VIRGINIA
EPIDEMIOLOGY BULLETIN

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Acute Gastroenteritis In Children

Oral Rehydration, Maintenance, and Nutritional Therapy

This article is adapted from the MMWR ***Recommendations and Reports*** **November 21, 2003/ 52(RR16); 1-16.** For more details, please see the full text on the Centers for Disease Control and Prevention website (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5216a1.htm).

Among U.S. children, acute diarrhea accounts for >1.5 million outpatient visits, 200,000 hospitalizations, and approximately 300 deaths/year. Direct medical costs for rotavirus diarrhea (the cause of one third of all hospitalizations for diarrhea among U.S. children aged <5 years) are estimated at $250 million/year, with an estimated $1 billion/year in total costs to society. The Centers for Disease Control and Prevention (CDC) has created new recommendations for managing children with diarrhea caused by gastroenteritis. These recommendations can reduce complications such as dehydration and malnutrition, as well as office, clinic, and emergency department (ED) visits, and potentially reduce hospitalizations and deaths.

Management of Acute Diarrhea

Dehydration and electrolyte losses associated with untreated diarrhea cause the primary morbidity of acute gastroenteritis. Treatment with Oral Rehydration Therapy (ORT) is simple and enables management of uncomplicated cases of diarrhea at home, regardless of the etiologic agent. As long as caregivers are instructed on signs of dehydration, and can determine when children appear markedly ill or are not responding to treatment, therapy should begin at home. However, while ORT has been instrumental in improving health outcomes in developing countries, its use has lagged behind in the United States. Reasons for this may be the ingrained use of intravenous (IV) therapy or the lower appeal of a technologically simple solution.

Seven principles of appropriate treatment for children with diarrhea and dehydration

1. Oral rehydration solutions (ORS) should be used for rehydration.
2. Oral rehydration should be performed rapidly (i.e., within 3-4 hours).
3. For rapid realimentation, an age-appropriate, unrestricted diet is recommended as soon as dehydration is corrected.
4. For breastfed infants, nursing should be continued.
5. If formula-fed, diluted formula is not recommended, and special formula usually is not necessary.
6. Additional ORS should be administered for ongoing losses through diarrhea.
7. No unnecessary laboratory tests or medications should be administered.

Source: Adapted from Sandhu BK. Practical guidelines for the management of gastroenteritis in children. J Pediatr Gastroenterol Nutr 2001:33(Suppl 2):S36-9.

Home Management

Families should be encouraged to have a supply of commercially available Oral Rehydration Solution (ORS) in the home and to start therapy with ORS as soon as diarrhea begins. The most crucial aspects of home management of diarrhea are the need to replace fluid losses and to maintain adequate nutrient intake. Regardless of the fluid used, an age-appropriate diet should be given. Infants should be offered more frequent breast or bottle feedings, and older children should be given more fluids.

Medical Evaluation

Caregivers should be trained to recognize signs of illness or treatment failure. Since infants with acute diarrhea are more prone to becoming dehydrated than older children, parents of infants with diarrhea should seek medical evaluation as soon as the child appears to be in distress. In general, the smaller the child, the lower the threshold for health-care provider assessment. When fever is present, evaluation is needed to rule out other serious illnesses (e.g., sepsis and meningitis). Un-

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derlying or concurrent conditions (e.g., a respiratory tract infection) might prompt early evaluation. Diarrhea can be an initial sign of nongastrointestinal tract illnesses, such as meningitis, sepsis, pneumonia, otitis media, and urinary tract infection. Reports of changing mental status are of particular concern. When the child's condition is in doubt, immediate evaluation by a health-care professional should be recommended.

Children with dysentery (blood or mucus in stool) or prolonged diarrhea (>14 days) should also be evaluated. While the treatment of dehydration in dysentery follows the same principles as treatment of acute watery diarrhea, the child with bloody diarrhea is at higher risk for complications (e.g., sepsis). Therefore, the threshold for hospital admission for observation is lower. Children who do not show clinical signs of dehydration but who have unusually high output should also be held for observation.

