

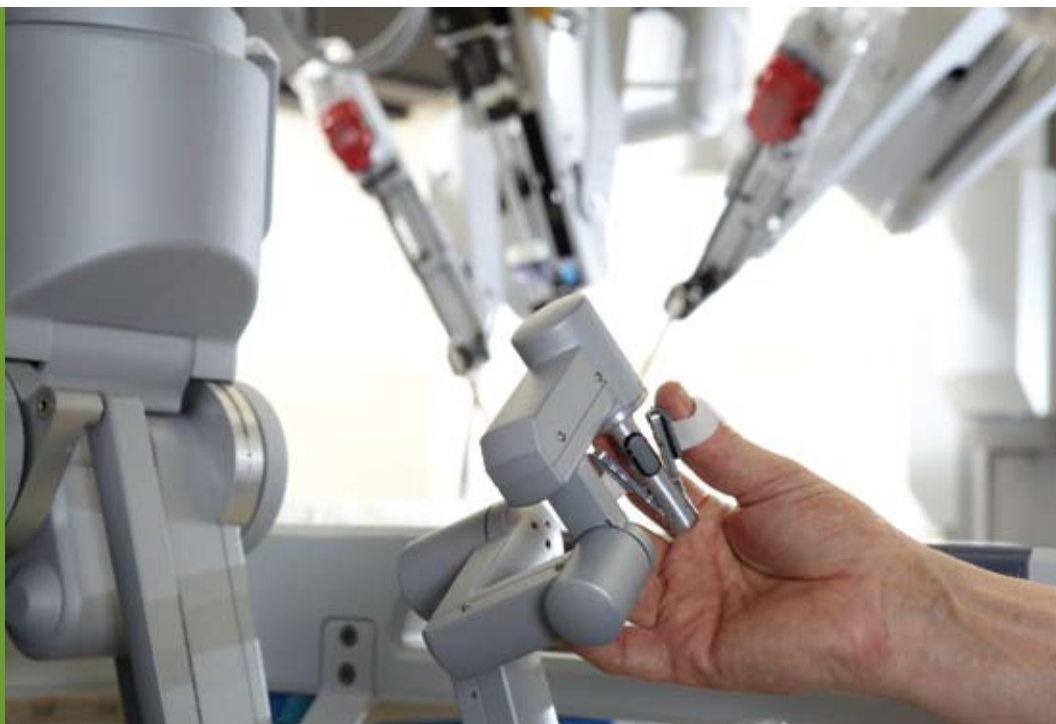


ROUNDS

HARTFORD HOSPITAL'S WELLNESS MAGAZINE

Spring 2011

Hartford Hospital's
innovative
simulation center
helps medical
professionals
master new skills



Learning by Simulation

Hartford
Hospital 

ROUNDS

Hartford Hospital's Wellness Magazine

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H E A L T H T I P S

Silent Signals

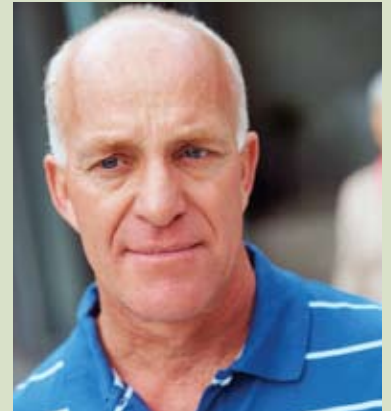
Esophageal cancer is endemic in the United States. Gastroesophageal reflux disease (GERD) can cause genetic damage, changing normal esophagus cells into intestinal tissue. The precancerous condition called Barrett's esophagus often has few symptoms, but can usually be treated successfully if caught early. Physicians at Hartford Hospital treat patients with radiofrequency ablation, reducing the risk of progression to cancer.

Watch for the following warning signs:

- Heartburn or GERD. Approximately 20 percent of American adults experience heartburn at least twice per week, and more than 40 percent experience symptoms almost monthly.
- Chronic cough or hoarseness
- Pain or difficulty swallowing

Other risk factors:

- Male, age over 65
- Use of tobacco and alcohol
- Obesity
- Poor diet (few fruits and vegetables)
- Genetic factors



Who's At Risk?

