine EDs to evaluate their family-centered care practices. Here were key findings:

• Visitation policies and variable staff interpretation had an impact on how consistently family members were included in patient care in two EDs.

• Space limitation in the resuscitation area was a problem identified by two EDs.

• Preprinted written instructions were provided in

languages other than English in six EDs.

• Four EDs provided families with access to the medical library or family resource center, but access was limited to specific operating hours.

• None of the EDs were involved in discharge planning for children with special needs, other than what was needed following an ED visit.

• Two EDs had developed maps to help families find the cafeteria and other common areas.

• Free phones were available to families in six EDs.

The researchers found that staff support of family-centered care was most consistent in the EDs with specific competencies, educational programs, and practices that included family members. They recommend:

• assessing your ED policies and procedures to determine if they include family-centered care principles;

• developing a family-centered mission and philosophy of care in your ED;

• inviting family members to participate in the staff education program;

• evaluating specific needs of families in your ED through conversations, focus groups, and family advisory committees. ■

CE/CME objectives

After reading this issue of *ED Management*, the continuing education participant should be able to:

List two ways in which patient tracking systems can reduce delays. (See "*Reports say diversion on the rise: Use technology to overhaul patient flow.*")

Name three interventions that were taken by Overlook Hospital's ED to reduce delays in admission cycle time. (See *Goal: Patient upstairs in under 60 minutes.*)

Cite three benefits of a pediatric coordinator. (See "*Improve care of kids with pediatric coordinator".)*

List two benefits of using an incident command system for disaster management. (See "*ED's disaster plan uses incident command system.")*

Explain how to comply with EMTALA when direct admit patients are held in the ED. (See *EMTALA Q&A.)*

Identify three findings of a study on family-centered care in the ED. (See *Journal Review.)*. ■

CE/CME questions

(Editor's note: Please use the enclosed scantron to answer the CE/CME questions that have been enclosed in the issues beginning in October 2001 and ending with this issue. Also, please fill out the enclosed CE or CME survey. Use the enclosed envelope to mail your scantron and survey. Thank you.)

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THOMSON
AMERICAN HEALTH CONSULTANTS

31. Which of the following is true regarding patient flow, according to James Espinosa, MD, FACEP, medical director of the ED at Overlook Hospital?

A. Admission cycle times should be reduced by the ED alone.

B. Delays can't be decreased without adding additional staff.

C. Delays in X-ray turnaround times do not affect the patient's overall length of stay.

D. Admission cycle and X-ray delays can increase ED occupancy.

32. Which of the following steps was taken by Overlook Hospital to reduce admission cycle time, according to Linda Kosnik, RN, MSN, CS, the ED's chief nursing officer?

A. Only ED staff were involved in the planning and implementation process.

B. X-ray delays were left out of the data-collection process.

C. Bed control was put under ED leadership.

D. Delays were only monitored for six months after implementation.

33. What do new guidelines from the American Academy of Pediatrics and the American College of Emergency Physicians recommend?

A. The role of pediatric coordinator must be a full-time position.

B. Pediatric coordinators should not audit charts for liability reasons.

C. Coordinator roles can be assumed by existing staff positions.

D. Every staff member should complete a pediatric resuscitation course.

34. Which reflects the use of an "incident command" system for disaster planning, according to Ralph Miro, BS, REMTP, EMS coordinator at Waterbury Hospital?

A. The incident command system can manage only large-scale mass-casualty disasters.

B. The incident command system can manage small and large-scale mass-casualty disasters.

C. The incident command system does not satisfy current standards from the Joint Commission on Accreditation of Healthcare Organizations.

D. Switching to the incident command system requires a significant expense for equipment.

35. To comply with the Emergency Medical Treatment and Labor Act, must the ED physician see "direct-admit" patients being held in the ED?