Clinical Management

To rule out serious illnesses, a detailed history and physical examination, including an assessment of hydration status should be performed as part of the evaluation of all children with acute gastroenteritis. Supplementary lab studies, including serum electrolytes, usually are unnecessary, but may help when the underlying diagnosis is unclear. Stool cultures are not usually indicated in acute, watery diarrhea for the immunocompetent patient, but may be indicated to guide therapy in patients with dysentery. However, empiric antimicrobial agents should not be administered while awaiting culture results, since antimicrobial therapy might not be indicated even when culture results are positive.

Management of dehydration encompasses **two** phases of treatment: 1) a rehydration phase, where water and electrolytes are provided (preferably as ORS) to replace existing losses, and 2) a maintenance phase, where ongoing fluid and electrolyte losses are replaced **and** adequate dietary intake is provided.

1) Rehydration Phase

For patients with **minimal or no dehydration**, treatment is aimed at providing adequate fluids and continuing an age-appropriate diet. Children with **mild to moderate dehydration** should have their estimated fluid deficit rapidly replaced. Recommendations include administering 50-100 mL of ORS/kg body weight during 2 - 4 hours to replace the estimated fluid deficit, with additional ORS administered to replace ongoing losses. By using a teaspoon, syringe, or medicine dropper, limited volumes of fluid (e.g., 5 mL or 1 teaspoon) can be offered at first, with the amount gradually increased as tolerated. If a child appears to want more than the estimated amount of ORS, more can be offered. Although administering ORS rapidly is safe, vomiting might increase with larger amounts—nasogastric (NG) feeding allows administration of ORS at a slow, steady rate. Rehydration with an NG tube can be very useful in ED settings, where rapid correction of hydration can be well-tolerated, is cost-effective, has fewer complications, and may prevent hospitalization. In addition, compared to IV rehydration, oral rehydration is associated with shorter ED stays and improved parental satisfaction.

Children with mild to moderate dehydration should be observed until signs of dehydration subside. Hydration status should be reassessed on a regular basis, but can be performed in an ED, office, or other outpatient setting. After dehydration is corrected, further management can be implemented at home, provided that the child's caregivers understand home rehydration techniques (including continued feeding), as well as the indications for returning for further evaluation, and have the means to do so. A plan for reassessment should be agreed upon, and caregivers should be encouraged to return for medical attention if they have any concerns, if they are not sure that rehydration is proceeding well, or if new or worsening symptoms develop.

Severe dehydration constitutes a medical emergency requiring immediate IV rehydration, close observation, and regular vital sign assessment. However, as soon as the severely dehydrated patient's level of consciousness returns to normal, therapy can usually be changed to the oral route. An NG tube can be helpful for patients with normal mental status who are too weak to drink adequately. Although leaving IV access in place for these patients is reasonable in case it is needed again, early reintroduction of ORS is safer than IV and may encourage earlier resumption of feeding.

Patients with hypernatremic dehydration (i.e., serum

Indications for medical evaluation of children with acute diarrhea

- Young age (e.g., aged <6 months or weight <8 kg/17 lbs)
- History of premature birth, chronic medical conditions, or concurrent illness
- Fever ≥38°C/100.4°F for infants aged <3 months or ≥39°C/102.2°F for children aged 3-36 months
- Visible blood in stool
- High output, including frequent and substantial volumes of diarrhea
- Prolonged duration (≥14 days)
- Persistent vomiting
- Caregiver's report of signs consistent with dehydration (e.g., sunken eyes or decreased tears, dry mucous membranes, or decreased urine output)
- Change in mental status (e.g., irritability, apathy, or lethargy)
- Suboptimal response to oral rehydration