Esophageal cancer has soared in incidence over the past several decades and is now rising faster than any other cancer. While esophageal cancer once afflicted mostly African American men with a long history of smoking and alcohol consumption, rates have dropped among African Americans in recent years. Today, more white men are being diagnosed with Barrett's esophagus, linked to the epidemic of obesity and GERD in the United States. Barrett's esophagus has increased six-fold in incidence since the 1970s.

For some people of Asian descent, drinking alcohol triggers a bright red blush, called "Asian flush," which raises the risk of deadly esophageal cancer. More than a third of all Japanese, Chinese and Koreans have a genetic deficiency in an alcohol-metabolizing enzyme called ALDH2. The flushing response, sometimes accompanied by a headache, nausea and a rapid heartbeat, keeps many Asians from consuming any alcohol at all, but those with only one copy of the defective gene sometimes develop tolerance and go on to become heavy drinkers.

Asians with the enzyme deficiency have six to 10 times higher rates of esophageal cancer. Although most Asian sufferers are aware of their sunburn-like flush, many don't realize that it puts them at risk for one of the deadliest cancers worldwide.

Is Heartburn A Risk Factor for Esophageal Cancer?

Burning sensations churn your stomach as bitter-tasting acid rises to the back of your throat. Regurgitated acid from a leaky valve at the junction of the stomach begins to erode the lining of your esophagus. Heartburn worsens at night, disrupting your sleep.

Gastroesophageal reflux disease (GERD) afflicts nearly a quarter of all Americans. Popular medications like Nexium, Prevacid and Prilosec are widely used to treat symptoms. If heartburn persists, a gastroenterologist will thread a flexible endoscope tipped with a lighted camera down your throat to reveal inflammation or damage to the cells lining the esophagus, where cancer usually begins. While heartburn may be one sign of esophageal cancer, about 40 percent of people who develop the precancerous condition called Barrett's esophagus have no symptoms at all.

"Unfortunately, there is no recommendation to screen for esophageal cancer as there is for routine colonoscopy," says David M. Chaletsky, M.D., MPH, of Connecticut Gastroenterology. "Researchers are studying biomarkers linked to esophageal cancer, but we currently rely on symptoms and family history to decide who needs endoscopy."

Rare until the 1970s, esophageal cancer has soared in incidence over the past several decades and is now amongst one of the fastest rising cancers. New guidelines from the American Gastroenterological Society warn that "watchful waiting" is no longer recommended for high-risk Barrett's esophagus patients with advanced precancerous cells. Although deadly adenocarcinoma of the esophagus strikes two to three times as many men as women, anyone over 50 may be at risk for a tumor that is often unresponsive to radiation or chemotherapy.

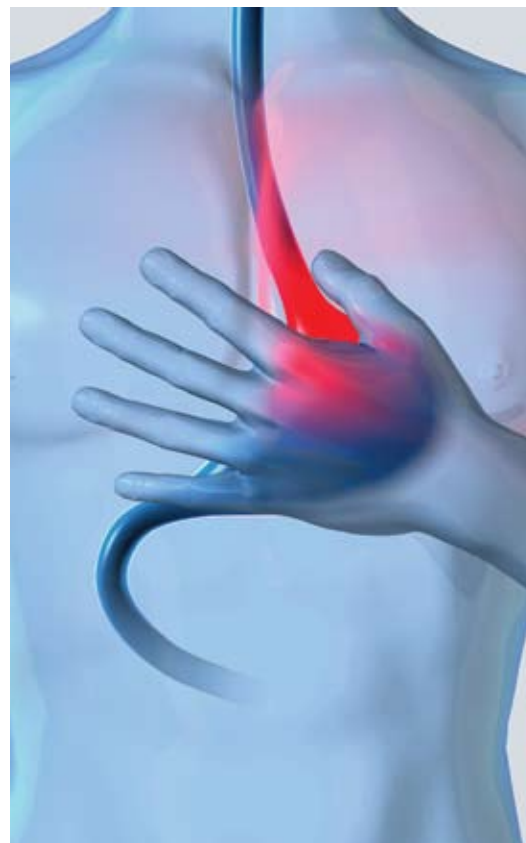
"Esophageal cancer unfortunately has a low survival rate because it often goes undetected until it has spread to adjacent organs," says Dr. Chaletsky. "Surgery can only be performed if the tumor is caught early. We have to take gender out of the equation when deciding who should be screened."