A. only if the patient waits over two hours

B. only for patients presenting for collection of forensic evidence

C. only if the patient specifically requests a medical screening exam

D. yes, if patient has not been screened or is unstable

36. Which of the following is true, according to a study published in Journal of Emergency Nursing?

A. All EDs demonstrated some family-centered care principles.

B. Most EDs did not have any family-centered care principles in place.

C. None of the EDs provided discharge instructions in Spanish.

D. All EDs participated in long-term discharge planning for children with special needs. ■

CHECKLIST FOR SUSPECTED CHILD ABUSE

1. Suspected Child Abuse form completed _____

2. Department of Justice (DOJ) 900 Physical Assessment Form completed _____

3. Department of Children and Family Services (DCFS) telephone call documented
   Time and operator name _____
   (LA County 1-800-540-4000). _____

4. DCFS report number documented on the Emergency Record _____

5. Copy of Suspected Child Abuse form and DOJ 900 forms
   sent to Scan Coordinator _____

6. Copy of chart given to the Pediatric Liaison Nurse for review _____

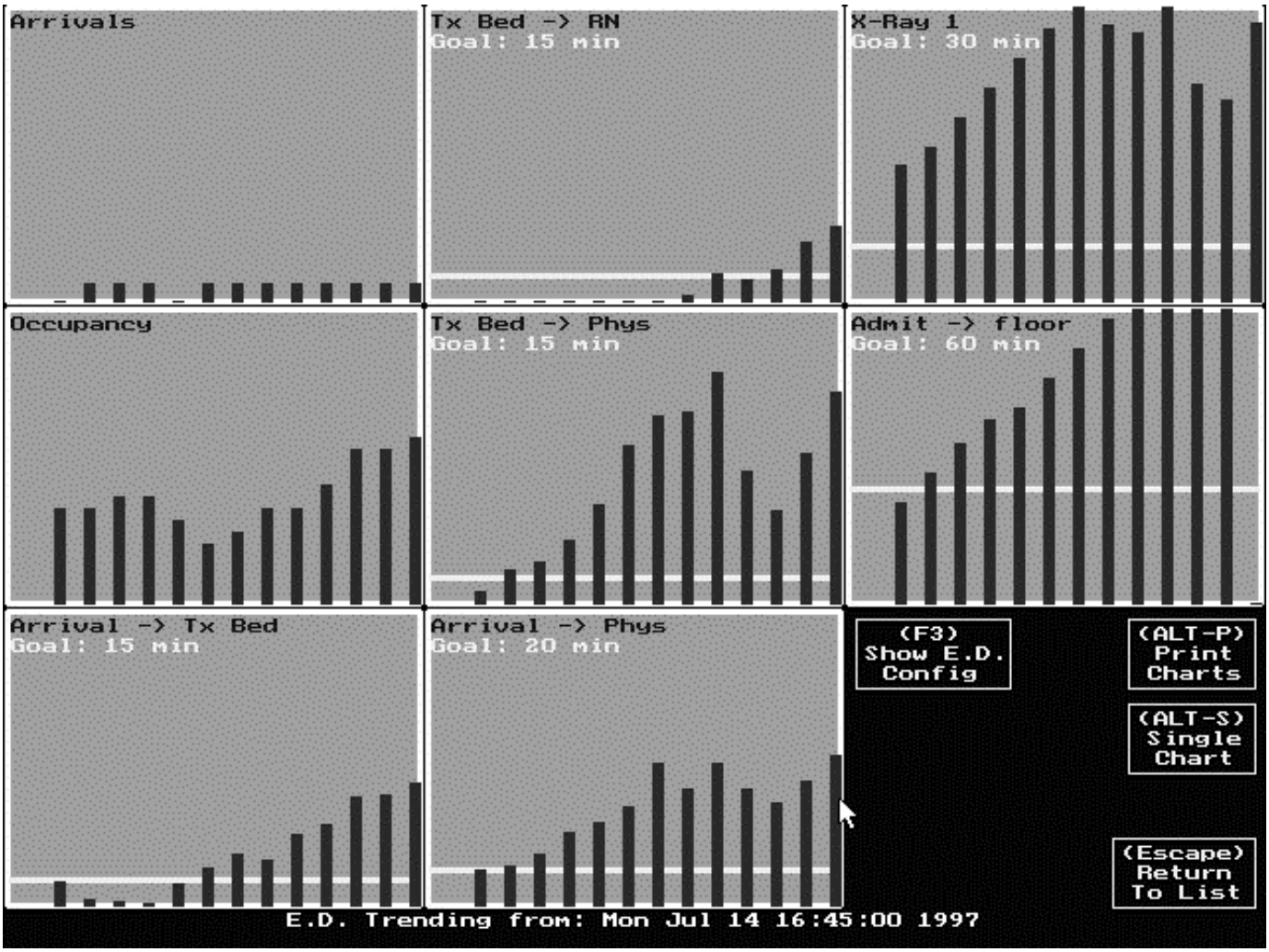
7. Copy of Suspected Child Abuse form and DOJ 900 attached to the chart _____

