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Largest Study of Third-Party Prayer Suggests Such Prayer Not Effective In Reducing Complications Following Heart Surgery

Boston, MA—For those facing surgery or battling disease, the prayers of others can be a comfort. Researchers in the *Study of the Therapeutic Effects of Intercessory Prayer* (STEP), the largest study to examine the effects of intercessory prayer—prayer provided by others—evaluated the impact of such prayer on patients recovering from coronary artery bypass graft (CABG) surgery.

The STEP team, composed of investigators at six academic medical centers, including Baptist Memorial Hospital in Memphis, Tennessee; Beth-Israel Deaconess Medical Center in Boston, Massachusetts; Integris Baptist Medical Center in Oklahoma City, Oklahoma; Mayo Clinic in Rochester, Minnesota; St. Joseph's Hospital in Tampa, Florida; Washington Hospital Center in Washington, D.C; and the Mind/Body Medical Institute, found that intercessory prayer had no effect on recovery from surgery without complications. The study also found that patients who knew they were receiving intercessory prayer fared worse. The paper appears in the April issue of *American Heart Journal*.

“The primary goal of STEP was to evaluate whether intercessory prayer or the knowledge of receiving it would influence recovery after bypass surgery,” said co-author Jeffery A. Dusek, Harvard Medical School instructor of medicine and Associate Research Director at the Mind/Body Medical Institute. Each year, 350,000 Americans have coronary artery bypass graft surgery. Though medical techniques and post-operative care have improved dramatically in recent years, the surgery is stressful. Earlier studies have shown that many patients enlist friends and family to provide private prayer for support during surgery and recovery.

STEP investigators enrolled 1,802 bypass surgery patients from six hospitals and randomly assigned each to one of three groups: 604 patients received intercessory prayer after being informed they may or may not receive prayers (Group 1); 597 patients did not receive prayer after being informed they may or may not receive prayer (Group 2); and 601 patients received intercessory prayer after being informed they would receive it (Group 3).

Caregivers and independent auditors comparing case reports to medical records were unaware of the patients' assignments throughout the study. The study enlisted members of three Christian groups, two Catholic and one Protestant, to provide prayer throughout the multi-year study. The researchers approached other denominations, but none were able to make the time commitments that the study required.

Some patients were told they may or may not receive intercessory prayer: complications occurred in 52 percent of those who received prayer (Group 1) versus 51 percent of those who did not receive prayer (Group 2). Complications occurred in 59 percent of patients who were told they would receive prayer (Group 3) versus 52 percent, who also received prayer, but were uncertain of receiving it (Group 1). Major complications and thirty-day mortality were similar across the three groups.

Unlike traditional intercessory prayers, STEP investigators imposed limitations on the usual way prayer-givers would normally provide prayer. The researchers standardized the start and duration of prayers and provided only the patients' first name and last initial. Prayers began on the eve or day of surgery and continued daily for 14 days. Everyone prayed for received the same standardized prayer. Providing the names of patients directed prayer-givers away from a desire to pray for everyone participating in the study. Because the study was designed to investigate intercessory prayer, the results cannot be extrapolated to other types of prayer.

"Our study was never intended to address the existence of God or the presence or absence of intelligent design in the universe. The study did not endeavor, either, to compare the efficacy of one prayer form over another or to assess participants' understanding of the nature and purpose of prayer. Finally, it was not our objective to discover whether prayers from one religious group work better than prayers from another," said co-author Father Dean Marek, Director, Chaplain Services, Mayo Clinic. Patients across the three groups had similar religious profiles. Most believed in spiritual healing and almost all believed friends or relatives would be praying for them. Investigators did not ask patients to have their friends and families withhold prayers, and assumed that many patients prayed for themselves during the study.

"One caveat is that with so many individuals receiving prayer from friends and family, as well as personal prayer, it may be impossible to disentangle the effects of study prayer from background prayer," said co-author Manoj Jain, Baptist Memorial Hospital, Memphis, Tennessee.

Investigators focused on patients undergoing one procedure with well-known complication rates and included a pre-trial analysis to determine the appropriate sample size required to yield statistically significant results. They employed a list of complications defined by the Society of Thoracic Surgeons and any patient showing one or more complications registered as a single complication, improving on previous studies which used non-standard criteria. To ensure the validity of the results, investigators designed STEP as a multi-center randomized controlled trial with the customary features of clinical trials, such as blinded audits, a consent process approved by an Institutional Review Board and independent monitoring by a Data and Safety Monitoring Board. "Each study builds on others, and STEP advanced the design beyond what had been previously done," said Dusek. "The findings, however, could well be due to the study limitations."

The John Templeton Foundation supported STEP. The Baptist Memorial Health Care Corporation supported the Baptist Memorial Hospital site.

