

Clostridium difficile Web Resource Manual

Clostridium difficile (*C. difficile*) bacteria live in the intestinal tract of humans and other animals. People usually do not have symptoms of illness; however, *C. difficile* infection (CDI)* can result if the bacteria overgrow in the intestinal tract. Symptoms of infection are usually watery diarrhea and abdominal cramps, but serious complications can result that require hospitalization and on rare occasions cause death. Some people carry the bacteria without having symptoms.

C. difficile is the most frequent cause of health-care associated diarrhea. Antibiotic use is the primary risk factor for CDI because it disrupts normal bowel bacteria and allows *C. difficile* bacteria to overgrow. In recent years, an increase has been seen in the number of people with CDI who have no recent history of antibiotic use or hospitalization. This is considered to be community acquired CDI. Most people who develop CDI are elderly, have had a recent history of antibiotic use, and/or had been recently hospitalized. CDI is not a new disease, nor specific to any geographic location. Recently, a new strain of *C. difficile* has been identified that can cause more severe symptoms.

Proper prevention at all times is extremely important to prevent the spread of CDI. The following resource material includes information from the Indiana State Department of Health (ISDH), the Centers for Disease Control and Prevention (CDC), and other sources. This information may be helpful in reducing your risk of infection and providing health care personnel with the most current information on CDI.

* CDI is the terminology currently used for *C. difficile* infection. CDAD (*C. difficile* associated diarrhea) is an older term that may be found in earlier documents.

This manual is divided into five categories as indicated below. Click on the category of interest, and you will be directed to the resources available for that specific topic.

- General Information about *Clostridium difficile*
- *Clostridium difficile* Information for Those Who Work in Healthcare Settings
- Antibiotic Facts and Resources
- Hand washing Facts and Resources
- Journal Articles and Slide Presentations on CDI

General Information About *Clostridium difficile*

ISDH FACT SHEET ON *CLOSTRIDIUM DIFFICILE*

This ISDH Quick Fact Sheet on *C. difficile* includes basic information on the disease, transmission, and prevention.

<http://www.in.gov/isdh/24295.htm>

GENERAL INFORMATION ABOUT *CLOSTRIDIUM DIFFICILE* INFECTIONS

This CDC fact sheet includes general CDI information, such as symptoms, treatment, and how to prevent the spread of CDI.

http://www.cdc.gov/ncidod/dhqp/id_CdiffFAQ_general.html

INFORMATION ABOUT A NEW STRAIN OF *CLOSTRIDIUM DIFFICILE*

This CDC fact sheet includes information about the new, more dangerous strain of *C. difficile* that has been recognized in the last 5-10 years.

http://www.cdc.gov/ncidod/dhqp/id_CdiffFAQ_newstrain.html

CLOSTRIDIUM DIFFICILE (*C. DIFF*) PATIENT INFORMATION SHEET

This University of Virginia Patient Information Sheet includes the precautions that the hospital and staff can take to protect themselves, others, and the hospital environment. A Spanish version is also available (see below).

<http://www.virginia.edu/uvaprint/HSC/pdf/08005.pdf>

CLOSTRIDIUM DIFFICILE (*C. DIFF*) PATIENT INFORMATION SHEET-SPANISH

<http://www.virginia.edu/uvaprint/HSC/pdf/08005S.pdf>

CDI *CLOSTRIDIUM DIFFICILE* INFECTION PATIENT EDUCATION INFECTION PREVENTION AND CONTROL

This Infection Control Professionals of Southern New England patient education brochure includes information on patient and family education.

<http://www.icpsne.org/documents/2008%20Pamphlet%20C%20diffinal.pdf>

***Clostridium difficile* Information for Those Who Work in Healthcare Settings**

GUIDE TO THE ELIMINATION OF *CLOSTRIDIUM DIFFICILE* IN HEALTHCARE SETTINGS – APIC

This Association for Professionals in Infection Control and Epidemiology (APIC) document entitled "Guide to the Elimination of *Clostridium difficile* in Healthcare Settings" is available only from APIC. These guidelines, published in 2008, include the changing epidemiology of CDI, modes of transmission, diagnosis, surveillance,

prevention (including contact precautions, hand hygiene, and environmental control), and antimicrobial stewardship. Also discussed is the tiered response of prevention activities during routine and heightened infection prevention and control responses. These guidelines can be purchased from APIC by visiting their website at www.apic.org, clicking on APIC Store and then downloading the APIC product order form.