Table 1. Summary of treatment based on degree of dehydration

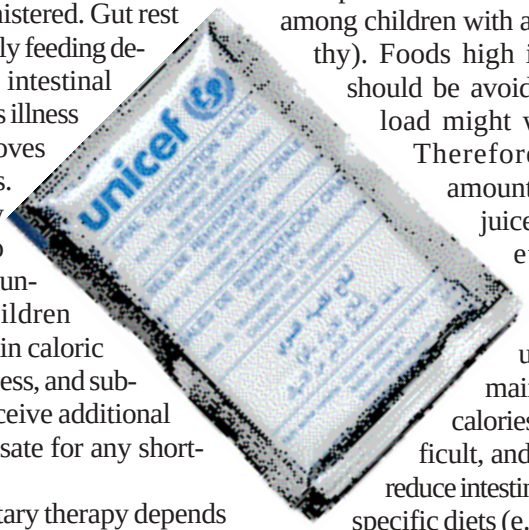
Degree of dehydration	Rehydration therapy	Replacement of losses	Nutrition
Minimal or no dehydration	Not applicable	<10 kg body weight: 60-120 mL oral rehydration solution (ORS) for each diarrheal stool or vomiting episode	Continue breastfeeding, or resume age-appropriate normal diet after initial hydration, including adequate caloric intake for maintenance*
Mild to moderate dehydration	ORS, 50-100 mL/kg body weight over 3-4 hours	Same	Same
Severe dehydration	Lactated Ringer's solution or normal saline in 20 mL/kg body weight intravenous amounts until perfusion and mental status improve; then administer 100mL/kg body weight ORS over 4 hours or 5% dextrose 1/2 normal saline intravenously at twice maintenance fluid rates	Same; if unable to drink, administer through nasogastric tube or administer 5% dextrose 1/4 normal saline with 20 mEq/L potassium chloride intravenously	Same

**Overly restricted diets should be avoided during acute diarrheal episodes. Breastfed infants should continue to nurse ad libitum even during acute rehydration. Infants too weak to eat can be given breast milk or formula through a nasogastric tube. Lactose-containing formulas are usually well-tolerated. If lactose malabsorption appears clinically substantial, lactose-free formulas can be used. Complex carbohydrates, fresh fruits, lean meats, yogurt, and vegetables are all recommended. Carbonated drinks or commercial juices with a high concentration of simple carbohydrates should be avoided.*

sodium concentration >145 mEq/L) respond well to ORT. Those with severe dehydration should first receive IV hydration. Subsequent hydration should use ORS. ORS might be safer than IV therapy because it is less likely to lead to a precipitous increase in intracellular water associated with seizures and elevated intracranial pressure.

2) Maintenance Phase

In the maintenance phase, calories and fluids are administered. Gut rest is not indicated—early feeding decreases changes in intestinal permeability, reduces illness duration, and improves nutritional outcomes. The goal is to quickly return the patient to an age-appropriate unrestricted diet. Children should try to maintain caloric intake during the illness, and subsequently should receive additional nutrition to compensate for any shortages.



Maintenance dietary therapy depends on the age and diet history of the patient. Breastfeeding should be continued at all times, even during the initial rehydration phases, and infants should continue nursing on demand. For formula-fed infants, using diluted (e.g., half- or quarter-strength) formula is unnecessary—continue their usual formula immediately upon rehydration in amounts sufficient to satisfy energy and nutrient requirements. Lactose-free or lactose-reduced formulas are usually not necessary.

Children on semisolid or solid foods should continue to receive their usual diet during episodes of diarrhea. Lactose restriction is usually not necessary (it may be helpful in malnourished children or among children with a severe enteropathy). Foods high in simple sugars should be avoided—the osmotic load might worsen diarrhea. Therefore, substantial amounts of soft drinks, juice, gelatin desserts, etc. should be avoided. Avoiding fatty foods is unnecessary—maintaining adequate calories without fat is difficult, and fat might help to reduce intestinal motility. Highly specific diets (e.g., the BRAT [bananas, rice, applesauce, and toast] diet) are unnecessarily restrictive and can lead to suboptimal nutrition for the patient's nourishment and recovering gut.

