

IMPROVING PATIENT CARE AND EFFICIENCY IN A COUNTY HEALTH SYSTEM USING A NOVEL ELECTRONIC INTERFACE: ECONSULT IMPACT ON FEMALE PELVIC MEDICINE AND RECONSTRUCTIVE SURGERY PATIENTS

Hypothesis / aims of study

An aging U.S. and world population has led to a greater need for physicians trained in pelvic floor disorders (PFDs) at the primary care and subspecialist level. As technological advances improve patient-provider and provider-provider interactions, improved quality and efficiency of care is achievable. We aimed to evaluate the impact of a real-time electronic referral system, *econsult*, on primary care provider work-up, system efficiency and patient knowledge and satisfaction. The county, safety-net hospital setting serves approximately 800,000 lives, and is the second biggest county in the country. Our *hypothesis* was that provider-to-provider communication through *e-consult*, prior to specialty referral, will result in improved efficiency, patient care integration, and satisfaction.

Study design, materials and methods

All patients presenting to the Female Pelvic Medicine & Reconstructive Surgery (FPMRS) clinics were referred via one of three mechanisms: intra-facility hardcopy, extra-facility hardcopy, or *e-Consult* electronic referral. *E-consult* allows specialists and providers to communicate back and forth and co-manage patient care via an electronic interface prior to referral. New consecutive patients, literate in English or Spanish, presenting to clinic were asked if they would like to participate in the study and verbal consent was obtained. Patients referred from non-PCP providers (i.e., other specialists) and those with PFDs other than that of prolapse (POP) or urinary incontinence (UI) were excluded from the study. A bilingual research assistant collected demographic and screening data, and each patient completed the validated Prolapse and Incontinence Knowledge Questionnaire (PIKQ-I, PIKQ-P), and a Client satisfaction survey (CSQ). In addition, specialty providers completed a survey with questions regarding timeliness, appropriateness and care efficiency (1). Efficiency was defined as a sum of four domains on a Likert scale: time to retrieve information, timely referral, complexity of referral and referral appropriateness. Demographic data was analysed with basic descriptive statistics. Chi square was used for binary variables and Ancova for continuous, parametric variables. Univariate and multivariate regression for all significant co-variables and Spearman's correlation was used for knowledge of PFD and co-variables (SAS software). Institutional Review Board approval was obtained.

Results

334 patients (184 e-consult, 150 hardcopy referral) with incontinence and prolapse were recruited from FPMRS outpatient clinics. A majority of women were Hispanic (83%), with mean age 53.7 (+/-9.9), mean income (11,458 +/-10,516) and with limited education (78.8% with high school education or less). Less than 20/328 (6.1%) worked in the medical field. (see table 1). Only 95/331(28.7%) stated that they were treated for their condition in the past by any provider. Both *econsult* and paper referral patients were very or somewhat satisfied with their ability to get an appointment (156/175=83.4%) vs. 118/142=83.1) (p=.98). However, longer wait time to specialty referral did correlate with lower patient satisfaction and efficiency scores. (11.6 vs.10.5 (p=.004) and 28 (CI:25,30) vs 27 (CI:24,29) p=.002. Patients with prolapse had higher scores on the PIKQ-P, patient satisfaction and efficiency scores. If patients were offered a treatment (pessary or kegels) they had higher knowledge scores and care efficiency scores.

Table 1. Comparing Potential Covariates between Referral Groups

Q#		e-Consult	RPS/IF	p
Demographics				
Pq1	Age	52.6	53.7	0.3
Pq3	Income	\$11,458	\$12,952	0.2
Pq2	Work in Medical Field	9 (3%)	11 (3%)	0.3
Pq4	Education (below high school)	139 (42%)	121 (37%)	0.1
Pq5	Previous consultation with Specialist	62 (19%)	41 (12%)	0.3
Pq9	Previous Treatment	52 (16%)	43 (13%)	0.8
Symptoms				
Both UI and POP				
Pq6	Incontinence only (leak)	74 (40%)	53 (36%)	
Pq7	Pelvic Organ Prolapse only (bulge)	57 (31%)	41 (28%)	
		97 (25%)	58 (25%)	0.09
Incontinence Treatment				
Pq10	Checked Urine for Infection	90(40%)	71 (31%)	0.2
Pq11	Pelvic Floor Exercises or Kegels	40 (44%)	80 (62%)	0.008*
Pq12	Weight loss	57 (25%)	31 (14%)	0.1
Pq13	Medications for Urinary Symptoms	31 (14%)	24 (11%)	0.7
Pq14	Decrease fluid intake	36 (16%)	19 (9%)	0.2
Pq15	Retraining bladder	25 (11%)	16 (7%)	0.7
Pq16	Vaginal Estrogen	16 (17%)	12 (9%)	0.07
POP Treatment				
Pq17	Pessary offered	41 (46%)	29 (24%)	0.0009*

In addition, if patients were offered a pessary of their PCP, they were more likely to be satisfied 28(CI:25, 30) 27(CI:23, 29)p=.02. Overall efficiency was higher in the e-consult group compared with the hardcopy referrals (10.9+/-2.6, 10.1 +/-2.6 P=.008). In general, referrals from either modality were considered "appropriate" based on specialty provider documentation. However, answers to the following questions: "how long did it take you to find the information you needed" and do you think the referral was timely (i.e. earlier referral by PCP would have benefited the patient), and "how difficult was it to identify the reasons for consultation prior to examination" were all more significant in the e-consult group. Of note, over the 2 year period of the project, mean patient knowledge scores increased significantly overtime.

Interpretation of results

If patients were offered any treatment by their PCP, they had higher knowledge scores (PIKQ-I and PIKQ-P) and efficiency scores. In addition, if patients were offered a pessary by their PCP, they were more likely to be satisfied. This would infer that patients who desire conservative therapy by PCP are more satisfied with their care, even if they still would like subspecialty consultation for further treatment options.

Demographic variables (education, income and race) greatly impacted patient's knowledge of incontinence and pelvic floor disorders. There was no significant difference regarding patient knowledge and overall satisfaction in the *e-consult* vs. paper referral group.

Concluding message

An electronic referral system that allows provider to provider communication and education, has the ability to improve patient care, referral appropriateness and efficiency in large health care systems. With advances in technology, these interactive platforms will lead to more efficiency, and possibly improved cost-effectiveness as unnecessary referrals to specialty care may be avoided.

Disclosures

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