INFORMATION FOR HEALTHCARE PROVIDERS

This CDC Fact Sheet includes information on the common laboratory tests used to diagnose CDI, as well as what procedures hospitals need to take to prevent the spread of CDI.

http://www.cdc.gov/ncidod/dhqp/id_CdiffFAQ_HCP.html

STRATEGIES TO PREVENT CLOSTRIDIUM DIFFICILE INFECTIONS IN ACUTE CARE HOSPITALS

This Society for Hospital Epidemiology of America/Infectious Diseases Society of America practice recommendation supplement includes practical recommendations in a concise format designed to assist acute care hospitals in implementing and prioritizing their *Clostridium difficile* infection (CDI) prevention efforts.

<http://www.journals.uchicago.edu/doi/pdf/10.1086/591065>

CLOSTRIDIUM DIFFICILE AND CLOSTRIDIUM DIFFICILE ASSOCIATED DISEASE- INFECTION GUIDELINES FOR LONG-TERM CARE FACILITIES

The Massachusetts Department of Public Health Infection Control Guidelines are intended for long-term care facilities. They contain general information on CDI, as well as hand washing, room cleaning, and patient isolation procedures.

http://www.mass.gov/Eeohhs2/docs/dph/cdc/infection_control/clostridium_guide.pdf

CDI: BEST PRACTICES FOR PREVENTION AND TREATMENT IN LONG-TERM CARE FACILITIES

This complimentary educational virtual lecture is derived from a symposium presented June 23, 2008 during the National Conference of The National Association Directors of Nursing Administration in Long Term Care (NADONA/LTC). As the title indicates this lecture provides information on prevention and treatment recommendations for long-term care facilities. The inclusion of this lecture in this CDI resource manual does not constitute an endorsement of any product or company by the ISDH.

www.RMEI.com/LTCCDI059.

BEST PRACTICES DOCUMENT FOR THE MANAGEMENT OF CLOSTRIDIUM DIFFICILE IN ALL HEALTH CARE SETTINGS

This Ontario Ministry of Health and Long-Term Care “Best Practices Document for the Management of *Clostridium difficile* in all Healthcare Settings” includes information for acute and long term care facilities on risk factors, testing, surveillance, infection control, and treatment.

http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_cdif.pdf

ENVIRONMENTAL CONTROL OF *CLOSTRIDIUM DIFFICILE* FACT SHEET

This fact sheet includes CDC, Society for Healthcare Epidemiology of America (SHEA), and Infectious Diseases Society of America (IDSA) recommendations for surface and hand cleaning to prevent the spread of CDI. The inclusion of this document in this CDI resource manual does not constitute an endorsement of any product or company by the Indiana State Department of Health.

<http://multimedia.mmm.com/mws/mediawebserver.dyn?6666660Zjcf6IVs6EVs66S3SJCOrrrrQ->

OHIO STATE DEPARTMENT OF HEALTH REPORTING OF CDI -2006

This Ohio Department of Health document includes summary of the one year (2006) reporting of confirmed CDI in hospitals and long term care facilities. It also includes recommendations for prevention, management of cases and infection control practices.

<http://www.odh.ohio.gov/pdf/idcm/clostdif.pdf>

PREVENTION & CONTROL OF *CLOSTRIDIUM DIFFICILE* INFECTIONS

This CDC Web site includes various links to posters, brochures, hand hygiene, environmental control, and other prevention/control items.

http://www.cdc.gov/ncidod/dhqp/id_Cdiff_prevent.html

DATA & STATISTICS ABOUT *CLOSTRIDIUM DIFFICILE* INFECTIONS

This CDC Web site includes CDI data, some of which is conveyed through journal articles. Also available at this Web site are other resources and publications.

www.cdc.gov/ncidod/dhqp/id_Cdiff_data.html.

Antibiotic Facts and Resources

ANTIBIOTIC SAFETY

This APIC brochure on Antibiotic Safety includes information on the types of germs that cause infections, how to properly communicate with doctors, and potential side effects of antibiotics.

<http://www.preventinfection.org/AM/AMTemplate.cfm?template=/CM/ContentDisplay.cfm&ContentID=8686>

GET SMART: KNOW WHEN ANTIBIOTICS WORK

This CDC campaign includes educational information to reduce the rate of antibiotic resistance. Educational brochures, posters, fact sheets for patients and providers are available.

<http://www.cdc.gov/drugresistance/community/>

C. *DIFF* INFECTIONS: WHAT YOU SHOULD KNOW WHEN TAKING ANTIBIOTICS

This Pennsylvania Patient Safety Authority tip sheet, explains the role antibiotics play in many cases of CDI and what patients can do to protect themselves.