8. Suspected Child Abuse form and DOJ 900 mailed to the
   appropriate county within 36 hours _____

9. Appropriate law enforcement agency notified in the case of alleged sexual assault.
   Name and badge number of reporting officer _____
   documented on the Emergency Record _____

Source: Pediatric Liaison Nurses of Los Angeles, Torrance, CA.

Sample Computer Screen



This slide represents a snapshot in time of the ED at Overlook Hospital in Summit, NJ, showing the following information:

- arrivals to the ED;
- cycle time: treatment area arrival to start nurse evaluation;
- cycle time: X-ray study (plain film) ordered to return of film for review by ED physician;
- occupancy of the ED;
- cycle time: treatment area to start physician evaluation;
- cycle time: decision to admit to patient leaving ED to admission bed;
- cycle time: arrival to treatment area (bed);
- cycle time: arrival to physician evaluation.

Source: PATRACK, 307 S. Evergreen Ave., Woodbury, NJ 08096. Telephone: (800) 848-3721. Web: www.patrack.com.

BIOTERRORISM WATCH

Preparing for and responding to biological, chemical and nuclear disasters

Anthrax aftermath: Adverse drug reactions, vaccine controversy undercut CDC extended treatment offer

Some 8,000 people say thanks but no thanks

Despite the lingering possibility of late-onset anthrax infection, more than 8,000 people potentially exposed in the bioterrorism attacks of 2001 have turned down offers of additional antibiotics and immunization with the controversial vaccine, *Bioterrorism Watch* has learned.

Faced with insufficient data to truly assess the risk, the Centers for Disease Control and Prevention (CDC) in Atlanta offered the additional measures but fell short of actually recommending them.

Additional treatment offered as an 'option'

Operating on a thin margin of data about anthrax exposures, incubation periods, and subsequent infections, the CDC concluded it couldn't make a formal recommendation. The additional antibiotics and vaccine were made available as "options" to those exposed.

"The feeling was that this was the best thing we could do for people, and at least, leave it up to them to make a decision," says **Ian Williams**, PhD, medical epidemiologist in the CDC national center for infectious diseases. "We don't know what the answer is, but these are the options. We were really caught between a rock and a hard place on this one."

The 10,000 people potentially were exposed to anthrax in Connecticut, Florida, New Jersey, New York City, and Washington, DC.

They were all originally recommended to take at least 60 days of post-exposure antibiotic prophylaxis, but emerging data suggest that there has been a surprising lack of compliance.

In some preliminary surveys, fewer than half of those exposed were fully adhering to their original 60-day regimen. The CDC now has undertaken a telephone survey of all 10,000 people to identify adverse reactions and other reasons for the lack of adherence. **(See related story, p. 3.)**

The vaccine and additional antibiotic options were brought into play in part because the CDC knew it had large numbers of people who had not completed the original 60-day regimen. But the offer of additional care may have been undermined to some degree by prior adverse antibiotic reactions and fear of an anthrax vaccine that has been mired in controversy for years. Then again, many of those exposed may have felt they were no longer at risk and if their status changed, they would consult a physician.

