



Research Activities



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Agency for Healthcare Research and Quality

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Hospice care dramatically reduces end-of-life hospitalizations of nursing home residents

Nursing home residents enrolled in hospice, versus those dying without hospice, are less likely to be hospitalized in the last month of life, concludes a new study. Because of Medicare regulations forbidding acute care hospitalizations for patients enrolled in hospice, hospices often intervene when hospitalization is being considered. This regulation, together with the availability of increased end-of-life palliative care offered by hospice enrollment, appears to be effective in preventing end-of-life hospitalizations, note Brown University School of Medicine researchers, Pedro L. Gozalo, Ph.D., M.Sc. and Susan C. Miller, Ph.D., M.B.A.

They found that 26 percent of hospice and 44 percent of nonhospice nursing home residents were hospitalized in their last 30 days of life. Even after adjusting for confounding factors and selection bias, hospice patients were almost

half as likely as nonhospice residents to be hospitalized. Hospice provides an alternative to aggressive curative care. Benefits include better palliative treatment that emphasizes physical, emotional, and spiritual pain relief for the patient and immediate family members.

To become eligible for hospice, a Medicare beneficiary needs to have been certified by the doctor (and the hospice medical director) as having a terminal prognosis of 6 months or less. Furthermore, choosing hospice entails forfeiting access to other Medicare Part A benefits, such as hospitalization and skilled nursing care, for treatment related to the terminal condition, explain the researchers. Their findings were based on analysis of nursing home patient assessment records for 183,742 residents in 5 States, which they linked to the Medicare

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Hospice care

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eligibility file that contains the Medicare beneficiary's date of death. A total of 14,615 residents enrolled in hospice while 169,127 residents did not. The study was supported by the Agency for

Healthcare Research and Quality (HS10549 and HS11457).

See "Hospice enrollment and evaluation of its causal effect on hospitalization of dying nursing home patients," by Drs. Gozalo and Miller, in the April 2007 *HSR: Health Services Research* 42(2), pp. 587-610. ■

Child/Adolescent Health

Hope, experience, and education help nurses feel more comfortable and competent in providing palliative care to children

Nurses with more years in nursing, more palliative care education, and a more hopeful attitude feel more comfortable and competent providing palliative (comfort) care to dying children than other nurses. These nurses also find it less difficult to talk about dying or death with children and their families, according to a new study. Chris Feudtner, Ph.D., M.P.H., of Children's Hospital of Philadelphia, and colleagues surveyed nurses

employed at the hospital in 2005; 410 responded. Nurses were asked whether they agreed (+2 for strongly agree to -2 for strongly disagree) with the statement that they were "comfortable working with dying children and their families" and had a mean score of 0.5. When asked if they "find it very difficult to talk about death and dying with children and their families," nurses had a mean score of -.01

Nurses felt most competent in their ability to manage children's pain and least competent to talk with children and their families about dying. After adjusting for several factors, greater number of years in nursing practice, more hours of palliative care education, and higher scores on the Hope Scale were each significantly associated with more comfort working with dying children and their families, less difficulty talking about death and dying, and feeling more competent in providing palliative care.

Improving hopeful patterns of thoughts and feelings about the challenges confronted during end-of-life care for children might result in improved quality of pediatric palliative care, note the researchers. Their study was supported in part by the Agency for Healthcare Research and Quality (HS00002).

See "Hopeful thinking and level of comfort regarding providing pediatric palliative care: A survey of hospital nurses," by Dr. Feudtner, Gina Santucci, M.S.N., James A. Feinstein, B.A., and others, in the January 2007 *Pediatrics* 119, pp. 186-192. ■

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Rhinoviruses are associated with numerous hospitalizations of children under the age of 5 years, especially those with asthma

Rhinoviruses are the usual cause of the common cold. However, a new study suggests that rhinoviruses are also an important cause of childhood hospitalizations for acute respiratory infection (ARI), especially among children with a history of asthma or wheezing. For example, 26 percent of children hospitalized in two States for respiratory symptoms or fever in 2000 and 2001 tested positive for rhinovirus infections. This represented nearly 5 rhinovirus-associated hospitalizations per 1,000 children. Age-specific rates per 1,000 children were 17.6 for infants up to 5 months old, 6.0 for 6- to 23-month-olds, and 2.0 for 24- to 59-month-olds.

Children with a history of wheezing or asthma were 8 times more likely to be hospitalized for rhinovirus-associated respiratory

infections than those without such a history (25.3 vs. 3.1 per 1,000 children). Historically, respiratory syncytial virus (RSV) has been regarded as the predominant virus associated with hospitalizations for acute respiratory infection in young children. Yet, this study detected more rhinoviruses (26 percent) than RSV (20 percent) among children under 5 years of age hospitalized with ARI or fever. Although rhinovirus was detected year-round in this 1-year study, 40 percent of all cases occurred in the spring.

The seasonal trend for asthma hospitalizations mirrored the seasonal trend for rhinovirus, with the exception of an additional peak during the winter, when RSV and influenza virus circulated. Nearly half (45 percent) of children hospitalized with ARI or fever lived in homes with smokers. Although most children with

rhinovirus infections were hospitalized for less than 3 days, many required supplemental oxygen and a few required mechanical ventilation. The findings were based on a study of 592 children under 5 years of age who were hospitalized with respiratory symptoms or fever at 2 sites in 2000 and 2001. The researchers analyzed responses to questionnaires, laboratory cultures, and medical charts. The study was supported in part by the Agency for Healthcare Research and quality (T32 HS13833).

See "Rhinovirus-associated hospitalizations in young children," by E. Kathryn Miller, M.D., M.P.H., Xiaoyan Lu, Dean D. Erdman, and others, in the March 15, 2007 *Journal of Infectious Diseases* 195, pp. 773-781. ■

Pediatricians recognize most overweight or obese children without using proportional weight curves

One in six school-aged children in the United States is obese. Pediatricians "know obesity when they see it" if a child's body mass index (BMI) is above the 95th percentile. However, pediatricians may overlook excess weight in children with a BMI at the 85th to 94th percentile, suggests a new study. In the study, pediatricians identified overweight and obesity in 86 percent of children with a BMI at or above the 95th percentile but only in 27 percent of children with a BMI at the 85th to 94th percentile.

Less keen identification of mildly overweight children may be

due to competing demands of the medical visit or because these children now seem fairly normal, explains Sarah E. Barlow, M.D., M.P.H., of Saint Louis University. Doctors tended to more often identify obese adolescents than younger children, but identification was not associated with patient sex or race, practice setting, insurance type, or visit length. Only 41 percent of growth charts were current, and only 6.1 percent had the BMI plotted. BMI plotting was associated with identification of overweight and obesity when the BMI was at the 85th to 94th

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Access and use of health care among patients with lupus, see page 17

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Childhood obesity

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percentile, but not when the BMI was at or above the 95th percentile. Thus, BMI plotting on children's charts may increase recognition in mildly overweight children.

After controlling for BMI percentile, patients identified as overweight or obese were 7.5 and 5.6 times respectively more likely to receive diet and exercise

counseling. These findings were based on analysis of identification of overweight and obese children among pediatricians in diverse public and private practices in St. Louis, who participated in a study of the care of chronic conditions during health supervision visits. The researchers analyzed visit notes, growth charts, and a one-page questionnaire about patient demographics and visit content from 30 visits of children (age 6 to

17 years) per pediatrician. The study was supported by the Agency for Healthcare Research and quality (HS13901).

See "Recognition of childhood overweight during health supervision visits: Does BMI help pediatricians?" by Dr. Barlow, Sonal R. Bobra, M.P.H., Michael B. Elliott, Ph.D., and others, in the January 2007 *Obesity* 15(1), pp. 225-232. ■

The gender of both the child and parent affect a child's participation during visits to the doctor

When children and their parents actively participate in conversations with the pediatrician during visits, more information is exchanged and the pediatrician-patient relationship is enhanced. In addition, children who actively participate in their care tend to manage their chronic disease better and reduce their health care use. Participation during pediatrician visits appears to be influenced by the child's and the parent's gender, according to a new study.

For example, girls did twice as much relationship building as boys, and their physicians did 34 percent more information gathering. Also, having the father accompany the child reduced child relationship building 76 percent and reduced information imparted by the physician 14 percent compared to when the mother accompanied the child. This may be due to the mother's greater familiarity with the issues, since mothers are more likely to accompany children to physician visits. Whether the physician was the same gender as the parents or child had no significant effect on participation. However, female doctors gave 29

percent less information to children and parents. After adjusting for the genders of all concerned, longer visits were associated with more participation of the physician, parent, and child.

Since these gender-based patterns of participation in health care are evident in childhood, methods to facilitate participation in one's care might begin early in life. Also, policies that support longer primary care visits could encourage parent participation, suggests Elizabeth D. Cox, M.D., Ph.D., of the University of Wisconsin School of Medicine and Public Health. Dr. Cox and colleagues analyzed videotapes and sociodemographics from 100 pediatric visits. Their study was supported by the Agency for Healthcare Research and Quality (HS13183).

See "Effect of gender and visit length on participation in pediatric visits," by Dr. Cox, Maureen A. Smith, M.D., M.P.H., Ph.D., Roger L. Brown, Ph.D., and Mary A. Fitzpatrick, in the March 2007 *Patient Education and Counseling* 65, pp. 320-328. ■

Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. Items with a double asterisk (**) are available from the National Technical Information Service. See the back cover of *Research Activities* for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

Many children treated at pediatric hospitals receive at least one “off-label” medication

Many medications prescribed for children have not been formally studied in children and most are not labeled for use in children. However, a new study indicates that many children treated at pediatric hospitals receive at least one medication “off-label” or not approved by the Food and Drug Administration (FDA) for their age. The researchers examined use of 90 drugs among children treated at 31 major children’s hospitals across the United States. At least one of the drugs was used off-label in over three-fourths (78.7 percent) of children discharged from pediatric hospitals during the study. Over a 1-year period, off-label use of the 90 drugs in the study accounted for more than \$250 million and 2.3 percent of total inpatient charges.

The frequency of off-label drug use varied within drug classes and diagnostic categories. For example,

while some commonly used analgesic medications were rarely used off-label (for example, acetaminophen), other analgesics were almost always used off-label. For example, morphine was used in nearly 28 percent of children discharged. Because there is no FDA indication for morphine administration in children, however, its use was considered off-label in 96.7 percent of these patients.

In every diagnostic category, at least one drug was used off-label in more than half of patients, and occurred disproportionately in patients receiving central and autonomic nervous system agents. In all procedural or surgical categories, at least one drug was used off-label in more than 90 percent of patients, especially drugs affecting the central and autonomic nervous system, fluids or nutrients, and drugs affecting the gastrointestinal tract. Patients who

were more severely ill and had longer hospital stays (6.68 vs. 2.79 days) were more likely to receive off-label drugs than other patients, as were patients who were older than 28 days, underwent a surgical procedure, or died in the hospital. The researchers defined off-label drug use based solely on age criteria. Use of the medications for reasons other than those stated on the product label also constitutes off-label use, but was not studied. The study was supported by the Agency for Healthcare Research and Quality (HS14009).