[http://www.psa.state.pa.us/psa/lib/psa/tips_for_consumers/c_diff_consumer_article_\(2\).pdf](http://www.psa.state.pa.us/psa/lib/psa/tips_for_consumers/c_diff_consumer_article_(2).pdf)

ANTIBIOTIC RESISTANCE IN INDIANA

The Indiana Coalition for Antibiotic Resistance Education Strategies (ICARES) is a group of health care organizations that have collaborated to educate individuals about the harm caused by unnecessary antibiotic use and to reduce the incidence in Indiana. A variety of brochures, fact sheets, posters, and stickers are available.

<http://www.icares.org/>

ANTI-B'S COLORING SHEET

This Texas Department of State Health Services coloring book provides educational materials related to antibiotic resistance for children.

http://www.dshs.state.tx.us/idcu/health/antibiotic_resistance/educational/antibio_edu_coloring_sheet.pdf

Handwashing Facts and Resources

WHO GUIDELINES ON HAND HYGIENE IN HEALTH CARE

This World Health Organization document provides health-care workers (HCWs), hospital administrators and health authorities with a thorough and comprehensive review of evidence on hand hygiene in health care and specific recommendations to improve practices and reduce transmission of pathogenic microorganisms to patients and HCWs.

http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf

C. THE DIFFERENCE HANDWASHING CAN MAKE

This New York State Department of Health brochure, explains what CDI is, who is at the greatest risk of developing CDI, and why hand washing is important.

<http://www.health.state.ny.us/publications/signature/1495.pdf>

ABOUT...HAND WASHING

This ISDH Quick Fact Sheet includes information why hand washing is important to protect against many diseases including CDI.

<http://www.in.gov/isdh/21926.htm>

CDC FEATURES -WASH YOUR HANDS

This CDC Web site describes the correct way to wash hands and emphasizes the importance of hand washing in home and health care settings.

<http://www.cdc.gov/Features/HandWashing/>

THE "OUNCE OF PREVENTION" CAMPAIGN

This CDC Web site provides resources (brochures, posters, etc.) about hand washing, cleaning and disinfection, and other easy-to-follow steps in an effort to develop and maintain successful hand hygiene and cleaning practices. The Ounce

of Prevention Campaign is aimed at educating a broad consumer and professional audience.

<http://www.cdc.gov/ounceofprevention/>

Journal Articles and Slide Presentations

CLOSTRIDIUM DIFFICILE-ASSOCIATED DISEASE: NEW CHALLENGES FROM AN ESTABLISHED PATHOGEN

This Cleveland Clinic Journal of Medicine review article describes the current state of knowledge concerning the epidemiology, pathogenesis, clinical presentation, diagnosis, treatment, and prevention of CDI. [Cleveland Clinic Journal of Medicine; February, 2006 / Volume 73, No. 2, 187-197] Rebecca H. Sunenshine, MD and L. Clifford McDonald, MD; Centers for Disease Control and Prevention, Atlanta, Georgia, USA

http://www.cdc.gov/ncidod/dhqp/pdf/infDis/Cdiff_CCJM02_06.pdf

CLOSTRIDIUM DIFFICILE INFECTION IN PATIENTS DISCHARGED FROM U.S. SHORT-STAY HOSPITALS, 1996–2003

This Emerging Infectious Disease (EID) article is a retrospective study of patients discharged from short-stay hospitals which describes the increase in incidence and severity of CDI in hospitalized patients. [EID; March, 2006 / Volume 12, No. 3, 409-415] L. Clifford McDonald, Maria Owings, and Daniel B. Jernigan; Centers for Disease Control and Prevention, Atlanta, Georgia, USA

<http://www.cdc.gov/ncidod/EID/vol12no03/05-1064.htm>

SURVEILLANCE FOR COMMUNITY-ASSOCIATED CLOSTRIDIUM DIFFICILE --- CONNECTICUT, 2006

This 2008 MMWR article discusses surveillance of community-associated *C. difficile* in Connecticut. Community-associated CDI became a reportable condition in Connecticut in 2006. [MMWR; April 4, 2008 / 57(13); 340-343.]

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5713a3.htm>

SEVERE CLOSTRIDIUM DIFFICILE--ASSOCIATED DISEASE IN POPULATIONS PREVIOUSLY AT LOW RISK – FOUR STATES, 2005

This 2005 MMWR article describes case reports of serious CDI in otherwise healthy patients with minimal or no exposure to a health-care setting. [MMWR; December 2, 2005 / 54(47); 1201-1205.]

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5447a1.htm>

CLOSTRIDIUM DIFFICILE: AN EMERGING THREAT

This CDC PowerPoint presentation provides background information, surveillance data, recommendations for healthcare facilities and information on community acquired CDI.

<http://www.cdc.gov/ncidod/dhqp/ppt/ME%202006%20McDonald%20C%20diff%20re.ppt>