Hospital Admission

Inpatient care is indicated for children if:

- caregivers cannot provide adequate care at home;
- substantial difficulties exist in administrating ORT (e.g., intractable vomiting, ORS refusal, inadequate ORS intake, etc.);
- concern exists over other possible illnesses complicating the clinical course;
- ORS treatment fails (worsening diarrhea or dehydration);
- severe dehydration (>9% of body weight) exists;
- social or logistical issues that might prevent return evaluation, if necessary; or,
- factors such as young age, unusual irritability/drowsiness, symptom progression, or uncertainty of diagnosis exist that might need close observation.

In addition, prematurity, young maternal age, black race, and rural residence are risk factors for suboptimal outcome, and should be considered when deciding if hospital care is required.

Table 2. Composition of commercial rehydration solutions (ORS) and commonly consumed beverages

Solution	Carbohydrate (gm/L)	Sodium (mmol/L)	Potassium (mmol/L)	Chloride (mmol/L)	Base* (mmol/L)	Osmolarity (mOsm/L)
ORS						
World Health Organization (WHO) (2002)	13.5	75	20	65	30	245
WHO (1975)	20	90	20	80	30	311
European Society of Paediatric Gastroenterology, Hepatology and Nutrition	16	60	20	60	30	240
Enfalyte®†	30	50	25	45	34	200
Pedialyte®§	25	45	20	35	30	250
Rehydralyte®¶	25	75	20	65	30	305
CeraLyte®**	40	50-90	20	NA††	30	220
Commonly used beverages (not appropriate for diarrhea treatment)						
Apple juice§§	120	0.4	44	45	NA	730
Coca-Cola®¶¶ Classic	112	1.6	NA	NA	13.4	650

*Actual or potential bicarbonate (e.g., lactate, citrate, or acetate).
†Mead-Johnson Laboratories, Princeton, New Jersey. Additional information is available at http://www.meadjohnson.com/products/cons-infant/enfalyte.html.
§Ross Laboratories (Abbott Laboratories), Columbus, Ohio. Data regarding Flavored and Freezer Pop Pedialyte are identical. Additional information is available at http://www.pedialyte.com.
¶Ross Laboratories (Abbott Laboratories), Columbus, Ohio. Additional information is available at http://rpdcon40.ross.com/pn/PediatricProducts.NSF/web_Ross.com_XML_PediatricNutrition/96A5745B118-3947385256A80007546E5?OpenDocument.
**Cera Products, L.L.C., Jessup, Maryland. Additional information is available at http://www.ceralyte.com/index.htm.
††Not applicable.
§§Meeting U.S. Department of Agriculture minimum requirements.
¶¶Coca-Cola Corporation, Atlanta, Georgia. Figures do not include electrolytes that might be present in local water used for bottling. Base=phosphate.

Limitations of ORT

Although ORT is recommended for all age groups and for diarrhea of any etiology, certain restrictions apply. Among children in hemodynamic shock, administration of oral solutions might be contraindicated because airway protective reflexes might be impaired. Patients with abdominal ileus should not receive oral fluids until bowel sounds are audible. Intestinal intussusception can be present with diarrhea, including bloody diarrhea. Radiographic and surgical evaluation are warranted when the diagnosis of bowel obstruction is in question.

A limited percentage of infants (<1%) with acute diarrhea experience carbohydrate malabsorption. This causes a dramatic increase in stool output after intake of fluids containing simple sugars (e.g., glucose), including ORS. Patients with true glucose malabsorption have an immediate reduction in stool output when IV therapy is used.

Some patients with acute diarrhea have concomitant vomiting. However, the majority can be rehydrated successfully with oral fluids if limited volumes of ORS (e.g., 5 mL) are administered every 5 minutes, with a gradual increase in the amount consumed. Correction of acidosis and dehydration often lessens the frequency of vomiting—continuous slow NG infusion of ORS might be helpful. And even if limited vomiting does occur after NG administration of fluid, treatment might not be affected adversely.