More details are in “Off-label drug use in hospitalized children,” by Samir S. Shah, M.D., Matthew Hall, Ph.D., Denise M. Goodman, M.D., M.S., and others, in the March 2007 *Archives of Pediatric and Adolescent Medicine* 161, pp. 282-290. ■

Women’s Health

Location of shelters and other assistance programs impacts the incidence of violence against homeless women

Homeless shelters and other assistance programs tend to be concentrated in dilapidated, crime-ridden areas called “skid rows.” Locating homeless services in these marginal areas may contribute to the violence against homeless women, concludes a new study. Researchers found that homeless women living near skid row in Los Angeles (LA) were 1.5 times more likely to be physically assaulted than homeless women living in other areas of LA. Safer locations for shelters and other assistance programs could reduce violence against homeless women. However, surrounding higher income communities have opposed efforts to relocate programs outside of the skid row district of LA, note the University of California, Los Angeles researchers.

The researchers interviewed 974 homeless women visiting 64 shelters and 38 meal programs serving homeless women in 8 regions of LA County. They screened women for lifetime alcohol abuse/dependence, drug dependence or abuse, depression and psychosis, and history of childhood physical and sexual abuse. For every one standard deviation (SD) increase in proximity to skid row, there was an estimated 48 percent increase in a woman’s chance of being assaulted. Women in communities with a higher proportion of minority residents had a 37 percent lower chance of physical assault for every one SD increase in proximity to skid row.

The majority of homeless women were members of a racial/ethnic minority group, and perhaps knew safer

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Homeless women

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marginal places in these neighborhoods. On the other hand, they may have stood out in other less diverse neighborhoods, and thus were more vulnerable to attack. A greater total population in an area was associated with double the likelihood of sexual assault. Physical assault was independently associated with exchanging sex for money or goods, history of childhood physical abuse, increased psychoticism (for example, being more aggressive and/or antisocial), and being lesbian or bisexual. Sexual assault was

independently associated with Latina ethnic background, history of childhood sexual abuse, and increased psychoticism. The study was supported in part by the Agency for Healthcare Research and Quality (HS08323 and HS14022).

See "Community characteristics and violence against homeless women in Los Angeles County," by Kevin C. Heslin, Ph.D., Paul L. Robinson, Ph.D., Richard S. Baker, M.D., and Lillian Gelberg, M.D., M.S.P.H., in the February 2007 *Journal of Health Care for the Poor and Underserved* 18, pp. 203-218. ■

Risk of maternal and fetal labor and delivery complications increase as pregnancy progresses beyond 39 weeks of gestation

The risks to infants born at 42 weeks' gestation, or postterm pregnancy, are well-documented. However, a new study reveals that infant and maternal risks begin to rise even before then. Researchers found increased rates of prolonged labor, cesarean delivery, postpartum hemorrhage, nonreassuring fetal heart rate, and other problems as early as 40 weeks of gestation among a group of fully insured pregnant women.

Researchers retrospectively studied 119,254 low-risk women who delivered babies beyond 37 weeks' gestational age from 1995 to 1999 within a managed care organization. Among these women, the rates of operative vaginal delivery (use of forceps or vacuum extraction) were 15 percent greater, 3rd or 4th degree perineal laceration

15 percent greater, and chorioamnionitis (infection of the amniotic fluid and/or placental membranes) 32 percent greater at 40 weeks compared with 39 weeks of gestation. Also, cesarean indications for nonreassuring fetal heart rate (heart rate has repetitive decelerations from its baseline, prolonged decelerations, or decreased beat-to-beat variability) jumped 81 percent and cephalopelvic disproportion (infant's head is too large for the woman's pelvis) increased 64 percent at 40 weeks compared to 39 weeks' gestation.

Finally, rates of postpartum hemorrhage increased 21 percent, postpartum endomyometritis (infection of the uterine lining) increased 46 percent, and primary cesarean delivery increased 28

percent at 41 weeks' gestation as compared to 39 weeks. These findings underscore the need for clinical researchers to address the issue of pregnancies that progress beyond the estimated due date. The researchers also suggest that perhaps the definition of postterm pregnancy should be earlier than 42 weeks. Their study was supported in part by the Agency for Healthcare Research and Quality (HS10856).

See "Maternal and obstetric complications of pregnancy are associated with increasing gestational age at term," by Aaron B. Caughey, M.D., M.P.P., M.P.H., Ph.D., Naomi E. Stotland, M.D., A. Eugene Washington, M.D., M.Sc., and Gabriel J. Escobar, M.D., in the February 2007 *American Journal of Obstetrics & Gynecology* 196, pp. 155.e1-155.e6. ■

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Connecticut midwife practices vary greatly in compensation and employment structures

The practice of certified nurse-midwives (CNMs) and certified midwives (CMs) varies in different locales and different health care systems. A 2005 survey revealed data about midwifery practices and compensation in Connecticut. Across the State, there appeared to be variations in practice freedoms and styles, income, benefits structure, job descriptions, and requirements for full-time work. Full-time midwives in Connecticut worked an average of 77 hours per week and had a mean salary of \$79,554, and 87 percent had on-call responsibilities. A “typical” Connecticut midwife had an average full-time work week consisting of two 24-hour call days and three 7-hour office days. These midwives saw 19 to 24 patients per office day, spent 1 hour educating professionals, had slightly more than 3 hours of administrative tasks, and did less than 1 hour of research.

Most CNMs had a Master of Science degree in nursing, worked in physician-owned practices, and attended births in hospitals or medical centers. Health insurance, paid sick time, and retirement plans were offered to most of them. Although nearly all CNMs provided gynecologic, antepartum, and postpartum care, few offered newborn care. There was significant

variation in restrictions on midwives offering vaginal birth after cesarean and on length of scheduled appointments.

Of the 102 CNMs surveyed, 75 percent provided gynecology (GYN) care, antepartum (AP), and interpartum (IP) care; 16 percent offered AP/IP care but not GYN; and 6 percent offered GYN care without AP or IP. Less than 5 percent of CNMs provided only AP or IP care. Some midwives expanded their practice, with 53 percent performing endometrial biopsies, 43 percent repairing third-degree perineal lacerations, and 21 percent acting as surgical assistant at cesarean births. Also, 20 percent of CNMs performed ultrasounds and 17 percent used vacuum extractors for mechanically assisted vaginal births. Only 6 percent performed external cephalic version (turning the fetal head to the down position) to correct breech presentation. The study was supported by in part by the Agency for Healthcare Research and Quality (T32 HS00044).

See “Survey of Connecticut nurse-midwives,” by Margaret L. Holland, M.S., and Eliza S. Holland, C.N.M., M.S.N., in the March/April 2007 *Journal of Midwifery & Women's Health* 52(2), pp. 106-115. ■

Men's Health

Certain pelvic fracture patterns are more likely to cause urethral injury in men who suffer blunt trauma

Urethral injury is a rare but serious condition that can include infection, bleeding, incontinence, erectile dysfunction, and infertility in men. Most urethral injuries are due to pelvic fractures in men, yet only 5 to 10 percent of pelvic fractures result in urethral injuries. Disruption of the anterior pelvic arch, specifically pubic symphysis diastasis and displaced inferomedial pubic bone fractures, are the pelvic fracture patterns most likely to cause urethral injury, according to a new study.

Researchers found that 92 percent of men with pelvic fracture

and urethral injury had specific inferomedial pubic bone fractures or pubic symphysis diastasis. Also, 88 percent had injuries to these regions that displaced the pelvic bone by 1 cm or more.

Recognition of these specific pelvic bone injury sites can aid urologists and trauma doctors in identifying men at risk for urethral injury due to blunt trauma, note C. Craig Blackmore, M.D., M.P.H., and colleagues at Harborview Medical Center, University of Washington. They retrospectively studied 119 male patients with pelvic fracture, who were evaluated at a trauma center between 1997

and 2003. The researchers used computerized tomography and pelvic radiographs to determine associations between specific fracture locations and urethral injury. They controlled for age, injury mechanism (43 percent of fractures were caused by motor vehicle collisions), injury severity, and direction of blunt trauma force.

More details are in “Predicting urethral injury from pelvic fracture patterns in male patients with blunt trauma,” by Amaya M. Basta, Dr. Blackmore, and Hunter Wessells, M.D., in the February 2007 *Journal of Urology* 177, pp. 571-575. ■

Early detection and aggressive treatment for prostate cancer is linked to more use of androgen-deprivation therapy for older men

Androgen deprivation therapy (ADT), which reduces testosterone and other male hormones (androgens), is traditionally reserved for advanced prostate cancer. Even though use of prostate-specific antigen (PSA) screening has caught substantially more prostate cancers at the local stage, PSA screening and aggressive treatment in the United States is associated with more, not less, use of ADT over time, according to a new study.

This is probably because neoadjuvant therapy, treatment for cancer recurrences, and primary therapy have become common indications for ADT. Also, men are now being treated with ADT for earlier stage disease, explains Michael J. Barry, M.D., of Massachusetts General Hospital. For example, men who have prostate cancer discovered through PSA screening usually have their PSA levels monitored serially after attempted curative radiotherapy or radical prostatectomy (surgical removal of the prostate). If the PSA level begins to increase, even minimally, they are increasingly likely to be treated with ADT.

Dr. Barry's team correlated the prevalence of ADT among a 5 percent sample of Medicare-insured men with prostate cancer from 1993 to 2000 with rates of prostate procedures (indication of treatment intensity) performed in 1987-1991 in the 306 U.S. hospital

referral regions. The prevalence of men with prostate cancer receiving ADT increased steadily from 1.8 percent of male Medicare beneficiaries in 1993 to 2.9 percent in 2000. Regions with higher rates of prostate biopsy in 1987-1991 had a higher prevalence of ADT in 1993, 1995, and 1997. Regions with higher rates of transurethral prostatectomy in 1987-1991 had a higher prevalence of ADT in 1993-2000. Regions with higher rates of radical prostatectomy in 1987-1991 had higher rates of ADT in 1993-1999. As men weigh the pros and cons of PSA testing, they should also consider that such testing might increase their risk of eventually requiring ADT, which can be costly and problematic, but which also has potential, although largely unconfirmed, benefits. The study was supported in part by the Agency for Healthcare Research and Quality (HS10278).