Anthrax alive at 100 days

Though no known cases of anthrax have developed in any of the individuals who were prescribed the 60-day antibiotic course, the CDC also was aware of some disturbing data in animal studies. Traces of live anthrax spores have been detected in test animals' lungs up to 100 days following exposure, raising the theoretical possibility that the spores remaining still could

This supplement was written by Gary Evans, editor of *Hospital Infection Control*. Telephone: (706) 742-2515. E-mail: gary.evans@ahcpub.com.

cause disease. In that regard, one of the additional options offered to the exposed people was to take antibiotics for another 40 days (bringing total therapy time out to 100 days).

The other option was to take the additional drug regimen and also be vaccinated against anthrax. The latter option included three doses of anthrax vaccine over a four-week period, but antibiotics still had to be taken as the vaccine took effect.

The vaccine was not designed for post-exposure prophylaxis, but the theory is that it may provide additional protection by inducing an immune response to anthrax.

"People were unclear what the upper limit [for the onset of infection] was," Williams says. "That is what really drove both the vaccine and the antibiotic [offer]. We thought that 40 additional days to make 100 days looked sufficient based on our scant data. The vaccine was added because, is 100 days enough? I can't tell you absolutely for sure that it is enough."

Thousands took their chances

Most people were willing to take their chances that late onset anthrax will not occur.

Of the exposed cohort of some 10,000 people, 1,547 elected to receive more antibiotics after their 60-day regimen. Another 192 opted to be immunized with the anthrax vaccine and take additional antibiotics while the series of shots is given. Are the other 8,000-plus people at any real risk?

"Our feeling is that there shouldn't be any late cases of anthrax, based on what we know," Williams says.

"But that very well might be dose-dependent. We can't quantify the dose. If you go back and look at the animal studies that were done, they were actually done with probably lower doses than we have seen in the [U.S. Senate] Hart office building. But based on the data we can draw from animal models, it looks like there shouldn't be late onset cases," he explains.

If such an event occurred, the disease presumably still could be treated — provided the person seeks medical care. Still, making assumptions about anthrax can be tricky.

The CDC has been on a steep learning curve throughout the bioterrorism attack, with officials caught off guard by the ability of anthrax to disperse and spread during mail handling.

In addition, the ability to predict risk of infection in an exposed individual remains elusive, said **Julie Gerberding**, MD, director of the CDC division of healthcare quality improvement.

"We know that the exposure dose probably varies depending on how close you are to the source when it's released and how long you are in the [area] of release," Gerberding reported at a recent CDC meeting on post-exposure prophylaxis for anthrax.

> *"This is not an experiment to help us later. We don't have a control group. All we are doing is using the best science we have, which suggests that this is best way to give protection to people."*

"[But] despite our capacity to think about populations, we cannot accurately identify individual exposure, and we cannot accurately quantify individual risk," she explained.

Faced with that conundrum, the CDC put the same options on the table for all 10,000 people potentially exposed.

"The risk was probably different in different places," Williams says. "If you look at Capitol Hill, the concentration of anthrax released was probably much higher than say, Connecticut, where a letter just went through a post office. But that's group risk. Individual risk is different. [We] can't tell you exactly what your risk is. We'll give you the best available data, but you are going to have to make that decision."

Of the 190 people receiving anthrax vaccine, 80 had some political connection in Washington, DC, and 44 were postal workers in that city. Another 49 people in New Jersey were vaccinated; and the remainder were in New York City (12), Florida (four), and Connecticut (three). Of those who chose additional antibiotics only, 849 were in Washington, DC; 354 in New Jersey; 248 in New York City; 55 in Connecticut; and 41 in Florida.

A mixed message?

The CDC has drawn criticism for its approach, particularly for making a controversial vaccine available but leaving the immunization decision up to patients and their providers.

"It would have been much better if they had come out and said, 'Yes, we think in order to have as much protection as possible against the potential of developing disease, you should receive both

Side effects undermine anthrax drug adherence

More than half dropped drugs by 30 days

Amid the hype and horror of the 2001 anthrax attacks, it seemed a given that the people potentially exposed would be particularly diligent in completing their antibiotic regimens. But as time passed — and side effects continued or worsened for some — compliance fell off dramatically for many of the 10,000 people put on 60-day regimens for ciprofloxacin and doxycycline, according to preliminary data from the Centers for Disease Control and Prevention (CDC).