Other Therapy Issues

Antimicrobial Agents

Because viruses (e.g., rotavirus, norovirus, etc.) are the main cause of acute diarrhea in developed countries, the routine use of antimicrobial agents for treating diarrhea wastes resources. Exceptions can include special needs of individual children (e.g., immune-compromised hosts, premature infants, underlying disorders, etc.)

Nonantimicrobial Drug Therapies

Antidiarrheal medications are not recommended for infants and children. Data are limited on the efficacy of nonspecific antidiarrheal agents (e.g., adsorbents such as kaolin-pectin), antimotility agents (e.g., loperamide), antisecretory drugs, and toxin binders (e.g., cholestyramine). Bismuth subsalicylate has limited efficacy in treating acute gastroenteritis among children, but some concerns regarding potential toxicity from salicylate absorption exist. Racecadotril, an enkephalinase inhibitor, shows promise. However, the majority of cases of acute diarrhea require no adjunctive therapy. Antiemetics are usually not necessary in acute diarrhea management.

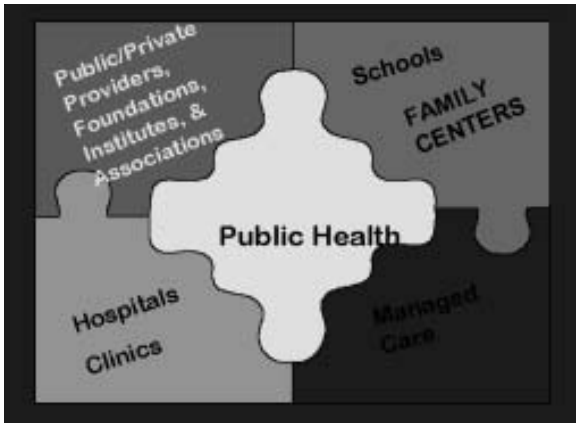
Choice of ORS

The **new** WHO-ORS formulation is: 75 mEq/L sodium, 75 mmol/L glucose, and a total osmolarity of 245 mOsm/L (see Table 2). The composition of commonly available oral rehydration solutions is distinct from beverages that are often misused for rehydration (i.e., they do not contain physiologically appropriate concentrations of carbohydrates and electrolytes). Other potential additives to ORS exist (e.g., amino acids, probiotics, prebiotics, protein polymers, zinc, etc.). However, given the simplicity and safety of commercially available ORS, **the basic WHO-ORS currently remains the first choice for the majority of clinicians**.

Conclusions

Treatment of acute diarrhea should use simple and effective techniques, such as ORS. A critical principle is early resumption of feeding of children immediately upon rehydration. If the principles of therapy outlined in the CDC report are accepted by all levels of the medical community, and if education of parents includes teaching them to begin ORT at home, numerous deaths and unnecessary clinic visits and hospitalizations can be avoided.

Public Health Emergencies



In October 2003, the Commonwealth of Virginia held a statewide public health emergency response exercise. The exercise simulated an intentional release of pneumonic plague that could have sent thousands of people (both sick and well) rushing to healthcare providers throughout Virginia. It even included 'real' patients presenting to Emergency Departments across the state, and the distribution of 'antibiotics' for chemoprophylaxis.

The statewide exercise tested the communication systems and protocols used in a public health disaster (such as a bioterrorist event). This helped to evaluate Virginia's ability to respond to emergencies, and identify ways to improve the coordination of resources. The exercise also demonstrated the importance of early involvement of community healthcare providers in the response to a public health emergency. Understanding the roles and interdependency of public health departments and clinicians will help everyone to better respond to crises.

Role of the Healthcare Community

Public health emergencies arise when there is a potential for a sudden change in the health of a community. Some public health emergencies are obvious (e.g., hurricanes – where disrupted water, sewage and electricity services create health hazards). Others, like terrorist attacks, could be much more difficult to detect.

Providers are the backbone of public health prevention and care in the community. They are the first to see a potential problem and sense that something is unusual. Primary care providers have a critical responsibility to the community for prevention, detection, treatment, and education before, during, and after a public health emergency. To help fulfill these responsibilities, healthcare providers need to notify and work with local public health authorities.