More details are in "The rising prevalence of androgen deprivation among older American men since the advent of prostate-specific antigen testing: A population-based cohort study," by Dr. Barry, Michael A. Delorenzo, Ph.D., Elizabeth S. Walker-Corkery, M.P.H., and others, in the *British Journal of Urology International* 98, pp. 973-978, 2006. ■

Patient Safety and Quality

More than one-third of hospitalized patients are concerned about medical errors, which they define more broadly than clinicians

Nearly all (94 percent) patients at 12 Midwestern hospitals considered their medical safety as good, very good, or excellent, according to a new study. However, 39 percent had at least one medical error-related concern. Most were concerned about medication errors (17 percent of those interviewed), nursing mistakes (15 percent), and problems with medical equipment (10 percent). Patients who are

concerned about medical errors generally have very specific concerns, which reduce their satisfaction with care and willingness to recommend and return to a hospital, note the study authors.

Their study also found that patients defined medical errors more broadly than health care workers. Patients defined medical errors to include not only clinical mistakes, but also falls,

communication problems, and responsiveness of providers. If patients' definition of medical errors is broader than the traditional medical definition, providers should clarify the term "error" to ensure effective communication, advise the researchers.

Researchers interviewed by telephone 1,656 patients from 12 Midwestern hospitals in 2002 about

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Medical safety

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their conceptualization of medical errors and perceived risk of 7 types of medical errors: mistake or error with medications, problems with medical equipment, a mistake by nurses, a mistake by physicians,

being mistaken for another patient, wrong test/procedure, and being misdiagnosed. The study was supported in part by the Agency for Healthcare Research and Quality (HS11898).

See "Patients' concerns about medical errors during

hospitalization," by Thomas E. Burroughs, Ph.D., Amy D. Waterman, Thomas H. Gallagher, M.D., and others in the January 2007 *Journal on Quality and Patient Safety* 33(1), pp. 5-14. ■

Over half of missed diagnoses in the emergency department alleged in malpractice claims resulted in harm to patients

Of 122 closed malpractice claims, 65 percent involved missed emergency department (ED) diagnoses that harmed patients. Nearly half (48 percent) of these missed diagnoses were associated with serious harm, and 39 percent resulted in death, according to a new study. The leading breakdowns in the diagnostic process were failure to order an appropriate diagnostic test (58 percent of errors), failure to perform an adequate medical history or physical examination (42 percent), incorrect interpretation of a diagnostic test (37 percent), and failure to order an appropriate consultation (33 percent).

Types of missed diagnoses ranged from fractures and infections to heart attack and cancer, problems that comprised half the cases. The cause of missed diagnoses was complex, with the majority involving multiple breakdowns in the diagnostic process, several contributing factors, and more than one provider. The most common contributing factors were mistakes in judgment (87 percent of missed diagnoses), lack of technical competence or knowledge (58 percent), and lapses in vigilance or memory (41 percent). These cognitive factors operated alone in one-third of missed diagnoses; in two-thirds of cases other factors also contributed to the missed diagnoses.

Other leading contributing factors to missed diagnoses included patient-related factors (34

percent), lack of appropriate ED staff supervision (30 percent), inadequate handoffs of patients to new staffers (24 percent), and excessive workload (23 percent). A median of two process breakdowns and three contributing factors were involved in each missed diagnosis. The findings were based on a review of the closed files of 122 malpractice claims alleging missed or delayed diagnosis in the ED. The study was supported by the Agency for Healthcare Research and Quality (HS11886 and HS11285).

See "Missed and delayed diagnoses in the emergency department: A study of closed malpractice claims from 4 liability insurers," by Allen Kachalia, M.D., J.D., Tejal K. Gandhi, M.D., M.P.H., Ann Louise Puopolo, B.S.N., R.N., and others, in the February 2007 *Annals of Emergency Medicine* 49(2), pp. 196-205.

Editor's note: Another AHRQ-supported study on medical errors (HS11878) found that the response to medical mistakes by the medical community influenced how rural victims of mistakes perceived the mistake and resulting harm. For more details, See: Van Vorst, R.F., Araya-Guerra, R., Felzien, M., and others. (2007, March). "Rural community members' perceptions of harm from medical mistakes: A high plans research network (HPRN) study." *Journal of the American Board of Family Medicine* 20, pp. 135-143. ■

Few of the safeguards routinely used for intravenous chemotherapy have been adopted for oral chemotherapy at U.S. cancer centers

Some common cancers can be treated with oral instead of intravenous chemotherapy. Yet, few of the safeguards routinely used for infusion chemotherapy have been adopted for oral chemotherapy at U.S. cancer centers, according to a new study. In addition, there is currently no consensus at these centers about safe medication practices for oral chemotherapy, notes Saul A. Weingart, M.D., Ph.D., of the Dana-Farber Cancer Institute. Dr. Weingart and colleagues analyzed survey responses of pharmacy directors from 42 comprehensive cancer centers in the United States to characterize current safety practices for the use of oral chemotherapy.

Clinicians at 29 centers used handwritten prescriptions for most oral chemotherapy prescribing, 2 used preprinted paper prescriptions, and 6 used electronic systems. Only 1 in 3 centers required a clinician to note the patient's body surface area (used to calculate the correct and safe dose) or calculation of dose on the prescription for 6 commonly used oral chemotherapy drugs. Only 1 in 4 centers required the patient's diagnosis or protocol on the prescription. An average of 10 centers required a diagnosis on the prescription, 11 required the protocol number, 4 required the treatment cycle number, 9 required double checking of the prescription by a second clinician, 14 required a calculation of body surface area, and 14 required a calculation of dose per square meter of body surface area. Yet, these are standard safeguard practices for prescribing intravenous chemotherapy.

About half the cancer centers coordinated oral with intravenous chemotherapy, and only a third requested patients' written informed consent when oral chemotherapy was given off protocol. Also, 10 centers had no formal process for monitoring patients' adherence to the therapy. Pharmacy directors at 10 centers reported at least 1 serious adverse drug event related to oral chemotherapy, and those at 13 centers reported a serious near miss in the past year. The researchers recommend that the oncology community define safe medication practices appropriate for oral chemotherapy, develop practice guidelines, and accelerate their adoption. Their study was supported by the Agency for Healthcare Research and Quality (HS11644).

See "Oral chemotherapy safety practices at U.S. cancer centres: Questionnaire survey," by Dr. Weingart, Jonathan Flug, Daniela Brouillard, and others, in the February 2007 *British Medical Journal* 334, pp. 407-409.

Editor's note: Another AHRQ-supported study (HS11644) by the same research team found that patients are able to recognize unsafe practices in outpatient oncology care. For more details, see: Weingart, S.N., Duncombe, D., Connor, M., and others. (2007, February). "Patient-reported safety and quality of care in outpatient oncology." *Journal on Quality and Patient Safety* 33(2), pp. 83-94. ■

Price competition induced by HMOs and other managed care plans in California has not diminished hospital quality of care

In California, managed care is prevalent and managed care markets are mature. In that State, a new study found that hospitals that face high price competition, which are believed to have cut costs in response, have not lowered their quality of care. On the contrary, the study found evidence that they provide higher quality care. The researchers linked hospital discharge data from general hospitals in California with vital statistics data from 1994 to 1999. The study sample included

adult patients hospitalized for heart attack, hip fracture, stroke, gastrointestinal hemorrhage (GIH), congestive heart failure (CHF), or diabetes.

Thirty-day mortality rates ranged from a high of 16 percent for stroke to a low of 3.3 percent for diabetes. Higher hospital competition was associated with lower 30-day mortality for three to five of the six study conditions, depending on the competition measure. Higher HMO penetration was associated with lower mortality

for GIH and CHF. Higher hospital competition reduced mortality for hip fracture by 26 percent, for stroke by 33 percent, and GIH by 18 percent. Higher HMO penetration reduced mortality for GIH by 25 percent and for CHF by 23 percent.

These odds ratios are consistent with clinically significant effects of hospital competition on mortality. For example, a California hospital at the 10th percentile of the

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Price competition

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Herfindahl competition index (area of low hospital competition) had a 30-day mortality rate of 7.1 percent for hip fracture compared with 6.2 percent in a hospital at the 90th percentile for the index (area of

high hospital competition). The corresponding figures for other conditions were 18.4 vs. 15.6 percent for stroke and 6.2 vs. 5.6 percent for GIH. The study was supported by the Agency for Healthcare Research and Quality (HS10770).

More details are in “Hospital competition, managed care, and mortality after hospitalization for medical conditions in California,” by Jeannette Rogowski, Ph.D., Arvind K. Jain, M.S., and Jose J. Escarce, M.D., Ph.D., in the April 2007 *HSR: Health Services Research* 42(2), pp. 682-705. ■

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Disparities/Minority Health

Disability determinations for job-related low back pain have questionable validity and reflect racial inequities

Work-related low back injuries are treated through the Workers' Compensation (WC) system. It is not uncommon for such injuries to eventually result in residual disability, and disability determination can be part of case closure. However, this determination is difficult due to the poor association between low back pain, functional compromise, and measurable spinal abnormalities. This makes WC judgments vulnerable to the influence of factors such as race and socioeconomic status (SES). Recent research conducted at the Saint Louis University School of Medicine by Raymond C. Tait,

Ph.D., and colleagues suggests that racial/SES inequities operate in disability determination.

Dr. Tait and colleagues surveyed 580 black and 892 white WC claimants with occupational low back pain from 2 Missouri counties approximately 21 months after claim settlement. They examined several medical variables as predictors of disability ratings, including diagnosis (regional backache versus herniated disc), surgery, and medical costs (as a proxy for intensity of medical care). Diagnosis and surgery were strongly associated with disability ratings at the time of case

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Low back pain

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settlement. In addition, race was associated with disability ratings, both directly and indirectly, through associations with diagnosis and surgery: Blacks were significantly less likely to receive a diagnosis of herniated disc than whites (33 vs 52 percent) and/or undergo surgery (8 vs. 30 percent).

Disability ratings, however, demonstrated little association with measures of pain, distress, and disability (including employment status) 21 months after claim settlement. Indeed, claimants who received higher disability ratings were somewhat less disabled than claimants with lower ratings. The inequitable

allocation of disability ratings reflects disparities in the management of occupational back pain and also raises questions as to the validity of associated disability determination processes. The study was supported by the Agency for Healthcare Research and Quality (HS13087).

See "Disability determination: Validity with occupational low back pain," by Dr. Tait, John T. Chibnall, Ph.D., Elena M. Andresen, Ph.D., and Nortin M. Hadler, M.D., in the December 2006 *Journal of Pain* 7(12), pp. 951-957. ■

Health Information Technology

Changes in workflow and tasks need to be assessed when introducing bar code medication administration into nurses' work

Bar code medication administration (BCMA) technology is being implemented slowly in hospitals across the United States. The BCMA technology consists of a medication network server and handheld devices that connect to medication administration record data through a wireless radio frequency link. The software system enables users to document the administration of medications at the bedside or other points of care in real time. When hospitals introduce a new technology like BCMA, they should study how the technology will change nurses' workflow and tasks as well as the safe administration of medications, according to a new study.

