Table 1 Quality of Life (EQ-5D Index) and costs over time

	Year before surgery (SD)	First year after surgery (SD)	Second year after surgery (SD)	Incremental cost-effectiveness ratio (ICER)
EQ-5D-Index [0-1] (n = 152)	0.67 (0.24)	0.94 (0.11)	0.96 (0.06)	
Direct medical costs in US$ (n = 131)	5,628	18,629	4,171	26,194/QALY
Indirect costs in US$ (work production losses) (n = 87)	3,639	2,124	472	
Total costs in US$ (direct + indirect costs) (n = 131)	8,045 (6,759)	19,975 (10,752)	4,443 (8,116)	18,296/QALY

Table 2 Incremental cost-effectiveness ratio (ICER) of different patient groups (n = 113)

	ICER [US$/QALY]	95% confidence interval
Degenerative rupture (n = 46)	31,988	12,579-51,398
Traumatic rupture (n = 67)	10,027	2,774-17,281
Age>60 (n = 48)	27,777	6,595-48,959
Age≤60 (n = 65)	12,535	4,978-20,093
Work pre-OP not reduced (n = 59)	20,158	10,044-30,273
Work pre-OP reduced (n = 23)	3,903	3,784-11,589
Age≤60 with traumatic rupture and/or pre-OP work reduction (n = 47)	9,980	2,681-17,279

as well as social insurances and health policy decision makers. Little is known about the impact of arthroscopic rotator cuff repair (aRCR) on the quality of life and costs and whether particular patient groups benefit more from such interventions. We examined the influence of aRCR on the quality of life, direct medical costs and indirect costs (productivity losses) from the societal perspective.

Methods: Patients indicated for aRCR were included in a prospective study. Quality of life (EQ-5D-5L) and shoulder function were assessed one year before (pre-OP) and up to two years after surgery (post-OP). Health and accident insurance companies provided direct medical cost data for the same period including all health-related diagnoses to cover potential side effects of aRCR. Indirect costs were assessed using the work productivity and activity impairment (WPAI) questionnaire. Mean total costs to gain one extra quality adjusted life-year (QALY) were estimated by calculating the incremental cost-effectiveness ratio (ICER); 95% confidence interval (95%CI) was calculated using the non-parametric bootstrap method. The factors age, cause of rupture (trauma vs. degenerative), and degree of work reduction preoperatively were investigated as potential factors influencing the results using multivariate regression analyses and ICER calculation for patient subgroups.

Results: For 152 aRCR patients (mean age 56.8 years; 63% male), the mean EQ-5D index improved significantly after surgery and the mean total costs decreased below the pre-OP level in the second year after surgery (Table 1). Improvement in shoulder function was highly associated with improvement in the EQ-5D index ($P < .001$). The ICER was 18,296 US$ per QALY gained (95%CI: 9,646-26,946 US$/QALY) until two years post-OP compared to the pre-OP control period. Patients with traumatic tears, who were up to 60 years old, or had to reduce their work preoperatively had lower ICERs (Table 2).

Conclusions: Arthroscopic RCR shows a cost-utility ratio clearly below the often suggested US$ 100,000/QALY threshold in all patient groups. This ratio seems even more favorable in patients up to 60 years, patients with traumatic tears and patients who had to reduce their work preoperatively.

Paper #24 NONOPERATIVE TREATMENT OF ATRAUAMTIC, SYMPTOMATIC, FULL THICKNESS ROTATOR CUFF TEARS- FIVE YEAR FOLLOW-UP OF THE MOON SHOULDER GROUP COHORT

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Introduction: 452 subjects were enrolled in a prospective multicenter study designed to assess predictors of failure of nonoperative treatment of symptomatic, atraumatic, full thickness rotator cuff tears. All patients underwent an evidence-based rehabilitation program.[2] At 2 years, 75% did not have surgery[3] and the strongest predictor of surgery was the patient's expectations regarding the outcome of treatment.[1] The purpose of this study was to assess the 5 year follow up and ascertain if patients were undergoing surgery as time progressed and review the predictors of surgery at 5 years.

Methods: 433 patients with atraumatic full-thickness rotator cuff tears who consented to enroll provided data via questionnaire on demographics, symptom characteristics, comorbidities, willingness to undergo surgery, and patient-related outcome assessments (Short Form 12 score, American Shoulder and Elbow Surgeons score, Western Ontario Rotator Cuff score, Single Assessment Numeric Evaluation score, and Shoulder Activity Scale). Physicians recorded physical examination and imaging data. Patients began a physical therapy program developed from a systematic review of the literature and returned for evaluation at 6 and 12 weeks. At those visits, patients could choose 1 of 3 courses: (1) cured (no formal follow-up scheduled), (2) improved (continue therapy with scheduled reassessment in 6 weeks), or (3) no better (surgery offered). Patients were contacted by telephone at 5 years to determine whether they had undergone surgery since their last visit.