The astute clinician who identifies unusual occurrences of disease, and reports them to the health department, provides the first line of defense. Since an individual healthcare provider may only see a small part of a problem during an emergency, involving the local health department early can mean identifying a problem in its earliest stages. For example, a covert bioterrorist attack would likely come to attention gradually, as physicians became aware of an accumulation of unusual deaths or illness among previously healthy people. The speed and accuracy of health care providers and laboratories in identifying suspicious illnesses or results and reporting their findings to public health authorities could make the difference between a localized outbreak and widespread disease transmission — between panic and an effective community response.

Therefore, a critical skill of community healthcare providers is the ability to sense when a clinical situation may signal a potential public health problem and then to quickly notify the health department.

Public Health System

Clinical health professionals focus on the accurate diagnosis and appropriate treatment of individuals. Similarly, public health professionals monitor and diagnose the health concerns of communities and promote healthy practices and behaviors to insure our populations stay healthy (see the Ten Essential Public Health Services).

Local public health departments work on a regular basis with local providers and institutions. They are the first to become aware of and respond to public health emergencies. The state headquarters of the health department coordinates data and activities across local health departments, and provides extra support as needed.

Epidemiology and Public Health Emergencies

Just as healthcare providers need information to rapidly detect and respond to their patients, public health departments need to collect, analyze, disseminate, and

Guidance documents for providers are available on the VDH Emergency Preparedness and Response website at: http://www.vdh.virginia.gov/EPR/index.asp

The Ten Essential Public Health Services*

- Monitor health status to identify community health problems
- Diagnose and investigate health problems and health hazards in the community
- Inform, educate, and empower people about health issues
- Mobilize community partnerships to identify and solve health problems
- Develop policies and plans that support individual and community health efforts
- Enforce laws and regulations that protect health and ensure safety
- Link people to needed personal health services and assure the provision of health care when otherwise unavailable
- Assure a competent public health and personal health care workforce
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services
- Research for new insights and innovative solutions to health problems

**Adopted: Fall 1994, Source: Public Health Functions Steering Committee.*

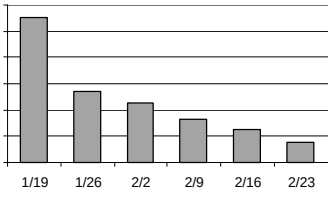
act on information about communities. Within health departments, the responsibility for this process involves epidemiologists. Recommendations that are made by epidemiologists are intended to help providers care for their patients. But since the data collected by epidemiologists often comes from healthcare providers themselves, a solid relationship between the public health epidemiologist and clinicians is critical for an effective response to an emergency.

In the event of an emergency, the epidemiology response includes:

1) Surveillance – The best possible response requires early identification of the problem and focused intervention with personnel and resources. Therefore, health department epidemiologists work with healthcare professionals to identify changes and characterize illness. As an event evolves, epidemiologists update case numbers to identify needs, coordinate with the Office of the Chief Medical Examiner (OCME) and labs (e.g., Division of Consolidated Laboratory Services – DCLS), and work with hospitals and facilities to characterize illness and identify etiology. This requires good clinical information and specimen collection from providers to assist in lab confirmation. The end result is not just to count cases, but to analyze and interpret data, and disseminate this information to healthcare providers and emergency responders. The health department also works to ensure that timely, accurate and consistent information that minimizes panic is provided to the public.

2) Clinical Consultation – Health departments have experience with the unique conditions that exist in emergencies, as well as access to state and national expertise related to disaster management, infection control, prophylaxis, and laboratory guidance. In addition, health departments identify and consult with contacts of ill individuals to monitor for illness and/or identify measures they can take to protect themselves from disease. The information provided by epidemiologists to healthcare providers during emergencies includes accurate descriptions of the situation, assessments of risk, and recommendations that can help people reduce the risk of acquiring or spreading disease. The rapid identification of the condition also improves the ability of the public health system to provide resources, such as mass prophylaxis or immunization. Therefore, good communication needs to exist between health departments and providers to ensure that accurate, timely information is available.