A human factors engineer and a pharmacist observed use of BCMA technology during medication administrations to identify work system factors that affected nurses'

use of and interaction with the technology when they administered medications. Nurses varied in the order in which they performed steps of the medication administration process, with a total of 18 different sequences identified. Some of these sequences were contrary to hospital policy and the original design of the medication administration process. In addition, they could be considered workarounds or potentially unsafe acts, notes Pascale Carayon, Ph.D., of the University of Wisconsin-Madison.

Interruptions and patient factors typically were precursors to medication errors and workarounds. For example, in 32 percent of observations, nurses were interrupted by the needs of patients and their families, nurses were interrupted by another provider or the nurse initiated an exchange with another provider, or

interruptions were caused by equipment, technology, or medications. Patient factors like unique patient populations (children, the disabled, or the critically ill) or contact isolation requirements also affected medication administration. These factors may not have been taken into consideration during the development of BCMA technology, note the researchers. Their study was supported by the Agency for Healthcare Research and Quality (HS14253).

See "Evaluation of nurse interaction with bar code medication administration technology in the work environment," by Dr. Carayon, Tosha B. Wetterneck, M.D., Ann Schoofs Hundt, Ph.D., and others, in the March 2007 *Journal of Patient Safety* 3(1), pp. 34-42. ■

Outcomes/Effectiveness Research

Rates of inappropriate carotid endarterectomy surgery decreased after publication of the results from clinical trials

Carotid endarterectomy (CEA) is surgery to prevent stroke by removing atherosclerotic plaque that is blocking the carotid artery in the neck. Few major procedures have engendered more controversy and undergone more rigorous evaluation than CEA. In the 1980s, one-third of CEAs among Medicare beneficiaries were done for inappropriate reasons. Based on these concerns several large international randomized controlled trials (RCTs) were done to clarify the indications for and efficacy of CEA. These RCTs showed that CEA reduced the risk of stroke and death compared to medication alone among carefully selected patients and surgeons. The New York Carotid Artery Surgery (NYCAS) study was undertaken to assess if rates of inappropriate surgery dropped since the publication of these RCTs.

The NYCAS study analyzed data on all 9,588 CEAs performed on elderly patients from January 1998 through June 1999 in New York State. The investigators convened a panel of national experts to develop a detailed list of 1,557 indications for CEA to assess the appropriateness of surgery. They also identified deaths and strokes within 30 days of surgery.

The investigators found that the rate of inappropriate surgery dropped substantially from 32 percent in 1981 prior to the RCTs to 8.6 percent in 1998/1999 after publication of the clinical trials. As such, these results can be interpreted as the success of evidence-based medicine. The most common reasons for inappropriate CEAs were high rate of coexisting illnesses (comorbidity) in asymptomatic patients (62.2 percent),

operating after a major stroke (14.2 percent), or for minimal stenosis (10.5 percent).

However, the investigators also found that the reasons for surgery have changed over the past 15 years. Nearly three-fourths of patients (72.3 percent) underwent CEA for asymptomatic stenosis, 18.6 percent for TIA, and 9.1 percent for stroke. What started as a procedure largely to prevent stroke among patients with recent strokes or transient ischemic attacks, three-quarters of the time is now done for patients without any symptoms from their carotid blockages—a group known to have less to gain from surgery.

Among asymptomatic patients, those with high comorbid illness burden had over twice the risk of death or stroke compared to those without high comorbidity (7.13 vs. 2.69 percent) and twice the acceptable risk recommended by national guidelines. The shift toward use of CEA for many asymptomatic patients is of concern because the net benefit from surgery for these patients is low and is reduced even further for asymptomatic patients with a number of coexisting illnesses, explain the researchers. The study was supported in part by the Agency for Healthcare Research and Quality (HS09754).

See “Has evidence changed practice? Appropriateness of carotid endarterectomy after the clinical trials,” by Ethan A. Halm, M.D., M.P.H., Stanley Tuhim, M.D., Jason J. Wang, Ph.D., and others, in the January 16, 2007 *Neurology* 68, pp. 187-194. ■

Acute respiratory distress syndrome leads to poor outcomes and high care costs, even after treatment with inhaled nitric oxide

Acute respiratory distress syndrome (ARDS) is a life-threatening condition in which lung injury or inflammation due to pneumonia, trauma, septic shock, or other causes lead to fluid buildup and restricted breathing. Even in previously healthy adults, ARDS is followed by poor survival, quality of life, and function, as well as high care costs and post-discharge resource use. According

to a new study, inhaled nitric oxide at 5 ppm has no effect on these outcomes. Thus, inhaled nitric oxide should not be routinely administered to ARDS patients outside the research setting, concludes Derek C. Angus, M.D., M.P.H., of the University of Pittsburgh.

Dr. Angus and colleagues examined the impact of inhaled nitric oxide on the outcomes of 385

previously healthy adults with ARDS at 46 academic and large community hospitals in the United States. Patients were randomized to 5 ppm inhaled nitric oxide or placebo gas. About two-thirds of both groups were alive at 1 year (67.3 percent for the nitric oxide group and 68.3 for the placebo group). Hospital costs from trial

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Acute respiratory distress syndrome

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enrollment to discharge were high and similar in the nitric oxide and placebo groups (\$48,500 vs. \$47,800). There were also no differences in length of stay or therapeutic interventions needed for both groups.

Nearly half (43 percent) of patients were discharged to another health care facility or to home with

need for professional help, and 24 percent were readmitted to the hospital in 6 months, with no differences between groups. By 1 year, patient resource use had diminished, and the majority were living independently at home. Yet, survivors of both groups still reported low quality of life and poor functioning. For example, their ability to carry out activities of daily living declined by about 40 percent from before development

of ARDS and remained so 1 year later. The study was supported in part by the Agency for Healthcare Research and Quality (HS11620).

See "Healthcare costs and long-term outcomes after acute respiratory distress syndrome: A phase III trial of inhaled nitric oxide," by Dr. Angus, Gilles Clermont, M.D., M.Sc., Walter T. Linde-Zwirble, and others, in the December 2006 *Critical Care Medicine* 34(12), pp. 2883-2890. ■

Pertussis vaccination in adults can be cost-effective depending on incidence rates

The incidence of pertussis, commonly known as whooping cough, has steadily increased in the United States over the past 2 decades. Among adolescents and adults, pertussis can lead to substantial illness and missed school and work days. Routine vaccination of adults aged 20 to 64 years with combined tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine is cost-effective if pertussis incidence in this age group is greater than 120 per 100,000 population, concludes a new study.

Routine use of Tdap was recommended for all adolescents aged 11-12 years in June 2005. Prior economic evaluations of adult pertussis vaccination strategies have reported disparate results, notes Grace M. Lee, M.D., M.P.H., of Harvard Medical School. In this study, Dr. Lee and fellow researchers used a model to calculate the health benefits, risks, costs, and cost-effectiveness of three strategies: no adult pertussis vaccination; one-time adult vaccination at 20-64 years; and adult vaccination with boosters

every 10 years. The model incorporated factors such as severity of pertussis illness, vaccine adverse events, and herd immunity (spillover effect of immunity on other groups).

At a disease incidence of 360 per 100,000, one-time adult vaccination would prevent 2.8 million cases, and the 10-year booster strategy would prevent 8.3 million cases. As disease incidence varied from 10 to 500 per 100,000, the one-time adult vaccination strategy would prevent 79,000 to 3.8 million adult pertussis cases, while the 10-year booster strategy program would prevent 239,000 to 11.4 million cases. A one-time adult vaccination strategy would result in 106 million people vaccinated, or about 64 percent of the adult age group, for a total program cost of \$2.1 billion, while the 10-year booster strategy would cost \$6.7 billion. Both vaccination strategies would cost less than \$50,000 per quality-adjusted life year saved, if disease incidence in adults were greater than 120 cases per 100,000 population. This is the amount considered cost-effective for health interventions. The study

was supported in part by the Agency for Healthcare Research and Quality (HS13908).

See "Cost effectiveness of pertussis vaccination in adults," by Dr. Lee, Trudy V. Murphy, M.D., Susan Lett, M.D., M.P.H., and others, in the March 2007 *American Journal of Preventive Medicine* 32(3), pp. 186-193.

Editor's Note: Another AHRQ-supported article (HS10247) on a related topic concluded that the decreased prevalence of antibiotic resistance with the introduction of heptavalent pneumococcal conjugate vaccine is likely to be partially eroded over time as vaccine-included pathogen serotypes are replaced by resistant clones of nonvaccine serotypes. For more details, see: Hanage, W.P., Huang, S.S., Lipsitch, M., and others. (2007, February). "Diversity and antibiotic resistance among nonvaccine serotypes of *Streptococcus pneumoniae* carriage isolates in the post-heptavalent conjugate vaccine era." *Journal of Infectious Diseases* 195, pp. 347-352. ■

Attaining clinical targets among hemodialysis patients is linked to better outcomes

Doctors caring for patients undergoing hemodialysis for end-stage renal disease (ESRD) ideally set clinical targets for nutrition, bone disease management, anemia management, dialysis adequacy, and vascular access placement for dialysis tubes. When patients achieve these targets, they have improved outcomes, concludes the ESRD Quality Study. Johns Hopkins University researchers prospectively studied attainment of these 5 clinical targets within 6 months of study enrollment for 668 hemodialysis patients from 74 U.S. not-for-profit dialysis clinics. The targets included albumin (a type of protein) of 4.0 g/dl or higher (higher serum albumin is a marker of better nutrition and lower inflammation), hemoglobin of 11 g/dl or higher (a marker of better anemia management), calcium-phosphate product of more than 55 mg²/dl² (a marker of effective bone disease management and less bone loss), dialysis dose of Kt/V 1.2 or higher, and vascular access for hemodialysis via fistula (joined artery and vein, usually in the forearm) rather than graft.

Attainment of each of the clinical targets was strongly associated with better outcomes, including fewer deaths and hospitalizations, fewer days in the hospital, and lower overall Medicare hospital payments. In addition, attainment of each additional

target reduced risk of dying by about 35 percent, risk of hospitalization by about 20 percent, and the number of days hospitalized by 24 percent, and decreased annual Medicare hospital payments by about \$762 per patient-year.

The study validates professional clinical practice guidelines for care of ESRD patients on hemodialysis. It also should reassure physicians of chronic disease patients that efforts to attain clinical targets in their patients can improve their health. For example, patients who attained the albumin target had 45 percent decreased mortality, 33 percent fewer hospital admissions, 39 percent fewer hospital days, and average annual cost reductions of \$3,282 compared with patients who did not achieve the target. The study was supported in part by the Agency for Healthcare Research and Quality (HS08365).