Nonsurgical techniques allow physicians to detect and treat changes in the esophagus at a pre-malignant stage. "We can't yet predict which patients will develop cancer," says Dr. Chaletsky. "Someone whose biopsy reveals 'high-grade dysplasia' has a 16 to 50 percent chance of developing esophageal cancer. Surgical removal of the esophagus is a far more painful alternative."

Today at Hartford Hospital, physicians proactively identify and remove areas of Barrett's tissue with noninvasive radiofrequency ablation. Performed early enough, the FDA-approved technique for removal of diseased tissue using heat energy has been shown to offer a highly successful preemptive strike against cancer. Follow-up studies nationwide have found that up to 98 percent of patients remained disease-free after two and a half years and 92 percent after five years. In some patients, several ablations may be necessary.

While the risk of developing cancer is low even in someone with Barrett's esophagus, ablation and surveillance allow physicians to keep a watchful eye on abnormal cells in the lining of the esophagus. Studies show better outcomes are associated with large-volume centers such as Hartford Hospital, one of the busiest centers in New England for treatment of Barrett's esophagus.

For more information, see www.harthosp.org/Gastroenterology



Stephen Donahue, RRT, director of the CESI program, supervises two medics from the Connecticut National Guard, Ryan Haigh and Kristi Artigue.



CESI: Training for Tomorrow

Hartford Hospital recently completed a multimillion-dollar expansion of its clinical education and training center, creating a regional hub for training the next generation of medical professionals and emergency personnel. The advanced Center for Education, Simulation and Innovation (CESI) is New England's premier destination for simulation and robotic surgery training.

With more than \$4 million in funding—including an anonymous million-dollar gift—and another \$3 million in in-kind support from industry, the hospital is growing its reputation as a leader in education and training. The original Simulation Center, launched in 1999 at the suggestion of Director of Trauma and Emergency Medicine Lenworth M. Jacobs, M.D., has grown from 900 to 14,000 square feet in size. Five simulated patient care rooms and two surgical robots provide state-of-the-art clinical training without real-life patient risks.

"We are building on our culture of innovation with the establishment of CESI, the first comprehensive, multidisciplinary center in the region," says Hartford Hospital Executive Vice President and Chief Operating Officer Jeffrey Flaks. "CESI will enhance patient safety and quality, and also provide leadership based on our existing success and expertise in training at the regional and national level."

The advent of laparoscopic and robotic techniques has brought a revolution in the minimally invasive options available to patients. The wide popularity of robotic surgery has spurred a growing need for physicians with surgical deftness and technical mastery of the sophisticated equipment used in complex procedures. "As a destination center, CESI will draw new talent to the region and reinforce our reputation for medical innovation," says Mr. Flaks. "The center is expected to be particularly effective for training physicians to perform low-frequency, high-risk procedures."

Leadership for the Future

The development of CESI is a natural strategic direction for Hartford Hospital's nationally acclaimed surgery, training and robotic programs. As the second-largest surgical center in New England (after Mass General) and the Northeast's largest robotic surgery

center (with six Intuitive Surgical robots and a Hansen Sensei® cardiac robotic system), Hartford Hospital trains physicians from throughout the country. The pioneering vision behind the new endeavor is to merge surgical leadership—advanced simulation, minimally invasive techniques and robotic surgery—to build a regional center available to physicians from across New England.

CESI is home to the hospital's simulation center, where medical students, doctors, nurses, first responders and other clinicians can hone their skills by practicing on computerized replicas of the human body. Better than textbooks for clinical education, anatomically realistic patient simulators—featuring air hydraulics and touchscreen interactive technology—offer new training tools for medical professionals in patient-care scenarios.

"CESI represents the educational paradigm of the future for both procedural and clinical simulation scenarios," says Vice President, Academic Affairs Neil S. Yeston, M.D. "Not only do clinicians have an opportunity for hands-on training in the simulation center, but realistic simulations give surgeons an opportunity to rehearse in advance of performing an actual procedure."

Leaving the Classroom Behind

Patient simulators are fully responsive human models that teach clinicians how to handle life-and-death situations. Computer chips make the simulator's pupils dilate when drugs are injected into its "arm" or provide real-time feedback about CPR performance. Simulators are so lifelike that they breathe in oxygen and exhale carbon dioxide.