None of the people who started on antibiotics have developed anthrax, but the CDC wants some answers on the lack of adherence. To that end, the CDC is conducting a telephone survey project that will attempt to reach all 10,000 people for whom post-exposure antibiotic prophylaxis was recommended. The interviews began in late January and are expected to continue through March 2002. The people were potentially exposed to anthrax in Connecticut, Florida, New Jersey, New York City, and Washington, DC.

"We are making sure we get in touch with all of these people to evaluate how they did in terms of taking antibiotics," says **Ian Williams**, PhD, medical epidemiologist in the CDC national center for infectious diseases. "We have data showing adherence definitely wasn't as high as people, prior to this outbreak, would have thought it would be."

The CDC attempted a variety of methods to assess compliance prior to the phone survey, including tracking individuals who did not return to refill their medication. Other methods include giving a sample of those exposed questionnaires that were self-administered, given by a nurse, or by telephone, according to **Nancy Rosenstein**, MD, medical epidemiologist in the CDC national center for infectious diseases.

"In general, adherence has declined over the course of the [first] 30 days to as low as 45%," Rosenstein said at a recent CDC meeting on post-exposure prophylaxis for anthrax.

Some groups were more compliant than others. For example, employees who worked in the American Media Building in Boca Raton, FL, were closer to 70% compliant, she said. But only 45% compliance at 30 days was also found in a "high risk group" of mail handlers in New York City, she added.

"Adherence experts tell me that when we actually count pills, the self-reporting numbers probably overestimate real adherence by as much as 20%," Rosenstein said. "So the real estimates of adherence — taking the antibiotics every day — are obviously substantially lower."

In terms of self-reported adverse events, within two weeks of taking ciprofloxacin, 19% were reporting severe nausea, vomiting, abdominal pain, and diarrhea. At 30-day surveys, many people had switched to doxycycline, but self-reported adverse events increased to 45%.

Again, the predominant symptoms were severe nausea, vomiting, diarrhea, and abdominal pain. About 12% of the people reporting adverse events required additional follow-up with medical chart review and physician interviews, she said.

"I don't want to in any way minimize the impact of these symptoms on people's daily life, but when we actually investigated further, we were unable to identify anybody who actually required hospitalization or an emergency room visit for their adverse events," Rosenstein said.

Thus, based on Food and Drug Administration criteria, no serious adverse events have been linked to taking antibiotics for anthrax exposure. A more complete picture of the adherence problems should emerge from the CDC telephone survey of all recipients. Preliminary surveys have found that 6% to 12% of respondents reported at least missing some of their doses because of the side effects, she said. ■

antibiotic and vaccine,'" says **Phillip Brachman**, MD, a professor in the Rollins School of Public Health at Emory University in Atlanta.

The vaccine has been embroiled in a safety dispute since the military began a mandatory immunization policy several years ago, with some veterans saying it made them sick and others refusing to take it.

"A number of [the exposed people] undoubtedly read about the problems some of the military

folks claimed they had experienced after having the vaccine," Brachman says.

"They associated their problem with the vaccine. Remember, that those people in the military who have made those complaints are a very small number, considering the total number of doses given," he adds. "So there are very few voices creating a lot of concern."

Brachman did what remains the only clinical trail on the safety and efficacy of an anthrax vaccine precursor when he worked for the CDC in the 1950s.

In a study of goat's-wool workers — which was once an occupational risk group for anthrax in the United States — he found the vaccine safe and effective. He reported few side effects to vaccination and an efficacy rate of 92.5%.[1] The vaccine used in the study was a protective-antigen variety similar to the current vaccine. However, the manufacturing process has since changed and a different strain of anthrax is now used.

"There have been a few minor changes, and some people make a lot more out of it then it really should be," he says. "A different strain is being used to prepare the vaccine, but that should make no difference because the organism is not in the vaccine. It is the protein product from the organism."