More details are in "Attainment of clinical performance targets and improvement in clinical outcomes and resource use in hemodialysis care: A prospective cohort study," by Laura C. Plantinga, Sc.M., Nancy E. Fink, M.P.H., Bernard G. Jaar, M.D., M.P.H., and others, in the *BMC: Health Services Research* 7(5), 2007, available online at www.biomedcentral.com. ■

Chronic Disease

How well dialysis patients view their current health at the start of hemodialysis is related to subsequent outcomes and utilization

Patients with end-stage renal disease (ESRD) undergo 3- to 4-hour hemodialysis sessions 3 days a week in order to filter out toxins that their kidneys are no longer able to filter. ESRD patients suffer from symptoms ranging from fatigue and muscle cramps to poor sleep quality and itching. They are also expected to follow a strict diet and limit fluid intake, and they take many medications every day. Better understanding of how dialysis patients view their current health at the start of dialysis may serve to provide

insights for subsequent health care utilization and health outcomes, according to a new study.

The researchers measured the current health perceptions of 567 dialysis patients treated at 74 clinics using the time trade-off scale. The highest scores (1.0) were associated with 12 percent fewer hospitalizations than the lowest scores (less than 0.50), a finding that was consistent across gender and race. Higher scores were also associated with less worsening of coexisting diseases, especially among women. However, risk of

death was not different across persons with high, intermediate, and lower preference scores for current health state.

Strong affiliation with current health status might lead to better self-management of aspects of disease under the patients' control and, hence, better subsequent clinical outcomes. For example, more patients with higher health preference scores attained 6-month clinical performance targets of dialysis dose (significant only among whites) and native vein

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Dialysis patients

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vascular access (significant only among women) than those with lower scores. Higher scores were also associated with subsequent improvement in both self-reported

mental and physical health. The study was supported in part by the Agency for Healthcare Research and Quality (HS08365).

See "Preferences for current health and their association with outcomes in patients with kidney disease," by Laura C. Plantinga,

Sc.M., Nancy E. Fink, M.P.H., Eric B. Bass, M.D., and others, in the March 2007 *Medical Care* 45(3), pp. 230-237. ■

Patients infected with both HIV and hepatitis C virus lose more weight than those with only one of the infections

About one-third of patients with HIV are coinfecting with hepatitis C virus (HCV). Patients treated with multiple antiviral agents for both HIV and HCV infection are more likely to suffer significant weight loss patients treated for either HCV or HIV alone, according to a new study. The addition of the anti-HCV nucleoside analogue ribavirin to treat HCV to a highly active antiretroviral therapy (HAART) regimen for HIV, which already contains one or more nucleoside reverse transcriptase inhibitors (NRTIs), may worsen weight loss. Clinical observations have suggested that ribavirin might potentiate mitochondrial damage in subcutaneous adipose tissue when used with other nucleoside analogues. This can lead to lipoatrophy (loss of fat in specific parts of the body such as the face, arms, legs, and buttocks) and weight loss.

Researchers retrospectively studied 63 HIV-HCV coinfecting patients, 64 HCV-monoinfected patients, and 65 HIV-monoinfected patients from 4 Philadelphia hospitals. They calculated whether the degree of weight loss among patients with HIV/HCV receiving HAART and pegylated (PEG)-interferon plus ribavirin was greater than in HCV monoinfected patients receiving PEG-interferon plus ribavirin and HIV monoinfected patients receiving HAART. They also examined risk factors for weight loss.

Body weight for HIV/HCV-coinfecting and HCV-monoinfected patients was stable before initiation of HCV therapy. However, both groups lost weight after HCV treatment began, with the rate of weight loss being greater for dually-treated HIV/HCV subjects. The median loss in body weight from baseline was greater in dually-treated HIV/HCV-coinfecting subjects compared to treated HCV-monoinfected subjects and treated HIV-monoinfected subjects. In addition, 76 percent of dually infected patients had clinically

significant weight loss (5 percent or more of baseline body weight) a year after therapy compared with 39 percent of patients with HCV and 3 percent of HIV patients. Receipt of 3 or 4 NRTIs by dually infected patients increased the risk of clinically significant weight loss over 8-fold. This suggests that mitochondrial toxicity might play some role in weight loss during dual HIV/HCV therapy. Additional risk factors such as anorexia, depression, and dietary changes, may be contributing to this adverse effect. The duration of NRTI use and ribavirin dose were not risk factors for weight loss. No individual NRTI increased the risk of clinically significant weight loss. The study was supported in part by the Agency for Healthcare Research and Quality (HS10399).

See "Incidence and risk factors for weight loss during dual HIV/hepatitis C virus therapy," by Vincent Lo Re, III, M.D., M.S.C.E., Jay R. Kostman, M.D., Robert Gross, M.D., M.S.C.E., and others, in the March 1, 2007 *Journal of Acquired Immune Deficiency Syndromes* 44(3), pp. 344-350.

Editor's note: Another AHRQ-supported study (HS10399) by the same researchers found that self-reported hepatitis B and C virus infections among HIV-infected injection drug users (IDUs) and non-IDUs did not sufficiently match HBV and HCV infection on blood tests to warrant using self-report to estimate the prevalence and incidence of these infections. For more details, see: Lo Re III, V., Frank, I., Gross, R., and others. (2007, March). "Self-reported hepatitis B and C virus infections had low sensitivity among HIV-infected patients." *Journal of Clinical Epidemiology* 60, pp. 294-299. ■

Access to Care

Medication therapy management programs varied widely after initial implementation of the Medicare Part D drug benefit

The 2003 Medicare Prescription Drug, Improvement, and Modernization Act (MMA) provided drug benefits for the first time to Medicare beneficiaries in the hope that better access to drugs would reduce use of emergency and other care, as well as hospitalizations. The MMA includes a Medication Therapy Management (MTM) program for persons with multiple chronic diseases who are on multiple long-term medications and likely to incur annual Part D Medicare drug costs over \$4,000. The Centers for Medicare & Medicaid Services (CMS) purposely left the MTM program requirements vague, allowing the marketplace to experiment and evolve. MTM programs implemented in the first few months of the Medicare Part D benefit varied widely in enrollment requirements and range of services offered, according to a new study.

Of the MTM programs offered, 90.5 percent restricted their enrollment based on a person's number of diseases, with a median of three diseases required; 57.1 percent restricted enrollment based on the type of chronic condition; and 95.2 percent had requirements for the number of medications (median of six) necessary for program enrollment. The most frequently provided MTM services were patient education (75 percent of programs), medication adherence (70 percent), and medication review (60 percent). In-house telephone call centers were the most common method of providing MTM services, used by 90.4 percent of programs, followed by mailed interventions, which were used by 76.1 percent of MTM programs.

However, these types of interventions lacked empirical justification. As best practices are identified, the benefit will certainly become more prescriptive and

restrictive in the coming years, note Daniel R. Touchette, Pharm.D., M.A., of the University of Illinois at Chicago, and colleagues. Their findings were based on a survey of MTM benefit plan managers of 70 randomly selected health plans covering 12.1 million Medicare beneficiaries throughout the United States. The study was supported in part by the Agency for Healthcare Research and Quality (Contract No. 290-2005-0038) as a part of the DEcIDE (Developing Evidence to Inform Decisions about Effectiveness) program.

More details are in "Survey of medication therapy management programs under Medicare part D," by Dr. Touchette, Anne L. Burns, B.Pharm., Marcie A. Bough, Pharm.D., and Juan C. Blackburn, M.D., M.B.A., M.P.H., in the November 2006 *Journal of the American Pharmaceutical Association* 46(6), pp. 683–691. ■

Socioeconomically disadvantaged patients with lupus have less access to and use of health care

Patients with lupus (systemic lupus erythematosus), a chronic inflammatory disease that can affect the skin, joints, heart, kidneys, and other organs, suffer a variety of symptoms that may come and go over time. The most common symptoms include painful or swollen joints, unexplained fever, and extreme fatigue. Despite better survival for patients with lupus, the burden of the disease remains high, especially among persons of low socioeconomic status. Yet this group has less access to and use of care than other groups, according to

three studies supported by the Agency for Healthcare Research and Quality (HS13893). The studies, part of the Lupus Outcomes Study, were led by Edward Yelin, Ph.D., of the University of California, San Francisco. They are briefly discussed here.

Yazdany, J., Gillis, J.Z., Trupin, L., and others. (2007, May). "Association of socioeconomic and demographic factors with utilization of rheumatology subspecialty care in systemic

lupus erythematosus." *Arthritis & Rheumatism* 57(4), pp. 593-600.

Although elderly and impoverished groups traditionally have access to health care through Medicare and Medicaid programs, having health insurance alone did not ensure equal use of care for lupus patients in this study. Patients who were older than 50 or in the lowest income category were twice as likely to report no rheumatology visits in the past year, even after taking insurance, disease severity, and other factors into account. This

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Lupus studies

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suggests that additional barriers to accessing rheumatology specialty care may exist in these patient populations, note the researchers. They examined Lupus Outcomes Study survey data between 2002 and early 2004 on 982 people with lupus to identify predictors of use of rheumatology and other specialty care for lupus in the previous year.

Medicare insurance, male sex, and less severe disease were also associated with lack of rheumatology care. Race/ethnicity and educational attainment were not significantly related to seeing a rheumatologist. Yet blacks were twice as likely to report severe disease and three times more likely to have markers of kidney disease such as undergoing a renal biopsy, and thus, were twice as likely to see a rheumatologist. Although three-fourths (77 percent) of lupus patients identified a rheumatologist as the physician primarily responsible for their lupus care, older and lower-income patients were least likely to identify a specialist as primarily responsible for their lupus care.

However, most patients who lacked rheumatologic care had seen a primary care provider (80 percent) or other physician such as a pulmonologist, nephrologist, dermatologist, or obstetrician/gynecologist (62 percent). Many patients reported care by multiple providers, such as a rheumatologist and a primary care provider, nephrologist, or pulmonologist.

Gillis, J.Z., Yazdany, J., Trupin, L., and others. (2007, May). "Medicaid and access to care among persons with systemic lupus erythematosus." *Arthritis & Rheumatism* 57(4), pp. 601-607.

A limited number of rheumatologists routinely accept Medicaid patients, according to the authors of this study. They found that Medicaid-insured patients with lupus may face more barriers than other lupus patients to obtaining comprehensive medical care near where they live. The researchers used an Internet mapping program to calculate the distance between the homes of 982 adults with lupus and their physicians. They then assessed the association between Medicaid status and distance traveled to the primary lupus provider, as well as the number of visits to lupus specialists and other physicians.

About 6 percent of patients were insured only by Medicaid, 9 percent by Medicare plus Medicaid, and 85 percent by other types of insurance. Medicaid patients traveled 11.5 more miles than those with other insurance to see any lupus care provider and 19.8 more miles to see a rheumatologist, after adjusting for other factors such as lupus severity, age, ethnicity, urban status, and education. Medicaid-insured individuals were equally as likely to have seen a rheumatologist and to have visited the rheumatologist a similar number of times in the past year as those with other types of insurance. They also did not differ from those with other types of insurance in their use of other types of physicians.