Sometimes the simulator is a bruised and bleeding trauma victim lying inert and unconscious. Other times, he's a choking heart attack victim with shortness of breath and a difficult airway. His chest rises and falls, his tongue swells, he clenches his jaw and cries out in pain. The simulator can also become "pregnant" with the addition of female reproductive organs for labor and delivery scenarios.

The use of medical mannequins with sophisticated circuitry helps clinicians and first responders gain confidence as they learn how to administer medications, intubate the

Thomas Nowicki, M.D.

Thomas Nowicki, M.D., an emergency medicine specialist, is a fellow of the American College of Emergency Physicians and a member of the Society of Academic Emergency Medicine. A member of the international Society for Simulation in Healthcare, he has been an integral part of the development of simulation-based medical education for Hartford Hospital and the development of the new Center for Education, Simulation and Innovation (CESI).

He earned his medical degree from New York Medical College in 1995 and completed his residency in emergency medicine at the University of Connecticut in 1998. Board-certified in emergency medicine, Dr. Nowicki's primary areas of interest include airway management and simulation education. He holds a faculty appointment as an associate professor of emergency medicine at the University of Connecticut School of Medicine. He also serves as the director of Medical Simulation for the University of Connecticut School of Medicine.

His hobbies include photography, old cars, playing the guitar and home brewing.



Not only do clinicians have an opportunity for hands-on training in the simulation center, but realistic simulations give surgeons an opportunity to rehearse in advance of performing an actual procedure.

—Neil Yeston, M.D.



airway, defibrillate or resuscitate patients in critical care scenarios. Five simulation rooms replicate an operating room, a emergency department trauma room, an intensive care unit, a hospital patient care floor and an obstetrics-gynecology (labor and delivery) suite.

“It’s a long way from the classroom to the innovative technology we’re using to enhance patient safety,” says Stephen Donahue, RRT, a respiratory therapist who brings more than 20 years of experience as a primary critical care educator to his new job as director of the CESI program. “We teach critical thinking skills. We’re also using simulators for multidisciplinary team training for emergency services and the crew of our LIFE STAR helicopter.”

From behind a two-way mirror, CESI trainers evaluate and record the team’s performance (for later debriefing) as trainees monitor pulse and heart rates or perform procedures in a real-life patient environment. “For example, we can make the airway very narrow so it’s extremely difficult for students to insert a breathing tube,” says Thomas Nowicki, M.D., an emergency medicine physician. “Over the next few years, CESI will be part of the curriculum for all clinicians and health care providers, and robotic-assisted surgery will be an integral component of medical residency training programs.”

According to Dr. Nowicki, “CESI will provide a wide range of medical simulation technologies rang-

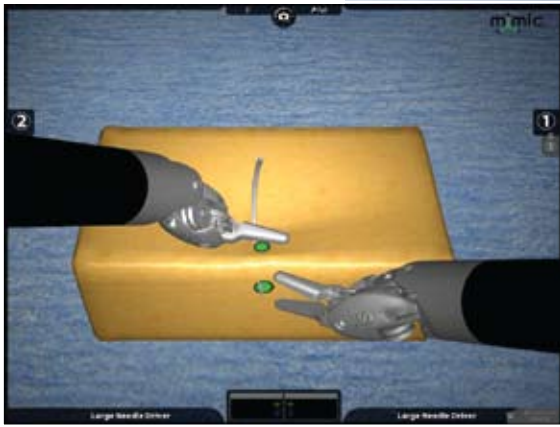
ing from basic procedures—such as inserting an intravenous line—through laparoscopic surgical skills and robotic training all the way to full patient encounters.” During the complex scenarios that take advantage of the center’s human patient simulators, the participants treat the mannequin as a real patient—introducing themselves, performing a history and physical exam, ordering diagnostic tests and ultimately providing treatment for their “patients.”

Battle Ready

Paramedics from the Connecticut National Guard recently converged on CESI for a daylong training session. Two military ambulances brought a contingent of “medics” in full-body Kevlar armor who treated wounded soldiers while wearing night vision equipment in the dark fog of smoke from a simulated explosion.

The medics ran combat scenarios against a backdrop of battle sounds as bullets whizzed and artillery shells thudded realistically. Wearing helmets and M16 rifles slung over their shoulder to simulate battlefield conditions, the medics spent the day learning to sharpen their clinical and decision-making skills for combat readiness.