The STEP study co-authors are: Herbert Benson MD and Jeffery A. Dusek PhD of Harvard Medical School and Mind/Body Medical Institute; Charles F. Bethea MD, Rev. William Carpenter MDiv, and Sue Rollins RN, MPH of Integris Baptist Medical Center; Sidney Levitsky MD of Harvard Medical School and Beth Israel Deaconess Medical Center; Peter C. Hill MD and Rev. Donald W. Clem Jr. MA of Washington Hospital Center; Manoj K. Jain MD, MPH and Rev. David Drumel MDiv of Baptist Memorial Health Care Corporation; Stephen L. Kopecky MD, Paul S. Mueller MD, and Fr. Dean Marek of Mayo Clinic; and Patricia L. Hibberd MD, PhD, Jane B. Sherwood RN, and Peter Lam PhD, consultants.

BAPTIST MEMORIAL HEALTH CARE

One of the largest and top-rated integrated health networks in the country, Baptist Memorial Health Care, based in Memphis, Tenn., is comprised of 14 hospitals; more than 2,900 affiliated physicians; home, hospice and psychiatric care; minor medical centers; a network of surgery, rehabilitation and other outpatient centers; and an education system highlighted by the Baptist College of Health Sciences. Baptist Memorial Hospital-Memphis, the flagship of the Baptist Memorial Health Care system, opened in 1979 and is a 706-bed tertiary care hospital. Baptist provided more than \$324 million in community benefit, and the organization had an economic impact of more than \$2 billion on the communities it served in fiscal year 2004.

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INTEGRIS Health is Oklahoma's largest health system and one of the state's largest private employers, with hospitals and other facilities throughout much of the state. Headquarters are located on the campus of INTEGRIS Baptist Medical Center in Oklahoma City. INTEGRIS Baptist is also home to a leading heart hospital, a cutting-edge transplant program, a fertility institute, a cancer center and a regional burn center. INTEGRIS Southwest Medical Center, an acute-care hospital in southwest Oklahoma City, is home to a sleep disorders center and Jim Thorpe Rehabilitation Hospital.

BETH ISRAEL DEACONESS MEDICAL CENTER

Beth Israel Deaconess Medical Center is a patient care, teaching and research affiliate of Harvard Medical School, and ranks fourth in National Institutes of Health funding among independent hospitals nationwide. BIDMC is clinically affiliated with the Joslin Diabetes Center and is a research partner of Dana-Farber/Harvard Cancer Center. BIDMC is the official hospital of the Boston Red Sox. For more information, visit www.bidmc.harvard.edu.

HARVARD MEDICAL SCHOOL

Harvard Medical School has more than 7,000 full-time faculty working in eight academic departments based at the School's Boston quadrangle or in one of 47 academic departments at 18 Harvard teaching hospitals and research institutes. Those Harvard hospitals and research institutions include Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Cambridge Health Alliance, the CBR Institute for Biomedical Research, Children's Hospital Boston, Dana-Farber Cancer Institute, Forsyth Institute, Harvard Pilgrim Health Care, Joslin Diabetes Center, Judge Baker Children's Center, Massachusetts Eye and Ear Infirmary, Massachusetts General Hospital, Massachusetts Mental Health Center, McLean Hospital, Mount

Auburn Hospital, Schepens Eye Research Institute, Spaulding Rehabilitation Hospital, and VA Boston Healthcare System. (<http://hms.harvard.edu/>).

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MIND/BODY MEDICAL INSTITUTE

The Mind/Body Medical Institute is a non-profit scientific and educational organization dedicated to research, teaching and clinical application of mind/body medicine and its integration into all areas of health.

WASHINGTON HOSPITAL CENTER

Washington Hospital Center is a not-for-profit 907-bed acute care teaching and research hospital based in Northwest Washington, D.C. It is the largest private hospital in the nation's capital and among the 25 largest hospitals in the United States. The Hospital Center is the flagship facility for the MedSTAR Health system. It consistently ranks among the nation's top hospitals as measured by entities such as U.S. News and World Report, Money, Consumer Checkbook and Solucient. The Washington Heart program is a national leader in the research, diagnosis and treatment of cardiovascular disease; its angioplasty lab is recognized by the DuPont Foundation as the busiest in the nation. Washington Hospital Center's neurosciences program offers the full range of surgical and minimally-invasive treatment and operates the only JCAHO-accredited primary stroke center in the District. The Washington Cancer Institute provides the latest in cancer treatment and therapies and access to cutting-edge clinical trials. The Hospital Center is also home to MedSTAR, one of the country's top shock-trauma treatment and transport facilities and the region's adult Burn Center.