3) Epidemiologic Studies – Health department epidemiologists have expertise in designing and conducting studies to identify the source of an outbreak. This includes determining appropriate study designs to identify risk factors associated with illness, developing questionnaires, interviewing (both sick and well patients), data analysis, and making disease control recommendations to assist healthcare providers. After an event, evaluation of data helps identify strengths and weaknesses that need to be addressed for future events. In a bioterrorist event, public health would also work with law enforcement to coordinate the investigation.



Therefore, local and state health departments must continually develop multiple relationships to ensure the rapid identification and response to emergencies.

Other Provider Roles in Emergencies

Healthcare providers may also work with health departments in the event of an outbreak to obtain follow-up information from ill individuals, help to screen their patients for new cases, or identify control patients to participate in a study. As information is evaluated and disseminated, community healthcare providers will then be able to make recommendations for immunization, chemoprophylaxis, or infection control to their patients.

Healthcare providers can also assist directly during times of emergencies through groups such as the Virginia Medical Reserve Corps (MRC), a component of Citizen Corps. These volunteer programs coordinate the skills of physicians, nurses, health professionals and others who are willing to volunteer and help out during emergencies and other times of need. MRC units are developed at the local level to suit individual community needs. They provide immediate assistance to localities during large-scale emergencies while also assisting communities with ongoing public health needs such as immunizations, and health and nutrition education. The MRC initiative is built on the concept that communities can best help themselves by organizing volunteer resources from within.

Summary

A wide variety of skilled workers are required to deal with public health emergencies. The best results occur when these resources work together and can be focused on critical problems. Healthcare providers, supported by local and state public health departments, help to gather data and provide information to meet the challenges. The faster and more accurately that data can be collected, the better the response. In return, the Office of Epidemiology provides feedback to providers and programs to help them direct their response.

For more information on **Virginia Corps** and the **Medical Reserve Corps**, visit the Virginia Corps web site at www.virginiacorps.org or call toll-free at (866) 239-4868.

December's Featured Website:

Public Health & Prevention MedPulse®

www.medscape.com/publichealthhome

Medscape offers free, continuously updated continuing education (CME) activities for physicians and other health professionals. Medscape also has resources for clinicians, such as patient information sheets, journals, and conference coverage, for a wide range of specialties (including public health).

Flu Corner

In Virginia, the 2003-04 influenza season began very early, and as of mid-December levels have not yet peaked. So far this season, influenza A/Fujian-like viruses are predominating in the United States and Virginia. Influenza seasons dominated by influenza A (H3N2) viruses typically have higher levels of severe illness and deaths.

Demand for influenza vaccine this season has exceeded the demand seen in previous flu seasons. In past years, influenza vaccine supply has generally been sufficient to meet demand. This year a strong demand has continued for longer than usual, and many health care providers may exhaust their supplies. Public health officials hope this trend—increased numbers of people getting a flu shot, matched by increasing supplies of vaccine, will continue each year.

The current level of vaccine protection remains uncertain until vaccine effectiveness studies are completed. However, the vaccine also contains A/New Caledonia (H1N1)-like and B/Hong Kong-like viruses; this should protect vaccine recipients against these viruses if they circulate more widely later in the season.

The Virginia Department of Health (VDH) is working with the Centers for Disease Control and Prevention (CDC) to monitor the impact of influenza on children. Therefore, VDH is requesting immediate notification from healthcare providers of all pediatric influenza-associated fatalities and encephalopathies (fatal or non-fatal). A pediatric encephalopathy case is considered to be influenza-associated if all of the following are met:

a. Altered mental status or personality change,
b. Duration of altered mental status >24 hours,
c. Occurring within 5 days of an acute febrile illness, and
d. Any laboratory or rapid diagnostic test evidence of influenza virus infection.

Note that §32.1-36E of the *Code of Virginia* authorizes you to report this additional information. Please telephone your local health department immediately if you diagnose a case that meets the above criteria.