One simulated “patient”—a soldier with extensive burns on his face—wheezed noisily as the medics struggled to open his blocked airway. As the trainees ran through the rooms of the high-tech training center, confronting



Above, simulation software allows trainees to practice suturing, cutting and cauterizing as they control robotic instruments in “virtual reality.” At right, Dr. Shichman, CESI’s medical director, looks on as surgical resident Dr. David Chalmers manipulates the robot’s “EndoWrist” instruments, which provide surgeons with natural dexterity and a range of motion far greater than the human hand.



a series of lifelike injuries and trauma scenarios, they never knew what was coming next. Not only did the medics practice emergency response teamwork, but they also honed communication skills that will be vital when they deploy to Iraq or Afghanistan.

Surgical Robotics

An outgrowth of a U.S. Army effort in the 1980s to develop a remote-controlled laparoscopic robot for battlefield surgery, Intuitive Surgical’s da Vinci robot reduces blood loss, lessens pain and speeds recovery after tumor removal, nerve-sparing prostatectomy, hysterectomy or abdominal surgery.

“Like a fighter jet pilot who practices for hours in a simulator before flying solo, physicians at Hartford Hospital use simulation software

to train on the da Vinci robot,” says urologist Joseph R. Wagner, M.D., director of the hospital’s Robotic Surgery Program. “Virtual reality models help people learn in a calm, less stressful environment.”

Computer-assisted technology is revolutionizing the delivery of health care. Today, a growing number of the 27 million operations performed annually in the United States rely on robotic techniques to enhance the steadiness and precision of minimally invasive surgery. The multiple instrument arms of the spider-like robot and a slender fiberoptic camera are inserted through the navel and four small incisions in the patient’s abdomen.

In the skillful hands of a surgeon, the da Vinci robot manipulates instruments with precision and artistry. “Today 85 percent

of all prostatectomies (removal of the prostate gland) are performed robotically,” says Dr. Wagner, who was only the second surgeon in the country to perform the procedure using the da Vinci in 2001.

“We’re working with industry and the hospital’s biomechanical engineering center to develop new products and training courses to create a truly comprehensive center for surgical innovation,” adds CESI Medical Director Steven J. Shichman, M.D., a urologic surgeon and nationally recognized pioneer in minimally invasive surgery for kidney removal. “We need to train new physicians to become experts in these new technologies and techniques. The high-definition, open-access network allows three-dimensional medical imaging and real-time surgery to be



Hunting A Stomach “Bug”



Deadly toxins lurk in tainted food, waiting to hijack their human hosts. Each year, Americans suffer as many as three to five attacks of diarrhea and vomiting caused by a virus, bacteria, or food-borne illness. Most brief attacks of stomach “flu” resolve in a few days without treatment.

“You usually don’t need antibiotics when you can’t decide whether to throw up or have diarrhea,” says Jack W. Ross, M.D., director of the Division of Infectious Disease at Hartford Hospital.

“Seek medical help if a gastrointestinal illness is associated with fever, lasts more than two days or causes severe dehydration or blood in the stool.”

Cruise ships are notorious for outbreaks of the Norwalk virus, a novovirus that spreads rapidly among passengers in close quarters, daycare centers or nursing homes. “This highly contagious virus is self-limiting,” says Dr. Ross. “Symptoms

of acute gastroenteritis—vomiting, diarrhea and stomach pain—usually go away after one or two days. While victims may feel better quickly, they can shed virus and infect other people for up to 21 days.”

Bacterial pathogens multiply rapidly within human hosts, co-opting the body’s defenses. Strains like Salmonella, Shigella and Campylobacter have developed ingenious ways to invade and outwit their hosts. Some microbes, such as the Salmonella bacteria that swarm in picnic egg dishes, poultry, or undercooked frozen foods, can take up to 72 hours to produce violent diarrhea, fever and stomach cramps.

Staphylococcus, on the other hand, causes a “toxin-mediated” illness, which means that the food consumed contains a toxin. The infection usually comes on about six hours after eating contaminated pastries, meat products or custards. Every year, at least 300,000 Americans are stricken with food poisoning after eating foods that look and smell normal.