However, Medicaid patients were 2.6 times more likely to see a general practitioner for lupus-related symptoms and reported a mean of about five more visits to the general practitioner within the past year for lupus-related issues. Similarly, Medicaid patients were more likely to have visited the emergency room (ER) for lupus one or more times in the past year. These differences in use patterns remained significant, even after

accounting for other factors affecting care use.

Yelin, E., Trupin, L., Katz, P., and others. (2007, April). "Impact of health maintenance organizations and fee-for-service on health care utilization among people with systemic lupus erythematosus." *Arthritis & Rheumatism* 57(3), pp. 508-515.

This study compared health care use among persons with lupus in HMOs and fee-for-service (FFS) health insurance plans. It found lower use of outpatient physician visits and less use of diagnostic testing, along with fewer outpatient surgeries and hospital admissions among people with lupus in HMOs than in FFS health plans. These effects were not completely explained by socioeconomic, demographic, and health characteristics.

However, the largest differences in care use between HMO and FFS members were among lupus patients with Medicare and Medicaid insurance. This suggests that reduced use of health care resources by HMO lupus patients is concentrated among the aged, disabled, and impoverished patients insured by these government programs. The largely middle-class employed population may be able to negotiate the rules of HMOs in a way that minimizes the effects of HMO coverage, note the researchers. They examined Lupus Outcomes Study survey data to compare health use of 982 patients with lupus in HMO and FFS plans between 2002 and early 2005.

After adjusting for socioeconomic, demographic, and health factors, lupus patients in HMOs had 2.3 fewer physician visits, 4.4 percent fewer outpatient surgery visits, and 4 percent fewer hospital admissions than those in

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Lupus studies

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FFS plans. Health, sociodemographic characteristics, and insurance type accounted for some of the difference in physician

visits between those in HMO and FFS plans. Health characteristics and source of insurance, but not sociodemographic characteristics, accounted for some of the differences in hospital admissions.

Nevertheless, all variables combined reduced the difference in hospital admission rates between those in HMOs and FFS plans from 5.5 to 1.7 percent. ■

Acute Care/Hospitalization

Despite prior-approval requirements of hospitals for certain antimicrobials, doctors still manage to “stealth dose”

Hospital programs in which experts in antimicrobial drugs must approve the use of restricted antimicrobial agents are becoming widespread. However, some physicians find these prior-approval Antimicrobial Stewardship Programs (ASPs) inconvenient, stressful, and time-consuming. Physicians can also avoid obtaining prior approval for initial doses of restricted antimicrobials by placing orders after ASP hours (if the ASP is inactive overnight) when approval is not required. This “stealth dosing” of restricted antimicrobials is more likely to be in conflict with prescribing guidelines or unnecessary, note researchers at the University of Pennsylvania Center for Research and Education on Therapeutics.

Darren R. Linkin, M.D., M.S.C.E., and colleagues examined whether there was an increase in orders for restricted antimicrobials compared with therapy using unrestricted antimicrobials at one medical center with a prior-approval ASP. Requests for restricted antimicrobial therapy were made by paging an Infectious Diseases (ID) specialist (ID-trained pharmacist or ID fellow). Outside of active program hours (between 10 pm and 8 am), physicians may order restricted antimicrobials without prior approval.

However, approval must be obtained the next day to continue therapy with the restricted agent.

A greater proportion of all antimicrobial therapy orders placed between 10:00 pm and 11:00 pm were for restricted agents, compared with orders placed during all other hours (57 vs. 49.9 percent). Surgical and non-surgical patients for whom antimicrobial therapy orders were placed between 10:00 and 10:59 pm were less likely to have that antimicrobial therapy continued than patients whose therapy was ordered between 9:00 and 9:59 pm (60.0 vs. 98.1 percent and 70.8 vs. 84.2 percent, respectively). This suggests that later orders were either in conflict with guidelines or unnecessary. The study was supported by the Agency for Healthcare Research and Quality (HS10399 and HS11530).

More details are in “Evaluation of antimicrobial therapy orders circumventing an antimicrobial stewardship program: Investigating the strategy of ‘stealth dosing,’” by Lori Ann LaRosa, Pharm.D., Neil O. Fishman, M.D., Ebbing Lautenbach, M.D., M.P.H., M.S.C.E., and others, in the May 2007 *Infection Control and Hospital Epidemiology* 28(5), pp. 551-556. ■

Substance abuse and psychiatric illness account for the majority of hospital admissions among homeless veterans

Veterans, who make up a disproportionate part of the homeless population, are hospitalized at younger ages than housed veterans. In addition, substance abuse and psychiatric illness account for 80 percent of hospital admissions among homeless veterans, according to a

new study. Researchers compared the age at hospital admission and primary discharge diagnoses in a national sample of 43,868 veterans who were hospitalized at 141 Veterans Administration (VA) medical centers between 1996 and 1998. They included only patients in acute medical-surgical beds,

acute psychiatric and mental health beds, and acute substance abuse beds.

Homeless veterans admitted for medical or surgical diagnoses were a median of 10-18 years younger than housed veterans, and homeless

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Homeless veterans

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veterans admitted for psychiatric or substance abuse diagnoses were a median of 3-4 years younger than housed veterans. These findings suggest that homeless veterans have either a more rapid disease course, leading to earlier medical problems, or lower admission thresholds sufficient to prompt hospital admission, note the study authors.

Homeless veterans were also more likely to have been admitted for psychiatric and substance abuse

diagnoses than housed veterans (80 vs. 29 percent). Homeless veterans were also more likely to be admitted for diseases such as cellulitis, tuberculosis, and HIV, which are associated with living conditions that are common among homeless people. The confluence of mental illness, substance abuse, and chaotic social situations render homeless people, including veterans, susceptible to early disease, high hospitalization rates, and premature death. To decrease the early hospitalizations among homeless veterans, policy efforts should focus not only on homeless-

specific diseases, but on chronic disease management among homeless patients in the early stages of disease. The study was supported in part by the Agency for Healthcare Research and Quality (HS11415).

See "Hospitalized younger: A comparison of a national sample of homeless and housed inpatient veterans," by Jennifer Adams, M.D., Robert Rosenheck, M.D., Lauren Gee, J.D., M.P.H., and others, in the February 2007 *Journal of Health Care for the Poor and Underserved* 18, pp. 173-184. ■

Providing combination medication for elderly patients following a heart attack can save both lives and money

When taken in combination after a heart attack, aspirin, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and statins are estimated to reduce risk of dying from coronary heart disease by 80 percent compared with placebo. These medications continue to be greatly underused, even among patients with coverage for prescription drugs. Out-of-pocket costs for the medications are a key barrier to elderly patients taking them, note Harvard Medical School researchers. They estimated that providing combination drug therapy without cost sharing (full drug prescription coverage) to the 423,000 Americans with drug insurance who suffer their first heart attack would save 4,736 lives and would save insurers \$5,974 per patient.

The researchers developed a model to estimate anticipated changes in coronary event rates and health care spending if combination drug therapy were provided without any out-of-pocket costs to patients 65 years and older with some drug coverage who were discharged after hospitalization for a heart attack. They conducted the analysis from the perspective of a typical insurer that provides coverage for both medications and medical care. To assess the potential

benefit of full coverage, they observed post-heart attack rates of death, reinfarction, nonfatal stroke, readmission for congestive heart failure, and medication adherence.

Under base-case assumptions, full coverage was expected to increase compliance with combination drug therapy from 50 percent to 76 percent. For every 100 post-heart attack patients, this would result in 1.1 fewer deaths, 13.1 fewer nonfatal heart attacks, 1.2 fewer nonfatal strokes, and 6.6 fewer readmissions for heart failure than with current coverage. Expanded coverage would cost insurers an average of \$644 more per patient, but would avert \$6,770 in coronary event-related costs on average. Therefore, insurers would save \$5,974 per patient, a substantial savings. The study was supported by the Agency for Healthcare Research and Quality (HS10881).

See "Should patients receive secondary prevention medications for free after a myocardial infarction? An economic analysis," by Niteesh K. Choudhry, M.D., Ph.D., Jerry Avorn, M.D., Elliott M. Antman, M.D., and others, in the January/February 2007 *Health Affairs* 26(1), pp. 186-194. ■

Health Care Costs and Financing

Financial pressures on hospitals in the 1990s led to less investment in care resources and poorer quality of care

Financial pressures mounted for many U.S. hospitals during the late 1990s, given public and private sector efforts to constrain reimbursement growth. Some hospitals were forced to make tough choices between hiring staff, replacing antiquated equipment, and investing in new technology. These financial pressures led to cutbacks in investments in plant and equipment and less compliance with quality of care standards, according to a new study. Poor patient outcomes observed during the late 1990s may partly result from these reductions in supporting hospital infrastructure and organizational processes, concludes Gloria J. Bazzoli, Ph.D., of Virginia Commonwealth University.

Dr. Bazzoli and coinvestigators examined the relationship between financial pressures on a sample of community hospitals between 1995 and 2000 and investments in plant and equipment as well as

performance on seven Joint Commission on Accreditation of Healthcare Organizations (JCAHO) performance areas. They measured hospital financial status based on changes in net patient revenues per adjusted patient day and the ratio of cash flow to total revenues.

Hospitals with weaker financial performance were more likely to reduce investments in plant and equipment and were less likely to comply with four of the JCAHO performance areas studied. Specifically, as hospital financial performance declined, hospitals had lower compliance with timely completion of comprehensive patient assessments within 24 hours of admission. As financial status declined, hospital performance also lagged in relation to JCAHO standards for conducting and documenting periodic reviews of staff competency, management of patient-specific information, and infection control. Overall, compliance with the areas noted

above may require additional staff and management infrastructure that financially strapped hospitals could not afford. The study found no effect of hospital financial performance on compliance with JCAHO standards related to hospital medication use, anesthesia, and operative procedures. Performance problems in these latter areas are likely to be more visible to patients, families, and physicians, and thus, hospitals may protect them from cutbacks, because deficiencies may lead to a loss of referrals and market share. The study was supported by the Agency for Healthcare Research and Quality (HS13094).

See "Hospital financial condition and operational decisions related to the quality of hospital care," by Dr. Bazzoli, Jan P. Clement, Ph.D., Richard C. Lindrooth, Ph.D., and others, in the April 2007 *Medical Care Research and Review* 64(2), pp. 148-168. ■

Education, income, and wealth all affect medical care expenditures among Medicare managed care members

More than 5 million older Americans are currently enrolled in Medicare managed care plans. Education, income, and wealth all affect the medical care expenditures of this group, concludes a new study of two Medicare managed care plans. Higher educational level and more assets increased expenditures for physician services, especially for specialist services, as well as total medical care expenditures. More highly educated enrollees may have a better understanding of the benefits of specialist care and may be better able to navigate the managed care system in order to obtain referrals for specialist care. Also, physicians may be more likely to satisfy these patients' requests for specialist referrals or believe they are more capable of

adhering to complex regimens than other patients, note the researchers.

