eligible if age 60–80 years, had stage II-IV DLCL, and had ECOG performance status of 0–2. Mean patient survival in each treatment arm and chemotherapy costs during treatment (q3 weeks × 8 cycles) were estimated from trial data. The longest duration of follow-up was 34 months. We estimated survival and cost-effectiveness up to a time horizon of 10 years. Survival for each IPI strata was estimated using the Kaplan-Meier method; survival after the longest observed time in the trial was estimated using published mortality rates (Shipp, NEJM, 93). French DRG payments were applied to trial data on hospital use and treatments for adverse events. French drug prices and drug administration costs were used to estimate the costs of R-CHOP and CHOP regimens. Costs and survival were discounted at 3.0%. R-CHOP increased survival from 56% to 63% at the time of last follow-up (34 months).

RESULTS: The mean duration of survival was 820 days for R-CHOP and 721 days for CHOP, resulting in a mean increase in survival of 0.27 years. Extrapolating to 10 years, R-CHOP is projected to increase discounted mean survival by 0.54 years. Therapy-related cost during the trial period was 15,000 euros higher with R-CHOP, with a cost per life-year gained (LYG) of 55,300 euros. Over 10 years, total added cost per patient was 15,270 euros and the estimated cost per LYG was 28,410 euros.

CONCLUSIONS: R-CHOP increases chance of cure compared with CHOP and is cost-effective compared with other treatments in widespread use.

**GENDER, FAMILY HISTORY AND OPTIMAL LIFETIME SCREENING PROGRAMS FOR COLORECTAL CANCER: A MODEL BASED ECONOMIC EVALUATION**

Sahmoun A, Balkrishnan R
Wake Forest University School of Medicine, Winston-Salem, NC, USA

OBJECTIVE: Our aim is to describe a model that can be used to calculate the costs and life-years gained from any given screening program, and for any particular combination of risk factors for colorectal cancer (CRC). A trial cannot evaluate more than a handful of these programs, which suggests there may be a role for mathematical modeling techniques in identifying the designs worth evaluating in an interventional study.

METHODS: We used a Markov process model with time-dependent transition probabilities to generate data on the cost-effectiveness of various lifetime screening programs. Our model represents the evolution of colorectal cancer by five states: polyp-free colon, colon with benign tumor(s), asymptomatic carcinomic colon, symptomatic colonic cancer and death. We considered that progression is related to prognosis via the Duke’s classification system. We have chosen a cycle length of one year for our model. The outcome measure used is life expectancy from birth.

RESULTS: Our results suggest that with frequent screening the detrimental effects of genetic risk on life expectancy can be almost completely countered. Screening can actually be cheaper than not screening, when costs of treatment are included, especially for high-risk individuals. Hemoccult followed by colonoscopy if positive is much cheaper than colonoscopy alone and, if carried out frequently, almost as effective. Altering the age of first screening has a much less important effect on costs and benefits than altering the frequency. In order to counter the effect of genetic risk on mortality, screening has to begin much earlier for men than women.

CONCLUSIONS: Hemoccult followed by colonoscopy if positive is a favorable strategy, even for high-risk groups, but that the optimal frequency of screening is likely to depend on gender and genetic susceptibility. These results may be useful in designing future CRC screening trials.

**CLINICAL AND ECONOMIC OUTCOMES ASSOCIATED WITH METASTATIC COLORECTAL CANCER IN MANAGED CARE POPULATIONS: CAPECITABINE (XELODA®) VERSUS COMPARISON THERAPIES**

Baran RW1, Dupere WM2, Taylor K3, Miao S4, Joseph J4, Ilerich L4, Pandey L3
1Roche Laboratories, Inc, Nutley, NJ, USA; 2Lifemetrix, McLean, VA, USA; 3University of the Sciences in Philadelphia, Philadelphia, PA, USA; 4Hoffman La Roche Ltd, Mississauga, ON, Canada

OBJECTIVE: To examine and compare treatment outcomes and economic benefits in metastatic colorectal cancer with an oral fluoropyrimidine, capecitabine, versus comparison therapies.

METHODS: A retrospective, matched-cohort study design was used to abstract medical and retail pharmacy claims records of 271 metastatic colorectal cancer patients from a managed care, disease management database over a 30-month period. Patients were matched in two study cohorts based on their treatment, capecitabine (n = 78) vs. 5FULV+/− irinotecan (CPT) (n = 193). The 5FU comparison cohort was comprised of three therapy sub-groups: 5FULV (n = 78), 5FULV then CPT (n = 78), and 5FULV plus CPT (n = 37). Time to treatment discontinuation and survival were compared between cohorts. The total direct cost of cancer care was captured through reimbursement claims. Cost-effectiveness (cost per treatment duration) was calculated for both cohorts.