Highly virulent strains of enterohemorrhagic E. coli—notably the deadly O157 strain—can cause fever, lightheadedness and bloody diarrhea. Eating undercooked ground beef or contaminated spinach can cause severe diarrhea and dehydration, leading to kidney failure and even death in young children or the elderly.

The human body harmlessly hosts an estimated 5,000 to 35,000 species of bacteria. Resistance develops as a result of overuse of antibiotics, so any strategy that helps physicians limit the use of antibiotics to situations where they’re truly vital will help delay the emergence of difficult-to-treat strains of bacteria.

WHAT’S GOING AROUND...News & Breakthroughs

Stroke Surge

Strokes are increasing in the young and middle-aged, warns the American Stroke Association, suggesting that booming obesity rates are fueling a rapid upturn in strokes. The first nationwide study of stroke hospitalizations by age showed an alarming 50 percent jump in strokes among men age 15 to 34 and a 36 percent rise in females age 35 to 44.

Eye Enzyme in View

Age-related macular degeneration (AMD) causes progressive deterioration of the central part of the retina, eventually causing blindness. In a recent article in *Nature*, a team of English and American researchers linked failure of an enzyme called DICER1 to the “dry” form of the damaging condition that robs individuals of their ability to see fine detail.

Cancer Clues

The H. Lee Moffitt Cancer Center in Tampa, Fla., is sequencing the genome for common cancer types and studying potential molecular targets for personalized cancer therapy. Hartford Hospital, a prime collaborator, has submitted thousands of tumor tissues from patients who have consented to participate in the cutting-edge research. Researchers hope to develop targeted drugs and a better understanding of which cancers are likely to grow and spread.

A-fib Advance

An experimental anti-clotting drug, apixaban, appears to work better than aspirin to prevent blood clots and strokes in people with atrial fibrillation (A-fib), according to the *New England Journal of Medicine*. Researchers hope patients with the abnormal heart rhythm will benefit from a class of new drugs that control the body’s clotting mechanism with fewer bleeding risks.

Cook's Circle



Topped with mangoes and a piquant blend of roasted garlic and shallots, Belgian endive makes a tangy salad with an international twist. Arrange endive leaves in a pinwheel with chunks of bright-hued mango for a crisp salad that's a colorful accent to any spring meal.

Sprinkle chopped walnuts, slivered Spanish almonds, chives and crumbled goat cheese over the endive for added protein, fiber and nutrients. Research from around the globe confirms that the healthiest diets consist of plenty of greens, nuts and fruits.

The latest news from the Far East suggests that a plant-based diet provides optimum nutritional benefits. For 20 years, researchers at Cornell University, Oxford University and the Chinese Academy of Preventive Medicine collaborated on the "China Study." Their investigation of healthy eating patterns in rural China linked overconsumption of animal-based foods to chronic disease, while showing that plant-based foods could help prevent diabetes, heart disease and cancer. The mostly vegetarian diet is detailed in a bestselling book, *The China Study*.

Spring Salad Days

Ingredients

¾ c. extra-virgin olive oil	2 mangoes, diced
1 whole garlic bulb, top sliced off	2 oz. goat cheese
¼ c. sherry vinegar	2 oz. chopped walnuts and/or slivered Marcona almonds
2 Tbs. shallot, chopped	fresh chives
20 Belgian endive leaves	salt and pepper to taste

Preheat oven to 400°. Put oil and garlic in a small roasting pan and bake for 30 minutes or until garlic cloves are soft. Remove garlic from oven, separate and discard skins, and squeeze to extract garlic pulp. Process the garlic cloves, oil, vinegar, shallot, salt and pepper in a blender or food processor until smooth. Place five endive leaves in a pinwheel pattern on each of the four plates. Divide mangoes and place on endive leaves. Crumble goat cheese over the mango and top with walnuts and almonds. Drizzle with about one tablespoon of the roasted garlic vinaigrette and garnish with minced chives. Serves 6.

Calories: 361
Protein: 4.3 g
Fiber: 5.4 g
Total fat: 32 g (65% mono-unsaturated fat)

Cholesterol: 4.3 mg
Vitamin C: 23 mg (30% Daily Value)
Vitamin E 4.8 mg alpha-tocopherol (32%)
Sodium: 40 mg

Recipe analyzed by Brunella Ibarrola, MS, RD, CD-N.