Dearth of data

An Institute of Medicine committee that convened to look at the current anthrax vaccine cited a dearth of data in concluding: "The published studies have found transient local and systemic effects (primarily erythema, edema, or induration) of the anthrax vaccine.

"There have been no studies of the anthrax vaccine in which the long-term health outcomes have been systematically evaluated with active surveillance. . . . The committee concludes that in the peer-reviewed literature, there is inadequate/insufficient evidence to determine whether an association does or does not exist between anthrax vaccination and long-term adverse health outcomes. . . . To date, published studies have reported no significant adverse effects of the vaccine, but the literature is limited to a few short-term studies,"[2] the committee said.

For its part, the CDC would not have made the vaccine an option for those exposed if it had any doubts about its safety, Williams says.

"It seems to be a very safe, efficacious vaccine," he says. "[The] CDC reviewed the data with the military, which has the most experience with this."

Still, some people may have been confused because the CDC did not roll out the vaccine right after the exposures occurred. Thus, the response was somewhat tepid to a vaccine "add-on" option 60 days after the potential exposure. One problem is that the U.S. military, which controls the dispersal of anthrax vaccine, did not release any stocks in the immediate aftermath of the bioterror attacks, he says.

"One of the lessons we have learned is that if the vaccine had been available when this first started, I think the post-exposure prophylaxis would have been approached much differently," Williams says.

With the military now more amicable on the issue, if a bioterrorist strikes again with anthrax, the vaccine could play an important role from the onset, he emphasizes.

"If this should happen again, the vaccine might be used closer to day zero," Williams says. "After a series of doses over a month or so, most people will develop an antibody response, so it would obviate the need for additional antibiotics. It will be used in more of a true post-exposure fashion."

Those who have been recently vaccinated will be followed over time. Indeed, the CDC is discussing following the whole cohort of 10,000 people. It is an interesting group, having been potentially exposed to anthrax, taken prolonged antibiotic regimens, and in some cases, received a vaccine whose long-term safety is in some question.

Another curious fact — as with other post-exposure regimens for diseases — is that no one will ever know if the additional measures taken by 1,739 of these people actually prevent a late-onset anthrax infection.

"This is not an experiment to help us later," Brachman says. "We don't have a control group. All we are doing is using the best science we have, which suggests that this is best way to give protection to people."

References

1. Brachman PS, Gold H, Plotkin S, et al. Field evaluation of a human anthrax vaccine. *Am J Public Health* 1962; 52:632-645.

2. Committee on Health Effects Associated with Exposures during the Gulf War. *An Assessment of the Safety of the Anthrax Vaccine: A Letter Report*. Washington, DC: Institute of Medicine; March 30, 2000. ■

ED Management — CE/CME Evaluation

Please take a moment to answer the following questions to let us know your thoughts on the continuing education or continuing medical education program. Place an "x" in the appropriate space and return this page in the envelope with your test answer form. Thank you.

In which program do you participate? _____ CE_____ CME

For your reference, here is the stated overall purpose of *ED Management*:
To help ED directors and managers increase revenues, reduce risk, ensure quality, contain costs, improve patient relations, and build extraordinary teams of emergency medicine professionals.

Did *EDM* enable you to meet the following objectives:

yes __ no __ 1. Are you able to discuss and apply new information about various approaches to ED management?

yes __ no __ 2. Are you able to explain developments in the regulatory arena and how they apply to the ED setting?

yes __ no __ 3. Are you able to share acquired knowledge of these developments and advances with employees?

yes __ no __ 4. Are you able to implement managerial procedures suggested by your peers in the publication?

yes __ no __ 5. Were these objectives consistent with the overall goal of the newsletter?

6. How many minutes do you estimate it will take you to complete this entire semester (6 issues) activity? Please include time for reading, reviewing, testing, and studying the answer sheet, which you will receive with your certificate. _____ minutes

yes __ no __ 7. Were the test questions clear and appropriate?

yes __ no __ 8. Were you satisfied with the customer service for the continuing education program?

9. Do you have any general comments about the effectiveness of this continuing education program?

_____

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