RESULTS: Patients were well matched by age, gender, metastases and co-morbidity status. Time to treatment discontinuation with capecitabine was not significantly different than the comparison cohort (79 days vs. 104 days). Median estimated survival for capecitabine was favorable relative to the comparison cohort (599 days vs. 530 days, p = 0.05). The total direct cost of cancer care per patient was lower for capecitabine ($6,007 vs. $13,339). Consequently cost-effectiveness ratio per patient was lower for capecitabine than for the com-
OBJECTIVES: Systemic fungal infections are becoming increasingly common, particularly among immunocompromised patients. Our objective was to examine the clinical and economic effects of these infections.

METHODS: This study involved a retrospective cohort analysis of the excess mortality, length of stay (LOS), and costs attributable to serious fungal infections among hospitalized elderly patients with acute myeloid leukemia (AML). Linked data from the Surveillance, Epidemiology and End Results (SEER) Program of the National Cancer Institute and Medicare claims data were used for the analysis. Study cohorts included patients aged 65 years and older who were newly diagnosed with AML between 1991 and 1996 and who developed a serious fungal infection. Matching variables included factors expected to influence LOS, including age, geographic region, timing of hospitalization, recent treatment with chemotherapy, and presence of a concomitant bacterial infection.

RESULTS: Average age in both cohorts was 72.9 years. Groups were similar on key non-matched characteristics, including chronic comorbidities and metropolitan residence. Patients with serious fungal infections had higher in-hospital mortality than controls (36% vs. 25%; p = 0.12), longer LOS (mean ± SD: 31 ± 19 vs. 20 ± 15; median: 27 vs. 16; p < 0.0001) and more ICU days (mean ± SD: 2.7 ± 7 vs. 1.9 ± 6; p = 0.22). Medicare payments (in 1998 US dollars) also were significantly higher among patients with fungal infections (mean ± SD: $34,217 ± 31,821 vs. $22,547 ± 17,000 for controls; median: $25,930 vs. $19,661; p < 0.01), with a larger difference noted between groups when mean hospital charges were assessed ($110,382 vs. $60,259; p < 0.0001). The rate of rehospitalization for any reason within 30 days was nearly identical in the 2 groups (47%).

CONCLUSIONS: The excess mortality and LOS attributable to serious fungal infections are substantial, a finding likely to be of interest to clinicians and hospital administrators.

CANCER—Quality of Life Presentations

SIDE EFFECTS OF CHEMOTHERAPY AMONG PATIENTS WITH OVARIAN CANCER: IMPLICATIONS FOR QUALITY OF LIFE

OBJECTIVE: To assess the frequency and troublesome-ness of side-effects of chemotherapy for ovarian cancer as they affect patients' physical and social health and treatment compliance.

METHOD: A questionnaire was developed based on a literature review of reactions to chemotherapy and published product information on side-effects. The questionnaire was pilot tested for time, ease of understanding and surface validity. Trained clinical interviewers administered in-depth face-to-face interviews to 29 women with ovarian cancer. Participants rated 28 potential side-effects on a 5 point Likert Scale ranging from 0 (Not at all troublesome) to 4 (Extremely troublesome). For side-effects rated at least "slightly troublesome", a series of open ended follow-up questions were asked to more fully understand the response. Chart reviews were conducted to verify diagnosis and treatment regimens.

RESULTS: Ages ranged from 25 to 78 years (x = 53). The most frequently reported side-effects (hair loss [n = 25], general weakness [n = 23], numbness [n = 20], nausea [n = 19] and infusion reaction [n = 18]) were not perceived as most troublesome. Means for most troublesome side-effects were: infections (x = 3.2), pain in hands and feet (x = 3.0), constipation (x = 3.0), vomiting (x = 3.0) and sores in the mouth and throat (x = 2.8). Results indicated side-effects are an extremely common and often under-treated component of chemotherapy. Many respondents were bothered that health-care providers neither gave sufficient warning about the troublesome-ness of specific side-effects nor provided practical advice on how symptoms could be ameliorated.

CONCLUSION: The effectiveness of chemotherapy regimens as measured through impact on survival as well as more subjective measures such as quality of life traditionally do not take into account the significant impact of side-effects on physical and social functioning and treatment compliance. The nature of side-effects continua-