The effect of assets on outpatient and other care expenditures was mixed. Income also affected medical expenditures. Poor enrollees had substantially higher inpatient hospital expenditures and, as a result, higher total expenditures than nonpoor enrollees. Poorer groups may have worse health to begin with. Also, if they are more likely to delay outpatient care, they may develop more severe health problems that require hospitalization.

The effect of socioeconomic status (SES) on medical care expenditures in this study was modest compared to the effects found in earlier studies of

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Medicare managed care members

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fee-for-service Medicare. Perhaps the features of the Medicare managed care plans in this study contributed to blunting SES differences in expenditures. For example, the plans did not give financial incentives to providers to limit referrals and required all enrollees to select a primary care provider. SES was unrelated to reported ease of getting appointments, contacting providers, or obtaining referrals. While the findings suggest that preferences for health and medical care and

ability to navigate the managed care system influenced health care spending, these factors did not appreciably narrow the effects of education, wealth, and income on health care expenditures. The study was supported in part by the Agency for Healthcare Research and Quality (HS10770).

See “Socioeconomic status and medical care expenditures in medical managed care,” by Kanika Kapur, Ph.D., Jeannette A. Rogowski, Ph.D., Vicki A. Freedman, Ph.D., and others, in the November 2006 *Journal of Health Care for the Poor and Underserved* 17, pp. 876-898. ■

Agency News and Notes

Musculoskeletal procedures account for over 10 percent of all hospital care in the United States

Musculoskeletal procedures, including knee reconstruction or replacement (knee arthroplasty), total and partial hip replacement, and spinal fusion increased by nearly 25 percent between 1997 and 2005, climbing from 822,000 to 1.3 million, according to a new report from the Agency for Healthcare Research and Quality. The data indicate that that between 1997 and 2005:

- The number of knee surgeries climbed by 69 percent from 328,800 to 555,800. Hip replacements rose 32 percent from 290,700 to 383,500 procedures, and spinal fusion operations rose 73 percent from 202,100 procedures to 349,400.

- Women were 60 percent more likely than men to have hip replacements and 70 percent more likely to have knee surgery. Spinal fusions were equally likely in both men and women.
- Hospital stays for orthopedic procedures totaled \$31.5 billion—10 percent of all hospital patient care costs.
- Medicare paid the largest share of hospital costs for knee surgery and hip replacements (covering nearly 60 percent of all knee surgeries and 64 percent of all hip replacements). On the other hand, private insurance was billed for over half (52 percent) of spinal fusions.

More information can be found in *Hospital Stays Involving Musculoskeletal Procedures, 1997–2005* (www.hcup-us.ahrq.gov/reports/statbriefs/). The report uses data from the Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90 percent of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. ■

Announcements

New AHRQ resources can help States and local communities with disaster planning and response involving nursing homes

The Agency for Healthcare Research and Quality (AHRQ) has released *Emergency Preparedness Atlas: U.S. Nursing Home and Hospital Facilities*, which is intended to help local communities identify the health care facilities (hospitals and nursing homes) that could be available and prepared to provide assistance under emergency conditions in their communities.

The Emergency Preparedness Atlas includes six case studies of North Carolina, Oregon, Pennsylvania, southern California, Washington, and Utah. Each provides a series of maps showing the locations and capacity of nursing homes and hospitals as well as their geographic relationship to a variety of emergency management and bioterrorism preparedness regions, such as HAZMAT response regions, emergency management regions, and Red Cross chapters. The Atlas includes maps for all 50 States with the location of hospitals and nursing homes in each State, and it displays the locations relative to the distribution of the elderly population in the case study States.

Also published with the Atlas is a report, *Nursing Homes in Public Health Emergencies*, which presents

the results of a series of focus groups convened to collect information about disaster- and bioterrorism-related planning activities among nursing homes in the same six States used in the Atlas case study series. The report addresses the roles that nursing homes could play in regional preparedness, for example arranging with hospitals to transfer their less-critically ill or recovering patients to nursing homes.

Emergency Preparedness Atlas: U.S. Nursing Home and Hospital Facilities (AHRQ Publication No. 07-0029-2) and *Nursing Homes in Public Health Emergencies* (AHRQ Publication No. 07-0029-1) were developed for AHRQ under contract with RTI International. Both can be found online at www.ahrq.gov/prep/nursinghomes/atlas.htm and www.ahrq.gov/prep/nursinghomes/report.htm or ordered directly from AHRQ.*

Editor's note: AHRQ has funded more than 60 emergency preparedness-related studies, workshops, and conferences to help hospitals and health care systems prepare for public health emergencies. More information about these projects can be found online at www.ahrq.gov/prep/. ■

New reports identify State-level privacy and security solutions for secure exchange of health information

The Agency for Healthcare Research and Quality (AHRQ) has released a set of reports titled *Privacy and Security Solutions for Interoperable Health Information Exchange*. The reports review 34 State Health Information Exchange plans and identify the challenges and feasible solutions for ensuring the safety and security of electronic health information exchange. This work was funded under a contract with AHRQ, the Office of the National Coordinator for Health Information Technology, and RTI International.

All States followed a standard core methodology, but each was provided an opportunity to tailor

the process to meet their needs. As a result, States varied on several key dimensions, including degree of adoption of electronic health information exchange, health care market forces in the State, legal and regulatory conditions related to health information, State demographic composition, and State financial status. Some of the key findings point to the need for additional research and guidance on:

- Identifying different interpretations of the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule among States and

increasing awareness among stakeholders;

- Addressing variations regarding the potential intersections between Federal/State privacy laws;
- Evaluating the technologies available to protect security and privacy of individuals as well as the associated administrative processes and liabilities;
- Developing a system that accurately and consistently matches individual patients with their health record information—one that is created and updated by various

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New reports

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- health care providers/organizations; and,
- Developing a standard set of definitions and terms to

facilitate sharing of health information. For example, terms such as medical emergency, current treatment, related entity, and minimum necessary do not have agreed-upon definitions and may

increase variation as organizations attempt to meet compliance.

The reports can be downloaded from AHRQ's Health IT Web site at www.healthit.ahrq.gov. ■

Research Briefs

Beach, M.C., Duggan, P.S., Cassel, C.K., and Geller, G. (2007). "What does 'respect' mean? Exploring the moral obligation of health professionals to respect patients." (AHRQ grant HS13903). *Journal of General Internal Medicine* 22, pp. 692-695.

The authors of this paper develop a concept of respect that imposes a distinct moral duty on physicians, notably the respect for patients as persons. They challenge the idea that respect for autonomy is a complete or self-sufficient respect for persons. The authors suggest that the type of respect that physicians owe to patients is independent of a patient's personal characteristics and ought to be accorded equally to all. Finally, they promote the concept of respect as both a cognitive dimension (believing that patients have value) and a behavioral dimension (acting in accordance with this belief).

Capezuti, E., Taylor, J., Brown, H., and others. (2007). "Challenges to implementing an APN-facilitated falls management program in long-term care." (AHRQ grant HS11588). *Applied Nursing Research* 20, pp. 2-9.

Several clinical studies have demonstrated success in reducing falls among nursing home residents. However, the degree of adherence to these strategies varies widely among studies and nursing homes, especially following the removal of external consultants or advance practice nurses (APNs). This paper

identifies contextual factors that challenged the effective implementation of a falls reduction program. For nurses, the major problem with implementing the program involved inadequate nursing assessment and clinical decisionmaking. APNs, who influence nursing staff behavior with education and individual resident consultation, may fill the critical gap in falls management in nursing homes, conclude the authors.

Clancy, C.M. (2007, March). "Patient safety in the intensive care unit: Challenges and opportunities." *Journal of Patient Safety* 3(1), pp. 6-8.

In this article, the Director of the Agency for Healthcare Research and Quality (AHRQ) describes the current challenges and opportunities for ensuring patient safety in the intensive care unit (ICU) and AHRQ-supported initiatives related to ICU safety.

One is the ICU Safety Reporting System, a voluntary, anonymous, confidential, Web-based incident reporting system that collects information about adverse and near misses by ICU clinical staff. The Agency also collaborates with the Department of Defense to develop ICU teamwork through a training resource called TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety). Other projects include one that documents ICU scheduling and errors and one that examines the use

of ICU staffing with intensivists. Reprints (AHRQ publication no. 07-R054) are available from AHRQ.*

Clancy, C.M., and Tornberg, D.N. (2007, May). "TeamSTEPPS: Assuring optimal teamwork in clinical settings." *American Journal of Medical Quality* 22(3), pp. 214-217.

This commentary describes the TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) program to assure optimal teamwork in clinical settings, a collaborative effort between the Agency for Healthcare Research and Quality and the Department of Defense. The program offers a flexible, evidence-based toolkit to improve patient safety through enhanced communication and other teamwork skills. Typically, TeamSTEPPS initiatives occur in three continuous phases: assessment; planning, training, and implementation; and reinforcement and sustainment. The program offers a multifaceted, multimedia instructional model that includes classroom teaching, PowerPoint presentations, videos, role playing, case studies, coaching exercises, and a handy pocket guide. It promotes competency in four core areas: team leadership, situation monitoring, mutual support (backup behavior), and communication. Reprints (AHRQ publication no. 07-R024) are available from AHRQ.*

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Cowgill, B.O., Beckett, M.K., Corona, R., and others. (2007, February). "Guardianship planning among HIV-infected parents in the United States: Results from a nationally representative sample." (AHRQ grant HS08578). *Pediatrics* 119(2), pp. e391-e398.

Only one-fourth of unmarried parents infected with HIV who receive health care for their condition have a legally documented plan making provisions for a guardian to their children when they die. In an analysis of data from interviews with 222 unmarried parents, researchers found that 12 percent of unmarried HIV-infected parents had not identified a guardian; 6 percent had identified a guardian but had not discussed their wishes with the individual; 53 percent said the identified guardian had agreed, but only 28 percent had prepared legal documentation. Without a formal guardianship plan, caregivers may not have the authority to enroll children in school or provide consent for medical procedures. Parents with the lowest CD4 counts (indicator of worse HIV disease progression) and parents living without other adults were more likely to have completed the guardianship planning process.

Curtis, J.R., Martin, C., Saag, K.G., and others. (2007, March). "Confirmation of administrative claims-identified opportunistic infections and other serious potential adverse events associated with tumor necrosis factor α antagonists and disease-modifying antirheumatic drugs." (AHRQ grant HS10389). *Arthritis & Rheumatism* 57(2), pp. 343-346.

