Background: While surgery remains the mainstay of treatment for early-stage esophageal cancers, combined-modality therapies have been demonstrated superior to surgery alone for more advanced disease. Depending on patient and disease characteristics, treatment may include neoadjuvant chemotherapy and/or radiation, surgery, and adjuvant chemotherapy. Five-year overall survival of esophageal cancer ranges from 4-40%, and discussing the impact of stage and available treatments on an individual patient's survival can be challenging. For this study, variables influencing overall survival after esophageal cancer diagnosis were identified and combined into a survival prediction calculator. This tool may be used to produce and compare individualized prognoses in different treatment plan scenarios and predict 5-year survival after treatment is complete.

Methods: Using the National Cancer Database, individuals were identified who had surgical resection for stage I-III esophageal cancer diagnosed between 2004 and 2008. This group was randomly divided, 80% into a training cohort and 20% into a validation cohort. Seventy discrete variables describing patient demographics, disease anatomy and histology, surgical approach and outcomes, resection margins and lymph node status, and neoadjuvant and adjuvant treatments were collected. Factors predicting 5-year overall survival were revealed with multivariable Cox proportional hazards regression. These factors were collated into a 5-year survival prediction model, which was then tested against the validation cohort to assess its accuracy.

Results: A total of 55,937 patients were diagnosed with esophageal cancer from 2004-2008. After excluding stages 0 and IV, patients with more than one malignancy, and individuals who did not have surgery, 10,059 patients were eligible for analysis. After randomization, five-year survival was 40.3% and 39.6% in the calibration and validation cohorts. Factors independently predicting 5-year overall survival included age, comorbidities, tumor size, grade, operative margins, lymph node status, and neoadjuvant and adjuvant therapies. Length of stay was significant and was included as an indicator of complicated postoperative course. The compiled calculator was used to compare predicted vs actual overall survival in the validation cohort with area under-the-curve = 0.76.

Conclusion: The National Cancer Database was used to develop a 5-year overall survival calculator for resectable esophageal cancer. This calculator is being integrated into a smartphone application which could be used in clinic to derive individualized survival predictions. This may be helpful at diagnosis to compare the effect of different treatment regimens and help patients make informed medical decisions. After treatment is complete and all relevant variables are known the calculator would provide a more accurate overall survival prediction compared to broad estimates that take only stage into account.
Background: Nearly 25% of patients with newly diagnosed colorectal cancer (CRC) present with Stage IV disease from liver metastases (LM). Although resection is integral to optimal outcome, concurrent resection of the primary CRC and LM remains controversial. The aim of our study was to assess the perioperative and oncologic outcomes of concurrent resections of CRC and LM in patients with Stage IV CRC.

Methods: Patients who underwent combined resection of a primary CRC and LM between December 1999 and December 2014 were included. Patient demographics, tumor features, peri-operative outcomes and overall survival were recorded. Resections of both the primary CRC and LM were stratified by relative risk.

Results: 211 patients underwent concurrent resection of the primary CRC and LM. Colorectal resections included: segmental colectomy (n=85), low anterior resection (LAR) (n=54), ultralow-LAR (n=22), abdominoperineal resection (APR) (n=41), and other (n=9). Colorectal resections were stratified as high risk (APR, total colectomy, left colectomy with diversion, coloanal anastomosis) in 74 patients and low risk (segmental colectomy with anastomosis, LAR) in 137. Hepatic resections were stratified as low risk in 134 patients (left hepatectomy, segmentectomy, subsegmentectomy) and high risk in 77 patients (right hepatectomy, trisectionectomy). Postoperative morbidity occurred in 33% of patients and 90-day mortality was 0.5%. Major morbidity (Clavien-Dindo grade ≥ III ) occurred in 32 patients (15%). Morbidity was greater in patients undergoing both high risk colorectal and high risk hepatic resections (37%). Morbidity was 15% after high risk CRC/low risk liver resections, 15% - low risk CRC/high risk liver resections and 11% - low risk CRC/low risk liver resections (p=0.04). The 1-, 3- and 5-year overall survival (OS) rates were 95%, 65% and 53%, respectively. Median disease free survival (DFS) was 1.3 years and 1-, 3-, and 5-year disease-free survival rates were 62%, 34% and 29%, respectively. The sole predictor of DFS was completeness of the bowel resection (R0 resection, p=0.0367). Patient age > 60 years (p=0.0418) was the singular predictor of overall survival.

Conclusion: Concurrent resections of the primary CRC and LM are safe and effective oncologically. Concurrent resections should be undertaken for most patients with Stage IV CRC and operative approach individualized for patients requiring both high risk CRC and high risk LM resections.
Background: Enhanced recovery programs continue to gain popularity in surgical patients. Previous studies have shown improved postoperative quality of life, faster recovery, and faster return to intended oncologic therapy (RIOT) in surgical oncology patients, which may have a profound impact on overall oncologic outcome.

Methods: 36 Enhanced Recovery in Liver Surgery (ERLS) hepatectomy patients were matched to 75 patients undergoing traditional recovery (TR) for primary or metastatic oncologic disease from October 2013-January 2015. The ERLS protocol included patient education, narcotic-sparing anesthesia and analgesia, diet advancement, restrictive fluid administration, early ambulation, and avoidance of drains and tubes. Patient characteristics and clinical outcomes were compared between the two groups using Mann-Whitney U tests for continuous data and Fisher’s exact test for categorical data. Overall and recurrence-free survival (OS and RFS) were analyzed using a Cox proportional hazards regression models.

Results: 41 patients had minor hepatectomy (62.7% ERLS) and 70 patients had major hepatectomy (63.9% ERLS). Histology was colorectal adenocarcinoma (CRC) in 64 (59.4% ERLS), cholangiocarcinoma in 12 (66.7% ERLS), hepatocellular carcinoma (HCC) in 9 (77.8% ERLS), and other in 23 patients (60.9% ERLS). Both groups had a median of one intrahepatic tumor (median size of largest tumor: 2.55cm) on surgical pathology. 24 patients had higher tumor burden (≥3 intrahepatic tumors, 58.3% ERLS) and 80 patients had lower tumor burden (<3 intrahepatic tumors, 66.3% ERLS). There was a trend towards lower morbidity in the ERLS vs. TR group, however this did not reach statistical significance (4.3% vs. 12.2%, p=0.143). Median length of stay was similar between groups (4.0 vs. 4.5 days), and there were no 90-day mortalities in either group. In ERLS vs. TR, 46.4% and 56.1% of patients had recurrence which was intrahepatic in 20.0% and 29.3%, extrahepatic in 10.0% and 19.5%, and both intra- and extrahepatic in 15.7% and 4.9%, respectively. In patients with higher tumor burden undergoing major hepatectomy, mean RFS was 18.7 vs. 6.8 months, respectively (p=0.027). Additionally, OS was higher in ERLS vs. TR patients (not reached vs. 29.6 months, p=0.049). In patients with lower tumor burden undergoing minor hepatectomy, mean RFS trended to favor the ERLS group (22.7 vs. 18.2 months, p=0.166), but OS was similar between groups (36.9 vs. 36.6 months, p=0.724). Subsetted by histology, the above trends remained (OS and RFS favoring ERLS) in patients with CRC, HCC, and cholangiocarcinoma.

Conclusion: Compared to hepatectomy patients treated with traditional recovery, ERLS-treated patients across a number of tumor types demonstrate improved OS and RFS, especially patients with higher tumor burden or those undergoing major hepatectomy. These data support the hypothesis that lower narcotic doses and faster recovery translates to improved long-term oncologic outcomes.