For weekly updates on statewide influenza levels, go to VDH's Influenza Surveillance System website (http://www.vdh.virginia.gov/epi/flu.htm).

Virginia Department of Health Update: New Central Office Location

After 13 years at the Main Street Station, VDH has moved back to its home in the James Madison Building in downtown Richmond, VA. The move has gone smoothly, with little disruption of services. The new address for the Office of Epidemiology is:

P.O. Box 2448
109 Governor Street, Suite 516 East
Richmond, VA 23218

In addition, the state of Virginia government is changing its e-mail address system. State employees e-mail addresses will (usually) be:

firstname.lastname@vdh.virginia.gov

Finally, the VDH website has changed to:

http://www.vdh.virginia.gov

Make sure to update your Bookmarks/Favorites on your web browser! We appreciate your patience during our move, but we hope that these changes will help to improve our service to the community.

Cases of Selected Notifiable Diseases Reported in Virginia*

Disease	Total Cases Reported, November 2003: State	Regions: NW	N	SW	C	E	Total Cases Reported Statewide, January through November: This Year	Last Year	5 Yr Avg
AIDS	58	8	26	8	9	7	735	737	800
Campylobacteriosis	54	10	8	18	12	6	770	579	562
E. coli O157:H7	4	1	1	0	1	1	37	66	64
Giardiasis	45	4	16	8	4	13	334	305	379
Gonorrhea	674	48	54	64	196	312	8,345	9,643	9,219
Hepatitis A	13	2	1	5	3	2	100	138	153
B, acute	30	3	0	5	17	5	181	189	136
C/NANB, acute	0	0	0	0	0	0	7	15	8
HIV Infection	39	3	13	2	8	13	714	849	793
Lead in Children†	54	9	3	14	16	12	722	777	643
Legionellosis	8	3	0	2	1	2	90	30	27
Lyme Disease	6	1	2	0	0	3	87	202	127
Measles	0	0	0	0	0	0	0	0	4
Meningococcal Infection	1	1	0	0	0	0	24	41	42
Mumps	0	0	0	0	0	0	1	5	8
Pertussis	4	1	0	1	0	2	90	133	73
Rabies in Animals	37	11	5	13	2	6	486	554	520
Rocky Mountain Spotted Fever	3	0	0	1	1	1	31	40	21
Rubella	0	0	0	0	0	0	0	0	<1
Salmonellosis	103	13	40	10	23	17	1,019	1,159	1,097
Shigellosis	24	1	6	9	6	2	411	922	410
Syphilis, Early§	4	0	2	1	0	1	141	153	269
Tuberculosis	12	0	2	0	8	2	237	254	261

Localities Reporting Animal Rabies This Month: Accomack 1 raccoon; Arlington 1 raccoon; Augusta 1 skunk; Bedford 1 skunk; Campbell 2 cats, 2 raccoons; Charles City 1 raccoon; Clarke 1 cat; Culpeper 1 cat; Fairfax 3 raccoons; Fluvanna 1 cat; Frederick 1 skunk; Grayson 1 raccoon; Henry 1 cat; King and Queen 1 dog; Lynchburg 1 raccoon; Madison 1 cat; Newport News 1 raccoon; Patrick 1 raccoon; Pittsylvania 1 skunk; Prince William 1 raccoon; Richmond City 1 cat, 1 skunk; Rockbridge 1 skunk; Rockingham 1 raccoon, 2 skunks; Shenandoah 1 fox; Smyth 1 raccoon; Surry 1 skunk; Tazewell 1 skunk; Washington 1 skunk; Westmoreland 1 skunk.

Toxic Substance-related Illnesses: Asbestosis 4; Cadmium Exposure 2; Lead Exposure 9; Mercury Exposure 2; Mesothelioma 1; Pneumoconiosis 6.

*Data for 2003 are provisional. †Elevated blood lead levels ≥10µg/dL.

§Includes primary, secondary, and early latent.

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