Opportunistic infections such as tuberculosis have been associated with the use of tumor necrosis factor α (TNF α) antagonists such as infliximab and etanercept drugs that

are increasingly used to treat rheumatoid arthritis (RA), Crohn's disease, and a variety of other inflammatory conditions. The authors of this study used a case identification strategy that searched for one or more diagnostic codes representing adverse events (AEs) possibly associated with a TNF α antagonist use. This approach had low predictive value to identify confirmed AEs, and overestimated the rates of at least some AEs. The researchers conclude that claims data are useful as an initial screen to identify uncommon adverse outcomes associated with TNF α antagonists and disease-modifying antirheumatic drugs. However, rare events and those requiring highly specific diagnoses need medical record confirmation as a second step to improve specificity and positive predictive value.

Ellis, R.P. and McGuire, T.G. (2007). "Predictability and predictiveness in health care spending." (AHRQ grant HS10803) *Journal of Health Economics* 26, pp. 45-48.

This paper reexamines the relationship between the predictability of health care spending and incentives due to adverse selection. The authors use a model of health plan decisions about service levels to show that predictability (how well spending on certain services can be anticipated), predictiveness (how well the predicted levels of certain services covary with total health care spending), and demand responsiveness all matter for adverse selection incentives. They quantify the relative magnitude of adverse selection incentives bearing on various types of health care services in Medicare to develop an index of incentives that can readily be applied to data from other payers.

Encinosa III, W.E., Gaynor, M., and Rebitzer, J.B. (2007). "The sociology of groups and the economics of incentives: Theory and evidence of compensation systems." *Journal of Economic Behavior and Organization* 62, pp. 187-214.

When people work together, they engage in noncontractual and informal interactions that constitute the sociology of the group. The authors of this paper use behavioral models and a unique survey of medical groups to analyze how group sociology influences physician incentive pay and behavior. They consider four possible explanations: risk aversion, income norms, effort norms, and mutual help activities. Their findings indicate that none of these models of incentive pay can individually account for all the patterns in the data. They conclude that informal interactions among group members influence pay practices and behaviors, but the relationship is complex. The data may be consistent with a richer model in which the sociology of the group and risk aversion of individual members together determine the groups' incentive pay policy. Reprints (AHRQ publication no. 07-R056) are available from AHRQ.*

Hadler, N.M., Tait, R.C., and Chibnall, J.T. (2007, April). "Back pain in the workplace." (AHRQ grant HS13087). *Journal of the American Medical Association* 297(14), pp. 1594-1596.

The workers' compensation system is transferring most of its largesse to provide the worker with back injury treatment tinged with racial bias, ineffective surgery, and invalid, if not fatuous, determinations of residual disability, assert the authors of this commentary. They propose an alternative view of the "injury" paradigm of backache, which views backache as an

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intermittent and remittent predicament of life. In some cases, work-related backache may be intolerable and disabling because the job is intolerable, unsatisfying, or insecure. In these cases, back “injury” may be a surrogate complaint. Such surrogate complaints might be countenanced if launching a workers’ compensation claim benefitted the worker who is hurting. However, expenditures to fix the “injured” spine demand that the worker prove that the injury is disabling. This misses the central issue of backache that reflects a worker who feels stressed and undervalued.

Hughes, R.G. and Clancy, C.M. (2007, February). “Improving the quality of nursing care using the medical expenditure panel survey data.” *Journal of Nursing Care Quality* 22(2), pp. 93-96.

This commentary describes the Medical Expenditure Panel Survey (MEPS), a national probability survey of health care use and expenses with a household component, medical provider component, and insurance component. The authors list recent findings from analyses of the MEPS that nurses can use as benchmarks to improve the delivery of health care services and patient outcomes. They point out that nurses can use the MEPS to assess specific health care conditions sensitive to nursing care when there are at least 800,000 cases of a condition per year. Nurses can also use data on the impact of expenditures on access and utilization of health care services to better understand the challenges patients encounter within the health care system. Reprints (AHRQ publication no. 07-R055) are available from AHRQ.*

LaPointe, N.M., Pappas, P., Deverka, P., and Anstrom, K.J. (2007, January). “Patient receipt and understanding of written information provided with isotretinoin and estrogen prescriptions.” (AHRQ grant HS10548). *Journal of General Internal Medicine* 22, pp. 98-101.

Medication guides (MG) and mandatory patient package inserts (MPPI) are required for prescription medications with potentially serious risks. Researchers at the Duke University Center for Education and Research on Therapeutics asked 200 patients who were taking isotretinoin (e.g., Accutane®) and 300 patients taking estrogen to complete a telephone survey about the MG or MPPI and their understanding of the medication’s risks. Most respondents said they had confidence in their knowledge of the medication they were taking (86 percent for isotretinoin and 75 percent for estrogen). Less than half of the women taking estrogen were aware that the drug may increase their risk of heart attack, but more than half of the women were aware that estrogen may increase their risk of uterine cancer. In addition, 96 percent of patients taking isotretinoin knew it could cause birth defects.

Lee, G.M. (2007, April). “Varicella vaccination in adults: Is it cost-effective?” (AHRQ grant 13908). *Clinical Infectious Diseases* 44, pp. 1049-1050.

This commentary discusses the issue of whether varicella vaccination is cost-effective in adults. Although 96 percent of adults 20 to 29 years of age and 99 percent of adults 30 years and older are immune to varicella (chicken pox), those who do become infected as adults sometimes suffer serious problems. Immigrants and refugees are disproportionately susceptible to varicella compared with adults from industrialized countries. One study

of refugees and immigrants in Canada found that selective blood testing followed by vaccination of susceptible 30-year-old adults was cost-saving in base-case analysis. This approach also prevented half of congenital and neonatal varicella cases. On the basis of this and other analyses, selective serological testing of adults with a negative or uncertain history of varicella, followed by vaccination of those who are found to be susceptible, appears to be a reasonably cost-effective and perhaps even a cost-saving approach for younger adults, immigrants, and refugees, conclude the authors.

Lynn, J., Baily, M.A., Bottrell, M., and others. (2007). “The ethics of using quality improvement methods in health care.” (AHRQ grant HS13369). *Annals of Internal Medicine* 146, pp. 666-673.

Quality improvement (QI) activities can improve health care, but they must be conducted ethically, assert the authors of this paper. They describe the discussions of a group of experts who convened to address the ethical requirements for QI and their relationship to regulation protecting human subjects of research.

They agreed that both clinicians and patients have an ethical responsibility to participate in QI, provided that it complies with specified ethical requirements. Most QI activities are not human subjects research and should not undergo review by an institutional review board. Rather, appropriately calibrated supervision of QI activities should be part of professional supervision of clinical practice.

McInnes, D.K., Landon, B.E., Wilson, I.B., and others. (2007, May). “The impact of a quality improvement program on systems, processes, and structures in

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medical clinics.” (AHRQ grant HS10227). *Medical Care* 45(5), pp. 463-471.

This study found that a quality improvement collaborative for HIV clinics resulted in modest organizational changes. Researchers surveyed clinicians, medical directors, and HIV program administrators before and after an 18-month quality improvement collaborative at 54 intervention and 37 control clinics providing HIV care. Intervention clinics reported greater computer availability and use, attendance at more local and national conferences, and a higher rating of their leaders' ability to implement quality improvement than control clinics. The HIV collaborative was based on a Chronic Care Model that included six core components necessary to achieve high quality chronic disease care: patient self-management support; decision support; information systems; community resources and policies; health system organization; and delivery system redesign.

Morgan, T.M., Krumholz, H.M., Lifton, R.P., and Spertus, J.A. (2007, April). “Nonvalidation of reported genetic risk factors for acute coronary syndrome in a large-scale replication study.” (AHRQ grant HS11282). *Journal of the American Medical Association* 297(14), pp. 1551-1561.

There are numerous but inconsistent reports of genetic variants being associated with acute coronary syndromes (ACS). These authors systematically searched the literature to identify genetic variants previously reported as significant susceptibility factors for atherosclerosis or ACS. They restricted their analysis to 811 white patients with ACS at 2 Missouri hospitals. They genotyped them along with 650 age- and sex-

matched controls for 85 variants in 70 genes and attempted to replicate previously reported associations. Of 85 variants tested, only 1 putative risk genotype was nominally significant. Only four additional genes were positive in model-free analysis. Their results provided no support that any of the 85 genetic variants tested is a susceptibility factor for ACS.

Pronovost, P.J., Holzmüller, C.G., Young, J., and others. (2007, March). “Using incident reporting to improve patient safety: A conceptual model.” (HS11902). *Journal of Patient Safety* 3(1), pp. 27-33.

This paper discusses the role of risk analysis and event taxonomies in patient safety reporting systems (PSRSs). It also presents a conceptual model that supports the use of reporting and analysis to help guide patient safety improvement efforts.

The authors examined methodologies being used for medical incident reports to improve patient safety. They found that PSRSs are widely recommended as a strategy to address the important problem of patient safety. Most efforts have focused on developing reporting systems and collecting incident data. The researchers outline a comprehensive conceptual model to help realize the full potential of reporting systems in patient safety improvement efforts.

Singh-Manoux, A., Gueguen, A., Martikainen, P., and others. (2007, March/April). “Self-rated health and mortality: Short- and long-term associations in the Whitehall II study.” (AHRQ grant HS06516). *Psychosomatic Medicine* 69, pp. 138-143.

How middle-aged men and women self-rate their health predicts their mortality strongly in the short term, but only weakly in the long

term, according to a new Whitehall II Study, an ongoing national, long-term study of British civil servants. The study included 6,316 men and 3,035 women. Mortality rates were examined in the short term (in the first 10 years after self-rating) and long-term (more than 10 years afterwards). Covariates included age, height and parental longevity, sociodemographics, health behaviors (tobacco and alcohol use, poor diet, low physical activity), and health (various illnesses, abnormalities, and sick days). More women reported poor or very poor health than men (7.1 vs. 3.7 percent). In nearly all cases, a decline in self-rated health was associated with increased mortality in the first 10 years. However, apart from the few men who rated their health as being “very poor,” the relationship between self-rated health with long-term mortality was weaker and not significant.

Thomas, J.C., Isler, M.R., Carter, C., and Torrone, E. (2007, February). “An interagency network perspective on HIV prevention.” (AHRQ grant HS10861). *Sexually Transmitted Diseases* 34(2), pp. 71-75.

This paper describes the network structures of agencies and individuals engaged in HIV prevention in a rural North Carolina county. The researchers interviewed participants about interactions with others in the network and examined network characteristics such as centralization and density. The authors concluded that the HIV prevention agencies in the county were not functioning as a network, and thus were not benefiting the community to their full potential. The network of 11 agencies had an information exchange density of 14 percent. Exchanges of clients and funds were even rarer. The network of 17 individuals influential in HIV prevention was better connected, with a density of 42 percent. ■

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