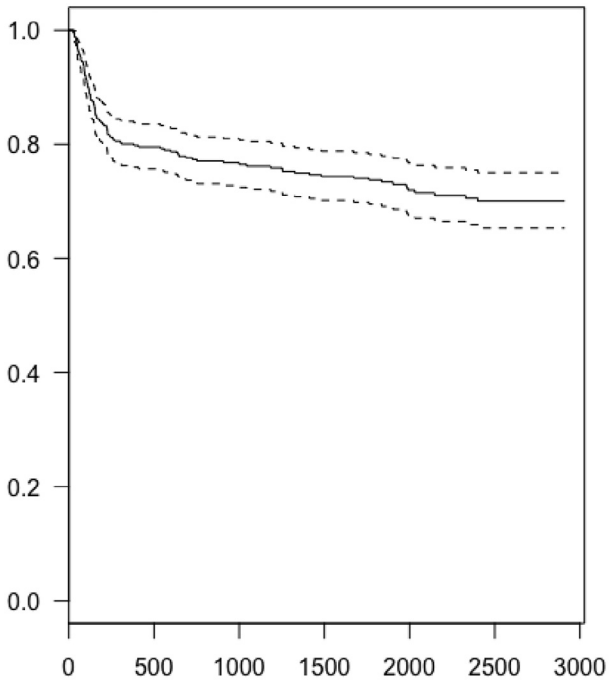

Figure 1 Survival plot. At Time 0, all patients were treated without surgery. Most patients who decided to have surgery did so within the first three months. At 5 years, approximately 75% of patients had not had surgery

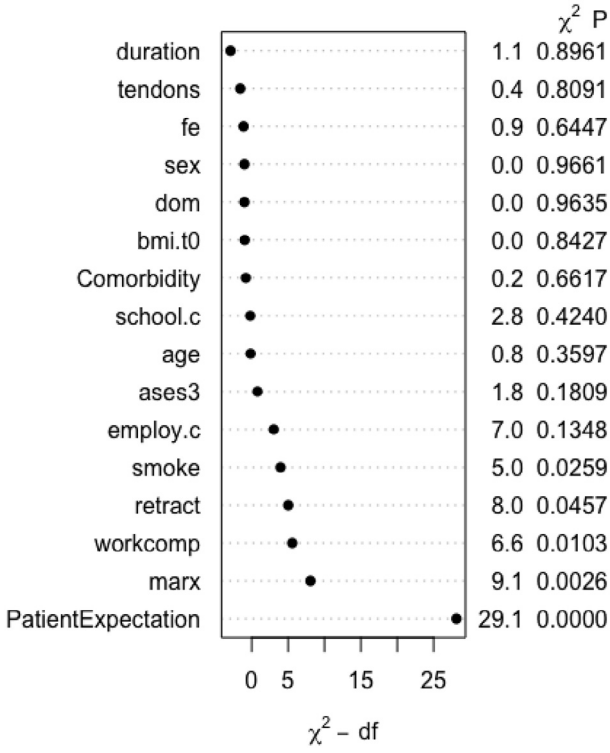

Figure 2 Predictors of having surgery. Patient Expectations was clearly the most important predictor of a patient having surgery. Less important, but statistically significant predictors included the Marx Activity Scale, worker's compensation, the amount of retraction, and non-smoking.

Results: At over 5 years follow-up, 3% of patients died, 16% were lost to follow-up, and 24% of patients have had surgery (Fig. 1). The strongest predictor of having surgery was again, the patient's expectations with regard to the effectiveness of nonoperative treatment. Less important, but statistically significant associations with having surgery included the Brophy Shoulder Activity Rating, worker's compensation, size of the rotator cuff tear, and non-smoking. (Fig. 2).

Conclusion: Only 24% of patients with symptomatic atraumatic full thickness rotator cuff tears who are treated with an evidence-based rehabilitation program fail and have surgery. Patients who do have surgery, elect to do so within the first 12 weeks of treatment. Patient expectations drive the decision to have surgery. If a patient believes rehabilitation will be effective, it generally will, even to 5 years.

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Paper #25 LONG-TERM OUTCOME OF PECTORALIS MAJOR TRANSFER FOR THE TREATMENT OF IRREPARABLE SUBSCAPULARIS TEARS: AN UPDATE 20 YEARS POSTOPERATIVELY

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Background: Irreparable subscapularis tears are associated with painful shoulder dysfunction. A reliable treatment option is the PMT. However, there are no long-term results of more than 10 years available. It was the aim to analyze long-term results after pectoralis major transfer (PMT) for an irreparable subscapularis tear.

Methods: Twenty-eight patients underwent thirty consecutive PMTs. After a mean of 20 (range, 18-21) years, twenty-one patients (70%) with a mean age of 74 (range, 59-87) years were clinically and radiographically assessed. The long-term results were compared with preoperative findings and with previously published short-term results.

Results: At final follow-up, the absolute and relative preoperative Constant scores had improved from 45 (range, 20-74) to 68 (range, 46-83) points ($P < .001$); and from 50% (range, 22-80%) to 81% (range, 58-95%; $P < .001$), respectively. Significant improvement was also seen in mean SSV (20% to 72%; $P < .001$) and all